

HAMBURGISCHE SCHIFFBAU-VERSUCHSANSTALT GMBH.

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Uniaxial and Biaxial Compressive  
Strength Tests on Sea Ice Sampled  
from Multiyear Pressure Ridges

SHELL DEVELOPMENT COMPANY

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Uniaxial and Biaxial Compressive Strength Tests  
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## 1.0 Introduction

The Alaskan and Canadian Arctic has proven to be one of the world's most important resources of hydrocarbons. Since some years increasing effort is made to expand here the drilling season for oil and gas exploration and exploitation. In order to prevent ships and structures from severe damage or loss and the environment from avoidable pollution, both ships and structures being operated in this region must be designed to withstand ice loads. One of the most hazardous form of ice loads is exerted by multiyear pressure ridges, which are by all means a common natural event in this region. Besides the driving forces (current, wind) and the response characteristics of the individual structure, the failure of the ice encountered gives one of the most important limiting conditions for ice loads. In order to obtain input data for calculations on this type of upper bound SHELL DEVELOPMENT COMPANY ordered under Contract No. RE 125 K 14 from the Hamburgische Schiffbau-Versuchsanstalt GmbH (HSVA) a series of uniaxial and biaxial compressive strength tests on sea ice sampled in the Beaufort Sea from multiyear pressure ridges. This study is the objective of the present report.



## 2.0 Test Program

Sea ice probes, which had been sampled from multiyear pressure ridges in the period April 3-15, 1981 in an area north west of Reindeer Island (Prudhoe Bay, Alaska; see Fig. 2.1) had to be studied with respect to their strength properties under six different test conditions, in which temperature, strain rate and stress state (uniaxial and biaxial) were varied. The test conditions to be investigated are compiled in Table 2.1.

Test Series No.	Stress State	Strain Rate $\dot{\epsilon}_x$ [s <sup>-1</sup> ]	Temperature $T_I$ [°C]	No. of Tests
1000	compressive biaxial $\sigma_x : \sigma_y = 1:1$ $\sigma_z = 0$	$1.0 \cdot 10^{-5}$	- 5	10
2000	compressive biaxial $\sigma_x : \sigma_y = 2:1$ $\sigma_z = 0$	$1.0 \cdot 10^{-5}$	- 5	10
3000	compressive biaxial $\sigma_x : \sigma_y = 1:1$ $\sigma_z = 0$	$1.0 \cdot 10^{-3}$	-20	10
4000	compressive biaxial $\sigma_x : \sigma_y = 2:1$ $\sigma_z = 0$	$1.0 \cdot 10^{-3}$	-20	10
5000	compressive uniaxial $\sigma_x \neq 0$ $\sigma_y = \sigma_z = 0$	$1.0 \cdot 10^{-5}$	- 5	10
6000	compressive uniaxial $\sigma_x \neq 0$ $\sigma_y = \sigma_z = 0$	$1.0 \cdot 10^{-3}$	-20	10

Table 2.1. Test Program

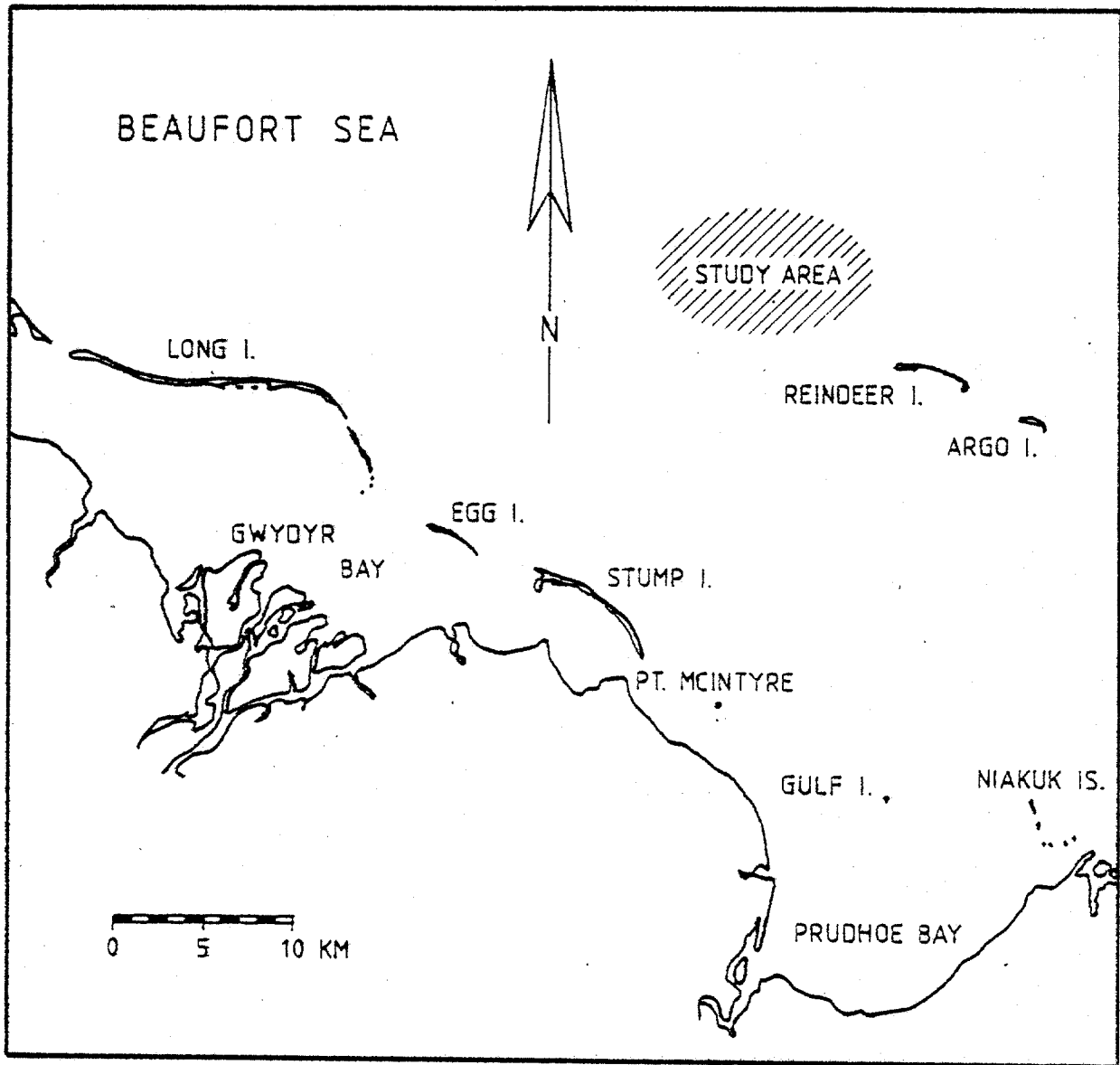


Fig. 2.1: Location of sample collection (map after Cox et al., 1982)

The number of 10 test runs for each of the six test conditions reflects the wide scatter of strength results, which could be expected with respect to the variation of ice qualities and of crystal orientations in a ridge.

The original test program provided only for four different test conditions (series 1000, 3000, 5000 and 6000) with 15 test runs each. The advantage of the original schedule was a higher reliability of the results from a statistical point of view. But this additional reliability, when compared to 10 test runs in each series, seemed not to weigh as heavily as the advantage of obtaining additional information from two test series investigating an intermediate stress state.

In the original test program true strain rate control parallel to the primary load direction was requested (see for comparison Häusler, 1982). After the performance of some biaxial test runs of different test series, the program was changed to nominal strain control. The tests already executed under true strain control were redefined as additional pilot series. While for the true strain control the  $U_{x1}$  deflection transducer (see Fig. 4.3) was attached to the specimen itself, it was now attached to the tip of two opposite bristles of the x-axis' brush-type loading platens. The reason for this change was the fact that under true strain control, the test had to be terminated when the first major crack occurred between the two pick up points of the  $U_{x1}$  transducer, especially during the fast tests (series 3000 and 4000) where the specimen exhibited brittle fracture. In order to reach the target strain of  $\epsilon_x \geq 3.5\%$  it was decided to tolerate the disadvantage of the nominal strain control i.e. to include in the actual strain value disturbance effects from the contact zone between platen and sample.

### 3.0 Test Facility

#### 3.1 Laboratory and test equipment

For the purpose of fundamental ice investigations HSV A has operated since 1978 an ice laboratory equipped for various types of experiments. Up to now priority was given to the execution of compressive strength tests under uniaxial and multiaxial stress states. For the performance of strength tests under force and strain control a triaxial loading device is used which has a load capacity of 100 kN per axis. Each of the three axes can be individually closed loop controlled by its own electronic control unit. Coupling between the three axes is done electronically and so allows a wide variety of stress states and test procedures. Strain rates between  $\dot{\epsilon} = 10^{-3} \text{ s}^{-1}$  and less than  $10^{-5} \text{ s}^{-1}$  are possible (in connection with cubic samples of about 70 mm side length).

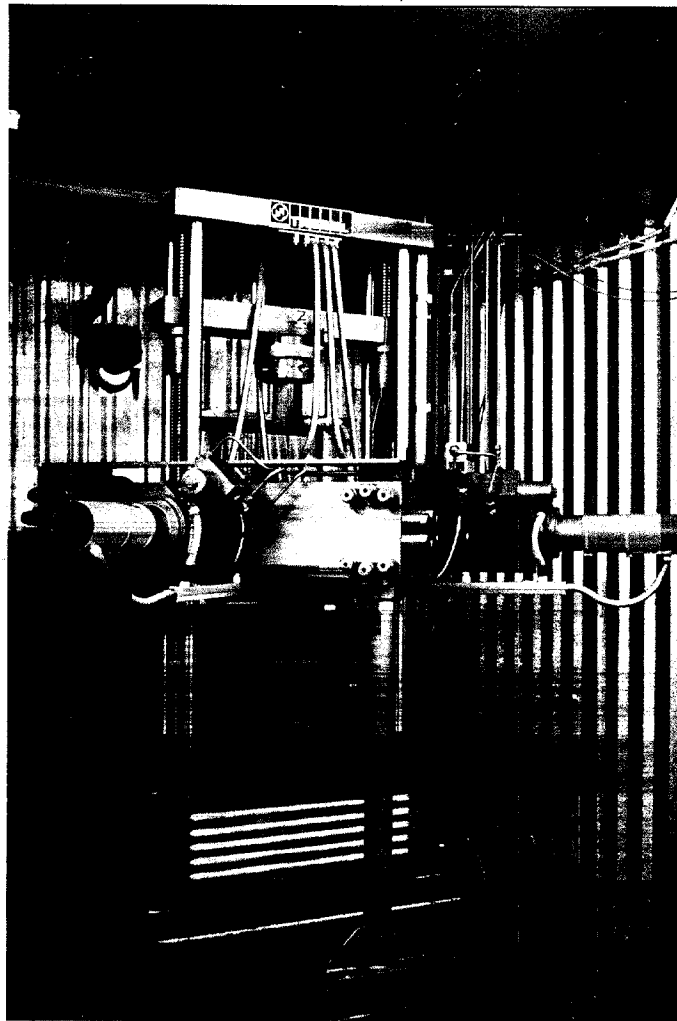


Fig. 3.1: Triaxial closed-loop testing machine

Sample dimensions were evaluated using a precision stage with a dial gauge of 0.01 mm resolution and for weighting a commercial type of balance with a graduation of 5 g was employed.

All data characterizing the sample and the test conditions were registered manually.

The rapidly changing time dependent signals, such as forces and deflections, were converted from analogue to digital and on-line recorded on floppy disks on a Hewlett Packard 21 MX-E series digital computer (hp 1000 family). The possible digitizing rate is limited by the transfer rate from the AD-Converter to the disk on one end and by the storage capacity of the disk on the other end. In the present study a digitizing rate of 100 c.p.s. and 50 c.p.s. respectively was used for the high strain rate test series, while for the low strain rate test only a rate of 4 c.p.s. was possible. (In the latter case the number of cycles recorded was in the order of magnitude of 20.000).

#### 4.0 Test Procedure and Sample Treatment

##### 4.1 Sample Treatment Prior to Testing

The parental ice cores, which had been stored in a deep frozen cold chamber at CRREL, have been shipped to HSVA in millboard tubes which had been packed together with dry ice in insulated boxes on October 25/20, 1982. Immediately after receipt the tubes with samples have been repacked from the transport boxes to a freezing box in which they were stored at a temperature of  $-35^{\circ}\text{C}$  and less until processing.

The work-off order of succession was determined by drawing lots.

The first step of specimen preparation was done by cutting the core in cylindrical pieces of about 10 cm length. In the case of the cores R1A and R1B this job had already been done at CRREL.

In a second step the cylindrical samples were cut on the band saw to raw cubes. The cuts of sample's sides and end were collected, marked with core number and vertical position within the core, individually sealed in a plastic bag, and than again stored in the freezing box for later crystallographic investigations, which were planned to be performed at CRREL.

The third step of specimen preparation was to mill the raw ice cubes on the lathe down to a side length of  $69.8 \pm 0.1$  mm. Accuracy of dimensions was checked on a high precision stage with a dial gage of 0.01 mm resolution. In order not to exceed to the precipitation temperature of the sodium chloride entrapped in the saline ice's brine pockets, and thereby to minimize brine drainage, sample preparation was performed at a temperature of about  $-25^{\circ}\text{C}$ .

The top side, with respect to the cubes position in the parental core, of the machined sample was marked on one of the four corners with a dot, so defining a sample oriented coordinate system (see Fig. 4.1).

The ready to test samples were stored in the test room at their target test temperature for about one day in order to provide for homogeneous temperature distribution within the sample when tested.

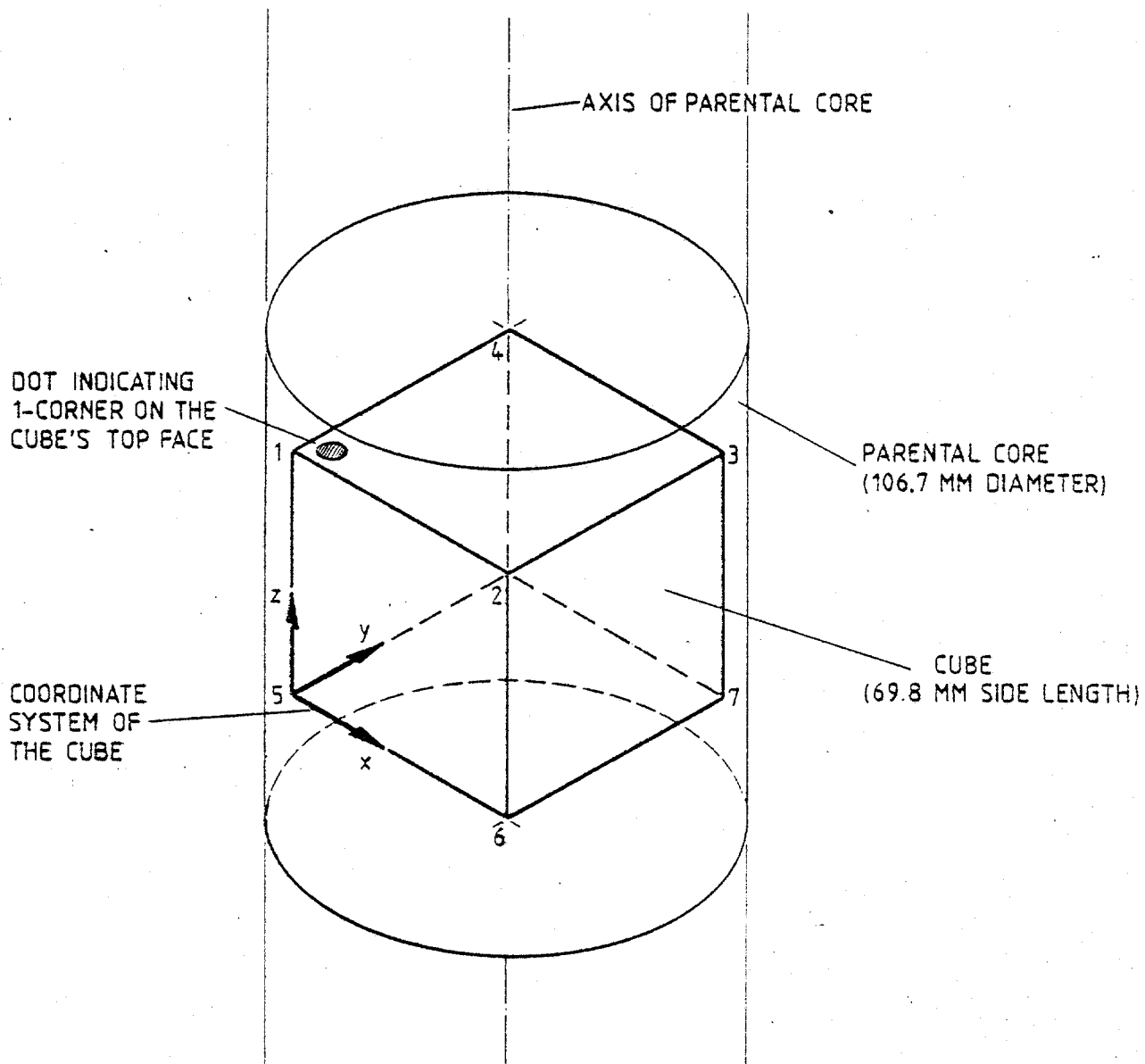


Fig. 4.1: Orientation of cubic sample in the parental ice core

## 4.2 Test Procedure

Prior to each test the sample's dimensions were again measured on the precision stage and its weight was determined using a balance.

The air temperature and the ice temperature were measured prior to each test. The ice temperature was determined inside a reference ice cube of the same dimensions as the one to be tested. The reference cube was stored close to the test sample and had the same temperature history.

After this the sample was put between the loading platens. The x-actuator was driven towards the sample under position control until a minor preload of about 0.2 to 0.3 kN was reached. At this point control was switched to static force control and the x-force was kept at the preload value.

In the case of biaxial loading the same procedure was done with the y-axis. Here the preload was set to a value corresponding to the target ratio between x- and y- force or stress respectively, i.e. to 1 or 0.5 times the x-preload. At this instant the secondary axis (y-axis) was switched to dynamic force control, using the output signal of the primary axis' (x-axis) force amplifier as dynamic setting means.

At this stage of the procedure the bristles, to which deflection transducers were attached, were frozen to the sample by a drop of fresh water. This guarantees a thorough contact between the tip of the bristles and the sample. The  $x_1$ -deflection transducer was attached to two opposite bristles of the x-loading platens.

After switching the primary axis (x-axis) to dynamic strain control the sample was ready to be tested. Now the data acquisition and recording program on the digital computer was started and some few seconds later the dynamic setting means was set going. The test was terminated when the target x-strain or x-deflection respectively was reached.

During a pilot series of some few tests the procedure was a bit different. Since here the  $x_1$ -deflection transducer was attached directly to the top face of the specimen, the tests had to be terminated after the first major



fracture occurred, because by this event the transducer jumped off and the closed loop was kicked out of control.

After the test the sample or its debris was melted and the melt's salinity was determined. Prior to and after each test photographs of the samples were taken.

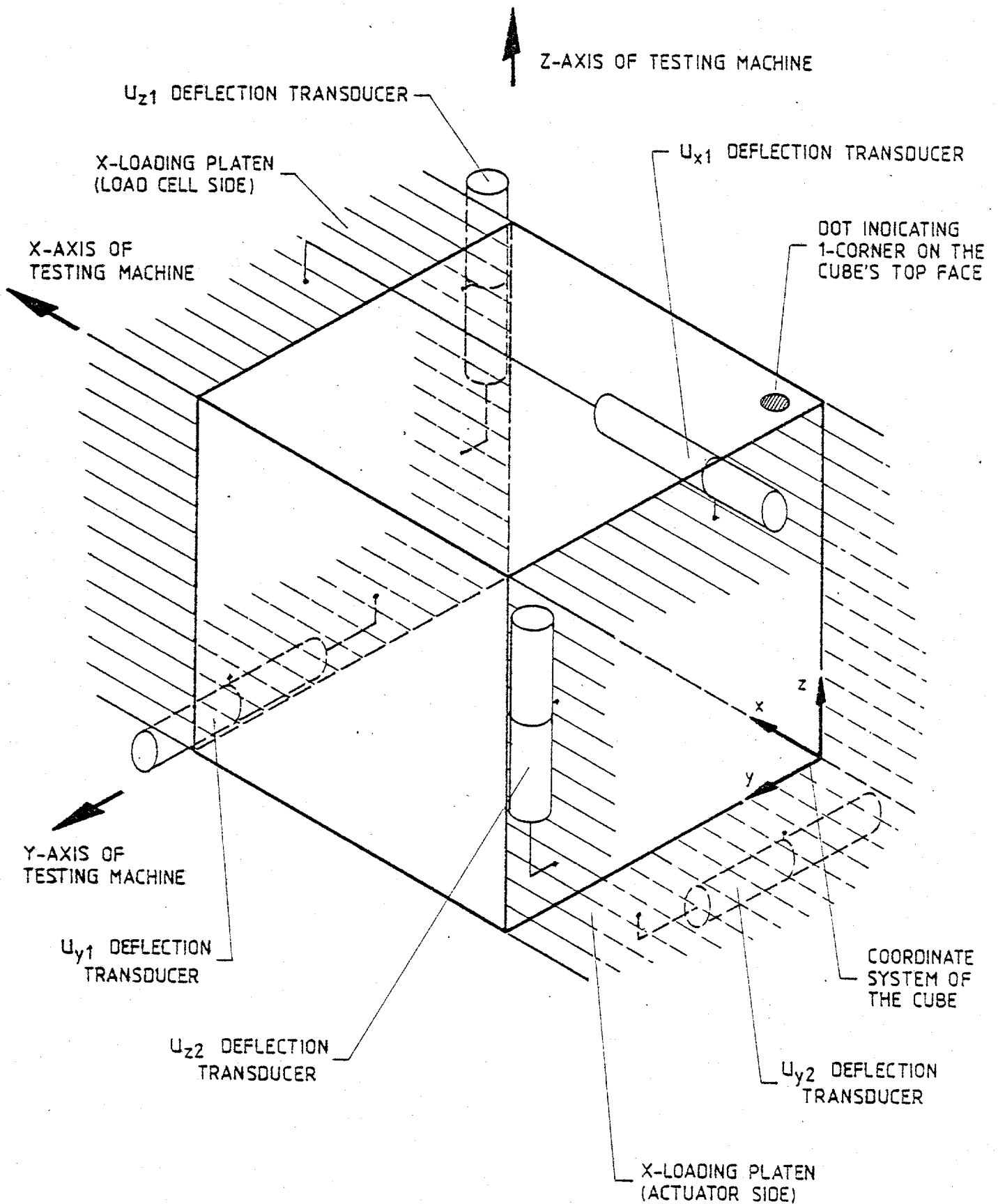


Fig. 4.2: Test arrangement for uniaxial load application

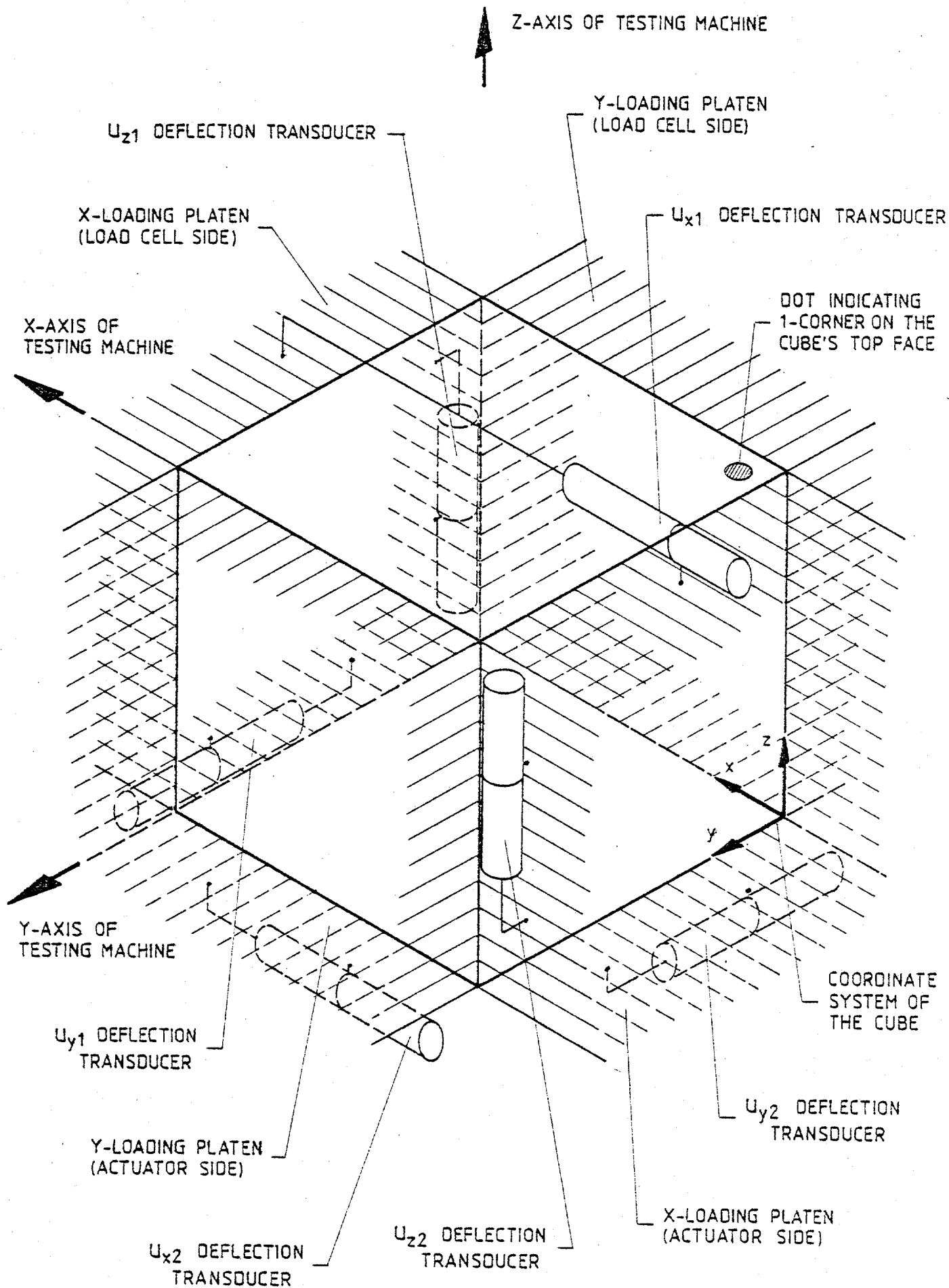


Fig. 4.3: Test arrangement for biaxial load application

## 5.0 Data Analysis

The data generated by each test were processed using a computer program. By this program the measured forces were converted into stresses using the equation

$$\sigma_i = F_i / A_i \quad (i = x, y) \quad (5.1)$$

with the stress in  $i$ -direction  $\sigma_i$ , the load in  $i$ -direction  $F_i$  and the initial average square cut area  $A_i$  the normal of which is parallel to the  $i$ -direction.

For the conversion of deflections into strains the change of the basis length under deformation was neglected and the simplified equation

$$\epsilon_{in} = U_{in} / C_{in} \quad (i = x, y, z; n = 1, 2) \quad (5.2)$$

was used with the strain  $\epsilon_{in}$  in  $i$ -direction, the relative deflection between two pick-up points in  $i$ -direction  $U_{in}$  and the initial distance between the two pick-up points (basis length)  $C_{in}$ . The second index  $n$  gives the identification number for different transducers or strains respectively of the same direction.

The conversion was done for each sampling cycle separately.

Sample characteristics and test condition were transferred manually from the test protocol sheet to the computer. For the evaluation of a reference value for the initial salinity of the samples, the average salinity of all samples of the same parental core which had already been tested at CRREL (see Cox et al., 1982) was computed. Density was determined by dividing the samples mass by the average cube's side lengths

$$\rho_I = m / (l_x l_y l_z). \quad (5.3)$$

The test conditions and sample characteristics were listed on a protocol sheet (see Appendix A) together with an extract of the time histories of stresses and strains of about 30 digitized cycles equally distributed over the complete test run. In addition the protocol sheet was written in ASCII-form on

magnetic tape succeeded by a complete list of all digitized cycles of stresses and strains.

The time histories of stresses and strains as well as the primary stress  $\sigma_x$  and the uncontrolled strains versus the controlled strain  $\epsilon_{x1}$  were plotted (see Appendix B). In order to avoid bias scaling of the plots peaks generated by external disturbances were detected and eliminated by the plot program.

In some of the lists and plots the stress in the unloaded z-direction was replaced by the actual position of the primary axis' hydraulic actuator (x-direction)  $s_x$ .

The yield status of stresses and strains of each test was read from the plots. The average strain rate in x-direction was determined from the slope of the  $\epsilon_{x1}$  versus time plots. The initial tangent modulus was determined from the slope of the  $\sigma_x$  over  $\epsilon_{x1}$  plots of the uniaxial tests.

Because of the stochastic distribution of crystal orientation within a ridge ice mass, the ice was assumed to behave isotropic on macro scale. Upon this assumption it is allowed to employ the isotropic three-parametric yield function (Smith, 1974; Reinicke 1977)

$$f(\sigma_{ij}) = aJ_1 + bJ_2 + cJ_1^2 - 1 \quad (5.4)$$

where  $\sigma_{ij}$  is the stress tensor,  $J_1$  is the first invariant of the stress tensor and  $J_2$  the second invariant of the stress deviator  $\sigma'_{ij}$ ,

$$\sigma'_{ij} = \sigma_{ij} - \frac{1}{3} \delta_{ij} \sigma_{kk} \quad (5.5.1)$$

$$J_1 = \sigma_{kk} \quad (5.5.2)$$

$$J_2^1 = \frac{1}{2} \sigma'_{ij} \sigma'_{ji} \quad (5.5.3)$$

For a given temperature and strain rate condition the average strength values for the three different stress ratios were computed. These averaged yield stress states were used to determine the coefficients of the yield function a, b and c. All results are presented in graphical and in tabular form.

## 6.0 Results

Table 6.1 gives the directory to all samples shipped to HSVA and to the allied run numbers together with the nomenclature of sample identification.

The protocol sheets of all valid test runs are collected in Appendix A, the plots of stresses and strains in Appendix B. An example of a protocol sheet is given in Fig. 6.1 and of a set of plots in Fig. 6.2. Comments on most of the individual test runs can be found in Appendix C.

Table 6.2 gives the directory list to the three appendices.

The test conditions and the status at yield of the individual valid test runs are compiled in Tables 6.3 until 6.6.

Averaged values of test conditions, stresses at yield and of the initial tangent modulus (uniaxial tests only) for the different test series are listed in tables 6.7 and 6.8.

Core	Sample	Run No.	Core	Sample	Run No.	Core	Sample	Run No.
C 9	135-146	N	R 5D	451-461	1009	R 9C	494-504	4008
C 9	146-157	N	R 5D	461-471	<3004>	-----		
-----			R 5D	471-481	4010	R 9D	33- 36	*
R 1A	9- 20	<3006>	R 5D	481-491	2012	R 9D	36- 46	N
R 1A	96-106	N	-----			R 9D	46- 56	1005
R 1A	106-117	N	R 7A	499-509	*	R 9D	56- 66	2014
R 1A	117-128	5004	R 7A	509-519	N	R 9D	432-438	*
R 1A	128-138	3007	R 7A	519-529	2015	R 9D	438-448	6004
R 1A	138-149	3005	R 7A	529-539	1010	R 9D	448-458	5008
R 1A	149-159	N	R 7A	539-549	*	R 9D	458-468	2006
R 1A	256-267	<5003>	R 7A	549-559	6009	R 9D	468-478	1011
R 1A	274-285	3008	R 7A	559-569	<1004>	R 9D	478-488	1007
R 1A	325-335	N	R 7A	569-579	N	R 9D	488-498	6007
R 1A	378-389	N	R 7A	579-589	N	R10C	149-152	*
R 1A	434-445	4005	-----			R10C	152-162	4012
R 1A	449-460	<5002>	R 7B	591-602	*	R10C	162-172	<1014>
R 1A	460-471	4006	R 7B	602-612	N	R10C	172-182	2010
-----			R 7B	612-622	N	R10C	224-234	N
R 1B	10- 21	*2001	R 7B	622-632	3011	R10C	234-244	<1003>
R 1B	21- 32	*3003	R 7B	632-642	3010	R10C	244-254	5013
R 1B	100-111	*3002	R 7B	642-652	3009	R10C	254-269	*
R 1B	111-122	<*3001>	R 7B	652-662	<4004>	R10C	269-279	<3012>
R 1B	168-179	*4001	R 7B	662-672	N	R10C	279-289	3013
R 1B	288-299	N	R 7B	672-682	N	R10C	409-412	*
R 1B	299-310	<*4002>	R 7B	682-691	1012	R10C	412-422	4013
R 1B	359-370	N	-----			R10C	422-432	6005
R 1B	461-472	*4003	R 6C	231-241	*	R10C	432-442	6008
R 1B	540-551	*1001	R 6C	241-251	4009	-----		
-----			R 6C	251-261	2005	not performed		<3015>
R 4D	275-285	*	R 6C	261-271	*			
R 4D	285-295	2011	R 6C	271-281	<6010>			
R 4D	295-305	N	R 6C	281-291	6001			
R 4D	305-315	N	R 6C	291-301	5001			
R 4D	315-325	N	-----			Legend		
R 4D	325-335	6003	R 9B	227-231	*	Core:		
R 4D	335-345	2013	R 9B	231-241	N	R		multiyear ridge sea ice
R 4D	345-355	6006	R 9B	241-251	<2009>	C		multiyear floe sea ice
R 4D	355-365	4007	R 9B	251-261	5012	n		number
R 4D	365-375	5011	R 9B	261-271	6011	A,B		core hole position
-----			R 9B	271-281	<2008>	C,D		index
R 5A	226-236	3016	R 9B	281-291	5005	Sample:		
R 5A	236-246	3014	R 9B	293-303	5007	t - b		distances of top and
R 5A	246-256	N	R 9B	303-313	<2007>			bottom of the specimen
R 5A	256-266	N	R 9B	313-323	4011			from top of core [cm]
R 5A	266-276	3017	R 9B	323-326	*	Run No.		
R 5A	276-286	<5006>	-----			n		run number of valid
R 5A	286-296	1002	R 9C	230-240	5010			test, strain transducer
R 5A	296-306	N	R 9C	240-250	2002			attached to platens
R 5A	306-316	6002	R 9C	250-260	4014			dto. invalid test
R 5A	316-326	*	R 9C	260-266	*	<n>		run number of valid
R 5D	391-401	*	R 9C	266-276	<1013>			test, strain transducer
R 5D	401-411	1015	R 9C	276-286	<2003>			attached to specimen
R 5D	411-421	2004	R 9C	286-296	N	<*n>		dto. invalid test
R 5D	421-431	N	R 9C	471-474	*			sample not testable
R 5D	431-441	1006	R 9C	474-484	N			sample not investigated
R 5D	441-451	1008	R 9C	484-494	5009			

Table 6.1: Directory to samples and allied run numbers



SHELL 612509

LFD.NR. 4005.1 UOM 1.12.82 13: 6 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUHDOE BAY  
3-15 APRIL 1981 ..

EISPROBENENTNAHME 4.81 BEI SIE = 1.4 0/00

DATEN DER PROBE:

LX = 69.78 MM PHIX = 90 GRAD  
LY = 69.74 MM PHIY = 90 GRAD  
LZ = 69.82 MM PHIZ = 0 GRAD

M = 295 G  
RHO = 868 KG/M\*\*3  
SIP = 2.1 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.78 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SIGZ (MPA)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.166	.0034	-1.2474	.144	2.5148	-1.9834	0.000	0.0000	-.0556
1.33	3.594	.2351	-1.2474	1.764	2.4563	-1.9834	0.000	0.0000	-.3250
2.65	9.014	1.5983	-.4752	4.513	2.0177	-1.9242	0.000	0.0000	-1.5075
3.97	9.630	2.9478	1.3959	4.920	1.3159	-2.9602	0.000	-1.2279	-3.0484
5.29	8.480	4.2700	2.5542	4.226	.7019	-3.7595	.002	-3.0839	-4.7957
6.61	7.700	5.5923	3.7719	3.856	.1170	-4.4404	.003	-5.0827	-6.3117
7.93	7.146	6.9145	5.0787	3.610	-.4386	-5.0916	.003	-7.1326	-8.5897
9.25	6.858	8.2232	6.4746	3.446	-1.0820	-5.7133	.005	-9.2516	-10.4565
10.57	6.571	9.5454	7.8408	3.292	-1.7545	-6.3941	.004	-11.4788	-12.5826
11.89	6.243	10.8540	9.1179	3.118	-2.3686	-7.0454	.005	-13.6489	-14.1013
13.21	5.078	12.1626	10.3356	3.056	-3.0997	-7.4894	.006	-15.8476	-15.3200
14.53	5.873	13.4849	11.5533	2.974	-3.7222	-7.9630	.005	-18.0177	-17.4498
15.85	5.791	14.7799	12.9195	2.913	-4.4156	-8.4663	.005	-20.2735	-19.0499
17.17	5.565	16.1021	14.1669	2.810	-5.0297	-8.9399	.007	-22.4436	-20.4427
18.49	5.545	17.4107	15.4143	2.769	-5.6438	-9.3840	.005	-24.4710	-21.9057
19.81	5.442	18.7330	16.7211	2.728	-6.2286	-9.7688	.006	-26.5259	-23.1392
21.13	5.319	20.0416	18.0873	2.626	-6.6965	-10.1536	.006	-29.6113	-24.4134
22.45	5.216	21.3638	19.4535	2.626	-7.2913	-10.5089	.007	-30.5816	-25.5987
23.77	5.175	22.6588	21.0573	2.544	-7.8369	-10.8641	.007	-32.5804	-26.6358
25.09	5.134	23.9947	22.8096	2.523	-8.4218	-11.2489	.007	-34.5220	-27.6730
26.41	5.113	25.3033	24.7995	2.585	-8.9774	-11.6633	.008	-36.2924	-19.2970
27.73	5.072	26.6256	26.8488	2.461	-9.5037	-12.0482	.007	-38.2626	-19.4648
29.05	5.031	27.9342	29.6605	2.441	-10.0301	-12.4530	.007	-40.1472	-19.9093
30.37	4.970	29.2564	30.2940	2.461	-10.5272	-12.7290	.007	-41.9176	-20.5612
31.69	4.929	30.6196	31.2741	2.502	-10.9366	-13.3474	.009	-43.6023	-21.1835
33.01	4.867	31.9145	32.1948	2.420	-11.5214	-13.2927	.008	-45.2584	-21.8946
34.33	4.867	33.2095	33.5907	2.420	-12.0186	-13.4691	.009	-46.8575	-22.3984
35.65	4.826	34.5454	33.0757	2.379	-12.5157	-13.6763	.008	-48.3994	-22.6651
36.97	4.764	35.8540	36.6201	2.379	-12.9836	-13.8243	.008	-24.8707	-22.9318
38.29	4.785	37.1626	38.2536	2.359	-13.4222	-13.9723	.008	-25.9558	-23.0503
39.61	4.744	38.4849	39.7980	2.318	-13.8316	-14.1499	.008	-26.7553	-23.0799
40.93	4.682	39.7935	40.6296	2.338	-14.2995	-14.3868	.010	-27.6405	-23.0799
42.25	4.641	41.1158	41.9661	2.297	-14.7088	-14.5940	.009	-28.3543	-23.0799
43.57	4.723	42.4380	43.8075	2.359	-15.0890	-14.8012	.008	-29.7255	-23.1096
44.89	4.744	43.7466	45.6192	2.379	-15.4984	-14.9788	.010	-29.1253	-23.0503
46.18	4.641	45.1915	46.2429	2.338	-15.7323	-14.9788	.013	-29.2966	-22.7910

MESSWERTEDATEI: M2335A

MESSBEGINN : 13: 6: 713.14 UHR

MESSDAUER:

53.78 S

AUSGEWERTET VON

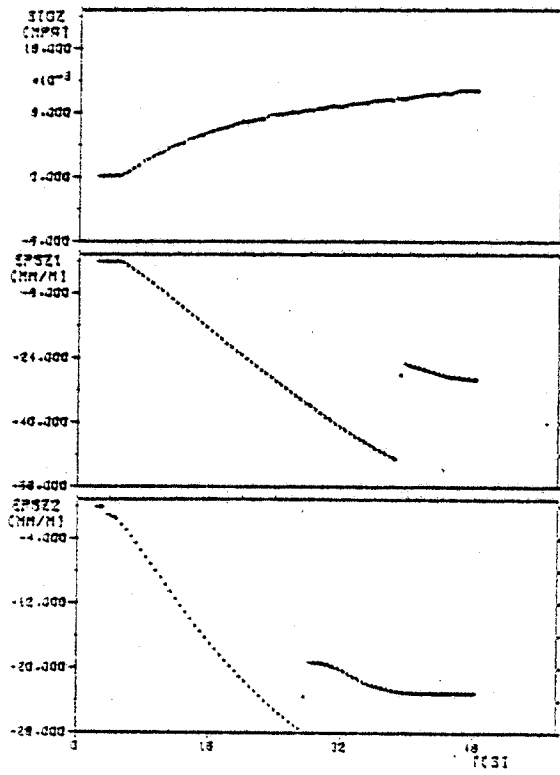
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BIS

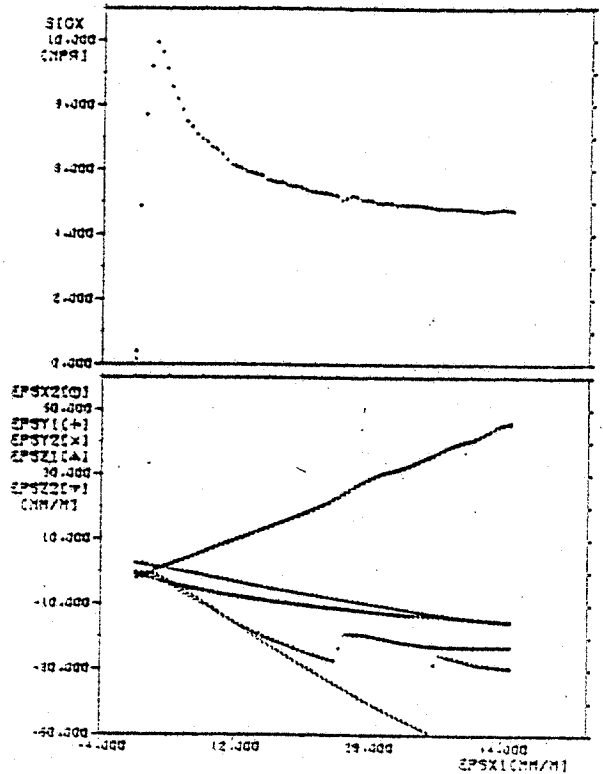
48.19 S

ZAHL DER MESSPUNKTE: 4618

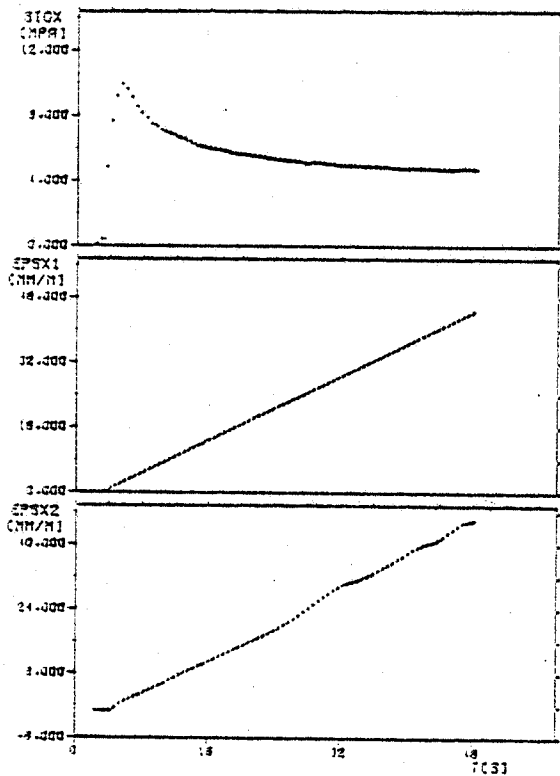
Fig. 6.1: Example of a test protocol sheet (Appendix A)



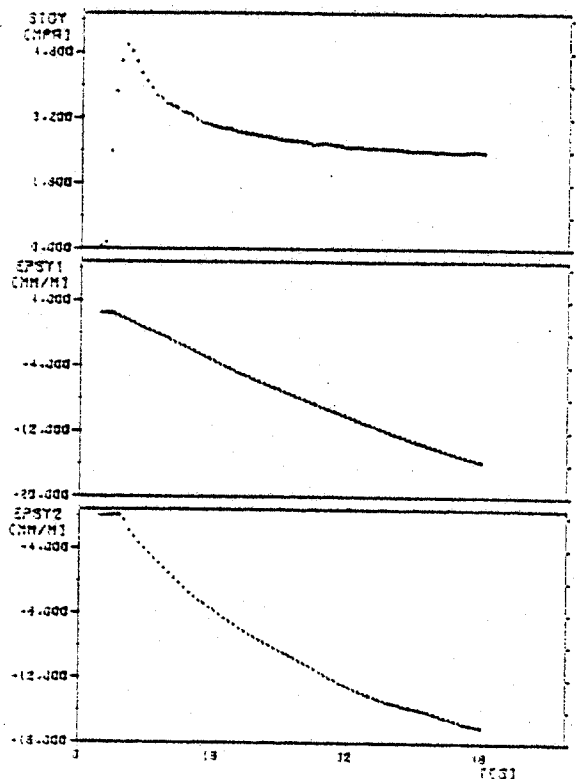
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NR: 4005.1 YOM 01:12:02 13:08 UHR



SHELL 312509  
NR: 4005.1 YOM 01:12:02 13:08 UHR



SHELL 312509  
NR: 4005.1 YOM 01:12:02 13:08 UHR



SHELL 312509  
NR: 4005.1 YOM 01:12:02 13:08 UHR

Fig. 6.2: Example of the plots (Appendix B)

Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [°C]	Strain Rate $\dot{\epsilon}_x^y$ [s <sup>-1</sup> ]	Protocol Sheet Page No.	Plots Page No.	Comments Page No.
1002 1005 1006 1007 1008 1009 1010 1011 1012 1015	1:1	- 5	10 <sup>-5</sup>	A 4 A 5 A 6 A 7 A 8 A 9 A10 A11 A12 A13	B 3 B 5 B 7 B 9 B11 B13 B15 B17 B19 B21	-- C7 C7 -- C7 C7 C7 -- C7 C7
2002 2004 2005 2006 2010 2011 2012 2013 2014 2015	2:1	- 5	10 <sup>-5</sup>	A14 A15 A16 A17 A18 A19 A20 A21 A22 A23	B23 B25 B27 B29 B31 B33 B35 B37 B39 B41	C7 C7 C8 C8 C8 C8 C8 C8 C8 C8
3005 3007 3008 3009 3010 3011 3013 3014 3016 3017	1:1	-20	10 <sup>-3</sup>	A24 A25 A26 A27 A28 A29 A30 A31 A32 A33	B43 B45 B47 B49 B51 B53 B55 B57 B59 B61	C9 C9 C9 C9 C9 C9 C9 C10 C10 C10
4005 4006 4007 4008 4009 4010 4011 4012 4013 4014	2:1	-20	10 <sup>-3</sup>	A34 A35 A36 A37 A38 A39 A40 A41 A42 A43	B63 B65 B67 B69 B71 B73 B75 B77 B79 B81	C10 C10 C10 C11 C11 C11 C11 C11 C11 C12

Table 6.2: Directory List of Appendices A, B and C

Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [°C]	Strain Rate $\dot{\epsilon}_{x1}^y$ [s <sup>-1</sup> ]	Protocol Sheet Page No.	Plots Page No.	Comments Page No.
5001 5004 5005 5007 5008 5009 5010 5011 5012 5013	1:0	- 5	10 <sup>-5</sup>	A44 A45 A46 A47 A48 A49 A50 A51 A52 A53	B 83 B 85 B 87 B 89 B 91 B 93 B 95 B 97 B 99 B101	-- C12 C12 C12 -- C12 -- -- -- -- --
6001 6002 6003 6004 6005 6006 6007 6008 6009 6011	1:0	-20	10 <sup>-3</sup>	A54 A55 A56 A57 A58 A59 A60 A61 A62 A63	B103 B105 B107 B109 B111 B113 B115 B117 B119 B121	C12 C13 C13 C13 C13 C13 C13 C13 C13 C14
*1001	1:1	- 5	10 <sup>-5</sup>	A64	B123	C14
*2001	2:1	- 5	10 <sup>-5</sup>	A65	B125	C14
*3002 *3003	1:1	-20	10 <sup>-3</sup>	A66 A67	B127 B129	C14 C14
*4001 *4003	2:1	-20	10 <sup>-3</sup>	A68 A69	B131 B133	C15 C15

Table 6.2 (continued): Directory List of Appendices A, B and C

Run Number	Core	Sample Position	Salinity [‰]	Density $\rho_I$ [kg m <sup>-3</sup> ]	Temperature $T_I$ [°C]	Strain Rate at Yield $\dot{\epsilon}_I$ [s <sup>-1</sup> ]	Primary Stress at Yield $\sigma_x^y$ [MPa]	Secondary Stress at Yield $\sigma_y^y$ [MPa]	$\epsilon_{x1}^y$ [10 <sup>-3</sup> ]	$\epsilon_{x2}^y$ [10 <sup>-3</sup> ]	$\epsilon_{y1}^y$ [10 <sup>-3</sup> ]	$\epsilon_{y2}^y$ [10 <sup>-3</sup> ]	$\epsilon_{z1}^y$ [10 <sup>-3</sup> ]	$\epsilon_{z2}^y$ [10 <sup>-3</sup> ]	Nominal Strain Rate Calculated from Actuator <sup>1</sup> $\dot{\epsilon}_N^x$ [s <sup>-1</sup> ]
1002	R5A	286-293	2.4	911	-4.9	1.01E-5	3.16	3.17	3.44	3.00	4.24	3.36	-3.55	-2.28	1.07E-5
1005	R9D	46-53	0.4	839	-5.0	1.00E-5	1.57	1.57	16.0	2.05	5.36	-11.4	-4.96	-12.3	1.14E-5
1006	R5D	431-438	1.6	860	-5.0	1.00E-5	1.90	1.90	11.7	7.68	12.7	10.3	-12.7	-16.8	1.19E-5
1007	R9D	478-485	2.0	889	-5.1	1.00E-5	2.05	2.03	5.68	3.05	2.84	2.00	-6.48	-11.7	1.23E-5
1008	R5D	441-448	1.0	830	-5.0	1.00E-5	1.86	1.86	11.1	4.10	0.80	-0.38	-7.00	-7.85	1.12E-5
1009	R5D	451-458	0.5	845	-5.0	1.01E-5	2.24	2.24	7.60	-0.36	0.62	2.17	-10.1	-7.25	1.24E-5
1010	R7A	529-536	2.8	896	-5.0	1.00E-5	2.13	2.13	4.48	3.60	-0.75	0.40	-0.50	-3.25	1.11E-5
1011	R9D	468-475	1.6	899	-5.0	1.00E-5	2.42	2.43	7.12	2.90	1.00	0.23	-15.4	-15.6	1.26E-5
1012	R7B	682-689	1.7	910	-5.0	1.00E-5	4.42	4.44	15.3	5.56	-0.60	5.74	-24.5	-51.5	0.99E-5
1015	R5D	401-408	3.6	905	-5.2	1.01E-5	1.25	1.25	4.16	0.48	0.20	-0.06	-0.24	-8.48	0.91E-5
2002	R9C	240-247	0.8	866	-5.1	1.00E-5	2.11	1.03	11.8	10.9	-0.35	-0.10	-5.03	-13.1	1.08E-5
2004	R5D	411-418	2.0	906	-5.1	1.00E-5	2.16	1.05	9.92	8.96	-0.03	-0.10	-12.4	-2.61	1.06E-5
2005	R6C	251-258	2.1	892	-4.9	1.00E-5	2.07	1.00	9.28	2.50	-0.02	0.03	-5.84	-10.5	1.10E-5
2006	R9D	458-465	0.9	899	-4.9	1.00E-5	2.59	1.27	6.32	3.56	-0.81	0.09	-3.34	-3.24	1.15E-5
2010	R10C	172-179	1.2	901	-5.0	1.00E-5	2.59	1.25	9.40	2.41	-2.20	-0.04	-3.00	-5.96	1.20E-5
2011	R4D	285-292	1.2	884	-5.0	1.01E-5	2.05	0.99	7.76	4.38	-0.60	-1.16	-5.68	-2.96	1.13E-5
2012	R5D	481-488	1.0	887	-5.0	1.01E-5	2.40	1.17	5.32	5.12	0.96	0.23	-1.00	-6.32	1.18E-5
2013	R4D	335-342	1.1	892	-5.3	1.00E-5	2.34	1.07	11.3	8.96	-10.9	-0.02	-3.22	-14.8	1.18E-5
2014	R9D	56-63	0.3	861	-5.3	1.01E-5	2.67	1.28	8.80	9.68	-1.56	1.08	-3.43	-7.48	1.32E-5
2015	R7A	522-529	2.2	905	-5.2	1.01E-5	2.33	1.12	10.7	1.53	-4.60	-0.12	-1.10	-0.21	1.03E-5

Table 6.3: Test conditions and status at yield, biaxial tests at  $T_I = -5$  °C and  $\dot{\epsilon} = 10^{-5}$  s<sup>-1</sup>

Run Number	Core	Sample Position	Salinity $S_I$ [‰]	Density $\rho_I$ [kg m <sup>-3</sup> ]	Temperature $T_I$ [°C]	Strain Rate at Yield $\dot{\epsilon}_{X1}$ [s <sup>-1</sup> ]	Primary Stress at Yield $\sigma_X$ [MPa]	Secondary Stress at Yield $\sigma_Y$ [MPa]	Strains at Yield						Nominal Strain Rate Calculated from Actuator <sup>1</sup> Speed $\dot{\epsilon}_X$ [s <sup>-1</sup> ]
									$\epsilon_{X1}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{X2}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{Y1}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{Y2}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{Z1}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{Z2}^Y$ [10 <sup>-3</sup> ]	
3005	R1A	140-147	0.2	909	-20.3	0.99E-3	13.44	13.44	2.40	0.59	1.00	-4.65	0	-0.89	5.28E-3
3007	R1A	130-137	0.2	899	-20.0	1.02E-3	11.54	11.54	2.00	0	-0.87	-0.17	-1.37	-2.42	7.09E-3
3008	R1A	276-283	2.0	909	-20.2	0.86E-3	11.90	11.72	1.92	0.64	0.59	1.76	0	-1.50	1.79E-3
3009	R7B	642-649	1.5	910	-20.2	1.00E-3	12.00	11.96	3.86	2.13	-0.86	-0.60	-2.32	-5.45	5.14E-3
3010	R7B	532-639	1.4	913	-20.1	1.02E-3	14.40	14.23	1.46	0.09	-0.17	-0.20	-0.71	-0.06	5.28E-3
3011	R7B	622-629	1.3	908	-20.4	1.20E-3	16.00	15.92	1.76	3.47	-0.05	-0.53	-2.02	-3.72	7.09E-3
3013	R10C	279-286	0.9	914	-20.1	1.02E-3	13.94	13.88	1.90	0.71	0	-2.40	-6.52	-1.37	1.79E-3
3014	R5A	235-243	1.6	904	-20.1	0.98E-3	16.65	16.60	5.08	0.21	0.40	--	-8.90	-12.0	3.83E-3
3015	R5A	229-236	1.6	911	-20.1	0.98E-3	11.24	11.22	2.60	1.56	0.24	1.56	-2.19	-1.90	5.14E-3
3017	R5A	266-273	2.0	911	-20.1	0.93E-3	12.62	12.68	1.60	0.50	-0.16	0.91	-2.18	-1.38	
4005	R1A	436-443	2.1	868	-20.1	1.00E-3	9.96	4.98	2.32	1.84	-0.80	-0.28	-0.24	-2.20	
4006	R1A	460-467	3.0	914	-20.2	1.00E-3	11.88	5.96	3.76	0.10	-1.25	-0.10	-2.90	0	
4007	R4D	355-362	2.1	908	-20.1	0.76E-3	13.48	6.63	1.52	0.57	0	-0.25	-1.44	1.58	5.73E-3
4008	R9C	494-501	2.1	905	-20.1	1.11E-3	15.38	7.61	3.96	9.60	-2.22	-0.21	-3.74	6.16	3.74E-3
4009	R6C	241-248	2.0	899	-20.1	0.92E-3	13.90	6.95	3.22	2.68	-0.11	-3.26	-1.60	6.85	3.34E-3
4010	R5D	471-478	1.0	893	-20.1	0.98E-3	12.26	6.12	3.60	3.55	-1.68	-1.34	-2.40	4.48	1.18E-3
4011	R9B	313-320	0.5	852	-20.1	1.01E-3	10.00	5.04	3.90	2.00	-0.40	-1.16	-1.88	5.40	1.21E-3
4012	R10C	152-159	2.4	899	-20.1	0.98E-3	9.92	4.94	3.28	2.05	-0.07	-0.32	-2.30	5.13	1.04E-3
4013	R10C	412-419	2.3	908	-20.4	0.97E-3	13.75	6.89	3.36	4.16	-1.20	0.48	-2.50	1.40	1.09E-3
4014	R9C	250-257	1.4	856	-20.2	1.06E-3	9.24	4.63	3.32	2.13	-0.21	-2.53	-1.90	4.00	1.75E-3

Table 6.4: Test conditions and status at yield, biaxial tests at  $T_I = -20$  °C and  $\dot{\epsilon} = 10^{-3}$  s<sup>-1</sup>

Run Number	Core	Sample Position	Salinity $S_1$ [‰]	Density $\rho_1$ [kg m <sup>-3</sup> ]	Temperature $T_1$ [°C]	Strain Rate at Yield $\dot{\epsilon}_Y$ [s <sup>-1</sup> ]	Initial Tangent Modulus $E$ [GPa]	Primary Stress at Yield $\sigma_Y$ [MPa]	$\epsilon_{x1}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{y1}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{y2}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{z1}^Y$ [10 <sup>-3</sup> ]	$\epsilon_{z2}^Y$ [10 <sup>-3</sup> ]	Nominal Strain Rate Calculated from Actuator <sup>1</sup> Speed $\dot{\epsilon}_N$ [s <sup>-1</sup> ]
5001	R6C	291-298	3.9	893	-5.2	1.01E-5	0.57	1.21	5.12	-1.25	0	0	-0.89	1.01E-5
5004	R1A	121-128	0.4	895	-5.1	1.01E-5	1.83	1.22	1.44	-2.20	-0.56	-0.15	-0.80	1.02E-5
5005	R9B	281-288	0.3	840	-5.1	1.01E-5	0.56	1.84	11.4	-2.50	-6.00	-5.78	-3.68	1.04E-5
5007	R9B	296-303	0.6	852	-5.1	1.01E-5	0.96	1.60	6.48	-1.56	0	-0.95	-2.50	1.14E-5
5008	R9D	451-458	3.2	898	-5.2	1.01E-5	0.95	1.05	6.40	-0.56	-4.55	-1.04	-0.14	1.05E-5
5009	R9C	487-494	2.4	847	-5.2	1.01E-5	0.37	1.44	5.92	-0.16	-2.45	-1.52	-0.35	1.06E-5
5010	R9C	233-240	1.0	878	-5.2	1.01E-5	0.47	1.52	8.28	-6.80	-3.76	-0.12	0.50	1.04E-5
5011	R4D	368-375	2.4	906	-5.2	1.01E-5	1.38	1.44	9.52	-2.86	-1.20	0.01	-2.40	1.08E-5
5012	R9B	254-261	0.4	819	-5.2	1.01E-5	1.21	1.61	8.90	-1.18	-0.04	-2.55	-4.12	1.04E-5
5013	R10C	247-254	2.8	905	-5.1	1.01E-5	0.41	1.03	4.40	0.02	-0.03	-2.00	-2.65	1.19E-5
6001	R6C	284-291	3.3	864	-19.9	0.69E-3	8.80	6.60	2.32	1.06	-2.50	-2.64	-0.28	1.06E-3
6002	R5A	309-316	5.7	899	-19.7	1.01E-3	2.75	5.75	2.50	-3.10	-2.63	0.66	-0.16	1.08E-3
6003	R4D	328-335	1.0	891	-20.2	1.02E-3	7.47	9.82	2.38	-0.48	-2.01	-1.01	-0.66	4.75E-3
6004	R9D	441-448	2.8	880	-19.9	1.05E-3	4.30	3.09	0.83	-4.28	-7.13	-5.35	-2.81	--
6005	R10C	425-432	2.1	905	-19.9	1.01E-3	5.98	8.42	2.24	-0.70	-2.16	-0.42	-0.76	1.16E-3
6006	R4D	348-355	1.2	897	-19.9	1.01E-3	10.6	9.04	2.40	-0.80	-0.40	-0.80	0	1.09E-3
6007	R9D	491-498	3.9	855	-19.9	1.01E-3	4.78	6.26	1.76	-0.68	--	-0.30	0	1.09E-4
6008	R10C	435-442	2.3	908	-19.9	1.07E-3	6.54	6.38	1.14	-0.47	-0.18	-0.65	-0.59	11.9E-3
6009	R7A	552-559	3.0	885	-19.9	1.03E-3	4.20	9.32	3.35	-0.02	-1.12	-0.67	1.23	4.50E-3
6011	R9B	264-271	0.0	876	-20.0	1.01E-3	7.86	6.96	2.56	-0.75	0	-1.25	-0.78	1.09E-3

Table 6.5: Test conditions and status at yield, uniaxial tests

Run Number	Core	Sample Position	Salinity [‰]	Density $\rho$ [kg m <sup>-3</sup> ]	Temperature T <sub>i</sub> [°C]	Strain Rate at Yield $\dot{\epsilon}_x$ [s <sup>-1</sup> ]	Primary Stress at Yield $\sigma_x$ [MPa]	Secondary Stress at Yield $\sigma_y$ [MPa]	Strains at Yield [10 <sup>-3</sup> ]					Nominal Strain Rate Calculated from Actuator Speed $\dot{\epsilon}_x$ [s <sup>-1</sup> ]	
									$\epsilon_{x1}^y$	$\epsilon_{x2}^y$	$\epsilon_{y1}^y$	$\epsilon_{y2}^y$	$\epsilon_{z1}^y$	$\epsilon_{z2}^y$	
1001	R1B	540-551	5.2	891	- 5.4	1.00E-5	2.01	2.01	11.2	4.64	25.0	28.8	-32.3	-33.4	--
2001	R1B	10- 21	0.0	809	- 5.3	1.01E-5	2.33	1.16	3.96	4.88	- 3.64	- 1.50	- 1.85	- 1.34	--
3002	R1B	100-111	0.0	906	-19.6	0.87E-3	3.97	3.88	0.55	1.23	0.60	- 2.31	- 2.39	- 3.14	--
3003	R1B	21- 32	0.0	770	-19.0	0.91E-3	5.32	5.30	0.76	-0.44	-0.54	1.84	- 1.50	- 2.53	--
4001	R1B	168-179	0.3	898	-19.9	0.96E-3	15.00	7.48	1.71	4.20	0.75	0.39	- 1.17	- 1.74	--
4003	R1B	461-472	3.4	906	-19.9	1.04E-3	12.10	6.02	2.37	3.21	0.63	-0.01	- 1.11	-10.8	--

Table 6.6: Test conditions and status at yield, biaxial tests, pilot series



Series	Salinity $S_I$ [‰]	Density $\rho_I$ [kg m <sup>-3</sup> ]	Temperature $T_I$ [°C]	Strain Rate at Yield $\dot{\epsilon}_Y$ [s <sup>-1</sup> ]	Number of Tests
1000	1.8 ± 1.0	868 ± 36	-5.0 ± 0.1	1.00 ± 0.00 · 10 <sup>-5</sup>	10
2000	1.3 ± 0.6	889 ± 15	-5.1 ± 0.1	1.00 ± 0.01 · 10 <sup>-5</sup>	10
3000	1.3 ± 0.6	909 ± 4	-20.2 ± 0.1	1.00 ± 0.09 · 10 <sup>-3</sup>	10
4000	1.9 ± 0.7	890 ± 23	-20.2 ± 0.1	0.98 ± 0.09 · 10 <sup>-3</sup>	10
5000	1.7 ± 1.3	873 ± 31	-5.2 ± 0.1	1.01 ± 0.00 · 10 <sup>-5</sup>	10
6000	2.5 ± 1.6	886 ± 17	-19.9 ± 0.1	0.99 ± 0.11 · 10 <sup>-3</sup>	10
1000 2000 5000	1.6 ± 1.0	880 ± 27	-5.1 ± 0.1	1.01 ± 0.01 · 10 <sup>-5</sup>	30
3000 4000 6000	1.9 ± 1.2	895 ± 19	-20.1 ± 0.2	0.99 ± 0.09 · 10 <sup>-3</sup>	30

Table 6.7: Average values of test conditions

Series	Primary Stress at Yield $\sigma_x$ [MPa]	Secondary Stress at Yield $\sigma_y$ [MPa]	Initial Tangent Modulus E [GPa]	Number of Tests
1000	2.30 ± 0.90	2.30 ± 0.91	--	10
2000	2.33 ± 0.23	1.12 ± 0.11	--	10
3000	13.37 ± 1.87	13.32 ± 1.86	--	10
4000	11.98 ± 2.12	5.98 ± 1.04	--	10
5000	1.40 ± 0.26	--	0.87 ± 0.49	10
6000	7.16 ± 2.03	--	6.33 ± 2.40	10

Table 6.8: Average strength and elastic properties

In the following the characteristics found for the different test series are described:

Series 1000 ( $\sigma_x = \sigma_y$ ,  $T_I = -5 \text{ }^\circ\text{C}$ ,  $\dot{\epsilon} = 10^{-5} \text{ s}^{-1}$ ):

The typical time histories of stresses in x and y direction show a sharp rise during the initial few seconds up to stresses of about half the yield stress. The yield stress is reached after a period of strain hardening at strains  $\epsilon_{x1}$  of usually less than 1%. After yield the curve remains flat. Only a very slight decrease in stresses can be observed. Towards the end of the tests (at strains  $\epsilon_{x1}$  around 4%) stresses increase again reaching and slightly exceeding the stresses of initial yield.

During some of the runs a reasonable amount of water was squeezed out of the specimen forming icicles at the unloaded bottom surface.

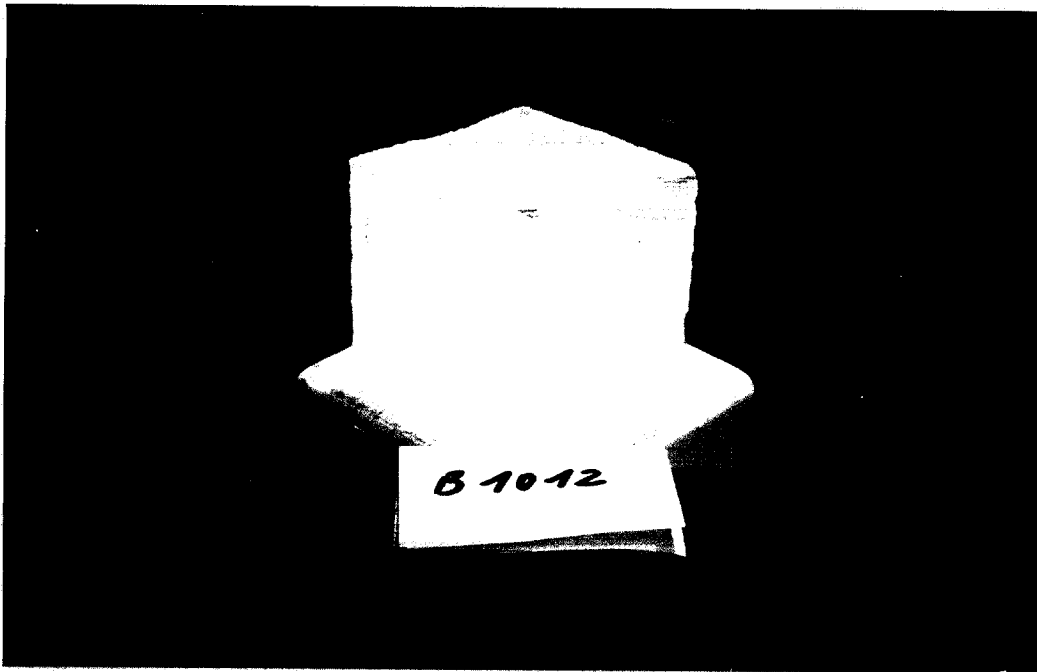


Fig. 6.3: Sample # 1012 (R7B 682-689, sample prior to the test)



Fig. 6.4: Sample # 1012 (R7B 682-689) under biaxial load with parallelogram guided deflection transducer

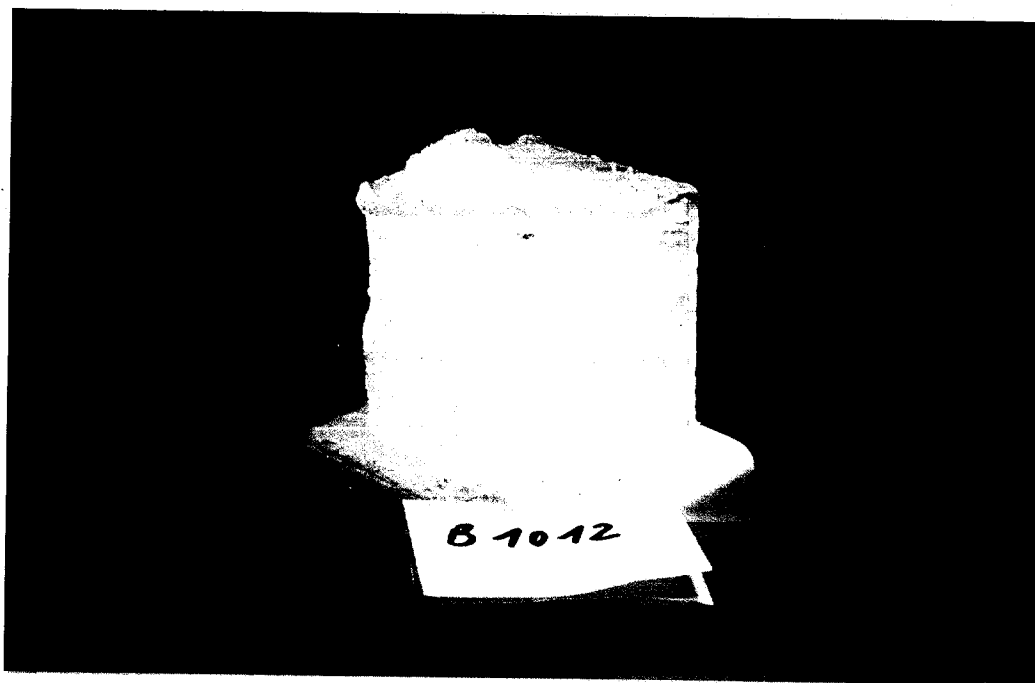


Fig. 6.5: Sample # 1012 (R7B 682-689) with typical crack orientation in plane with the load

Typically the cracks, if any, were of minor size and were in plane with the applied load directions.

Series 2000 ( $\sigma_x = 2\sigma_y$ ,  $T_I = -5$  °C,  $\dot{\epsilon}_x = 10^{-5} s^{-1}$ ):

The typical force versus time or stress versus controlled strain curve exhibits a sharp initial increase up to stress values around half the yield stress. It follows a period of strain hardening which ends at the yield point. The yield point is not necessarily the maximum stress during the whole test period, but indicates the first expressed stress maximum. The controlled strain at yield is usually less than 1%. Typically the stress curve for this load condition ( $\sigma_1 = 2\sigma_2$ ) decreases after yield continuously and seems to tend towards an asymptotic value which certainly lies beyond the end of the tests.

The crack pattern is similar to the one observed in series 1000 (see Fig. 6.5).

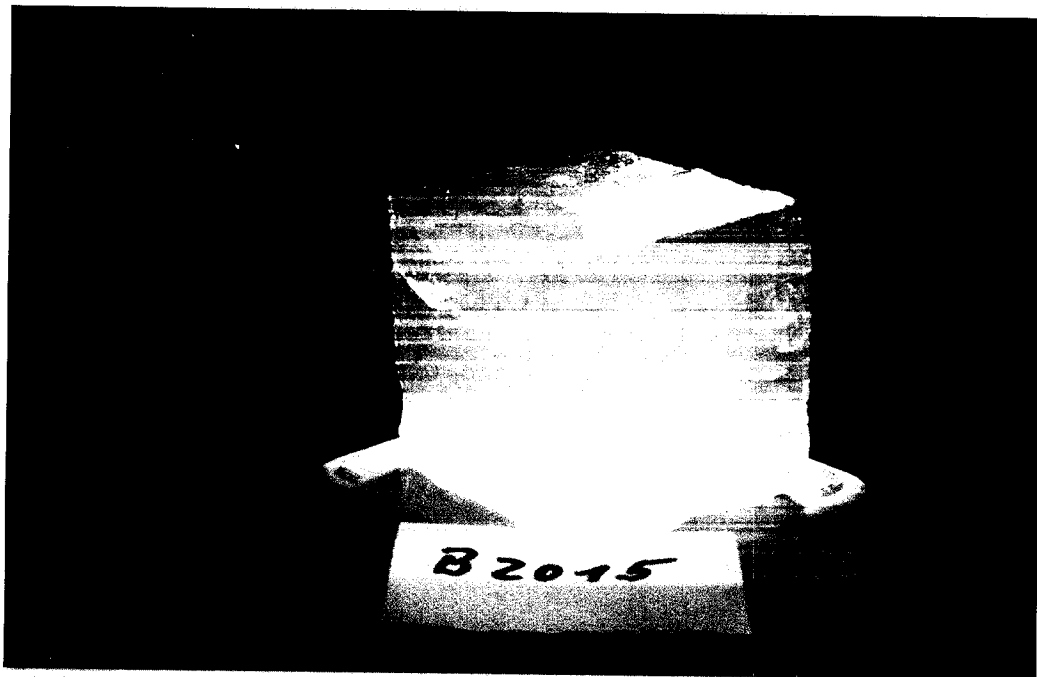


Fig. 6.6: Sample # 2015 (R7A 522-529) after biaxial loading with  $\sigma_x = 2\sigma_y$

Series 3000 ( $\sigma_x = \sigma_y$ ,  $T_I = -20$  °C,  $\dot{\epsilon}_x = 10^{-3} \text{s}^{-1}$ ):

The specimen loaded biaxially with  $\sigma_x = \sigma_y$  at a primary strain rate of  $\dot{\epsilon} = 10^{-3} \text{s}^{-1}$  at a temperature of  $T = -20$  °C typically fail before having reached a zero tangent modulus, and in general exhibit a brittle failure mode. In some cases the first sharp load break, the preceding load maximum of which gives the yield load, is followed by a second load increase which is terminated by final failure. One single specimen only failed after a period of strain-softening. The yield stress typically was reached at primary strains of  $\epsilon_{x1} = 0.25\%$ .

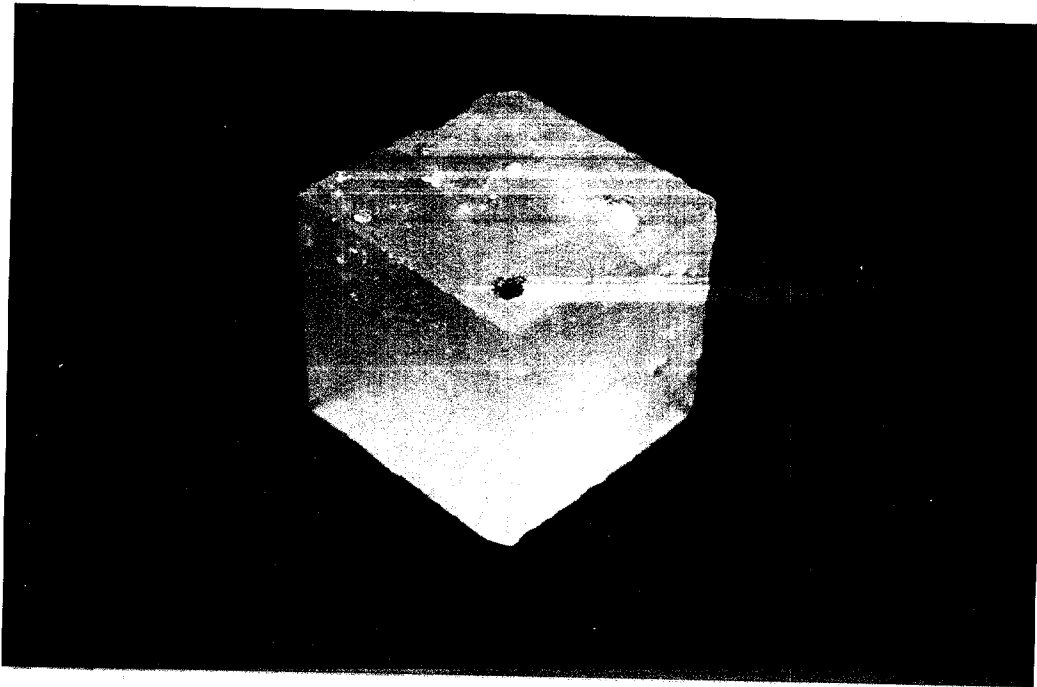


Fig. 6.7: Sample # 3007 (R1A 130-137) prior to the test

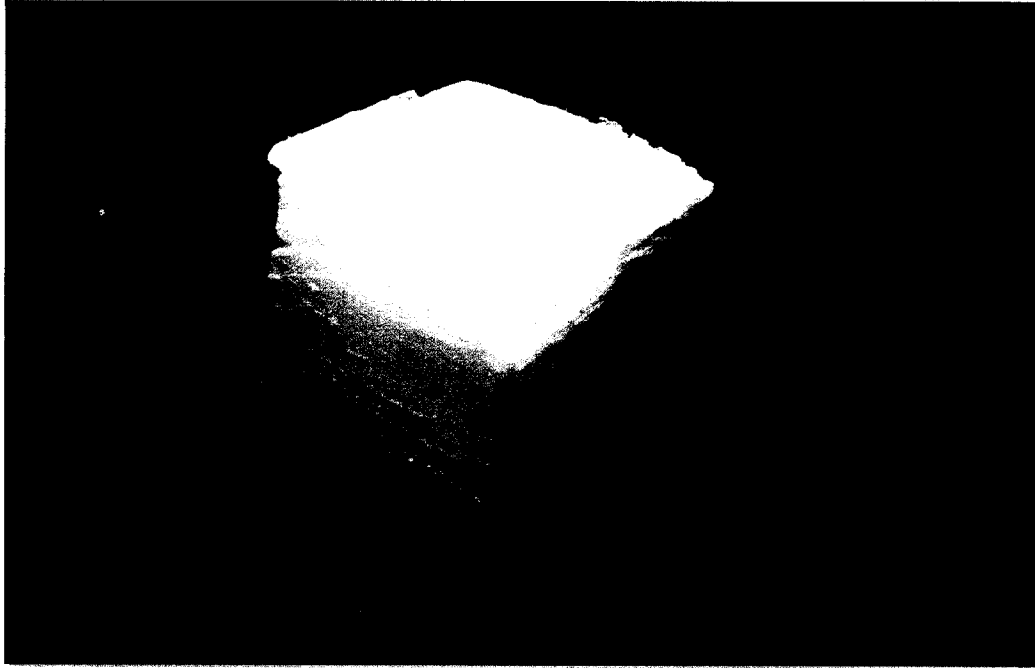


Fig. 6.8: Sample # 3007 (R1A 130-137) after biaxial loading with  $\sigma_x = \sigma_y$ .

Usually the samples were destroyed during the test. The major surfaces of failure were in general slightly inclined to the plane formed by the loads.



Fig. 6.9: Sample # 3013 (R10C 279-286) after biaxial loading with  $\sigma_x = \sigma_y$  load cell side surfaces.



Fig. 6.10: Sample # 3017 (R5A 266-273) after biaxial loading with  $\sigma_x = \sigma_y$

In addition to the major crack paths most of the specimen were filled with microcracks.

Series 4000 ( $\sigma_x = 2 \sigma_y$ ,  $T_I = -20$  °C,  $\dot{\epsilon}_x = 10^{-3} s^{-1}$ ):

The specimen loaded biaxially with  $\sigma_x = 2 \sigma_y$  at a primary strain rate of  $\dot{\epsilon}_{x1} = 10^{-3} s^{-1}$  at a temperature of  $T = -20$  °C typically fail somewhere in the strain softening part of the load history. The failure mode exhibited is brittle. The average primary strain at yield was  $\epsilon_{x1} = 0.32\%$ . The crack pattern is similar to the one of series 3000.

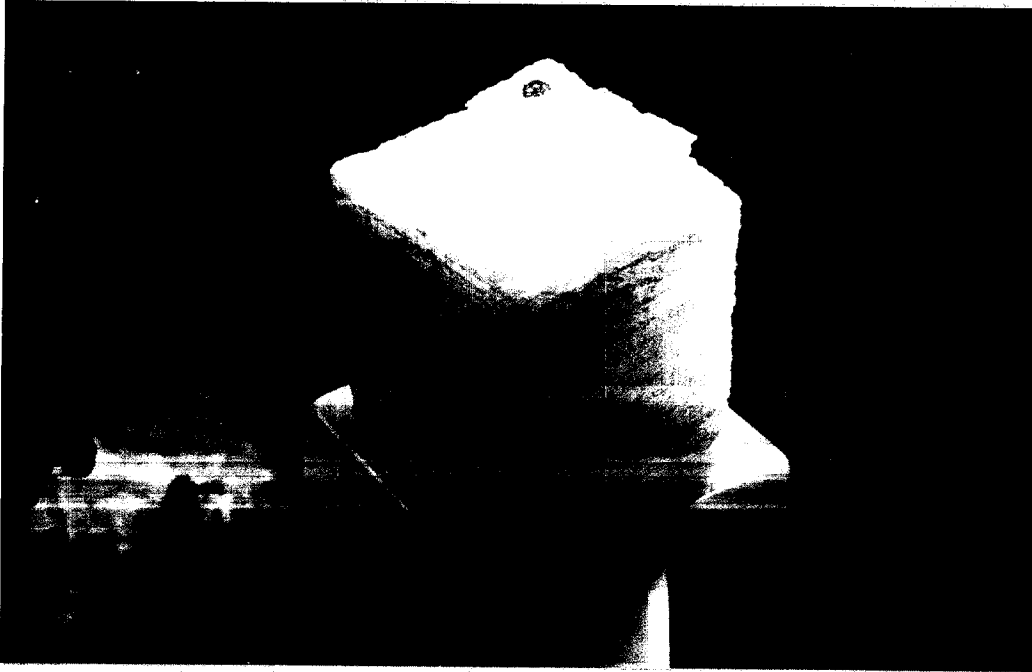


Fig. 6.11: Sample # 4010 (R5D 471-478) after biaxial loading  
with  $\sigma_x = 2 \sigma_y$

Series 5000 ( $\sigma_y = 0$ ,  $T_I = -5 \text{ }^\circ\text{C}$ ,  $\dot{\epsilon} = 10^{-5} \text{ s}^{-1}$ )

The specimen tested uniaxially at a primary strain-rate of  $\dot{\epsilon}_{x1} = 10^{-5} \text{ s}^{-1}$  and at a temperature of  $T = -5 \text{ }^\circ\text{C}$  exhibited a ductile mode of failure. Yielding was reached at an average primary strain of  $\epsilon_{x1} = 0.68\%$ . The specimen showed after the tests large deformations perpendicular to the load direction but in general no cracks have been observed.



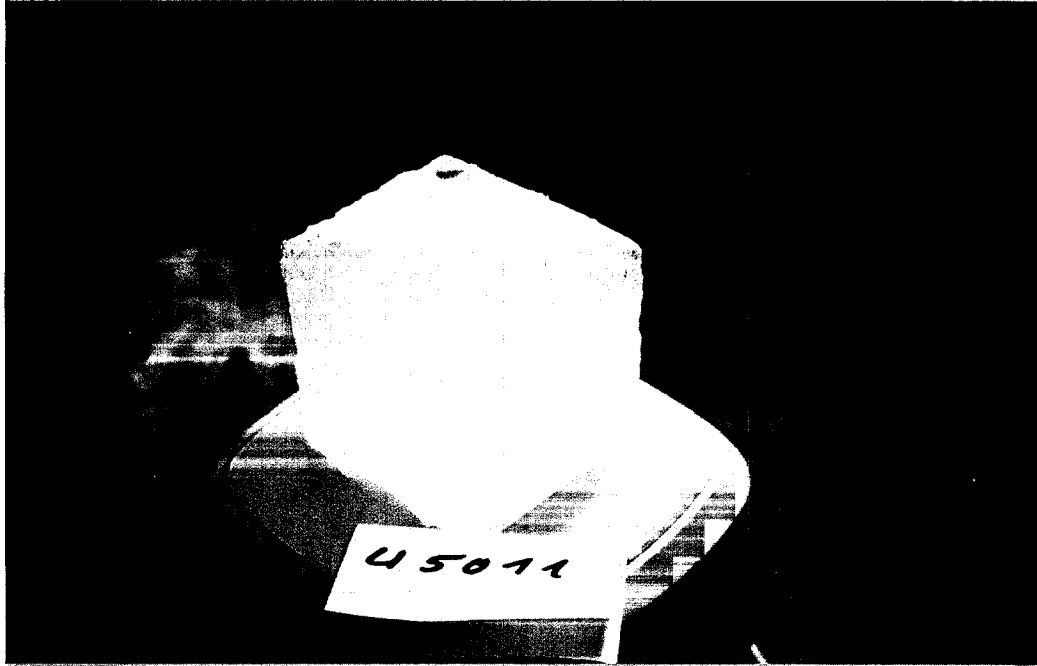


Fig. 6.12: Sample # 5011 (R4D 368-375) after uniaxial loading

Series 6000 ( $\sigma_y = 0$ ,  $T_I = -20$  °C,  $\dot{\epsilon} = 10^{-3} \text{s}^{-1}$ )

The specimen loaded uniaxially at a primary strain rate of  $\dot{\epsilon}_{x1} = 10^{-3} \text{s}^{-1}$  at a temperature of  $T = -20$  °C all failed in a more or less brittle manner. After the test the samples were full of cracks or were totally destroyed. In four tests fracture occurred during or at the end of the load rise. In these cases the load dropped to zero at fracture. Fracture or yield occurred at an average primary strain of only  $\epsilon_{x1} = 0.21\%$ .

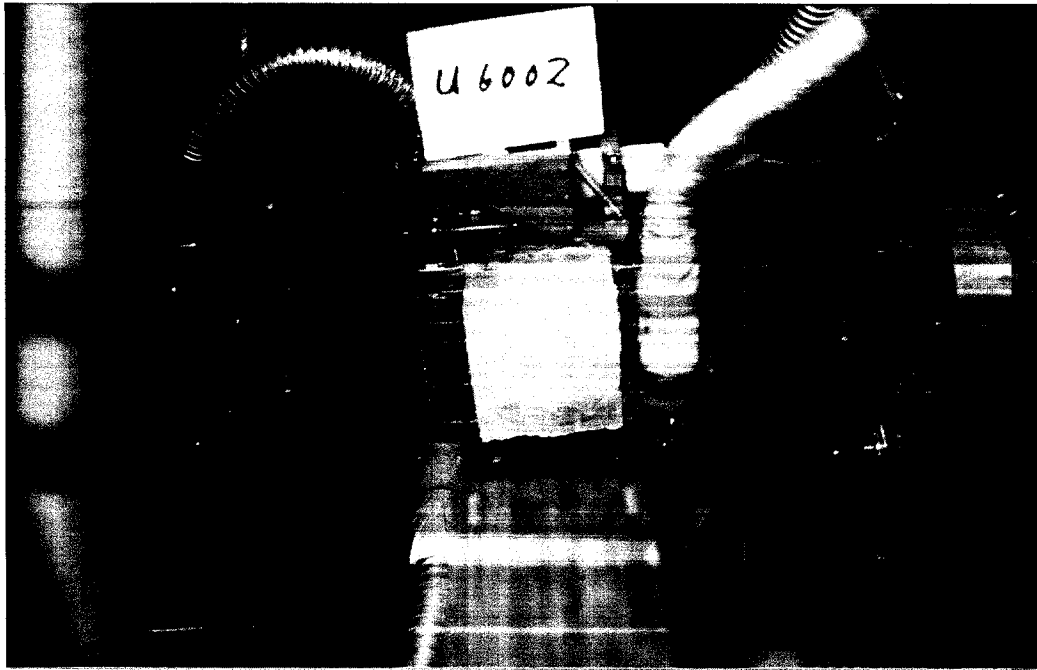


Fig. 6.13: Sample # 6002 (R5A 309-316) after uniaxial loading

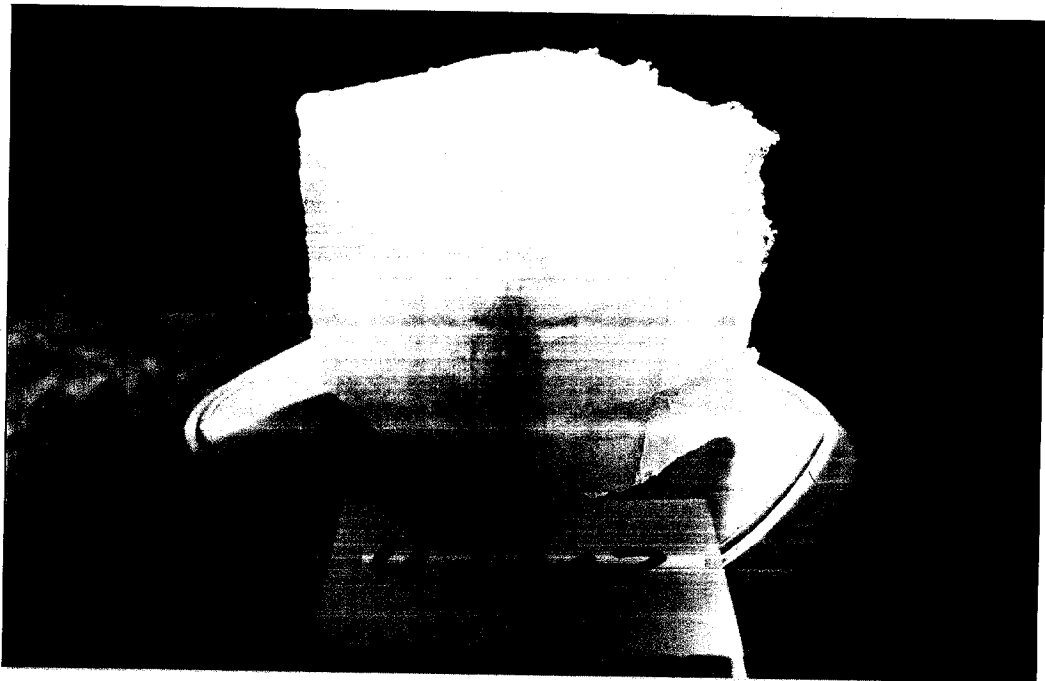


Fig. 6.14: Sample # 6002 (R5A 309-316) after uniaxial loading

The primary crack pattern exhibits crack surfaces parallel to the load direction but without orientation in the two other directions. In some cases parts of the specimen failed in addition by buckling. The micro-crack density is not as high as in the corresponding cases with biaxial load application.

From the average strengths the coefficients of the three parametric yield function have been determined as follows:

a) temperature  $T_I = -5.1 \text{ }^\circ\text{C}$

strain rate  $\dot{\epsilon} = 1.01 \cdot 10^{-5} \text{ s}^{-1}$

$$\begin{aligned} f(\sigma_{ij}) &= -1.80 \text{ MPa}^{-1} J_1 + 0.90 \text{ MPa}^{-2} J_2' - 0.01 \text{ MPa}^{-2} J_1^2 - 1 \\ &= -1.80 \text{ MPa}^{-1} (\sigma_x + \sigma_y + \sigma_z) \\ &\quad + 1.79 \text{ MPa}^{-2} (\sigma_x^2 + \sigma_y^2 + \sigma_z^2) \\ &\quad - 1.82 \text{ MPa}^{-2} (\sigma_x \sigma_y + \sigma_y \sigma_z + \sigma_z \sigma_x) - 1 = 0 \end{aligned}$$

b) temperature  $T_I = -20.1 \text{ }^\circ\text{C}$

strain rate  $\dot{\epsilon} = 0.99 \cdot 10^{-3} \text{ s}^{-1}$

$$\begin{aligned} f(\sigma_{ij}) &= -0.0476 \text{ MPa}^{-1} J_1 + 0.0153 \text{ MPa}^{-2} J_2' - 0.0045 \text{ MPa}^{-2} J_1^2 - 1 \\ &= -0.0476 \text{ MPa}^{-1} (\sigma_x + \sigma_y + \sigma_z) \\ &\quad + 0.0262 \text{ MPa}^{-2} (\sigma_x^2 + \sigma_y^2 + \sigma_z^2) \\ &\quad - 0.0396 \text{ MPa}^{-2} (\sigma_x \sigma_y + \sigma_y \sigma_z + \sigma_z \sigma_x) - 1 = 0. \end{aligned}$$

The strength results are presented in graphical form in Figs. 6.15 and 6.16. In the lower right half of the plots the individual strengths of the valid tests are shown, and in the upper left half the average values. (Reflecting at the  $\sigma_x = \sigma_y$  line is legal with respect to the assumption of isotropy). The ellipses connecting the average strengths are the intersection curves of the  $\sigma_x - \sigma_y$  - plane with the surfaces in the principal stress space described by the two yield functions mentioned above.

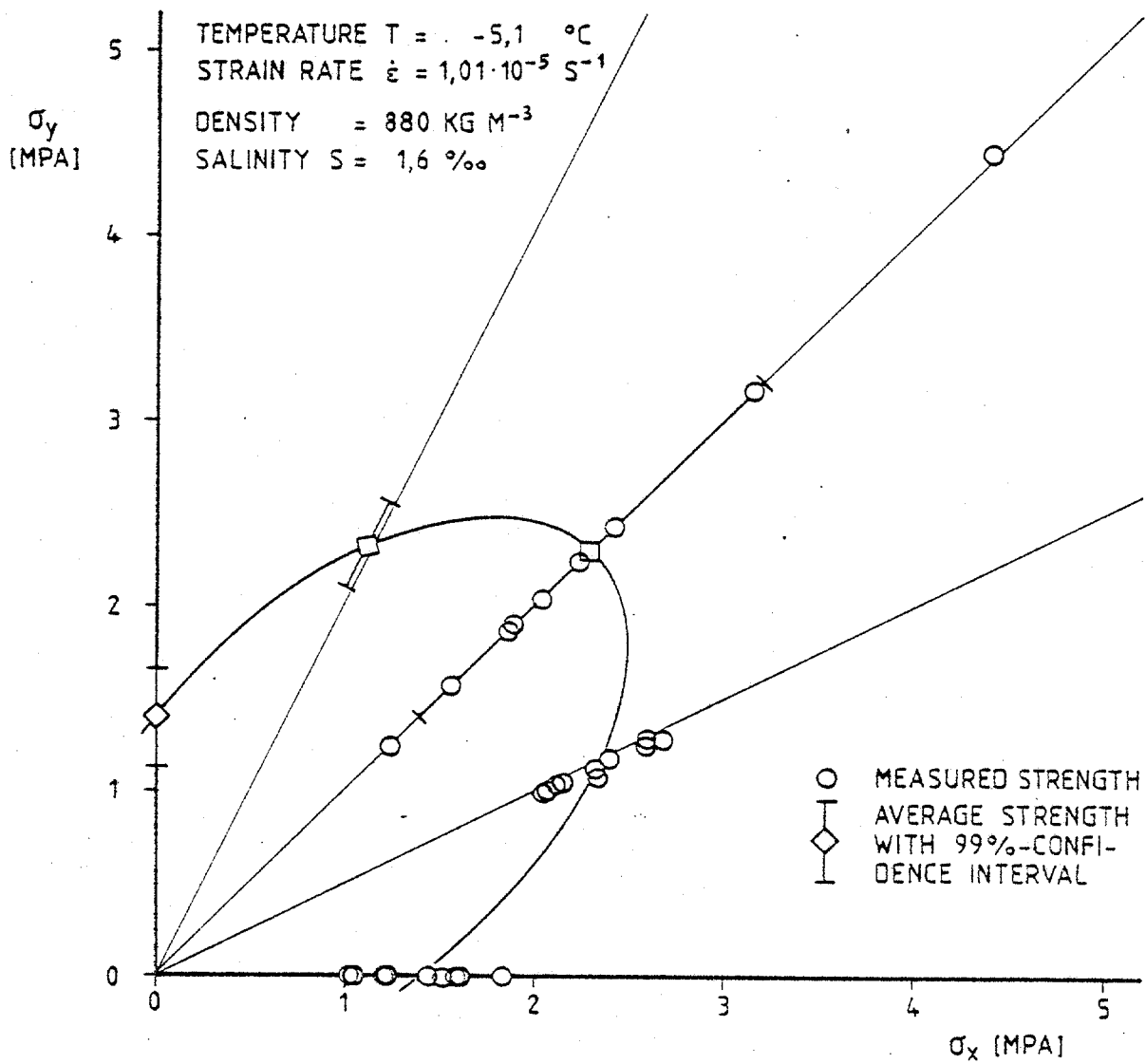


Fig. 6.15: Strength of multiyear ridge ice under plane stress at  $T_I = -5.1 \text{ } ^\circ\text{C}$  and  $\dot{\epsilon} = 1.01 \cdot 10^{-5} \text{ s}^{-1}$

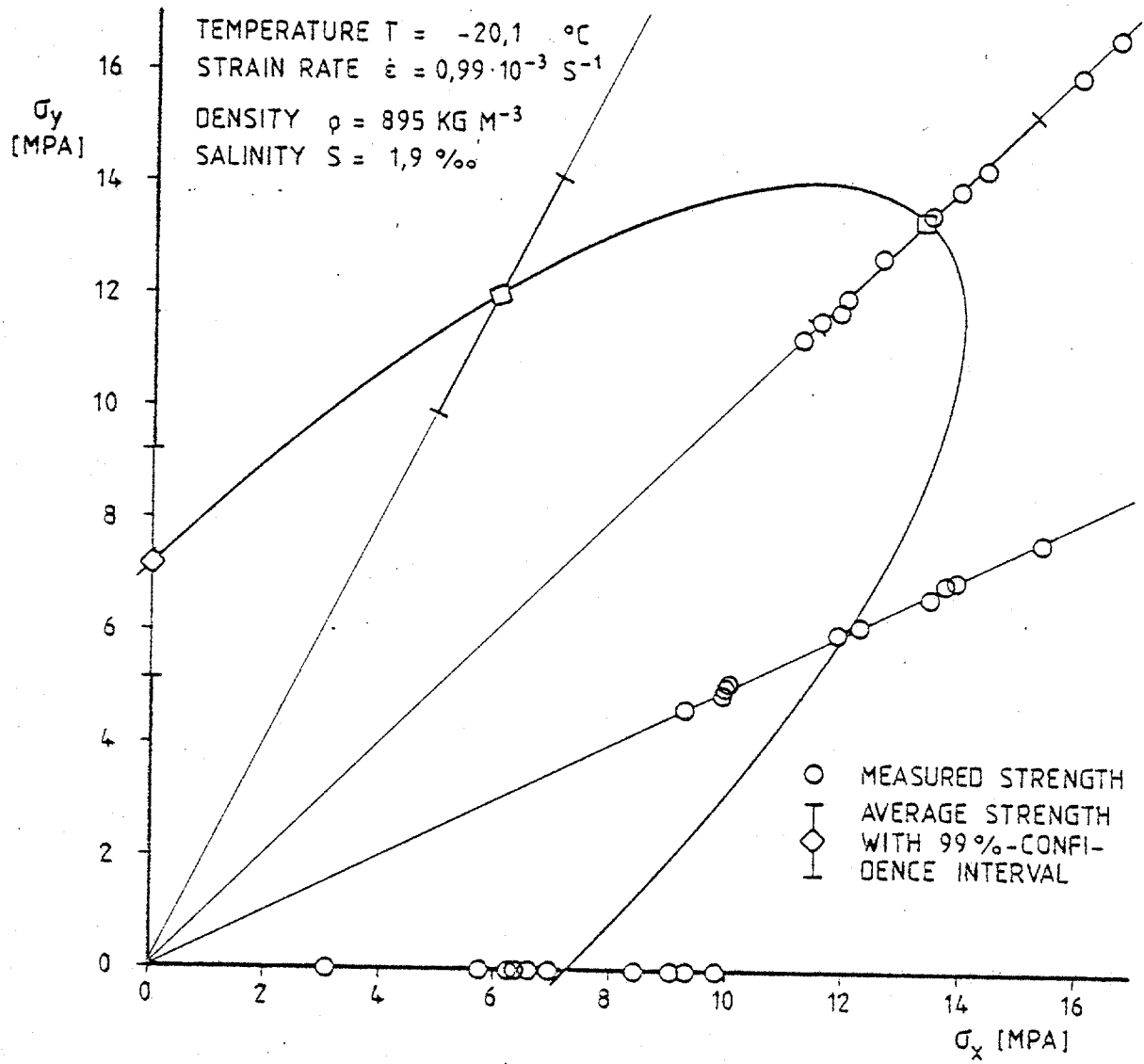


Fig. 6.16: Strength of multiyear ridge ice under plane stress at  $T_I = -20.1 \text{ } ^\circ\text{C}$  and  $\dot{\epsilon} = 0.99 \cdot 10^{-3} \text{ s}^{-1}$

The yield functions determined above allow for the prediction of tensile strengths. The function obtained for the high temperature low strain rate condition (ductile failure) predicts a tensile strength of  $\sigma_x^t = 0.40$  MPa which is the 3.5th fraction of the average uniaxial compressive strength. When compared with the results of Peyton (1965), who reports fractions of around  $\sigma_x^t / \sigma_x^c \sim 1/4$ , this seems to be a reasonable value. The yield function obtained for the low temperature high strain rate condition (brittle fracture) predicts a tensile strength of 89 % of the compressive strength, a value, which should be cross checked with tests under direct tension. In both cases the yield functions predict an infinite strength under hydrostatic pressure.

The strains measured by means of attaching LVDT's near the tip of two bristles on the same side of one of the brush-type loading platens must be regarded with care. Since the transducers are not attached directly at the tip but 1.5 cm away, the values measured are systematically too small. The degree of reduction depends on the degree of clamping of the bristles tip exerted by the ice specimen tested. The reduction lies between 3 and 16%. For correct interpretation of the measured strain values it is important to keep in mind that this value represents the change in distance of the corresponding pick up points during the test. (This is also valid for the  $U_{x1}$  strain which is measured with a separate parallelogram guided deflection transducer). It is obvious that this value includes not only the solid body deformation, but also all gaps created by cracks between the two points. Furthermore it is important to note that the measured strains may have, and they usually do, a zero offset, which in some of the tests affects the scaling of the  $\epsilon$  over  $\epsilon_{x1}$  plots.

The application of the brush-type loading platens to strength tests on ice is a rather new technique. (On concrete this technique has already proven to produce reliable results; Gerstle, et al., 1976). The question, whether this type of loading platen affects the test results is understandable, especially whether or not the stress concentrations created at each single bristle nucleate cracks and so lead to too small strength values. Without any doubt the bristles indent somewhat into the sample's surface and so affect a bit the  $\epsilon_{x1}$  strain value if measured from platen to platen. But

by judging from appearance of the samples after being tested, the effect of the brush-type loading platens is only local and seems to have no influence on the primary crack pattern. Furthermore knowing the advantage of the brush-type loading platens to create only a minimal lateral constraint to a face loaded, it can be concluded that the technique used in this study is a step forward.

## 7.0 Summary

A series of 60 compressive strength tests on sea ice sampled from multi-year pressure ridges has been performed. Three different stress states, uniaxial and biaxial with  $\sigma_x = \sigma_y$  and  $\sigma_x = 2 \sigma_y$  have been investigated together with two temperature - strain rate combinations  $T_I = -5 \text{ }^\circ\text{C}$ ,  $\dot{\epsilon}_x = 10^{-5} \text{ s}^{-1}$  and  $T_I = -20 \text{ }^\circ\text{C}$ ,  $\dot{\epsilon}_x = 10^{-3} \text{ s}^{-1}$ , the first exhibiting a ductile the latter a brittle failure mode.

For both  $T - \dot{\epsilon}$  - combinations a yield function was determined assuming ridge ice to behave isotropic on a makroscopic scale. The cold ice tested at the higher strain rate exhibited a failure strength 5 times as high as the warm ice at the lower strain rate, while under biaxial compression  $\sigma_x = \sigma_y$  the ratio between the strengths was 5.8 : 1.

Corresponding to the irregular structure of pressure ridges the samples showed almost all possible variations of sea ice and snow ice with densities from  $\rho = 809$  up to  $913 \text{ kgm}^{-3}$  and salinities from  $S_I = 0$  up to  $5.7 \text{ }^\circ\text{‰}$ . So the results of this study can be taken as representative for multiyear pressure ridges in the Beaufort Sea.



## 8.0 Acknowledgements

The authors want to express their gratitude to Dr. E.N. Earle from SHELL DEVELOPMENT COMPANY for his kind cooperation. The help of the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), Hanover, N.H. namely of Dr. G.F.N. Cox and of Dr. J.A. Richter is gratefully acknowledged. The authors wish to express their thanks to the colleagues from HSVA who contributed to this investigation, namely to Mr. W. Neper whose accuracy in specimen preparation and assistance during the tests was an essential contribution to the successful performance of this study.

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Report No. E 136/83

Appendix A

Uniaxial and Biaxial Compressive  
Strength Tests on Sea Ice Sampled  
from Multiyear Pressure Ridges

SHELL DEVELOPMENT COMPANY

Appendix A

Test Protocol Sheets

E 136/83

Directory List to Test Protocol Sheets

Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [°C]	Strain Rate $\dot{\epsilon}_x^y$ [ $s^{-1}$ ]	Protocol Sheet Page No.
1002 1005 1006 1007 1008 1009 1010 1011 1012 1015	1:1	- 5	$10^{-5}$	A 4 A 5 A 6 A 7 A 8 A 9 A10 A11 A12 A13
2002 2004 2005 2006 2010 2011 2012 2013 2014 2015	2:1	- 5	$10^{-5}$	A14 A15 A16 A17 A18 A19 A20 A21 A22 A23
3005 3007 3008 3009 3010 3011 3013 3014 3016 3017	1:1	-20	$10^{-3}$	A24 A25 A26 A27 A28 A29 A30 A31 A32 A33
4005 4006 4007 4008 4009 4010 4011 4012 4013 4014	2:1	-20	$10^{-3}$	A34 A35 A36 A37 A38 A39 A40 A41 A42 A43

Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [°C]	Strain Rate $\dot{\epsilon}_{x1}^y$ [ $s^{-1}$ ]	Protocol Sheet Page No.
5001 5004 5005 5007 5008 5009 5010 5011 5012 5013	1:0	- 5	$10^{-5}$	A44 A45 A46 A47 A48 A49 A50 A51 A52 A53
6001 6002 6003 6004 6005 6006 6007 6008 6009 6011	1:0	-20	$10^{-3}$	A54 A55 A56 A57 A58 A59 A60 A61 A62 A63
*1001	1:1	- 5	$10^{-5}$	A64
*2001	2:1	- 5	$10^{-5}$	A65
*3002 *3003	1:1	-20	$10^{-3}$	A66 A67
*4001 *4003	2:1	-20	$10^{-3}$	A68 A69

## Legend to Test Protocol Sheet

- 1) LFD.NR. . . . . nnn.m vom dd.mm.yy hh.mm UHR  
run number . . . . . nnnn.m  
test date . . . . . dd.mm.yy (day, month, year)  
test time . . . . . hh.mm (hours, minutes)
  
- 2) EISPROBENENTNAHME . . . . . mm.yy BEI SIE = s.s 0/00  
sample collection . . . . . mm.yy. (month, year)  
initial ice salinity when sampled  $S_I = s.s \text{ ‰}$
  
- 3) DATEN DER PROBE:  
LX = xx.xx MM PHIX = pp GRAD M = mmm G  
LY = yy.yy MM PHIY = qq GRAD RHO = vvv KG/M\*\*3  
LZ = zz.zz MM PHIZ = rr GRAD SIP = s.s 0/00  
specimen data  
side lengths of ice cube  $l_x, l_y, l_z$  [mm]  
in machine oriented coordinates  
angles  $\sigma_x, \sigma_y, \sigma_z$  in degrees between machines' coordinate  
axes and the core's longitudinal axis (specimen orientet z-axis)  
mass of sample m [g]  
density of sample  $\rho_i$  [kg m<sup>-3</sup>]  
salinity of sample's melt  $S_I$  [‰]
  
- 4) TEMPERATUREN:  
Air temperature  $T_L$   
Ice temperature inside a reference sample  $T_p$
  
- 5) BASISLAENGEN FUER DEHNUNG  
basis lengths for strain measurement
  
- 6) VERSUCHSVORGABEWERTE:  
target values for actual test run:  
final deflection  $U_1$  measured by deflection transducer  $U_{x1}$  [mm]  
(ramp hight time  $DT$  from start until reach of target deflection  $U_1$  given  
in secondes (length of ramp)).  
  
target strain rate  $\dot{\epsilon}_{x1}$  [s<sup>-1</sup>]  
load ratio between x-axis (primary axis) and y- and z-axis  
 $F_y : F_x$  and  $F_z : F_x$
  
- 7) Time history extract  
T [s] time of sampling cycle measured from start of analysis  
SIGX, SIGY, SIGZ [MPa] stresses  $\sigma_x, \sigma_y, \sigma_z$   
EPSX1, EPSX2, .... [10<sup>-3</sup>] strains  $\epsilon_{x1}, \epsilon_{x2}, \dots$   
SX [mm] position of x-actuator

SHELL 612509

LFD.NR. 1002.1 VOM 15.12.82 9:45 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1991

EISPROBENENTNAHME 4.81 BEI SIE = .0 0/00

DATEN DER PROBE:

LX = 69.79 MM PHIX = 90 GRAD  
LY = 69.81 MM PHIY = 70 GRAD  
LZ = 69.80 MM PHIZ = 0 GRAD

M = 310 G  
RHO = 911 KG/M\*\*3  
SIP = 2.4 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -4.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.79 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 1.0000  
FZ/FX = .0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	.022	-.0026	-.2380	.021	-.3789	-3.2964	31.325	-2.5700	-1.5773
117.00	1.840	1.0632	-.3570	1.866	-.5246	-2.1679	30.685	-2.5273	-2.8633
233.75	2.956	2.2520	.7437	2.953	1.5737	-.8018	30.948	-3.7743	-3.8278
350.50	3.079	3.4407	3.2130	3.158	4.1383	.2376	31.702	-6.4984	-4.2136
467.25	3.079	4.6022	5.0972	3.076	6.0617	.8909	31.175	-7.7888	-4.9530
584.00	3.038	5.8046	6.4260	3.056	6.9943	1.3958	31.175	-9.5056	-5.4353
700.75	2.976	6.9523	7.5483	2.953	8.0143	1.6334	32.042	-9.3659	-5.7568
817.50	2.935	8.1274	7.9135	2.892	9.2966	1.7521	31.702	-10.2548	-6.0783
934.25	2.915	9.2889	8.2407	2.933	10.5497	1.8412	32.155	-11.0577	-6.3676
1051.00	2.915	10.4776	8.5382	2.953	11.8029	2.0194	32.155	-11.5738	-6.7856
1167.75	2.956	11.6390	8.6573	2.933	12.8520	2.1976	32.343	-11.9179	-7.3964
1284.50	2.935	12.8278	8.6870	2.994	14.6297	2.3164	32.343	-12.3907	-7.9751
1401.25	2.956	14.0029	8.6573	2.994	16.6114	2.4649	31.929	-12.6635	-8.4573
1518.00	2.976	15.1780	8.6870	2.953	18.2143	2.7025	32.645	-13.0362	-8.9717
1634.75	3.017	16.3257	8.6573	2.974	19.7589	2.9400	32.381	-13.3803	-9.4861
1751.50	3.017	17.4872	8.6573	2.994	21.4200	3.1479	32.796	-13.7244	-9.9362
1868.25	3.079	18.6623	8.6870	3.076	23.1103	3.4746	32.833	-13.9825	-10.4105
1985.00	3.161	19.8510	8.7465	3.138	24.8006	3.7419	32.456	-14.2406	-10.7721
2101.75	3.181	21.0398	8.7465	3.138	26.2869	3.7716	32.381	-14.4986	-11.1379
2218.50	3.202	22.2012	8.7752	3.199	27.9189	3.8904	32.343	-14.7280	-11.6080
2335.25	3.202	23.3490	9.8358	3.220	29.6091	3.9497	32.984	-15.1295	-12.0581
2452.00	3.181	24.5377	9.9738	3.199	31.1537	3.9794	32.984	-15.1295	-12.5403
2568.75	3.222	25.6991	12.3760	3.220	32.6691	3.9497	33.286	-15.3589	-13.0269
2685.50	3.243	26.8742	13.7148	3.240	34.1263	3.9794	33.210	-15.6456	-13.6013
2802.25	3.284	28.0630	15.1130	3.281	35.5834	4.0091	33.286	-15.9324	-14.1157
2919.00	3.284	29.2244	16.3923	3.261	36.8366	4.0091	32.871	-16.2765	-14.7908
3035.75	3.284	30.3858	17.5229	3.302	37.7400	4.0091	33.776	-16.5632	-15.2730
3152.50	3.325	31.5746	18.5938	3.322	38.7509	4.0982	33.361	-16.8213	-15.7874
3269.25	3.325	32.7360	19.6350	3.322	39.4594	4.2170	33.248	-17.1367	-16.2375
3386.00	3.674	34.0751	20.4680	3.404	40.1589	4.4546	33.248	-17.4521	-16.6555
3502.75	3.366	35.0962	21.3810	3.343	40.8583	4.8110	33.625	-17.6529	-16.9448
3619.50	3.345	36.2613	21.8365	3.302	41.4703	5.3158	33.625	-17.8823	-17.2663
3736.25	3.345	37.4364	22.4017	3.343	41.9949	5.9098	34.115	-18.0256	-17.5557
3853.00	3.325	38.6115	22.7885	3.363	42.4611	6.5928	34.379	-18.1977	-17.8129
3969.75	3.366	39.7592	23.2050	3.281	42.9274	7.3352	34.567	-18.3124	-18.0780
4078.25	3.304	40.8387	23.5918	3.302	43.3063	8.1074	33.663	-18.3984	-18.2629

MESSWERTEDATEI: M2349  
 MESSUNG/AUSWERTUNG VOM 15.12.82 / 6. 4.83. 0.24  
 MESSBEGINN : 9:45:1523.25 UHR MESSDAUER: 4078.75 S  
 AUSGEWERTET VON .75 S BIS 4079.00 S  
 ZAHL DER MESSPUNKTE: 16313

SHELL 612509

LFD.NR. 1005.1 VOM 16.12.82 10:47 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIZ = 1.0 0/00

DATEN DER PROBE:

LX = 70.11 MM PHIX = 90 GRAD  
LY = 69.78 MM PHIY = 90 GRAD  
LZ = 69.85 MM PHIZ = 0 GRAD

M = 287 G  
RHO = 839 KG/M\*\*3  
SIP = .4 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 70.11 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .9966E-05 1/5

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
25	.022	.0111	-2.0528	.041	-1.8943	.1782	30.421	-3.8603	-.6771
132.50	.596	1.2896	-.9520	.612	-1.5737	0.0000	31.325	-3.8890	-2.8633
264.75	1.027	2.5953	-.4760	.959	-1.3114	-.1188	31.438	-3.8890	-5.4031
397.00	1.211	3.9419	-.3570	1.183	-1.1074	-.1782	31.627	-3.9177	-7.2678
529.25	1.355	5.3020	-.2975	1.346	-.9326	-.2970	31.325	-4.1758	-8.7798
661.50	1.437	6.5942	-.3570	1.428	-.8160	-1.2473	31.099	-4.6632	-10.0970
793.75	1.499	7.9135	-.3273	1.469	-.6120	-2.5837	31.929	-5.2080	-11.1930
926.00	1.478	9.2329	-.2975	1.469	-.3206	-4.5320	31.702	-5.8389	-12.1224
1058.25	1.560	10.5794	-.1785	1.571	.0291	-6.8601	31.476	-6.4411	-12.8639
1190.50	1.560	11.9123	-.1190	1.591	.6411	-8.8716	32.343	-7.0145	-13.2155
1322.75	1.540	13.2181	-.0595	1.530	1.4571	-10.6613	32.343	-7.6167	-13.4084
1455.00	1.601	14.5510	.1190	1.571	2.5063	-11.1959	32.042	-8.2189	-13.3441
1587.25	1.581	15.8432	.0893	1.571	3.4097	-11.3147	31.740	-8.8497	-13.4084
1719.50	1.560	17.2033	.1190	1.530	4.4589	-11.3444	32.569	-9.3659	-13.2796
1851.75	1.499	18.4955	.2380	1.550	5.4789	-11.3741	32.682	-9.7960	-13.2476
1984.00	1.560	19.8420	.2678	1.550	6.5280	-11.3444	32.645	-10.3695	-13.2155
2116.25	1.560	21.1478	.3273	1.510	7.5480	-11.4335	32.645	-10.8856	-13.1833
2248.50	1.560	22.4535	.3570	1.550	8.6554	-11.4632	32.569	-11.3731	-12.4439
2380.75	1.581	23.8136	.4463	1.591	9.7920	-11.4038	33.059	-11.8319	-11.5758
2513.00	1.601	25.1466	.5058	1.632	10.9286	-11.3741	33.172	-12.3194	-10.9850
2645.25	1.601	26.4523	.5058	1.571	11.7446	-11.3741	32.645	-12.7208	-10.1291
2777.50	1.581	27.7445	.4463	1.530	11.9194	-11.4632	32.682	-13.3517	-8.7145
2909.75	1.581	29.0774	.4760	1.550	11.9486	-11.2553	33.663	-13.9538	-8.1037
3042.00	1.519	30.4104	.5058	1.591	11.9486	-10.4832	32.984	-14.4413	-7.5571
3174.25	1.622	31.7025	.5058	1.591	11.9611	-9.9001	33.813	-15.1582	-7.5258
3306.50	1.683	33.0490	.5355	1.632	11.8029	-8.7613	33.625	-15.8464	-7.4929
3438.75	1.642	34.3548	.5355	1.612	11.7446	-7.8104	33.240	-16.5632	-7.4929
3571.00	1.601	35.6605	.5058	1.571	11.7446	-6.6019	33.323	-17.4235	-7.5893
3703.25	1.663	37.0207	.5653	1.632	12.0366	-5.6128	33.625	-18.3697	-7.5258
3835.50	1.601	38.3264	.5950	1.612	12.5806	-4.9595	33.663	-19.3447	-7.5371
3967.75	1.622	39.6050	.4760	1.591	12.9394	-4.3358	33.813	-20.3483	-7.6214
4100.00	1.622	40.9243	.4760	1.591	13.5006	-3.5637	34.228	-21.3806	-7.6214
4232.25	1.601	42.2301	.4760	1.550	14.1634	-2.6728	34.680	-22.3268	-7.6536
4364.50	1.683	43.5766	.5950	1.673	14.7463	-1.6631	34.153	-22.9577	-7.5893
4496.75	1.622	44.8823	.5653	1.550	15.0086	-.6533	35.095	-23.6172	-7.6214
4624.50	1.683	46.1745	.5653	1.673	15.5914	.5049	34.530	-24.1907	-7.5893

MESSWERTEDATEI: M2350

MESSUNG/AUSWERTUNG VOM 16.12.82 / 6. 4.83.13.42

MESSBEGINN : 10:47: 523.00 UHR

MESSDAUER: 4764.25 S

AUSGEWERTET VON .75 S BIS 4625.25 S

ZAHL DER MESSPUNKTE: 18498



SHELL 612509

LFD.NR. 1006.1 VOM 4. 1.83 13:32 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.2 0/00

## DATEN DER PROBE:

LX = 69.92 MM PHIX = 90 GRAD M = 294 G  
LY = 69.94 MM PHIY = 90 GRAD RHO = 860 KG/M\*\*3  
LZ = 69.89 MM PHIZ = 0 GRAD SIP = 1.6 0/00

## TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.00 GRAD C

## BASISLAENGEN FUER DEHNUNG:

CX1 = 59.92 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

## VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .9993E-05 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.124	.0511	2.0650	.102	-.0877	-1.4837	30.496	.0593	-1.4257
122.75	.902	1.1968	2.0355	.900	1.4914	-.8012	31.175	-1.2641	-1.5866
245.25	1.291	2.4515	2.3395	1.259	2.5733	-.0890	30.760	-2.9904	-2.3588
367.75	1.475	3.6381	3.4810	1.535	3.7430	.9199	30.835	-4.1412	-3.8710
490.25	1.720	4.8928	4.8675	1.698	5.3221	2.3145	31.773	-5.4072	-5.6723
612.75	1.700	6.1203	5.8410	1.780	6.7550	3.5905	30.986	-6.6731	-7.4424
735.25	1.823	7.3613	6.8735	1.842	8.2756	4.9555	32.004	-7.8815	-9.1154
857.75	1.864	8.5838	7.5995	1.842	9.6792	6.2315	31.438	-9.2337	-11.5572
990.25	1.823	9.7890	8.4370	1.801	10.9074	7.2997	31.238	-10.5572	-14.3920
1102.75	1.864	11.0165	9.1450	1.862	12.1063	8.2739	32.155	-11.3807	-16.9560
1225.25	1.823	12.2439	9.9710	1.821	13.3345	9.4659	32.079	-13.3192	-19.7330
1347.75	1.823	13.4850	10.5020	1.801	14.2117	10.2374	32.004	-14.5564	-21.9852
1470.25	1.884	14.7125	11.0035	1.883	15.0305	10.9792	31.778	-15.8511	-23.9800
1592.75	1.782	15.8990	11.4755	1.801	15.6154	11.4837	32.268	-17.1745	-25.8733
1715.25	1.843	17.1947	12.1245	1.862	16.3464	12.1662	32.230	-18.2966	-27.5479
1837.75	1.782	18.3539	12.5080	1.801	16.7350	12.4629	32.759	-19.5913	-29.3853
1960.25	1.864	19.5223	13.1570	1.862	17.3114	12.9080	32.984	-20.7134	-30.9619
2082.75	1.741	20.8039	13.5700	1.750	17.6916	13.1751	32.758	-21.8355	-32.5062
2205.25	1.761	22.0363	14.1305	1.780	18.2179	13.5608	32.155	-22.9575	-33.3898
2327.75	1.864	23.3047	14.7205	1.883	19.2999	13.9466	33.210	-23.9645	-35.2411
2450.25	1.761	24.4776	15.0745	1.801	20.4696	14.0653	32.343	-25.0003	-36.6246
2572.75	1.823	25.7323	15.7530	1.821	21.9902	14.4510	32.607	-26.0073	-37.7507
2695.25	1.843	26.9598	16.4020	1.883	23.4815	14.8071	32.645	-26.9279	-38.9411
2817.75	1.782	28.1873	17.0215	1.821	24.9729	15.0445	33.022	-27.7623	-40.0994
2940.25	1.782	29.4147	17.7590	1.750	25.5227	15.2319	33.172	-28.5679	-41.1934
3062.75	1.864	30.6694	18.7030	1.862	27.9263	15.6083	33.926	-29.2296	-42.0621
3185.25	1.782	31.8560	19.6175	1.801	28.8328	15.7270	33.776	-29.9201	-43.0273
3307.75	1.884	33.0835	20.5615	1.883	29.2715	15.8754	33.964	-30.4668	-43.7995
3430.25	1.843	34.3382	21.5530	1.862	29.4469	16.0831	33.436	-30.9271	-44.4752
3552.75	1.557	35.5793	22.9215	1.575	29.3884	16.4095	33.663	-31.4738	-45.3439
3675.25	2.048	36.7795	24.1900	2.067	29.3884	16.6172	34.379	-31.7327	-46.1804
3797.75	1.659	37.9933	25.3110	1.596	29.3300	16.6469	34.115	-32.0204	-46.9526
3920.25	1.966	39.2344	26.3140	1.944	29.3007	16.9733	33.964	-32.5383	-47.7891
4042.75	1.864	40.4073	27.0515	1.883	29.4762	17.5371	34.454	-33.1425	-48.6257
4165.25	1.720	41.6757	27.9365	1.719	29.9733	18.3383	34.039	-33.5741	-49.4300
4279.50	1.127	42.8213	28.5855	.123	30.5874	19.0801	34.190	-29.4886	-50.1700

MESSWERTEDATEI: M3004

MESSUNG/AUSWERTUNG VOM 4. 1.83 / 27. 4.83, 9. 9

MESSBEGINN : 13:32:1435.50 UHR

MESSDAUER: 4292.75 S

AUSGEWERTET VON

BIS 4280.25 S

ZAHL DER MESSPUNKTE: 17118

SHELL 612509

LFD.NR. 1007.1 VOM 4. 1.83 15:15 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.76 MM PHIX = 90 GRAD M = 300 G  
LY = 69.29 MM PHIY = 90 GRAD RHO = 889 KG/M\*\*3  
LZ = 69.81 MM PHIZ = 0 GRAD SIP = 2.0 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.76 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1002E-04 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.208	.0239	1.0620	.164	.4386	-.5045	31.062	.2320	1.0839
107.75	1.077	1.0628	1.5930	1.109	.5848	-.1484	31.665	.1744	-1.0076
215.25	1.552	2.1291	2.0355	1.581	1.0235	.3264	32.192	-.7750	-3.0988
322.75	1.862	3.1816	2.5960	1.807	1.5791	.5231	32.155	-2.3862	-5.4797
430.25	1.987	4.2889	3.3040	2.012	2.4271	1.0682	32.381	-4.0262	-7.9250
537.75	1.987	5.3551	3.9530	1.992	3.0997	1.3353	32.419	-5.8100	-10.4989
645.25	2.028	6.4487	4.6610	2.023	3.8307	1.6320	32.268	-7.5650	-12.9442
752.75	1.937	7.4876	5.3395	1.930	4.4156	1.7211	32.569	-9.2913	-15.3894
860.25	2.007	8.6222	6.1950	1.910	5.1466	1.9585	32.419	-10.7298	-17.4808
967.75	2.028	9.7021	7.1095	2.033	6.8192	2.1958	32.720	-12.3935	-19.7652
1075.25	1.987	10.7583	7.9945	1.971	6.4625	2.4925	32.909	-13.9522	-21.3867
1182.75	1.904	11.8432	9.0270	1.889	7.3690	3.0257	32.305	-15.5921	-24.0444
1290.25	1.862	12.9281	9.7645	1.869	8.1293	3.5015	32.545	-16.7430	-26.6209
1397.75	1.804	14.0217	10.5020	1.848	8.9139	4.0059	32.758	-18.1815	-27.4227
1505.25	1.800	15.0743	11.1510	1.786	9.7377	4.3917	32.381	-19.3611	-28.9671
1612.75	1.862	16.1542	11.7115	1.807	10.6149	4.7181	32.456	-20.7709	-30.6080
1720.25	1.676	17.2341	12.3015	1.734	11.5799	5.1632	33.436	-21.8793	-31.9693
1827.75	1.842	18.3003	12.6555	1.745	12.4280	5.3709	33.474	-23.3316	-33.5355
1935.25	1.759	19.4213	13.3340	1.725	13.6259	5.9941	33.553	-24.4249	-34.6619
2042.75	1.883	20.4875	13.6290	1.828	14.5919	6.3502	32.904	-25.6045	-35.7237
2150.25	1.780	21.5537	14.0420	1.704	15.6738	6.8843	33.135	-26.7265	-36.6553
2257.75	1.862	22.6610	14.4255	1.828	16.8435	7.2097	33.651	-27.8436	-37.5576
2365.25	1.800	23.6999	14.6615	1.725	17.8962	7.6261	33.776	-29.0570	-38.6229
2472.75	1.900	24.7661	14.9270	1.828	18.9782	8.1306	33.248	-30.1503	-39.1886
2580.25	1.862	25.9007	15.3990	1.869	20.2064	8.8724	34.303	-30.9271	-39.5525
2687.75	1.904	26.9806	15.5465	1.910	21.2383	9.1908	34.153	-32.0780	-40.2231
2795.25	1.883	28.0469	15.7825	1.910	22.3995	9.5252	34.379	-32.9936	-41.0325
2902.75	1.945	29.1268	16.0480	1.851	23.5985	9.9407	34.190	-34.0344	-41.2690
3010.25	1.842	30.2203	16.3135	1.848	24.4465	10.4154	34.266	-34.9836	-43.2203
3117.75	1.821	31.2592	16.4020	1.807	24.4758	10.6012	34.303	-35.7319	-44.5717
3225.25	1.780	32.3391	16.5495	1.745	24.4753	11.1275	34.266	-36.5950	-45.8587
3332.75	1.883	33.4327	16.8150	1.869	24.5242	11.5430	34.831	-37.4294	-47.0491
3440.25	2.007	34.5126	17.0805	1.992	24.5050	11.9881	34.454	-38.3501	-48.2396
3547.75	1.883	35.5789	17.3755	1.848	24.4758	12.6410	35.057	-38.9543	-48.9474
3655.25	1.883	36.6314	17.4345	1.848	24.3588	12.7892	34.680	-39.7598	-49.7518
3756.50	1.966	37.6567	17.6115	1.951	24.3880	12.9674	35.208	-40.5367	-50.3962

MESSWERTEDATEI: M3004A

MESSUNG/AUSWERTUNG VOM 4. 1.83 / 29. 4.83. 8.31  
MESSBEGINN : 15:15:1512.50 UHR MESSDAUER: 3802.00 S  
AUSGEWERTET VON .75 S BIS 3757.25 S  
ZAHL DER MESSPUNKTE: 15026

SHELL 612509

LFD.NR. 1008.1 VOM 5. 1.83 7:33 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.2 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD  
LY = 69.84 MM PHIY = 90 GRAD  
LZ = 69.92 MM PHIZ = 0 GRAD

M = 283 G  
RHO = 830 KG/M\*\*3  
SIP = 1.0 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

UI = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.053	-.0444	-6.6080	.041	1.0527	-3.9466	30.948	-.8038	-.6535
139.25	1.046	1.3628	-6.4605	.984	-.9065	-4.0059	31.476	-1.3504	-.8144
278.25	1.374	2.7563	-6.2835	1.393	-1.2574	-4.0356	30.722	-2.5875	-1.8762
417.25	1.599	4.1361	-5.8410	1.619	-1.3744	-4.1543	30.986	-3.6234	-3.2275
556.25	1.702	5.5160	-5.2510	1.721	-1.4036	-4.2730	31.589	-4.5723	-4.4823
695.25	1.824	6.9641	-4.4840	1.865	-1.0235	-4.1840	31.929	-5.2921	-5.5441
834.25	1.845	8.3577	-3.7465	1.885	-.5848	-4.2433	32.042	-5.1840	-6.6380
973.25	1.927	9.7648	-2.9795	1.885	-.1170	-4.2433	31.665	-6.9608	-7.5711
1112.25	1.886	11.1310	-2.4485	1.855	.2924	-4.3323	31.702	-7.7952	-8.6006
1251.25	1.845	12.5519	-1.8880	1.844	.7311	-4.3323	32.419	-8.5432	-9.6624
1390.25	1.824	13.9317	-1.5930	1.824	1.1697	-4.3620	31.966	-9.3200	-10.5954
1529.25	1.836	15.3525	-1.2685	1.926	1.6960	-4.2730	32.642	-9.9813	-11.4642
1568.25	1.742	16.7051	-1.1800	1.762	1.9385	-4.2620	32.079	-10.8151	-12.1720
1807.25	1.845	18.1522	-.9145	1.865	2.5441	-4.0356	32.456	-11.4491	-13.2328
1946.25	1.845	19.5467	-.7080	1.844	2.8950	-3.6499	32.268	-12.0533	-14.4886
2085.25	1.804	20.9129	-.7080	1.803	3.3044	-3.7092	32.946	-12.8301	-15.9364
2224.25	1.824	22.3338	-.5900	1.824	3.8600	-3.5905	32.305	-13.6069	-17.4164
2363.25	1.824	23.7136	-.0885	1.803	4.3279	-3.6202	33.097	-14.4125	-19.0252
2502.25	1.824	25.1208	1.0030	1.824	4.8250	-3.4125	32.602	-15.2469	-20.5374
2641.25	1.702	26.4733	1.9175	1.783	5.1466	-2.9970	32.569	-15.8511	-21.9209
2780.25	1.783	27.8668	2.5960	1.742	5.9069	-2.9377	33.436	-16.7717	-23.5296
2919.25	1.865	29.2740	3.2155	1.752	6.7550	-2.5519	32.946	-17.5486	-24.7522
3058.25	1.824	30.6812	3.7170	1.824	7.7784	-2.1958	33.738	-18.3829	-25.9748
3197.25	1.845	32.0884	4.0415	1.803	8.8019	-1.8694	33.512	-19.2173	-26.9722
3336.25	1.804	33.4955	4.3660	1.803	9.9424	-1.4510	33.097	-19.9941	-27.6801
3475.25	1.783	34.8617	4.6315	1.803	10.9951	-.9496	34.077	-20.7134	-28.2592
3614.25	1.824	36.2416	4.7495	1.762	12.2817	-.7418	33.436	-21.7491	-29.0953
3753.25	1.763	37.6488	4.9855	1.762	13.7731	-.3264	33.436	-22.5835	-29.5784
3892.25	1.742	39.0286	5.1625	1.742	15.2937	.0890	33.512	-23.5042	-30.1575
4031.25	1.783	40.4085	5.2805	1.721	16.8143	.4748	34.492	-24.3385	-30.5114
4170.25	1.865	41.8566	5.5165	1.844	18.7150	1.0089	34.341	-25.1441	-30.8010
4309.25	1.886	43.2638	5.6345	1.906	20.7912	1.4243	34.153	-26.1223	-31.0584
4448.25	1.886	44.6436	5.7620	1.906	22.9844	2.0178	34.153	-27.0718	-31.3480
4587.25	1.947	45.9962	5.7525	1.947	25.0898	2.2552	34.831	-28.1076	-31.6375
4726.25	1.699	47.3897	5.8115	1.619	27.0198	2.8487	34.454	-29.1433	-31.8306
4865.00	2.214	48.7012	5.9295	2.233	28.7159	3.8576	35.208	-29.8626	-31.9271

MESSWERTEDATEI: M3005

MESSUNG/AUSWERTUNG VOM 5. 1.83 / 28. 4.83.12.15

MESSBEGINN : 7:33:1319.25 UHR

MESSDAUER: 4884.75 S

AUSGEWERTET VON

.75 S BIS 4883.75 S

ZAHL DER MESSPUNKTE: 19432

SHELL 612507

LFD.NR. 1009.1 UOM 5. 1.83 9:24 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.2 0/00

DATEN DER PROBE:

LX = 69.83 MM PHIX = 90 GRAD M = 288 G  
LY = 69.88 MM PHIY = 90 GRAD RHO = 845 KG/M\*\*3  
LZ = 69.84 MM PHIZ = 0 GRAD SIP = .5 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.00 GRAD C

ZWISCHENLÄNGEN FUER DEHNUNG:

CX1 = 69.83 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = .3.7100 MM FY/FX = 1.0000  
DT = 5310.00 S FZ/FX = 0.0000  
EPSX1 = .1001E-04 1/S

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
125.75	-1.081	-1.0387	-11.0330	-1.062	1.4894	-2.4332	30.835	-1.0627	-1.4257
127.75	1.313	1.2803	-10.8855	1.292	1.0820	-1.6398	30.609	-1.7245	-1.7475
265.25	1.743	2.5229	-10.9445	1.763	1.1697	-1.3353	31.401	-3.7897	-3.7161
382.75	1.948	3.7930	-11.0035	1.968	1.0820	-1.0089	31.325	-5.6373	-5.3510
510.25	2.194	5.1449	-11.0035	2.194	1.1697	-.5638	31.137	-7.7684	-6.8310
637.75	2.276	6.4422	-11.1905	2.276	1.1697	-.3561	31.532	-9.9667	-8.1824
765.25	2.256	7.7257	-11.3870	2.317	1.1404	-.2077	31.552	-12.0245	-8.5363
892.75	2.233	8.9822	-11.5640	2.173	1.0235	-.1484	31.175	-14.0097	-8.6972
1020.25	2.133	10.2659	-11.7115	2.132	.9650	-.0890	32.230	-15.9249	-8.7293
1147.75	2.215	11.6042	-11.7705	2.215	1.0820	.0090	32.343	-17.7212	-8.7293
1275.25	2.371	12.8196	-12.0655	2.050	.9365	0.0000	32.238	-19.5915	-9.1798
1402.75	2.112	14.1169	-12.1835	2.050	.9650	.0090	31.627	-21.2513	-10.0485
1530.25	2.051	15.4606	-12.2720	2.071	.9065	.0593	31.740	-22.9288	-10.0528
1657.75	1.969	16.8569	-12.3900	1.968	.9942	.0593	31.740	-24.3673	-11.5667
1785.25	1.959	17.9269	-12.4785	1.927	1.0235	.0297	32.454	-25.9209	-12.1376
1912.75	1.948	19.2106	-12.5670	1.948	1.0820	0.0000	32.305	-27.3883	-13.3363
2040.25	1.959	20.5216	-12.4785	1.968	1.3451	.0890	33.822	-28.4528	-14.2633
2167.75	1.989	21.8189	-12.4195	2.009	1.4914	.1187	33.172	-29.9201	-15.5181
2295.25	1.959	23.0616	-12.5080	1.968	1.5498	.2374	33.210	-31.2724	-16.6121
2422.75	1.948	24.3589	-12.5080	1.907	1.9592	.0890	33.135	-32.4520	-17.0625
2550.25	1.887	25.6153	-12.5375	1.987	2.2807	0.0000	33.022	-33.7755	-17.4404
2677.75	1.989	26.9536	-12.4195	2.009	2.8073	.1780	32.795	-34.8408	-17.4486
2805.25	2.030	28.2099	-12.5375	2.050	3.1582	.1187	33.780	-36.0194	-17.5130
2932.75	1.989	29.5072	-12.5375	1.968	3.7722	.1780	33.643	-37.1992	-18.6599
3060.25	2.030	30.7909	-12.5375	2.050	4.5618	.2077	33.512	-38.2350	-19.3147
3187.75	1.948	32.0200	-12.6850	1.968	5.1759	.0890	33.097	-39.3858	-20.7626
3315.25	1.928	33.3446	-12.4195	1.969	6.2871	.2077	33.549	-40.3353	-22.0496
3442.75	2.010	34.6283	-11.8000	1.989	7.3690	.2077	33.926	-41.2272	-23.3365
3570.25	2.030	35.8709	-11.3575	2.030	8.1586	.1187	34.416	-42.2342	-24.6235
3697.75	1.989	37.1410	-10.7970	1.948	8.9189	.0890	34.341	-43.3275	-25.9748
3825.25	2.051	38.4519	-10.0005	1.989	9.7962	.1780	33.926	-44.1905	-27.2295
3952.75	1.928	39.6673	-9.4400	1.948	10.3518	.2077	33.813	-45.0537	-28.3236
4080.25	2.112	41.0056	-8.8205	2.071	10.6442	.5638	34.906	-45.6291	-29.2586
4207.75	2.010	42.2620	-8.3485	2.071	10.6734	.6528	34.567	-46.4060	-30.2862
4335.25	1.989	43.5183	-7.7595	1.989	10.8781	.9199	34.379	-47.1828	-31.3460
4454.25	1.866	44.3020	-7.1980	2.071	11.2290	1.1869	34.982	-47.9021	-32.2810

MESSWERTEDATEI: M3005A

MESSUNG/AUSWERTUNG VOM 5. 1.83 / 29. 4.83. 9.40

MESSBEGINN : 9:24:1319.25 UHR

MESSDAUER: 4884.75 S

AUSGEWERTET VON .75 S BIS 4455.00 S

ZAHL DER MESSPUNKTE: 17817

SHELL 612509

LFD.NR. 1010.1 VOM 5. 1.83 11:39 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.76 MM PHIX = 90 GRAD M = 305 G  
LY = 69.86 MM PHIY = 90 GRAD RHO = 896 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 2.8 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.76 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1002E-04 1/S  
FY/FX = 1.0000  
FZ/FX = 0.0900

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	-.019	.0103	-5.1920	.021	.6141	-1.8694	30.722	-.4585	-1.2005
131.25	1.889	1.2542	-3.8940	1.848	.6141	-1.6320	31.238	-.5449	-1.5544
262.25	2.094	2.5930	-2.7730	2.095	.3801	-1.5430	31.363	-.6312	-2.0944
393.25	1.991	3.8788	-1.7110	2.054	-.0877	-1.5134	31.740	-.9476	-3.0866
524.25	2.012	5.1911	-.6195	2.054	-.4971	-1.5727	31.476	-1.1778	-5.5441
655.25	2.012	6.5034	.2655	2.074	-.7603	-1.5430	31.862	-1.3792	-7.2015
786.25	1.991	7.8028	1.1505	2.013	-.9942	-1.5134	31.476	-1.5806	-8.9224
917.25	2.053	9.1553	2.0355	2.054	-1.0527	-1.4837	32.117	-1.7532	-10.5954
1048.25	2.012	10.4949	2.8910	1.992	-1.0020	-1.4540	32.268	-1.9834	-12.2365
1179.25	2.012	11.7662	3.6875	1.992	-1.1969	-1.6617	32.343	-2.2423	-13.8772
1310.25	1.930	13.0785	4.3955	1.972	-1.2262	-1.3991	32.842	-2.4437	-15.4216
1441.25	1.950	14.4045	5.1920	1.972	-1.2867	-2.0772	31.853	-2.7027	-16.0695
1572.25	2.012	15.7851	6.1360	2.054	-1.1112	-2.1365	32.706	-2.9465	-16.1564
1703.25	2.053	17.0837	6.6670	2.033	-1.1112	-2.3145	32.682	-3.0767	-17.4404
1834.25	1.971	18.3877	7.0880	1.992	-1.1697	-2.5816	32.192	-3.4507	-20.3267
1965.25	1.950	19.6460	7.9355	1.951	-1.1404	-2.7596	32.172	-3.7097	-21.9209
2096.25	1.971	21.0070	8.7320	1.992	-.9942	-2.8190	32.381	-3.9974	-23.1110
2227.25	1.971	22.2646	8.9680	1.992	-.6726	-3.0261	32.268	-4.3139	-23.9080
2358.25	1.909	23.5905	9.2925	1.951	-.4094	-3.2847	32.381	-4.6016	-24.7522
2489.25	1.950	24.9165	9.6170	1.992	-.1170	-3.2344	33.218	-4.8605	-25.4279
2620.25	2.012	26.2698	10.0330	2.033	.1755	-3.2947	33.286	-5.1482	-26.1855
2751.25	1.971	27.5411	10.0890	1.951	.2924	-3.4125	32.645	-5.5223	-26.6183
2882.25	2.073	28.9081	10.3840	2.054	.6141	-3.3828	33.172	-5.7238	-26.3757
3013.25	1.991	30.1793	10.3840	1.992	.7065	-3.5638	33.700	-6.0689	-27.2296
3144.25	1.971	31.4788	10.4135	1.972	1.2574	-3.6292	33.218	-6.3278	-27.4227
3275.25	1.950	32.7766	10.4135	1.951	1.7253	-3.7389	33.663	-6.6731	-27.6157
3406.25	2.073	34.1299	10.5905	2.095	2.6026	-3.8795	34.113	-6.9320	-27.7144
3537.25	2.073	35.4695	10.6200	2.033	3.5333	-3.7389	33.964	-7.2773	-27.8731
3668.25	1.930	36.7271	10.5020	1.972	4.6495	-3.8279	33.663	-7.5938	-27.9697
3799.25	1.909	38.0394	10.4725	1.951	6.0531	-3.8872	34.379	-7.9815	-27.9375
3930.25	2.012	39.3791	10.5905	2.033	7.5445	-3.7982	34.082	-8.1116	-27.8410
4061.25	2.073	40.6640	10.5315	2.074	8.5972	-3.9169	34.228	-8.3994	-28.0018
4192.25	2.114	41.9763	10.5020	2.074	10.0868	-3.9466	34.605	-8.7446	-28.2592
4323.25	1.991	43.2749	10.5020	2.033	11.6677	-3.9466	34.153	-8.9748	-28.4044
4454.25	2.094	44.6146	10.5610	2.033	12.9836	-3.9763	34.077	-9.2625	-28.6453
4579.25	2.114	45.9858	10.6790	2.115	14.0655	-3.9169	34.492	-9.4351	-28.7418

MESSWERTEDATEI: M3005  
MESSUNG/AUSWERTUNG VOM 5. 1.83 / 29. 4.83.13.50  
MESSBEGINN : 11:39:2971.25 UHR MESSDAUER: 4579.75 S  
AUSGEWERTET VON .75 S BIS 4580.00 S  
ZAHL DER MESSPUNKTE: 18317

SHELL 612509

LFD.NP. 1011.1 VOM 5. 1.83 13:24 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.31 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.78 MM PHIX = 90 GRAD  
LY = 69.84 MM PHIY = 90 GRAD  
LZ = 69.82 MM PHIZ = 0 GRAD

M = 306 G  
RHO = 899 KG/M\*\*3  
SIP = 1.6 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.78 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.082	-0.0034	.3835	.082	3.4506	-2.3739	31.137	.5484	-1.8118
116.00	1.450	1.1172	1.0030	1.416	4.3571	-2.0772	31.438	-1.6599	-3.7745
231.75	1.930	2.2514	2.1830	1.909	5.7515	-1.8694	31.401	-3.5658	-6.4128
347.50	2.258	3.4540	3.1565	2.278	5.8192	-1.7904	31.099	-6.2415	-9.0511
463.25	2.401	4.6293	3.2450	2.422	5.4975	-1.8398	31.062	-9.1474	-11.9146
579.00	2.442	5.7499	3.2155	2.381	5.1466	-2.0178	30.948	-12.1108	-14.8103
694.75	2.401	6.9251	3.2450	2.422	5.0297	-2.1958	31.966	-14.9016	-17.7060
810.50	2.360	8.1004	3.2450	2.360	4.9712	-2.4629	31.438	-17.5486	-20.6339
926.25	2.340	9.2483	3.2155	2.319	4.8250	-2.7300	31.288	-20.0804	-23.6583
1042.00	2.278	10.4099	3.2155	2.299	4.6203	-2.9080	31.438	-22.2670	-26.5218
1157.75	2.237	11.5852	3.2155	2.176	4.4448	-3.0861	31.476	-24.2522	-29.1279
1273.50	2.217	12.7194	3.1860	2.195	4.5325	-3.2933	32.042	-26.1223	-31.7984
1389.25	2.217	13.9084	3.2155	2.258	5.0297	-3.4125	32.645	-27.9774	-34.3402
1505.00	2.217	15.0426	3.1860	2.217	5.9069	-3.5312	32.419	-29.6324	-36.8820
1620.75	2.135	16.2179	3.1860	2.094	6.8427	-3.6202	32.589	-31.0134	-39.1342
1736.50	2.135	17.3658	3.1860	2.155	7.5445	-3.7389	31.966	-32.3657	-41.5795
1852.25	2.135	18.5274	3.0975	2.135	8.3925	-3.8279	32.305	-33.5165	-43.6386
1968.00	2.135	19.6753	3.1565	2.094	9.3283	-3.9169	32.934	-34.7249	-45.4082
2083.75	1.991	20.8233	3.1860	1.970	10.7611	-4.0950	32.720	-35.8470	-47.2100
2199.50	2.196	22.0669	3.5105	2.176	12.4864	-4.0653	32.607	-36.9115	-48.8830
2315.25	2.176	23.2148	3.3055	2.217	14.0655	-4.1246	32.589	-37.9473	-50.4918
2431.00	2.217	24.3764	4.1595	2.217	15.3229	-4.1246	33.474	-38.7529	-51.8109
2546.75	2.214	25.4970	4.3365	2.135	16.1710	-4.3027	33.210	-39.7023	-53.3231
2662.50	2.073	26.6586	4.7790	2.073	17.2822	-4.3323	33.625	-40.4791	-54.5779
2778.25	2.176	27.8202	5.0445	2.155	18.1302	-4.5697	33.210	-41.4573	-55.8649
2894.00	2.155	28.9681	5.4870	2.094	19.2706	-4.6588	33.135	-42.2342	-56.9588
3009.75	2.073	30.1160	5.8115	2.094	20.2064	-4.7774	33.474	-42.8671	-58.0528
3125.50	2.135	31.2776	6.2935	2.094	21.1714	-4.8071	33.537	-43.5864	-59.3719
3241.25	2.176	32.4802	6.8145	2.135	22.1656	-4.7478	34.002	-44.1043	-60.5946
3357.00	2.155	33.6008	7.0800	2.135	22.6920	-4.8961	34.266	-44.8235	-61.9137
3472.75	2.237	34.8034	7.5225	2.237	23.3646	-4.7774	34.341	-45.3127	-62.8769
3588.50	2.176	35.9513	7.9355	2.135	23.9494	-4.8071	34.190	-45.9456	-63.9729
3704.25	1.724	37.0583	8.2600	1.704	24.5927	-4.8368	34.379	-46.7224	-65.0346
3820.00	2.094	38.2745	8.7025	2.176	25.1483	-4.6588	34.756	-47.0677	-65.8068
3935.75	2.094	39.4224	9.0365	2.073	25.3530	-4.8368	34.379	-47.7007	-66.6433
4047.00	2.278	40.5430	9.3515	2.053	25.9086	-4.8368	34.718	-48.2185	-67.3512

MESSWERTEDATEI: M3005A

MESSUNG/AUSWERTUNG VOM 5. 1.83 / 2. 5.83.10.59

MESSBEGINN : 13:24: 988.25 UHR

MESSDAUER: 4803.25 S

AUSGEWERTET VON

.75 S BIS 4047.75 S

ZAHL DER MESSPUNKTE: 16188

SHELL 612509

LFD.NR. 1012.1 VOM 5. 1.83 15:14 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDSER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

PROBENENTNAHME 4.31 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD  
LY = 69.85 MM PHIY = 90 GRAD  
LZ = 69.86 MM PHIZ = 0 GRAD

M = 310 G  
RHO = 910 KG/M\*\*3  
SIP = 1.7 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	.165	-1.0034	-26.6385	.185	1.0527	-4.9555	31.062	-.8613	-3.1502
143.00	2.625	1.3764	-26.4320	2.566	.4679	-3.0361	30.798	-1.0627	-9.8876
285.75	3.548	2.7973	-25.6650	3.527	-.3801	-2.1958	30.798	-2.3287	-14.3277
428.50	3.732	4.1906	-25.0455	3.753	-.5433	-1.2166	30.986	-4.2276	-19.4756
571.25	3.855	5.6799	-24.7210	3.917	-.5264	-.4451	31.175	-7.0183	-24.6765
714.00	4.061	7.1144	-23.8655	4.061	-.2632	.1780	32.079	-10.5860	-30.5436
856.75	4.101	8.5216	-23.1070	4.102	.1462	.5045	31.778	-14.0097	-36.4637
999.50	4.286	9.9561	-22.5380	4.266	.2339	.7122	32.042	-17.1170	-41.8690
1142.25	4.122	11.4043	-21.9480	4.143	.2924	.8982	31.815	-19.8503	-47.0013
1285.00	4.265	12.7841	-21.5645	4.327	.1462	.0605	31.740	-22.2670	-51.7456
1427.75	4.360	14.2438	-21.2400	4.389	.2047	.3792	31.863	-24.2025	-56.3797
1570.50	4.511	15.6662	-21.0630	4.491	.1462	1.0099	32.720	-26.1799	-61.3034
1713.25	4.305	17.1013	-21.0336	4.236	.1462	1.0386	32.117	-27.7911	-64.9059
1856.00	4.142	18.5221	-21.0336	4.143	.1170	1.0979	32.833	-29.1145	-67.5121
1998.75	4.101	19.9566	-17.6410	4.061	.1755	1.1573	32.305	-30.4092	-69.7321
2141.50	4.019	21.4134	-14.9565	3.999	.2339	1.2166	32.494	-31.6464	-71.7269
2284.25	3.855	22.8119	-13.9240	3.935	.1755	1.1869	32.545	-32.8246	-73.2713
2427.00	3.876	24.3011	-12.9505	3.876	.3217	1.3056	32.682	-33.5165	-74.4296
2569.75	3.753	25.7356	-11.9475	3.794	.3801	1.3056	33.625	-34.2933	-75.5879
2712.50	3.539	27.1291	-11.2395	3.568	1.2282	1.2166	33.210	-35.0414	-76.5531
2855.25	3.507	28.5636	-10.4135	3.486	2.7780	1.1869	32.758	-35.6160	-77.3574
2998.00	3.507	29.9981	-9.2925	3.466	4.2401	1.2463	33.776	-36.1649	-78.1616
3140.75	3.384	31.4189	-8.4075	3.404	5.7607	1.2750	33.135	-36.8927	-78.6766
3283.50	3.445	32.8396	-7.7290	3.507	7.1643	1.2166	33.839	-37.3718	-79.2236
3426.25	3.322	34.3152	-6.9030	3.281	8.3925	1.3056	33.512	-37.7746	-79.6740
3569.00	3.240	35.7361	-6.3425	3.240	9.6499	1.3056	33.361	-38.0623	-80.1245
3711.75	3.138	37.1296	-5.8410	3.138	10.8489	1.1573	34.039	-38.3788	-80.7036
3854.50	3.117	38.5641	-5.2215	3.138	11.9308	1.2463	33.736	-38.6090	-81.1852
3997.25	3.015	39.9986	-4.6905	3.076	13.1005	1.2760	34.153	-38.8104	-81.6366
4140.00	3.035	41.4331	-4.1595	2.994	14.2117	1.2166	34.492	-38.9543	-82.1330
4282.75	2.994	42.8129	-3.8350	2.953	15.0013	1.1276	34.416	-39.1269	-82.6662
4425.50	2.974	44.2743	-3.1860	3.015	15.9078	1.1869	33.839	-39.2132	-83.1810
4568.25	2.933	45.7093	-2.6845	2.912	16.9020	1.1869	34.341	-39.3283	-83.6636
4711.00	2.953	47.1301	-2.1240	2.933	17.5453	1.1869	34.605	-39.4146	-84.1141
4853.75	2.810	48.5646	-1.6520	2.830	18.5396	1.2463	34.982	-39.4146	-84.3715
4991.50	2.871	49.9581	-1.1300	2.892	19.4753	1.2463	34.756	-39.5009	-84.5323

MESSWERTEDATEI: M3005

MESSUNG/AUSWERTUNG VOM 5. 1.83 / 2. 5.83.15.44

MESSBEGINN : 15:14:1100.25 UHR

MESSDAUER: 5019.25 S

AUSGEWERTET VON

.75 S BIS 4992.25 S

ZAHL DER MESSPUNKTE: 19966

SHELL 612509

LFD.NR. 1015.1 VCM 20. 1.83 7:42 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYAP RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.2 0/00

DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD  
LY = 69.85 MM PHIY = 90 GRAD  
LZ = 69.76 MM PHIZ = 0 GRAD

M = 308 G  
RHO = 905 KG/M\*\*3  
SIP = 3.6 0/00

TEMPERATUREN:

TL = -5.20 GRAD C  
TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.022	.0230	3.3915	0.000	.0586	4.8368	31.099	2.4204	-.3558
147.50	1.089	1.4969	3.4808	1.109	.2639	4.7774	30.571	2.4204	-3.9059
294.75	1.274	2.9980	3.7198	1.232	.3811	4.7774	30.685	2.3628	-7.3336
442.00	1.192	4.4581	4.0163	1.191	.1173	4.7181	31.283	1.9888	-10.5776
589.25	1.254	5.9593	4.2542	1.232	-.3225	4.7181	31.665	1.5860	-13.1790
736.50	1.212	7.4331	4.4625	1.191	-.9675	4.6884	31.401	1.1832	-15.3213
882.75	1.233	8.9479	4.7898	1.211	-1.4365	4.7473	31.062	.8092	-17.1270
1031.00	1.212	10.4626	5.0278	1.170	-2.0815	4.7774	32.079	.4927	-18.9020
1178.25	1.192	11.9364	5.1468	1.170	-2.8144	4.7181	31.250	.0899	-20.6771
1325.50	1.212	13.4376	5.3847	1.232	-3.4007	4.7478	31.433	-.3129	-22.3297
1472.75	1.151	14.8977	5.5920	1.150	-3.9271	4.6598	32.419	-.7445	-23.7069
1620.00	1.192	16.3988	5.9500	1.232	-4.3682	4.7478	31.665	-1.1185	-24.8699
1767.25	1.233	17.9136	6.1890	1.232	-4.6907	4.6884	32.192	-1.5213	-26.2471
1914.50	1.274	19.4147	6.4260	1.252	-4.3373	4.7478	32.832	-1.9241	-27.8079
2061.75	1.171	20.8203	6.4260	1.191	-5.0425	4.5994	32.305	-2.3844	-29.1881
2209.00	1.192	22.3214	6.6045	1.191	-5.0132	4.5994	32.004	-2.7009	-30.3481
2356.25	1.212	23.8226	6.7533	1.211	-4.8839	4.6291	32.305	-3.2186	-31.6020
2503.50	1.171	25.2827	6.7830	1.170	-5.0425	4.5401	32.933	-3.7654	-32.5210
2650.75	1.233	26.7702	6.9020	1.211	-4.9839	4.5401	33.210	-4.3121	-32.9188
2798.00	1.295	28.2986	6.9913	1.232	-4.3373	4.5994	32.909	-4.8299	-32.9800
2945.25	1.274	29.7588	7.0507	1.252	-4.6027	4.5401	33.210	-5.4341	-33.1330
3092.50	1.212	31.2190	6.9913	1.191	-4.4855	4.4510	33.399	-5.9808	-33.3770
3239.75	1.397	32.7610	7.1698	1.335	-4.2509	4.5401	33.738	-6.3548	-33.3473
3387.00	1.233	34.1666	7.0805	1.191	-4.1630	4.3620	33.436	-6.9015	-33.4361
3534.25	1.212	35.6677	7.1995	1.211	-3.8112	4.4214	32.984	-7.3043	-33.3779
3681.50	1.315	37.1961	7.3780	1.314	-3.3128	4.4807	33.587	-7.5920	-33.3473
3828.75	1.315	38.5427	7.3185	1.314	-2.7851	4.3323	33.399	-7.9943	-33.4085
3976.00	1.295	40.1574	7.4375	1.293	-1.9935	4.4214	33.474	-8.2925	-33.4085
4123.25	1.377	41.6313	7.5268	1.376	-1.2599	4.4214	34.303	-8.5930	-33.3650
4270.50	1.315	43.0914	7.5555	1.314	-.7036	4.3520	34.115	-8.9442	-33.3259
4417.75	1.212	44.5789	8.2110	1.191	-.1466	5.0742	34.454	-9.1166	-33.1621
4565.00	1.377	46.0664	9.2820	1.335	.3811	5.3412	34.718	-9.2607	-40.5699
4712.25	1.397	47.5538	10.6505	1.376	.9968	5.4303	34.567	-9.3182	-42.4980
4859.50	1.397	49.0550	12.1677	1.417	1.7004	5.5193	34.341	-9.3758	-44.5485
5006.75	1.377	50.4879	13.6255	1.335	2.2281	5.5786	34.268	-9.4333	-46.3438
5149.75	1.418	51.5932	14.9940	1.376	2.7558	5.6677	34.153	-9.4045	-48.6495

MESSWERTEDATEI: M3020

MESSUNG/AUSWERTUNG VOM 20. 1.83 / 26. 5.83. 9.22

MESSBEGINN : 7:42: 507.50 UHR

MESSDAUER: 5150.25 S

AUSGEWERTET VOM

.75 S

BIS 5150.50 S

ZAHL DER MESSPUNKTE: 20599



SHELL 612509

LFD.NR. 2002.1 VOM 6. 1.83 9: 0 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES PEINDEER ISLAND PFUDHOS BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD  
LY = 69.85 MM PHIY = 90 GRAD  
LZ = 69.82 MM PHIz = 0 GRAD

M = 295 G  
RHO = 366 KG/M\*\*3  
SIP = .8 0/00

TEMPERATUREN:  
TL = -5.00 GRAD C  
TP = -5.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
SPSK1 = .1001E-04 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.063	-.0034	-23.0985	.041	-7.7200	.9496	30.534	-1.6108	-9.0933
151.75	1.086	1.4655	-22.8330	.513	-7.6515	.8902	31.062	-1.8396	-10.4346
303.25	1.376	3.0291	-21.1220	.636	-7.1643	.8605	31.137	-2.4725	-11.9790
454.75	1.683	4.5453	-19.3815	.641	-7.1059	.8605	31.438	-3.1918	-13.3946
606.25	1.827	6.0343	-17.7000	.903	-7.2813	.7715	31.288	-3.9974	-14.6816
757.75	1.909	7.5505	-16.1365	.903	-7.5153	.7418	31.212	-4.3605	-15.8721
909.25	2.032	9.0804	-14.5730	.985	-7.6615	.8012	31.175	-5.5798	-17.1269
1060.75	2.114	10.6513	-13.1275	1.025	-7.2369	.8309	32.192	-6.2991	-18.1866
1212.25	2.134	12.1676	-11.8295	1.067	-8.0709	.8505	31.929	-7.0759	-19.4434
1363.75	2.114	13.6702	-10.8265	1.067	-8.3633	.8605	31.665	-7.7952	-20.3765
1515.25	2.073	15.2001	-9.8325	1.026	-8.6265	.8309	32.079	-8.5144	-21.3095
1666.75	2.093	16.7300	-8.9385	1.026	-8.8312	.8902	31.778	-9.1186	-22.0496
1818.25	2.032	18.1916	-8.3485	.923	-9.2113	.7715	31.891	-9.7804	-22.6930
1969.75	2.155	19.7898	-7.5225	1.026	-9.3283	.8605	32.682	-10.2983	-23.1435
2121.25	2.011	21.2924	-7.3750	1.005	-9.5622	.8605	33.022	-10.8161	-23.4974
2272.75	1.991	22.8223	-7.4045	1.005	-9.6254	.8309	32.305	-11.3340	-23.6905
2424.25	1.909	24.2976	-7.4930	.923	-10.1763	.6528	32.230	-11.8519	-23.9157
2575.75	1.970	25.8548	-7.4340	.964	-10.3225	.6528	32.456	-12.1684	-23.9478
2727.25	1.909	27.3574	-7.4045	.923	-10.6149	.5341	33.286	-12.5712	-24.0122
2878.75	1.909	28.9147	-7.3455	.964	-10.7611	.5045	33.436	-12.8876	-24.0444
3030.25	1.847	30.4309	-7.3455	.944	-11.0243	.4451	33.022	-13.2529	-24.1087
3181.75	1.847	31.9198	-7.4045	.903	-11.3167	.3264	33.323	-13.5782	-24.1731
3333.25	1.745	33.4224	-7.4045	.800	-11.6384	.2374	33.436	-13.8946	-24.1409
3484.75	1.929	34.9660	-7.3455	.923	-11.7261	.2671	33.210	-14.1248	-24.0122
3636.25	1.806	36.5232	-7.3160	.862	-11.9893	.2374	33.248	-14.4413	-23.0148
3787.75	1.786	37.9849	-7.4045	.841	-12.3695	.0593	33.361	-14.8153	-22.0817
3939.25	1.417	39.5284	-7.3160	.677	-12.5449	.0593	33.889	-15.0742	-20.6661
4090.75	1.827	41.0720	-7.2570	.903	-12.6911	.0297	34.303	-15.2756	-19.2192
4242.25	1.827	42.5609	-7.3160	.882	-13.0420	-.0297	34.567	-15.6209	-17.7382
4393.75	1.847	44.0772	-7.2865	.862	-13.2760	-.0690	34.605	-15.8798	-16.3869
4545.25	1.786	45.5934	-7.3455	.802	-13.4807	-.0593	34.153	-16.0237	-15.4538
4696.75	1.704	47.0824	-7.3160	.800	-13.7439	-.0890	34.906	-16.1675	-14.7781
4848.25	1.724	48.6669	-7.1980	.882	-13.8901	0.0000	35.133	-16.2251	-13.5233
4999.75	1.683	50.1422	-7.2570	.800	-14.1825	-.0890	34.153	-16.3402	-13.0729
5151.25	1.765	51.6585	-7.2570	.841	-14.4164	-.1187	35.208	-16.3977	-14.6173
5301.50	1.293	53.1474	-7.2865	.574	-14.6796	-.1187	34.416	-16.4265	-14.3920

MESSWERTEDATEI: M3006

MESSUNG/AUSWERTUNG VOM 6. 1.83 / 3. 5.83.12.46

MESSBEGINN : 9: 0:7173.75 UHR

MESSDAUER: 5326.75 S

AUSGEWERTET VON

.75 S BIS 5302.25 S

ZAHL DER MESSPUNKTE: 21206

SHELL 612509

LFD.NR. 2004.1 VOM 11. 1.83 9: 0 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTISEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

PROBENENTNAHME 4.81 BEI SIE = 1.2 0/00

DATEN DER PROBE:

LX = 69.86 MM PHIX = 90 GRAD  
LY = 69.83 MM PHIY = 90 GRAD  
LZ = 69.96 MM PHIZ = 0 GRAD

M = 309 G  
SPD = 906 KG/M\*\*3  
SIP = 2.0 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -5.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.86 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSK1 = .1000E-04 1/3

FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSK1 [MM/M]	EPSK2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.022	-0.0034	-20.5320	0.000	.6773	-4.6586	30.986	-.4296	-6.7546
151.75	1.498	1.4299	-20.4140	.697	.8138	-4.8369	31.250	-.8901	-7.1236
303.25	1.908	2.9723	-19.1160	.922	.9065	-4.8368	31.514	-2.7390	-7.7319
454.75	2.011	4.4738	-17.3755	.924	.9650	-4.8368	30.986	-4.8605	-8.1502
606.25	2.093	5.9754	-15.8120	1.004	.9358	-4.9253	30.986	-7.1047	-8.5360
757.75	2.154	7.4905	-14.0715	1.025	.9650	-4.8665	31.250	-9.3776	-8.9224
909.25	2.113	9.0193	-12.5080	1.025	.9650	-4.9253	31.514	-11.6217	-9.3722
1060.75	2.216	10.5482	-10.8560	1.065	.7503	-4.8071	32.117	-13.7500	-9.8037
1212.25	2.175	12.0633	-9.3220	1.045	.5048	-4.8665	31.966	-15.9008	-9.7589
1363.75	2.093	13.5785	-7.9060	1.004	.4971	-4.8071	32.343	-17.5773	-9.9192
1515.25	2.113	15.1210	-6.4900	1.045	.3801	-4.7131	32.004	-19.9583	-9.8241
1666.75	2.093	16.6361	-5.2215	1.025	.2924	-4.4510	32.682	-20.1092	-10.0807
1818.25	2.031	18.1103	-4.0710	.963	-.0292	-4.4807	31.929	-21.1450	-10.2737
1969.75	1.949	19.6255	-3.9235	.922	-.0377	-4.3620	32.682	-21.6341	-10.3059
2121.25	1.908	21.1270	-3.9530	.902	-.2924	-4.3027	32.607	-21.8930	-10.3059
2272.75	1.970	22.6031	-3.7760	.943	-.2924	-4.0950	32.494	-22.0362	-10.2415
2424.25	2.400	24.2256	-3.7170	1.188	-.5264	-4.0059	32.343	-22.3137	-10.0435
2575.75	1.949	25.6725	-3.6875	.922	-.7713	-4.0059	32.833	-23.0438	-9.8233
2727.25	1.908	27.2013	-3.6285	.922	-.8108	-3.9159	33.286	-23.1014	-9.5015
2878.75	1.990	28.7302	-3.5400	.964	-.9358	-3.7982	33.022	-23.1014	-9.1798
3030.25	1.990	30.2317	-3.5105	.943	-1.0527	-3.7389	32.758	-23.0726	-8.6006
3181.75	1.847	31.7468	-3.4810	.922	-1.0820	-3.6795	32.682	-22.4972	-8.1502
3333.25	1.908	33.3030	-3.3630	.943	-1.0527	-3.5015	32.909	-20.3106	-7.6676
3484.75	1.970	34.8045	-3.3630	1.004	-1.2574	-3.5015	33.512	-18.5556	-7.1528
3636.25	1.908	36.2924	-3.3630	.902	-1.4036	-3.4421	33.248	-16.8581	-6.7345
3787.75	1.867	37.8212	-3.3335	.922	-1.5206	-3.4125	34.077	-15.6784	-6.4449
3939.25	1.908	39.3363	-3.3040	.922	-1.6660	-3.2938	33.361	-14.6139	-6.0267
4090.75	1.888	40.8652	-3.2155	.881	-1.7638	-3.0861	34.415	-13.0940	-5.6406
4242.25	1.867	42.3530	-3.2745	.861	-2.0470	-2.9674	34.002	-13.2041	-5.1580
4393.75	1.929	43.8955	-3.2155	.902	-2.1054	-2.7893	34.492	-12.6575	-4.5467
4545.25	1.867	45.3970	-3.2155	.922	-2.2224	-2.6706	34.492	-12.3698	-4.3214
4696.75	1.908	46.8985	-3.2450	.881	-2.4271	-2.5016	33.889	-12.2547	-4.1927
4848.25	1.847	48.4137	-3.2155	.861	-2.5733	-2.4036	34.869	-12.1684	-4.0962
4999.75	1.888	49.9562	-3.1860	.902	-2.7195	-2.2255	34.190	-12.0533	-3.6406
5151.25	1.949	51.4713	-3.1860	.963	-2.8657	-2.0772	34.982	-11.9957	-3.8336
5301.75	1.683	52.6179	-3.1860	.779	-3.0120	-1.9881	35.283	-11.7368	-3.4154

MESSWERTEDATEI: M3011

MESSUNG/AUSWERTUNG VOM 11. 1.83 / 4. 5.83. 8.53

MESSBEGINN : 9: 0:1627.75 UHR

MESSDAUER: 5302.75 S

AUSGEWERTET VON .75 S BIS 5302.50 S

ZAHL DER MESSPUNKTE: 21207

SHELL 612509

LFD.NR. 2005.1 VOM 11. 1.83 11: 2 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PFUDHOE BAY  
3-15 APRIL 1981

DISPROBEMENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD M = 304 G  
LY = 69.81 MM PH1Y = 90 GRAD RHO = 892 KG/M\*\*3  
LZ = 69.88 MM PH1Z = 0 GRAD SIP = 2.1 0/00

TEMPERATUREN:

TL = -5.00 GRAD C  
TP = -4.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S  
FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SK [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.063	-.0171	-20.0600	0.000	.2047	-3.0267	30.685	-2.0985	-6.7345
141.50	1.273	1.3214	-19.5525	.594	.0877	-3.1157	30.873	-2.5588	-7.6997
282.75	1.703	2.7828	-19.8800	.820	.1462	-3.1157	30.948	-3.3356	-9.5015
424.00	1.908	4.2169	-18.4080	.943	.1755	-3.0267	31.363	-4.1988	-11.1424
565.25	1.970	5.6237	-18.1425	.963	.1462	-3.0564	30.835	-5.1770	-13.0085
706.50	2.031	7.0168	-17.9065	.963	.1170	-3.0861	31.325	-6.2415	-14.8103
847.75	2.031	8.4372	-17.6705	.984	.0877	-3.0861	30.948	-7.3061	-16.3547
989.00	1.990	9.8713	-17.4640	1.004	.1755	-2.0267	31.399	-8.4857	-17.7382
1130.25	2.031	11.2917	-17.3460	.984	.1170	-3.0267	31.514	-9.8091	-18.8321
1271.50	2.031	12.6985	-17.1395	1.004	.2047	-2.9970	31.175	-11.2189	-19.7008
1412.75	1.990	14.1462	-16.9920	1.025	.2047	-2.9377	31.778	-12.5424	-20.3765
1554.00	2.031	15.5530	-16.9035	.984	.2047	-2.9377	31.702	-13.9234	-20.9234
1695.25	2.011	16.9596	-16.8445	.963	.2047	-2.9377	31.552	-15.2756	-21.3095
1836.50	1.867	18.3802	-16.8150	.981	.1755	-2.9377	32.494	-16.4553	-21.5669
1977.75	1.970	19.7870	-16.8150	.943	.1755	-2.9970	31.966	-17.7212	-21.5991
2119.00	1.908	21.1938	-16.7855	.902	.1170	-2.9970	32.607	-18.9296	-21.6313
2260.25	1.888	22.6005	-16.8150	.902	.0585	-3.0267	32.268	-20.1380	-21.6956
2401.50	1.847	24.0073	-16.7855	.840	-.0877	-3.2047	32.004	-21.2600	-21.6635
2542.75	1.826	25.4551	-16.7855	.861	-.1755	-3.2541	32.230	-22.2383	-21.4061
2684.00	1.847	26.8613	-16.7560	.861	-.2047	-3.3531	33.022	-23.3028	-20.8591
2825.25	1.847	28.2959	-16.6970	.922	-.2339	-3.3531	32.532	-24.2235	-20.2156
2966.50	1.826	29.7027	-16.7265	.922	-.4094	-3.4718	33.399	-25.1154	-19.4756
3107.75	1.806	31.1641	-16.8445	.840	-.6726	-3.6202	33.135	-25.7771	-18.4138
3249.00	1.724	32.4889	-16.9330	.902	-.7295	-3.6795	33.361	-26.4388	-17.0303
3390.25	1.703	33.8820	-17.0510	.681	-.9358	-3.7092	33.663	-26.9279	-15.6790
3531.50	1.867	35.4254	-17.2575	.681	-1.1697	-3.8576	32.909	-27.3307	-14.4242
3672.75	1.806	36.7912	-17.4050	.840	-1.3451	-3.9466	33.097	-27.5609	-13.2658
3814.00	1.888	38.2389	-17.4345	.902	-1.5206	-3.9169	33.172	-27.5609	-12.3650
3955.25	1.785	39.5911	-17.5230	.840	-1.7545	-4.0356	33.361	-27.6750	-12.1720
4096.50	1.826	40.8612	-17.7000	.861	-1.9685	-4.0356	33.286	-27.7335	-11.8790
4237.75	1.949	42.4319	-17.8180	.943	-2.1347	-4.0653	33.436	-27.7048	-10.7885
4379.00	1.539	43.7977	-17.9065	.758	-2.4856	-4.1840	33.549	-27.7623	-10.5954
4520.25	1.826	45.1225	-18.2015	.902	-2.5441	-4.1543	33.663	-27.7335	-10.5633
4661.50	1.785	46.6249	-18.1720	.779	-2.8073	-4.1543	34.756	-27.7335	-10.4346
4802.75	1.744	47.9497	-18.3210	.861	-3.6845	-4.3027	34.869	-27.0486	-9.1476
4937.75	1.703	48.9877	-18.2015	.861	-3.3921	-4.2433	34.228	-27.7335	-9.1154

MESSWERTEDATEI: M3011A

MESSUNG/AUSWERTUNG VOM 11. 1.83 / 4. 5.83.11.57

MESSBEGINN : 11: 2: 812.00 UHR MESSDAUER: 4938.25 S

ANGEWENDETE VON: .75 S

SHELL 612509

LFD.NR. 2006.1 VOM 11. 1.83 13:47 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAMME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD  
LY = 69.82 MM PHIY = 90 GRAD  
LZ = 69.84 MM PHIZ = 0 GRAD

M = 306 G  
RHO = 899 KG/M\*\*3  
SIP = .9 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -4.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 2.0000  
FZ/FX = .0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.042	-.0307	-24.8980	-.041	-.7013	-6.0831	30.335	-4.0262	-7.1523
105.75	1.458	.9802	-24.3080	.636	-.8138	-6.1721	31.325	-4.0837	-7.7641
211.25	1.889	2.0869	-23.3935	.944	-.7013	-6.0534	31.024	-4.5153	-8.3432
316.75	2.135	3.1525	-22.7445	1.046	-.8480	-6.0031	30.760	-5.2345	-8.8580
422.25	1.889	4.2044	-22.0365	.882	-1.0235	-5.9941	31.702	-5.9926	-9.4050
527.75	2.424	5.2564	-21.6825	1.210	-1.3159	-6.0237	31.552	-6.7019	-9.8876
633.25	2.586	6.3220	-21.4465	1.231	-1.5499	-6.0237	31.655	-7.3924	-10.5311
738.75	2.586	7.3740	-21.2990	1.251	-1.7545	-6.0534	31.175	-8.0541	-10.9494
844.25	2.607	8.4306	-21.0040	1.313	-1.8715	-5.9050	31.956	-8.6583	-11.3998
949.75	2.566	9.5139	-20.9155	1.231	-2.0762	-5.9347	31.325	-9.2913	-11.9146
1055.25	2.525	10.5572	-20.7975	1.210	-2.3101	-6.0237	32.004	-9.9242	-12.4616
1160.75	2.484	11.5365	-20.6500	1.169	-2.5148	-6.0237	31.438	-10.4709	-12.9120
1266.25	2.462	12.7158	-20.3845	1.231	-2.6026	-5.9050	31.665	-10.9868	-13.3303
1371.75	2.176	13.7814	-20.2665	1.067	-2.7195	-5.9050	32.532	-11.4491	-13.7807
1477.25	2.155	14.8197	-20.1780	1.046	-2.9627	-5.9941	32.456	-11.9957	-14.2955
1582.75	2.032	15.8717	-20.0010	.964	-3.2166	-6.0237	31.815	-12.4849	-14.8103
1688.25	2.073	16.9373	-19.8240	1.005	-3.3044	-5.9347	32.381	-12.8301	-15.1964
1793.75	2.053	18.0030	-19.7355	.985	-3.5091	-5.9644	32.753	-13.2904	-15.6468
1899.25	2.401	19.0959	-19.5380	1.251	-3.6260	-5.9050	32.305	-13.5782	-15.9042
2004.75	2.258	20.1205	-19.5380	1.149	-3.8015	-5.9941	32.796	-14.0385	-16.2903
2110.25	2.434	21.1362	-19.4995	1.231	-3.8307	-5.9644	33.135	-14.3550	-16.6442
2215.75	2.114	22.2245	-19.4405	.964	-3.9769	-5.9941	32.268	-14.7290	-16.9660
2321.25	1.848	23.2901	-19.3815	.862	-4.1232	-6.0534	33.022	-15.0742	-17.2556
2426.75	2.114	24.3421	-19.3815	1.005	-4.2986	-6.0237	33.286	-15.3620	-17.5130
2532.25	2.114	25.4214	-19.2635	1.005	-4.4448	-5.9644	32.632	-15.6784	-17.7382
2637.75	2.340	26.4460	-19.3520	1.108	-4.6788	-6.0831	33.436	-15.9949	-17.9634
2743.25	2.422	27.5253	-19.2045	1.190	-4.8250	-5.9941	32.946	-16.2251	-18.1243
2848.75	2.340	28.6046	-19.1455	1.169	-5.0297	-5.9941	33.474	-16.4255	-18.2851
2954.25	1.930	29.6292	-19.1750	.903	-5.2051	-6.0237	32.994	-16.6567	-18.4136
3059.75	1.948	30.6948	-19.1160	.862	-5.3806	-6.0237	33.351	-16.8005	-18.4782
3165.25	2.155	31.7605	-19.0570	.964	-5.4975	-5.9644	33.700	-16.9156	-18.5425
3270.75	2.319	32.8124	-19.0275	1.149	-5.7022	-6.0237	34.002	-17.0595	-18.6069
3376.25	2.135	33.8781	-18.9980	.964	-5.8777	-5.9941	34.190	-17.0882	-18.6391
3481.75	2.278	34.9164	-18.0863	1.087	-6.1701	-6.0031	34.077	-17.1745	-18.6712
3587.25	2.217	36.0230	-18.9390	1.108	-5.2236	-5.9644	34.379	-17.1170	-18.6069
3690.50	1.848	37.0476	-18.8800	.944	-6.3748	-5.9644	34.379	-17.0882	-18.6391

MESSWERTEDATEI: M3011

MESSUNG/AUSWERTUNG VOM 11. 1.83 /

MESSBEGINN : 13:47: 399.25 UHR

AUSGEWERTET VON

ZAHL DER MESSPUNKTE: 14762

4. 5.83.15.21

MESSDAUER:

3707.25 S

BIS 3691.25 S

SWELL 612509

LFD.NR. 2010.1 VOM 12. 1.83 12:53 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES PEINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

DISPROBENENTNAHME 4.81 BEI SIE = 2.1 0/00

DATEN DER PROBE:

LX = 69.83 MM PHIX = 90 GRAD M = 307 G  
LY = 69.81 MM PHIY = 90 GRAD RHO = 901 KG/M\*\*3  
LZ = 69.82 MM PHIz = 0 GRAD SIP = 1.2 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.83 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VEPUSCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S  
FY/FX = .5000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	-1.019	-1.0307-20.6500		-1.032	1.7253	-4.6503	31.024	-7.7175	-6.3162
53.25	.289	.4336-20.6205		.082	1.6668	-4.6503	30.345	-6.6887	-6.2341
103.25	1.520	.9662-20.5910		.718	1.5206	-4.7131	30.571	-7.7175	-6.3806
159.25	1.233	1.5397-20.5320		.615	1.4329	-4.6291	31.401	-6.6887	-6.6380
212.25	2.136	2.0450-20.5025		1.046	1.2667	-4.6084	31.238	-7.7175	-6.9919
265.25	1.643	2.6049-20.3845		.759	1.2574	-4.6291	31.438	-7.7750	-7.4102
318.25	2.074	3.1102-20.1780		.925	1.1404	-4.6291	31.552	-7.9764	-7.8606
371.25	2.279	3.6564-19.7650		1.169	.9353	-4.6384	31.099	-1.1773	-8.2467
424.25	2.361	4.1753-19.3315		1.169	.7311	-4.6384	30.335	-1.3792	-8.5685
477.25	2.341	4.6943-19.0275		1.128	.5556	-4.7131	31.175	-1.6382	-9.0511
530.25	2.095	5.2132-18.8505		1.005	.4679	-4.7478	31.250	-1.0683	-9.4050
583.25	2.320	5.7594-18.7030		1.108	.3301	-4.7478	30.873	-2.0985	-9.3233
636.25	2.485	6.3057-18.5260		1.272	.2924	-4.6384	31.815	-2.3237	-10.1123
689.25	2.546	6.8383-18.4670		1.231	.1170	-4.7131	31.175	-2.5876	-10.5311
742.25	2.423	7.3572-18.4375		1.149	-.0292	-4.7478	31.175	-2.8465	-10.9494
795.25	2.605	7.9034-18.3785		1.231	-.1170	-4.6538	31.702	-3.0478	-11.2389
848.25	2.546	8.4497-18.2310		1.251	-.1755	-4.6291	31.476	-3.2493	-11.4982
901.25	2.546	8.9686-18.2310		1.272	-.3509	-4.6538	32.079	-3.5083	-11.9790
954.25	2.587	9.4875-18.2310		1.231	-.5264	-4.6884	31.238	-3.7672	-12.3007
1007.25	2.526	10.0474-18.1130		1.231	-.6141	-4.6538	32.117	-3.9686	-12.6224
1060.25	2.687	10.5937-18.1425		1.292	-.7311	-4.5994	31.363	-4.1700	-12.9764
1113.25	2.526	11.1126-18.0835		1.231	-.8480	-4.5994	32.268	-4.4002	-13.3303
1166.25	2.546	11.6315-18.1130		1.251	-.9942	-4.6291	32.042	-4.6303	-13.5877
1219.25	2.464	12.1773-18.0540		1.231	-1.0527	-4.5994	31.815	-4.8605	-13.9416
1272.25	2.526	12.6967-18.0540		1.251	-1.2282	-4.5994	32.419	-5.0619	-14.2633
1325.25	2.464	13.2156-18.0335		1.210	-1.4329	-4.6291	32.305	-5.3209	-14.4886
1378.25	2.546	13.7755-18.0245		1.190	-1.5206	-4.5994	32.532	-5.5223	-14.7460
1431.25	2.526	14.3081-17.9950		1.251	-1.6668	-4.5994	32.268	-5.7236	-15.0033
1484.25	2.526	14.8407-18.0245		1.231	-1.7838	-4.5697	32.369	-5.9250	-15.2929
1537.25	2.464	15.3733-17.9950		1.210	-1.9592	-4.5994	31.853	-6.1264	-15.4533
1590.25	2.382	15.8755-18.0245		1.128	-2.1054	-4.6291	32.494	-6.3566	-15.7434
1643.25	2.320	16.3338-18.0540		1.108	-2.2809	-4.6583	31.740	-6.5530	-15.9041
1696.25	2.361	16.9574-17.9950		1.149	-2.3394	-4.5994	32.456	-6.7306	-16.0973
1749.25	2.341	17.4763-18.0245		1.149	-2.4856	-4.5994	32.758	-6.9320	-16.2582
1802.25	2.341	18.0362-17.9360		1.128	-2.5733	-4.5104	32.682	-7.1047	-16.3547
1850.75	2.320	18.5005-17.9655		1.108	-2.7195	-4.5994	32.419	-7.3061	-16.4834

MESSWERTEDATEI: M3012

MESSUNG/AUSWERTUNG VOM 12. 1.83 / 5. 5.83.10.59

MESSBEGINN : 12:53:1449.50 UHR

MESSDAUER: 5306.75 S

AUSGEWERTET VON

.75 S BIS 1851.50 S

ZAHL DER MESSPUNKTE: 7403

SHELL 612509

LFD.NR. 2011.1 VOM 12. 1.83 14:55 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1991

EISPROBENENTNAHME 4.91 BEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 301 G  
LY = 69.79 MM PHIY = 90 GRAD RHO = 934 KG/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 1.2 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABENWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S  
FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.022	-.0171	-19.7345	-.021	0.0000	-2.4620	30.973	-4.2276	-7.8054
161.60	.843	1.4955	-19.7355	.390	-.0292	-2.5916	31.363	-4.3199	-8.0580
302.75	1.605	3.0291	-19.9980	.800	-.0292	-2.5316	30.695	-5.2633	-9.0198
454.00	1.869	4.5890	-17.3475	.903	-.0977	-2.6113	31.552	-6.7019	-10.3733
605.25	2.024	5.0829	-16.6380	.935	-.3217	-3.0267	31.175	-9.0419	-10.4929
756.50	2.177	7.5461	-16.3108	1.045	-.6040	-3.6795	31.627	-9.9232	-10.5664
907.75	1.993	9.1497	-14.3370	1.005	-.9353	-4.2433	32.004	-11.4779	-10.7241
1059.00	2.010	10.6513	-13.7763	.954	-1.3734	-4.3961	31.630	-12.9134	-10.7341
1210.25	2.095	12.1949	-13.4915	1.005	-1.8658	-5.4006	31.438	-14.0989	-10.7841
1361.50	2.115	13.7112	-13.3635	.935	-2.1252	-5.9644	31.065	-15.1999	-10.7333
1512.75	1.797	15.2411	-13.2750	.862	-2.4356	-6.4633	32.004	-16.3399	-10.7523
1664.00	1.952	16.7573	-13.3340	.923	-2.9243	-7.0026	32.566	-17.5399	-10.7663
1815.25	1.883	18.2736	-13.2750	.800	-3.2761	-7.4777	32.345	-17.8899	-10.7663
1966.50	1.972	19.7782	-13.3045	.944	-3.6645	-7.9922	32.807	-19.1999	-10.8007
2117.75	1.797	21.3197	-13.2750	.903	-4.0062	-8.3975	32.371	-19.9999	-10.8207
2269.00	2.034	22.8360	-13.2750	.938	-4.3273	-8.8427	32.904	-19.5999	-10.7241
2420.25	1.823	24.3522	-13.3340	.882	-4.7080	-9.2582	22.419	-19.9999	-10.6930
2571.50	1.746	25.8685	-13.3340	.841	-5.0689	-9.7033	32.807	-20.3999	-10.4999
2722.75	1.690	27.3848	-13.3635	.841	-5.3613	-10.0593	32.243	-20.7769	-10.3994
2874.00	1.890	28.9737	-13.4225	.841	-5.6434	-10.5045	32.645	-21.1450	-9.9233
3025.25	1.849	30.4445	-13.3930	.892	-6.1115	-10.8012	32.863	-21.3463	-9.6723
3176.50	1.757	31.9472	-13.4520	.921	-6.5210	-11.0603	32.313	-21.6756	-9.9357
3327.75	1.849	33.4771	-13.4815	.903	-6.8134	-11.3550	33.778	-21.7304	-9.6330
3479.00	1.849	34.9797	-13.5110	.862	-7.2813	-11.6517	32.133	-21.9365	-9.4719
3630.25	1.910	36.4959	-13.5110	.903	-7.6615	-11.9390	32.799	-21.9642	-9.2719
3781.50	1.654	38.0259	-13.5700	.921	-8.0416	-11.9991	32.475	-21.9930	-9.3146
3932.75	1.746	39.5224	-13.5700	.921	-8.4219	-12.2255	34.302	-21.9930	-9.3146
4084.00	1.910	41.0447	-13.5995	.944	-8.7434	-12.3213	34.189	-21.9930	-9.3146
4235.25	1.623	42.5609	-13.6835	.759	-9.1236	-12.4993	32.733	-21.9919	-9.3146
4386.50	1.459	44.0535	-13.7785	.890	-9.4748	-12.5413	34.189	-21.9930	-9.3146
4537.75	1.397	45.5071	-13.9240	.857	-9.7569	-12.7003	34.266	-21.9930	-9.3146
4689.00	2.095	47.1234	-14.1395	1.046	-10.1170	-12.8437	34.454	-21.9930	-9.3146
4840.25	2.024	48.6396	-15.3940	1.006	-10.4930	-13.0561	34.454	-21.9930	-9.3146
4991.50	1.500	50.1559	-16.3720	.699	-10.7904	-13.1484	35.132	-21.9930	-9.3146
5142.75	1.459	51.6440	-16.9623	.636	-11.0923	-13.2541	34.692	-21.9930	-9.3146
5294.00	2.075	53.1064	-17.1338	1.026	-11.3450	-13.4128	34.712	-21.9930	-9.3146

MESSWERTEDATEI: W0012A  
MESSUNG/AUSWERTUNG VOM 12. 1.83 / S. 5.33. 9.49  
MESSBEGINN : 14:55:1108.50 UHR MESSDAUER: 5200.25 S  
AUSGEWERTET VOM .75 S BIS 5200.25 S  
ZAHL DER MESSPUNKTE: 21150

SHELL 612509

LFD.NR. 2012.1 VOM 14. 1.83 13:48 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

PROBENENTNAHME 4.31 BEI SIE = 1.2 0/00

DATEN DER PROBE:

LN = 69.80 MM PHIX = 90 GRAD  
LY = 69.85 MM PHIV = 90 GRAD  
LZ = 69.81 MM PHIZ = 0 GRAD

M = 302 G  
RHO = 387 KG/M\*\*3  
SIP = 1.0 0/00

TEMPERATUREN:

TC = -5.10 GRAD C  
TP = -5.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.08 S  
EPSX1 = .1001E-04 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.063	.0154	.5351	0.000	-.4104	-.0004	30.496	.7902	1.4512
78.25	.842	.7432	.5648	.411	-.5570	-.0005	30.948	.8748	.9760
156.25	1.801	1.5670	1.1890	.739	-.5263	-.0004	31.090	.7614	-.0376
234.25	1.868	2.3259	2.0307	.903	-.4984	-.0005	31.363	.7036	-1.1146
312.25	2.155	3.0911	3.0319	1.005	-.2345	-.0005	31.175	.5593	-2.1282
390.25	2.340	3.9150	4.1912	1.170	.0596	-.0005	31.362	.2129	-3.1102
468.25	2.360	4.7113	5.0330	1.232	.2639	-.0003	31.250	-.1046	-4.1555
546.25	2.401	5.5077	5.7369	1.109	.4934	-.0002	31.175	-.3067	-5.2325
624.25	2.340	6.2629	6.2423	1.109	.7036	.0002	31.589	-.8263	-6.3411
702.25	2.442	7.0367	6.9355	1.170	1.1434	.0011	31.929	-1.3459	-7.3914
780.25	2.319	7.8557	7.2232	1.129	1.1140	.0013	31.401	-1.8367	-8.3654
858.25	2.340	8.6658	7.6988	1.068	1.3193	.0013	31.175	-2.3274	-9.3880
936.25	2.278	9.4484	8.0555	1.129	1.4658	.0021	32.155	-2.7605	-10.2056
1014.25	2.258	10.2448	8.4419	1.088	1.6124	.0025	31.408	-3.1935	-10.9825
1092.25	2.173	11.0137	8.7988	1.047	1.7590	.0030	32.192	-3.5976	-11.6627
1170.25	2.287	11.8375	9.1256	1.047	1.9935	.0034	32.117	-4.0006	-12.4546
1248.25	2.196	12.6477	9.3327	1.047	2.1694	.0037	31.853	-4.3770	-13.0831
1326.25	2.012	13.3891	9.5417	.885	2.2674	.0033	32.263	-4.7523	-13.6883
1404.25	2.094	14.1718	9.7795	1.026	2.3747	.0040	32.381	-5.0987	-14.1324
1482.25	2.114	14.9544	9.9579	.944	2.4919	.0042	32.117	-5.3974	-14.5136
1560.25	1.807	15.8057	10.1362	.862	2.6730	.0046	31.778	-5.6183	-14.8620
1638.25	2.032	16.5334	10.1957	.965	2.8437	.0046	31.315	-5.8493	-14.9670
1716.25	2.012	17.3573	10.4038	.965	3.0196	.0047	32.250	-6.0802	-15.1471
1794.25	1.848	18.0987	10.5226	.862	3.2248	.0049	32.419	-6.3689	-15.2421
1872.25	2.053	18.9363	10.5524	.985	3.2542	.0050	32.079	-6.5998	-15.2421
1950.25	2.053	19.7052	10.7010	.924	3.4594	.0052	32.758	-6.8835	-15.2421
2028.25	1.950	20.5016	10.6713	.903	3.4594	.0052	32.456	-7.1194	-15.2738
2106.25	1.930	21.3117	10.7605	.944	3.6646	.0054	32.192	-7.2638	-15.1783
2184.25	1.971	22.0669	10.7902	.965	3.7525	.0055	32.456	-7.4081	-15.2104
2262.25	1.991	22.8907	10.8496	.965	3.9284	.0055	32.381	-7.5679	-15.2421
2340.25	1.909	23.6596	10.8199	.903	4.0457	.0055	33.135	-7.9277	-15.3571
2418.25	2.032	24.4972	10.8794	1.006	4.2210	.0057	32.381	-7.9855	-15.2738
2496.25	1.909	25.2387	10.8496	.903	4.3582	.0056	32.984	-8.1009	-15.2738
2574.25	1.930	26.0076	10.8199	.903	4.3389	.0056	32.532	-8.2741	-15.3371
2652.25	1.991	26.8314	10.8794	.965	4.6027	.0058	32.833	-8.4185	-15.2421
2722.50	1.950	27.5130	10.8496	.903	4.5614	.0057	32.682	-8.5917	-15.3055

MESSWERTEDATEI: Y3014A

MESSUNG/AUSWERTUNG VOM 14. 1.83 / 9. 5.83.14.18

MESSBEGINN : 13:48: 0.00 UHR MESSDAUER: 5233.25 S

AUSGEWERTET VON .75 S BIS 2723.25 S  
ZAHL DER MESSPUNKTE: 10890

SHELL 612509

LFD.NR. 2013.1 VOM 19. 1.83 9: 5 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.85 MM PHIX = 90 GRAD  
LY = 69.84 MM PHIY = 90 GRAD  
LZ = 69.80 MM PHIZ = 0 GRAD

M = 304 G  
RHO = 892 KG/M\*\*3  
SIP = 1.1 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.30 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.85 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1000E-04 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	-1.060	.0230	-3.3022	-1.092	-1.7036	1.6617	30.936	-1.0539	-1.0939
146.50	1.397	1.4962	-2.6130	.656	-1.6417	1.6320	31.298	-1.1270	-1.4081
292.75	1.869	2.9830	-1.6470	.341	-3.2248	1.6914	30.685	-1.5713	-3.2020
439.00	2.063	4.4699	-1.4463	1.005	-4.7493	1.6617	30.798	-1.0034	-5.0698
585.25	2.094	5.9567	-.9223	1.005	-6.0099	1.5914	31.740	-1.4637	-7.1190
731.50	2.033	7.4025	2.2313	.996	-7.1753	1.6024	31.702	-1.9018	-9.2813
877.75	2.197	8.9001	3.5090	1.026	-8.0243	1.5914	31.929	-2.4419	-11.9131
1024.00	2.107	10.4036	5.0072	1.100	-10.4368	1.7507	32.830	-2.9028	-13.8075
1170.25	2.197	11.3767	5.3952	1.067	-12.1371	1.7211	31.853	-3.4777	-15.9039
1316.50	2.156	13.3363	7.5565	1.046	-13.2512	1.6914	32.455	-3.9966	-17.7083
1462.75	2.156	14.3231	8.6275	1.026	-14.1989	1.5914	31.815	-4.3596	-19.7796
1609.00	2.197	16.2827	9.6200	1.026	-15.1568	1.6617	31.063	-4.0012	-19.3241
1755.25	2.197	17.7695	10.6017	1.026	-16.9483	1.6320	31.929	-5.2040	-19.7796
1901.50	2.156	19.2427	11.4537	1.026	-18.7592	1.6617	32.072	-5.5700	-19.5266
2047.75	2.250	20.7432	12.2570	1.037	-17.3849	1.6617	33.022	-5.8945	-17.7331
2194.00	2.197	22.2027	13.0008	1.046	-13.1471	1.4837	32.533	-6.2970	-17.1022
2340.25	2.300	23.5696	13.8040	1.067	-13.3607	1.0336	32.720	-5.7001	-15.9100
2486.50	2.320	25.1523	14.6478	1.100	-19.5543	.7715	33.210	-7.0453	-15.8926
2632.75	2.217	26.6223	15.2002	1.067	-20.2679	.4451	33.549	-7.4193	-15.5579
2779.00	2.279	28.0955	16.0866	1.067	-20.9442	.2077	33.549	-7.7071	-16.8761
2925.25	2.361	29.3550	16.3923	1.129	-21.6473	-.0297	32.934	-9.1098	-15.5731
3071.50	2.423	31.0555	16.9930	1.169	-22.2221	-.2077	33.733	-9.2978	-15.4231
3217.75	2.320	32.5014	17.2843	1.037	-22.9257	-.5043	32.351	-9.7140	-15.0231
3364.00	2.382	33.9510	17.6526	1.129	-23.7456	-.7715	33.205	-9.0231	-14.9113
3510.25	2.361	35.4751	17.3639	1.190	-24.4209	-.3902	33.351	-9.3763	-13.2700
3656.50	1.746	36.9346	17.0900	1.041	-25.4176	-1.0979	33.507	-9.5023	-14.1173
3802.75	2.525	38.4215	12.0330	1.201	-26.2326	-1.3353	34.223	-10.0375	-14.1173
3949.00	2.413	39.0374	13.0013	1.149	-27.1736	-1.5024	34.431	-10.1113	-14.1173
4095.25	2.423	41.3267	13.0000	1.169	-27.9029	-1.3101	33.933	-10.2491	-14.1173
4241.50	2.361	42.0001	13.1173	1.169	-28.4059	-2.0173	34.349	-11.1023	-14.1173
4387.75	1.992	44.2733	13.1173	.954	-29.1116	-2.1953	34.259	-11.5993	-13.0362
4534.00	2.392	45.7192	13.0000	1.129	-29.9324	-2.4629	34.331	-11.9078	-13.0000
4680.25	2.279	47.2333	13.1773	1.103	-30.6067	-2.7000	34.341	-12.2329	-13.0000
4826.50	2.537	48.7065	13.1173	1.261	-31.4569	-2.9970	34.500	-12.5259	-13.9231
4972.75	2.525	50.1383	13.1173	1.190	-32.1990	-3.2030	34.738	-13.0000	-13.3722
5117.50	2.484	51.2300	13.0503	1.169	-32.6296	-3.5312	34.166	-13.1733	-14.3552

MESSWERTEDATEI: M3019

MESSUNG/AUSWERTUNG VOM 19. 1.83 / 9. 5.83.10.83

MESSBEGINN : 8: 6:1251.75 UHR

MESSDAUER: 5113.25 S

AUSGEWERTET VON

.75 S BIS 5113.25 S

ZAHL DER MESSPUNKTE: 20470



SHELL 612509

LFD.NP. 2014.1 VCM 19. 1.83 10: 2 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 293 G  
LY = 69.82 MM PHIY = 90 GRAD RHO = 861 KG/M\*\*3  
LZ = 69.79 MM PHIZ = 0 GRAD SIP = .3 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.30 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S  
FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.042	.0503	-3.3022	.021	-3.7819	1.3398	30.383	-1.6939	-.8454
45.50	.473	.3915	-3.3618	.205	-3.8405	1.7804	30.835	-1.6939	-.9373
90.75	.720	.8556	-3.3022	.308	-4.2216	1.7211	30.798	-1.6651	-.9965
136.00	.925	1.3196	-3.2428	.390	-4.6907	1.6914	30.496	-1.6939	-1.2739
181.25	1.130	1.7973	-2.8263	.534	-4.3959	1.7804	30.911	-1.6939	-1.5187
226.50	1.315	2.2614	-2.3205	.616	-5.1011	1.7507	30.534	-1.8378	-1.9472
271.75	1.479	2.6845	-1.8147	.698	-5.2477	1.6914	30.948	-2.2118	-2.3757
317.00	1.746	3.1622	-1.2198	.800	-5.2770	1.7211	31.325	-2.5283	-2.8959
362.25	1.952	3.6535	-.4463	.944	-5.2184	1.8101	31.325	-2.7584	-3.3550
407.50	2.075	4.0630	.0393	.965	-5.3357	1.7211	30.534	-3.0461	-3.8753
452.75	2.259	4.5680	.6925	1.067	-5.2770	1.7804	30.722	-3.2763	-4.3037
498.00	2.342	5.0320	1.5470	1.170	-5.3063	2.0475	30.835	-3.5065	-4.7934
543.25	2.403	5.4824	2.1712	1.149	-5.3357	2.2255	31.062	-3.7336	-5.3443
588.50	2.383	5.9055	2.7073	1.149	-5.4236	2.2552	31.552	-3.9668	-5.8646
633.75	2.526	6.3832	3.3320	1.170	-5.3650	2.4629	31.175	-4.0219	-6.3236
679.00	2.547	6.8473	3.8973	1.211	-5.3650	2.8223	30.986	-4.2833	-6.6803
724.25	2.608	7.3113	4.4923	1.252	-5.3943	2.6410	31.853	-4.4589	-7.1193
769.50	2.650	7.7617	5.0575	1.252	-5.4236	2.6706	30.911	-4.6861	-7.5172
814.75	2.650	8.2394	5.6823	1.314	-5.3650	2.7893	31.137	-4.8299	-7.9457
860.00	2.691	8.7035	6.1583	1.273	-5.3650	2.8487	30.986	-5.0313	-8.2517
905.25	2.650	9.1402	6.7235	1.293	-5.3943	2.9030	31.740	-5.2615	-8.6496
950.50	2.650	9.5808	7.1995	1.273	-5.3943	2.9674	32.004	-5.4629	-8.9250
995.75	2.629	10.0820	7.7945	1.334	-5.3650	3.0564	31.250	-5.6068	-9.2004
1041.00	2.670	10.5051	8.3003	1.252	-5.4236	3.0267	31.438	-5.8657	-9.6289
1086.25	2.629	10.9823	8.8060	1.293	-5.4236	3.0861	31.514	-6.0096	-9.8737
1131.50	2.588	11.4332	9.2820	1.252	-5.3943	3.1157	31.363	-6.2110	-10.1798
1176.75	2.732	11.9109	9.8067	1.293	-5.3650	3.2047	31.552	-6.2973	-10.3940
1222.00	2.670	12.3476	10.4422	1.293	-5.4236	3.1751	32.268	-6.5274	-10.7613
1267.25	2.588	12.7980	10.8587	1.232	-5.4529	3.1454	31.891	-6.6713	-11.0367
1312.50	2.526	13.2621	11.2753	1.211	-5.4529	3.1454	31.476	-6.8439	-11.2815
1357.75	2.567	13.7670	11.8107	1.273	-5.3650	3.2344	32.391	-6.8302	-11.4318
1403.00	2.506	14.1901	12.1032	1.190	-5.4529	3.2047	31.778	-7.1029	-11.6794
1448.25	2.506	14.6405	12.5247	1.190	-5.4822	3.1751	32.381	-7.2179	-11.8936
1493.50	2.547	15.1319	13.0305	1.252	-5.3357	3.2938	32.419	-7.3330	-12.1079
1538.75	2.526	15.5823	13.3875	1.190	-5.4236	3.2344	31.627	-7.4769	-12.3527
1581.75	2.526	16.0054	13.7445	1.190	-5.4236	3.2344	31.665	-7.5920	-12.5057

MESSWERTEDATEI: M3019

MESSUNG/AUSWERTUNG VOM 19. 1.83 / 24. 5.83.10.51

MESSBEGINN : 10: 2: 574.25 UHR MESSDAUER: 5013.25 S

AUSGEWERTET VON .75 S BIS 1582.50 S

ZAHL DER MESSPUNKTE: 6327

SHELL 612509

LFD.NR. 2015.1 VOM 19. 1.83 11:44 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

PROBENENTNAHME 4.81 BEI SIS = 1.7 0/00

DATEN DER PROBE:

LX = 69.83 MM PHIX = 90 GRAD  
LY = 69.83 MM PHIY = 90 GRAD  
LZ = 69.77 MM PHIZ = 0 GRAD

M = 303 G  
RHO = 905 KG/M\*\*3  
SIP = 2.2 0/00

TEMPERATUREN:  
TL = -5.10 GRAD C  
TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.83 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/5

FY/FX = .5000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	.022	.0230	-3.0043	-.082	-4.3682	1.2463	30.647	-2.3944	.2257
149.50	.823	1.5103	-2.9155	.349	-4.9545	1.1869	30.335	-2.3556	.2869
298.75	1.480	3.0385	-2.6775	.698	-5.7158	1.1573	30.647	-2.4707	.2869
448.00	1.870	4.5667	-2.2908	.862	-6.2738	1.1573	31.353	-2.7872	.3175
597.25	2.096	6.0949	-1.9635	1.006	-7.0067	1.1369	31.401	-3.0174	.3481
746.50	2.301	7.6094	-1.8147	1.057	-7.7103	1.1869	30.948	-3.1612	.2563
895.75	2.342	9.1512	-1.6065	1.149	-8.2966	1.1573	31.353	-3.3333	.2563
1045.00	2.301	10.6521	-1.3983	1.198	-8.9123	1.0979	31.212	-3.4489	.0421
1194.25	2.301	12.1567	-1.1305	1.129	-9.5220	.9199	31.363	-3.5640	-.1415
1343.50	2.239	13.6678	-.3032	1.083	-10.1729	-.1780	32.079	-3.6791	-.4476
1492.75	2.219	15.1548	-.5355	1.026	-10.8179	-1.1275	31.476	-3.8230	-.6618
1642.00	2.219	16.6557	-.1785	1.067	-11.4335	-2.0173	32.117	-3.9093	-1.0597
1791.25	2.239	18.1839	.1785	1.036	-12.0199	-2.9080	32.645	-3.9666	-1.2433
1940.50	2.137	19.6712	.5950	1.006	-12.6348	-3.7982	32.494	-4.0531	-1.5300
2089.75	2.157	21.1994	.9223	1.047	-13.1925	-4.5697	32.192	-4.1107	-1.8243
2239.00	2.116	22.7003	1.2792	.985	-13.6668	-5.4006	32.343	-4.1970	-2.1614
2388.25	2.137	24.1975	1.5660	1.006	-14.5993	-6.2013	32.984	-4.2545	-2.3451
2537.50	2.075	25.7294	1.9337	1.006	-15.2447	-6.9436	32.253	-4.3121	-2.5511
2686.75	2.054	27.1894	2.1718	.924	-15.9483	-7.3339	33.172	-4.3984	-2.9571
2836.00	2.116	28.7175	2.4693	1.006	-16.5347	-8.5460	33.361	-4.3984	-3.0796
2985.25	2.054	30.2134	2.6775	.965	-17.2676	-9.3759	33.248	-4.4847	-3.3244
3134.50	2.075	31.7466	2.9453	1.006	-17.8539	-9.8813	33.563	-4.4847	-3.4460
3283.75	2.075	33.2475	3.2130	.944	-18.4989	-10.4748	33.022	-4.5710	-3.6304
3433.00	2.054	34.7621	3.4808	1.006	-19.1145	-10.9496	33.474	-4.5998	-3.6917
3582.25	2.013	36.2630	3.7138	.985	-19.6716	-11.4243	33.351	-4.6285	-3.7835
3731.50	2.034	37.7366	3.9567	.924	-20.3155	-11.9585	33.436	-4.7149	-3.8447
3880.75	2.013	39.2511	4.1650	.944	-20.9322	-12.5223	33.436	-4.7436	-3.7223
4030.00	2.054	40.7657	4.4030	1.026	-21.4599	-12.9970	33.925	-4.8012	-3.4162
4179.25	1.870	42.2257	4.4625	.883	-22.1635	-13.7339	34.266	-4.8375	-3.4468
4328.50	1.972	43.7402	4.6410	.965	-22.6912	-14.2433	34.190	-4.8975	-4.1507
4477.75	2.096	45.2684	4.7600	1.006	-23.2189	-14.3961	33.351	-4.9163	-4.1913
4627.00	1.993	46.7557	4.7898	.944	-23.7759	-15.4396	34.643	-4.9738	-4.2110
4776.25	1.993	48.2293	4.8493	.903	-24.2743	-16.1128	34.416	-5.0025	-4.2119
4925.50	1.952	49.7302	4.8790	.903	-24.7434	-13.6172	34.530	-5.0601	-4.1813
5074.75	1.972	51.2584	4.9385	.924	-25.1831	-17.0325	34.077	-5.0601	-4.1507
5216.00	1.972	52.3226	4.9980	.924	-25.4470	-17.3294	35.095	-5.0889	-4.0895

MESSWERTEDATEI: M3019A

MESSUNG/AUSWERTUNG VOM 19. 1.83 / 24. 5.83.15.46

MESSBEGINN : 11:44: 577.25 UHR MESSDAUER: 5216.50 S

AUSGEWERTET VON .75 S BIS 5216.75 S

ZAHL DER MESSPUNKTE: 20864

SHELL 612509

LFD.NR. 3005.1 VOM 30.11.82 10: 9 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUHDOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI SIE = 1.4 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 309 G  
LY = 69.75 MM PH1Y = 90 GRAD RHO = 999 KG/M\*\*3  
LZ = 69.81 MM PH1Z = 0 GRAD SIP = .2 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.30 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SIGZ (MPA)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.145	.0026	3.7125	.144	1.1404	-.8289	.001	.0410	-2.9558
.13	.104	.0162	3.6828	.144	1.1404	-.8289	0.000	.0410	-2.9558
.25	.104	.0162	3.7125	.144	1.1404	-.8289	0.000	.0696	-2.9558
.37	.145	.0298	3.7125	.103	1.1404	-.8289	.001	.0125	-2.9855
.49	.802	.0979	3.8907	.656	1.1112	-.8289	0.000	.0410	-2.9262
.61	1.767	.2342	3.9501	1.892	1.3451	-.8585	.001	.0125	-2.9558
.73	2.650	.3432	3.9798	2.625	1.3159	-.8585	.001	.0696	-2.9558
.85	3.553	.4659	4.0392	3.487	1.3159	-.8585	.001	.0125	-2.9855
.97	4.374	.5749	4.1580	4.286	1.3451	-.8585	.002	.0696	-2.9855
1.09	5.113	.6976	4.2174	5.004	1.4621	-.8881	.001	.0125	-2.9855
1.21	5.852	.8202	4.2471	5.784	1.5791	-.8881	.002	.0410	-2.9855
1.33	6.592	.9429	4.2174	6.542	1.6083	-.8585	.001	.0410	-2.9558
1.45	7.269	1.0655	4.2768	7.240	1.6376	-.8881	.002	.0696	-2.9855
1.57	7.967	1.1881	4.2768	7.937	1.7253	-.9177	.001	.0125	-2.9855
1.69	8.665	1.3244	4.3065	8.573	1.7938	-.9177	.001	.0410	-3.0151
1.81	9.261	1.4471	4.3065	9.209	1.8130	-.9473	.001	.0125	-2.9855
1.93	9.915	1.5697	4.3956	9.803	1.8715	-.9473	.001	.0125	-3.0447
2.05	10.410	1.6924	4.3956	10.316	1.9592	-.9473	.002	.0125	-3.0151
2.17	10.965	1.8150	4.4253	10.990	2.0177	-.9473	.002	.0410	-3.1040
2.29	11.478	1.9240	4.4253	11.683	2.0762	-.9177	.002	.0125	-3.0744
2.41	12.032	2.0467	4.3659	11.957	2.1347	-3.8483	.004	.0125	-3.1929
2.53	12.566	2.1830	4.3659	12.531	2.1054	-4.5292	.005	.0125	-3.3114
2.65	13.038	2.2920	4.3362	13.003	2.1347	-4.9732	.005	-.0161	-3.5188
2.77	13.428	2.4283	4.3065	13.372	2.1639	-5.3580	.006	-.0161	-3.8152
2.89	11.231	2.5509	4.3065	12.141	2.3394	-5.5948	.006	-.6157	-4.4671
3.01	11.765	2.7008	4.3065	11.629	2.3101	-5.5652	.006	-.6443	-4.5856
3.13	11.929	2.7826	4.3065	11.875	2.3394	-5.5948	.006	-.7299	-5.0361
3.25	12.196	2.8916	4.2768	12.192	2.3686	-5.5948	.007	-1.0440	-5.4153
3.37	12.545	3.0279	4.3065	12.531	2.3394	-5.6541	.007	-1.5294	-5.9783
3.49	12.792	3.1505	4.2768	12.798	2.3394	-5.8909	.008	-1.9863	-6.4821
3.61	12.977	3.2732	4.3065	12.962	2.3686	-6.1277	.008	-2.6145	-7.1340
3.73	13.120	3.3958	4.3065	13.126	2.3686	-6.2461	.009	-3.3284	-7.9637
3.85	13.223	3.5321	4.3065	13.208	2.3686	-6.3645	.010	-4.1850	-9.0305
3.97	13.243	3.6411	4.3065	13.269	2.3686	-6.4533	.011	-5.0987	-9.9491
3.99	13.264	3.6684	4.3065	13.208	2.3686	-6.4237	.010	-5.3271	-10.1269

MESSWERTEDATEI: M2334

MESSUNG/AUSWERTUNG VOM 30.11.82 / 21. 2.83.10.41

MESSBEGINN : 10: 9: 997.57 UHR

MESSDAUER:

13.06 S

AUSGEWERTET VON

1.65 S

RIS

5.65 S

ZAHL DER MESSPUNKTE:

399

SEITE 612589

LFD.NR. 3007.1 VOM 30.11.82 13: 5 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTILINEAR RIDGES REINDEER ISLAND PRUHDOF BAY  
2-18 APRIL 1983

PROBENENTNAHME 4.01 FLI STE = 1.4 0/00

DATEN DER PROBE:

LX = 49.73 MM LHX = 90 GRAD K = 305 C  
LY = 49.73 MM LHY = 90 GRAD RHO = 899 KG/M\*\*3  
LZ = 49.73 MM PHZ = 0 GRAD QIP = 1.2 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.30 GRAD C

PROZELLAENGEN FUER DEHNUNG:

DX1 = 49.73 MM DX2 = 32.00 MM  
DY1 = 32.20 MM DY2 = 33.71 MM  
DZ = 33.20 MM DZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 1.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = 1.002E-02 1/5

TIME	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SIGZ (MPA)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
01	0.004	0.0033	-0.2376	0.03	1.9885	-0.6592	0.000	-0.0039	-0.4167
06	0.022	0.0423	-0.2673	0.123	1.9390	-0.1184	0.001	-0.1410	-0.3278
15	0.125	0.0105	-0.2376	0.042	1.9597	-0.1184	0.003	-0.0839	-0.3071
22	0.063	0.6696	-0.2570	0.082	1.9300	-0.1480	0.002	-0.0839	-0.3871
29	0.209	0.0833	-0.1782	0.144	1.9885	-0.6880	0.001	-0.0553	-0.3574
36	0.577	0.9451	-0.2376	0.432	1.8423	-0.1776	0.002	-0.1410	-0.5056
43	1.029	1.0630	-0.2673	0.946	1.5781	-0.1480	0.002	-0.0839	-0.4760
50	1.276	1.1280	-0.2673	1.295	1.4329	-0.2072	0.003	-0.0266	-0.4167
57	1.666	1.2107	-0.2376	1.665	1.6083	-0.1776	0.002	-0.0839	-0.3278
64	1.717	1.2780	-0.3267	1.973	1.5498	-0.2072	0.001	-0.1410	-0.4463
71	2.447	1.3190	-0.2079	3.323	1.6083	-0.1480	0.002	-0.1981	-0.2574
78	2.850	1.3743	-0.2376	3.037	1.5498	-0.2072	0.002	-0.2266	-0.3278
85	3.474	1.4153	-0.2376	3.330	1.5791	-0.1480	0.001	-0.2266	-0.3071
92	3.907	1.4971	-0.2376	3.033	1.4421	-0.2368	0.001	-0.2266	-0.4167
99	4.402	1.6199	-0.1782	4.370	1.4621	-0.2072	0.001	-0.1410	-0.4463
1.06	4.575	1.6375	-0.2376	4.051	1.4329	-0.1184	0.003	-0.1981	-0.3574
1.13	5.223	1.7830	-0.2376	5.201	1.4914	-0.2072	0.003	-0.2266	-0.2685
1.20	5.070	1.7772	-0.2376	5.077	1.3744	-0.1480	0.001	-0.1981	-0.3278
1.27	5.510	1.0791	-0.2079	5.406	1.4329	-0.1776	0.003	-0.2266	-0.4167
1.34	5.818	1.9472	-0.1782	5.776	1.3744	-0.2072	0.003	-0.2552	-0.3278
1.41	6.352	2.0155	-0.2376	6.229	1.3451	-0.2072	0.000	-0.2838	-0.3278
1.48	6.661	2.0791	-0.2079	6.640	1.3744	-0.2072	0.002	-0.2838	-0.3574
1.55	7.234	2.1519	-0.2376	7.112	1.3159	-0.2368	0.003	-0.3694	-0.4167
1.62	7.566	2.2301	-0.2079	7.565	1.2867	-0.2368	0.002	-0.3123	-0.5352
1.69	7.957	2.2610	-0.2673	7.955	1.2282	-0.3256	0.000	-0.3694	-0.5545
1.76	8.490	2.3702	-0.1782	8.449	1.2667	-0.2072	0.003	-0.3123	-0.7723
1.83	9.004	2.4111	-0.2079	8.012	1.2067	-0.2368	0.002	-0.5129	-1.1279
1.90	9.394	2.5202	-0.2079	9.312	1.2282	-0.2368	0.003	-0.4551	-1.3253
1.97	9.929	2.5748	-0.2376	9.805	1.1697	-0.1776	0.001	-0.6550	-1.6613
2.04	10.258	2.6157	-0.1782	10.216	1.1989	-0.2368	0.004	-0.6550	-1.7502
2.11	10.710	2.7112	-0.2376	10.607	1.2282	-0.2368	0.001	-0.7406	-2.1058
2.18	10.995	2.7794	-0.2376	10.995	1.2282	-0.2368	0.003	-0.7692	-2.4217
2.25	11.409	2.0749	-0.2079	11.327	1.1404	-0.3256	0.003	-1.0833	-2.7577
2.31	11.677	2.9294	-0.2673	11.573	1.0235	-0.2664	0.002	-1.5116	-2.8169

MESSUERTEDETEI: M2334F

MESSUNG/AUSWERTUNG VOM 30.11.82 / 25. 2.83.13.45

MESSDREHN: 13: 5:1179.84 UHR

MESSDAUER: 15.86 S

AUSGEWERTET VON 3.50 S RES 5.81 S

ZAHL DER MESSPUNKTE: 231

SHELL 612509

LFD.NR. 3009.1 VOM 1.12.82 9:51 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUHDOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.4 0/00

DATEN DER PROBE:

LX = 69.78 MM PHIX = 90 GRAD M = 309 G  
LY = 69.76 MM PHIY = 90 GRAD RHO = 909 KG/M\*\*3  
LZ = 69.78 MM PHIZ = 0 GRAD SIP = 2.0 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.78 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S  
FY/FX = 1.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SIGZ (MPA)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.063	.0213	.4752	.103	5.6730	1.0953	.007	0.0000	-.4556
.08	.145	.0213	.5049	.103	5.6438	1.0361	.007	0.0000	-.5149
.15	.576	.0349	.4455	.297	5.6145	1.0361	.008	0.0000	-.4556
.22	.700	.1440	.4752	.616	5.6145	1.0065	.007	0.0000	-.4852
.29	1.110	.1849	.4455	1.006	5.6730	1.0065	.009	0.0000	-.4852
.36	1.233	.2530	.4455	1.170	5.6730	1.0065	.007	0.0000	-.5445
.43	.843	.2667	.4455	1.334	5.7607	1.0361	.007	0.0000	-.5149
.50	1.788	.4166	.4455	1.478	5.8192	1.0065	.008	0.0000	-.5445
.57	2.527	.7710	.4455	2.011	5.2777	1.0361	.007	0.0000	-.7816
.64	3.102	.7574	.4455	2.422	5.9362	1.0065	.008	0.0000	-.9001
.71	2.548	.4030	.4455	2.914	5.9947	1.0361	.008	0.0000	-.9001
.78	1.993	.2939	.4455	2.648	6.0239	1.1249	.008	0.0000	-.9297
.85	3.780	.9482	.4752	3.653	5.9947	1.3617	.007	0.0000	-.9297
.92	4.704	1.1254	.4455	4.105	5.9947	1.5689	.008	0.0000	-.8795
.99	4.930	.9073	.4752	4.372	5.9947	1.6577	.008	0.0000	-.8408
1.06	4.293	.6483	.4455	4.536	5.9947	1.7169	.008	0.0000	-.8795
1.13	4.519	.6756	.4752	4.844	6.0239	1.8353	.008	0.0000	-.8112
1.20	5.443	1.0789	.4455	5.808	5.9947	1.8649	.008	0.0000	-.9297
1.27	6.593	1.3435	.5049	6.178	6.0824	2.0425	.008	0.0000	-.8795
1.34	7.271	1.4662	.4752	6.547	6.0531	2.0722	.008	0.0000	-.9001
1.41	7.189	1.1936	.5346	6.876	6.0824	2.1610	.008	0.0000	-.9297
1.48	7.045	1.0300	.5346	7.327	6.1409	2.1906	.008	0.0000	-1.0482
1.55	7.251	1.1254	.5643	7.779	6.1116	2.2794	.009	0.0000	-1.0186
1.62	7.949	1.4799	.5940	8.169	6.1409	2.3099	.008	0.0000	-1.1964
1.69	8.894	1.6843	.6534	8.641	6.1409	2.4570	.008	0.0000	-1.1668
1.76	9.530	1.7525	.6534	9.051	6.1409	2.4570	.007	0.0000	-1.2557
1.83	9.941	1.8070	.7128	9.359	6.1116	2.5754	.011	0.0000	-1.3149
1.90	10.002	1.6298	.7128	9.646	6.1116	2.5754	.009	0.0000	-1.3446
1.97	9.982	1.5071	.7722	9.995	6.1701	2.7926	.009	0.0000	-1.3149
2.04	10.146	1.5208	.8019	10.447	6.1116	2.7826	.008	0.0000	-1.4927
2.11	10.536	1.6162	.9504	10.857	6.1701	2.8418	.009	0.0000	-1.5520
2.18	11.009	1.6707	.9801	11.329	6.1116	2.7826	.009	0.0000	-1.7296
2.24	12.241	2.0933	1.0692	11.740	6.1994	2.7826	.009	0.0000	-2.0557

MESSWERTEDATEI: M2335

MESSUNG/AUSWERTUNG VOM 1.12.82 / 28. 2.83.11.39

MESSBEGINN: 9:51: 404.30 UHR

MESSDAUER:

9.50 S

AUSGEWERTET VON 4.00 S BIS 6.24 S

ZAHL DER MESSPUNKTE: 224

SHELL 612509

LFD.NR. 3009.1 VOM 2.12.82 13: 4 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUHDOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.21 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 310 G  
LY = 69.84 MM PHIY = 90 GRAD RHO = 910 KG/M\*\*3  
LZ = 69.83 MM PHIZ = 0 GRAD SIP = 1.5 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.022	-.0137	-2.4016	.061	-1.1677	-.0593	0.000	-.0252	-1.5320
.36	.145	.0274	-2.3424	.123	-1.0801	.0297	.001	.0324	-1.4683
.71	.063	-.0137	-2.4313	.061	-1.2261	-.0593	-.001	.0036	-1.5320
1.06	.124	.0411	-2.3127	.123	-1.0801	.0890	.001	.0324	-1.4683
1.41	1.251	.6432	-2.4016	.902	-1.2553	-.1187	0.000	-.0252	-1.5637
1.75	1.723	.2974	-2.1941	2.480	-2.1311	0.0000	0.000	.0611	-1.5914
2.11	3.977	.4379	-2.0162	3.935	-2.2478	-.1780	-.001	.0036	-1.9145
2.46	5.350	1.0674	-1.7494	5.944	-2.0435	-.0593	.001	-.1115	-2.1058
2.81	7.604	1.6695	-1.5684	7.317	-2.1019	-.2671	-.002	-.3992	-2.4883
3.16	9.710	1.9843	-1.3342	8.629	-1.9559	-.1484	.001	-.6204	-2.7114
3.51	9.489	2.2033	-1.0970	9.756	-2.0727	-.3561	0.000	-.9458	-3.1258
3.86	9.981	2.1348	-.8005	10.575	-1.9257	-.3858	.001	-1.1472	-3.4764
4.21	11.108	2.4770	-.7116	10.945	-2.0435	-.6231	-.001	-1.3774	-4.1488
4.56	12.050	3.3528	-.4448	11.560	-1.8975	-.5341	.001	-1.5500	-4.6877
4.91	11.272	3.3391	-.3558	11.827	-2.0727	-.6825	-.001	-1.8665	-5.6439
5.26	12.009	3.5991	-.2076	11.991	-1.9267	-.5341	0.000	-2.1800	-6.5046
5.61	12.337	4.3518	-.2372	11.786	-2.1019	-.6825	-.001	-2.7297	-7.7158
5.96	12.030	4.7623	0.0000	11.581	-1.9851	-.7122	.001	-3.3051	-8.7358
6.31	11.354	5.0497	-.0296	11.171	-2.1602	-.8902	0.000	-4.0819	-10.0746
6.66	11.128	5.4602	.1186	10.966	-2.1019	-.7715	.001	-4.9875	-11.1258
7.01	11.067	5.7613	.0296	10.576	-2.2770	-.8902	-.001	-5.9232	-12.3378
7.36	11.046	6.2129	.2076	10.474	-2.1602	-.7715	0.000	-6.9590	-13.4215
7.71	10.739	6.4729	.1482	10.166	-2.3354	-.8902	0.000	-8.1674	-14.7922
8.06	10.350	6.5413	.3855	10.105	-2.1894	-.8012	.001	-9.3470	-16.0672
8.41	9.571	6.6508	.4151	10.002	-2.3646	-.9199	-.001	-10.6705	-17.5016
8.76	9.325	7.1708	.6819	9.982	-2.2478	-.8309	.001	-11.9364	-18.7758
9.11	9.919	7.8961	.8005	9.756	-2.3646	-.9496	0.000	-13.2311	-20.2429
9.46	10.145	8.1698	1.0378	9.613	-2.3354	-.8605	0.000	-14.6409	-21.5816
9.81	9.038	8.0740	1.1563	9.490	-2.3646	-.9496	-.001	-16.0507	-23.0160
10.16	9.100	8.9362	1.3639	9.531	-2.3846	-.8902	0.000	-17.4605	-24.4923
10.51	9.858	9.3057	1.5122	9.265	-2.4814	-.9792	-.001	-18.8990	-26.0442
10.86	8.731	9.1004	1.7197	9.265	-2.4522	-.9496	.001	-20.3951	-27.5108
11.21	9.366	10.0173	1.9273	9.162	-2.5689	-1.0089	0.000	-21.9487	-29.1361
11.56	9.284	9.9625	2.0755	9.080	-2.5689	-.9792	0.000	-23.4448	-30.5386
11.91	8.546	10.5510	2.2534	9.039	-2.6857	-1.4837	0.000	-25.1136	-32.1005
11.92	8.936	10.1952	2.2534	9.060	-2.6565	-1.5134	0.000	-25.1423	-32.0686

MESSWERTEDATEI: M2336A

MESSUNG/AUSWERTUNG VOM 2.12.82 / 1. 3.83.11.28

MESSBEGINN : 13: 4: 230.37 UHR

MESSDAUER: 26.40 S

AUSGEWERTET VOM 3.00 S BIS 14.92 S

ZAHL DER MESSPUNKTE: 1192

SHELL 612509

LFD.NR. 3010.1 VOM 2.12.82 14:45 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUMDOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.83 MM PHIX = 90 GRAD M = 311 G  
LY = 69.81 MM PHIY = 90 GRAD RHO = 913 KG/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 1.4 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.83 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/5

FY/FX = 1.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SIGZ (MPA)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.063	-.0103	.0593	.061	-.7006	-.5045	.001	-.1654	-.0717
.14	.145	.0718	.2668	.184	-.4963	-.3561	.003	-.1079	-.0234
.27	.042	-.0103	.0890	.061	-.6714	-.5341	.001	-.1367	-.0398
.40	.124	.0718	.2372	.164	-.4671	-.3264	.004	-.0791	-.0239
.53	.042	-.0239	.0890	.020	-.6714	-.5341	0.000	-.1942	-.0298
.66	.145	.0718	.2372	.143	-.4963	-.3561	.003	-.1079	-.0239
.79	1.293	.0581	.1136	1.025	-.7006	-.5638	.001	-.1367	-.0398
.92	2.646	.2496	.2076	2.520	-.5547	-.4154	.003	-.2617	-.0080
1.05	3.692	.2907	.0593	3.565	-.7006	-.5638	.001	-.3668	-.1036
1.18	4.902	.4959	.2076	4.754	-.5255	-.4451	.003	-.3668	-.0239
1.31	5.998	.5506	-.0296	5.840	-.7298	-.6231	.001	-.4819	-.0717
1.44	7.382	.7558	.1779	7.172	-.5547	-.4748	.004	-.4531	-.0080
1.57	8.592	.8242	-.0296	8.463	-.7590	-.6528	0.000	-.5970	-.1036
1.70	10.027	1.0293	.1482	9.836	-.5839	-.5638	.004	-.5682	-.0398
1.83	11.237	1.0841	0.0000	11.045	-.7882	-.7122	.001	-.6833	-.1355
1.96	12.385	1.3029	.1482	12.213	-.6130	-.5341	.003	-.6545	-.0080
2.09	13.431	1.3440	0.0000	13.299	-.7882	-.6825	.001	-.8272	-.0717
2.22	14.600	1.6175	.1482	14.528	-.6714	-.5341	.003	-.8272	-.0398
2.35	8.551	1.9869	-.0296	8.073	-1.0217	-.6528	0.000	-1.0573	-.1036
2.48	6.993	1.8364	.1186	7.213	-.8466	-.4154	.004	-.9710	-.0080
2.61	6.378	.7421	0.0000	6.823	-.9925	-.5935	.001	-1.0286	-.1036
2.74	6.911	1.7917	.1482	6.291	-.8466	-.4154	.004	-.9135	-.0398
2.87	5.357	1.3850	0.0000	6.701	-.9342	-.5935	.001	-1.0286	-.1355
3.00	6.542	1.1251	.0890	6.660	-.7882	-.4451	.002	-.9710	-.0398
3.13	7.690	2.2331	0.0000	7.151	-.9050	-.5638	0.000	-.9998	-.1036
3.26	6.931	1.5355	.0593	7.356	-.7590	-.4451	.004	-.9710	-.0298
3.39	7.916	1.7954	0.0000	7.602	-.8174	-.5638	.002	-1.0573	-.1036
3.52	8.613	2.2468	.1482	8.278	-.7298	-.4748	.002	-.9710	-.0239
3.65	9.818	1.3166	-.0296	9.139	-.7590	-.5638	.002	-1.0286	-.1355
3.78	10.396	2.0826	.1186	9.815	-.6714	-.5045	.003	-.9998	-.0717
3.91	10.007	1.9869	0.0000	10.286	-.7298	-.5638	.002	-1.0286	-.0717
4.04	11.155	1.8227	.0890	11.127	-.5547	-.5045	.003	-.9998	-.0717
4.17	13.103	2.4930	-.0296	12.622	-.5839	-.6231	.001	-1.1149	-.1673
4.27	17.470	2.7529	.0593	16.577	-.7006	.1780	.001	-1.5177	-.1673

MESSWERTEDATEI: M2336B

MESSUNG/AUSWERTUNG VOM 2.12.82 / 3. 3.83.10.39

MESSREGINN : 14:45:1748.51 UHR

MESSDAUER: 37.33 S

AUSGEWERTET VON 1.50 S BIS 5.78 S

ZAHL DER MESSPUNKTE: 427

SHELL 612509

LFD.NR. 3011.1 VOM 2.12.82 8:10 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 59.80 MM PHIX = 90 GRAD  
LY = 69.81 MM PHIY = 90 GRAD  
LZ = 69.81 MM PHIZ = 0 GRAD

H = 309 G  
RHO = 908 KG/M\*\*3  
SIP = 1.3 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.40 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 59.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.063	-.0351	.2372	.041	6.8894	.0890	31.188	.0036	.0458
.15	.063	-.0351	.2076	.021	6.8894	.0890	31.150	.0036	.0139
.29	.042	-.0351	.2076	.041	6.8894	.0890	31.150	.0036	-.0499
.43	.083	-.0351	.2372	.021	6.8894	.0890	31.226	.0036	.0139
.57	.042	-.0351	.2372	.021	6.8894	.0890	30.773	.0036	.0139
.71	.042	-.0351	.2076	.021	6.8894	.0890	31.339	.0036	.0458
.85	.063	-.0351	.2372	.021	6.8894	.0890	30.584	.0036	-.0179
.99	.227	.0470	.2568	.062	6.9186	.0890	31.452	.0036	-.0499
1.13	.537	-.0077	1.3342	.431	6.9186	.0297	30.848	.0036	.0458
1.27	1.416	.0470	2.5293	1.415	6.8894	0.0000	31.565	-.4794	-.7192
1.41	2.195	.3071	2.9550	2.173	6.8894	-.0297	31.565	-.4280	-.8795
1.55	2.893	.2934	3.0836	2.850	6.9186	-.0297	31.376	-.4567	-1.0379
1.69	3.528	.0607	3.1133	3.424	6.9186	-.0297	30.924	-.4567	-.7829
1.83	4.021	.4302	3.1429	3.998	6.9186	-.0593	30.848	-.6008	-.7829
1.97	4.554	.6902	3.1725	4.511	6.9186	-.0593	31.640	-.6581	-.7511
2.11	5.025	.4165	3.2022	4.982	6.9186	-.0593	31.565	-.7732	-.7192
2.25	5.579	.2560	3.2319	5.536	6.9186	-.0890	31.376	-.9595	-.8148
2.39	6.502	.5807	3.2615	6.397	6.9186	-.1187	31.791	-.9458	-1.0061
2.53	7.650	.9366	3.3208	7.504	6.9186	-.1484	31.640	-1.0609	-1.1654
2.67	8.798	1.0460	3.3801	8.673	6.8894	-.1780	31.452	-1.2911	-1.4523
2.81	9.947	.9639	3.4097	9.821	6.9186	-.2074	31.980	-1.4925	-1.7711
2.95	11.054	.9539	3.4690	10.907	6.9186	-.2671	32.017	-1.6939	-2.1536
3.09	12.120	1.3882	3.5580	11.994	6.8894	-.3264	31.301	-1.7227	-2.4405
3.23	13.392	1.4839	3.6173	13.265	6.9186	-.3264	31.716	-1.7514	-2.7911
3.37	14.704	1.5250	3.6766	14.618	6.9186	-.4154	32.131	-1.8378	-3.2373
3.51	15.914	1.7713	3.6766	15.828	6.8894	-.4451	32.319	-1.9816	-3.6617
3.65	12.408	1.8124	3.7656	13.306	6.9478	1.8101	31.980	-2.6146	-4.0980
3.79	10.808	2.0040	3.7359	10.682	6.9478	1.8398	31.716	-2.5858	-3.9067
3.93	12.162	2.2914	3.7656	12.035	6.9478	1.8101	31.339	-2.6146	-3.8749
4.07	13.392	2.2640	3.7359	13.245	6.9478	1.8101	31.452	-2.5146	-3.9366
4.21	14.602	2.3871	3.7656	14.434	6.9478	1.7804	31.452	-2.6433	-3.9785
4.35	15.914	2.7293	3.7656	15.725	6.9770	1.7904	32.244	-2.7297	-4.1936
4.49	16.919	2.7977	3.8249	16.833	6.9770	1.7507	31.980	-2.9311	-4.4167
4.63	17.780	2.9072	3.8545	17.694	6.9478	1.7804	31.791	-3.1612	-4.6080
4.73	18.662	3.0030	3.8545	18.452	6.9478	1.9288	32.395	-3.3051	-4.8630

MESSWERTEDETEI: M2336C

MESSUNG/AUSWERTUNG VOM 2.12.82 / 3. 3.83.11.31

MESSBEGINN : 8:10: 207.09 UHR

MESSDAUER: 52.73 S

AUSGEWERTET VON 3.00 S BIS 7.73 S

ZAHL DER MESSPUNKTE: 473



GHELL 612509

LFD.NR. 3013.1 VOM 6.12.82 10: 5 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI SIE = 2.1 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 311 G  
LY = 69.80 MM PHIY = 90 GRAD RHO = 914 KG/M\*\*3  
LZ = 69.79 MM PHIZ = 0 GRAD SIP = .9 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/5

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.227	.0546	-2.8036	.205	-2.5646	-2.0178	30.924	.8078	3.6641
.08	.083	-.0546	-3.0422	.062	-2.7686	-2.2552	30.547	.7217	3.6006
.15	.227	.0682	-2.8334	.185	-2.5646	-2.0178	31.301	.8078	3.7277
.22	.053	-.0409	-3.0123	.082	-2.7686	-2.2552	30.735	.7217	3.5370
.29	.186	.0546	-2.8334	.205	-2.5646	-2.0179	30.735	.8078	3.6641
.36	.083	-.0546	-3.0422	.082	-2.7686	-2.2255	30.509	.6929	3.6006
.43	.268	.0682	-2.8334	.226	-2.5646	-2.0178	31.565	.8078	3.7277
.50	.535	0.0000	-3.0422	.390	-2.7686	-2.2552	30.773	.7217	3.5688
.57	1.253	.1638	-2.8036	1.067	-2.5646	-2.0475	31.565	.8078	3.1975
.64	1.746	.1228	-2.9825	1.620	-2.7686	-2.3145	31.414	.7217	2.8380
.71	2.628	.3003	-2.7141	2.420	-2.5646	-2.1068	30.886	.8078	2.2697
.78	3.059	.2593	-2.9527	2.954	-2.7977	-2.3442	31.369	.7504	2.7744
.85	3.818	.4504	-2.7439	3.713	-2.5646	-2.1365	31.716	.8366	2.8380
.92	4.829	.4093	-2.8930	4.102	-2.7394	-2.3739	31.226	.7504	2.6155
.99	4.968	.5732	-2.6544	4.841	-2.5646	-2.1365	31.791	.8078	2.6473
1.06	5.398	.5323	-2.8036	5.251	-2.7686	-2.3739	30.962	.7217	2.5820
1.13	6.219	.7097	-2.5351	6.051	-2.5646	-2.1662	31.226	.8078	2.6473
1.20	6.609	.6688	-2.7141	6.482	-2.7686	-2.3739	31.112	.7217	2.5202
1.27	7.430	.8462	-2.4158	7.302	-2.5646	-2.2255	31.301	.7791	2.5838
1.34	7.902	.8053	-2.5948	7.754	-2.7686	-2.4332	31.376	.2621	2.4567
1.41	8.620	.9827	-2.3264	8.513	-2.5646	-2.2552	31.226	-.0539	2.5202
1.48	8.990	.9690	-2.5053	8.923	-2.7977	-2.4926	31.603	-.3985	2.4884
1.55	9.667	1.1465	-2.2965	9.497	-2.5646	-2.2849	32.093	-.5709	2.6473
1.62	9.913	1.1328	-2.4755	9.805	-2.7686	-2.5223	31.376	-.9155	2.6520
1.69	10.488	1.2930	-2.2369	10.420	-2.5354	-2.7003	31.829	-1.0879	2.5838
1.76	10.611	1.2593	-2.4158	10.584	-2.7686	-3.1751	31.904	-1.4613	2.4567
1.83	11.042	1.4467	-2.1474	10.995	-2.5354	-3.1157	32.168	-1.6623	2.5520
1.90	11.103	1.4194	-2.3562	11.077	-2.7686	-3.4718	31.301	-2.0645	2.4884
1.97	11.473	1.5832	-2.1474	11.446	-2.5354	-3.3531	31.527	-2.2655	2.5838
2.04	12.314	1.5150	-2.3264	12.041	-2.7686	-3.6795	31.942	-3.1272	2.2660
2.11	13.012	1.7197	-2.1176	12.841	-2.5646	-3.5905	31.904	-3.5006	2.2660
2.18	13.176	1.6924	-2.2965	13.107	-2.7977	-3.9763	31.452	-4.1038	2.1707
2.25	13.689	1.8698	-2.0877	13.600	-2.5646	-4.0356	31.603	-4.5921	2.2978
2.32	13.812	1.8152	-2.3264	13.743	-2.7686	-4.5697	31.904	-5.7123	2.2342
2.33	14.100	1.9381	-2.1176	13.948	-2.5646	-4.4510	32.291	-5.7984	2.2660

MESSWERTEDATEI: M2340X

MESSUNG/AUSWERTUNG VOM 6.12.82 / 8. 3.83. 8.39

MESSBEGINN : 10: 5:1219.17 UHR MESSDAUER: 60.42 S

AUSGEWERTET VON 3.20 S BIS 5.53 S

ZAHL DER MESSPUNKTE: 233

SHELL 612509

LFD.NR. 3014.1 VOM 6.12.82 10:57 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.01 BEI SIE = .9 0/00

## DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD M = 308 G  
LY = 69.82 MM PHLY = 90 GRAD RHO = 904 KC/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 1.6 0/00

## TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

## BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

## VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 1.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.042	-.0273	-.0597	.103	-4.6629	-2.6410	30.924	-1.5762	1.2010
.18	.145	.0273	.0298	.144	-4.5754	-2.5519	31.301	-1.5474	1.2174
.35	.042	-.0273	-.0597	.062	-4.6629	-2.6706	30.622	-1.6049	1.1956
.52	.124	.0273	0.0000	.144	-4.5463	-2.5519	30.622	-1.5474	1.3127
.69	.288	.0136	-.0895	.349	-4.6629	-2.6706	31.150	-1.6049	1.2492
.86	.781	.2729	.0298	.738	-4.5754	-2.5816	31.339	-1.6623	1.3445
1.03	1.355	.2320	-.0597	1.620	-4.6629	-2.7300	31.452	-2.1506	.7090
1.20	2.852	.5732	.0298	2.358	-4.5754	-2.6706	30.924	-2.3230	.2959
1.37	4.103	.7506	-.0597	3.875	-4.6629	-2.8487	31.339	-2.6399	-.2443
1.54	5.887	.9553	.0298	5.351	-4.6046	-2.8190	31.791	-2.8480	-.7527
1.71	7.363	1.1500	-.0895	7.237	-4.6920	-2.9377	31.075	-3.1559	-1.3246
1.88	8.409	1.2828	.0298	8.323	-4.5754	-2.9088	31.188	-3.3857	-1.7696
2.05	9.373	1.5148	-.0298	9.123	-4.6337	-3.0267	31.791	-3.5868	-2.0555
2.22	10.173	1.7331	.0895	10.025	-4.5463	-2.9377	31.339	-3.7017	-2.1190
2.39	10.255	1.6422	.0597	10.230	-4.6337	-3.0564	31.678	-3.7078	-2.3097
2.56	10.911	1.9515	.2088	10.927	-4.5463	-2.9674	31.301	-3.8740	-2.2779
2.73	11.875	2.1971	.1790	11.644	-4.6046	-3.1157	32.017	-3.9889	-2.5004
2.90	10.993	2.1561	.2983	11.398	-4.5171	-2.9970	32.168	-4.0176	-2.5321
3.07	10.993	2.1834	.2088	11.070	-4.5463	-3.0564	31.754	-4.0455	-2.5884
3.24	11.957	2.5110	.2983	11.890	-4.4880	-2.9674	31.904	-3.9889	-2.4686
3.41	12.880	2.7020	.1790	12.813	-4.5463	-3.0861	32.093	-4.1038	-2.5321
3.58	13.741	2.8385	.2983	13.715	-4.4006	-3.0267	31.640	-4.1900	-2.6275
3.75	14.049	3.0432	.2088	14.125	-4.4880	-3.1157	32.055	-4.3048	-2.8181
3.92	14.664	3.1660	.3281	14.617	-4.2549	-1.2760	32.281	-4.7931	-2.9134
4.09	14.848	3.3025	.2684	14.842	-4.3131	-1.3650	31.640	-5.0229	-3.0405
4.26	14.942	3.4799	.3281	15.047	-4.1966	-1.3353	31.980	-5.1955	-3.1041
4.43	15.115	3.6846	.2088	15.170	-4.3131	-1.4540	31.640	-5.5687	-3.4219
4.60	15.484	3.8074	.3281	15.457	-4.1674	-1.3650	32.244	-5.9708	-3.9938
4.77	15.587	4.0121	.1790	15.621	-4.2549	-1.4837	31.565	-6.4303	-4.5022
4.94	15.997	4.1349	.2684	15.949	-4.1383	-1.3947	32.055	-6.8899	-5.2331
5.11	16.038	4.3532	.1491	16.031	-4.2840	-1.5430	31.942	-7.5505	-6.0275
5.28	16.263	4.5306	.2684	16.236	-4.1674	-1.4540	31.716	-8.0963	-6.9807
5.45	16.345	4.6535	.1790	16.359	-4.2840	-1.5727	31.716	-8.8143	-8.0311
5.62	16.591	4.9400	.2684	16.544	-4.1674	-1.4837	32.470	-9.6186	-9.2686
5.79	16.632	4.9810	.1193	16.667	-4.2549	-1.6320	31.640	-10.5377	-10.7620
5.81	16.673	5.1311	.1491	16.646	-4.2549	-1.6617	32.093	-10.5664	-11.0162

MESSWERTEDATEI: M2340A

MESSUNG/AUSWERTUNG VOM 6.12.82 / 9. 3.83.10. 1

MESSBEGINN : 10:57:1196.78 UHR

MESSDAUER: 46.68 S

AUSGEWERTET VON 3.50 S BIS 9.31 S

ZAHL DER MESSPUNKTE: 581

SHELL 612509

LFD.NR. 3016.1 VOM 8.12.82 13:56 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = .8 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD  
LY = 69.78 MM PHIY = 90 GRAD  
LZ = 69.81 MM PHIZ = 0 GRAD

M = 310 G  
RHO = 911 KG/M\*\*3  
SIP = 1.6 0/90

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/8

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.309	.0931	-1.5198	.205	-6.9360	-2.2830	30.924	-1.6053	-.3250
.09	.371	.11750	-1.5496	.349	-6.9360	-2.2830	30.848	-1.6341	-.2936
.17	.494	.2570	-1.5198	.451	-6.9360	-2.0458	31.150	-1.6341	-.2514
.25	.576	.3253	-1.5496	.577	-6.9360	-1.5714	31.301	-1.5765	-.2292
.33	.761	.3936	-1.5496	.800	-6.9360	-1.5418	31.414	-1.5765	-.2614
.41	.863	.4893	-1.5198	.902	-6.9360	-1.5121	31.482	-1.5765	-.2614
.49	1.027	.5712	-1.5496	1.046	-6.9651	-1.5121	30.735	-1.5765	-.2614
.57	1.438	.6395	-1.5496	1.394	-6.9651	-1.6011	31.226	-1.5765	-.2614
.65	1.746	.7352	-1.4602	1.702	-6.9651	-1.6011	31.452	-1.5765	-.2292
.73	2.053	.7898	-1.4602	2.010	-7.0234	-1.6604	30.999	-1.5765	-.1971
.81	2.484	.8718	-1.4602	2.420	-7.0525	-1.6604	31.037	-1.5765	-.2293
.89	.576	.9911	-1.4900	.677	-6.9651	-.4744	30.962	-.7415	-.5188
.97	.530	.9401	-1.4900	.472	-6.9651	-.4744	31.150	-.7127	-.5188
1.05	.432	1.0084	-1.4602	.656	-6.9943	-.5940	30.735	-.7415	-.5832
1.13	.884	1.2407	-1.4900	.882	-6.9651	-.5040	31.339	-.7127	-.5188
1.21	1.499	1.3636	-1.4900	1.107	-6.9651	-.5337	31.527	-.7415	-.5832
1.29	1.684	1.2817	-1.4602	1.497	-6.9943	-.5337	31.565	-.7703	-.5832
1.37	1.643	1.2817	-1.4900	1.989	-6.9651	-.5337	30.773	-.7703	-.5475
1.45	2.772	1.5276	-1.4602	2.625	-6.9651	-.5337	31.565	-.7703	-.7119
1.53	3.859	1.6915	-1.4304	3.322	-6.9651	-.5930	30.962	-.7415	-.8084
1.61	4.106	1.6095	-1.4006	3.999	-6.9943	-.6523	30.962	-.9209	-1.0014
1.69	4.106	1.6232	-1.2814	4.470	-6.9651	-.5225	31.226	-.9142	-1.1523
1.77	4.906	1.8418	-1.2814	5.004	-6.9651	-.6819	31.263	-.9430	-1.3553
1.85	6.055	2.0194	-1.2814	5.537	-6.9943	-.7116	30.999	-1.0870	-1.4197
1.93	6.486	1.9784	-1.2218	5.947	-6.9651	-.7116	31.037	-1.2598	-1.5806
2.01	6.897	1.9921	-1.1920	6.829	-6.9651	-.7412	31.498	-1.3462	-1.6771
2.09	7.717	2.1287	-1.0132	7.403	-6.9486	-.6819	31.263	-2.0085	-1.9023
2.17	8.785	2.2926	-.9864	8.367	-6.8486	-.6523	31.829	-2.3252	-1.9345
2.25	9.298	2.3336	-.8344	8.859	-6.8194	-.6523	31.527	-2.6420	-1.9983
2.33	9.708	2.3063	-.7748	9.576	-6.8194	-.6819	31.376	-2.8435	-2.0310
2.41	9.872	2.3883	-.7450	10.130	-6.7903	-.6819	31.942	-3.1315	-1.9988
2.49	10.919	2.5659	-.6556	10.684	-6.7029	-.6819	32.093	-3.3906	-2.0632
2.57	11.637	2.6615	0.0000	11.319	-6.7029	-.7412	32.093	-3.8514	-2.1275
2.58	11.145	2.5932	0.0000	11.258	-6.7029	-.7709	32.055	-3.8514	-2.2241

MESSWERTEDATEI: M2342

MESSUNG/AUSWERTUNG VOM 8.12.82 / 8.3.83.12.6

MESSBEGINN: 13:56:4792.54 UHR MESSDAUER: 59.17 S

AUSGEWERTET VON 2.50 S BIS 5.08 S

ZAHL DER MESSPUNKTE: 258

SHELL 612509

LFD.NR. 3017.1 VDM 9.12.82 7:55 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1991

EISPROBENENTNAHME 4.31 BEI SIE = .8 0/00

DATEN DER PROBE:

LX = 69.76 MM PHIX = 90 GRAD  
LY = 69.81 MM PHIY = 90 GRAD  
LZ = 69.81 MM PHIZ = 0 GRAD

M = 310 G  
RHO = 911 KG/M\*\*3  
SIP = 2.0 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.76 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1002E-02 1/S  
FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.063	-.0102	-1.6604	.103	-3.2057	-.0297	30.622	.2464	-2.2363
.08	.083	.0171	-1.6011	.041	-3.1474	0.0000	31.263	.3039	-2.1723
.15	.063	-.0102	-1.6604	.041	-3.2057	-.0594	31.301	.2751	-2.1723
.22	.083	.0171	-1.6011	.123	-3.1474	0.0000	30.698	.2464	-2.1723
.29	.063	-.0239	-1.6604	.062	-3.2057	-.0594	31.414	.2464	-2.2363
.36	.083	.0171	-1.6307	.082	-3.1474	-.0297	30.698	.2464	-2.2043
.43	.042	-.0102	-1.6604	.082	-3.2057	-.0594	31.226	.2751	-2.2043
.50	.063	.0171	-1.6307	.123	-3.1766	-.0297	31.226	.2464	-2.1723
.57	.063	.0034	-1.6604	.062	-3.1766	-.0297	31.198	.2176	-2.2043
.64	.268	.0444	-1.6604	.144	-3.1474	0.0000	31.112	.2464	-2.2043
.71	.042	-.0376	-1.6604	.308	-3.1766	-.0594	31.037	.2464	-2.2682
.78	.247	-.0512	-1.6011	.349	-3.1766	-.0594	31.490	.2464	-2.2682
.85	.534	.0171	-1.6011	.656	-3.1766	-.1189	31.226	.2464	-2.2682
.92	.822	.0854	-1.6011	.882	-3.2057	-.1189	31.301	.2464	-2.2043
.99	1.785	.2902	-1.5714	1.498	-3.1766	-.1485	31.339	.1025	-2.1403
1.06	2.852	.4815	-1.6011	2.380	-3.2057	-.1782	31.301	-.0701	-2.1403
1.13	3.610	.5361	-1.6011	3.290	-3.2349	-.1782	31.236	-.2140	-2.3002
1.20	4.082	.5088	-1.5714	4.041	-3.2349	-.1782	31.112	-.3866	-2.3961
1.27	4.697	.5088	-1.4825	4.821	-3.2349	-.2079	31.452	-.5017	-2.3642
1.34	4.943	.5634	-1.3342	5.231	-3.2349	-.2079	31.226	-.5305	-2.3642
1.41	5.251	.5771	-1.3046	5.436	-3.2349	-.2079	31.414	-.5880	-2.3961
1.48	6.153	.7136	-1.2750	6.031	-3.2349	-.2079	31.829	-.6456	-2.4281
1.55	7.425	.9595	-1.3046	6.954	-3.2349	-.2079	31.112	-.7894	-2.5240
1.62	9.122	1.0824	-1.2453	7.837	-3.2349	-.2079	31.942	-.8757	-2.7798
1.69	8.163	.9458	-1.1860	8.349	-3.2640	-.0594	31.263	-.9908	-2.8118
1.76	8.552	1.0141	-1.1860	8.493	-3.2640	-.0297	31.950	-1.0196	-2.8118
1.83	9.291	1.2327	-1.1860	9.006	-3.2931	.0594	31.640	-1.1347	-2.8438
1.90	9.639	1.2600	-1.1860	9.601	-3.2931	.9206	32.017	-1.2210	-2.8758
1.97	9.537	1.0961	-1.1860	9.970	-3.2931	.9206	31.490	-1.3361	-2.9717
2.04	10.193	1.2736	-1.1563	10.339	-3.2931	.9206	32.055	-1.4511	-3.0996
2.11	11.280	1.4785	-1.1563	10.975	-3.3223	.8909	31.791	-1.5662	-3.1955
2.18	11.956	1.5331	-1.1563	11.611	-3.2931	.8909	32.168	-1.6525	-3.2595
2.25	12.120	1.4785	-1.1563	12.145	-3.3223	.8909	31.452	-1.7964	-3.4513
2.32	12.756	1.5605	-1.1267	12.637	-3.3223	.8909	31.527	-1.9115	-3.5472
2.34	12.715	1.5605	-1.1267	12.780	-3.3223	.8909	31.867	-1.9402	-3.6432

MESSWERTEDATEI: M2343

MESSUNG/AUSWERTUNG VOM 9.12.82 / 9.3.83. 8.25

MESSREGINN: 7:55: 792.09 UHR

MESSDAUER: 59.50 S

AUSGEWERTET VOM 3.00 S BIS 5.34 S

ZAHL DER MESSPUNKTE: 234

SHELL 612509

LFD.NR. 4005.1 VOM 1.12.82 13: 6 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUHDOE BAY  
3-15 APRIL 1981 ..

EISPROBENENTNAHME 4.81 BEI SIE = 1.4 0/00

DATEN DER PROBE:

LX = 69.78 MM PHIX = 90 GRAD M = 295 G  
LY = 69.74 MM PHIY = 90 GRAD RHO = 868 KG/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 2.1 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.78 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S  
FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.166	.0034	-1.2474	.144	2.5148	-1.9834	0.000	0.0000	-.0556
1.33	3.594	.2351	-1.2474	1.764	2.4563	-1.9834	0.000	0.0000	-.0260
2.65	9.014	1.5983	-.4752	4.513	2.0177	-1.9242	0.000	0.0000	-1.5075
3.97	7.630	2.7478	1.3959	4.820	1.3159	-2.9602	0.000	-1.2278	-3.0484
5.29	8.480	4.2700	2.5542	4.225	.7013	-3.7595	.002	-3.0839	-4.7967
6.61	7.700	5.5923	3.7719	3.856	.1170	-4.4404	.003	-5.0827	-6.3117
7.93	7.146	6.9145	5.0787	3.610	-.4386	-5.0916	.003	-7.1386	-8.5897
9.25	6.858	8.2232	6.4746	3.446	-1.0820	-5.7133	.005	-9.2516	-10.4565
10.57	6.571	9.5454	7.8408	3.282	-1.7545	-6.3941	.004	-11.4788	-12.3826
11.89	6.243	10.8540	9.1179	3.118	-2.3686	-7.0454	.005	-13.6489	-14.1013
13.21	6.078	12.1626	10.3356	3.056	-3.0997	-7.4894	.005	-15.8476	-15.8200
14.53	5.873	13.4849	11.5533	2.974	-3.7722	-7.9660	.005	-18.0177	-17.4498
15.85	5.791	14.7799	12.9195	2.913	-4.4156	-8.4663	.005	-20.2735	-19.0499
17.17	5.565	16.1021	14.1669	2.810	-5.0297	-8.9399	.007	-22.4436	-20.4427
18.49	5.545	17.4107	15.4143	2.769	-5.6438	-9.3840	.005	-24.4710	-21.8057
19.81	5.442	18.7330	16.7211	2.728	-6.2286	-9.7698	.006	-26.5269	-23.1392
21.13	5.319	20.0416	18.0873	2.626	-6.6965	-10.1536	.006	-28.6113	-24.4134
22.45	5.216	21.3638	19.4535	2.626	-7.2813	-10.5089	.007	-30.5816	-25.5987
23.77	5.175	22.6588	21.0573	2.544	-7.8369	-10.8641	.007	-32.5804	-26.6358
25.09	5.134	23.9947	22.8096	2.523	-8.4219	-11.2489	.007	-34.5220	-27.6730
26.41	5.113	25.3033	24.7995	2.585	-8.9774	-11.6633	.008	-36.2924	-19.2870
27.73	5.072	26.6256	26.8488	2.461	-9.5037	-12.0482	.007	-38.2626	-19.4648
29.05	5.031	27.9342	28.6605	2.441	-10.0301	-12.4338	.007	-40.1472	-19.9093
30.37	4.970	29.2564	30.2940	2.461	-10.5272	-12.7290	.007	-41.9176	-20.5612
31.69	4.929	30.6196	31.2741	2.502	-10.9366	-12.9474	.009	-43.6023	-21.1835
33.01	4.867	31.9145	32.1948	2.420	-11.5214	-13.2027	.008	-45.2584	-21.8946
34.33	4.867	33.2095	33.5907	2.420	-12.0196	-13.4691	.009	-46.8575	-22.3984
35.65	4.826	34.5454	35.0757	2.379	-12.5157	-13.6766	.008	-48.3994	-22.6651
36.97	4.764	35.8540	36.6201	2.379	-12.9836	-13.9243	.008	-24.8797	-22.9318
38.29	4.785	37.1626	38.2536	2.359	-13.4222	-13.9723	.008	-25.9558	-23.0503
39.61	4.744	38.4849	39.7980	2.318	-13.8316	-14.1499	.008	-26.7553	-23.0799
40.93	4.682	39.7935	40.6296	2.338	-14.2995	-14.3868	.010	-27.6405	-23.0799
42.25	4.641	41.1158	41.9661	2.297	-14.7088	-14.5940	.009	-28.3543	-23.0799
43.57	4.723	42.4380	43.8075	2.359	-15.0890	-14.8012	.008	-29.7255	-23.1896
44.89	4.744	43.7466	45.6192	2.379	-15.4984	-14.9788	.010	-29.1253	-23.0503
46.18	4.641	45.1915	46.2429	2.338	-15.7323	-14.9788	.013	-29.2956	-22.9910

MESSWERTEDATEI: M2335A

MESSBEGINN: 13: 5: 713.14 UHR

MESSDAUER: 53.78 S

AUSGEWERTET VON 2.00 S BIS 48.19 S

ZAHL DER MESSPUNKTE: 4618

SHELL 612509

LFD.NR. 4005.1 VOM 2.12.82 11:16 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUHDOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.4 0/00

DATEN DER PROBE:

LX = 69.79 MM PHIX = 90 GRAD M = 311 G  
LY = 69.81 MM PHIY = 90 GRAD RHO = 914 KG/M\*\*3  
LZ = 69.83 MM PHIZ = 0 GRAD SIP = 3.0 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.79 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T	SIGX	EPSX1	EPSX2	SIGY	EPSY1	EPSY2	SIGZ	EPSZ1	EPSZ2
(S)	(MPA)	(MM/M)	(MM/M)	(MPA)	(MM/M)	(MM/M)	(MPA)	(MM/M)	(MM/M)
.01	.042	.0325	-2.2238	.061	-.4953	-1.0089	.002	.7939	1.7611
1.40	-.019	-.0222	-2.3424	-.041	-.6714	-1.1869	-.001	.7735	1.7292
2.79	.042	.0325	-2.2238	.041	-.6255	-1.0682	.001	.7930	1.7292
4.18	4.286	.6210	-2.3720	2.537	-.4379	-1.2156	-.001	.7067	1.7292
5.57	11.133	2.5509	-2.2238	5.309	-.5839	-1.0682	.001	.2751	1.8249
6.96	12.035	3.8648	-2.2534	5.904	-1.9257	-1.2463	0.000	-2.4894	1.7242
8.35	10.477	4.9871	-1.6901	5.555	-2.7441	-1.1276	.003	-5.5817	-2.4880
9.74	10.754	5.6295	-1.0970	5.084	-3.6793	-1.2760	.003	-9.1495	-4.4546
11.13	9.042	7.0108	-.0890	4.358	-4.0890	-1.3947	.006	-13.5052	-9.1203
12.52	8.652	9.0795	.8599	4.551	-4.4891	-1.3594	.006	-17.5910	-11.9134
13.91	8.222	10.7766	2.1951	4.407	-4.3913	-1.2991	.009	-21.3032	-14.9735
15.30	7.771	11.8158	3.0546	4.161	-4.4373	-2.3442	.009	-24.8253	-18.5554
16.69	7.581	13.2575	4.2400	4.100	-4.3799	-2.5519	.010	-28.2946	-18.5310
18.08	7.156	14.9374	5.1591	3.813	-4.6124	-3.1454	.009	-31.4306	-18.4079
19.47	9.181	15.5114	6.4541	3.915	-4.5340	-3.3828	.012	-34.1063	-15.1520
20.86	6.989	17.4695	7.2050	3.649	-4.8752	-3.9466	.009	-36.7533	-13.9216
22.25	6.766	19.2524	8.1834	3.567	-4.8752	-4.2730	.013	-39.1125	-12.7402
23.64	7.730	20.7817	8.8950	3.526	-5.1671	-4.3951	.011	-41.5442	-11.8477
25.03	6.746	21.6850	9.6956	3.526	-5.3714	-5.4303	.013	-43.3419	-11.6496
26.42	6.438	23.4916	10.5850	3.309	-5.6634	-5.9050	.014	-45.1255	-9.9202
27.81	7.329	24.9561	11.3263	3.380	-6.0137	-6.4688	.013	-46.6505	-8.0093
29.20	7.258	26.3795	12.1565	3.382	-6.2190	-6.7953	.014	-48.0891	-6.5502
30.59	7.033	27.7756	12.9274	3.198	-6.6559	-7.2997	.013	-49.3550	-4.2371
31.98	7.012	29.1580	13.7576	3.198	-6.8602	-7.5668	.015	-50.2469	-4.7895
33.37	6.919	30.5403	14.5878	3.095	-7.2991	-7.8525	.014	-50.7548	-4.1296
34.76	6.989	31.9227	15.5366	5.136	-7.5901	-8.2493	.015	-51.4265	-3.4346
36.15	5.249	32.7028	16.3372	2.952	-7.9896	-8.7834	.012	-51.9156	-2.7871
37.54	5.844	34.5737	17.2869	3.034	-8.2031	-9.1395	.014	-52.3472	-2.2971
38.93	6.745	36.1519	18.1458	2.972	-8.5825	-9.6439	.013	-52.6924	-1.7133
40.32	4.921	36.9184	19.2429	2.890	-8.7879	-10.0297	.014	-52.7500	-1.9483
41.71	6.377	39.0124	20.0434	2.798	-9.1373	-10.5341	.013	-52.8363	-1.6295
43.10	6.479	40.3811	20.9329	2.911	-9.3416	-10.3902	.015	-52.7738	-1.5858
44.49	5.577	41.5992	21.6741	2.706	-9.7211	-11.5430	.014	-52.8875	-1.5977
45.88	6.356	43.3238	22.6525	2.849	-9.8379	-11.8099	.016	-52.7738	-1.5029
47.27	5.680	44.5336	23.3642	2.644	-10.1982	-12.3442	.015	-52.7212	-1.5977
48.67	4.962	45.1989	24.0165	2.480	-10.3342	-12.8497	.014	-52.5199	3.9587

MESSWERTEDATEI: 42336  
MESSUNG/AUSWERTUNG VOM 2.12.82 / 1. 3.83.11. 0  
MESSBEDINN : 11:16:1385.69 UHR MESSDAUER: 53.70 S  
AUSGEWERTET VON .03 S 316 48.60 S  
ZAHL DER MESSPUNKTE: 4857

SHELL 612509

LFD.NR. 4007.1 VOM 8.12.82 12:41 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 SEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD  
LY = 69.81 MM PHIY = 90 GRAD  
LZ = 69.82 MM PHIZ = 0 GRAD

M = 309 G  
RHO = 908 KG/M\*\*3  
SIP = 2.1 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/5

FY/FX = .5000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.206	.0657	-1.2218	.103	-3.0309	-5.3370	31.339	-2.2676	-2.2241
.09	.165	.0657	-1.2218	.103	-3.0309	-5.3370	30.999	-2.2676	-2.2552
.17	.206	.0794	-1.2218	.103	-3.0309	-5.3073	30.962	-2.2954	-2.1275
.25	.206	.0794	-1.1920	.123	-3.0309	-5.2777	31.226	-2.2676	-2.2241
.33	.206	.0794	-1.2218	.144	-3.0309	-5.2777	31.414	-2.2954	-2.1275
.41	.227	.0794	-1.1920	.144	-3.0017	-5.2777	30.811	-2.2954	-2.1275
.49	.206	.0794	-1.1920	.123	-3.0309	-5.3073	31.301	-2.2954	-2.1597
.57	.227	.0657	-1.1920	.144	-3.0309	-5.3073	30.773	-2.2954	-2.1597
.65	.699	.0794	-1.1920	.308	-3.0309	-5.3073	31.414	-2.2676	-2.1919
.73	.883	.0111	-1.1920	.451	-3.0309	-5.3073	31.226	-2.2676	-2.1919
.81	1.211	.1477	-1.1920	.554	-3.0309	-5.3370	31.640	-2.2676	-2.1597
.89	1.519	.3525	-1.2218	.779	-3.0309	-5.3666	31.640	-2.2676	-2.1597
.97	2.011	.3252	-1.1920	.954	-3.0309	-5.3666	31.376	-2.2676	-2.1597
1.05	2.462	.2296	-1.1920	1.230	-3.0600	-5.3666	31.301	-2.2388	-2.1597
1.13	2.955	.2564	-1.1920	1.475	-3.0600	-5.3666	31.603	-2.2954	-2.1597
1.21	3.426	.4755	-1.1920	1.722	-3.0309	-5.3963	31.791	-2.2688	-2.1919
1.29	3.916	.6120	-1.1920	1.948	-3.0309	-5.3963	31.640	-2.2676	-2.2562
1.37	4.257	.6530	-1.1920	2.132	-3.0600	-5.3963	31.037	-2.2676	-2.2864
1.45	4.862	.6803	-1.1622	2.460	-3.0600	-5.4259	31.791	-2.2964	-2.3286
1.53	5.416	.7213	-1.1622	2.706	-3.0600	-5.4259	31.226	-2.2964	-2.5136
1.61	5.970	.7759	-1.1622	2.993	-3.0309	-5.4259	31.226	-2.2964	-2.5182
1.69	6.482	.8033	-1.1622	3.260	-3.0309	-5.4556	31.301	-2.2964	-2.7067
1.77	7.118	.8442	-1.1324	3.547	-3.0309	-5.4852	31.490	-2.4252	-2.7710
1.85	7.610	.9399	-1.1026	3.834	-3.0309	-5.5149	32.093	-2.3252	-2.8354
1.93	8.062	.9945	-1.0728	4.101	-3.0309	-5.4852	32.131	-2.4116	-2.8997
2.01	8.574	1.0628	-1.0132	4.306	-3.0309	-5.4852	31.376	-2.5556	-2.9319
2.09	9.067	1.0901	-.9536	4.511	-3.0309	-5.5445	31.829	-2.5844	-2.9468
2.17	9.579	1.1584	-.9238	4.818	-3.0600	-5.5149	32.017	-2.6420	-3.0608
2.25	10.051	1.2403	-.8642	5.064	-3.0600	-5.5445	31.414	-2.7859	-3.1249
2.33	10.625	1.3359	-.8046	5.331	-3.0309	-5.5445	31.565	-2.9011	-3.3180
2.41	11.138	1.4042	-.7450	5.556	-3.0309	-5.5445	32.281	-3.0451	-3.3502
2.49	11.651	1.4725	-.7152	5.823	-3.0309	-5.5742	32.281	-3.1891	-3.5432
2.57	12.246	1.5681	-.6854	6.151	-3.0309	-5.5742	31.640	-3.3042	-3.6075
2.65	12.984	1.6091	-.6556	6.500	-3.0017	-5.5445	31.754	-3.4770	-3.6719
2.70	13.599	1.4998	-.7152	6.643	-3.1474	-5.5631	31.678	-3.8226	-3.8886

MESSWERTEDATEI: M2342

MESSUNG/AUSWERTUNG VOM 8.12.82 / 8.3.83.11.8

MESSBEGINN: 12:41:3878.29 UHR MESSDAUER: 60.11 S

AUSGEWERTET VON 3.50 S BIS 6.20 S

ZAHL DER MESSPUNKTE: 270

SHELL 612509

LFD.NR. 4008.1 UDM 9.12.82 8:46 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD  
LY = 69.82 MM PHIY = 90 GRAD  
LZ = 69.81 MM PHIZ = 0 GRAD

M = 308 G  
RHO = 905 KG/M\*\*3  
SIP = 2.1 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.124	.0307	-.3855	.041	-2.3606	-2.0788	31.414	.6204	.0659
.15	.124	.0171	-.3855	.041	-2.3606	-2.0788	31.452	.5916	.1299
.29	.165	.0444	-.3855	.061	-2.3606	-2.0491	31.452	.5916	.0340
.43	.616	.1672	.6819	.264	-2.3606	-2.0788	31.112	.5916	.0020
.57	1.129	.3173	1.9866	.471	-2.3897	-2.1085	30.962	.6204	.1299
.71	.842	-.0239	2.7278	.553	-2.3897	-2.1085	30.848	.6204	.0659
.85	1.847	-.0785	3.9138	.922	-2.4480	-2.1382	31.112	.5916	.0340
.99	2.380	.0171	4.7737	1.209	-2.6229	-2.1085	30.962	.5916	-.1259
1.13	2.995	.3446	5.3953	1.455	-2.7686	-2.1382	30.999	.5916	-.2568
1.27	3.671	.8768	5.9300	1.824	-2.8951	-2.1382	31.037	.6204	-.3170
1.41	4.225	1.3544	6.3748	2.050	-2.9434	-2.1679	31.150	.6491	-.2858
1.55	4.717	1.7092	6.7009	2.275	-3.0017	-2.1679	31.075	.6204	-.2858
1.69	5.045	1.9139	6.8491	2.460	-3.0891	-2.1382	31.075	.6204	-.3817
1.83	5.476	1.9822	7.0271	2.725	-3.1183	-2.1976	31.414	.5916	-.3497
1.97	5.865	1.7775	7.1753	2.931	-3.1474	-2.1679	31.565	.5916	-.4137
2.11	6.132	1.4090	7.3236	3.136	-3.2057	-2.1679	31.603	.5916	-.5416
2.25	6.521	1.0951	7.3532	3.320	-3.2640	-2.1976	31.188	.6204	-.5416
2.39	6.911	1.0405	7.4125	3.546	-3.3514	-2.2273	31.960	.6491	-.5736
2.53	7.444	1.2925	7.4718	3.751	-3.4097	-2.1976	31.226	.5916	-.7334
2.67	8.080	1.7775	7.5608	4.038	-3.5263	-2.1976	31.678	.5916	-.8294
2.81	8.613	2.2824	7.7387	4.243	-3.5846	-2.2273	32.131	.5916	-.9575
2.95	9.064	2.3370	7.8276	4.489	-3.5846	-2.2273	32.017	.5916	-1.1811
3.09	9.412	2.8419	7.9462	4.735	-3.6137	-2.2570	31.829	.5916	-1.2770
3.23	9.699	2.8282	8.0055	4.878	-3.6429	-2.2273	32.168	.6204	-1.4049
3.37	9.904	2.6545	8.1241	4.981	-3.7011	-2.1976	31.452	.5916	-1.5968
3.51	10.191	2.4598	8.2427	5.104	-3.7303	-2.2273	32.055	.6628	-1.8526
3.65	10.458	2.4052	8.3317	5.288	-3.7886	-2.2570	32.055	.5628	-2.0444
3.79	10.848	2.5417	8.4799	5.473	-3.7886	-2.2570	31.791	.4765	-2.3642
3.93	11.319	2.8965	8.5688	5.719	-3.8760	-2.2867	32.093	.3327	-2.7479
4.07	11.852	3.2786	8.6875	5.903	-3.9343	-2.2570	32.261	.2176	-3.0556
4.21	12.221	3.6061	8.8060	6.108	-4.0800	-2.2570	32.206	.0737	-3.5153
4.35	12.631	3.8108	8.8950	6.313	-4.1966	-2.2570	31.791	-.2428	-4.0588
4.49	13.410	3.9200	9.0136	6.682	-4.3131	-2.2570	32.508	-1.1634	-4.6344
4.63	15.379	3.9609	9.2211	7.625	-4.6337	-2.3164	32.244	-3.1486	-6.0733

MESSWERTEDATEI: M2343A

MESSUNG/AUSWERTUNG VOM 9.12.82 / 9.3.83, 8.49

MESSREGINN: 8:46; 27.69 UHR MESSDAUER: 58.32 S

AUSGEWERTET VON 2.80 S BIS 7.43 S

ZAHL DER MESSPUNKTE: 463



SHELL 612509

LFD.NR. 4009.1 VOM 10.12.82 8: 5 UHR

BIAXIAL COMPRESSIVE STENGTHS TESTS WITH ICE  
FROM MULTIYEAR RIDGES REIDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD  
LY = 69.79 MM PHIY = 90 GRAD  
LZ = 69.81 MM PHIZ = 0 GRAD

M = 306 G  
RHO = 999 KG/M\*\*3  
SIP = 2.0 0/00

TEMPERATUREN:  
TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.083	-.0017	.8606	0.000	-6.2366	1.6037	30.622	-.9160	-.7941
.29	.083	-.0017	.8902	.041	-6.2074	1.5740	30.848	-.8873	-.9899
.57	.063	-.0017	.8902	.020	-6.2657	1.6037	30.622	-.8585	-.7622
.85	2.648	-.1519	.8902	1.004	-6.2657	1.5443	30.924	-.9160	-.8261
1.13	5.234	.9675	1.2464	2.583	-6.2949	1.4849	31.754	-.8873	-1.2092
1.41	6.424	1.4316	1.3947	3.136	-6.2657	1.4849	31.640	-.8585	-1.3369
1.69	7.142	.4624	1.6321	3.607	-6.2949	.9206	31.414	-.9160	-1.5923
1.97	9.168	.1211	1.8695	4.079	-6.3240	.4158	31.791	-.9160	-1.7838
2.25	9.481	1.5135	2.0773	4.632	-6.2949	.1188	32.017	-.9160	-2.1031
2.53	10.240	1.5954	2.3443	5.124	-6.3240	-.2673	31.754	-1.0024	-2.4543
2.81	11.102	1.0084	2.4927	5.513	-6.3240	-.3861	31.980	-1.1464	-2.8054
3.09	12.005	2.4281	2.7598	5.964	-6.3531	-.5642	32.158	-1.2616	-3.1601
3.37	12.374	1.6773	2.9675	6.190	-6.3531	-.7424	31.527	-1.3488	-3.5190
3.65	13.174	2.4144	3.1159	6.518	-6.3531	-.9503	32.244	-1.4920	-4.0613
3.93	13.441	2.8922	3.2643	6.723	-6.3240	-1.1879	31.867	-1.6935	-5.3914
4.21	13.728	2.5373	3.4720	6.805	-6.3240	-1.4255	31.904	-1.9815	-6.3811
4.49	13.954	3.6430	3.5610	6.969	-6.3531	-1.6631	32.055	-2.4998	-7.5304
4.77	13.523	2.9877	3.6500	6.723	-6.2949	-1.8789	31.791	-3.0469	-8.6712
5.05	13.031	4.3116	3.6797	6.538	-6.2949	-2.0491	31.829	-3.5948	-10.2121
5.33	12.292	3.2607	3.6797	6.169	-6.3240	-2.2570	32.545	-4.1987	-11.4891
5.61	12.169	4.8305	3.6797	6.026	-6.2657	-2.4946	31.980	-4.9186	-12.7342
5.89	11.512	3.8204	3.7094	5.800	-6.2949	-2.6728	32.281	-5.5809	-14.1389
6.17	11.574	5.2810	3.6797	5.739	-6.2657	-2.8509	31.904	-6.3583	-15.4797
6.45	10.917	4.3119	3.6797	5.513	-6.2657	-3.0885	32.357	-7.1934	-16.8845
6.73	10.938	5.8270	3.7390	5.431	-6.2366	-3.2667	32.583	-8.1148	-18.3538
7.01	10.404	4.7759	3.7390	5.247	-6.2657	-3.4152	31.829	-9.0651	-19.7577
7.29	10.568	6.4413	3.7687	5.226	-6.2366	-3.5637	31.829	-9.9865	-21.1944
7.57	10.055	5.2537	3.7687	5.083	-6.2366	-3.7122	32.432	-10.9656	-22.6610
7.85	10.281	6.8372	3.7984	5.124	-6.2074	-3.9200	32.395	-11.9446	-24.1634
8.13	10.055	6.8454	3.8281	5.042	-6.2074	-4.0982	32.659	-12.8948	-25.6958
8.41	9.930	7.1511	3.8874	4.940	-6.1783	-4.2467	31.904	-14.0179	-27.2282
8.69	9.132	6.4686	3.9468	4.550	-6.1200	-4.3952	32.595	-14.8529	-28.5691
8.97	9.419	7.8063	4.0061	4.694	-6.1200	-4.5437	32.659	-15.7744	-29.7822
9.25	9.973	7.1511	4.1842	4.960	-6.1200	-4.7516	32.772	-15.9838	-31.5862
9.52	13.400	8.2159	4.8964	6.436	-6.1783	-5.2267	32.508	-18.8842	-34.5072

MESSWERTE DATEI: M2344

MESSUNG/AUSWERTUNG VOM 10.12.82 / 9. 3.83.11.21

MESSBEGINN : 8: 5: 327.27 UHR

MESSDAUER: 57.45 S

AUSGEWERTET VON 2.00 S BIS 11.53 S

ZAHL DER MESSPUNKTE: 952

SHELL 612509

LFD.NR. 4010.1 UOM 10.12.82 8:42 UHR

BIAXIAL COMPRESSIVE STENGTHS TESTS WITH ICE  
FROM MULTIYEAR RIDGES REIDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI SIE = 1.2 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD H = 304 G  
LY = 69.81 MM PHIY = 90 GRAD RHO = 893 KG/M\*\*3  
LZ = 69.79 MM PHIZ = 0 GRAD SIP = 1.0 0/00

TEMPERATUREN:

TL = -29.30 GRAD C  
TP = -29.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = .5000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
0.01	0.042	0.0119	0.0000	0.062	-7.0526	-2.4352	31.414	-0.2250	0.0040
1.21	2.976	1.1176	0.309	1.456	-7.1400	-2.5243	31.263	-0.3113	-0.7303
2.41	6.608	2.4488	1.1277	3.362	-7.4314	-2.5540	31.490	-0.3977	-1.5369
3.61	10.384	2.8103	1.8399	5.166	-8.1891	-3.3558	31.967	-0.8585	-2.4223
4.81	12.436	3.4655	3.1159	6.192	-8.7137	-3.8013	32.357	-1.9815	-4.0505
6.01	11.205	4.0115	4.5887	5.577	-8.9469	-3.8013	32.017	-4.3427	-5.9022
7.21	10.035	6.2092	6.2614	4.982	-9.0634	-3.9497	32.395	-6.9064	-7.9135
8.41	9.317	7.3968	7.8342	4.674	-9.2091	-4.2467	32.563	-9.4577	-9.9886
9.61	8.147	7.2503	9.2883	4.100	-9.4423	-4.5437	31.754	-13.0676	-11.9999
10.81	7.470	8.7873	10.4753	3.752	-9.6794	-4.7219	32.432	-16.0335	-14.0112
12.01	9.399	11.0085	12.3151	4.592	-10.0251	-5.1673	32.847	-19.6905	-16.3417
13.21	6.772	12.5021	13.9473	3.342	-10.6371	-5.7316	32.432	-25.9469	-19.9174
14.41	6.013	13.5532	14.6891	3.055	-10.9577	-5.7910	32.131	-30.7479	-21.8967
15.61	5.725	14.6862	15.6684	2.973	-11.2200	-5.9098	33.036	-34.3760	-23.7803
16.81	5.849	15.9966	16.6477	2.973	-11.4531	-6.0890	32.950	-37.3891	-25.4723
18.01	6.157	17.3480	17.4489	2.993	-11.6571	-6.2364	32.847	-41.4597	-27.1963
19.21	5.890	18.4946	18.2798	2.870	-11.7737	-6.4443	33.390	-44.7711	-28.7805
20.41	5.234	19.4365	19.0810	2.727	-11.8611	-6.5929	33.262	-47.9674	-30.1973
21.61	5.767	20.8971	20.0306	2.789	-12.0069	-6.8304	32.923	-51.0772	-31.5581
22.81	5.275	21.8936	20.8022	2.665	-12.1526	-7.0680	33.488	-54.1007	-32.9109
24.01	5.788	23.4224	21.6331	2.809	-12.3274	-7.2165	33.752	-57.0566	-34.1879
25.21	5.009	24.3587	22.4046	2.542	-12.5314	-7.3352	33.036	-60.0326	-35.4330
26.41	5.521	25.6747	23.0872	2.727	-12.6771	-7.4840	33.979	-63.0560	-36.5504
27.61	5.726	27.0398	23.7103	2.727	-12.8520	-7.5431	33.262	-66.0492	-37.3805
28.81	4.803	27.8588	24.2742	2.501	-12.9394	-7.6025	34.016	-68.5271	-38.0190
30.01	5.562	29.4286	24.8676	2.686	-13.0851	-7.7807	33.677	-71.2627	-38.4978
31.21	4.885	30.2749	25.4018	2.501	-13.1143	-7.8995	34.318	-73.8254	-38.9490
32.41	4.905	31.5717	25.8766	2.481	-13.1434	-8.0480	33.677	-76.4458	-39.3917
33.61	5.398	32.8958	26.3217	2.645	-13.2500	-8.2559	34.016	-79.0950	-40.2856
34.81	5.028	34.0425	26.8262	2.460	-13.2891	-8.5528	33.941	-81.6001	-41.0519
36.01	5.377	35.3256	27.2415	2.604	-13.3474	-8.9589	34.469	-83.7598	-41.6265
37.21	5.090	36.3903	27.6868	2.460	-13.3766	-9.2953	34.884	-85.8618	-42.1054
38.41	5.275	37.7827	28.1616	2.542	-13.4640	-9.5625	35.034	-87.6183	-42.4566
39.61	5.316	38.9157	28.6057	2.542	-13.4931	-9.7110	34.280	-89.2309	-42.8077
40.81	5.439	40.0487	29.2002	2.747	-13.5223	-9.8001	35.034	-91.4193	-43.1270
41.92	1.992	40.7039	29.5563	1.640	-13.5806	-9.8298	35.223	-92.5423	-43.4462

MESSWERTEDATEI: M2344A

MESSUNG/AUSWERTUNG VOM 10.12.82 / 9. 3.83.12. 5

MESSBEGINN : 8:42: 325.02 UHR

MESSDAUER: 59.41 S

AUSGEWERTET VON 2.50 S BIS 44.42 S

ZAHL DER MESSPUNKTE: 4192

SHELL 612509

LFD.NR. 4011.1 VOM 10.12.82 9:54 UHR

BIAXIAL COMPRESSIVE STENGTHS TESTS WITH ICE  
FROM MULTIYEAR RIDGES REIDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = .6 0/00

DATEN DER PROBE:

LX = 69.78 MM PHIX = 90 GRAD M = 290 G  
LY = 69.82 MM PHIY = 90 GRAD RHO = 852 KG/M\*\*3  
LZ = 69.79 MM PHIZ = 0 GRAD SIP = .5 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.78 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.20 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = .5000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

F	SIGX	EPSX1	EPSX2	SIGY	EPSY1	EPSY2	SX	EPSZ1	EPSZ2
(S)	(MPA)	(MM/M)	(MM/M)	(MPA)	(MM/M)	(MM/M)	(MM)	(MM/M)	(MM/M)
.01	.124	.0119	.0593	.062	-7.3149	-3.8904	30.886	-6.9630	-1.1876
1.63	3.202	.8995	.2077	1.538	-7.4023	-4.0091	31.603	-7.1934	-1.2833
3.25	7.900	1.8553	1.3057	3.999	-7.6354	-4.1279	31.716	-7.3374	-1.3049
4.87	10.198	3.6167	1.8992	5.086	-7.8103	-5.1376	31.980	-8.9211	-5.2064
6.49	7.574	6.0472	1.9289	3.814	-7.8977	-5.2267	32.017	-11.0807	-15.6713
8.11	6.320	7.7949	1.9585	3.097	-8.1017	-5.2267	31.490	-12.5295	-24.1953
9.73	5.643	9.2296	1.9882	2.769	-8.3640	-5.1970	32.206	-13.7587	-31.8912
11.35	4.987	9.9523	2.1069	2.522	-8.5846	-5.1673	32.470	-14.7665	-37.6039
12.97	4.617	11.3724	2.2850	2.338	-8.9177	-4.9892	32.093	-15.8319	-43.4782
14.59	4.515	12.9899	2.5521	2.276	-9.2383	-4.9892	31.980	-16.7534	-49.3283
16.21	4.453	14.6631	2.9378	2.215	-9.6121	-5.0189	32.734	-17.6460	-55.2257
17.83	4.371	16.4706	3.3830	2.194	-10.0251	-5.0782	32.693	-18.4811	-60.8809
19.45	4.274	18.3413	3.9765	2.174	-10.3166	-4.9595	32.659	-19.3162	-66.7216
21.07	4.084	20.1111	4.5996	2.092	-10.5789	-4.9595	33.073	-20.9360	-70.5188
22.69	4.330	22.0774	5.2525	2.092	-10.8411	-4.9892	32.998	-20.9575	-74.7649
24.31	3.940	23.4701	5.8756	1.989	-11.0743	-4.9595	33.262	-21.5774	-78.5640
25.93	4.187	25.7688	6.4968	2.010	-11.2783	-4.9595	33.413	-22.3109	-82.2673
27.55	4.207	27.5118	7.0923	2.030	-11.4823	-4.9892	33.224	-22.9732	-85.4918
29.17	3.594	27.7439	7.6562	1.928	-11.6863	-4.9595	33.036	-23.4713	-88.4608
30.79	4.063	30.6523	8.1606	2.030	-11.9194	-4.9595	33.413	-24.1259	-91.3660
32.41	3.879	31.9904	8.6354	1.907	-12.2400	-5.0782	33.224	-24.7009	-93.7604
34.03	3.961	33.7518	9.1993	1.866	-12.4440	-5.0782	33.488	-25.2192	-96.2187
35.65	3.858	34.9261	9.7037	1.907	-12.7354	-5.0485	33.855	-25.5511	-98.3577
37.27	3.838	36.4827	10.3269	1.907	-12.9686	-5.0188	34.318	-26.1118	-100.7552
38.89	3.715	37.6570	10.8610	1.887	-13.2600	-5.0188	34.016	-26.4286	-102.8729
40.51	3.571	39.1180	11.3062	1.825	-13.5806	-5.0782	34.469	-26.9469	-104.8523
42.13	3.468	40.6746	11.7216	1.805	-13.9303	-5.0782	34.356	-27.4364	-104.6617
43.75	3.366	42.3950	12.1074	1.743	-14.2900	-5.3158	34.959	-27.6971	-107.8880
45.37	3.427	44.4705	12.5525	1.825	-14.6297	-5.4940	34.884	-28.5594	-108.5040
46.99	3.674	46.4094	12.8493	1.805	-14.8046	-5.5831	34.393	-28.9050	-102.7707
48.61	3.530	47.6929	13.1460	1.764	-15.1251	-5.8504	34.884	-29.5385	-95.7079
50.23	-0.040	48.2527	1.0386	-0.021	-6.2949	-7.1868	34.695	-4.7746	-2.4223
51.85	.432	50.9699	.2077	.267	-6.7320	-7.0977	34.959	-4.1411	-4.0186
53.47	2.217	52.9771	.5045	.923	-6.6737	-7.6322	35.072	-4.7458	-6.5726
55.09	-0.019	50.1780	-1.0089	.041	-6.7903	-7.6025	34.092	-4.9186	-1.8157
56.57	.042	52.0077	-1.7805	.082	-6.8486	-8.8498	34.393	-4.9322	-3.3801

MESSWERTEDATEI: M2344

MESSUNG/AUSWERTUNG VOM 10.12.82 / 14. 3.83.11. 6

MESSBEGINN : 9:54: 558.78 UHR

MESSDAUER:

58.09 S

AUSGEWERTET VON 1.50 S BIS 58.08 S

ZAHL DER MESSPUNKTE: 5657

SHELL 612509

LFD.NR. 4012.1 VOM 10.12.82 10:37 UHR

BIAXIAL COMPRESSIVE STRENGTHS TESTS WITH ICE  
FROM MULTIYEAR RIDGES REIDDER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.91 REI SIE = 2.1 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 306 G  
LY = 69.80 MM PHIY = 90 GRAD RHO = 899 KG/M\*\*3  
LZ = 69.81 MM PHI Z = 0 GRAD SIP = 2.4 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = .5000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
1.01	0.042	-0.0154	-0.6925	0.020	-6.9943	-3.3558	30.584	-2.5862	-2.2508
1.37	0.063	-0.0290	-0.7419	0.080	-7.0526	-3.3855	30.660	-2.6438	-2.2302
2.73	2.340	0.7354	-0.6529	1.086	-7.0817	-3.4449	31.527	-3.3348	-2.3585
4.09	6.874	1.1586	-0.0297	3.382	-7.1109	-3.5043	31.301	-3.5076	-3.4759
5.45	9.412	1.8684	0.8606	4.735	-7.0917	-3.6528	32.093	-4.3134	-5.5191
6.81	9.377	3.6290	1.5431	4.694	-7.2568	-3.6231	32.206	-5.4369	-8.2966
8.17	9.762	5.0899	1.9585	4.386	-8.0434	-2.8509	31.452	-7.9269	-11.5849
9.53	9.208	6.6734	2.1069	4.099	-8.8594	-1.3364	31.829	-10.2159	-15.1605
10.89	7.387	6.0520	2.0476	3.669	-9.5095	0.1189	32.508	-12.6069	-18.6723
12.25	6.505	4.2123	1.8399	3.279	-10.0251	1.4255	32.093	-14.7953	-21.7690
13.61	6.607	10.7002	1.7508	3.300	-10.5206	2.4946	32.734	-17.0413	-25.1212
14.97	6.197	11.0961	1.6915	3.074	-10.7829	3.6231	32.244	-19.2910	-28.3775
16.33	6.012	13.6760	1.6321	2.992	-11.0160	4.6328	32.055	-21.3606	-31.5701
17.69	6.505	15.0411	1.6321	3.177	-11.2200	5.5534	32.395	-23.6763	-34.6967
19.05	6.643	14.7681	1.6915	2.849	-11.3657	6.5928	33.036	-25.4993	-37.7316
20.41	6.012	16.1877	1.6618	3.095	-11.5697	7.6396	32.772	-27.6956	-40.9561
21.77	6.382	18.4810	1.6618	3.197	-11.6571	8.1965	32.809	-29.8840	-44.1486
23.13	6.746	19.5457	1.6618	2.828	-11.7446	8.9389	32.583	-32.0436	-46.9588
24.49	6.458	20.4876	1.6321	2.767	-11.8320	9.5031	33.337	-34.2321	-49.9909
25.85	6.541	23.0129	1.6024	2.746	-11.8903	10.0080	32.847	-36.7373	-53.2792
27.21	6.192	23.6135	1.6431	2.542	-11.9777	10.3644	33.564	-39.0697	-56.2485
28.57	6.361	25.9478	1.6431	3.095	-12.0069	10.7207	33.111	-41.8340	-60.0793
29.93	4.884	27.4084	1.5134	2.460	-12.0360	11.2850	33.601	-44.7423	-63.6869
31.29	4.453	28.6642	1.5134	2.337	-12.0360	11.6710	33.224	-46.6276	-65.7939
32.65	6.192	30.3159	1.4838	2.460	-12.0360	11.9086	33.752	-48.2255	-67.9968
34.01	4.946	31.6263	1.4244	2.357	-12.1234	12.1462	33.337	-49.8183	-70.6060
35.37	4.597	32.7320	1.4541	2.419	-12.0943	12.4729	34.242	-51.2788	-72.1151
36.73	4.966	34.3155	1.4244	2.398	-12.1234	12.7899	34.016	-52.7474	-74.1902
38.09	4.515	35.5713	1.4541	2.296	-12.1526	13.0588	33.677	-54.1971	-76.1696
39.45	4.720	36.9227	1.4244	2.378	-12.1526	13.3341	34.544	-55.3677	-77.9255
40.81	4.412	38.1922	1.4541	2.234	-12.1817	13.5717	33.903	-56.4620	-79.5537
42.17	6.253	39.7756	1.4541	2.480	-12.1817	13.8093	34.733	-57.6713	-81.0861
43.53	4.658	41.1407	1.5134	2.357	-12.1526	14.0171	34.393	-58.8807	-82.5866
44.89	4.330	42.3283	1.5134	2.316	-12.1817	14.1636	34.544	-59.9174	-83.8317
46.25	4.371	43.7516	1.5134	2.296	-12.2400	14.2844	34.242	-61.0116	-84.8852
47.57	4.433	45.0038	1.5134	2.152	-12.2691	14.3438	34.393	-62.0194	-85.5856

MESSWERTEDATEI: M2344A

MESSUNG/AUSWERTUNG VOM 10.12.82 / 14. 3.83.11.46

MESSBEGINN: 10:37:13/8.91 UHR

MESSDAUER: 66.61 S

AUSGEWERTET VON .03 S RIS 47.60 S

ZAHL DER MESSPUNKTE: 4757

SHELL 612509

LFD.NR. 4013.1 VOM 13.12.82 7:39 UH

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 2.1 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD  
LY = 69.79 MM PHIY = 90 GRAD  
LZ = 69.82 MM PHIZ = 0 GRAD

M = 309 G  
RHO = 908 KG/M\*\*3  
SIP = 2.3 0/00

TEMPERATUREN:

TL = -20.30 GRAD C  
TP = -20.40 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S  
FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.206	.0307	.3851	.143	-6.0034	-4.0091	31.112	-1.9295	-.2751
1.25	.227	.0307	.3851	.164	-6.0034	-4.0091	31.452	-1.9582	-.2432
2.49	.227	.0307	.4148	.123	-6.0034	-4.0388	30.848	-1.9007	-.2751
3.73	6.462	.5904	.4444	3.259	-6.0617	-4.0388	31.301	-1.9582	-.3579
4.97	11.240	1.2456	1.7183	5.637	-6.4114	-3.5637	31.603	-2.2747	-1.1683
6.21	13.578	2.2557	3.3476	6.765	-6.9069	-3.5934	32.395	-3.3680	-1.6469
7.45	13.455	3.3341	5.4510	6.765	-7.5189	-3.6231	32.357	-5.7560	-1.9340
8.69	12.861	4.5354	7.1693	6.376	-8.2183	-4.2170	32.017	-8.1728	-2.2211
9.93	12.327	5.6547	8.7690	5.109	-9.0926	-5.0485	32.168	-10.1004	-2.7950
11.17	11.445	6.5556	10.1614	5.760	-9.8794	-5.9504	32.583	-12.1144	-3.4971
12.41	11.568	8.3302	11.3760	5.760	-10.7246	-6.3852	31.980	-14.2723	-4.3255
13.65	10.851	8.9717	9.5689	5.412	-11.5989	-7.0086	32.847	-16.4013	-5.2197
14.89	9.948	10.9547	9.5392	5.022	-12.6189	-7.6025	32.093	-18.4441	-6.1129
16.13	10.338	11.4288	9.5689	5.207	-13.5514	-8.0777	32.168	-21.2924	-7.1656
17.37	10.748	13.6538	9.5392	5.350	-14.6006	-8.5528	32.734	-23.5653	-7.9950
18.61	15.137	15.1690	9.5689	7.462	-15.6497	-8.9983	33.262	-27.3631	-9.1115
19.85	8.984	16.7661	9.8059	4.489	-17.9520	-10.2159	32.621	-32.5419	-10.9517
21.09	9.025	18.0902	9.8059	4.551	-19.0011	-10.5426	32.885	-34.9011	-11.8869
22.33	9.005	19.4143	9.8651	4.310	-19.7920	-11.0474	32.923	-37.2891	-12.6525
23.57	8.574	20.5200	9.9244	4.346	-20.8371	-11.4929	33.262	-39.1592	-13.4500
24.81	8.677	21.8168	10.0133	4.428	-21.7697	-12.0274	33.224	-40.7417	-14.0561
26.05	8.431	23.0180	10.1318	4.243	-22.6731	-12.5323	33.665	-42.2953	-14.6622
27.29	7.959	24.1374	10.3391	4.100	-23.6057	-13.1559	33.828	-43.7914	-15.2564
28.53	8.082	25.4888	10.6428	4.059	-24.5383	-13.8093	33.790	-45.1149	-15.7787
29.77	7.713	26.6627	11.5834	3.997	-25.4126	-14.4923	34.205	-46.3808	-16.2891
31.01	8.184	28.0277	12.2648	4.100	-26.3160	-15.1753	34.431	-47.5029	-16.6719
32.25	7.713	29.1744	13.1831	3.895	-27.1611	-15.9178	33.828	-48.6537	-17.0866
33.49	7.446	30.3074	13.9534	3.813	-28.1520	-16.7790	33.752	-49.8045	-17.4956
34.73	8.143	31.7680	14.8125	3.956	-29.0263	-17.5511	33.715	-50.8403	-17.7246
35.97	7.959	32.9828	15.6716	3.915	-29.8714	-18.2342	34.280	-51.9048	-18.0436
37.21	7.344	34.0339	16.5308	3.608	-30.7457	-18.9469	33.941	-52.7680	-18.2669
38.45	7.918	35.3990	17.3306	3.874	-31.6200	-19.7190	34.205	-53.8325	-18.4902
39.69	7.713	36.6821	18.1305	3.890	-32.5234	-20.5209	34.506	-54.7532	-18.7135
40.93	7.077	37.7332	18.9007	3.587	-33.3103	-21.1742	34.318	-55.4725	-18.9368
42.17	6.974	38.9617	19.6118	3.546	-34.0971	-21.7384	34.846	-56.3356	-19.0953
43.41	6.072	40.0674	20.3524	3.116	-34.8257	-22.3027	34.921	-56.9973	-19.2239

MESSWERTEDATEI: M2347

MESSUNG/AUSWERTUNG VOM 13.12.82 / 17. 3.83. 9.39

MESSBEGINN : 7:39:1664.62 UHR

MESSDAUER: 57.56 S

AUSGEWERTET VON .03 S RIS 43.34 S

ZAHL DER MESSPUNKTE: 4331

SHELL 612509

LFD.NR. 4014.1 VOM 13.12.82 8:27 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 291 G  
LY = 69.77 MM PHLY = 90 GRAD RHO = 936 KG/M\*\*3  
LZ = 69.79 MM PHIZ = 0 GRAD SIP = 1.4 0/00

TEMPERATUREN:

TL = -20.39 GRAD C  
TP = -20.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGANGEWERT:

U1 = 3.7100 MM FY/FX = .5000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.01	.207	.0307	.0592	.185	-6.4114	-3.5637	31.527	-3.3105	-3.3070
.30	.104	-.0375	-.0592	0.000	-6.5571	-3.7716	31.188	-3.4256	-.2751
.59	.165	.0580	.1185	.144	-6.3240	-3.4449	30.898	-3.3105	-3.3070
.88	.227	-.0239	-.1185	.041	-6.5571	-3.7716	30.547	-3.3968	-.4246
1.17	1.048	-.3651	.1481	.595	-6.4114	-3.5637	30.962	-3.3680	-.2113
1.46	2.423	.8907	-.1481	1.107	-6.7029	-3.8310	30.622	-3.3968	-.4027
1.75	3.596	1.4777	0.0000	1.805	-6.5571	-3.6825	31.075	-3.3392	-.3389
2.04	4.127	.6040	-.1778	2.153	-6.8486	-3.8607	31.527	-3.3958	-.5303
2.33	4.927	.3856	.0889	2.523	-6.5571	-3.6528	31.188	-3.3680	-.7055
2.62	5.645	.4539	-.1185	2.789	-6.7611	-4.1576	31.037	-3.4256	-.9450
2.91	6.836	2.1602	.1481	3.425	-6.6446	-4.1279	32.017	-3.2817	-1.1683
3.20	7.144	1.9145	.3555	3.689	-6.7903	-4.7516	31.527	-3.3968	-1.6150
3.49	7.699	1.2729	.7999	3.917	-6.6446	-4.7299	31.754	-3.4543	-1.7745
3.78	8.437	2.9110	1.0369	4.122	-6.7611	-5.2861	31.226	-3.6845	-2.2530
4.07	8.601	1.8326	1.5998	4.368	-6.5571	-5.3455	31.867	-3.8859	-2.5720
4.36	9.134	3.4297	1.7775	4.491	-6.7320	-5.7910	32.017	-4.3462	-3.2419
4.65	9.011	2.3103	1.9849	4.594	-6.5863	-5.8504	31.867	-4.6339	-3.5929
4.94	9.278	3.8392	1.9849	4.614	-6.7320	-6.1770	32.093	-5.2094	-4.3265
5.23	9.093	3.0611	2.2811	4.635	-6.5280	-6.2661	31.716	-5.6697	-4.8369
5.52	8.827	4.3579	2.2515	4.389	-6.6446	-6.5928	31.829	-6.2164	-5.6663
5.81	8.129	3.3341	2.4885	4.122	-6.5280	-6.5334	32.168	-6.5904	-6.1767
6.10	7.616	3.9074	2.3108	3.835	-6.5863	-6.8601	31.414	-7.0567	-6.7828
6.39	7.759	5.3134	2.4589	3.958	-6.4984	-6.8007	32.093	-7.3960	-7.3570
6.68	7.308	5.6001	2.3404	3.548	-6.6446	-7.1274	31.527	-7.7412	-8.0907
6.97	7.062	5.9140	2.4885	3.486	-6.4989	-7.1274	31.678	-8.0289	-8.4735
7.26	6.836	6.1461	2.3404	3.302	-6.6737	-7.3946	31.490	-8.3454	-9.1750
7.55	6.589	6.5556	2.4885	3.363	-6.4697	-7.4837	31.791	-8.4893	-9.5900
7.84	6.280	6.1461	2.3404	3.056	-6.6446	-7.8698	32.055	-8.8653	-10.3257
8.13	6.261	5.5045	2.4885	3.179	-6.4406	-7.9589	31.678	-9.0071	-10.9617
8.42	5.645	5.2179	2.3700	2.892	-6.6154	-8.1074	31.716	-9.2949	-11.6317
8.71	5.892	7.0197	2.4293	2.953	-6.4697	-8.0777	32.395	-9.3236	-12.1421
9.00	5.892	7.3883	2.3404	2.830	-6.6446	-8.2856	32.281	-9.6977	-12.8439
9.29	5.666	6.0506	2.4589	2.953	-6.5280	-8.2262	31.829	-9.7840	-13.5224
9.58	6.179	8.0435	2.3404	3.076	-6.6446	-8.4637	31.565	-10.2155	-14.1199
9.87	6.692	7.7978	2.5181	3.343	-6.4697	-8.5528	32.621	-10.5320	-14.9812
10.00	8.355	7.9480	2.4589	3.938	-6.6446	-8.9983	31.754	-11.2225	-15.9701

MESSWERTEDATEI: M2347A

MESSUNG/AUSWERTUNG VOM 13.12.82 / 14. 3.93.16.15

MESSBEGINN : 8:27:1509.60 UHR

MESSDAUER:

59.35 S

AUSGEWERTET VON 2.00 S BIS 12.01 S

ZAHL DER MESSPUNKTE: 1000

SHELL 612509

LFD.NR. 5001.1 VOM 20. 1.83 14:54 UH

UNIAXIAL COMPRESSIVE STRENGTH TEST WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIR = 1.0 0/00

DATEN DER PROBE:

LX = 69.92 MM PHIX = 90 GRAD M = 304 G  
LY = 69.81 MM PHIY = 90 GRAD PHO = 893 KG/M\*\*3  
LZ = 69.93 MM PHIZ = 0 GRAD SIP = 3.9 0/00

TEMPERATUREN:

TL = -5.20 GRAD C  
TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5210.00 S  
EPSX1 = .1001E-04 1/S  
FY/FX = 0.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPGY1 (MM/M)	EPGY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	-.060	-.0230	-.2675	-.082	-.2590	-.0591	30.343	-.0113	2.4491
151.00	.924	1.4632	-.2972	-.144	-.4354	-.0097	31.325	-.0113	1.9408
301.75	1.171	3.0585	-.1486	-.021	-.7587	.1240	30.722	.0490	1.6546
452.50	1.171	4.5175	-.2972	-.123	-1.3465	.0019	31.514	-.0716	1.4321
603.25	1.171	6.0310	-.2675	-.103	-1.8163	-.2423	30.835	-.0414	1.2732
754.00	1.253	7.6125	-.1189	-.041	-2.2282	-1.1582	31.438	-.0716	1.2732
904.75	1.130	9.0716	-.2675	-.123	-2.8748	-2.1656	31.552	-.2272	.9554
1055.50	1.130	10.6123	-.2675	-.103	-3.4333	-3.0214	32.042	-.2825	.9554
1206.25	1.130	12.1395	-.2378	-.103	-3.9329	-3.9973	32.155	-.3126	.8601
1357.00	1.088	13.6530	-.2675	-.103	-4.4914	-4.7910	32.343	-.4030	.7547
1507.75	1.088	15.1301	-.2378	-.123	-4.9322	-5.5848	31.627	-.4332	.6059
1658.50	1.068	16.7072	-.2378	-.103	-5.4319	-6.4395	32.230	-.4633	.5423
1809.25	1.008	18.2480	-.2081	-.062	-5.9021	-7.2638	31.853	-.5038	.5103
1960.00	1.008	19.7206	-.2675	-.144	-6.4606	-8.2102	32.343	-.5838	.3516
2110.75	1.006	21.2477	-.2378	-.082	-6.9602	-8.9734	32.230	-.6441	.2582
2261.50	1.068	22.8021	-.1486	-.082	-7.3129	-9.6450	32.946	-.6441	.2244
2412.25	.986	24.2747	-.2675	-.123	-7.9003	-10.6219	32.155	-.7646	.0333
2563.00	.945	25.8018	-.2675	-.123	-8.3416	-11.3851	32.607	-.6550	-.0296
2713.75	.986	27.3289	-.2675	-.082	-8.8119	-12.1783	32.909	-.8550	-.0904
2864.50	1.027	28.8697	-.1784	-.082	-9.1940	-12.8810	33.436	-.8651	-.1569
3015.25	.965	30.3968	-.1486	-.062	-9.5173	-13.5831	32.796	-.9153	-.2203
3166.00	.904	31.8558	-.2972	-.103	-10.0463	-14.4074	33.549	-1.0659	-.3794
3316.75	.883	33.3829	-.2972	-.144	-10.4872	-15.2622	33.663	-1.1262	-.4429
3467.50	.965	34.8964	-.2378	-.123	-10.8693	-15.3727	33.436	-1.1865	-.5701
3618.25	.924	36.4099	-.2081	-.082	-11.2808	-16.5749	33.436	-1.3070	-.6018
3769.00	.945	37.9643	-.1784	-.082	-11.6628	-17.2160	33.172	-1.3673	-.6236
3919.75	.965	39.4641	-.2081	-.082	-12.0743	-17.9181	33.700	-1.4275	-.7925
4070.50	.883	40.9775	-.2378	-.123	-12.7503	-12.0867	34.153	-1.7590	-1.1421
4221.25	.924	42.5047	-.2081	-.062	-12.7209	-12.0873	33.889	-1.7590	-1.0463
4372.00	.863	43.9637	-.2972	-.144	-12.9561	-12.5452	33.436	-1.7289	-1.0786
4522.75	.924	45.5590	-.1784	-.062	-13.1618	-13.5221	34.002	-1.6987	-1.0466
4673.50	.945	47.0725	-.1486	-.041	-13.3969	-14.5295	33.964	-1.5686	-1.0786
4824.25	.883	48.5314	-.2972	-.144	-13.8672	-15.6285	33.776	-1.8192	-1.2057
4975.00	.904	50.0449	-.2378	-.103	-14.1317	-16.6360	33.926	-1.8795	-1.1103
5125.75	.924	51.5857	-.2081	-.082	-14.3962	-17.5823	34.153	-1.9699	-1.0786
5274.75	.863	52.7038	-.2675	-.103	-14.6608	-18.3150	34.153	-2.0603	-1.1103

MESSWERTEDATEI: M3020A

MESSUNG/AUSWERTUNG VOM 20. 1.83 / 26. 5.83.14.36

MESSBEGINN : 14:54: 432.00 UHR

MESSDAUER: 5275.25 S

AUSGEWERTET VON

.75 S BIS 5275.50 S

ZAHL DER MESSPUNKTE: 21099

SHELL 612509

LFD.NR. 5004.1 VOM 24. 1.83 9: 5 UH

UNIAXIAL COMPRESSIVE STRENGTH TEST WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.31 BEI SIE = 1.4 0/00

DATEN DEP PROBE:

LX = 69.83 MM PHIX = 90 GRAD  
LY = 69.85 MM PHIY = 90 GRAD  
LZ = 69.83 MM PHIZ = 0 GRAD

M = 305 C  
RHO = 895 KG/M\*\*3  
SIP = .4 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.10 GRAD C

BASISLAENCEN FUER DEHNUNG:

CX1 = 69.83 MM CX2 = 32.00 MM  
CY1 = 32.26 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	.031	-.0068	3.3387	-.143	.4978	.5383	31.062	-.7135	.1756
150.75	1.231	1.4792	8.4870	0.000	-1.0829	-.1312	31.363	-.4680	-.5681
301.25	1.087	2.9925	8.4277	-.061	-3.4700	-2.2311	31.476	-.3452	-1.1101
451.75	.996	4.5194	8.4574	-.061	-4.5869	-4.7875	31.099	-.2829	-1.5985
602.25	.954	6.0599	8.4370	-.041	-5.4686	-7.3744	31.589	-.0997	-2.4038
752.75	.882	7.5732	8.4574	-.041	-6.3210	-10.0220	30.948	-.0384	-3.3380
903.25	.872	9.1137	8.4370	-.041	-7.0851	-12.2437	31.401	.1458	-4.2102
1053.75	.810	10.5997	8.3387	-.102	-8.0844	-14.5566	31.438	.0844	-5.3151
1204.25	.790	12.1539	8.4277	-.041	-8.7311	-16.5348	32.079	.2370	-6.1497
1354.75	.900	13.6572	8.4574	-.041	-9.5246	-18.6651	31.363	.2378	-7.1108
1505.25	.759	15.1668	8.4277	-.102	-10.3770	-20.7650	32.343	.2378	-7.9238
1655.75	.718	16.6665	8.3980	-.123	-11.2881	-22.7431	32.004	.2685	-8.7477
1806.25	.728	18.1798	8.3387	-.143	-12.1698	-24.6909	32.418	.2378	-9.5718
1956.75	.687	19.6930	8.3387	-.143	-12.9634	-26.5473	32.419	.2378	-10.3951
2107.25	.749	21.2608	8.4574	-.020	-13.6100	-28.1602	32.720	.2992	-11.1831
2257.75	.692	22.7468	8.3684	-.123	-14.5211	-30.0167	32.004	.2685	-11.9447
2408.25	.687	24.2601	8.3684	-.102	-15.3147	-31.6601	32.833	.2378	-12.7687
2558.75	.708	25.8007	8.4277	-.102	-15.9907	-33.1209	33.097	.2378	-13.3833
2709.25	.718	27.3139	8.4277	-.082	-16.7549	-34.6121	32.262	.2685	-14.0614
2859.75	.708	28.8408	8.4277	-.061	-17.4897	-36.1033	33.210	.2992	-14.8042
3010.25	.687	30.3132	8.3387	-.123	-18.2832	-37.5946	32.361	.2685	-15.4500
3160.75	.708	31.8401	8.3980	-.123	-18.7829	-38.8423	33.246	.2685	-15.9490
3311.25	.739	33.4079	8.4370	-.020	-19.2238	-40.0292	32.796	.3299	-16.4824
3461.75	.739	34.9212	8.4870	-.041	-19.7528	-41.3074	33.361	.2992	-17.1292
3612.25	.749	36.4209	8.4574	0.000	-20.1937	-42.5552	32.946	.2992	-17.7426
3762.75	.739	37.9205	8.4277	-.020	-20.6345	-43.8334	33.210	.2071	-18.3564
3913.25	.739	39.3929	8.3387	-.102	-21.1636	-45.1116	33.700	.0844	-18.9699
4063.75	.974	40.8925	8.3090	-.082	-22.1629	-46.3898	34.077	.0537	-19.5835
4214.25	.739	42.4331	8.3980	-.041	-22.1041	-47.4549	33.512	.1151	-20.3908
4364.75	.759	44.0009	8.4574	.061	-22.1041	-48.3679	34.077	.1458	-21.1012
4515.25	.780	45.5141	8.4870	.061	-22.1629	-49.2505	34.605	.1151	-21.7471
4665.75	.728	46.9592	8.3387	-.020	-22.4274	-50.3461	34.454	.0230	-22.5544
4816.25	.769	48.5271	8.4574	.041	-22.3980	-51.0460	34.077	.1151	-23.1680
4966.75	.749	49.9858	8.3980	.020	-22.6331	-51.9286	33.926	.0537	-23.9107
5117.25	.800	51.5400	8.4870	.123	-22.6625	-52.6286	34.115	.1151	-24.6211
5267.75	.749	52.9714	8.3387	0.000	-22.9564	-53.5416	34.077	.0230	-25.5253

MESSWERTEDATEI: M3024A

MESSUNG/AUSWERTUNG VOM 24. 1.83 / 27. 5.83.12.23

MESSBEGINN : 9: 5:1115.00 UHR

MESSDAUER: 5266.50 S

AUSGEWERTET VOM

.75 S BIS 5266.50 S

ZAHL DER MESSPUNKTE: 21063



SHELL 612509

LFD.NR. 5005.1 VOM 24. 1.83 11: 0 UH

UNIAXIAL COMPRESSIVE STRENGTH TEST WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 2EI SIE = .6 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 286 G  
LY = 69.82 MM PHIY = 90 GRAD RHO = 840 KG/M\*\*3  
LZ = 69.83 MM PHIZ = 0 GRAD SIP = .3 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SK (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	.021	.0205	12.8493	-.103	4.4656	.3253	30.685	.2071	1.3745
143.25	.924	1.3980	12.8493	-.123	4.4656	-.0095	30.948	.1458	1.2776
286.25	1.170	2.8846	12.9086	-.082	4.1717	-.4356	31.137	-.7135	1.1161
429.25	1.457	4.3576	12.9086	-.022	3.7309	-1.5312	31.325	-2.4013	.5026
572.25	1.652	5.8170	12.9086	-.123	3.5251	-2.5963	31.325	-3.3219	-.0141
715.25	1.795	7.2764	12.8790	-.062	3.1724	-3.3572	31.363	-3.9671	-.6600
858.25	1.816	8.7085	12.8493	-.082	2.7022	-4.3310	30.948	-4.6100	-1.3931
1001.25	1.857	10.1815	12.8790	-.082	2.2613	-5.0614	31.685	-5.1939	-2.1984
1144.25	1.847	11.5863	12.8196	-.123	1.8498	-6.0657	31.891	-5.7463	-2.9975
1287.25	1.816	13.0593	12.8493	-.123	1.4971	-6.7657	31.175	-6.2008	-3.7434
1430.25	1.826	14.4773	12.8196	-.144	1.0563	-7.6737	31.203	-6.6675	-4.4710
1573.25	1.775	15.9235	12.8196	-.123	.6448	-8.2569	31.627	-7.1838	-5.1405
1716.25	1.724	17.3965	12.8493	-.123	.3215	-8.7433	31.740	-7.5875	-5.7572
1859.25	1.559	18.8296	12.8196	-.103	.0276	-9.0796	32.456	-7.9550	-6.3473
2002.25	1.662	20.2470	12.7899	-.144	-.2664	-9.7786	31.653	-8.3240	-6.9501
2145.25	1.672	21.7397	12.8790	-.103	-.5309	-10.4431	32.004	-8.6923	-7.5039
2288.25	1.662	23.1931	12.8790	-.062	-.7954	-11.1491	32.323	-9.0299	-8.0571
2431.25	1.611	24.6113	12.8196	-.123	-1.1481	-11.9693	32.753	-9.4288	-8.5060
2574.25	1.621	26.0709	12.8790	-.103	-1.4126	-12.6393	32.343	-9.7864	-8.9673
2717.25	1.559	27.4757	12.8196	-.123	-1.7358	-13.4601	33.022	-10.1653	-9.3577
2860.25	1.570	28.9351	12.8493	-.144	-1.9711	-14.1001	32.258	-10.5829	-9.6864
3003.25	1.539	30.3944	12.8790	-.082	-2.2356	-14.7696	33.248	-10.9013	-9.9582
3146.25	1.518	31.8265	12.8790	-.123	-2.4707	-15.4037	33.135	-11.3701	-10.0249
3289.25	1.539	33.2359	12.8493	-.103	-2.7058	-16.0174	33.587	-11.6073	-10.5415
3432.25	1.508	34.7316	12.9086	-.062	-2.9704	-16.5569	33.323	-11.3838	-10.9613
3575.25	1.447	36.1501	12.8493	-.123	-3.1761	-17.1434	33.623	-12.2521	-11.3811
3718.25	1.467	37.5685	12.7899	-.123	-3.4700	-17.7216	33.700	-12.6510	-11.8301
3861.25	1.477	39.0415	12.8196	-.103	-3.6758	-18.1792	33.389	-12.9836	-12.3499
4004.25	1.447	40.4600	12.7899	-.144	-3.9109	-18.7259	33.323	-13.0568	-12.8343
4147.25	1.457	41.8921	12.8493	-.103	-4.1460	-19.2737	33.361	-13.7251	-13.3187
4290.25	1.436	43.3515	12.8196	-.123	-4.4105	-19.6998	33.323	-14.0626	-13.7062
4433.25	1.436	44.7563	12.7603	-.144	-4.6751	-20.2172	33.512	-14.4616	-14.2229
4576.25	1.324	46.2156	12.8493	-.082	-4.7926	-20.5215	33.625	-14.7378	-14.5781
4719.25	1.385	47.6341	12.7899	-.164	-5.0865	-20.9780	34.266	-15.1674	-15.0948
4862.25	1.406	49.0798	12.8196	-.164	-5.2629	-21.4041	34.434	-15.4743	-15.4500
5001.25	1.447	50.1709	12.8790	-.062	-5.3511	-21.6171	34.793	-15.7198	-15.7730

MESSWERTEDATEI: M3024

MESSUNG/AUSWERTUNG VOM 24. 1.83 / 30. 5.83.12.41

MESSBEGINN : 11: 0: 469.25 UHR

MESSDAUER: 5001.75 S

AUSGEWERTET VON

.75 S BIS 5002.00 S

ZAHL DER MESSPUNKTE: 20005

SHELL 612509

LFD.NR. 5007.1 VCM 24. 1.83 15: 0 UH

UNIAXIAL COMPRESSIVE STRENGTH TEST WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = .6 0/00

DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD  
LY = 69.81 MM PHIY = 90 GRAD  
LZ = 69.80 MM PHIZ = 0 GRAD

M = 290 G  
RHO = 852 KG/M\*\*3  
SIP = .6 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.10 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA] x10 <sup>2</sup>	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.001	-.0068	12.7603	-.103	4.4656	-3.1137	30.119	-.6828	.8901
146.00	.090	1.5067	12.9086	-.041	4.4656	-2.9615	31.212	-.6214	.3088
291.75	.119	2.9520	12.8196	-.103	4.0248	-3.1137	31.325	-1.1124	-.2725
437.50	.146	4.4518	12.8196	-.103	3.5839	-2.9920	31.363	-1.3886	-.9506
583.25	.157	5.9381	12.8196	-.123	3.0842	-3.0224	30.835	-1.6034	-1.5965
729.00	.157	7.3970	12.7603	-.123	2.5552	-3.0528	31.627	-1.7569	-2.5007
874.75	.161	8.8696	12.7603	-.144	1.9674	-3.1137	31.815	-1.8796	-3.5340
1020.50	.155	10.3558	12.7899	-.123	1.4971	-3.4180	31.929	-1.9410	-4.6966
1166.25	.151	11.8421	12.7899	-.123	1.1150	-4.0571	31.212	-2.0024	-5.6976
1312.00	.127	13.3146	12.7603	-.144	.7329	-4.8180	31.552	-2.0331	-6.7633
1457.75	.143	14.8145	12.7603	-.123	.4390	-5.4875	31.915	-2.0944	-7.7967
1603.50	.143	16.2734	12.7603	-.144	.1157	-6.2179	32.305	-2.1865	-8.9269
1749.25	.124	17.7188	12.7009	-.185	-.3251	-7.1613	31.740	-2.2479	-10.1863
1895.00	.141	19.2050	12.7306	-.103	-.5603	-7.8613	32.079	-2.2786	-11.2197
2040.75	.138	20.6912	12.7899	-.144	-.7660	-8.6221	32.720	-2.3092	-12.2208
2186.50	.131	22.1774	12.8196	-.103	-1.0011	-9.3525	32.230	-2.3092	-13.2541
2332.25	.132	23.6500	12.7603	-.123	-1.2657	-10.0220	32.343	-2.4013	-14.2875
2478.00	.127	25.1499	12.8790	-.103	-1.4420	-10.7524	32.305	-2.3706	-15.1917
2623.75	.133	26.5952	12.7899	-.103	-1.7359	-11.4828	32.419	-2.5241	-16.3865
2769.50	.132	28.0814	12.8493	-.082	-1.9123	-12.1524	32.494	-2.5241	-17.2907
2915.25	.129	29.4995	12.7306	-.144	-2.2650	-13.0045	33.361	-2.6468	-18.3241
3061.00	.134	31.0402	12.8790	-.082	-2.3531	-13.5523	33.022	-2.6161	-19.3574
3206.75	.128	32.4446	12.7306	-.144	-2.7058	-14.3131	33.587	-2.7389	-20.5523
3352.50	.134	33.9854	12.8790	-.082	-2.7646	-14.8914	32.946	-2.7082	-21.5533
3498.25	.131	35.4171	12.8493	-.082	-3.0585	-15.5913	33.813	-2.8309	-22.7305
3644.00	.128	36.8488	12.7603	-.164	-3.3524	-16.3217	33.389	-2.8923	-23.8461
3789.75	.133	38.3486	12.8196	-.123	-3.4700	-16.9000	33.776	-2.8615	-24.8795
3935.50	.131	39.8212	12.8196	-.062	-3.6758	-17.4782	34.303	-2.8923	-26.0097
4081.25	.130	41.2529	12.7009	-.144	-3.9991	-18.2390	34.077	-3.0764	-27.2046
4227.00	.130	42.7255	12.7306	-.123	-4.2048	-18.7564	33.474	-3.1071	-28.2702
4372.75	.126	44.1844	12.7603	-.144	-4.4105	-19.3042	33.525	-3.1685	-29.4650
4518.50	.131	45.6979	12.8493	-.082	-4.5281	-19.7911	34.331	-3.1071	-30.4015
4664.25	.131	47.1160	12.7306	-.103	-4.8220	-20.3998	34.266	-3.2299	-31.5641
4810.00	.130	48.5885	12.7306	-.164	-5.0278	-20.8867	34.115	-3.3219	-32.6620
4955.75	.132	50.0611	12.8196	-.062	-5.2041	-21.3736	34.379	-3.3526	-33.5662
5099.75	.136	51.1928	12.8493	-.062	-5.3511	-21.6780	35.170	-3.3833	-34.3735

MESSWERTEDATEI: M3024

MESSUNG/AUSWERTUNG VCM 24. 1.83 / 31. 5.83.14.23

MESSBEGINN : 15: 0: 545.25 UHR

MESSDAUER: 5100.25 S

AUSGEWERTET VCM

.75 S BIS 5100.50 S

ZAHL DER MESSPUNKTE: 20399

SHELL 612506

LFD.NR. 5008.1 VCM 27. 1.83 7:53 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHDE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.01 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.83 MM PHIX = 90 GRAD  
LY = 69.81 MM PHIY = 90 GRAD  
LZ = 69.84 MM PHIZ = 0 GRAD

M = 306 G  
RHO = 898 KG/M\*\*3  
SIP = 3.2 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.83 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	-.020	.0256	7.4547	-.082	.1954	.6406	31.137	-.1849	-.0557
148.25	.780	1.4346	7.4547	-.041	.0337	0.0000	31.288	-.2151	-.0557
296.25	.995	2.9393	7.4547	-.082	-.1550	-.9456	31.430	-.5169	-.1194
444.25	1.056	4.4713	7.5141	-.020	-.1820	-2.0438	31.137	-.7885	-.0875
592.25	1.036	5.9623	7.4844	-.082	-.3437	-3.5080	30.873	-1.1507	-.1830
740.25	1.036	7.4533	7.4250	-.102	-.5054	-5.2468	31.815	-1.4224	-.2467
888.25	1.015	8.9580	7.4250	-.082	-.7750	-8.3330	31.815	-1.6035	-.4695
1036.25	1.036	10.4490	7.4547	-.123	-1.0715	-8.5107	31.175	-1.8148	-.5331
1184.25	.995	11.9674	7.4547	-.123	-1.4489	-9.9445	31.315	-1.9355	-.6286
1332.25	.985	13.4584	7.4844	-.102	-1.7454	-11.2866	31.552	-2.0260	-.6923
1480.25	.985	14.9630	7.4547	-.102	-2.1498	-12.5983	31.391	-2.2071	-.8833
1628.25	.964	16.4540	7.4250	-.102	-2.5002	-13.7680	21.627	-2.3279	-1.1061
1776.25	.985	17.9261	7.5141	-.041	-2.7698	-14.8557	31.815	-2.4486	-1.1061
1924.25	.913	19.4361	7.4547	-.123	-3.1202	-15.9843	32.720	-2.5693	-1.3239
2072.25	.923	20.9544	7.4547	-.082	-3.4167	-17.0215	32.909	-2.6599	-1.4244
2220.25	.913	22.4454	7.4250	-.082	-3.7402	-17.9671	32.833	-2.8410	-1.5835
2368.25	.903	23.9501	7.4547	-.082	-4.0367	-18.9433	32.343	-2.9013	-1.7108
2516.25	.913	25.4548	7.4844	-.041	-4.3333	-19.8279	33.059	-3.0824	-1.8700
2664.25	.913	26.9321	7.4547	-.102	-4.6567	-20.7735	32.343	-3.2032	-2.0928
2812.25	.944	28.4368	7.4547	-.082	-4.9533	-21.7192	32.607	-3.3239	-2.1883
2960.25	.903	29.9278	7.3953	-.082	-5.2228	-22.5123	33.059	-3.5050	-2.4429
3108.25	.903	31.4051	7.3953	-.102	-5.5733	-23.3969	32.682	-3.6559	-2.6339
3256.25	.913	32.9508	7.5141	-.020	-5.8428	-24.2205	33.022	-3.7465	-2.7930
3404.25	.923	34.4008	7.4250	-.082	-6.3011	-25.1357	32.909	-3.9577	-3.0477
3552.25	.944	35.9328	7.4844	-.061	-6.6246	-25.8068	33.323	-4.1087	-3.2386
3700.25	.954	37.4102	7.4547	-.061	-7.0289	-26.5694	33.700	-4.2294	-3.5887
3848.25	.923	38.9012	7.4250	-.061	-7.4333	-27.3525	33.172	-4.3803	-3.6434
3996.25	.933	40.3785	7.3953	-.061	-7.8915	-28.0946	33.889	-4.5312	-4.2572
4144.25	.985	41.8695	7.3953	-.061	-8.3228	-28.9182	33.512	-4.6519	-4.5753
4292.25	.954	43.3605	7.4250	-.061	-8.6733	-29.6803	34.454	-4.7727	-4.8301
4440.25	.974	44.8925	7.4547	.020	-9.0237	-30.2909	33.700	-4.8029	-5.1484
4588.25	.985	46.3836	7.5141	0.000	-9.3472	-30.9010	34.077	-4.8632	-5.5303
4736.25	1.015	47.9019	7.5438	.041	-9.7515	-31.5721	34.492	-5.0141	-5.9759
4884.25	1.005	49.3382	7.4250	.020	-10.2098	-32.3652	33.926	-5.1952	-6.4534
5032.25	1.026	50.8566	7.4844	.020	-10.5333	-32.9753	34.266	-5.2556	-6.9945
5177.00	1.015	52.3065	7.4547	.020	-10.9107	-33.5244	34.379	-5.3763	-7.4401

MESSWERTEDATEI: M2027

MESSUNG/AUSWERTUNG VOM 27. 1.83 / 2. 6.83. 8.36

MESSBEGINN : 7:53: 753.00 UHR

MESSDAUER: 5177.75 S

AUSGEWERTET VON

.75 S BIS 5177.75 S

ZAHL DER MESSPUNKTE: 20708

SHELL 612509

LFD.NR. 5009.1 VOM 27. 1.83 9:44 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

DISPROBEMENTNAHME 4.81 BEI SIE = 1.0 G/00

DATEN DER PROBE:

LX = 69.82 MM PHIX = 90 GRAD  
LY = 69.84 MM PHIY = 90 GRAD  
LZ = 69.90 MM PHIZ = 0 GRAD

M = 289 G  
RHO = 847 KG/M\*\*3  
SIP = 2.4 G/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.82 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.90 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SICK [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.011	-.0017	7.5141	-.061	-.8239	.3355	30.534	-.7885	.5172
147.50	.623	1.4753	7.5438	-.061	-.9357	.3355	30.980	-.7885	.5172
294.75	1.137	2.9944	7.5438	-.041	-.9637	-.1630	30.509	-.9137	.1989
442.00	1.382	4.4856	7.5438	-.032	-.9907	-1.0066	30.722	-1.5733	.1353
589.25	1.444	5.9768	7.5735	-.041	-.9907	-2.2573	31.052	-2.3882	.1034
736.50	1.403	7.4954	7.5438	-.061	-1.0176	-3.9046	31.250	-3.3239	.1353
883.75	1.311	8.9730	7.4844	-.032	-1.0715	-5.6730	31.539	-4.1690	.1989
1031.00	1.260	10.4505	7.4547	-.123	-1.1254	-7.4431	31.099	-5.1047	.2308
1178.25	1.219	11.9417	7.4547	-.051	-1.1793	-9.0903	32.042	-6.0600	.2308
1325.50	1.208	13.4376	7.5735	-.020	-1.0715	-10.4925	31.333	-6.7048	.2644
1472.75	1.239	14.9315	7.4844	-.102	-1.1733	-11.9272	32.343	-7.6702	.2944
1620.00	1.257	16.4264	7.5141	-.061	-1.1524	-13.3304	31.689	-8.4248	.3162
1767.25	1.127	17.9250	7.5735	-.041	-1.1254	-14.4230	32.117	-9.2492	.2944
1914.50	1.107	19.4116	7.4844	-.032	-1.2333	-15.7403	32.597	-9.9943	.2944
2061.75	1.127	20.9711	7.5735	-.020	-1.1524	-16.8059	32.607	-10.6232	.3099
2209.00	1.116	22.4076	7.4844	-.061	-1.2033	-17.7536	32.558	-11.3526	.3501
2356.25	1.075	23.8983	7.4844	-.041	-1.2602	-18.4857	32.117	-12.0156	.3899
2503.50	1.127	25.4057	7.5438	-.032	-1.2602	-19.2786	32.250	-12.6504	.3261
2650.75	1.106	26.8949	7.5438	-.041	-1.2872	-20.1940	33.172	-13.4050	.4217
2798.00	1.075	28.3725	7.5141	-.032	-1.3411	-21.1396	32.615	-13.9483	.4217
2945.25	1.086	29.8774	7.5438	-.061	-1.3950	-21.9937	32.456	-14.5520	.4217
3092.50	1.086	31.3636	7.5438	-.020	-1.5567	-22.7863	32.607	-15.1556	.3899
3239.75	1.086	32.8593	7.5438	-.061	-1.7993	-23.7020	33.022	-15.8496	.3881
3387.00	1.086	34.3510	7.5438	0.000	-1.9880	-24.5236	33.663	-16.4233	.4217
3534.25	1.055	35.8422	7.5438	-.020	-2.1228	-25.2272	33.059	-16.9666	.4217
3681.50	1.065	37.3081	7.5438	-.061	-2.3654	-26.0508	33.243	-17.6910	.3899
3828.75	1.034	38.7699	7.4250	-.102	-2.6080	-26.7219	33.210	-18.2343	.3102
3976.00	1.086	40.2743	7.4844	-.032	-2.7698	-27.3630	34.077	-18.7776	.3899
4123.25	1.045	41.7524	7.4844	-.061	-2.9585	-28.0341	34.190	-19.3012	.3899
4270.50	1.045	43.2299	7.4844	-.061	-3.1202	-28.6132	33.537	-19.9843	.2944
4417.75	1.055	44.7074	7.4844	-.032	-3.2820	-29.2233	34.379	-20.5366	.2944
4565.00	1.065	46.2397	7.5438	-.041	-3.3089	-29.6503	34.643	-21.0715	.3581
4712.25	1.065	47.6762	7.4250	-.102	-3.5786	-30.2604	34.605	-21.7053	.3882
4859.50	1.055	49.1811	7.4844	-.061	-3.6593	-30.6875	34.643	-22.1279	.3581
5006.75	1.065	50.6450	7.5141	-.061	-3.8460	-31.2976	34.756	-22.6712	.3581
5148.00	1.075	52.0951	7.5141	-.032	-3.9828	-31.6331	34.718	-23.1239	.3899

MESSWERTEDATEI: M2027

MESSUNG/AUSWERTUNG VOM 27. 1.83 / 3. 6.83.10.48

MESSBEGINN : 9:44: 209.50 UHR MESSDAUER: 5148.75 S

AUSGEWERTET VON .75 S BIS 5148.75 S

ZAHL DER MESSPUNKTE: 20592

SHELL 612509

LFD.NR. 5010.1 VOM 27. 1.83 11:29 UHR

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

ERGEBENENTNAHME 4.81 BEI STE = 1.0 0/00

DATEN DER PROBE:

LX = 89.84 MM PHIX = 90 GRAD  
LY = 69.88 MM PHIY = 90 GRAD  
LZ = 65.82 MM PHOZ = 0 GRAD

M = 299 G  
RHO = 878 KG/M\*\*3  
SIP = 1.4 0/00

TEMPERATUREN:

TL = 5.10 GRAD C  
TR = 5.20 GRAD C

PASISLAENGEN FUER DEHNUNG:

CX1 = 89.84 MM CX2 = 32.00 MM  
CY1 = 32.80 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7000 MM  
D1 = 5310.00 S  
EPSX1 = .1000E-04 1/8  
FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
25	.052	-.0017	7.6626	-.082	-.4785	-.2745	30.873	-.1547	1.4403
145.00	.821	1.4480	7.6626	-.082	-1.0985	-.2745	31.238	-.1245	1.7556
290.75	1.200	2.9252	7.6329	-.082	-2.5272	-.7321	31.175	-.1049	1.8222
438.00	1.385	4.3886	7.6329	-.082	-3.8211	-1.5777	31.401	-.1049	1.9177
581.25	1.448	5.8354	7.6329	-.123	-5.2228	-2.6844	31.552	-.1049	1.9614
726.50	1.528	7.3937	7.6923	-.062	-6.5437	-3.6885	31.740	-.1049	1.9177
871.75	1.549	8.8336	7.6626	-.021	-7.9953	-4.4842	31.175	-.3967	1.8859
1017.00	1.506	10.2834	7.6032	-.123	-9.5890	-5.4603	31.514	-.4887	1.9495
1162.25	1.508	11.7742	7.6626	-.062	-11.0135	-6.1809	31.627	-.5471	1.9495
1307.50	1.498	13.2650	7.6626	-.021	-12.5011	-7.0150	31.591	-.6678	1.9177
1452.75	1.457	14.7147	7.6329	-.041	-14.0107	-7.7176	31.853	-.8459	1.8822
1598.00	1.457	16.2055	7.7220	-.041	-15.4154	-8.3887	32.532	-.5791	1.9514
1743.25	1.457	17.6553	7.6923	-.082	-16.9489	-9.2123	31.927	-1.0360	1.9177
1888.50	1.395	19.1324	7.6923	-.103	-18.4585	-10.0360	32.343	-1.2413	1.8222
2033.75	1.405	20.6095	7.6923	-.103	-19.8333	-10.6461	31.740	-1.3016	1.7904
2179.00	1.364	22.0866	7.6326	-.082	-21.2080	-11.3477	32.079	-1.3620	1.8222
2324.25	1.344	23.5509	7.6626	-.103	-22.5828	-12.0188	32.796	-1.3022	1.8859
2469.50	1.334	25.0135	7.6329	-.123	-24.0115	-12.7294	32.381	-1.4827	1.8859
2614.75	1.344	26.4906	7.7220	-.041	-25.3854	-13.3410	33.210	-1.4827	1.9495
2760.00	1.354	27.9814	7.6923	-.062	-26.7860	-14.1236	33.286	-1.6940	1.8222
2905.25	1.282	29.4038	7.6032	-.103	-28.1893	-14.7947	32.833	-1.7846	1.8222
3050.50	1.282	30.8609	7.5735	-.164	-29.6454	-15.5573	32.607	-1.8751	1.7556
3195.75	1.313	32.3580	7.6923	-.082	-30.9724	-16.0453	33.625	-1.8445	1.7904
3341.00	1.303	33.7804	7.6032	-.123	-32.3950	-16.8690	33.323	-1.9053	1.8222
3486.25	1.293	35.3259	7.6923	-.041	-33.7159	-17.5096	33.663	-2.0562	1.8222
3631.50	1.221	36.7210	7.6329	-.062	-35.1715	-18.1502	33.474	-2.0562	1.7556
3776.75	1.262	38.2118	7.6329	-.103	-36.4924	-18.9738	33.926	-2.1769	1.7267
3922.00	1.262	39.6752	7.6923	-.103	-37.7854	-19.6144	33.700	-2.2071	1.7556
4067.25	1.262	41.1660	7.6329	-.082	-39.0263	-20.3770	34.115	-2.2675	1.7267
4212.50	1.262	42.6021	7.6626	-.082	-40.2933	-21.0481	33.889	-2.2977	1.7556
4357.75	1.262	44.0518	7.6032	-.062	-41.5602	-21.7802	34.303	-2.2977	1.6949
4503.00	1.231	45.5153	7.5735	-.103	-42.8272	-22.5123	34.115	-2.2675	1.7904
4648.25	1.262	46.9924	7.6329	-.041	-43.9324	-23.1529	34.680	-2.2977	1.7267
4793.50	1.241	48.4558	7.5735	-.103	-45.1454	-23.9785	34.492	-2.4184	1.7267
4938.75	1.241	49.9329	7.6626	-.021	-46.1696	-24.6171	34.839	-2.5090	1.7904
5084.00	1.241	51.3690	7.7517	-.021	-47.0863	-25.3492	34.492	-2.7202	1.7904

MESSWERTYLDAT1: X3027

MESSUNG-NR 5010.1

MESSUNG/AUSWERTUNG VOM 27. 1.83 / 29.10.83.18. 0

MESSBEGINN: 11:29: 295.00 UHR MESSDAUER: 5601.00 S

AUSGEWERTET VON .75 S DIS 5081.00 S

ZAHL DER MESSPUNKTE: 23381

SHELL 612509

LFD.NR. 5011.1 VOM 27. 1.83 13:13 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.79 MM PHIX = 90 GRAD M = 308 G  
LY = 69.75 MM PHIY = 90 GRAD RHO = 906 KG/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 2.4 0/00

TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.79 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1001E-04 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.072	-.0017	7.2468	-.103	-1.5298	1.1287	30.948	-.6678	1.1538
152.75	.780	1.5175	7.3656	-.082	-1.4759	1.1287	31.099	-.6678	1.1220
305.25	.934	3.0778	7.3953	-.041	-2.6620	1.2202	30.647	-.6678	.8992
457.75	1.129	4.6107	7.3359	-.103	-3.4976	1.1592	30.685	-.6376	.7082
610.25	1.345	6.1847	7.3656	-.041	-3.7402	1.2212	31.552	-.6980	.1989
762.75	1.427	7.7450	7.3656	-.041	-4.0367	1.1287	31.665	-.6074	-.4058
915.25	1.427	9.2642	7.3359	-.103	-4.3602	.0610	30.911	-.7282	-1.2652
1067.75	1.396	10.8108	7.2765	-.123	-4.4950	-.2846	31.514	-.6980	-2.0609
1220.25	1.417	12.3574	7.3656	-.041	-4.5759	-1.9828	31.212	-.6376	-3.0795
1372.75	1.314	13.8767	7.2765	-.103	-4.7376	-3.2030	31.929	-.7282	-4.1617
1525.25	1.355	15.4917	7.3953	-.041	-4.8185	-4.3316	32.305	-.6980	-5.2120
1677.75	1.273	16.9699	7.3062	-.103	-4.9802	-5.5823	31.476	-.6376	-6.2624
1830.25	1.232	18.4891	7.2468	-.123	-5.1420	-6.8025	32.192	-.6678	-7.4401
1982.75	1.273	20.1178	7.4250	0.000	-5.1150	-7.7176	31.853	-.6678	-8.7133
2135.25	1.222	21.6234	7.3359	-.082	-5.3307	-8.9378	32.569	-.7985	-10.1137
2287.75	1.222	23.1937	7.3062	-.123	-5.4654	-9.3834	32.494	-.7583	-11.5142
2440.25	1.211	24.7166	7.2765	-.123	-5.5193	-10.8291	32.796	-.7533	-12.8829
2592.75	1.181	26.2632	7.3656	-.062	-5.5733	-11.6527	32.155	-.7282	-14.1879
2745.25	1.170	27.8372	7.3359	-.041	-5.6002	-12.5373	32.305	-.7583	-15.5247
2897.75	1.181	29.3975	7.3953	-.021	-5.6541	-13.4220	32.343	-.7282	-16.7342
3050.25	1.170	30.9030	7.3062	-.082	-5.7620	-14.2151	32.607	-.7282	-18.0074
3202.75	1.150	32.4223	7.3062	-.082	-5.7889	-14.9167	32.569	-.7583	-19.2169
3355.25	1.160	34.0099	7.4250	-.021	-5.7350	-15.7098	33.323	-.7885	-20.4583
3507.75	1.140	35.5018	7.2468	-.144	-5.9507	-16.6249	33.625	-.8489	-21.6359
3660.25	1.170	37.1031	7.4250	-.021	-5.8967	-17.1435	33.813	-.7885	-22.6227
3812.75	1.150	38.6224	7.3359	-.041	-5.9237	-17.9061	32.984	-.7885	-23.5139
3965.25	1.109	40.1005	7.2468	-.123	-6.0585	-18.5162	33.135	-.8187	-24.4051
4117.75	1.099	41.6745	7.3359	-.062	-6.0315	-19.0348	33.851	-.8791	-25.3912
4270.25	1.150	43.1801	7.3062	-.103	-6.1393	-19.6449	33.625	-.8187	-26.3148
4422.75	1.140	44.7814	7.3656	-.062	-6.1393	-20.1329	34.266	-.8791	-27.2061
4575.25	1.129	46.2870	7.3359	-.062	-6.1933	-20.6515	34.454	-.9394	-28.1291
4727.75	1.129	47.7925	7.2765	-.062	-6.2741	-21.2006	34.492	-.9093	-28.9248
4880.25	1.150	49.3802	7.3359	-.062	-6.3011	-21.5667	34.492	-.9394	-29.7942
5032.75	1.140	50.8994	7.2468	-.123	-6.4359	-21.9327	34.303	-.9394	-30.5163
5185.25	1.119	52.4186	7.2468	-.103	-6.4628	-22.3598	34.039	-.9998	-31.3120
5333.00	.124	52.4734	7.2765	-.103	-6.5167	-22.5428	34.341	-.9998	-31.6303

MESSWERTEDATEI: M3027A

MESSUNG/AUSWERTUNG VOM 27. 1.83 / 2. 6.83.12.37

MESSBEGINN : 13:13: 330.50 UHR

MESSDAUER: 5333.75 S

AUSGEWERTET VON

.75 S BIS 5333.75 S

ZAHL DER MESSPUNKTE: 21332

SHELL 612509

LFD.NR. 5012.1 VCM 4. 2.83 12: 4 UR

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.31 BEI SIE = .6 0/00

DATEN DER PROBE:

LX = 69.85 MM PHIX = 90 GRAD N = 279 G TEMPERATUREN:  
LY = 69.83 MM PHIY = 90 GRAD RSD = 219 KG/M\*\*3 TL = -5.10 GRAD C  
LZ = 69.82 MM PHIz = 0 GRAD SIP = .4 0/00 TP = -5.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.85 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 5310.00 S  
EPSX1 = .1000E-04 1/S  
FY/FX = 0.0000  
FZ/FX = 0.0000

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.25	-.019	.0069	11.4046	-.041	.6264	-.0304	30.571	-.3995	-1.0718
101.25	.740	.3980	11.4045	-.051	.5970	0.0000	30.647	-.3392	-1.0083
202.25	1.130	1.9125	11.4045	-.041	.5088	0.0000	31.250	-.3091	-1.0400
303.25	1.253	2.9544	11.4046	-.123	.3913	-.0304	31.325	-.3982	-1.1958
404.25	1.396	3.9826	11.4046	-.082	.2443	.0304	31.514	-1.2908	-1.8022
505.25	1.479	4.9971	11.4045	-.102	.0680	.0913	30.948	-1.3822	-2.4690
606.25	1.492	6.0253	11.4046	-.082	-.1084	.0913	31.589	-2.1339	-3.1677
707.25	1.581	7.0535	11.4045	-.082	-.2553	.0913	31.627	-2.5759	-3.8643
808.25	1.581	8.0860	11.4045	-.081	-.4317	0.0000	31.665	-3.1274	-4.5647
909.25	1.682	9.0962	11.4045	-.081	-.6068	0.0000	31.137	-3.5342	-5.3500
1010.25	1.622	10.1107	11.4045	-.041	-.8432	0.0000	32.079	-4.1209	-6.2082
1111.25	1.602	11.1339	11.4045	-.061	-.9901	-.1522	32.192	-4.8424	-6.7079
1212.25	1.602	12.1008	11.4042	-.041	-1.1389	-.3043	31.552	-5.0241	-7.5195
1313.25	1.581	13.1353	11.4045	-.041	-1.3428	-.5782	31.476	-5.4750	-8.2470
1414.25	1.581	14.2090	11.4045	-.082	-1.5890	-.7000	32.004	-5.9575	-9.0130
1515.25	1.581	15.2338	11.4045	-.082	-1.8357	-.8621	31.552	-6.2790	-9.6777
1616.25	1.520	16.2662	11.4045	-.061	-1.8101	-1.0043	32.832	-6.3203	-10.3445
1717.25	1.520	17.3081	11.4045	-.061	-1.9394	-1.2782	32.645	-7.2322	-10.8477
1818.25	1.479	18.3226	11.4045	-.061	-2.1070	-1.3086	32.079	-7.7333	-11.6445
1919.25	1.458	19.3371	11.4042	-.061	-2.1333	-1.5521	32.102	-8.1854	-12.2162
2020.25	1.458	20.3653	11.4045	-.082	-2.4597	-1.7651	32.230	-8.6069	-13.7090
2121.25	1.479	21.3535	11.4045	-.082	-2.5773	-1.9477	32.305	-8.9933	-13.2661
2222.25	1.479	22.4217	11.4046	-.041	-2.6946	-2.0390	32.155	-9.4499	-13.7742
2323.25	1.458	23.4225	11.4046	-.082	-2.8712	-2.2521	33.059	-9.8112	-14.2100
2424.25	1.458	24.4507	11.4042	-.082	-3.0769	-2.3738	32.645	-10.2327	-14.7904
2525.25	1.417	25.4926	11.4045	-.041	-3.2239	-2.5260	33.059	-10.6241	-15.4053
2626.25	1.396	26.5071	11.4046	-.061	-3.3414	-2.7390	32.455	-11.0757	-15.8350
2727.25	1.355	27.5353	11.4048	-.061	-3.4004	-2.8303	33.361	-11.4671	-16.4110
2828.25	1.376	28.5498	11.4048	-.020	-3.6353	-2.9520	32.532	-11.8006	-16.9016
2929.25	1.376	29.5643	11.4048	-.082	-3.7823	-3.1042	33.323	-12.2402	-17.4057
3030.25	1.376	30.5925	11.4045	-.041	-3.9506	-3.3172	33.512	-12.7617	-17.9979
3131.25	1.396	31.6070	11.4045	-.061	-4.0462	-3.4694	32.682	-13.2735	-18.5375
3232.25	1.396	32.6352	11.4046	0.000	-4.2019	-3.5911	33.625	-13.6950	-19.0775
3333.25	1.355	33.6497	11.4048	-.082	-4.3995	-3.7737	33.537	-14.1466	-19.5836
3434.25	1.335	34.6779	11.4045	-.020	-4.5465	-3.9259	33.248	-14.5591	-20.0619
3535.25	1.335	35.6512	11.4040	-.020	-4.6053	-4.0781	33.059	-15.0192	-20.5063

MESSWEPTEDATEI: M3035

MESSUNG/AUSWERTUNG VOM 4. 2.83 /

MESSBEGINN : 12: 4: 483.25 UHR

AUSGEWERTET VOM

ZAHL DER MESSPUNKTE: 14125

6. 6.83.10.13

MESSDauer: 3532.25 S

319 3532.00 S

SWELL 612509

LFD.NR. 5013.1 VOM 4. 2.83 13:44 UR

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIVAP RIDGES REINDEER ISLAND PROCTOR BAY  
3-15 APRIL 1981

DISPROBENENTNAHME 4.31 821 SIC = 2.1 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD N = 308 G  
LY = 69.81 MM PMIX = 90 GRAD RHO = 905 KG/M\*\*3  
LZ = 69.81 MM PMIZ = 0 GRAD SIP = 2.3 0/00

TEMPERATUREN:

TL = -5.20 GRAD C  
TP = -5.10 GRAD C

DASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.60 MM

VERSUCHSVORGEDEWERTE:

U1 = 3.7100 MM FV/FX = 0.0000  
DT = 5310.00 S FZ/FX = 0.0000  
EPSK1 = .10012-04 1/S

F	SICK	EPSK1	EPSK2	SIGY	FPSY1	FPSY2	FX	FZS21	EPZS2
(S)	(MPA)	(N/1)	(N/1)	(MPA)	(N/1)	(N/1)	(N)	(N/1)	(N/1)
.25	-.040	.0039	11.4040	-.021	-.0001	-4.3215	31.062	.0040	-1.0460
101.25	.050	.0533	11.4040	-.041	-1.0105	-4.4120	30.421	.0349	-.9447
202.25	.058	1.0004	11.4040	-.052	-.0607	-4.3011	31.212	.0339	-1.1035
303.25	.065	3.0109	11.4345	-.062	-.0913	-4.3520	31.175	-.0790	-1.0292
404.25	1.028	4.0123	11.4040	-.041	-.0013	-4.3215	31.325	-1.5618	-3.0502
505.25	1.048	5.0685	11.4040	-.103	-.0001	-4.2011	30.793	-2.2044	-4.0235
606.25	1.028	5.0699	11.4040	-.052	-1.0105	-4.3024	31.365	-3.0070	-5.0120
707.25	.907	7.0707	11.4040	-.082	-1.1071	-4.4120	30.908	-3.5700	-3.7244
808.25	.907	8.1275	11.4040	-.082	-1.1959	-4.5041	31.099	-4.3016	-7.6135
909.25	.060	0.1563	11.4040	-.082	-1.3722	-4.4737	30.079	-5.1446	-3.1370
1010.25	.043	10.1713	11.3751	-.123	-1.3428	-4.4120	31.200	-5.7789	-10.2175
1111.25	.043	11.2091	11.3454	-.082	-1.2040	-4.5041	31.250	-5.0700	-11.2972
1212.25	.043	12.2280	11.4040	-.082	-1.3134	-4.4737	31.325	-5.9510	-12.3769
1313.25	.062	13.2440	11.3751	-.041	-1.2040	-4.5040	31.552	-7.4622	-13.4565
1414.25	.025	14.2591	11.4040	-.082	-1.2040	-4.5041	31.379	-7.0747	-14.4411
1515.25	.003	15.3153	11.4345	-.123	-1.3722	-4.4737	32.455	-8.4865	-15.6473
1616.25	.250	16.3304	11.3751	-.103	-1.3722	-4.5041	32.155	-8.9903	-16.6005
1717.25	.043	17.0592	11.4040	-.082	-1.4310	-4.5345	32.102	-9.4000	-17.6157
1818.25	.802	18.0742	11.4040	-.082	-1.4604	-4.5345	32.750	-9.9918	-18.6011
1919.25	.802	19.4030	11.3751	-.082	-1.3428	-4.5345	32.155	-10.4736	-19.5221
2020.25	.802	20.4181	11.4642	-.082	-1.4604	-4.5954	32.750	-10.8650	-20.3735
2121.25	.731	21.4605	11.4040	-.041	-1.6073	-4.5345	32.079	-11.5075	-21.3035
2222.25	.802	22.4894	11.4345	-.103	-1.6955	-4.5345	32.381	-11.9789	-22.6342
2323.25	.802	23.5045	11.4345	-.082	-1.6661	-4.5650	32.253	-12.3703	-23.3345
2424.25	.802	24.4921	11.4040	-.041	-1.6073	-4.5259	32.494	-12.8219	-24.0949
2525.25	.802	25.5621	11.4040	-.041	-1.6661	-4.5653	32.753	-13.1332	-24.8253
2626.25	.802	26.5360	11.4040	-.021	-1.6661	-4.5653	33.399	-13.6047	-25.3959
2727.25	.822	27.5640	11.4345	-.041	-1.6367	-4.6363	33.399	-14.0252	-26.0855
2828.25	.802	28.5073	11.4345	-.082	-1.7249	-4.5954	32.582	-14.3574	-26.6939
2929.25	.781	29.5224	11.3751	-.082	-1.6955	-4.5650	32.720	-14.3585	-27.1753
3030.25	.781	30.5512	11.3454	-.082	-1.9013	-4.5667	33.399	-15.0198	-27.1435
3131.25	.860	31.6525	11.4040	-.082	-1.9306	-4.6067	33.022	-15.3208	-27.6334
3232.25	.802	32.6950	11.4040	-.041	-1.9600	-4.6067	33.587	-15.6520	-28.3185
3333.25	.731	33.7101	11.3751	-.082	-1.9600	-4.7172	33.474	-15.9832	-28.8901
3434.25	.822	34.7252	11.4040	-.082	-1.9600	-4.5367	33.925	-15.2240	-29.3982
3529.00	.822	35.6854	11.4040	-.103	-1.9306	-4.7476	33.926	-16.5251	-29.7793

MESSWERTEDATEI: M3035B

MESSUNG/AUSWERTUNG VOM 4. 2.83 / 6. 6.83.13.49

MESSBEGINN : 13:44: 532.00 UHR

MESSDAUER: 3529.75 S

AUSGEWERTET VON

.75 S BIS 3529.75 S

ZAHL DER MESSPUNKTE: 14116



SHELL 512509

LFD.NR. 6001.1 VOM 31. 1.83 8:26 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

DISPROBENENTNAHME 4.31 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 294 G  
LY = 69.79 MM PHIY = 90 GRAD RHO = 364 KG/M\*\*3  
LZ = 69.79 MM PHIZ = 0 GRAD SIP = 3.3 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CK1 = 69.80 MM CK2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 0.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSK1 = .1001E-02 1/S

T	SIGX	EPSK1	EPSK2	SIGY	EPSY1	EPSY2	SX	EPSZ1	EPSZ2
[S]	[MPA]	[MM/M]	[MM/M]	[MPA]	[MM/M]	[MM/M]	[MM]	[MM/M]	[MM/M]
.02	.001	.0026	-.0074	-.103	-.1501	-.1848	30.383	-.0170	.0120
1.58	.022	.0574	.0315	-.021	-.0713	-.0019	31.212	.0132	.0438
3.34	.063	.0437	.0519	-.062	-.1012	-.0629	30.647	.0132	.0757
5.00	.022	.0300	.0315	-.062	-.0713	-.0324	30.635	-.0170	-.0199
6.56	1.274	.1671	.0519	-.062	-.1395	-.0529	30.722	-.1678	.2351
8.32	6.674	1.9217	.0519	0.000	.3703	-1.2516	31.740	-2.2486	-.0199
9.93	5.668	3.4021	.0315	-.021	.3998	-5.0371	31.250	-3.6359	-.4343
11.54	4.210	4.7180	.0315	-.041	.6937	-10.6702	31.539	-4.0581	-.7531
13.30	4.025	6.5686	.0223	-.062	.1538	-15.4556	31.627	-5.5961	-.8169
14.96	4.025	8.3441	-.0074	-.021	-.3956	-19.3443	31.514	-7.6770	-1.1033
15.52	3.307	9.9270	-.0074	-.062	-1.0433	-23.5683	31.514	-9.5463	-1.4226
17.28	3.363	11.3593	.0223	-.062	-1.4555	-28.4099	32.155	-11.4166	-2.1876
19.04	2.383	12.9290	.1113	-.021	-1.7793	-32.1590	32.253	-12.9843	-3.3671
21.50	2.752	15.2456	.0223	-.062	-2.1521	-36.0911	31.740	-14.7943	-4.3973
23.26	2.375	16.7534	-.0074	-.103	-2.5154	-39.7792	32.343	-16.4331	-6.2361
24.92	2.436	18.5756	-.0074	-.103	-2.7509	-42.7054	32.494	-17.3703	-7.5113
26.58	3.019	20.6190	.0223	-.103	-3.0453	-45.5011	32.607	-19.1973	-8.8133
28.24	2.095	21.0165	.0223	-.032	-3.3103	-48.2833	33.097	-20.7555	-10.2209
29.90	2.075	22.6340	.0223	-.041	-3.3592	-50.0317	32.833	-22.3035	-11.4641
31.56	2.054	24.9369	.0223	-.123	-3.6636	-51.5143	32.391	-23.3114	-12.6755
33.22	1.972	25.3691	-.0371	-.123	-3.8697	-52.9469	32.720	-25.3320	-13.6956
34.88	2.509	29.5839	-.0371	-.032	-4.2524	-53.3127	33.210	-27.4303	-14.6519
36.54	2.362	29.3717	.0223	-.041	-4.4879	-53.7699	33.653	-28.9031	-15.7039
38.20	1.993	31.7497	.0519	-.021	-4.7823	-54.1551	33.323	-30.5064	-16.6921
39.86	2.193	33.6002	-.0074	-.021	-5.1356	-54.7143	33.243	-32.0445	-17.5210
41.52	2.260	35.2353	.0519	.041	-5.3417	-55.0305	34.039	-33.3413	-18.4454
43.18	2.260	36.9175	-.0074	-.041	-5.7244	-55.5632	34.190	-34.6632	-19.1467
44.84	2.193	38.5173	.0223	.041	-5.9011	-55.3733	33.926	-35.3745	-20.0075
46.50	2.157	40.2343	-.0354	-.062	-6.3133	-56.2383	33.625	-37.0507	-20.6769
48.16	2.157	41.9620	.0223	.021	-6.4399	-56.3435	33.813	-38.1655	-21.2183
49.82	2.116	43.6206	-.0371	0.000	-6.3725	-56.9094	33.339	-39.1913	-21.7607
51.48	2.095	45.2513	-.0354	-.021	-7.3142	-57.2142	34.005	-40.3378	-22.3027
53.14	2.075	46.9379	-.0353	-.041	-7.5970	-57.5105	34.266	-41.3331	-22.3127
54.80	2.095	48.6375	-.0074	.021	-8.1092	-58.2310	34.680	-42.4790	-23.4503
56.46	2.116	50.2551	-.0653	.041	-8.5213	-58.3602	35.233	-43.5044	-23.8966
57.92	3.225	52.0646	-.0653	-.021	-8.3746	-50.0794	34.369	-44.5504	-24.3110

MESSWERTEDATSEI: M3031

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 22. 4.83. 9. 3

MESSBEGINN : 8:26: 489.33 UHR MESSDAUER: 64.20 S

AUSGEWERTET VON 5.00 S BIS 62.92 S

ZAHL DER MESSPUNKTE: 2395

SHELL 512509

LFD.NR. 6002.1 VOM 31. 1.83 9:41 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIVEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

PROBENENTNAHME 4.31 BEI SIE = .8 0/00

DATEN DER PROBE:

LX = 69.69 MM PHIX = 90 GRAD  
LY = 69.75 MM PHIY = 90 GRAD  
LZ = 69.79 MM PHIZ = 0 GRAD

A = 305 G  
RHO = 399 KG/M\*3  
SIP = 5.7 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.70 GRAD C

BASISLAENDEN FUER DEHNUNG:

CK1 = 69.69 MM CK2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .10035-02 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T	SIGX	EPSX1	EPSX2	SIGY	EPSY1	EPSY2	SX	EPSZ1	EPSZ2
(S)	(MPA)	(MM/M)	(MM/M)	(MPA)	(MM/M)	(MM/M)	(MM)	(MM/M)	(MM/M)
0.92	0.001	-0.0249	3.4646	-0.103	-0.6311	3.0157	30.685	-1.7058	0.0438
1.58	0.001	-0.0523	3.4349	-0.135	-0.6900	3.0462	31.325	-1.6756	0.1395
3.14	3.576	1.3755	3.4349	-0.123	-0.8078	2.5804	31.514	-1.6756	-0.6575
4.70	5.856	3.0093	3.5239	-0.103	-4.4879	-0.2153	31.099	-0.9217	0.0757
6.25	4.356	4.5745	3.4942	-0.134	-10.7000	-2.3976	31.024	-0.5900	-0.7531
7.82	3.473	6.1259	3.5239	-0.062	-14.3506	-4.5435	31.325	-0.3739	-1.6457
9.38	3.391	7.6910	3.4646	-0.123	-17.2947	-6.3419	31.853	-0.0773	-2.3739
10.94	3.258	9.2424	3.4646	-0.123	-19.7972	-7.3964	31.514	0.1037	-3.2715
12.50	3.144	10.8076	3.4349	-0.123	-22.2703	-9.5729	32.343	0.1941	-4.0634
14.06	3.124	12.4139	3.5833	-0.062	-24.4783	-11.4931	32.079	0.3751	-4.9610
15.62	2.980	13.9653	3.4942	-0.123	-26.6354	-13.2915	32.079	0.4957	-5.7261
17.18	3.062	15.5305	3.5239	-0.062	-28.9239	-15.2423	32.559	0.6153	-6.7462
18.74	2.877	17.1506	3.5535	0.000	-30.3965	-17.2540	32.117	0.7370	-7.7025
20.30	2.980	18.7559	3.5535	-0.062	-33.1340	-19.3876	33.022	0.7671	-8.8501
21.86	2.939	20.3220	3.6425	-0.062	-35.2832	-21.6127	32.796	0.8576	-9.7746
23.42	2.775	21.8672	3.5833	-0.041	-37.0791	-23.6245	32.796	0.9179	-10.6672
24.98	2.795	23.4661	3.5833	-0.041	-38.6806	-25.6143	32.607	0.9878	-11.4323
26.54	2.795	25.0038	3.5833	-0.021	-40.1704	-27.6479	33.210	0.9782	-12.1655
28.10	2.775	26.5826	3.5535	0.000	-41.7602	-29.7816	32.682	0.9782	-13.0580
29.66	2.898	28.1752	3.6129	0.041	-43.1734	-31.9762	32.984	0.9782	-13.6956
31.22	2.980	29.7541	3.6129	0.032	-44.5865	-34.2317	33.839	1.0989	-14.3650
32.78	2.980	31.2781	3.5535	0.041	-46.1469	-36.5433	33.286	1.1290	-15.1301
34.34	2.816	32.9119	3.5833	0.103	-47.6190	-38.7734	33.776	1.1592	-15.8314
35.90	2.672	34.3947	3.5239	0.021	-48.3555	-40.3461	34.115	1.1893	-16.4371
37.46	2.816	35.9735	3.4942	0.021	-50.0037	-42.7663	33.436	1.0989	-17.0429
39.02	2.754	37.5387	3.4942	0.041	-51.1813	-44.7476	34.153	1.0637	-17.4891
40.58	2.775	39.1313	3.4942	0.123	-52.4767	-46.9117	34.492	1.0386	-18.0629
42.14	2.816	40.6827	3.4646	0.041	-53.6838	-48.3930	34.530	0.9179	-18.4773
43.70	2.816	42.2753	3.4646	0.103	-54.3615	-50.7523	33.700	0.9179	-18.8280
45.26	2.754	43.8542	3.5833	0.144	-55.0391	-52.4592	34.306	0.9431	-19.1736
46.82	2.877	45.4605	3.5833	0.135	-57.2756	-54.3490	34.266	0.8576	-19.5930
48.38	2.795	47.0119	3.5833	0.154	-58.4827	-56.2083	35.020	0.7068	-19.9118
49.94	2.918	48.5771	3.5535	0.154	-59.6393	-58.1296	34.454	0.6767	-20.1350
51.50	2.795	50.1285	3.5833	0.205	-60.8360	-60.0134	34.369	0.5259	-20.4219
53.06	2.816	51.6387	3.4349	0.154	-62.1039	-61.3473	35.208	0.3148	-20.7725
54.60	3.535	53.2039	3.4349	0.123	-63.2521	-63.6151	34.643	0.2243	-20.9319

MESSWERTEDATEI: M3031B

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 22. 4.83.10.44

MESSBEGINN : 9:41:5035.50 UHR MESSDAUER: 52.02 S

AUSGEWERTET VON 7.00 S BIS 51.40 S

ZAHL DER MESSPUNKTE: 2720

SHELL 312509

LFD.NR. 6003.1 VOM 31. 1.83 11:30 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 303 G  
LY = 69.78 MM PHIY = 90 GRAD RHC = 891 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 1.0 0/00

TEMPERATUREN:

TL = -20.10 GRAD C  
TP = -20.20 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S.  
EPSX1 = .10012-02 1/S  
FY/FX = 0.0000  
FZ/FX = 0.0000

F (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.02	-.081	.0163	1.1202	-.062	-1.3377	2.1622	30.647	-1.4042	.1395
.16	-.040	-.0111	1.1202	-.144	-1.4260	2.1013	31.175	-1.4344	.1395
.30	-.040	.0300	1.1202	-.144	-1.3966	2.0708	31.137	-1.4042	.0438
.44	-.060	.0026	1.0609	-.123	-1.3672	2.0708	30.948	-1.4042	.1076
.58	-.040	.0163	1.1202	-.082	-1.3966	1.9793	30.571	-1.3741	.1713
.72	.022	.0300	1.1202	-.103	-1.3966	2.0098	31.062	-1.4645	.0438
.86	.042	.0163	1.1202	-.041	-1.3966	2.1013	30.345	-1.4645	.0757
1.00	.042	-.0248	1.1202	-.123	-1.4260	2.0403	30.873	-1.4645	.0757
1.14	.063	.0026	1.0906	-.123	-1.4555	2.0708	30.421	-1.4042	.0757
1.28	.042	.0026	1.1202	-.144	-1.4555	2.0403	30.873	-1.4042	.0757
1.42	.104	.0026	1.0609	-.144	-1.4849	1.9134	30.458	-1.4645	.0757
1.56	.104	.0026	1.1202	-.144	-1.4260	2.0708	30.421	-1.4344	.0438
1.70	.124	.0026	1.0609	-.103	-1.4555	2.0403	30.647	-1.4042	.1076
1.84	.145	-.0111	1.0609	-.123	-1.4849	2.0098	31.175	-1.4042	.1395
1.98	.166	.0026	1.0906	-.144	-1.4849	2.0403	30.798	-1.4947	-.1156
2.12	.289	.0026	1.1202	-.103	-1.3966	2.0098	31.175	-1.3741	.1713
2.26	1.172	.2493	1.0906	-.123	-1.5438	1.9793	31.024	-1.4645	-.0837
2.40	2.260	.2630	1.1499	-.082	-1.3966	2.1317	30.609	-1.4645	-.1474
2.54	2.937	.4000	1.0906	-.123	-1.4849	2.1317	31.363	-1.4344	-.1474
2.68	3.902	.5782	1.1499	-.082	-1.6321	2.0403	31.137	-1.6756	-.4343
2.82	4.559	.7016	1.1499	-.103	-1.5438	2.1013	31.325	-1.7661	-.4862
2.96	5.155	.9249	1.0906	-.103	-1.5733	2.0098	31.062	-1.7661	-.4025
3.10	5.832	.9620	1.1499	-.082	-1.6616	2.0098	31.325	-1.8867	-.5300
3.24	6.407	1.1401	1.1499	-.082	-1.7205	1.6745	31.778	-2.0074	-.5937
3.38	6.920	1.2909	1.1499	-.082	-1.6616	1.6745	31.938	-2.0375	-.6256
3.52	7.475	1.4554	1.1202	-.103	-1.6616	1.2783	31.627	-2.0677	-.6575
3.66	7.824	1.5513	1.1202	-.103	-1.6027	1.0954	31.363	-1.9772	-.6575
3.80	8.255	1.7021	1.1202	-.062	-1.6910	.7906	31.815	-1.9772	-.5937
3.94	8.624	1.8391	1.1202	-.082	-1.7205	.6992	31.778	-2.0375	-.6256
4.08	8.994	2.0036	1.1202	-.123	-1.7793	.5163	31.891	-2.2486	-.6575
4.22	9.405	2.1133	1.1202	-.123	-1.7793	.3334	31.391	-2.2185	-.7531
4.36	9.692	2.2640	1.1202	-.082	-1.7793	.2115	31.539	-2.2486	-.6894
4.50	9.856	2.4148	1.1202	-.103	-1.8677	.0286	31.966	-2.4296	-.5300

MESSWERTEDATEI: M00313

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 25. 4.83. 8.19

MESSBEGINN : 11:30; 980.53 UHR MESSDAUER: 57.50 S

AUSGEWERTET VON 3.00 S BIS 7.52 S

ZAHL DER MESSPUNKTE: 225

SHELL 612509

LFD.NR. 6004.1 VOM 31. 1.83 12:59 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTICYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

DISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 299 G  
LY = 69.80 MM PHIY = 90 GRAD RHO = 380 KG/M\*\*3  
LZ = 69.74 MM PHIZ = 0 GRAD SIP = 2.8 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.80 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.30 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 0.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T (S)	SIGX (MPA)	EPSX1 (MM/M)	EPSX2 (MM/M)	SIGY (MPA)	EPSY1 (MM/M)	EPSY2 (MM/M)	SX (MM)	EPSZ1 (MM/M)	EPSZ2 (MM/M)
.02	.083	-.0386	-5.8831	-.123	.5171	2.6804	31.024	-4.5105	-.4025
.08	.063	-.0386	-5.8831	-.144	.5465	2.7414	30.421	-4.4803	-.5300
.14	.042	.0026	-5.8237	-.082	.5759	2.6499	30.119	-4.5105	-.4343
.20	.063	-.0111	-5.8534	-.062	.5759	2.7713	30.534	-4.5708	-.4662
.26	.042	-.0111	-5.8831	-.103	.6348	2.7109	30.308	-4.5406	-.4025
.32	.083	-.0386	-5.8831	-.123	.5465	2.7414	30.571	-4.5105	-.4981
.38	.083	.0026	-5.8237	-.123	.5171	2.6499	30.835	-4.4803	-.4662
.44	.042	-.0386	-5.8831	-.062	.5759	2.7414	30.986	-4.4501	-.3706
.50	.083	.0026	-5.8534	-.082	.5171	2.6804	31.062	-4.5105	-.4025
.56	.042	-.0248	-5.9721	-.144	.5171	2.6804	30.496	-4.5406	-.4343
.62	.083	-.0248	-5.8831	-.103	.5465	2.6499	30.496	-4.5406	-.4981
.68	.083	-.0111	-5.8534	-.082	.5759	2.6499	31.062	-4.5105	-.4025
.74	.042	-.0111	-5.9127	-.144	.5465	2.7713	30.345	-4.5105	-.4343
.80	.042	-.0797	-6.0018	-.164	.4287	2.6804	30.948	-4.5708	-.4662
.86	.001	-.0386	-5.9424	-.164	.4582	2.5890	30.157	-4.6009	-.5300
.92	.083	-.0386	-5.9127	-.144	.5465	2.6804	30.383	-4.5406	-.5619
.98	.042	-.0523	-5.9424	-.144	.5171	2.5890	30.421	-4.5105	-.4343
1.04	.022	-.0660	-5.9721	-.164	.4582	2.6804	31.062	-4.5406	-.4662
1.10	.063	-.0386	-5.9721	-.164	.4876	2.6804	31.062	-4.5105	-.4025
1.16	.042	-.0386	-5.9127	-.123	.5171	2.5804	31.099	-4.5708	-.5300
1.22	.515	-.0523	-5.9721	-.123	.4876	2.5585	30.760	-4.5105	-.4981
1.28	1.070	.0300	-5.9721	-.164	.4582	2.0019	31.062	-4.5105	-.5937
1.34	1.275	.0985	-5.9721	-.144	.4876	-.3067	31.175	-4.5105	-1.0400
1.40	1.378	.1671	-5.9721	-.144	.5171	-.5506	31.173	-4.4803	-1.0719
1.46	1.563	.2356	-5.9127	-.123	.5465	-.6115	31.212	-4.5105	-1.2313
1.52	1.172	.3316	-5.9127	-.144	.5171	-.7639	30.760	-4.5105	-1.1357
1.58	1.624	.3453	-5.9424	-.103	.4582	-.9773	31.250	-4.5105	-1.2632
1.64	1.953	.4001	-5.9424	-.123	.5465	-2.2270	30.760	-4.5406	-1.2950
1.70	2.156	.4686	-5.9721	-.164	.5171	-2.5623	31.212	-4.5406	-1.4544
1.76	2.282	.5646	-5.9127	-.144	.6348	-2.8061	30.911	-4.4803	-1.4544
1.82	1.583	.6331	-5.9721	-.164	.8998	-2.4404	31.363	-4.2994	-1.1038
1.88	1.871	.6742	-5.8831	-.123	.9587	-2.3794	30.722	-4.3898	-1.1675
1.94	2.651	.7154	-5.9721	-.164	.6054	-3.2633	30.609	-5.3676	-1.3269
2.00	2.549	.7428	-5.9424	-.144	-2.1326	-2.8061	31.288	-8.5813	-3.0155
2.06	3.083	.8250	-5.9424	-.123	-4.2818	-4.3911	30.496	-9.8484	-3.2396

MESSWERTEDATEI: M3031B

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 25. 4.83.10.23

MESSBEGINN : 12:59:369.77 UHR

MESSDAUER:

57.74 S

AUSGEWERTET VON

4.00 S

BIS

6.08 S

ZAHL DER MESSPUNKTE: 103

SHELL 612509

LFD.NR. 6005.1 VOM 31. 1.83 13: 8 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 2.1 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 308 G  
LY = 69.81 MM PHIY = 90 GRAD RHO = 905 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 2.1 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 0.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.02	.001	-.0523	1.5060	-.123	1.8125	2.7718	31.137	-5.9580	-.1156
1.44	1.746	.1396	1.5060	-.123	1.7230	2.7718	31.175	-6.2596	-.1474
2.86	8.149	-1.6336	1.5060	-.123	1.3708	1.1259	31.175	-6.2898	-.6575
4.28	7.451	3.1001	1.4467	-.144	-1.9560	-7.0125	31.062	-6.4707	-22195
5.70	5.317	4.5255	1.4763	-.103	-5.9011	-14.9984	31.175	-6.8326	-2.0601
7.12	4.927	5.9372	1.5060	-.103	-8.6391	-21.3994	32.042	-7.2850	-2.1239
8.54	4.475	7.4174	1.5060	-.062	-10.7294	-26.8249	31.363	-8.6119	-2.3151
9.96	4.249	8.8017	1.5357	-.062	-12.9964	-30.8484	31.853	-10.1500	-2.6020
11.38	4.085	10.2134	1.5060	-.062	-15.1161	-34.5975	32.155	-11.5975	-2.9208
12.80	4.126	11.6799	1.5060	-.082	-17.4714	-37.7065	31.315	-12.6832	-3.1758
14.22	4.085	13.1053	1.5060	-.021	-20.2683	-40.7546	32.155	-13.0149	-3.3990
15.64	3.798	14.5992	1.5060	.021	-22.7413	-42.3091	32.419	-13.0753	-3.6540
17.06	3.839	15.9972	1.5060	.021	-25.1261	-43.4979	32.645	-13.0753	-3.9723
18.48	3.921	17.4226	1.4763	0.000	-27.6295	-44.3209	32.456	-13.2562	-4.2916
19.90	3.921	18.8480	1.5060	.041	-30.2782	-44.6257	32.494	-13.3467	-4.5147
21.32	3.716	20.2460	1.4170	.062	-32.6924	-44.4733	32.984	-13.4673	-4.4191
22.74	3.654	21.6851	1.4467	.082	-34.9005	-44.2599	33.248	-13.5578	-4.4628
24.16	3.654	23.1379	1.5060	.062	-37.0791	-43.5588	32.645	-13.7689	-4.5785
25.58	3.572	24.5907	1.5357	.185	-39.1988	-42.3701	33.172	-13.7387	-4.6741
27.00	3.552	26.0161	1.5357	.185	-41.2892	-41.1204	32.871	-13.9197	-4.8335
28.42	3.490	27.4689	1.5654	.144	-43.2617	-39.9926	32.909	-14.1006	-5.1842
29.84	3.511	28.8943	1.5654	.205	-45.3226	-39.1087	32.946	-14.2213	-5.5348
31.26	3.572	30.3060	1.5357	.205	-46.9418	-37.9809	33.625	-14.5530	-5.8536
32.68	3.531	31.7314	1.5357	.205	-48.5905	-36.9140	33.172	-14.8847	-6.1724
34.10	3.470	33.1431	1.4467	.226	-50.3275	-35.8777	33.926	-15.2466	-6.5549
35.52	3.387	34.5685	1.5060	.246	-51.7702	-34.7194	33.587	-15.6990	-7.0331
36.94	3.367	36.0213	1.5060	.308	-53.1539	-33.6221	34.190	-16.1212	-7.4475
38.36	3.244	37.4467	1.5060	.257	-7.2554	-32.9820	34.567	-16.4228	-8.1807
39.78	3.203	38.8584	1.4763	.308	-7.1376	-31.9762	33.925	-15.7545	-8.9777
41.20	3.367	40.2975	1.4467	.267	-7.5792	-31.3361	34.643	-17.0862	-10.3165
42.62	3.326	41.6955	1.4763	.297	-8.2259	-30.6045	34.680	-17.3577	-11.8148
44.04	3.203	43.1346	1.4467	.267	-9.0513	-30.3302	34.718	-17.7497	-12.2930
45.46	3.203	44.6012	1.4763	.328	-9.8167	-30.0254	34.982	-18.0211	-17.1703
46.88	3.162	46.0129	1.4763	.287	-10.4056	-29.7206	34.982	-18.3529	-20.2625
48.30	3.254	47.4246	1.4170	.349	-11.1710	-29.6292	35.095	-18.6544	-20.2306
49.66	1.417	48.8362	1.4467	.349	-12.1720	-29.2634	34.793	-19.0465	-19.7206

MESSWERTEDATEI: M30318

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 25. 4.83.11.24

MESSBEGINN : 13: 8: 689.46 UHR

MESSDAUER:

57.06 S

AUSGEWERTET VON

6.00 S

BIS 55.66 S

ZAHL DER MESSPUNKTE: 2483

SHELL 612509

LFD.NR. 6006.1 VOM 31. 1.83 13:24 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.7 0/00

DATEN DER PROBE:

LX = 69.79 MM PHIX = 90 GRAD M = 305 G  
LY = 69.79 MM PHIY = 90 GRAD RHO = 897 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 1.2 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.79 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.02	-.019	-.0523	3.0491	-.164	-.6606	2.1622	30.750	-5.1136	7.3120
1.48	.063	-.0797	3.0194	-.164	-.6311	2.1013	31.137	-5.1136	7.3120
2.94	8.192	1.4284	3.0491	-.185	-1.3377	1.0954	30.986	-5.9580	7.3120
4.40	8.787	2.8953	3.0788	-.164	-1.3966	1.1868	31.552	-5.9580	7.3120
5.86	7.556	4.3348	3.0491	-.164	-2.1915	.9735	31.665	-5.9580	7.3120
7.32	6.324	5.8703	3.1085	-.123	-3.8991	.1810	31.665	-6.9834	7.3120
8.78	5.174	7.3236	3.0788	-.164	-5.8422	.0591	31.891	-8.9437	7.3120
10.24	4.579	8.7905	3.0194	-.164	-7.5203	-.3372	31.853	-10.8436	7.3120
11.70	4.127	10.2300	3.0194	-.123	-9.0218	-.8858	31.778	-12.8038	7.3120
13.16	3.799	11.7518	3.0788	-.103	-10.1111	-1.4345	31.815	-14.7943	7.3120
14.62	3.737	13.2187	3.0194	-.164	-11.2299	-1.9222	32.343	-16.4831	7.3120
16.08	3.491	14.6582	2.9898	-.144	-12.3781	-2.4404	31.702	-18.1116	7.3120
17.54	3.409	16.1800	3.0491	-.103	-13.4085	-2.8976	32.494	-19.8004	7.3120
19.00	3.255	17.6332	3.0788	-.082	-14.4095	-3.3548	32.419	-21.4591	7.3120
20.46	3.471	19.1550	3.1381	-.082	-15.3516	-3.6596	33.022	-23.0875	7.3120
21.92	3.204	20.5945	3.0788	-.082	-16.5587	-4.0863	32.381	-24.8257	7.3120
23.38	3.101	22.0889	3.1085	-.041	-17.4714	-4.3911	32.532	-26.2240	7.3120
24.84	2.978	23.5147	3.0194	-.041	-18.5313	-4.8483	33.399	-27.6715	7.3120
26.30	3.039	25.0228	3.0491	-.062	-19.6206	-5.3055	32.569	-29.0529	7.3120
27.76	2.998	26.4760	2.9601	-.062	-20.6510	-5.7628	33.399	-30.4461	7.3120
29.22	2.937	27.9704	3.0194	-.062	-21.5931	-6.0066	33.399	-31.9238	7.3120
30.68	2.814	29.4510	3.0194	-.082	-22.4469	-6.2200	33.135	-33.1905	7.3120
32.14	2.773	30.8768	2.9898	-.062	-23.2418	-6.3724	33.813	-34.3968	7.3120
33.60	2.773	32.3438	3.0194	-.021	-24.1839	-6.6467	34.039	-35.6332	6.4513
35.06	2.773	33.8518	3.0491	-.021	-24.9788	-7.1039	33.700	-36.8396	5.1124
36.52	2.814	35.3188	3.0194	0.000	-25.8521	-7.3478	33.323	-37.9252	4.0923
37.98	2.773	36.8268	2.9898	.041	-26.6570	-7.6830	34.256	-39.0411	2.9766
39.44	2.814	38.2938	3.0788	.021	-27.5108	-8.0488	34.454	-40.1569	1.8609
40.90	2.855	39.7607	3.1085	.062	-28.2468	-8.4451	34.530	-41.2727	.8727
42.36	2.814	41.2139	3.1678	.082	-28.9534	-8.8108	34.680	-42.2378	-.1793
43.82	2.834	42.7494	3.1085	.082	-29.8072	-9.2680	34.793	-43.2028	-1.1994
45.28	2.896	44.1889	3.1085	.103	-30.5432	-9.7862	34.906	-44.2282	-2.0920
46.74	2.773	45.6833	3.1381	.185	-31.3087	-10.2739	35.246	-45.2536	-3.0802
48.20	2.732	47.1502	3.1085	.123	-32.0741	-10.6092	35.057	-46.1281	-4.0047
49.66	2.711	48.6172	3.0788	.082	-32.8690	-11.0664	34.944	-47.1233	-4.9291
50.48	1.705	49.5494	3.1381	.123	-33.3401	-11.3102	34.454	-47.6662	-5.5348

MESSWERTEDATEI: M30318

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 25. 4.83.13.18

MESSBEGINN : 13:24:1002.35 UHR MESSDAUER: 56.56 S

AUSGEWERTET VON 4.00 S BIS 54.50 S

ZAHL DER MESSPUNKTE: 2524

SHELL 612509

LFD.NR. 6007.1 VOM 31. 1.83 13:47 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.0 0/00

DATEN DER PROBE:

LX = 59.81 MM PHIX = 90 GRAD M = 291 G  
LY = 69.78 MM PHIY = 90 GRAD RHO = 855 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 3.9 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 0.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.02	.063	.0026	3.7910	-.123	-.6900	2.4975	30.571	-5.2343	-7.0331
1.54	2.937	.4823	3.7316	-.123	-.7195	2.4670	31.552	-5.2644	-7.1287
3.06	6.161	2.0584	3.7613	-.103	-1.4260	2.4975	30.911	-5.5358	-7.0331
4.58	5.463	3.5798	3.7316	-.144	-2.2504	2.5280	31.476	-4.9930	-8.7545
6.10	4.292	5.0874	3.6426	-.144	-3.6930	1.4916	31.099	-3.9676	-11.6873
7.62	3.594	6.6362	3.6723	-.125	-5.2239	-.2458	31.363	-3.2438	-14.7476
9.14	3.081	8.1575	3.7316	-.103	-6.6077	-1.8307	31.891	-2.8518	-17.2022
10.66	2.876	9.7063	3.6723	-.164	-7.9914	-3.3243	31.288	-2.6708	-19.3699
12.18	2.711	11.2139	3.7020	-.144	-9.3751	-4.9093	32.192	-2.5502	-21.5376
13.70	2.568	12.7626	3.7020	-.164	-10.7294	-6.4638	32.494	-2.6105	-23.6734
15.22	2.506	14.2429	3.6723	-.164	-12.0248	-7.9879	31.665	-2.5804	-25.6180
16.74	2.383	15.8053	3.6723	-.164	-13.0552	-9.6948	31.929	-2.7010	-27.5307
18.26	2.342	17.3541	3.6723	-.144	-14.0857	-11.2188	31.740	-2.8516	-29.3477
19.78	2.403	18.8891	3.7316	-.123	-14.9983	-12.7124	32.758	-2.9121	-30.9415
21.30	2.547	20.3968	3.6426	-.144	-15.9405	-14.2669	32.155	-3.0327	-32.9499
22.82	2.260	21.9455	3.7316	-.062	-16.7059	-16.0348	32.494	-3.2137	-34.8945
24.34	2.342	23.4669	3.6723	-.062	-17.4125	-17.4064	32.305	-3.4851	-36.6797
25.86	2.219	25.0019	3.7316	-.062	-17.9130	-18.8390	32.871	-3.6359	-38.3692
27.38	2.301	26.5095	3.7613	-.062	-18.4429	-20.2106	33.248	-3.7264	-40.0259
28.90	2.219	28.0720	3.7613	-.041	-19.0023	-21.5127	32.758	-3.9375	-41.6208
30.42	2.178	29.5796	3.7316	-.021	-19.2967	-22.8929	33.097	-4.0883	-42.8959
31.94	2.157	31.1421	3.7613	0.000	-19.6795	-24.1426	33.135	-4.3295	-44.2666
33.46	2.198	32.6497	3.7613	0.000	-19.9444	-25.4533	33.776	-4.3898	-45.5736
34.98	2.157	34.1848	3.7613	0.000	-20.1800	-26.4896	33.286	-4.5406	-46.9125
36.50	2.116	35.7198	3.7613	.041	-20.3566	-27.7089	33.926	-4.6009	-48.1553
38.02	2.137	37.2275	3.7316	.062	-20.5333	-28.8367	34.039	-4.6009	-49.3990
39.54	2.054	38.7488	3.7020	0.000	-20.7393	-30.0254	33.436	-4.6613	-50.4191
41.06	2.095	40.2701	3.7316	.021	-20.7688	-30.9703	33.926	-4.7517	-51.5986
42.58	2.054	41.7778	3.7020	.021	-20.8571	-32.0676	34.605	-4.7216	-52.7143
44.10	2.034	43.2991	3.7020	.052	-20.8571	-33.0125	34.906	-4.7216	-53.6750
45.62	2.013	44.8616	3.7910	.082	-20.8571	-34.1403	34.039	-4.8422	-54.6908
47.14	2.054	46.3829	3.7613	.082	-20.8571	-35.0547	34.153	-4.9025	-55.6790
48.66	1.972	47.8631	3.6723	.021	-20.8865	-36.1216	34.228	-4.9327	-56.6672
50.18	2.034	49.3845	3.6426	.041	-21.0043	-37.0969	34.379	-5.0533	-57.6235
51.70	1.931	50.9332	3.6426	.062	-20.9454	-37.9809	35.359	-5.0533	-58.4524
52.50	2.260	52.1530	3.7316	.123	-20.8865	-38.4686	35.472	-5.1438	-59.4725

MESSWERTEDATEI: M3031C

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 26. 4.83. 8.30

MESSBEGINN : 13:47: 669.78 UHR MESSDAUER: 56.06 S

AUSGEWERTET VON 3.00 S BIS 55.62 S

ZAHL DER MESSPUNKTE: 2630

SHELL 612509

LFD.NR. 6008.1 VOM 31. 1.83 14: 2 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 2.1 0/00

DATEN DER PROBE:

LX = 69.78 MM PHIX = 90 GRAD M = 309 G  
LY = 69.78 MM PHIY = 90 GRAD RHO = 908 KG/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 2.3 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.78 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM FY/FX = 0.0000  
DT = 53.10 S FZ/FX = 0.0000  
EPSX1 = .1001E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.02	-.060	-.0523	3.7020	-.164	-1.4555	1.3392	30.760	-6.1691	-6.0130
.10	-.060	-.0523	3.6723	-.205	-1.5438	1.4002	31.099	-6.1088	-5.9492
.18	-.060	-.0797	3.5833	-.226	-1.5733	1.3088	30.873	-6.1088	-5.9174
.26	-.040	-.0660	3.6129	-.185	-1.5733	1.4307	31.212	-6.1390	-5.9492
.34	-.040	-.0660	3.6723	-.164	-1.4849	1.4002	31.175	-6.1088	-5.9174
.42	-.019	-.0660	3.6129	-.164	-1.5144	1.3392	30.421	-6.1691	-5.9811
.50	-.060	-.0660	3.6426	-.205	-1.4849	1.3392	31.175	-6.0737	-5.8856
.58	-.101	-.0797	3.6129	-.185	-1.4849	1.2783	30.948	-6.1088	-5.9174
.66	-.019	-.0523	3.6426	-.205	-1.5438	1.3088	30.308	-6.1088	-5.9492
.74	-.060	-.0797	3.6426	-.226	-1.5144	1.3088	31.062	-6.1088	-5.9174
.82	.022	-.0660	3.6723	-.123	-1.4555	1.3088	30.948	-6.1390	-5.9174
.90	-.019	-.0797	3.6426	-.205	-1.5144	1.3088	30.270	-6.0787	-5.8536
.98	-.019	-.0660	3.6426	-.205	-1.5438	1.3088	30.911	-6.1390	-5.8856
1.06	-.081	-.1071	3.6426	-.185	-1.5144	1.3392	30.760	-6.0485	-5.9492
1.14	-.040	-.0797	3.6426	-.164	-1.5144	1.3697	30.873	-6.1088	-5.9174
1.22	-.060	-.0797	3.6129	-.205	-1.5438	1.3088	30.948	-6.1390	-5.9811
1.30	-.040	-.0385	3.6723	-.164	-1.4555	1.4002	30.760	-6.1088	-5.9811
1.38	-.060	-.0797	3.5833	-.205	-1.5144	1.3697	30.571	-6.1088	-6.0130
1.46	-.060	-.0523	3.6723	-.226	-1.4849	1.4002	30.383	-6.1390	-6.0449
1.54	.042	-.0523	3.6129	-.205	-1.4849	1.4002	30.383	-6.1390	-6.0449
1.62	1.130	-.0523	3.7020	-.164	-1.4849	1.4002	30.873	-6.1691	-6.0449
1.70	-.163	.2494	3.6426	-.164	-1.4849	1.4307	31.137	-6.1088	-5.9492
1.78	-.183	.2082	3.7020	-.185	-1.5733	1.3697	30.911	-6.1390	-6.0758
1.86	-.142	.2082	3.6426	-.164	-1.5733	1.4002	30.270	-6.1088	-6.0130
1.94	1.356	.2357	3.7020	-.123	-1.5144	1.3392	30.948	-6.2295	-6.1724
2.02	2.590	.3865	3.6723	-.144	-1.5438	1.3088	30.534	-6.1088	-6.3637
2.10	3.573	.4825	3.6723	-.164	-1.5438	1.3392	30.911	-6.1591	-6.3955
2.18	4.086	.5373	3.6426	-.164	-1.7793	1.3392	30.534	-6.1390	-6.1724
2.26	4.476	.6196	3.6723	-.164	-1.8088	1.3697	30.685	-6.1390	-6.1724
2.34	4.845	.7156	3.5536	-.185	-1.8677	1.3392	31.250	-6.1691	-6.2580
2.42	5.276	.7978	3.6426	-.144	-1.8971	1.3088	30.835	-6.1390	-6.4912
2.50	5.687	.9213	3.6426	-.164	-1.8971	1.3392	31.476	-6.2295	-6.5230
2.58	5.995	.9898	3.6723	-.123	-2.0443	1.2173	30.647	-6.6517	-6.5230
2.66	6.323	1.0721	3.6723	-.185	-1.9560	1.2783	31.665	-6.7723	-6.5549
2.68	6.385	1.0858	3.6723	-.144	-1.9854	1.0954	31.627	-6.7723	-6.5549

MESSWERTEDATEI: M3031C

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 25. 4.83, 9.22

MESSBEGINN : 14: 2:2193.47 UHR MESSDAUER: 57.96 S

AUSGEWERTET VON 4.00 S BIS 6.70 S

ZAHL DER MESSPUNKTE: 134



SHELL 612509

LFD.NR. 6009.1 VOM 31. 1.83 14:41 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.7 0/00

## DATEN DER PROBE:

LX = 69.79 MM PHIX = 90 GRAD M = 301 G  
LY = 69.79 MM PHIY = 90 GRAD RHO = 885 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 3.0 0/00

## TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -19.90 GRAD C

## BASISLAENGEN FUER DEHNUNG:

CX1 = 69.79 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

## VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [ST]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.02	-.142	-.0660	3.8503	-.164	2.4307	4.1435	30.194	-5.5057	-8.7226
.14	-.101	-.0386	3.8207	-.144	2.4307	4.1435	30.647	-5.5358	-8.7226
.26	-.142	-.0660	3.8207	-.123	2.4896	4.1130	30.911	-5.4755	-8.6270
.38	-.122	-.0523	3.9097	-.123	2.4896	4.1740	31.212	-5.5660	-8.7545
.50	-.081	-.0660	3.7910	-.164	2.4307	4.1435	31.175	-5.4454	-8.6270
.62	-.163	-.0660	3.8800	-.123	2.5190	4.2654	30.760	-5.5057	-8.6270
.74	-.040	-.0386	3.8800	-.144	2.4307	4.1740	30.647	-5.5358	-8.7226
.86	.453	.0985	3.8503	-.103	2.3718	4.1740	30.835	-5.5358	-8.5908
.98	1.212	.2768	3.7910	-.144	2.4307	4.2044	31.175	-5.5057	-8.3401
1.10	1.664	.4002	3.8800	-.164	2.4602	4.2044	31.250	-6.0787	-8.3082
1.22	1.993	.4824	3.8800	-.103	2.4602	4.2349	31.363	-6.0797	-8.2763
1.34	2.588	.5784	3.8503	-.205	2.3718	4.1130	30.383	-6.1088	-8.1486
1.46	3.245	.7429	3.9097	-.144	2.4013	4.1130	31.288	-6.1993	-8.0213
1.58	3.758	.8526	3.8800	-.144	2.4307	4.1130	31.250	-6.1088	-8.0213
1.70	4.189	.9622	3.8800	-.144	2.4307	4.1740	31.238	-6.2295	-7.9576
1.82	4.620	1.0445	3.8503	-.123	2.3718	4.1130	30.835	-6.1691	-7.9257
1.94	5.236	1.1953	3.8503	-.103	2.4602	4.1740	31.438	-6.1390	-7.8938
2.06	5.770	1.3598	3.8207	-.144	2.4307	4.2044	31.438	-6.0787	-7.7982
2.18	6.119	1.4832	3.7613	-.123	2.3718	4.1435	31.627	-6.1088	-7.8300
2.30	6.509	1.6203	3.8800	-.123	2.4307	4.1740	31.099	-6.0485	-7.8938
2.42	6.858	1.7300	3.8503	-.144	2.4602	4.1130	30.986	-5.9882	-7.9619
2.54	7.186	1.8534	3.8800	-.164	2.4307	4.1435	31.702	-5.9882	-7.8619
2.66	7.515	1.9356	3.8207	-.185	2.3718	4.0215	31.514	-5.9580	-7.7025
2.78	7.905	2.1002	3.8800	-.144	2.4307	4.0520	30.986	-6.0184	-7.8619
2.90	8.172	2.2098	3.8503	-.164	2.4013	4.0215	31.815	-6.0184	-7.8938
3.02	8.438	2.3058	3.8503	-.144	2.4307	4.1130	31.062	-5.9882	-7.7344
3.14	8.603	2.4292	3.8207	-.185	2.3424	3.9606	31.627	-5.9279	-7.6383
3.26	8.849	2.5800	3.8503	-.164	2.4013	3.7777	31.891	-6.0485	-7.6707
3.38	8.993	2.6760	3.8207	-.205	2.3718	3.6863	31.250	-5.9882	-7.7025
3.50	9.136	2.8542	3.8503	-.082	2.4307	3.6253	31.627	-5.9279	-7.6069
3.62	9.218	2.9639	3.8800	-.123	2.4307	3.6558	31.929	-6.0787	-7.6069
3.74	9.280	3.0735	3.8800	-.164	2.4602	3.4424	31.514	-6.0787	-7.4156
3.86	9.321	3.2106	3.8800	-.144	2.4602	3.2291	31.137	-6.1691	-7.5750
3.98	9.362	3.3066	3.8503	-.123	2.4307	2.9547	31.891	-6.1691	-7.4794
4.02	9.383	3.3340	3.8503	-.154	2.4013	3.0766	31.552	-6.2295	-7.4475

MESSWERTEDATEI: M3031C

MESSUNG/AUSWERTUNG VOM 31. 1.83 / 25. 4.83.10.13

MESSBEGINN : 14:41:1257.00 UHR MESSDAUER: 56.66 S

AUSGEWERTET VON 4.00 S BIS 6.04 S

ZAHL DER MESSPUNKTE: 201

SHELL 612509

LFD.NR. 6011.1 VOM 1. 2.83 7:29 UH

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = .6 0/00

DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 298 G  
LY = 69.81 MM PHIY = 90 GRAD RHO = 876 KG/M\*\*3  
LZ = 69.76 MM PHIZ = 0 GRAD SIP = 0.0 0/00

TEMPERATUREN:

TL = -20.00 GRAD C  
TP = -20.00 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 69.81 MM CX2 = 32.00 MM  
CY1 = 32.20 MM CY2 = 33.70 MM  
CZ1 = 31.70 MM CZ2 = 32.80 MM

VERSUCHSVORGABEWERTE:

U1 = 3.7100 MM  
DT = 53.10 S  
EPSX1 = .1001E-02 1/S

FY/FX = 0.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SX [MM]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.02	.001	.0437	-1.7879	-.021	-2.1915	5.8199	31.212	-11.3261	-2.2514
1.54	4.088	.7016	-1.7582	-.021	-1.8677	5.6675	30.685	-11.6277	-2.4745
3.06	7.024	2.2366	-1.9066	-.123	-2.6626	5.7589	31.627	-12.4419	-2.8571
4.58	5.935	3.7991	-1.7582	0.000	-5.5183	5.0579	31.175	-14.9752	-3.7497
6.10	4.765	5.2793	-1.8473	-.103	-9.5812	3.7167	31.212	-17.5989	-4.2916
7.62	4.047	6.8143	-1.8769	-.082	-13.0552	2.8023	31.325	-20.3433	-4.8335
9.14	3.800	8.3905	-1.7582	-.041	-16.2938	1.8259	31.401	-22.9972	-5.3754
10.66	3.348	9.8707	-1.7879	0.000	-19.3262	1.1868	31.778	-25.5606	-6.8217
12.18	3.256	11.3784	-1.8176	-.062	-22.5647	.1200	32.155	-28.1240	-8.3955
13.70	3.164	12.9956	-1.7879	-.021	-25.6854	-1.0078	31.702	-30.8080	-7.0650
15.22	3.040	14.4348	-1.8769	-.082	-28.9534	-1.9832	32.117	-33.3111	-7.4156
16.74	3.841	15.7916	-1.8473	-.062	-32.4863	-3.5072	32.419	-36.3570	-7.9576
18.26	2.835	17.2444	-1.9660	-.103	-35.4598	-6.1227	32.097	-39.4633	-8.4357
19.78	3.328	19.7389	-1.8176	-.062	-38.1390	-6.4638	32.796	-42.6298	-9.0733
21.30	2.281	20.6161	-1.8176	-.062	-40.3470	-7.4087	32.305	-45.4948	-9.4558
22.82	3.020	23.3572	-1.7879	-.021	-42.4374	-8.3536	33.210	-47.9979	-9.8702
24.34	2.732	23.5628	-1.8473	-.021	-44.2921	-9.2375	32.532	-49.9582	-10.1890
25.86	2.178	25.0430	-1.8769	0.000	-47.4718	-11.0969	33.323	-53.1247	-10.6034
27.38	2.383	26.7288	-1.9660	-.062	-49.3854	-12.3466	32.909	-54.9643	-11.1135
28.90	2.363	28.2228	-1.7879	.021	-51.0636	-13.1696	33.549	-56.4421	-11.2729
30.42	2.363	29.7578	-1.8769	-.021	-52.9478	-14.2974	33.286	-58.2214	-11.7829
31.94	2.506	31.3066	-1.8176	0.000	-54.6259	-15.2727	33.172	-60.0308	-12.2611
33.46	2.445	32.8142	-1.8769	-.021	-56.4218	-16.1567	33.059	-61.6594	-12.4842
34.98	2.363	34.3081	-1.9660	-.041	-58.0116	-16.9187	33.512	-63.3784	-12.8349
36.50	2.424	35.8569	-1.9066	-.021	-59.7781	-17.9246	33.813	-65.1577	-13.4725
38.02	2.445	37.4467	-1.7879	.062	-61.4562	-18.8695	33.851	-66.7560	-13.8550
39.54	2.383	38.9270	-1.9066	-.041	-63.2227	-19.7229	34.341	-68.3242	-14.1738
41.06	2.404	40.5158	-1.7582	.062	-64.6653	-20.4240	34.303	-70.0432	-14.7476
42.58	2.938	42.1752	-1.7879	.082	-67.1384	-22.7100	33.926	-72.2749	-15.1939
44.10	2.465	43.2306	-1.9363	.041	-68.6398	-23.8073	34.906	-73.8732	-15.5445
45.62	3.328	45.0946	-1.8769	-.021	-71.8784	-26.2458	34.906	-76.4970	-16.2777
47.14	1.890	46.6022	-1.7582	.062	-72.7321	-27.0688	34.756	-78.0953	-17.0747
48.66	2.260	48.1547	-1.7879	.062	-73.9098	-27.8003	34.492	-79.5429	-17.5528
50.18	2.157	49.6449	-1.7879	.082	-75.2935	-28.8976	35.472	-80.9905	-18.0948
51.70	2.281	51.1525	-1.8176	.103	-76.5595	-29.6901	35.434	-82.3777	-18.6048
52.50	1.274	51.9063	-1.8473	.041	-78.0315	-30.7874	35.510	-83.4332	-19.0511

MESSWERTEDATEI: M3032

MESSUNG/AUSWERTUNG VOM 1. 2.83 / 26. 4.83.11.49

MESSBEGINN : 7:29: 776.23 UHR MESSDAUER: 56.92 S

AUSGEWERTET VON 4.00 S BIS 56.52 S

ZAHL DER MESSPUNKTE: 2625

SHELL 612509

LFD.NR. 1001.1 VOM 9.11.82 10:14 UHR

UNIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI 03E = 1.2 0/00

DATEN DER PROBE:

LX = 69.38 MM PHIX = 90 GRAD M = 300 G  
LY = 69.59 MM PHY = 90 GRAD PHO = 891 KG/MM<sup>3</sup>  
LZ = 69.72 MM PHIZ = 0 GRAD OIP = 5.2 0/00

TEMPERATUREN:

TL = -5.30 GRAD C  
TP = 5.40 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 42.60 MM CX2 = 32.00 MM  
CY1 = 32.00 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 1.9000 MM FY/FX = 1.0000  
DT = 4451.00 S FZ/FX = 0.0000  
EPSX1 = .1002E-04 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
25	.062	0.0000	-.6837	.072	1.5889	-.0297	0.000	0.0000	-3.6356
35.50	.073	-.0220	-.7134	.072	1.5301	-.1129	-.010	0.0000	-3.6651
70.75	.124	0.0300	-.6742	.124	1.5899	-.0992	0.000	0.0000	-3.6651
106.00	.402	.2861	-.5945	.403	1.5595	-.1486	0.000	0.0000	-3.6947
141.25	.505	.6823	-.5945	.516	1.6478	-.0892	.010	.0286	-3.6947
176.50	.600	1.0565	-.5351	.620	1.6772	-.0892	.010	.0286	-3.7243
211.75	.701	1.3566	-.5053	.713	1.6470	-.0892	.021	.0572	-3.7538
247.00	.773	1.7167	-.5945	.775	1.5889	-.1783	.010	0.0000	-4.0198
282.25	.866	2.0469	-.5649	.868	1.5595	-.2378	.010	0.0000	-4.2563
317.50	.948	2.3990	-.5053	.950	1.5889	-.2378	.010	-.0286	-4.5223
352.75	1.031	2.7732	-.4756	1.033	1.5889	-.2378	.010	-.0286	-4.8770
388.00	1.134	3.1694	-.3567	1.147	1.6772	-.0892	.021	-1.1155	-5.3204
423.25	1.135	3.4855	-.3567	1.167	1.5595	1.0105	.010	-1.7447	-5.5115
458.50	1.257	2.8076	-.2972	1.240	1.5595	2.1102	.010	-2.3740	-6.5914
493.75	1.309	4.0277	-.1784	1.335	1.6772	3.3887	.021	-3.0605	-7.3303
529.00	1.371	4.3138	-.0595	1.395	1.7067	4.6662	.021	-3.7755	-8.1692
564.25	1.422	4.6880	-.0595	1.456	1.6772	6.0431	.031	-4.6908	-8.0950
599.50	1.453	4.9741	.0297	1.446	1.6478	7.6680	.021	-5.7491	-9.6653
634.75	1.453	5.2823	.1486	1.457	1.6772	9.0055	.031	-6.8360	-10.4338
670.00	1.494	5.6784	.2972	1.488	1.7361	9.7485	.021	-8.0887	-11.2615
705.25	1.515	6.0526	.4756	1.508	1.7949	10.1646	.031	-9.0956	-12.0891
740.50	1.546	6.4488	.6937	1.549	1.8832	10.3727	.052	-10.2397	-13.9054
775.75	1.608	6.7349	.9215	1.611	2.0303	10.8185	.041	-11.4982	-14.0990
811.00	1.639	7.3071	1.0701	1.632	2.0303	11.6507	.031	-12.8139	-15.3700
846.25	1.659	7.3731	1.2782	1.663	3.6407	12.5726	.052	-14.0724	-16.7001
881.50	1.659	7.9234	1.3674	1.653	5.6202	13.2556	.041	-15.4453	-18.2075
916.75	1.700	8.3414	1.5457	1.725	7.6779	14.4444	.041	-16.7896	-19.6558
952.00	1.731	8.5396	1.6349	1.725	9.8279	15.7224	.052	-18.2769	-21.5180
987.25	1.793	9.0459	1.8430	1.797	12.0937	17.2382	.041	-19.9359	-23.7939
1022.50	1.806	9.3980	2.1402	1.880	14.4771	19.0215	.041	-21.8006	-26.3950
1057.75	1.896	9.7722	2.3780	1.890	17.1254	20.7750	.062	-23.8544	-28.0403
1093.00	1.937	10.1463	2.7347	1.932	19.7736	22.5583	.052	-25.9710	-31.1833
1128.25	1.959	10.4765	3.2103	1.952	22.3336	24.5793	.062	-29.1734	-33.5775
1163.50	1.979	10.8726	3.5967	1.983	24.6581	26.6895	.062	-30.3758	-35.5283
1198.75	2.020	11.2248	4.0129	2.014	26.8062	29.0375	.072	-32.4637	-37.4200
1234.00	1.979	11.5109	4.4290	1.994	28.5717	31.1477	.072	-34.2657	-39.1048

MESSWERTEDATEI: M2313

MESSUNG/AUSWERTUNG VOM 9.11.82 / 14. 2.83.14.54

MESSBEGINN : 10:14:1377.00 UHR MESSDAUER: 1267.25 S

AUSGEWERTET VON .75 S BIS 1231.50 S

ZAHL DER MESSPUNKTE: 4923

SHELL 612509

LFD.NR. 2001.1 VOM 9.11.82 13:17 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.91 REI SIE = 1.2 0/00

## DATEN DER PROBE:

LX = 69.80 MM PHIX = 90 GRAD M = 275 G  
LY = 69.71 MM PHIY = 90 GRAD RHO = 809 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 0.0 0/00

## TEMPERATUREN:

TL = -5.10 GRAD C  
TP = -5.30 GRAD C

## BASISLAENGEN FUER DEHNUNG:

CX1 = 42.60 MM CX2 = 32.00 MM  
CY1 = 32.00 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 33.10 MM

## VERSUCHSVORGABEWERTE:

U1 = 1.9000 MM FY/FX = .5000  
DT = 4451 S FZ/FX = 0.0000  
EPSX1 = .1002E-04 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.25	.227	-.4622	-1.0107	.123	.0294	-.1486	.051	-.3718	-.2580
70.50	1.593	-.0220	-1.0107	.810	.1766	-.9808	.031	-.4004	-.1433
140.75	1.994	.9684	0.0000	1.015	.1766	-1.6347	.051	-.4004	-.2907
211.00	2.148	1.5186	.8917	1.067	-.4708	-1.8130	.051	-.6865	-.6306
291.25	2.271	2.2009	1.9321	1.149	-1.4418	-1.6941	.051	-1.1155	-.9459
351.50	2.302	3.1473	2.9130	1.169	-2.6482	-1.6941	.051	-1.7733	-1.2899
421.75	2.312	3.7956	4.0723	1.149	-3.9429	-1.7238	.041	-2.4026	-1.6912
492.00	2.302	4.3799	5.3802	1.159	-5.0611	-1.6941	.051	-3.0319	-2.2072
562.25	2.240	5.3043	6.4503	1.138	-6.2381	-1.6941	.051	-3.6325	-2.8378
632.50	2.209	5.9205	7.5501	1.108	-7.2974	-1.6644	.062	-4.1750	-3.4398
702.75	2.137	6.5148	8.7094	1.097	-8.2978	-1.6941	.051	-4.6822	-4.0704
773.00	2.096	7.3731	9.7795	1.056	-9.2100	-1.7238	.062	-5.1484	-4.6863
843.25	2.035	7.9454	10.7307	1.026	-10.1516	-1.7833	.062	-5.6061	-5.1023
913.50	1.983	8.7157	11.6819	.995	-10.7990	-1.8724	.072	-5.9493	-5.4463
983.75	1.952	9.3100	12.6034	.964	-11.5640	-2.1102	.051	-6.2639	-5.8476
1054.00	1.932	10.1023	13.5546	.964	-12.1525	-2.2291	.062	-6.4069	-6.1629
1124.25	1.891	10.6966	14.3274	.933	-12.8587	-2.5263	.051	-6.6072	-6.4495
1194.50	1.881	11.2688	15.1895	.923	-13.4767	-2.7343	.062	-6.7216	-6.6789
1264.75	1.881	12.1052	16.0812	.954	-14.0357	-2.8235	.072	-6.8074	-6.9509
1335.00	1.850	12.8975	16.8541	.933	-14.6536	-3.1504	.072	-6.9218	-6.9368
1405.25	1.809	13.5138	17.5378	.913	-15.3304	-3.5071	.062	-7.0362	-6.9655
1475.50	1.798	14.3281	18.2809	.903	-15.8012	-3.8043	.062	-7.0934	-6.9368
1545.75	1.809	15.0984	18.9646	.923	-16.3897	-4.0718	.062	-7.1506	-6.9082
1616.00	1.798	15.5826	19.5293	.882	-16.9782	-4.4284	.051	-7.2650	-6.8509
1686.25	1.778	16.4190	20.0941	.862	-17.5373	-4.8148	.041	-7.3508	-6.7649
1756.50	1.778	17.1673	20.6589	.882	-18.0375	-5.1715	.041	-7.4652	-6.2202
1826.75	1.788	17.7396	21.1345	.872	-18.5672	-5.4390	.072	-7.5510	-5.4749
1897.00	1.809	18.6199	21.6101	.923	-19.0674	-5.7659	.072	-7.6082	-4.6723
1967.25	1.809	19.3242	22.0262	.903	-19.5676	-6.1225	.072	-7.7227	-3.6691
2037.50	1.798	20.0946	22.2343	.903	-20.1561	-6.5684	.062	-7.8943	-2.6371
2107.75	1.768	20.7769	22.2938	.903	-20.7740	-6.9845	.062	-8.0373	-1.4046
2178.00	1.726	21.4812	22.2938	.872	-21.2449	-7.4005	.082	-8.1231	-.2580
2248.25	1.716	22.1635	22.2046	.872	-21.7156	-7.9058	.072	-8.2375	.8026
2318.50	1.685	22.8678	22.1749	.872	-22.1865	-8.3219	.062	-8.3233	1.7772
2388.75	1.685	23.5500	21.9073	.862	-22.6572	-8.7380	.072	-8.4377	2.6085
2457.75	1.675	24.2323	21.3425	.841	-23.0692	-9.1838	.062	-8.5235	3.3824

MESSWERTEDATEI: M2313A

MESSUNG/AUSWERTUNG VOM 9.11.82 / 18. 2.83.14. 7

MESSBEGINN : 13:17: 0.00 UHR

MESSDAUER: 2520.00 S

AUSGEWERTET VON 62.50 S BIS 2520.25 S

ZAHL DER MESSPUNKTE: 9831

SHELL 612509

LFD.NR. 3002.1 VOM 10.11.82 15: 8 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 BEI SIE = 1.2 0/00

## DATEN DER PROBE:

LX = 69.63 MM PHIX = 90 GRAD M = 307 G  
LY = 69.63 MM PHIY = 90 GRAD RHO = 906 KG/M\*\*3  
LZ = 69.82 MM PHIZ = 0 GRAD SIP = 0.0 0/00

## TEMPERATUREN:

TL = -19.90 GRAD C  
TP = -19.90 GRAD C

## BASISLAENGEN FUER DEHNUNG:

CX1 = 42.60 MM CX2 = 32.00 MM  
CY1 = 32.00 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

## VERSUCHSVORGABEWERTE:

U1 = 1.9000 MM  
DT = 44.50 S  
EPSX1 = .1002E-02 1/S

FY/FX = 1.0000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.360	0.0000	-.8584	.319	.7918	-2.4766	.002	-.0570	-2.0378
.05	.350	.0217	-.8880	.370	.7918	-2.4766	.002	0.0000	-2.0673
.09	.360	0.0000	-.8880	.319	.7918	-2.5061	.002	-.0285	-2.0378
.13	.350	0.0000	-.8880	.380	.7918	-2.5061	.002	-.0285	-2.0673
.17	.350	.0217	-.8880	.319	.7918	-2.4766	.001	-.0570	-2.0673
.21	.350	0.0000	-.8880	.360	.7625	-2.4766	.001	0.0000	-2.0673
.25	.412	.0217	-.8584	.339	.7918	-2.5061	.001	-.0570	-2.0673
.29	.596	.0217	-.8880	.545	.7918	-2.4766	.002	0.0000	-2.0378
.33	.781	.1517	-.5920	.689	.7918	-2.4471	.001	-.0285	-1.9767
.37	.966	.1950	-.5328	.730	.7918	-2.4471	.001	0.0000	-1.6538
.41	.987	.1734	-.4440	.863	.7918	-2.4766	.002	-.0285	-1.6834
.45	1.141	.1734	-.3848	1.069	.7918	-2.4471	.003	0.0000	-1.6834
.49	1.346	.1950	-.2960	1.264	.7625	-2.4766	.002	-.0570	-1.7129
.53	1.531	.2167	-.2072	1.459	.7918	-2.4471	.003	0.0000	-1.7129
.57	1.767	.2917	-.2072	1.706	1.3489	-2.1228	.002	-.0570	-1.7424
.61	2.014	.3034	-.1776	1.953	1.3783	-1.8870	.002	-.0570	-1.8606
.65	2.209	.3251	-.0592	2.200	1.3783	-1.7101	.003	-.5701	-2.0968
.69	2.476	.3901	-.0296	2.395	1.4076	-1.7101	.002	-.6556	-2.2445
.73	2.764	.3901	0.0000	2.713	1.4076	-1.7101	.003	-.7692	-2.3626
.77	3.051	.4551	.0888	2.950	1.4076	-1.7395	.003	-1.2828	-2.5398
.81	3.349	.4551	.2072	3.289	1.4076	-2.2113	.004	-1.5963	-2.7465
.85	3.616	.4768	1.7168	3.525	1.4369	-3.4791	.005	-2.1094	-2.9533
.89	4.007	.4768	.5328	3.895	1.4076	-3.7739	.008	-2.1665	-4.4299
.93	2.723	.8885	.2960	3.577	1.3489	-5.1596	.010	-3.3352	-5.7589
.97	3.123	.6285	.2960	2.909	1.3196	-5.1007	.010	-3.3352	-5.7293
1.01	3.760	.6718	.4440	3.515	1.3783	-5.1007	.010	-3.3352	-5.7293
1.05	4.387	.6718	.5328	4.163	1.3196	-5.1007	.009	-3.7343	-5.7293
1.06	4.551	.7152	.7104	4.276	1.3196	-5.1302	.009	-3.9908	-5.8475

MESSWERTEDATEI: M2314

MESSUNG/AUSWERTUNG VOM 10.11.82 / 16. 2.83.12.51

MESSREGINN : 15: 8:3014.48 UHR

MESSDAUER:

12.01 S

AUSGEWERTET VON 3.50 S BIS 4.56 S

ZAHL DER MESSPUNKTE: 106

SHELL 612509

LFD.NR. 3003.1 VOM 11.11.82 15:23 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

EISPROBENENTNAHME 4.81 REI SIE = 1.2 0/00

DATEN DER PROBE:

LX = 69.79 MM PHIX = 90 GRAD M = 262 G  
LY = 69.83 MM PHIY = 90 GRAD RHO = 770 KG/M\*\*3  
LZ = 69.80 MM PHIZ = 0 GRAD SIP = 0.0 0/00

TEMPERATUREN:

TL = -19.90 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 42.60 MM CX2 = 32.00 MM  
CY1 = 32.00 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 1.9000 MM FY/FX = 1.0000  
DT = 44.50 S FZ/FX = 0.0000  
EPSX1 = .1002E-02 1/S

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.083	-.0433	-3.3744	.062	-.5865	-1.6216	.002	1.9384	.9746
.05	.042	-.0650	-3.3744	.021	-.5865	-1.5921	.002	1.9954	.9155
.09	.063	-.0867	-3.4040	.062	-.5279	-1.6511	.002	1.9954	.9155
.13	.063	-.0217	-3.4040	.041	-.5572	-1.6511	.002	1.9384	.8269
.17	.063	-.0433	-3.4040	.041	-.5865	-1.6216	.003	1.9669	.8860
.21	.083	-.0433	-3.3744	.041	-.5572	-1.6806	.005	1.9669	.8860
.25	.145	-.0650	-3.3744	.062	-.6158	-1.6511	.003	1.9669	.9450
.29	.370	-.0217	-3.3448	.185	-.6158	-1.6511	.003	1.9954	.9746
.33	.575	-.0433	-3.3152	.390	-.5865	-1.6511	.002	1.9899	.9746
.37	.821	.0217	-3.3744	.636	-.6158	-1.6511	.001	1.9669	.8860
.41	1.046	.0433	-3.3744	.944	-.5572	-1.6806	.002	1.9669	.9155
.45	1.333	.1300	-3.3152	1.190	-.6452	-1.6216	.003	1.9954	.8860
.49	1.579	.1950	-3.3152	1.539	-.5865	-1.6806	.002	2.0909	.9155
.53	1.845	.1517	-3.3152	1.785	-.6158	-1.6216	.002	2.0809	.9155
.57	2.194	.2384	-3.3448	1.990	-.5865	-1.7395	.003	1.9954	.9155
.61	2.378	.2917	-3.4040	2.277	-.6745	-1.4152	.002	2.0524	.7088
.65	2.583	.3467	-3.4336	2.462	-.5865	-1.0909	.004	1.0832	.6202
.69	2.726	.3901	-3.4632	2.605	-.5865	-.9730	.003	1.1687	.6497
.73	3.034	.3467	-3.4336	2.893	-.5865	-.9845	.004	1.0262	.6202
.77	3.300	.4334	-3.4632	3.159	-.5572	-.7961	.002	1.0547	.5316
.81	3.444	.4551	-3.4928	3.447	-.6158	-.6192	.003	1.0262	.4725
.85	3.894	.5418	-3.6112	3.672	-.6158	-.5602	.004	1.0547	.4430
.89	4.017	.4768	-3.5520	3.877	-.6452	-.4717	.003	.9977	.3544
.93	4.222	.5418	-3.6704	4.185	-.5865	-.3833	.004	1.0547	.2658
.97	4.448	.5851	-3.6704	4.370	-.7038	-.3243	.003	1.0547	.0295
1.01	4.673	.6285	-3.7888	4.657	-.6745	-.1769	.003	1.0547	-.3544
1.05	4.837	.6718	-3.8184	4.842	-.9091	-.0885	.004	.9692	-.7088
1.09	5.021	.7152	-3.7888	4.965	-.9384	0.0000	.006	.7982	-1.0336
1.13	5.165	.7368	-3.7888	5.190	-1.1144	.1474	.004	.5131	-1.5357
1.14	5.493	.8235	-3.5816	5.416	-.9091	.4717	.005	.5701	-1.5652

MESSWERTEDATEI: M2315C

MESSUNG/AUSWERTUNG VOM 11.11.82 / 18. 2.83. 9.40

MESSBEGINN : 15:23:3061.41 UHR

MESSDAUER: 9.10 S

AUSGEWERTET VON 2.50 S BIS 3.64 S

ZAHL DER MESSPUNKTE: 114

SHELL 612507

LFD.NR. 4801.1 VOM 12.11.82 10:30 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR ICEBERGS REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981

PROBENENTNAHME 4.01 3CT DIE = 1.2 0/00

DATEN DER PROBE:

LK = 69.77 MM PHIX = 70 GRAD  
LY = 69.79 MM PH1Y = 70 GRAD  
LZ = 69.77 MM PH1Z = 0 GRAD

M = 305 G  
RHO = 990 KG/M\*\*3  
SIP = 1.2 0/00

TEMPERATUREN:

TL = -19.70 GRAD C  
TP = -19.90 GRAD C

BASISLAENGEN FUER DEHNUNG:

CX1 = 42.00 MM CX2 = 32.00 MM  
CY1 = 32.00 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

VERSUCHSVORGABEWERTE:

U1 = 1.2000 MM  
DT = 44.50 S  
EPSX1 = 1.000E-02 1/0

FY/FX = 1.5000  
FZ/FX = 3.0000

	SI0X	EPSX1	EPSX2	SI0Y	EPSY1	EPSY2	SI0Z	EPSZ1	EPSZ2
LOG	(MPA)	(MM/M)	(MM/M)	(MPA)	(MM/M)	(MM/M)	(MPA)	(MM/M)	(MM/M)
0.01	0.114	-1.0217	-1.7168	0.051	0.2053	-1.0275	-1.001	0.0037	0.0000
0.02	0.155	0.0867	1.5480	0.072	0.3812	-1.1474	-1.002	1.0032	0.0091
0.03	0.197	-0.0433	-1.7168	0.062	0.2053	-1.0375	-1.002	0.7407	0.0000
0.04	0.238	0.0650	1.5084	0.164	0.3312	-1.1474	-1.002	1.0032	0.1181
0.05	0.280	0.0217	-1.7168	0.340	0.2053	-1.0375	-1.002	0.4937	-1.1205
0.06	0.321	1.1412	-1.7168	0.580	0.3312	0.0399	0.000	1.0032	0.1101
0.07	0.362	0.1817	-1.4090	0.863	0.1753	-1.1474	-1.002	0.7407	0.0000
0.08	0.403	0.2230	-0.9174	1.203	0.3012	-0.0205	0.001	1.0032	0.1101
0.09	0.444	0.2647	-0.9477	1.509	0.3832	-1.1772	-1.001	0.9407	0.0000
0.10	0.485	0.3070	-0.4812	1.807	0.5512	0.0000	-1.001	1.0032	0.1101
0.11	0.526	0.3500	-0.0000	2.174	0.7404	-1.1769	-1.001	0.9407	0.0000
0.12	0.567	0.3930	-0.4844	2.455	0.8112	0.0000	-1.001	0.0007	0.1101
0.13	0.608	0.4370	-0.0250	2.667	0.8753	-0.6330	-1.002	0.1101	-1.1205
0.14	0.649	0.4810	-0.4874	3.047	0.9104	-1.0242	0.000	1.0032	-1.1205
0.15	0.690	0.5260	-0.0000	3.405	0.9344	-1.0343	-1.001	0.4900	-1.1205
0.16	0.731	0.5710	0.1736	3.734	0.9572	-1.0375	0.000	1.0032	-1.1205
0.17	0.772	0.6170	0.4144	4.070	0.9799	-1.0331	-1.002	0.0007	-1.1205
0.18	0.813	0.6630	0.6302	4.310	0.9745	-1.0330	-1.002	1.0032	-1.1205
0.19	0.854	0.7100	0.7104	4.494	0.9777	-1.0354	0.001	0.1101	-1.1205
0.20	0.895	0.7570	1.1340	4.742	0.9584	-1.0805	-1.002	0.9407	-1.1205
0.21	0.936	0.8040	1.1544	4.740	0.6452	-1.0500	-1.001	0.9407	-1.0500
0.22	0.977	0.8510	1.2708	5.245	0.9677	-1.0005	-1.002	1.0032	-1.0500
0.23	1.018	0.8980	1.3912	5.430	0.6745	-1.0530	-1.001	0.4900	-1.1205
0.24	1.059	0.9450	1.5072	5.707	0.9304	-1.1177	-1.002	1.0032	-1.1205
0.25	1.100	0.9920	1.5701	5.982	0.7403	-1.0243	-1.002	0.1101	-1.1205
0.26	1.141	1.0390	1.9832	6.170	1.0264	-1.1474	0.001	1.0032	-1.1205
0.27	1.182	1.0860	1.9040	6.357	0.7218	-1.0530	-1.002	0.9407	-1.1205
0.28	1.223	1.1330	2.2196	6.511	1.0450	-1.2044	-1.001	0.9407	-1.1205
0.29	1.264	1.1800	2.1310	6.765	0.5444	-1.0578	-1.002	0.4900	-1.1205
0.30	1.305	1.2270	2.4064	7.134	1.1437	-1.1474	-1.002	0.0000	-1.1205
0.31	1.346	1.2740	2.3270	7.378	0.7304	-1.4120	-1.001	-1.1713	-1.1205
0.32	1.387	1.3210	2.5160	7.442	0.9677	-1.4423	-1.002	-1.2000	-1.1205

MESSWERTEDATEI: K2015

MESSUNG/AUSWERTUNG VOM 11.11.82 / 16. 0.03 16.21

MESSBEGINN: 10:30:1330.38 UHR

MESSDAUER: 10.14 S

AUSGEWERTET VON 4.00 S BIS 6.23 S

ZAHL DER MESSPUNKTE: 313

SHELL 612509

LFD.NR. 4003.1 VOM 11.11.92 13:58 UHR

BIAXIAL COMPRESSIVE STRENGTH TESTS WITH ICE  
FROM MULTIYEAR RIDGES REINDEER ISLAND PRUDHOE BAY  
3-15 APRIL 1981 .

EISPROBENENTNAHME 4.81 REI SIE = 1.2 0/00

## DATEN DER PROBE:

LX = 69.81 MM PHIX = 90 GRAD M = 308 G  
LY = 69.77 MM PHIY = 90 GRAD RHO = 906 KG/M\*\*3  
LZ = 69.77 MM PHIZ = 0 GRAD SIP = 3.4 0/00

## TEMPERATUREN:

TL = -19.90 GRAD C  
TP = -19.90 GRAD C

## BASISLAENGEN FUER DEHNUNG:

CX1 = 42.50 MM CX2 = 32.00 MM  
CY1 = 32.00 MM CY2 = 33.70 MM  
CZ1 = 33.20 MM CZ2 = 32.10 MM

## VERSUCHSVORGABEWERTE:

U1 = 1.9000 MM  
DT = 44.50 S  
EPSX1 = .1002E-02 1/S

FY/FX = .5000  
FZ/FX = 0.0000

T [S]	SIGX [MPA]	EPSX1 [MM/M]	EPSX2 [MM/M]	SIGY [MPA]	EPSY1 [MM/M]	EPSY2 [MM/M]	SIGZ [MPA]	EPSZ1 [MM/M]	EPSZ2 [MM/M]
.01	.227	0.0000	0.0000	.103	-.9384	.9435	.002	2.1380	2.6284
.10	.124	0.0000	0.0000	.082	-1.0557	.9140	.001	2.0524	2.5989
.19	.206	.0217	.0296	.103	-.9677	.9435	.005	2.0809	2.6284
.28	.145	0.0000	-.0296	.072	-.9970	.9140	.002	2.0524	2.5693
.37	.186	.0433	.0296	.082	-.9091	.8845	.003	2.0809	2.6284
.46	.227	0.0000	-.0296	.082	-.9970	.8845	.003	2.0809	2.5693
.55	.822	.0650	0.0000	.308	-.5279	.9435	.003	2.0809	2.6284
.64	1.437	.1300	0.0000	.646	-.4985	.9730	.001	1.9669	2.5989
.73	1.745	.3251	.2072	.982	-.3226	.8845	.003	1.9669	2.5693
.82	2.484	.3251	.3852	1.190	-.3519	.8550	.002	1.9099	2.5398
.91	3.284	.4334	.5328	1.600	-.2639	.8550	.005	1.9814	2.5989
1.00	3.982	.4994	.5624	1.929	-.2933	.8255	.002	1.9099	2.5989
1.09	4.556	.6068	.6808	2.247	-.2053	.8550	.003	1.9384	2.5989
1.18	5.233	.6935	.7400	2.565	-.2639	.7961	.004	1.8814	2.5398
1.27	5.951	.7585	.9176	2.924	-.2053	.8255	.006	1.8814	2.5693
1.36	6.546	.8235	.9472	3.232	-.2933	.7666	.002	1.7959	2.5103
1.45	7.162	.9535	1.1248	3.550	-.2346	.8255	.004	1.7674	2.5103
1.54	7.716	.9752	1.1544	3.827	-.2933	.7666	.004	1.6533	2.5398
1.63	8.269	1.1486	1.3616	4.104	-.2346	.7961	.006	1.6248	2.5103
1.72	8.721	1.2136	1.3912	4.340	-.2933	.7666	.004	1.5678	2.0378
1.81	9.172	1.3436	1.5984	4.565	-.2053	.8845	.003	1.5393	1.4766
1.90	9.234	1.4303	1.6872	4.606	-.4399	.7666	.005	1.4823	.9746
1.99	9.542	1.5170	1.8056	4.760	-.3519	.8255	.004	1.4253	.6497
2.08	10.034	1.6037	1.8648	4.986	-.4399	.7666	.003	1.3398	.1772
2.17	10.444	1.7120	1.9240	5.212	-.4399	.8550	.006	1.3398	-.4135
2.26	10.731	1.7337	2.0720	5.355	-.6452	.7961	.006	1.3113	-1.2404
2.35	10.998	1.9071	2.2496	5.489	-.6452	.8845	.006	1.3113	-1.9492
2.44	11.224	1.9504	2.3384	5.581	-.7038	.8255	.007	1.1973	-2.8056
2.53	11.285	2.1021	2.5456	5.663	-.2933	.9140	.010	1.2258	-3.6916
2.62	11.552	2.1238	2.4568	5.766	-.3812	.8845	.008	1.1402	-4.7548
2.71	11.798	2.2538	2.6640	5.878	-.2933	.9730	.009	1.1117	-5.9361
2.80	11.921	2.2755	2.9896	5.960	-.4399	.9140	.006	1.0547	-7.4422
2.85	12.086	2.3839	3.1968	6.012	-.3519	.9140	.011	.9692	-8.2396

MESSWERTEDATEI: M2315R

MESSUNG/AUSWERTUNG VOM 11.11.82 / 18. 2.83. 8.53

MESSBEGINN : 13:58:1035.28 UHR

MESSDAUER: 13.21 S

AUSGEWERTET VON 4.00 S BIS 6.85 S

ZAHL DER MESSPUNKTE: 285



HAMBURGISCHE SCHIFFBAU-VERSUCHSANSTALT GMBH.

Bramfelder Str. 164

2000 Hamburg 60

Report No. E 136/83

Appendix B

Uniaxial and Biaxial Compressive  
Strength Tests on Sea Ice Sampled  
from Multiyear Pressure Ridges

SHELL DEVELOPMENT COMPANY

Appendix B

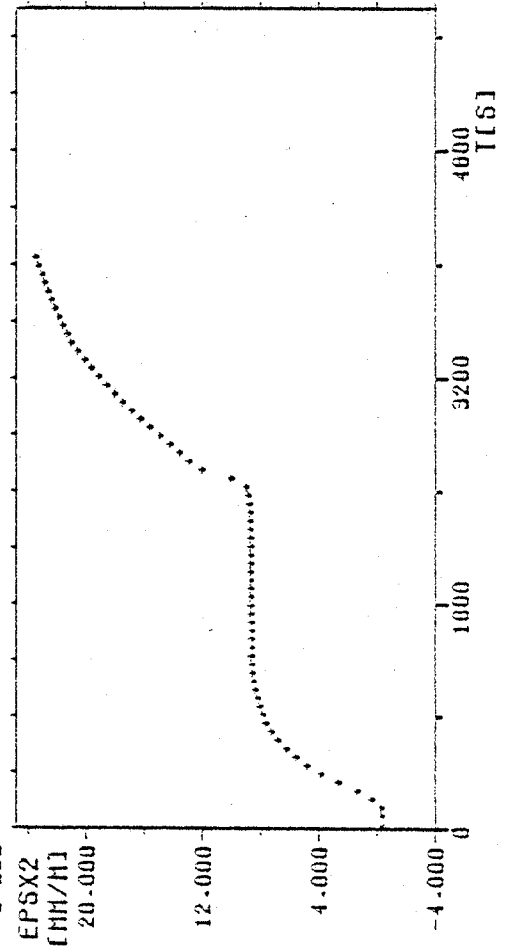
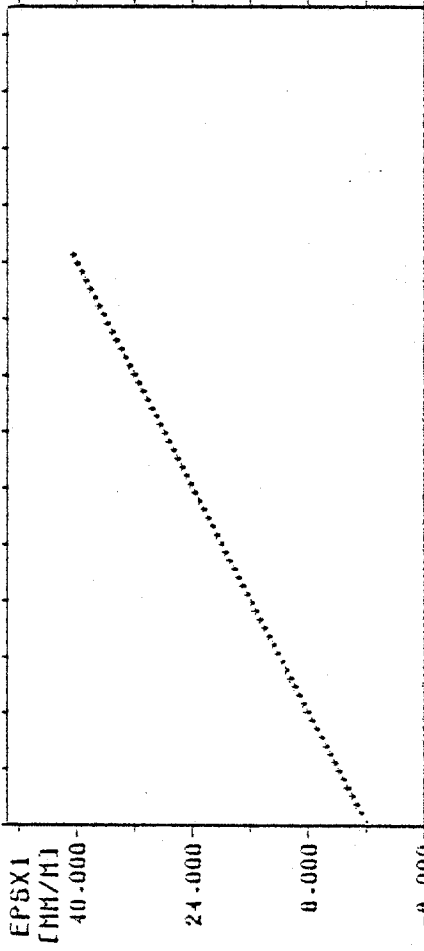
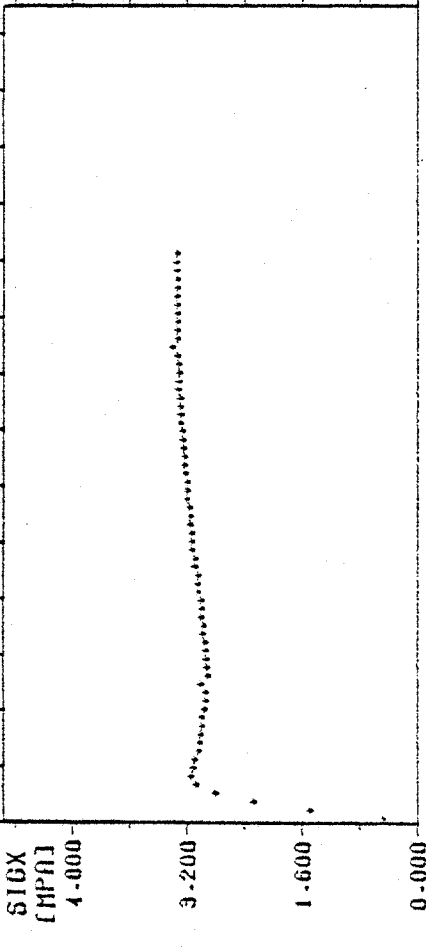
Plots

E 136/83

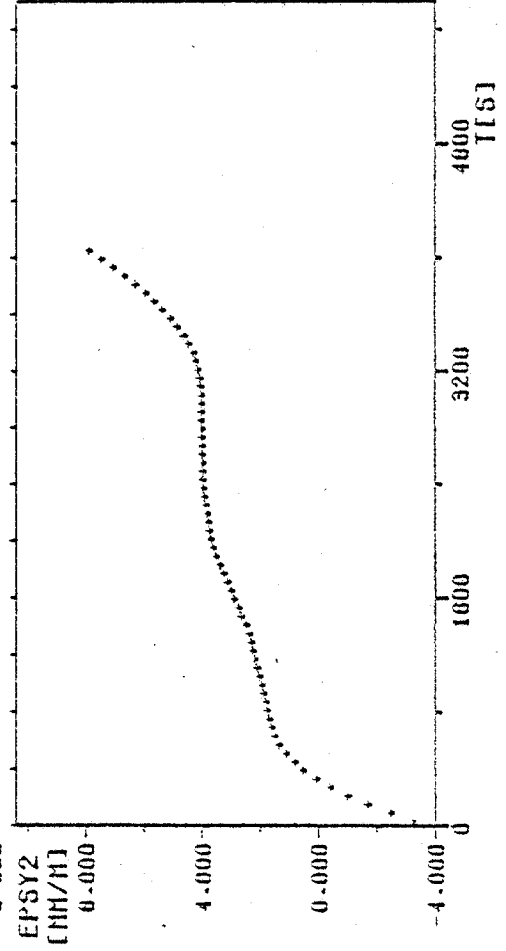
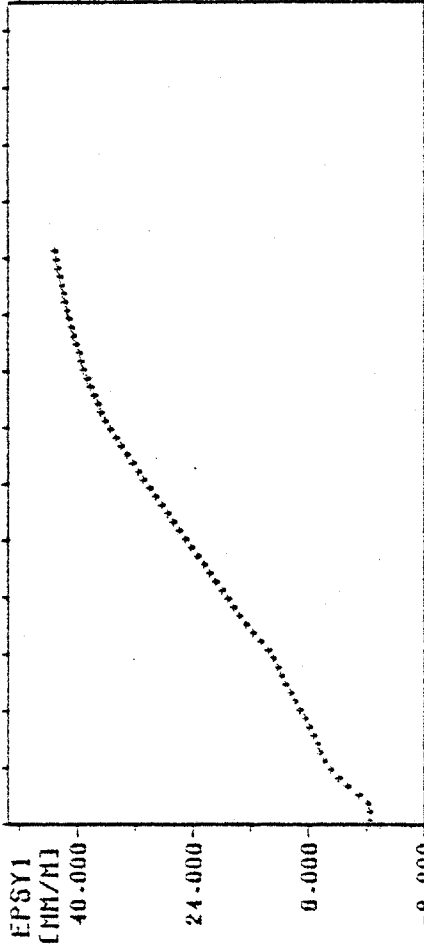
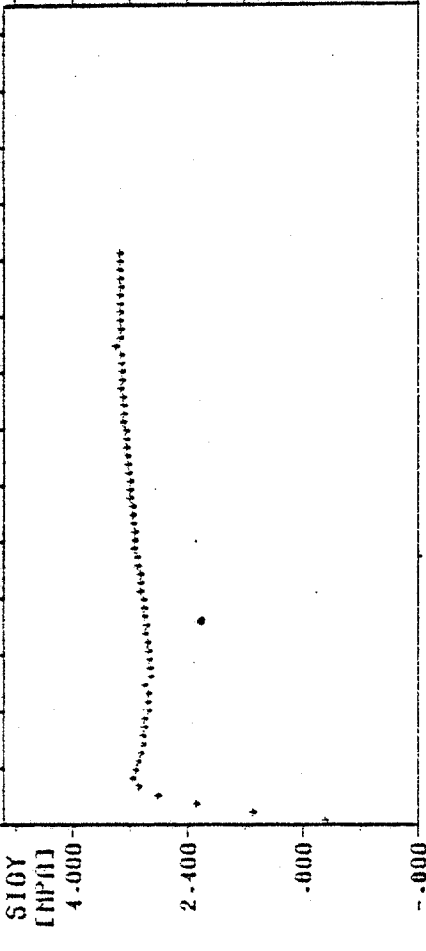
Directory List to the Plots

Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [ $^{\circ}\text{C}$ ]	Strain Rate $\dot{\epsilon}_{\frac{y}{x}}$ [ $\text{s}^{-1}$ ]	Plots Page No.
1002 1005 1006 1007 1008 1009 1010 1011 1012 1015	1:1	- 5	$10^{-5}$	8 3 8 5 8 7 8 9 811 813 815 817 819 821
2002 2004 2005 2006 2010 2011 2012 2013 2014 2015	2:1	- 5	$10^{-5}$	823 825 827 829 831 833 835 837 839 841
3005 3007 3008 3009 3010 3011 3013 3014 3016 3017	1:1	-20	$10^{-3}$	843 845 847 849 851 853 855 857 859 861
4005 4006 4007 4008 4009 4010 4011 4012 4013 4014	2:1	-20	$10^{-3}$	863 865 867 869 871 873 875 877 879 881

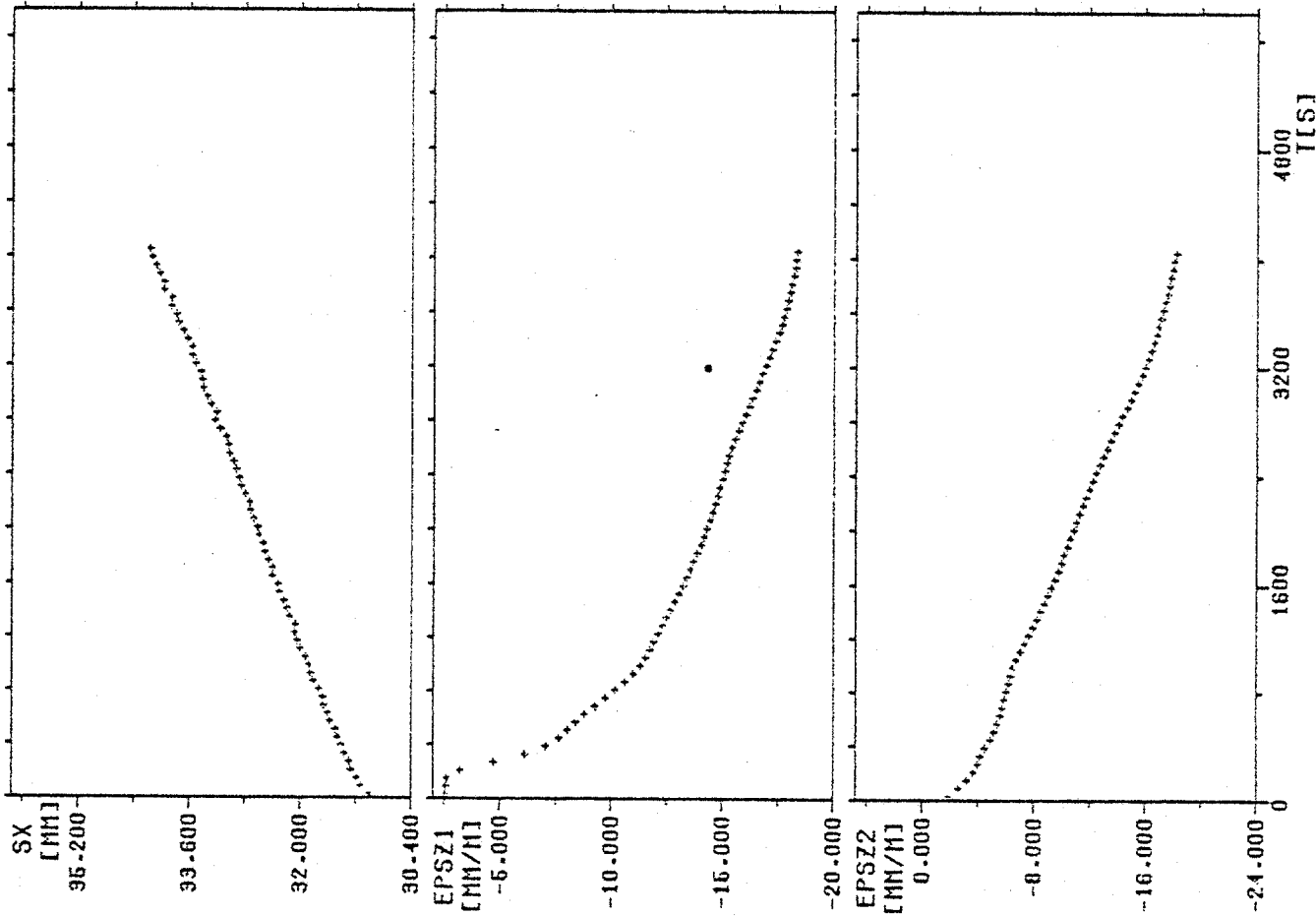
Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [ $^{\circ}\text{C}$ ]	Strain Rate $\dot{\epsilon}_{x1}^y$ [ $\text{s}^{-1}$ ]	Plots Page No.
5001 5004 5005 5007 5008 5009 5010 5011 5012 5013	1:0	- 5	$10^{-5}$	8 83 8 85 8 87 8 89 8 91 8 93 8 95 8 97 8 99 8101
6001 6002 6003 6004 6005 6006 6007 6008 6009 6011	1:0	-20	$10^{-3}$	8103 8105 8107 8109 8111 8113 8115 8117 8119 8121
*1001	1:1	- 5	$10^{-5}$	8123
*2001	2:1	- 5	$10^{-5}$	8125
*3002 *3003	1:1	-20	$10^{-3}$	8127 8129
*4001 *4003	2:1	-20	$10^{-3}$	8131 8133



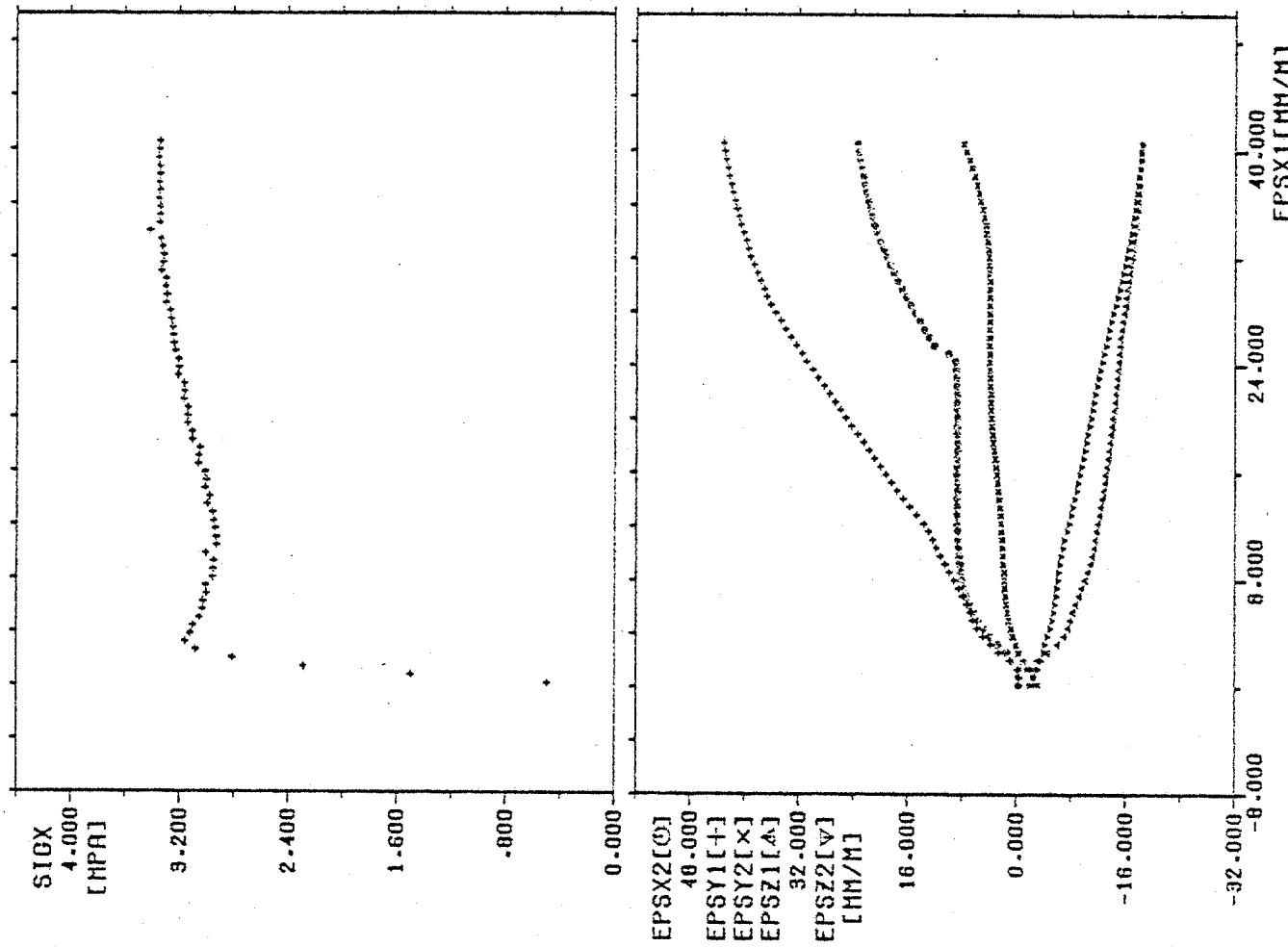
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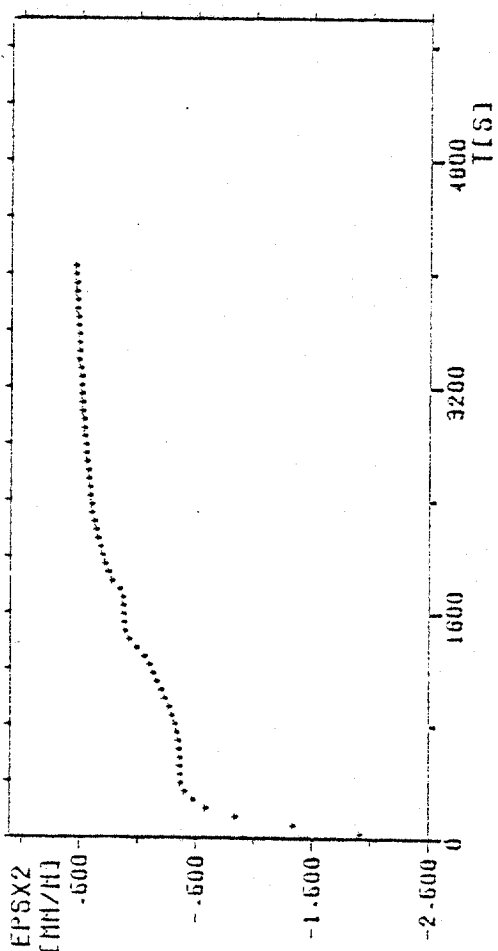
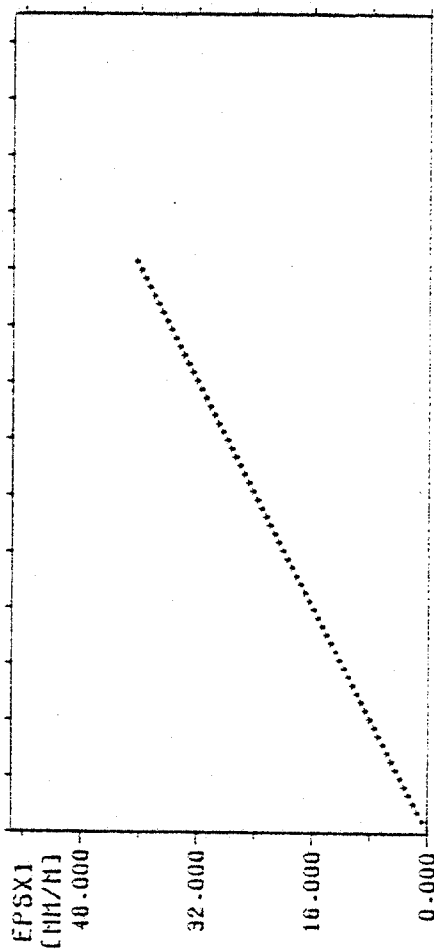
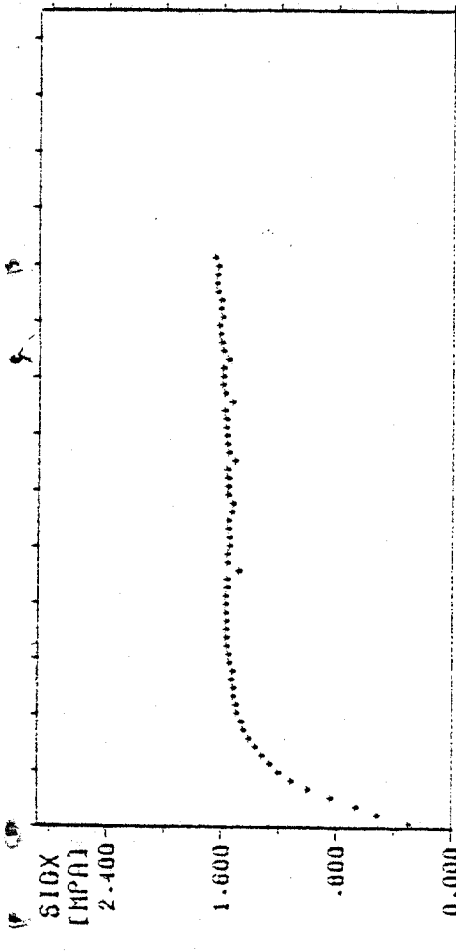
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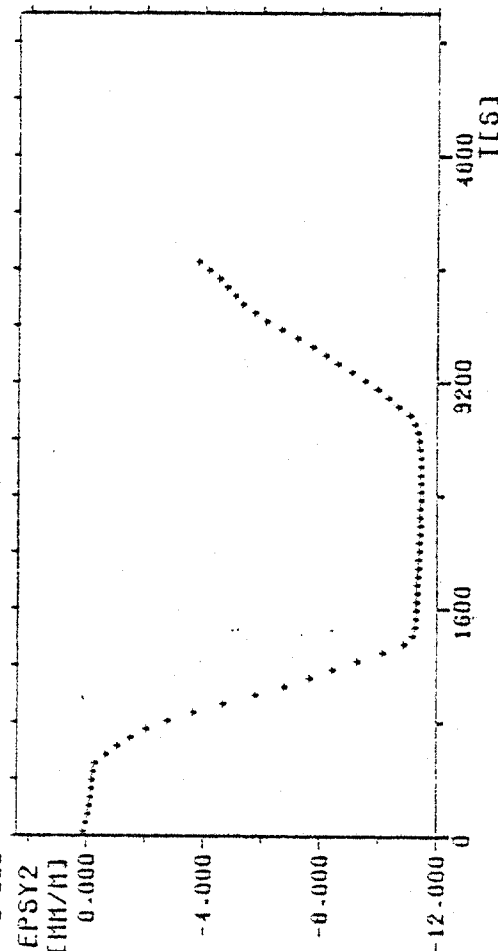
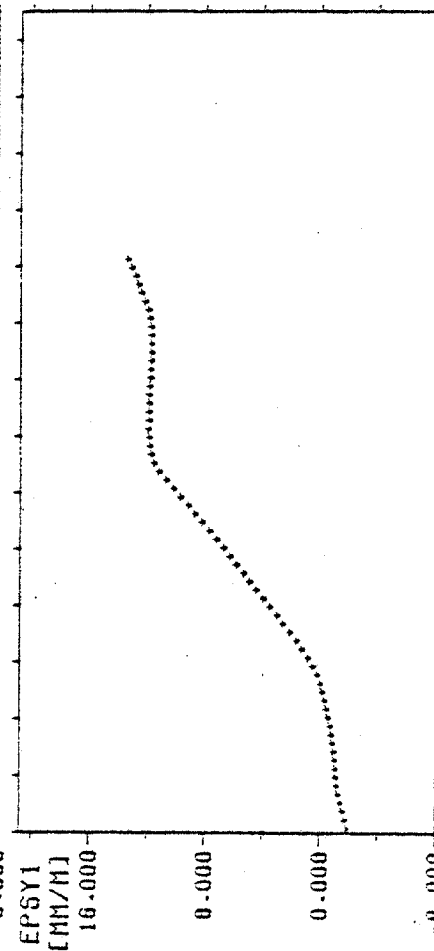
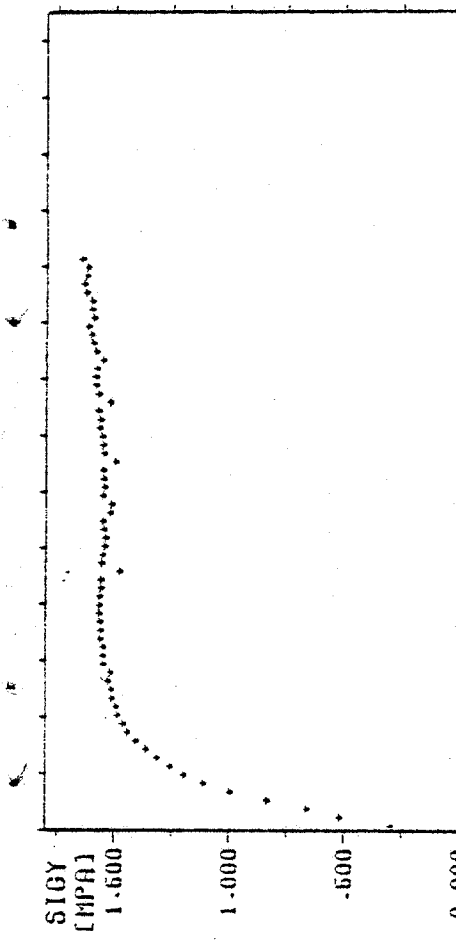
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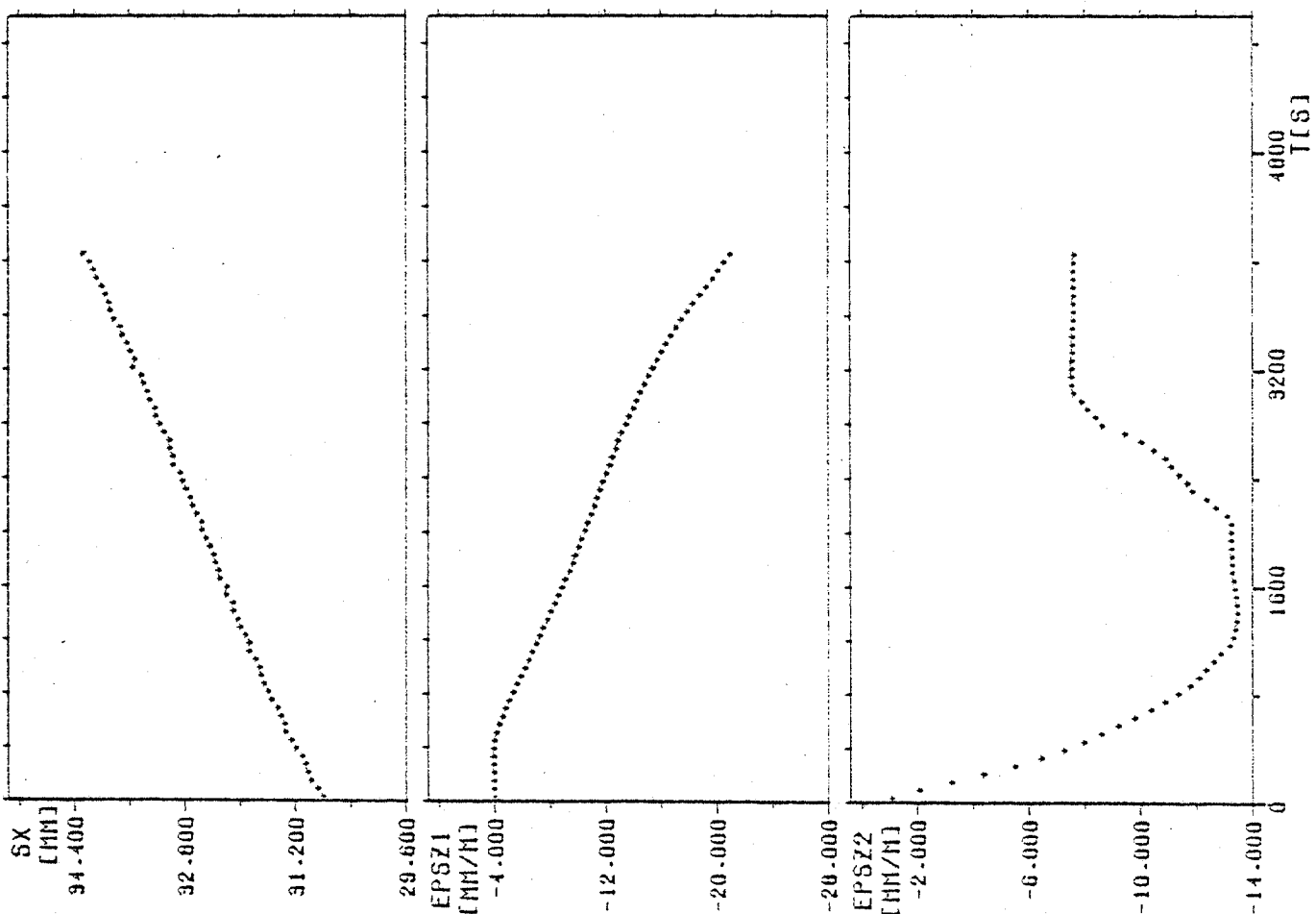


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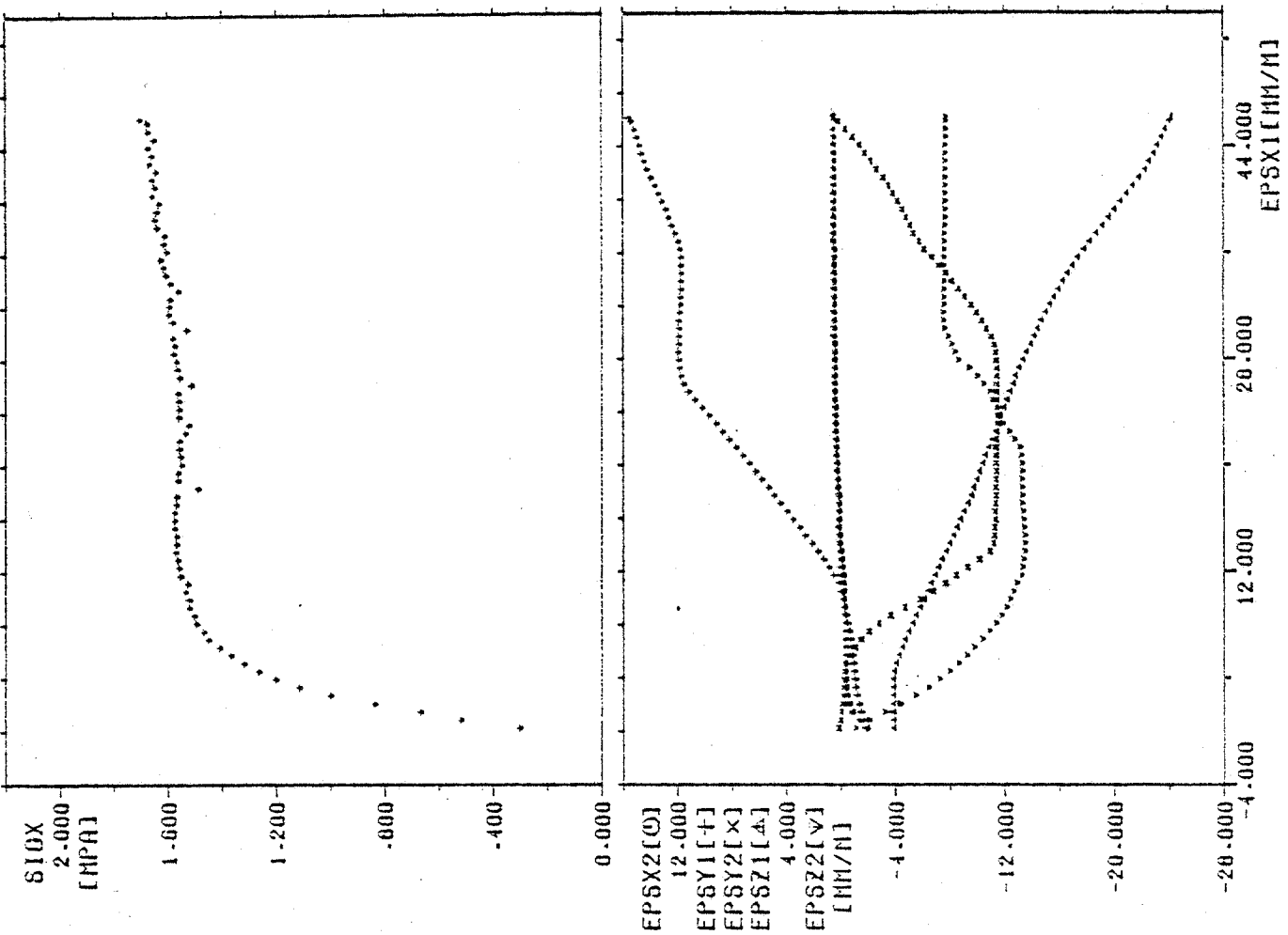
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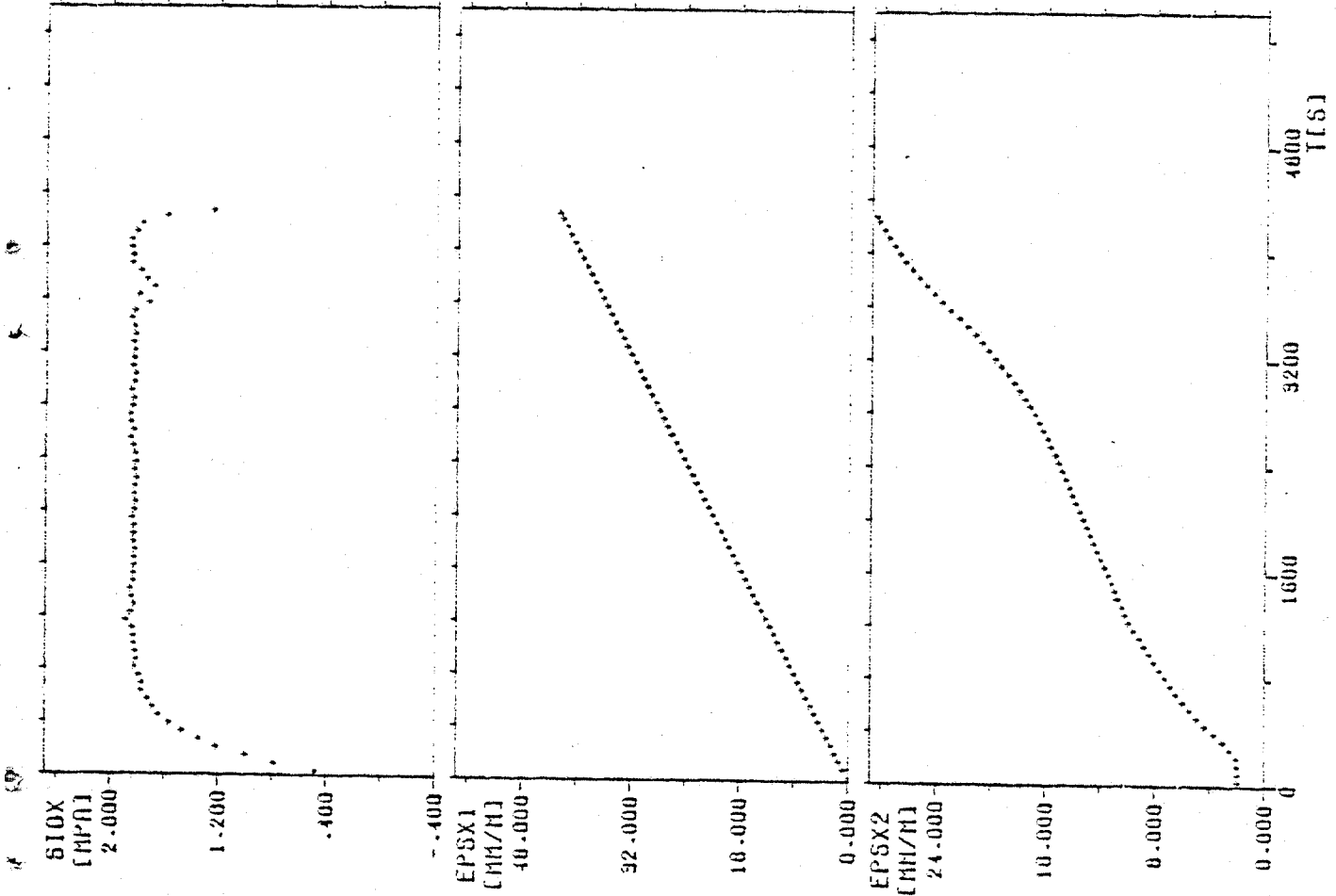
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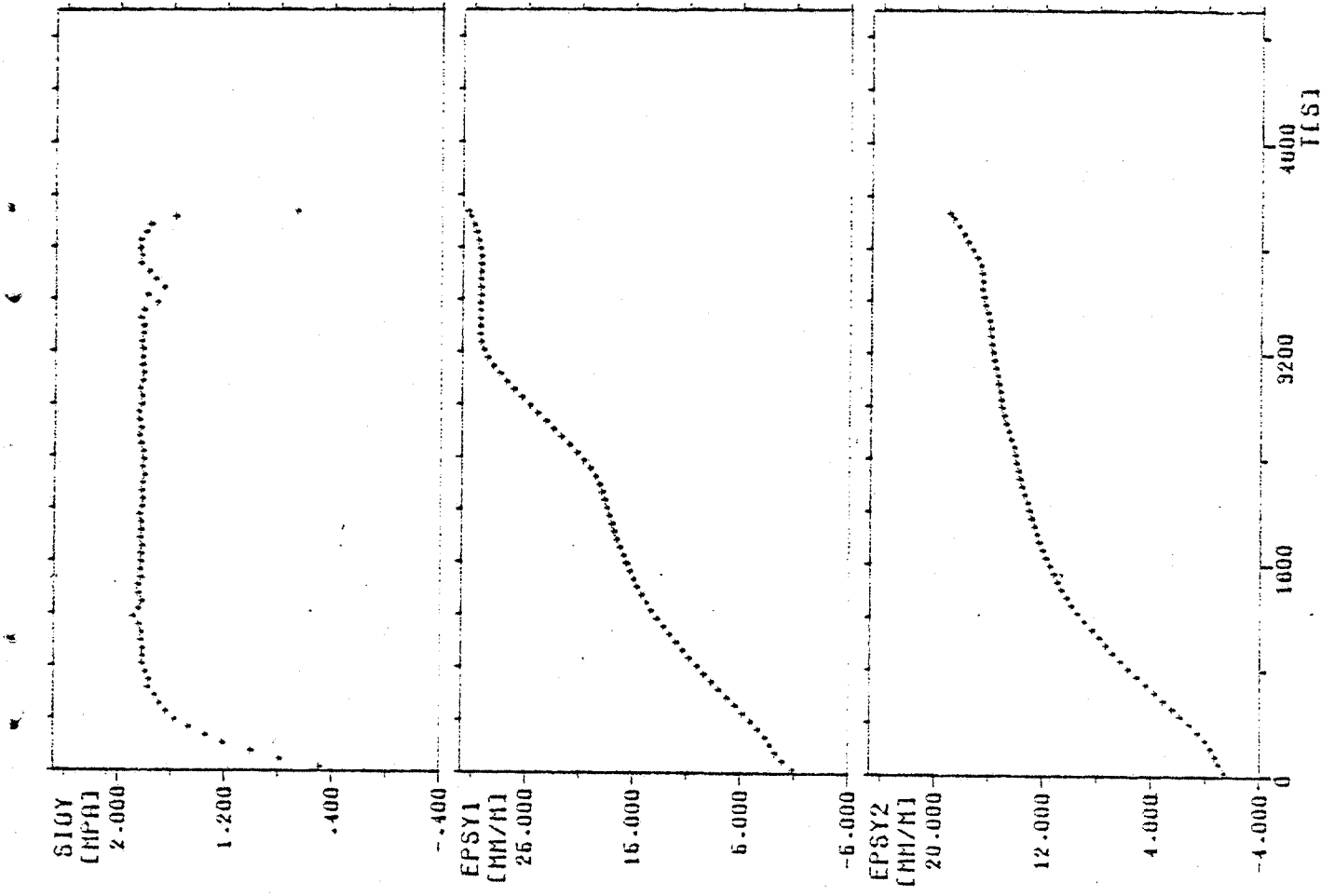


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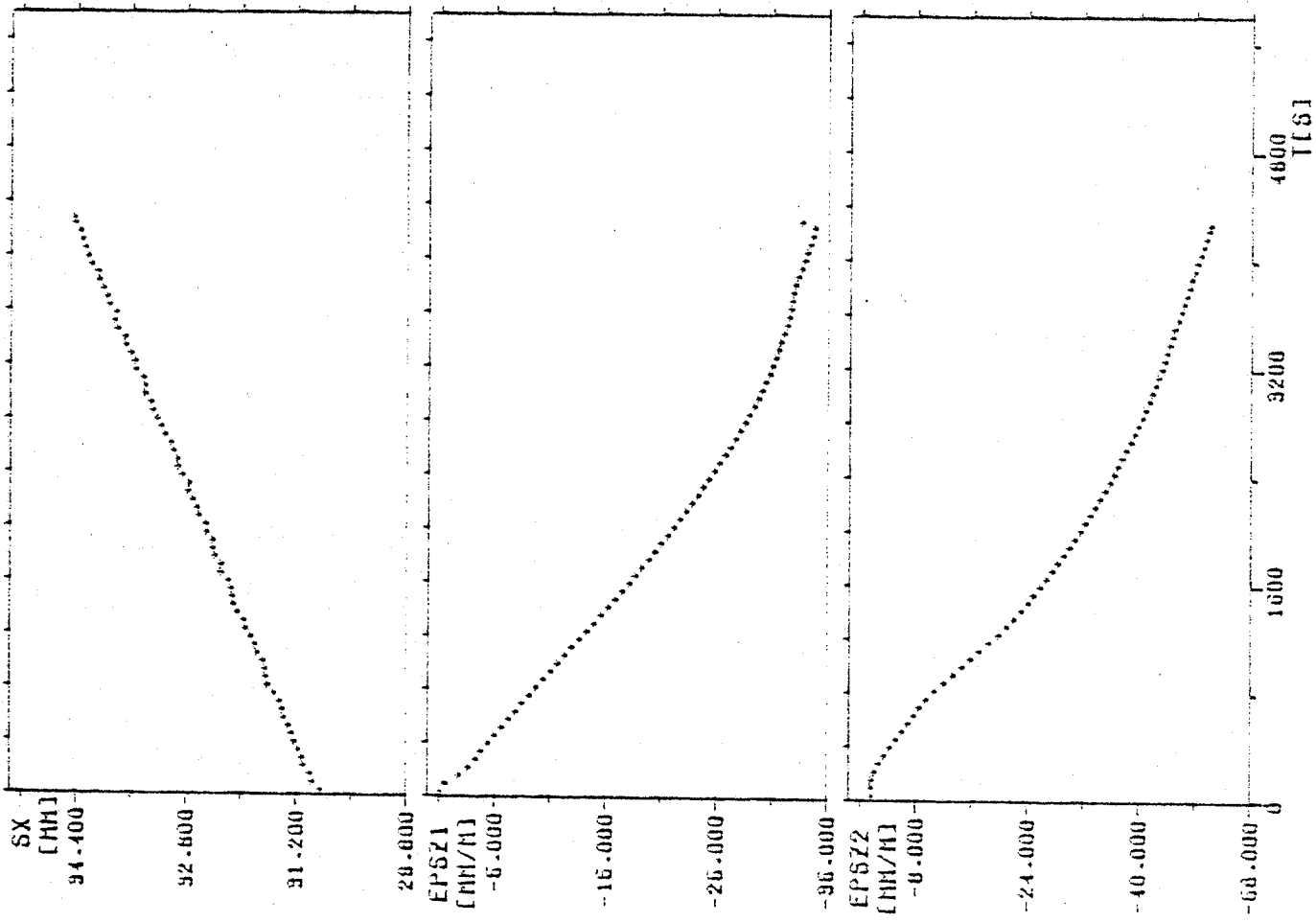


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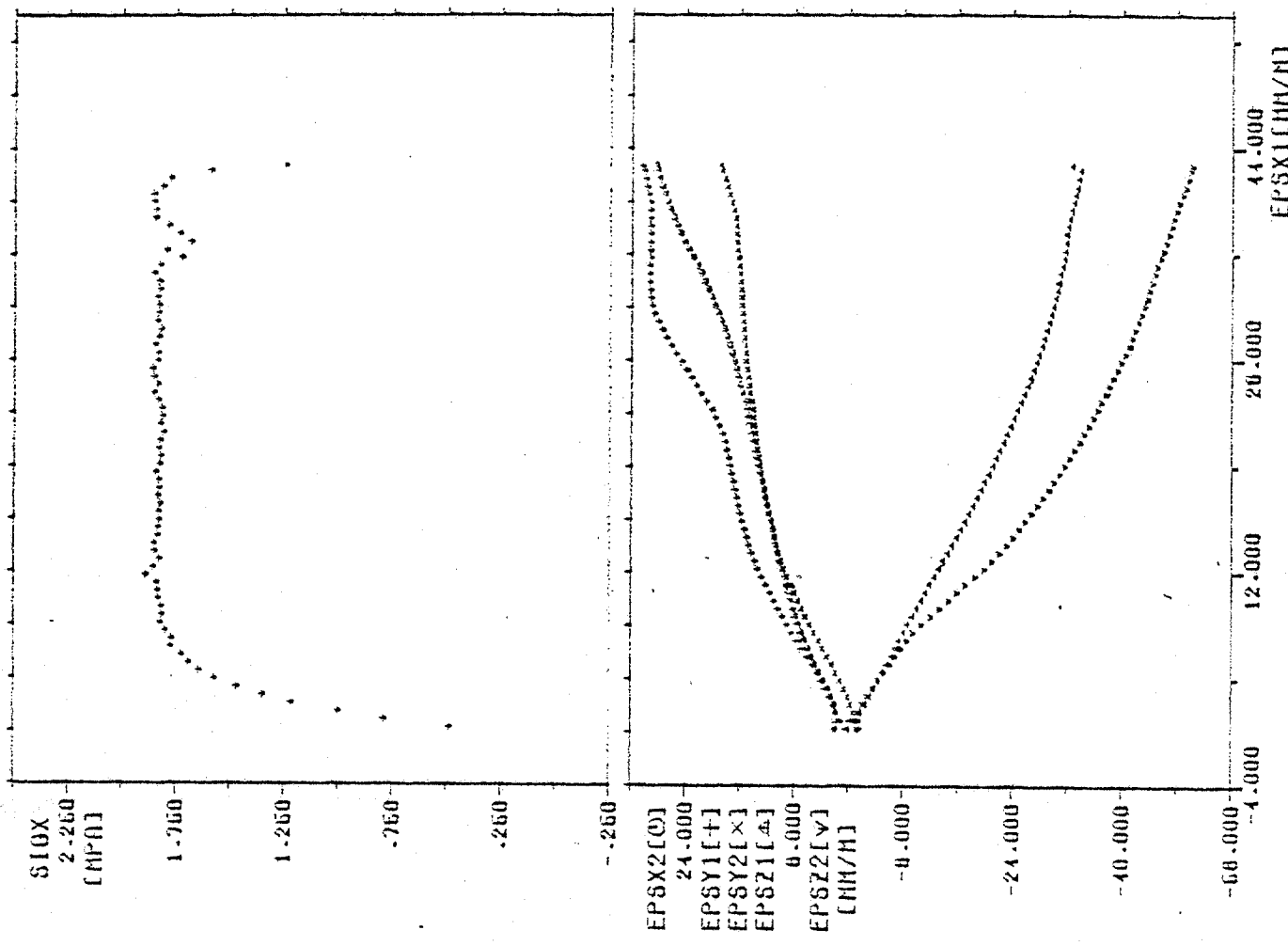


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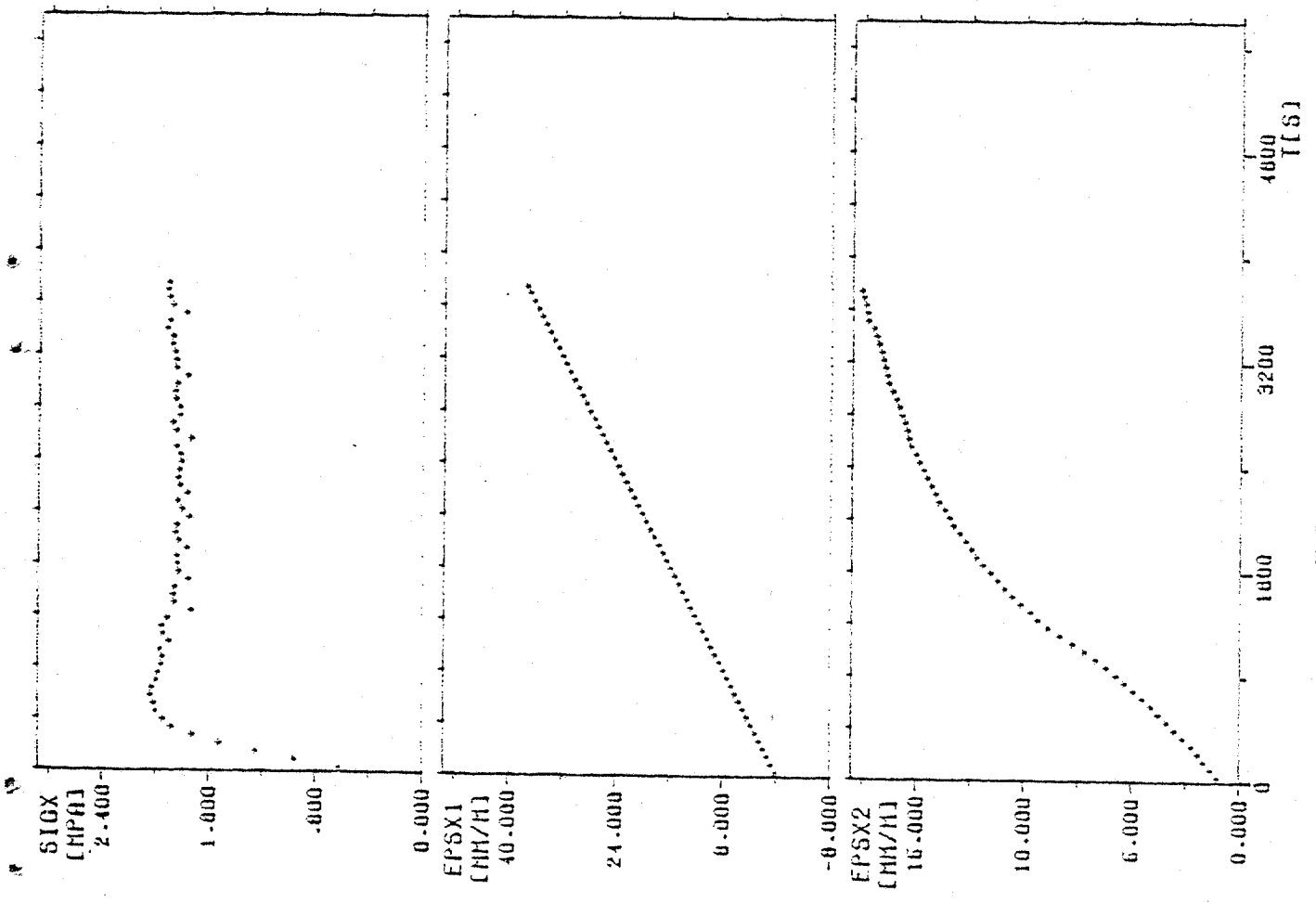




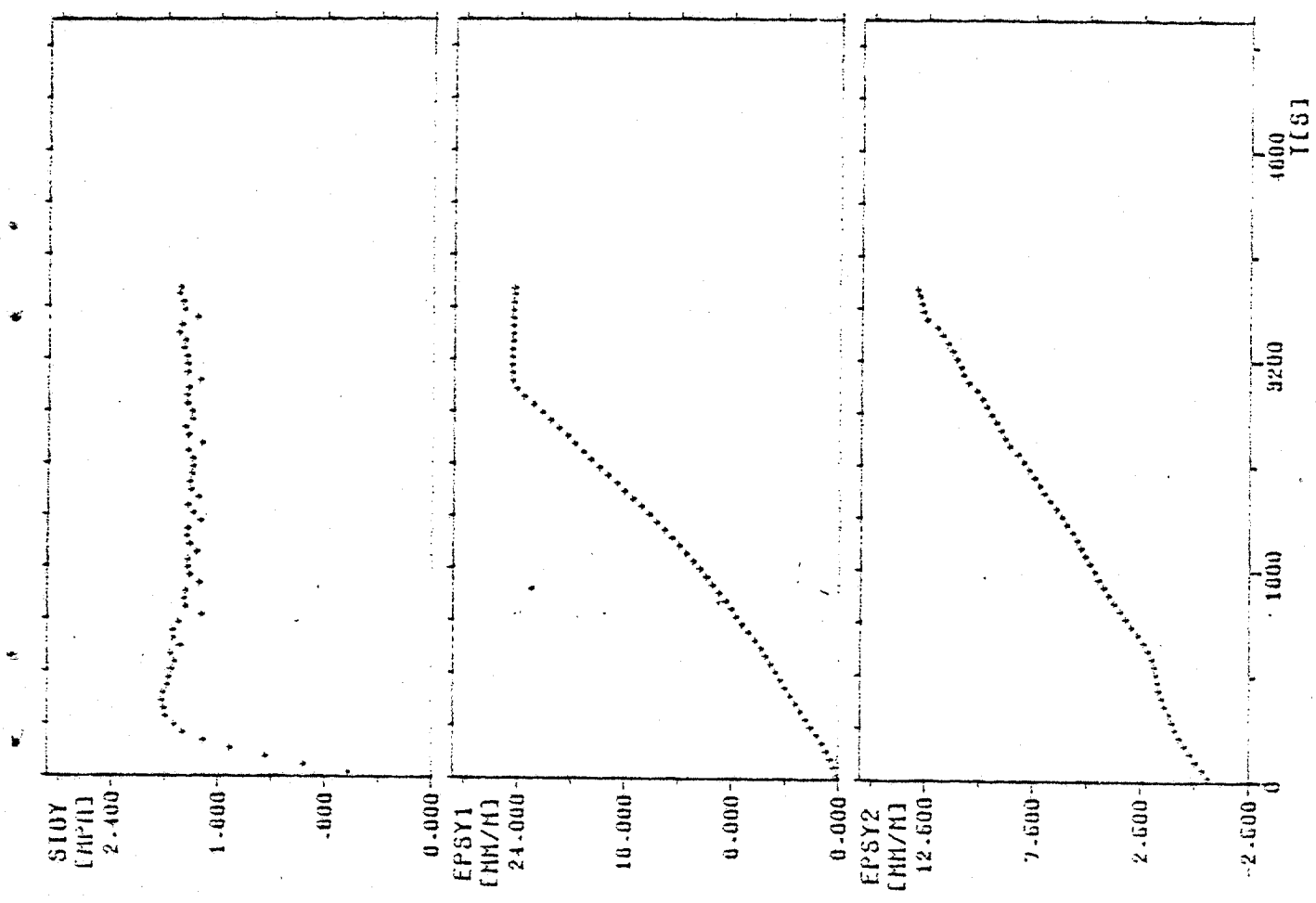
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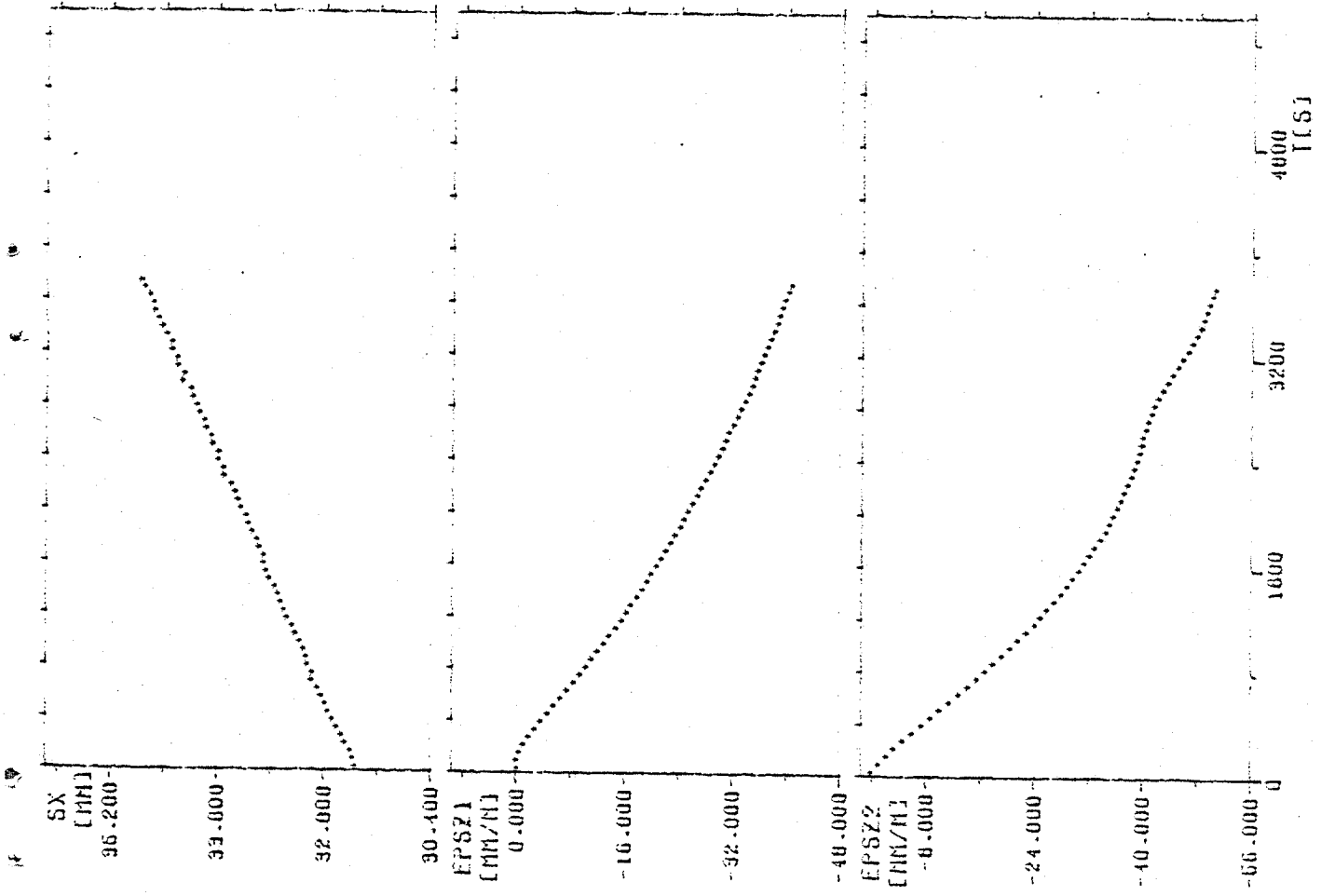
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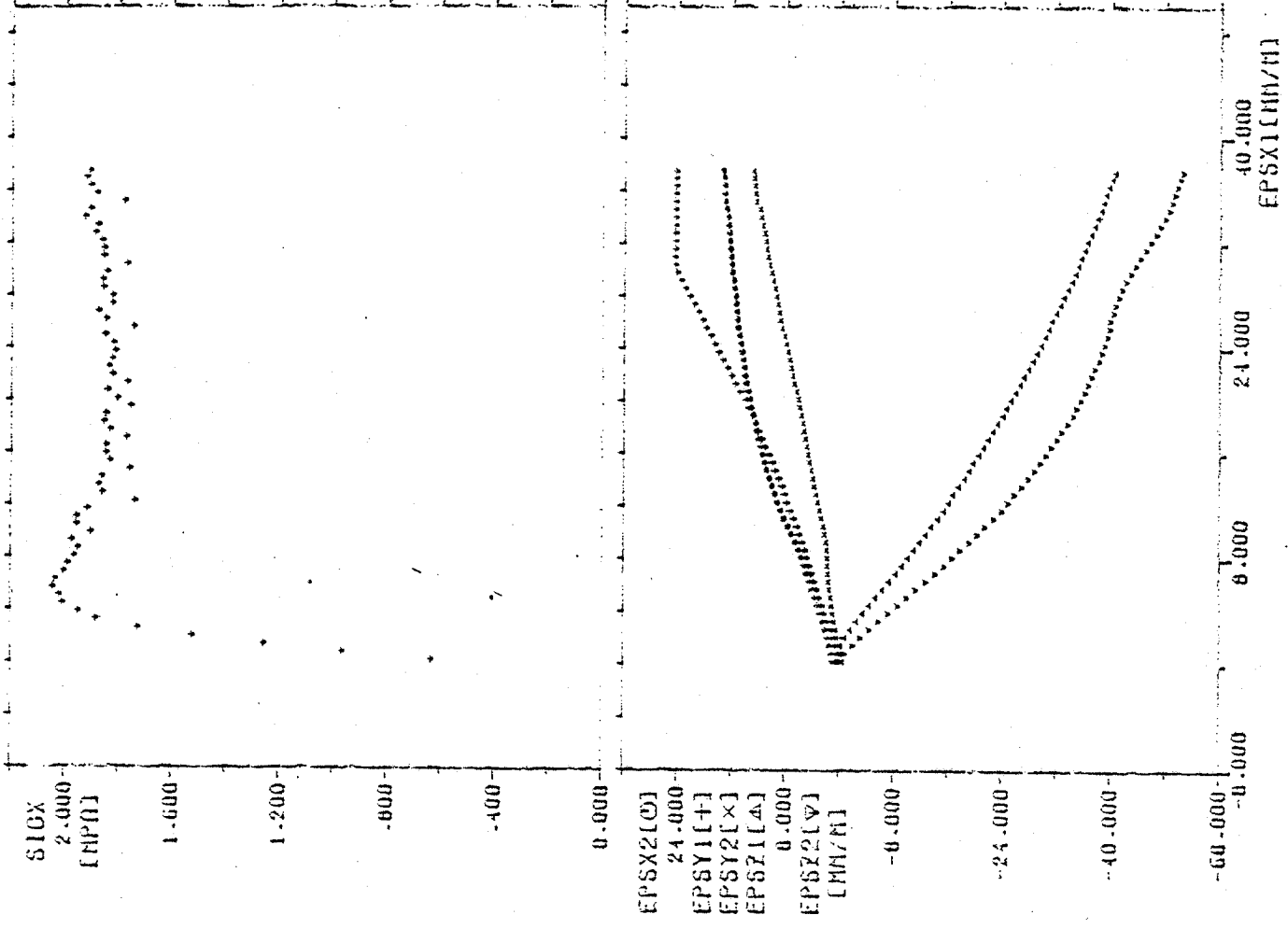
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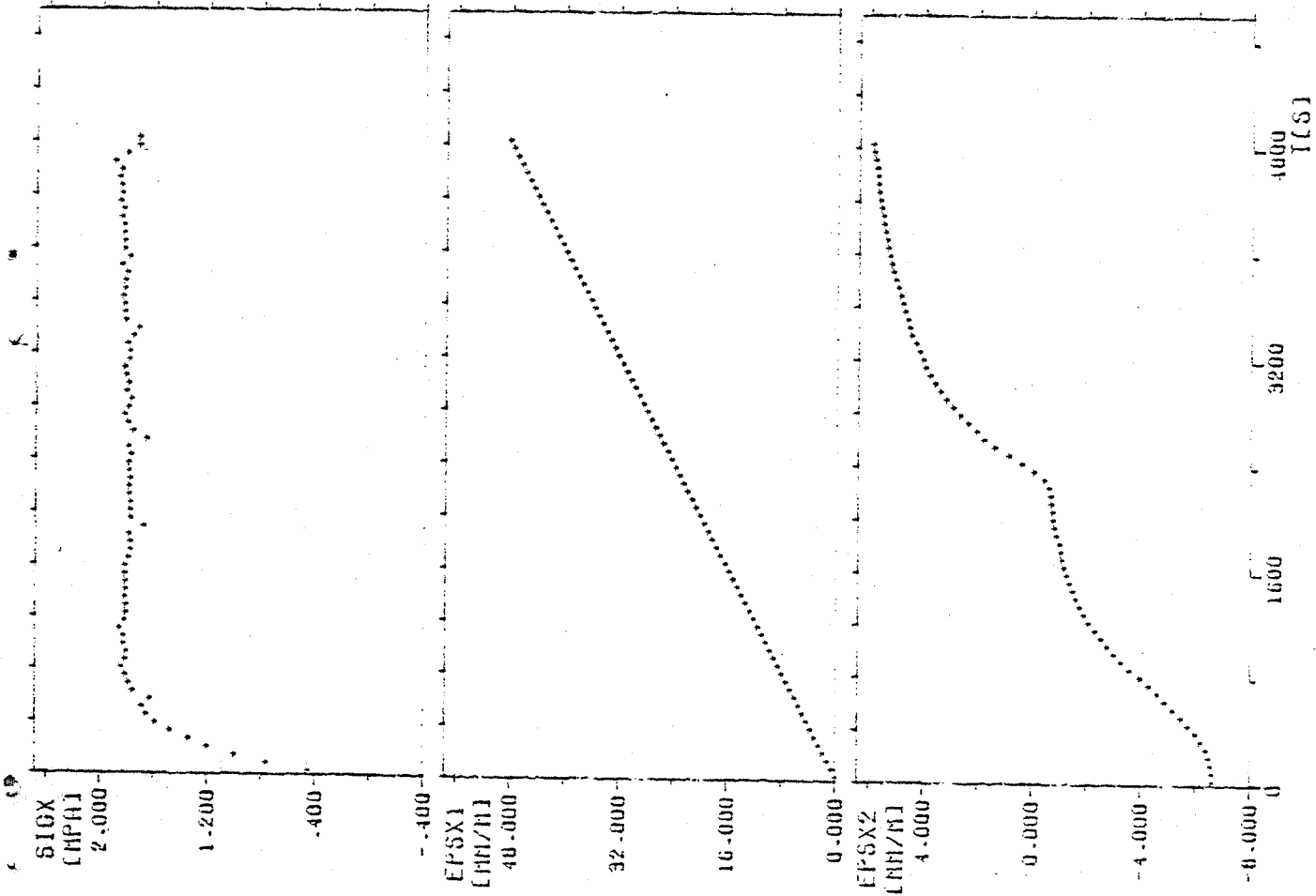
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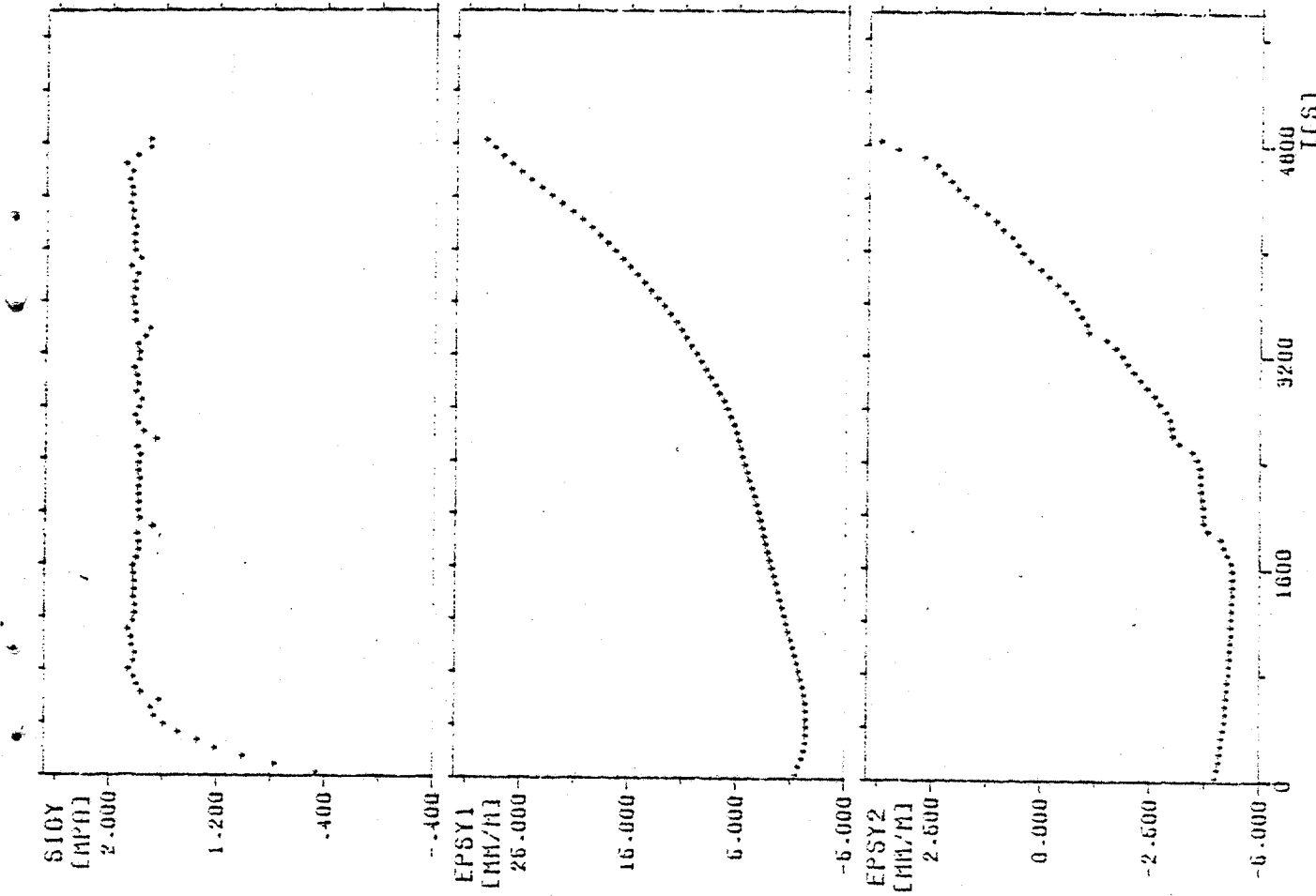


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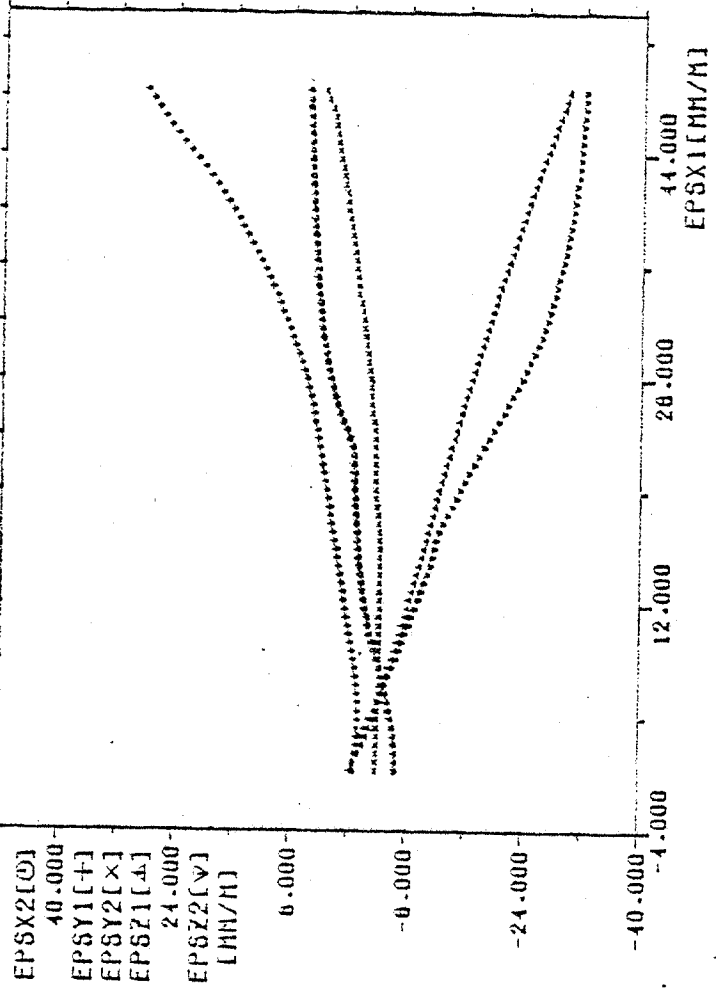
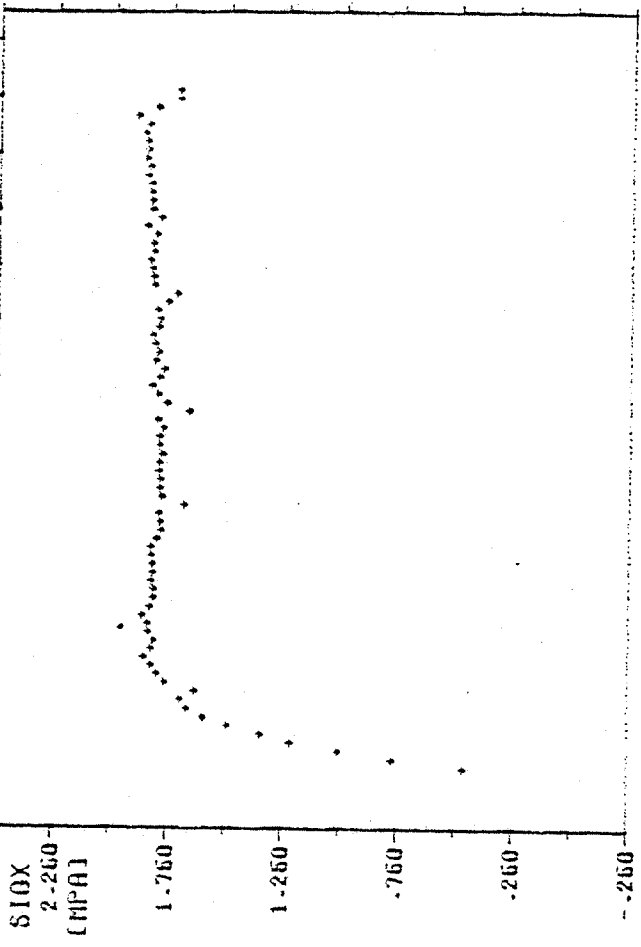
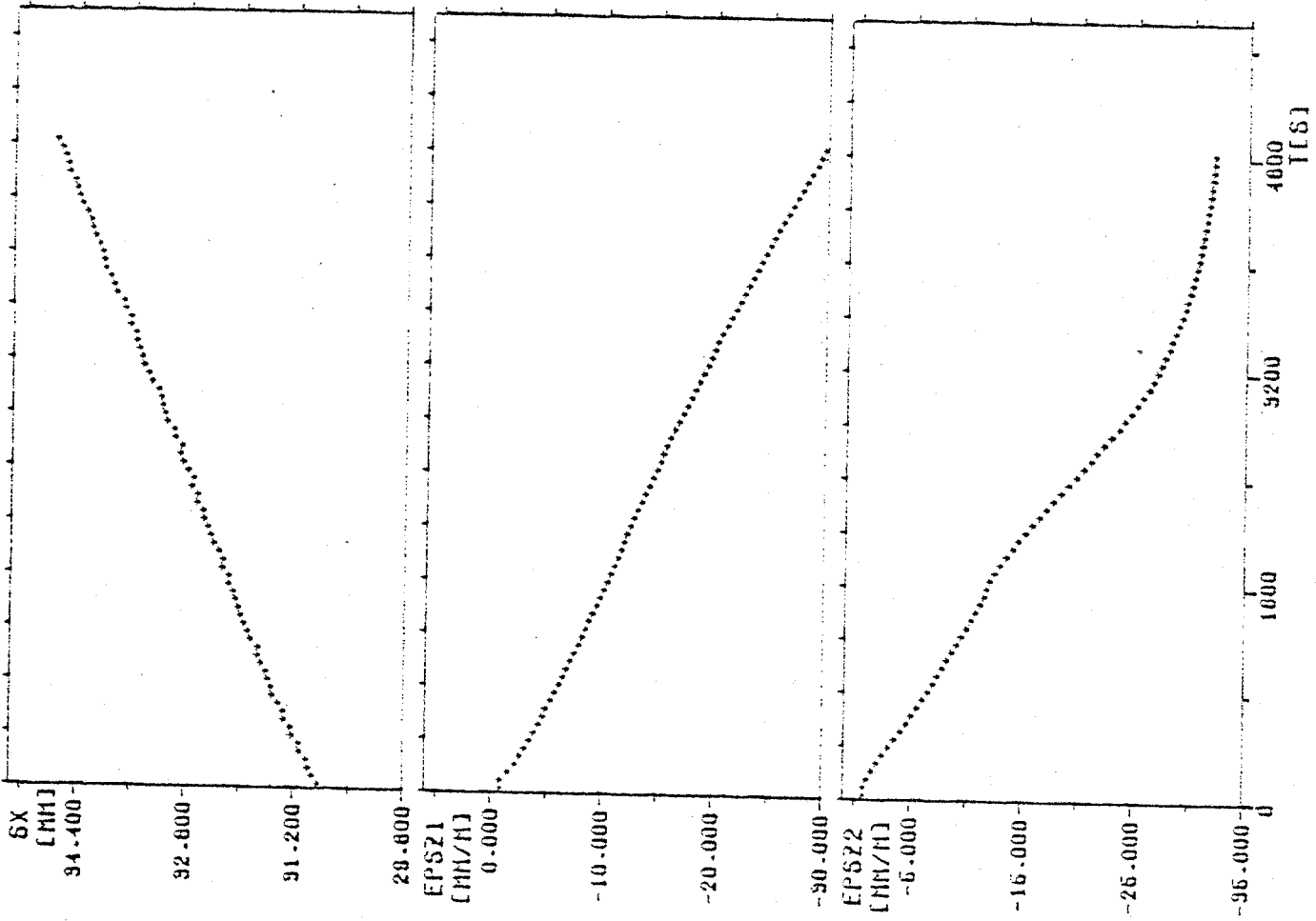
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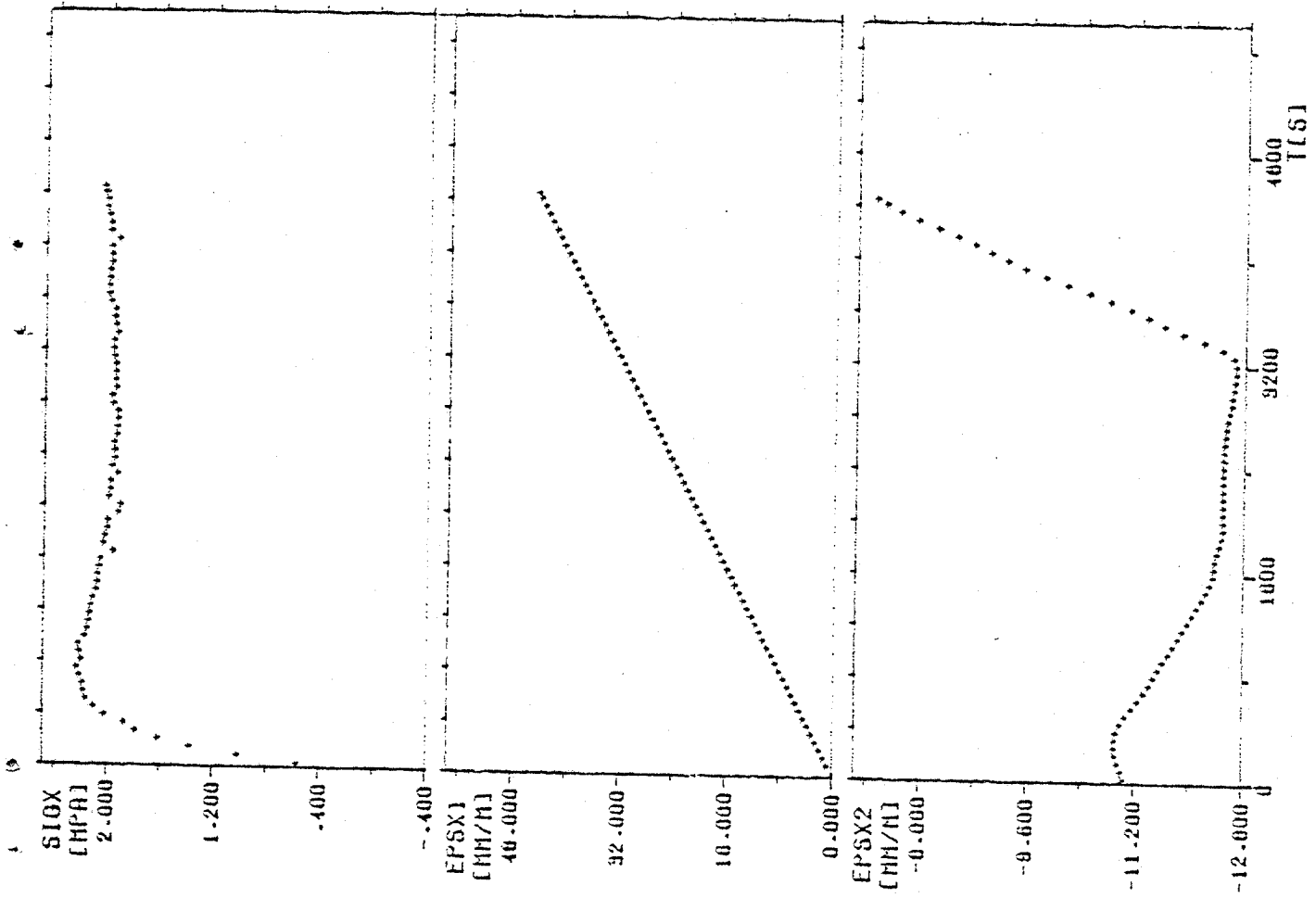
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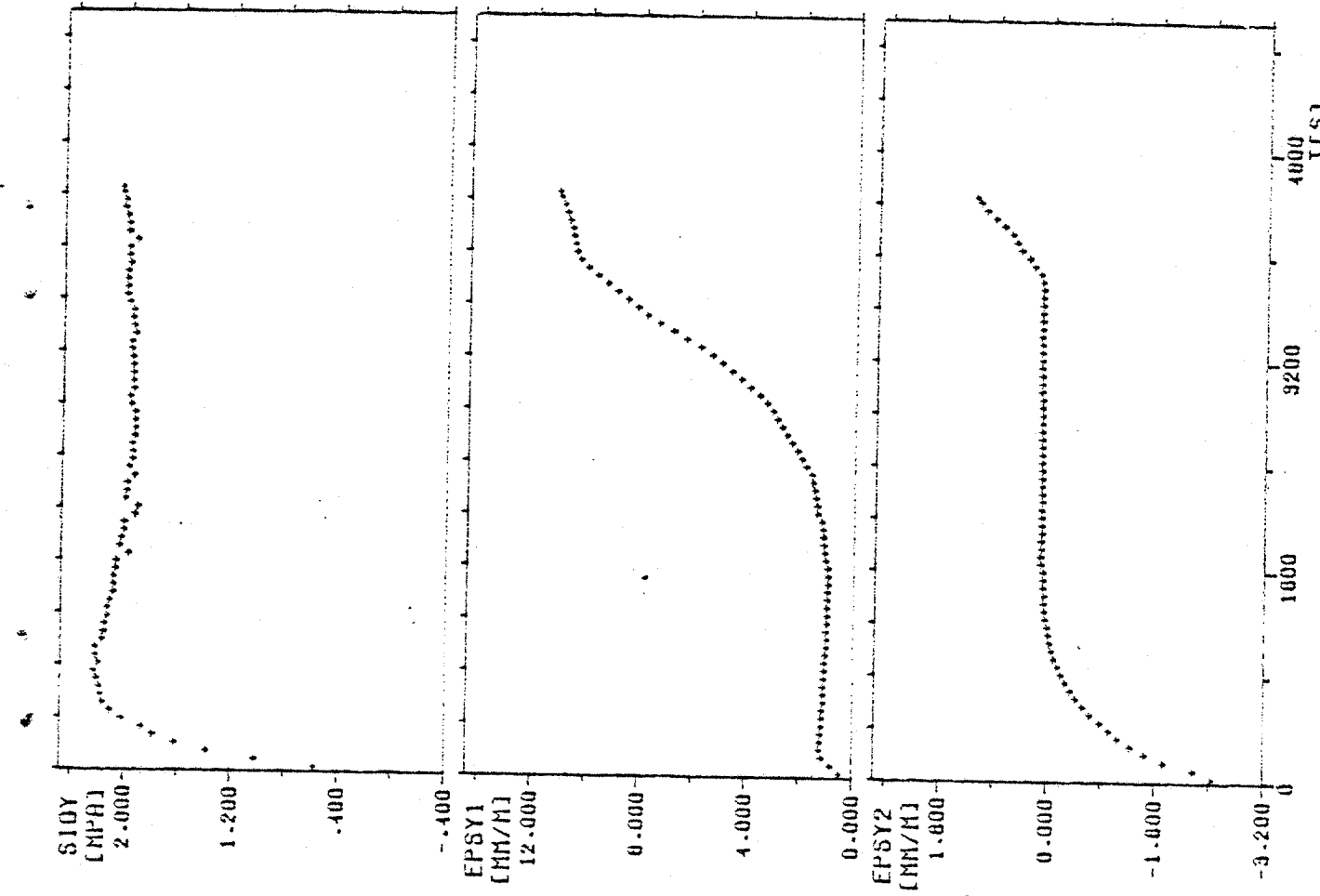
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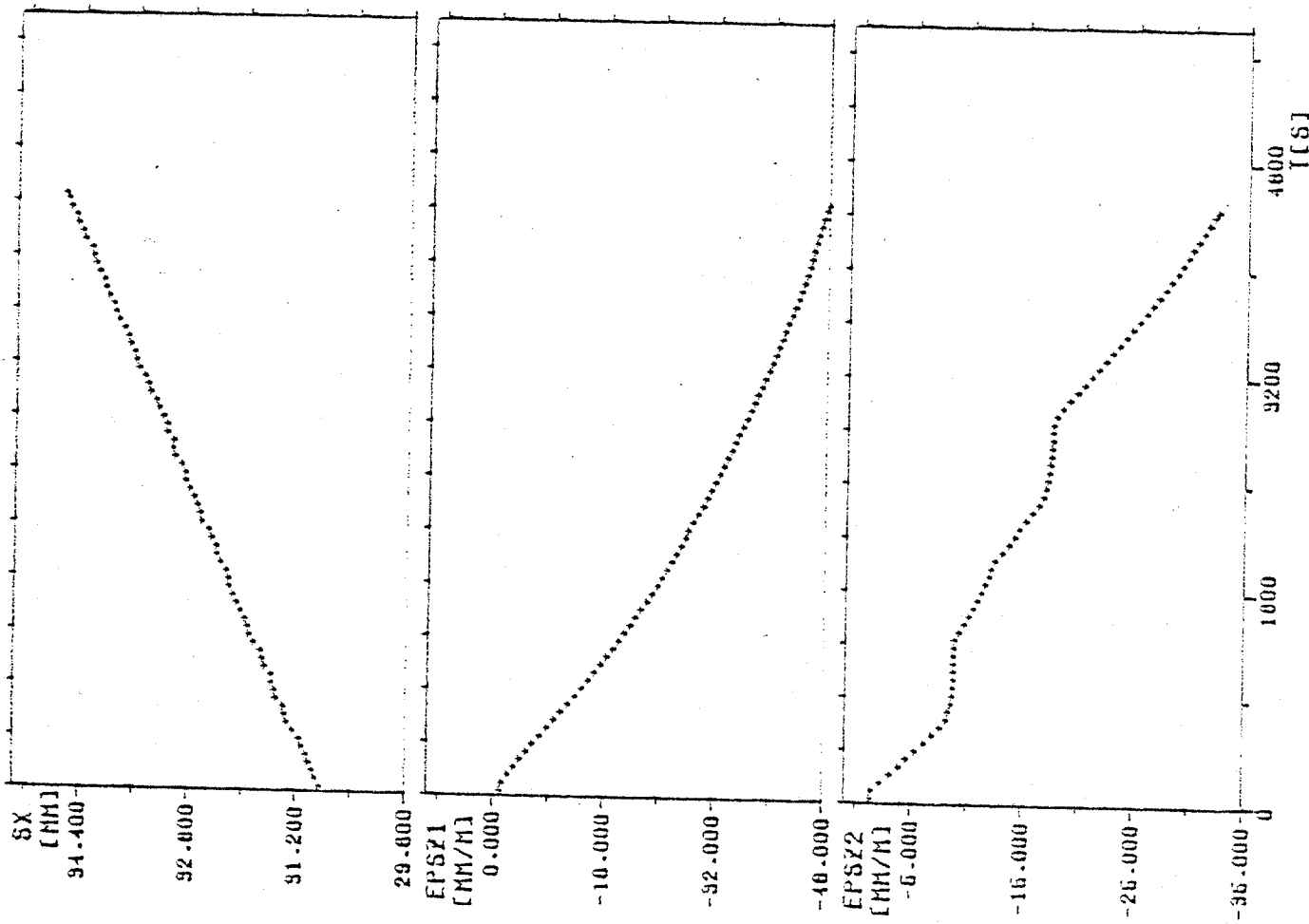
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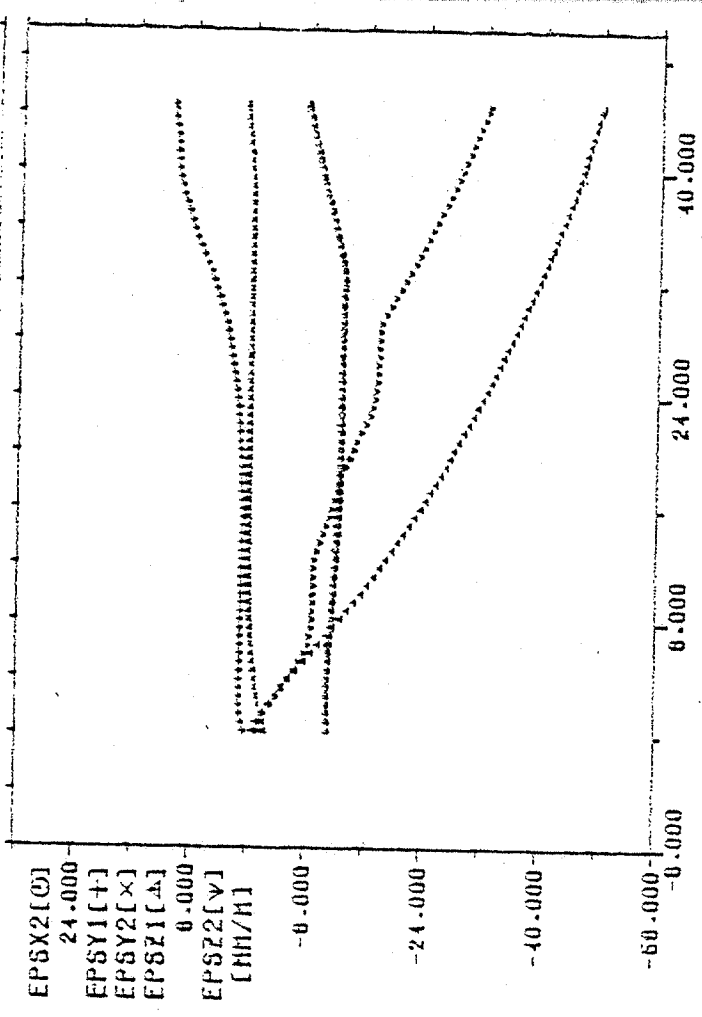
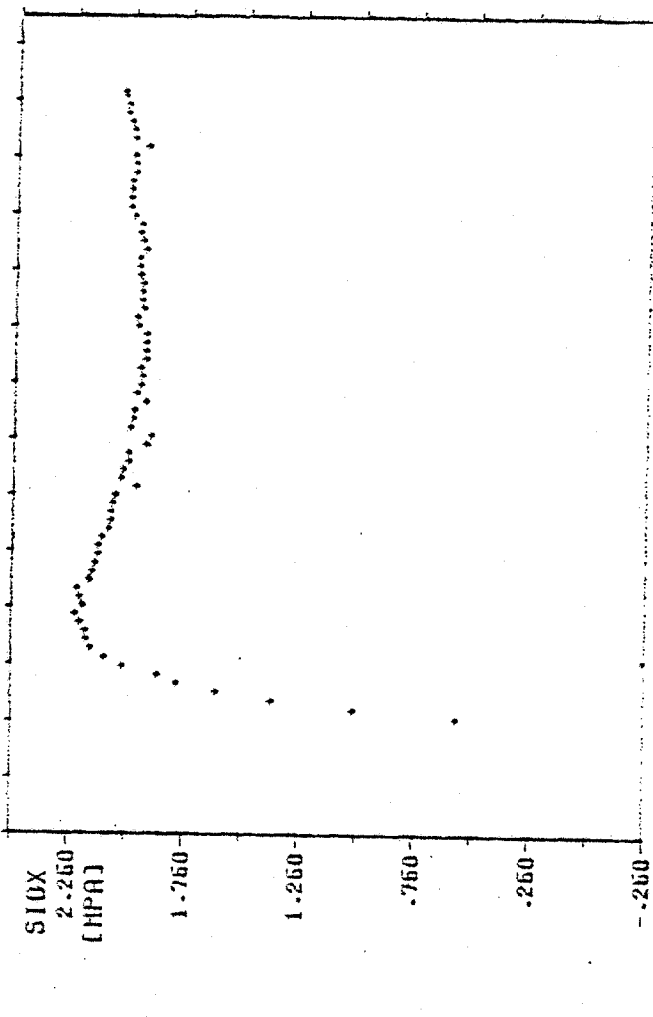


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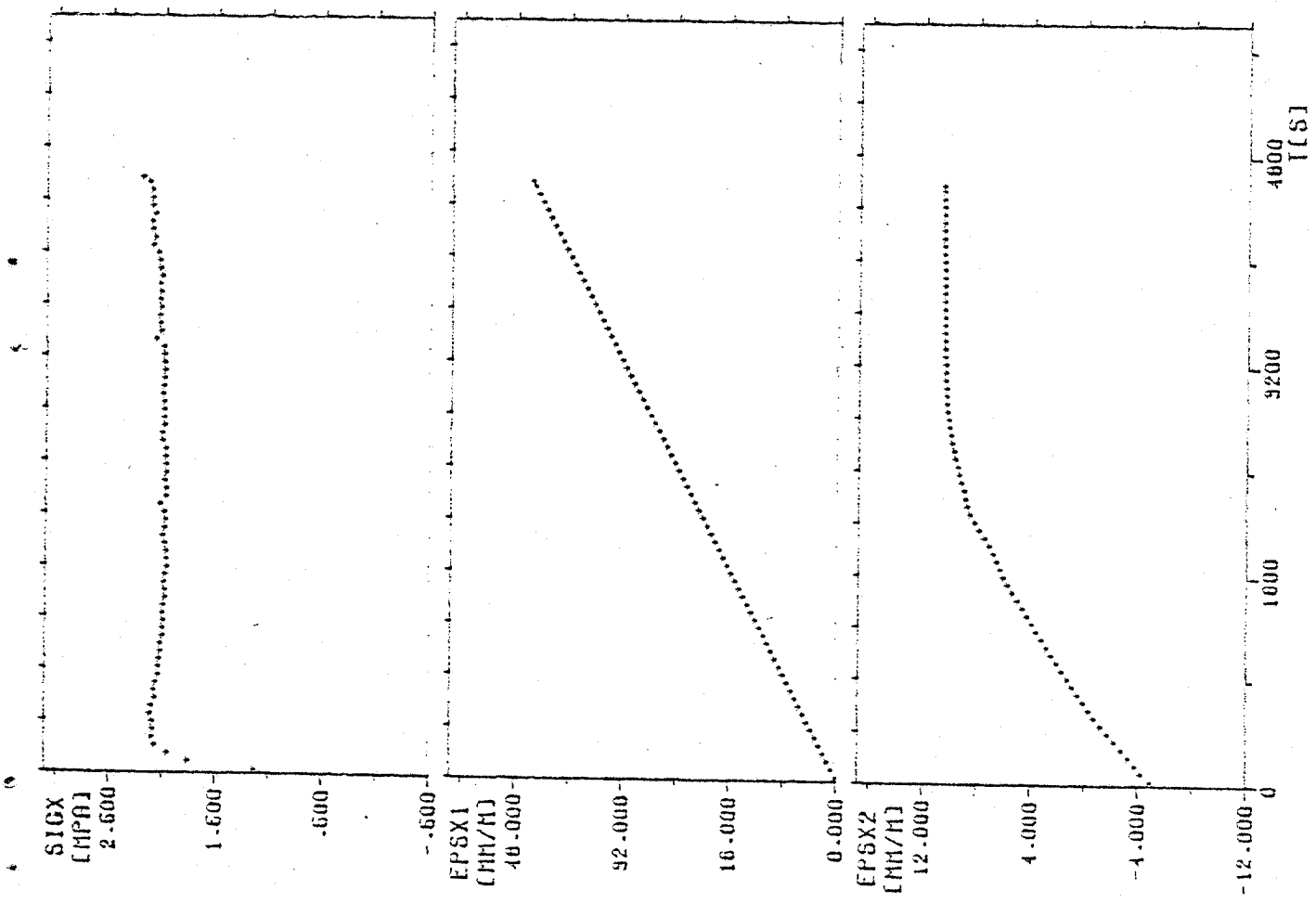
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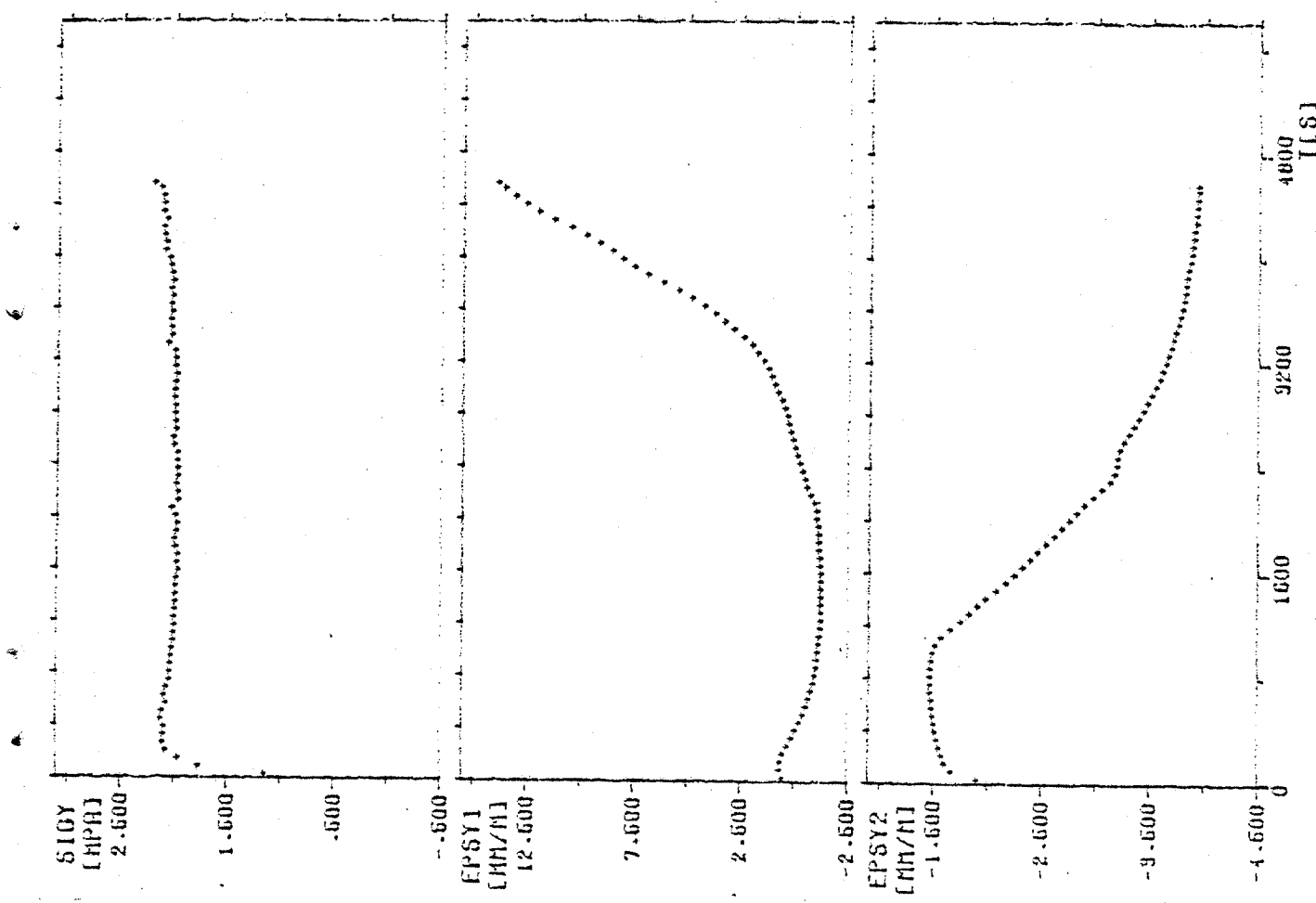
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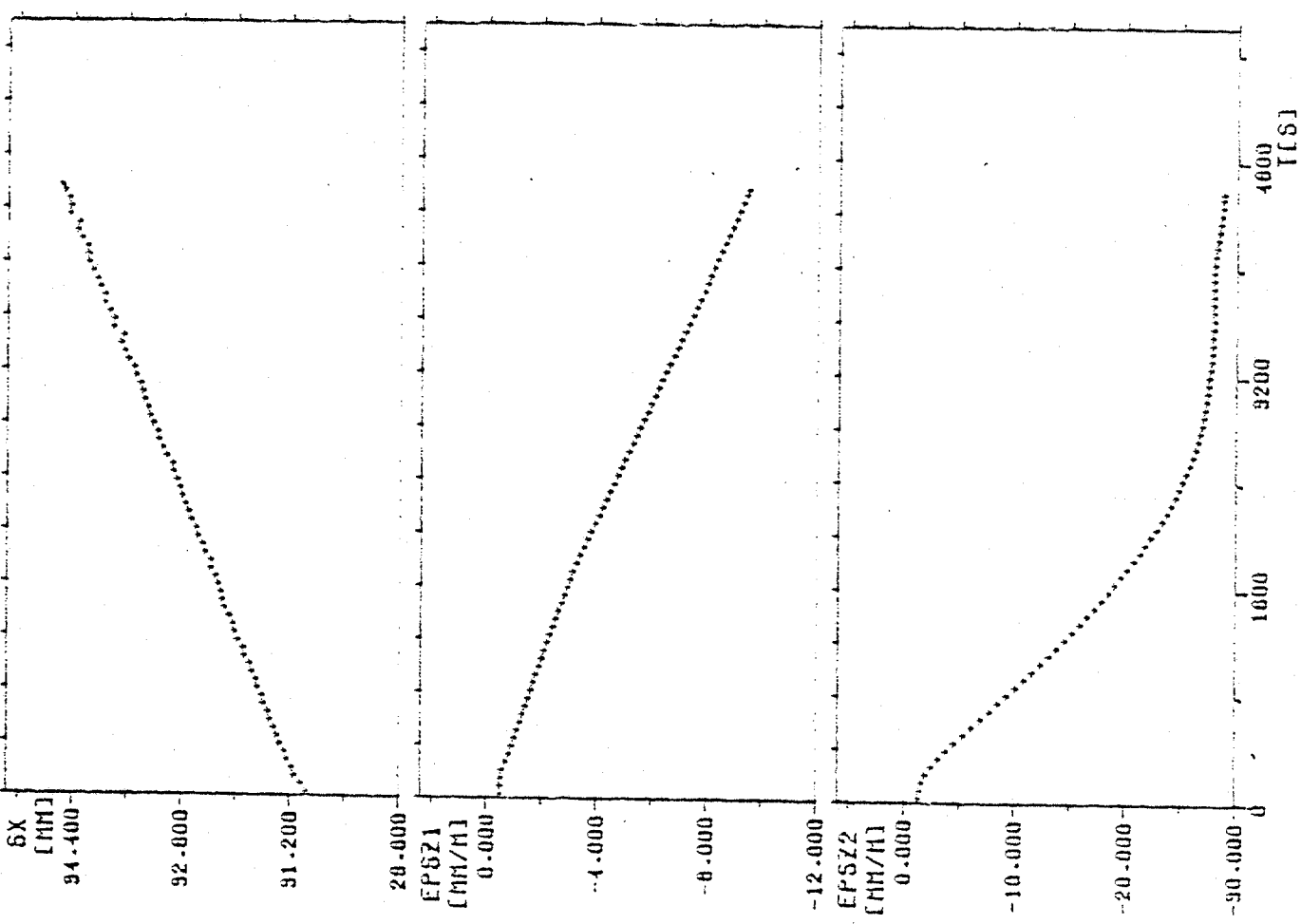


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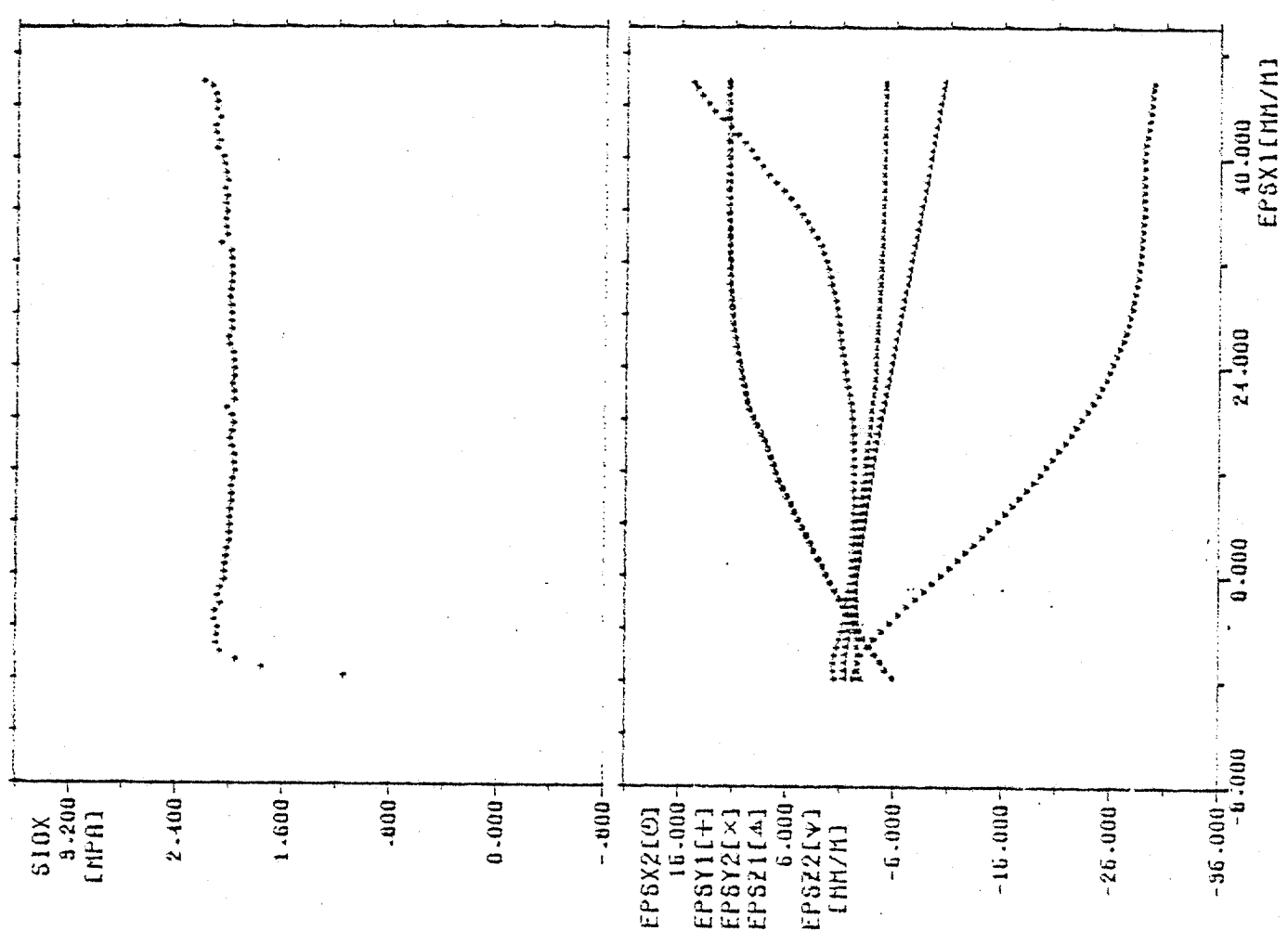


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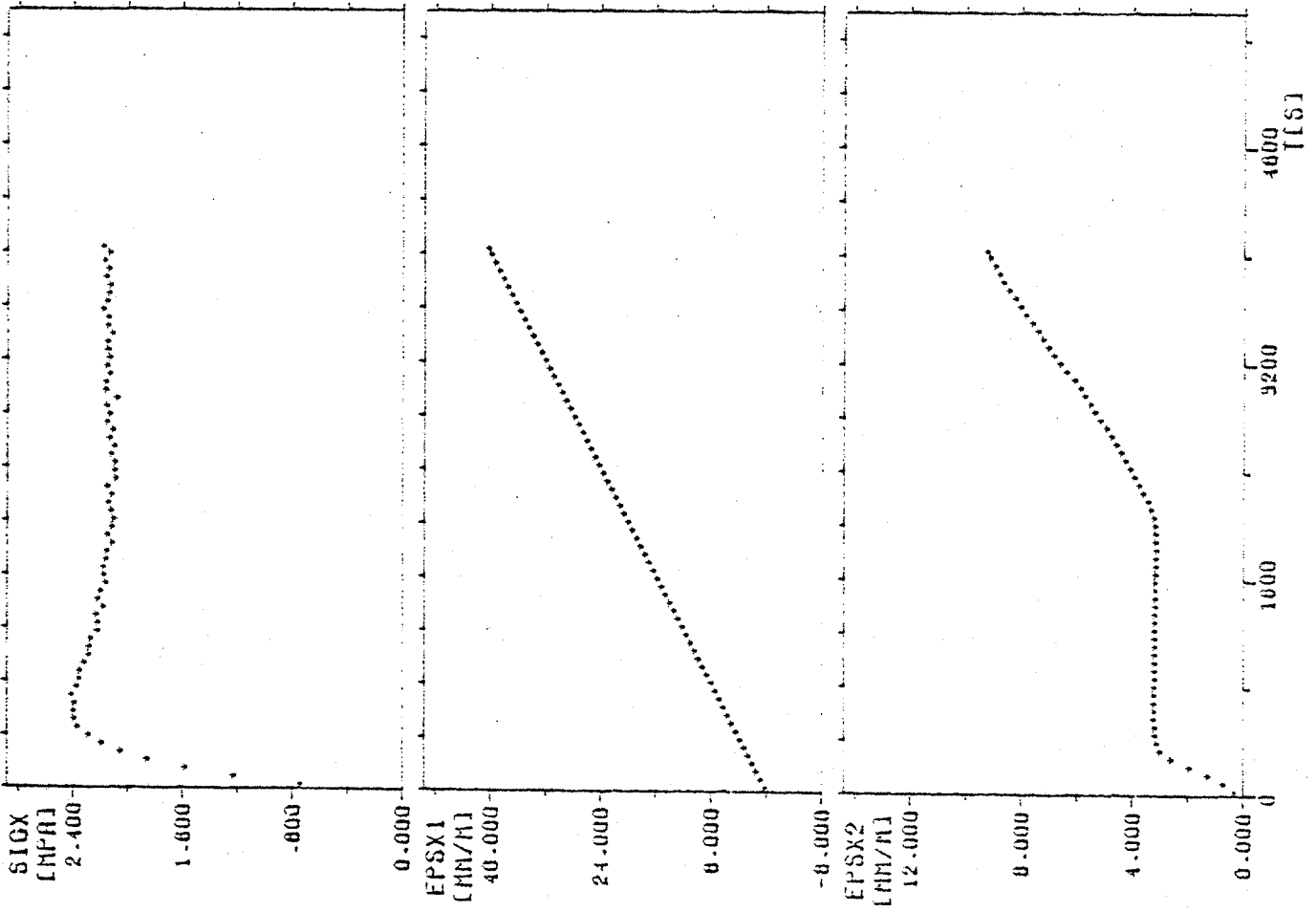




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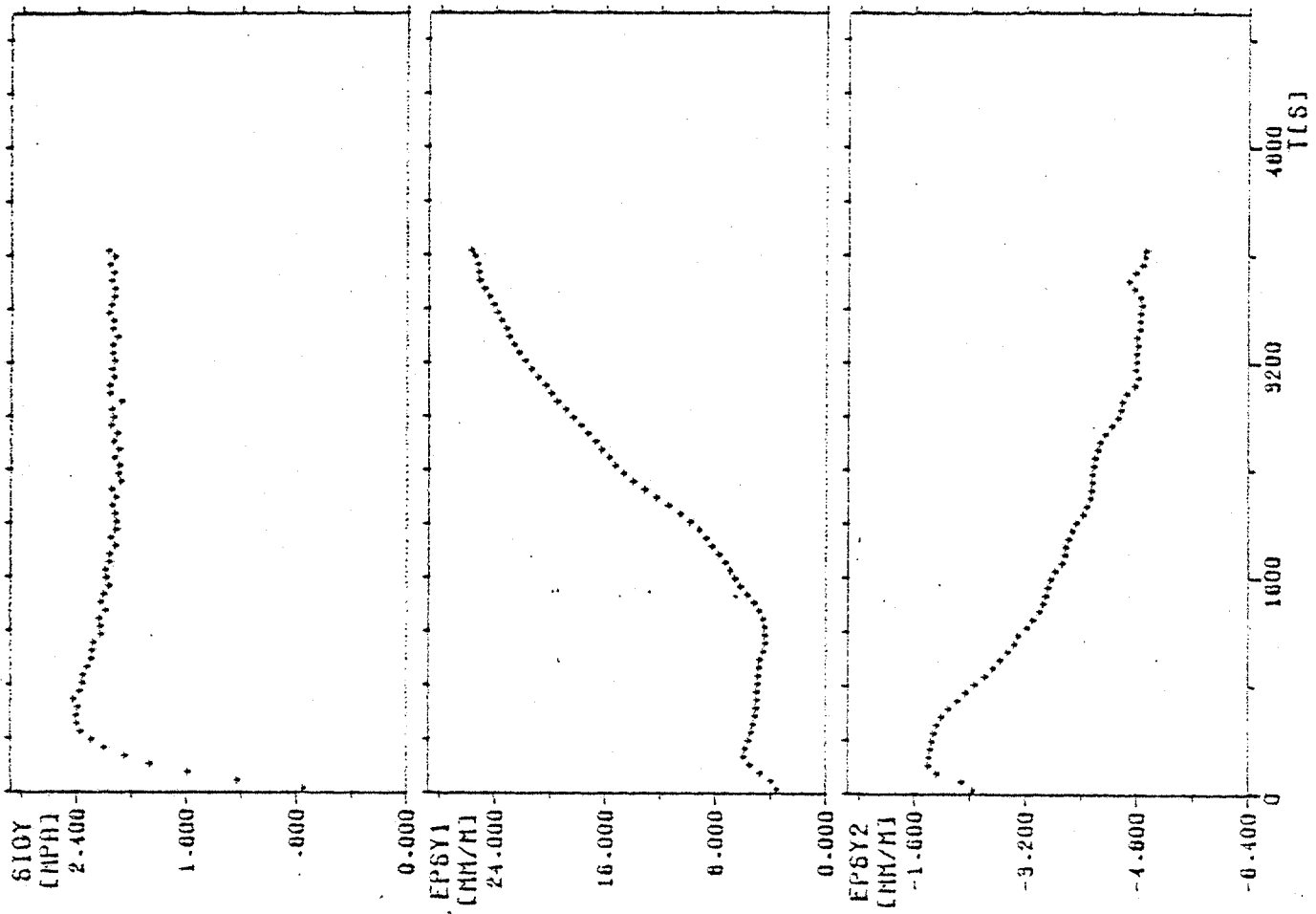


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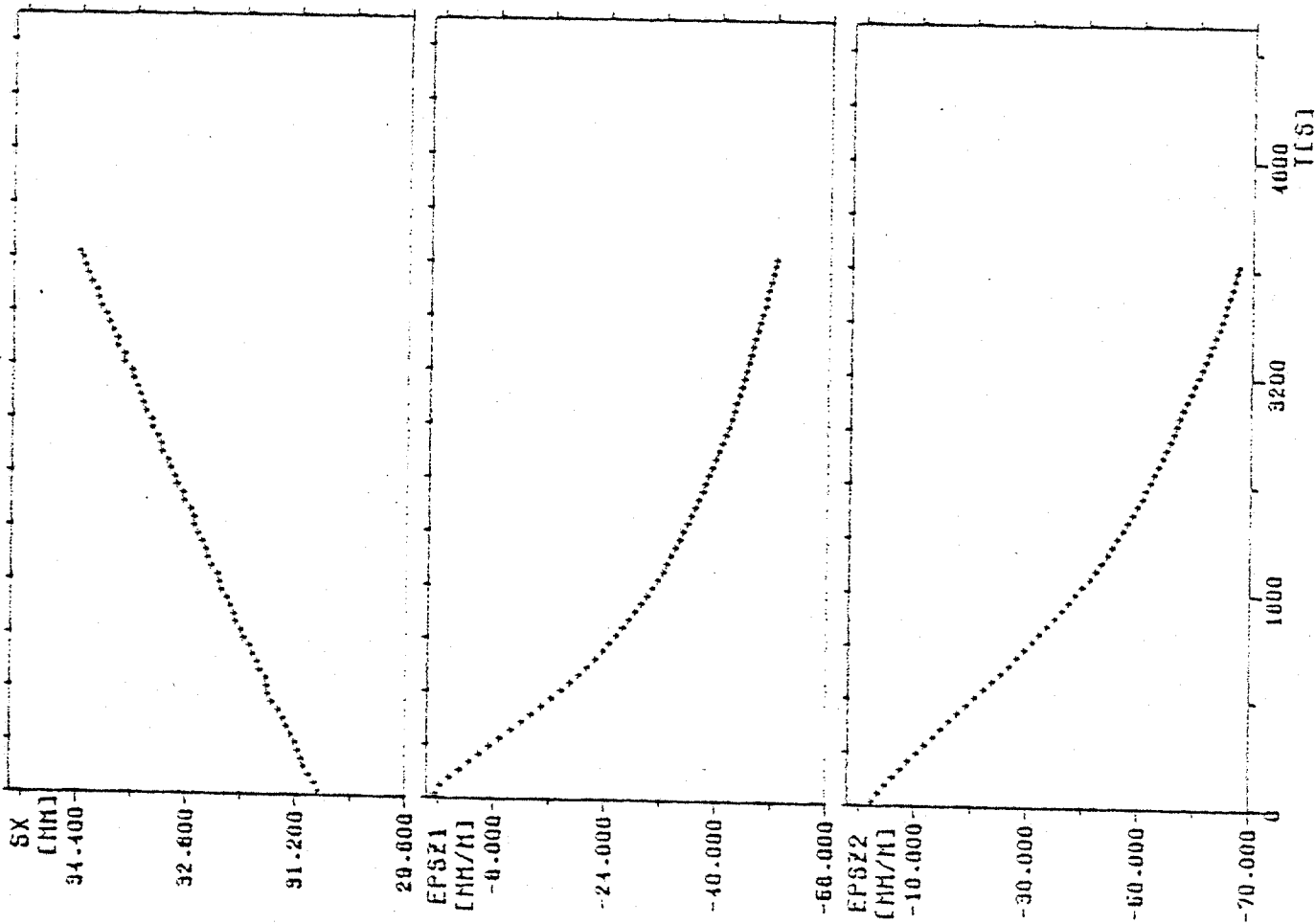
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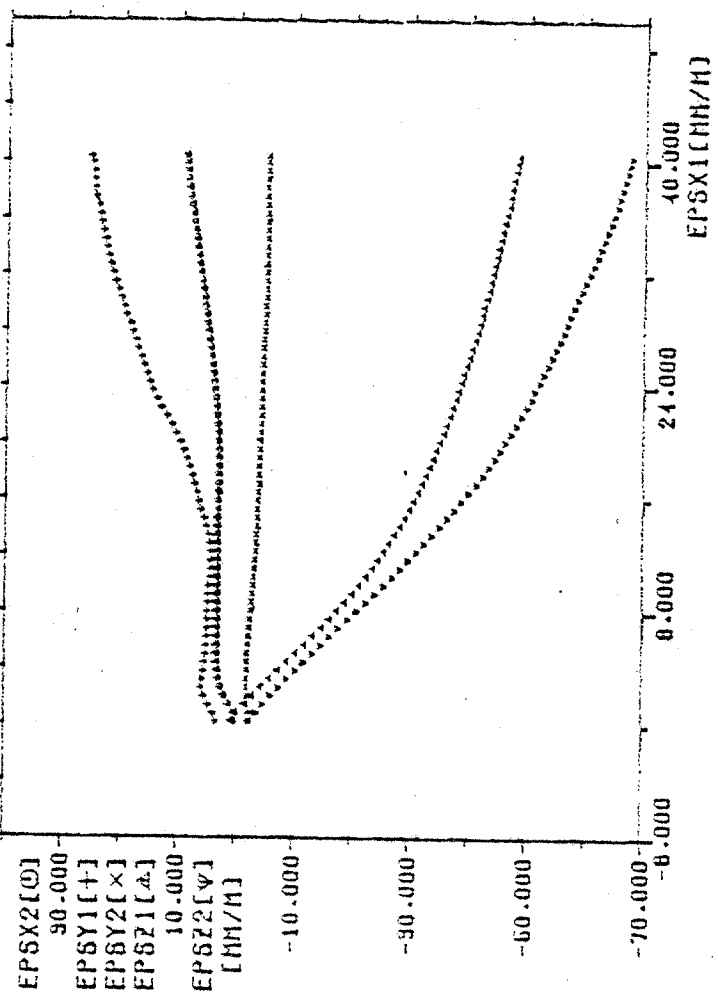
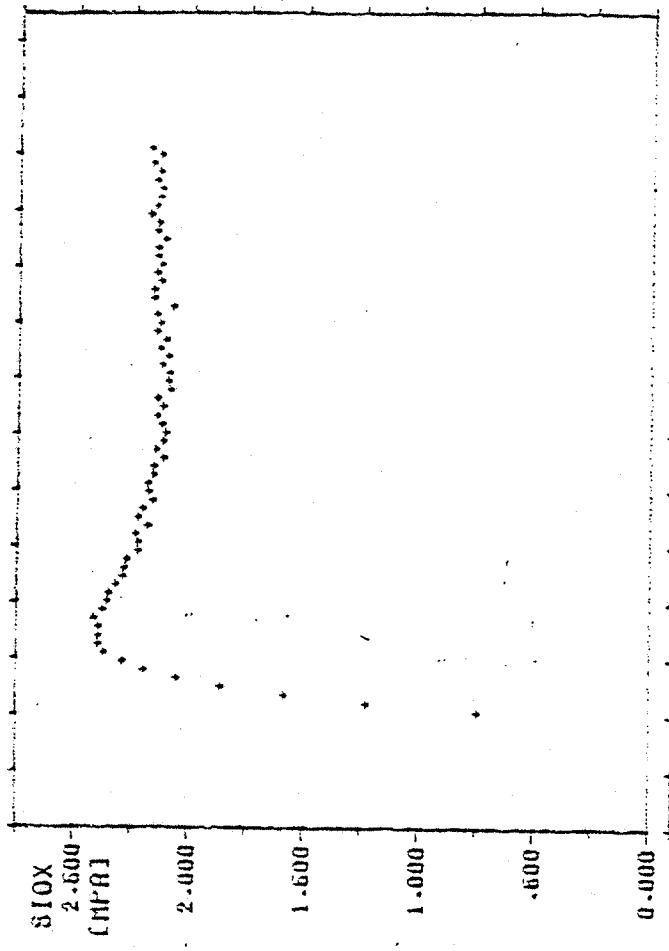
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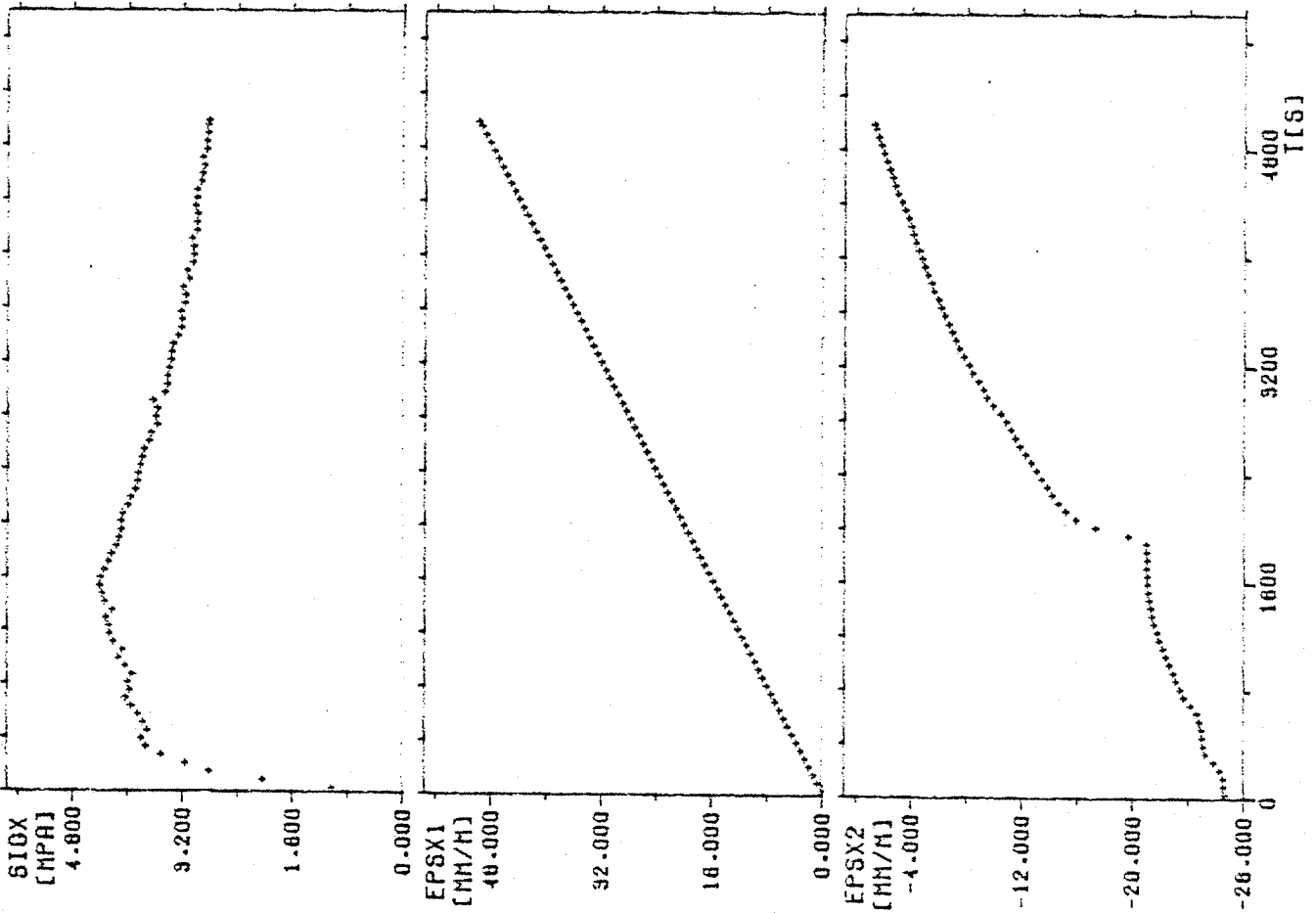
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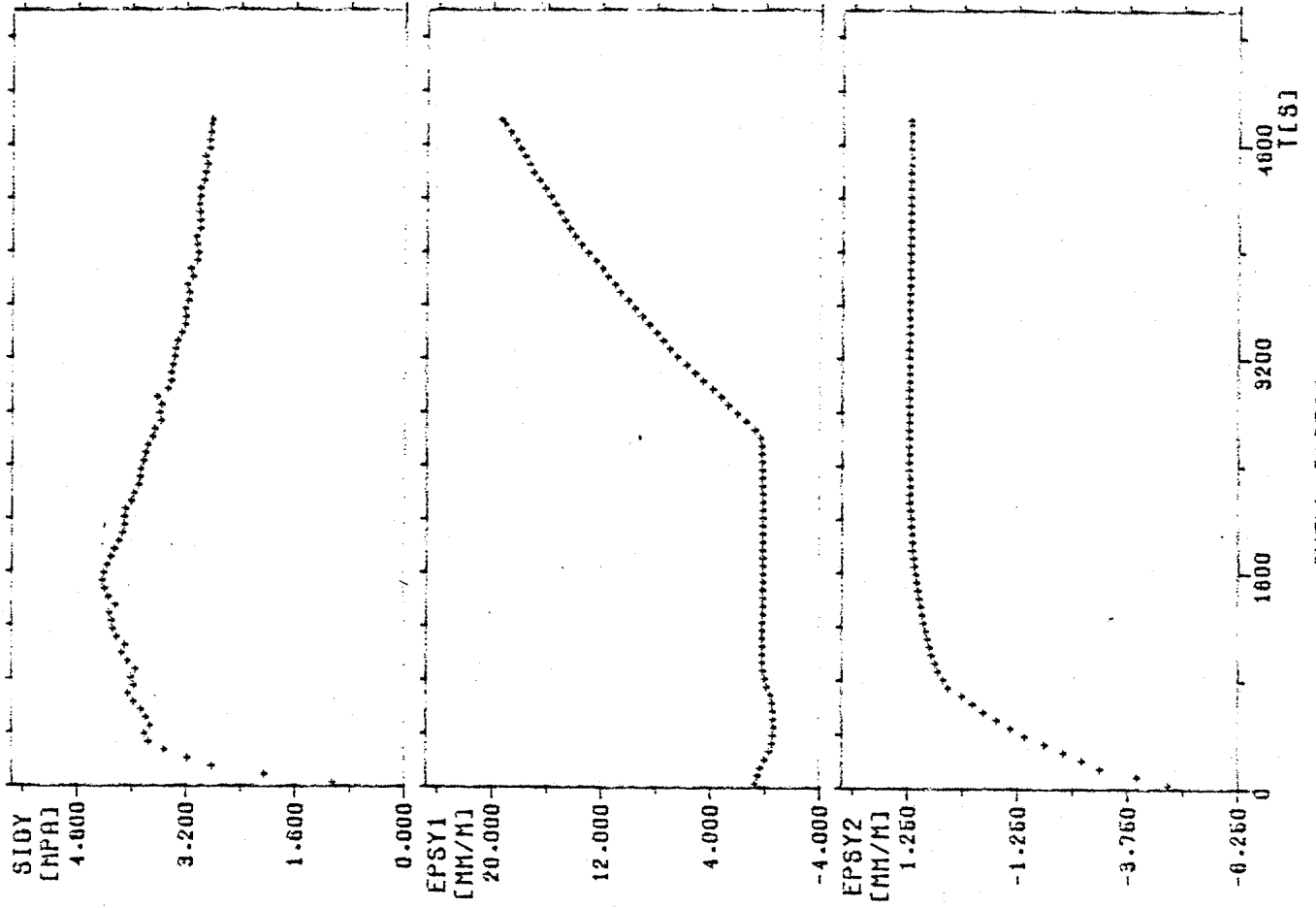
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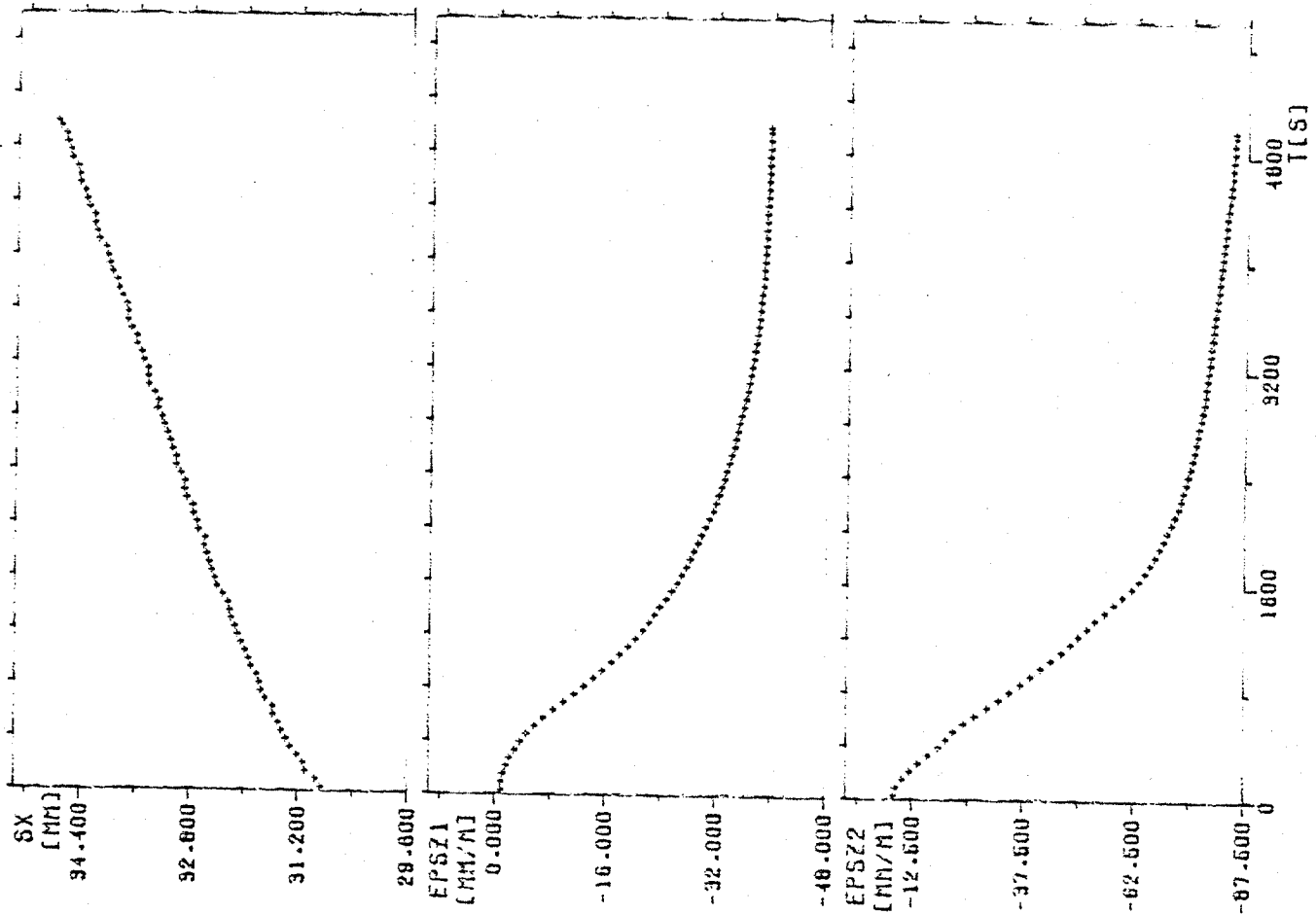
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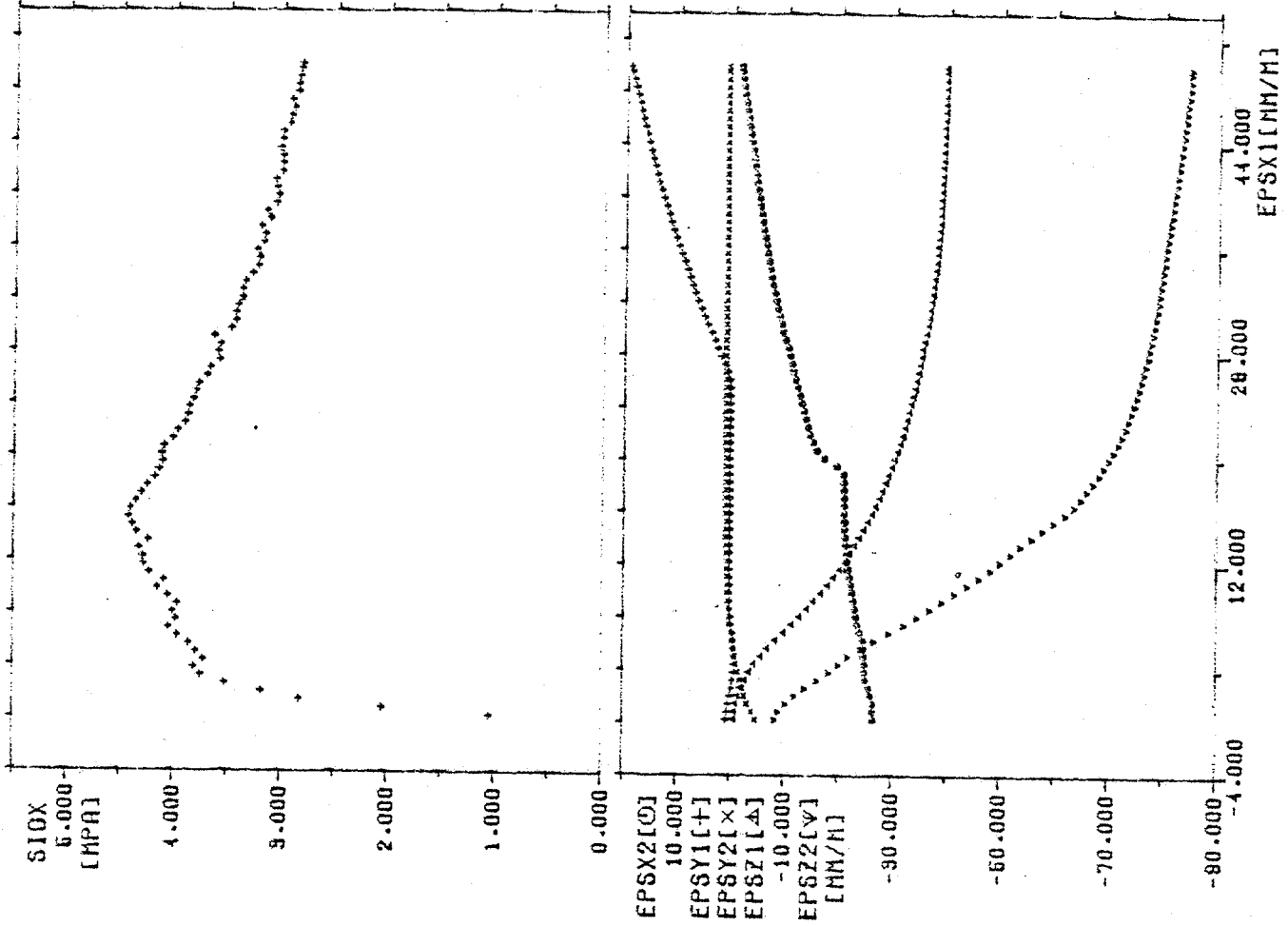
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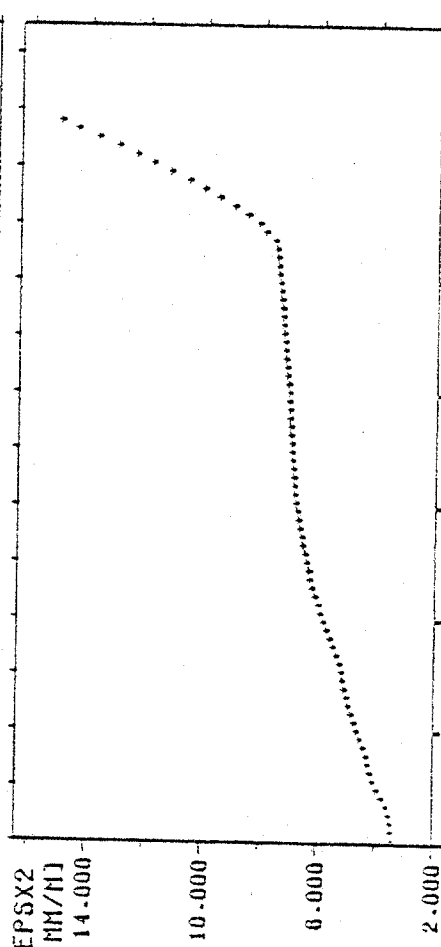
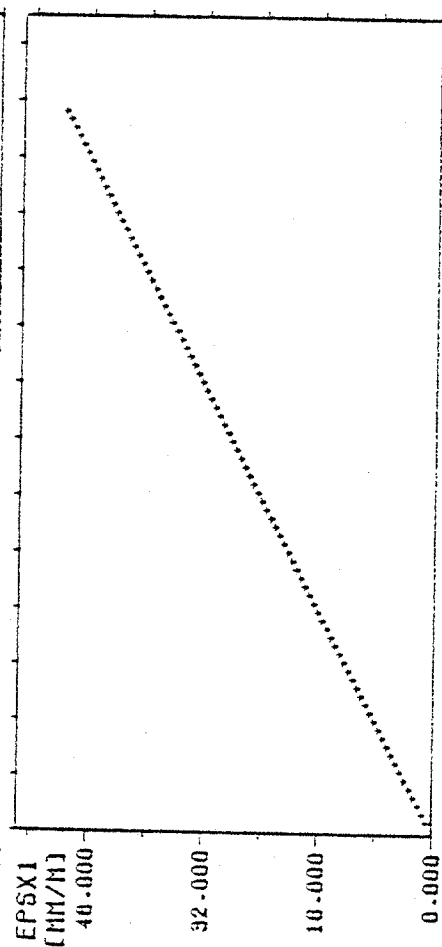
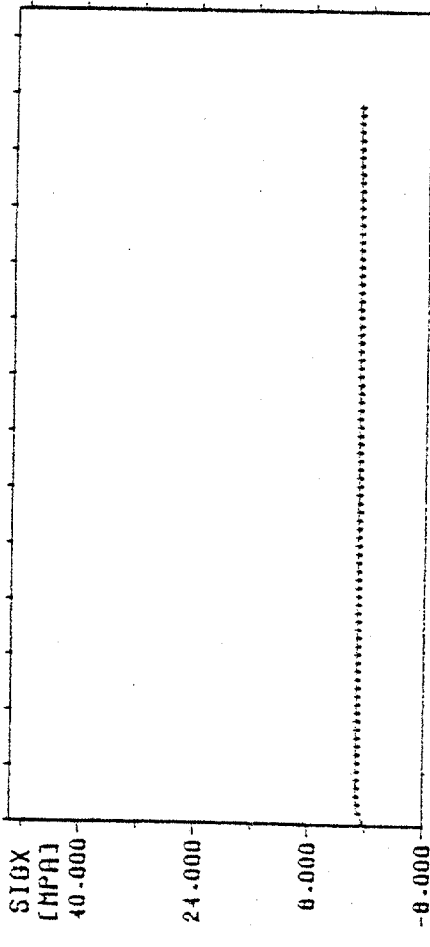
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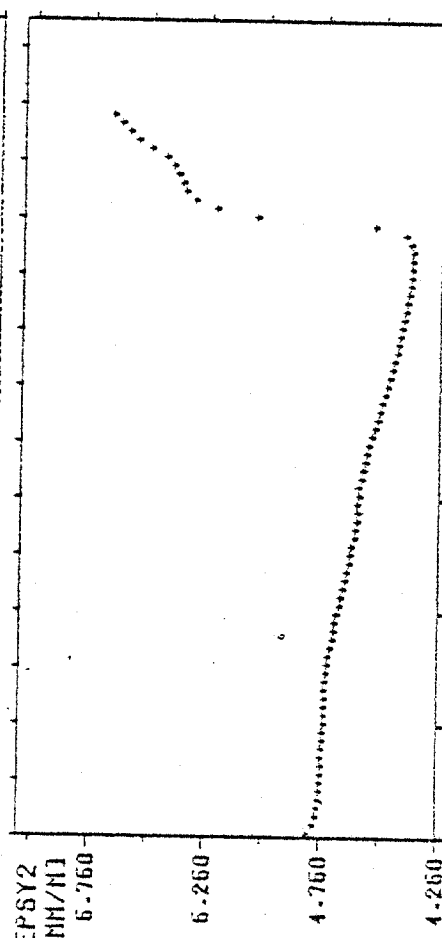
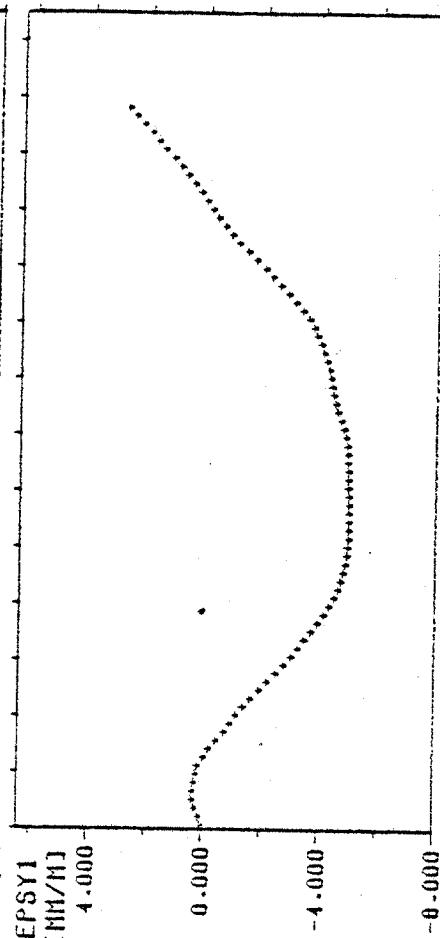
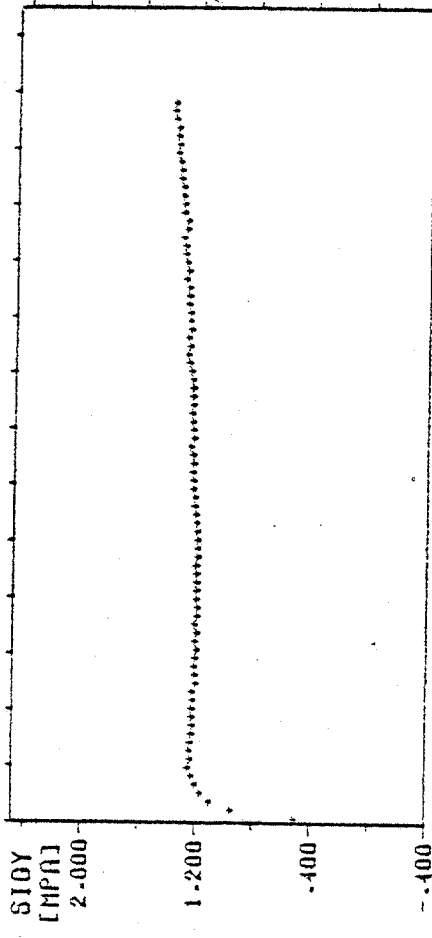
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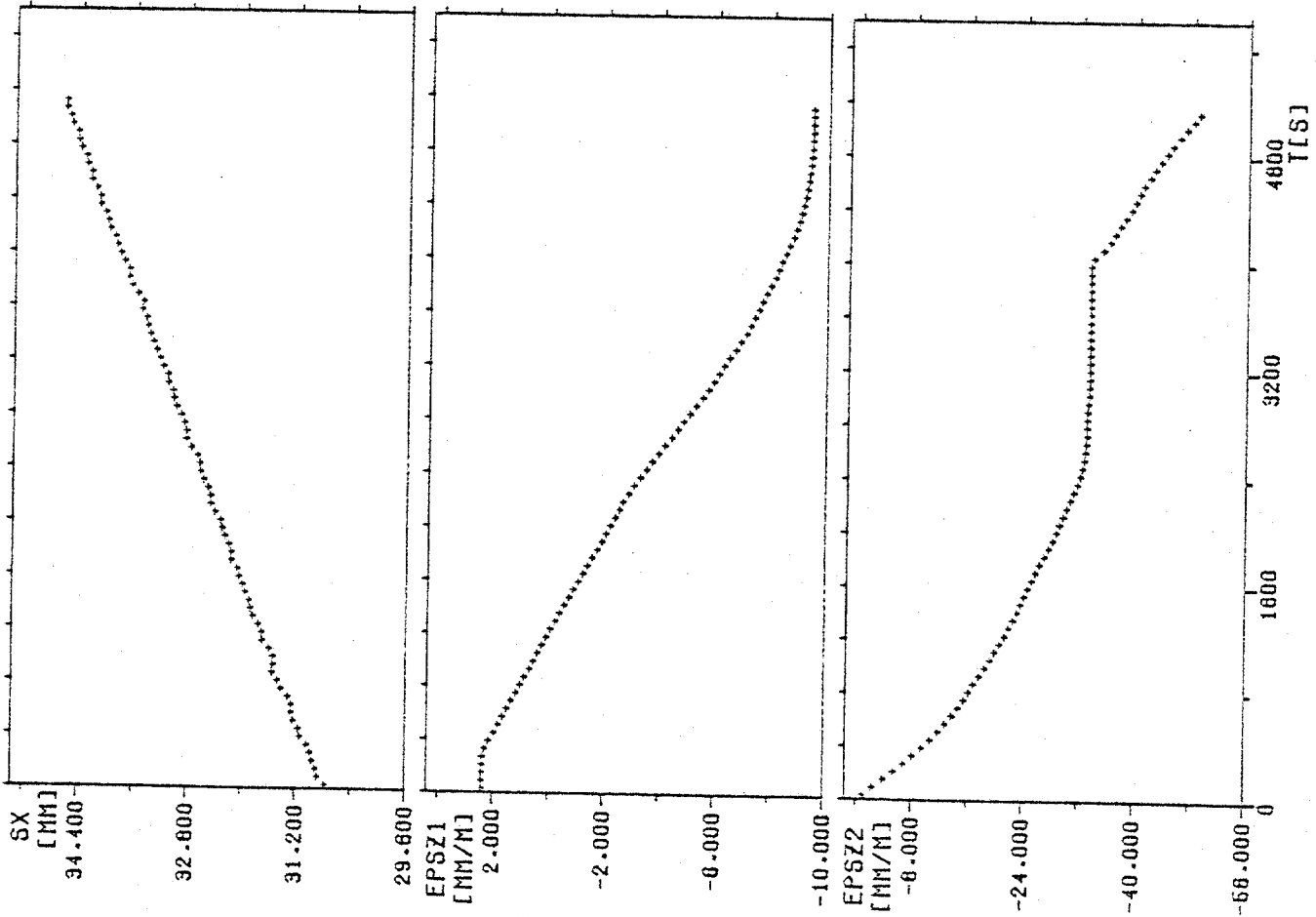
NR: 1016.1 VOM 20:01:03 07:42 UHR

SHELL 612509

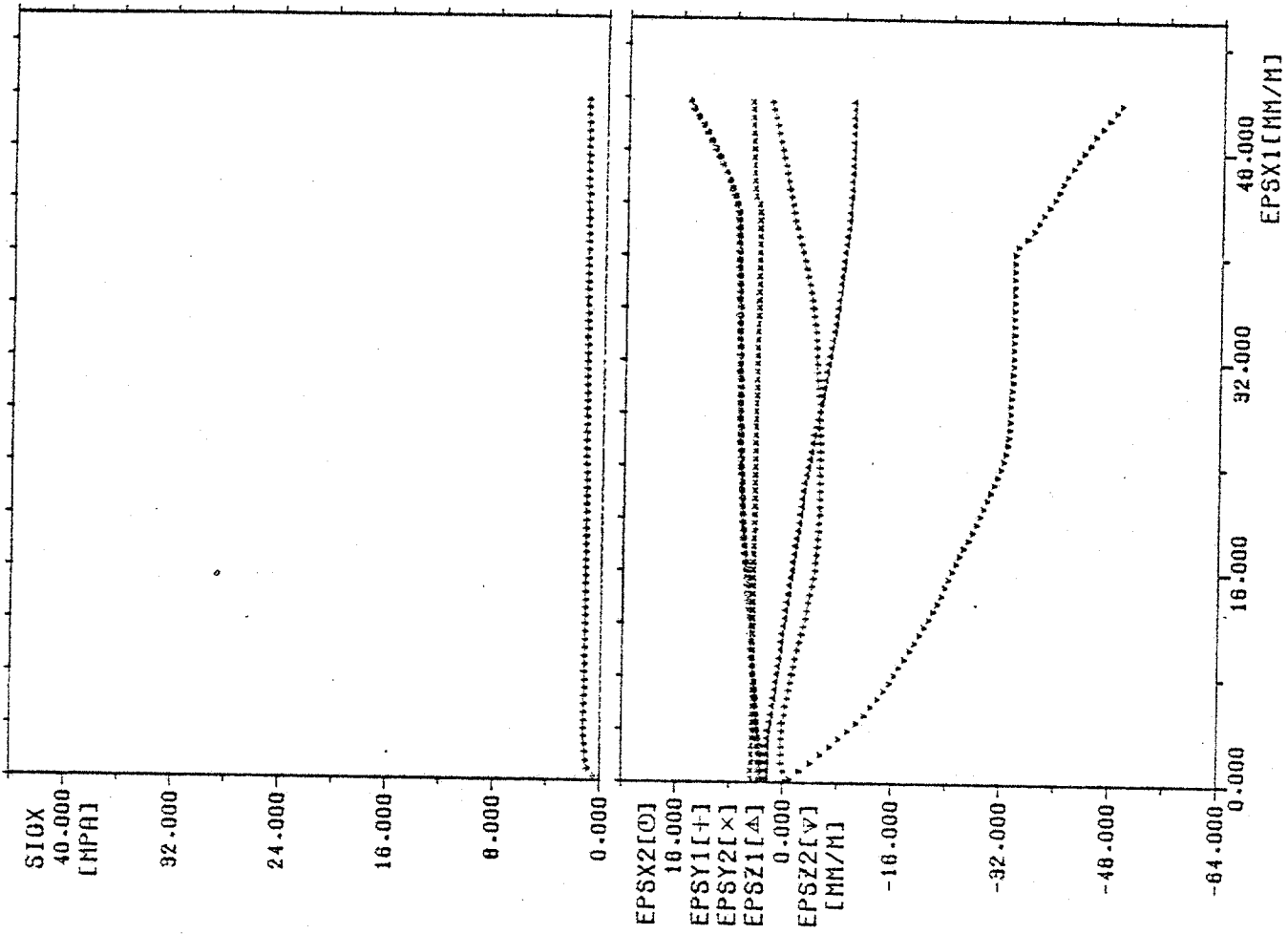


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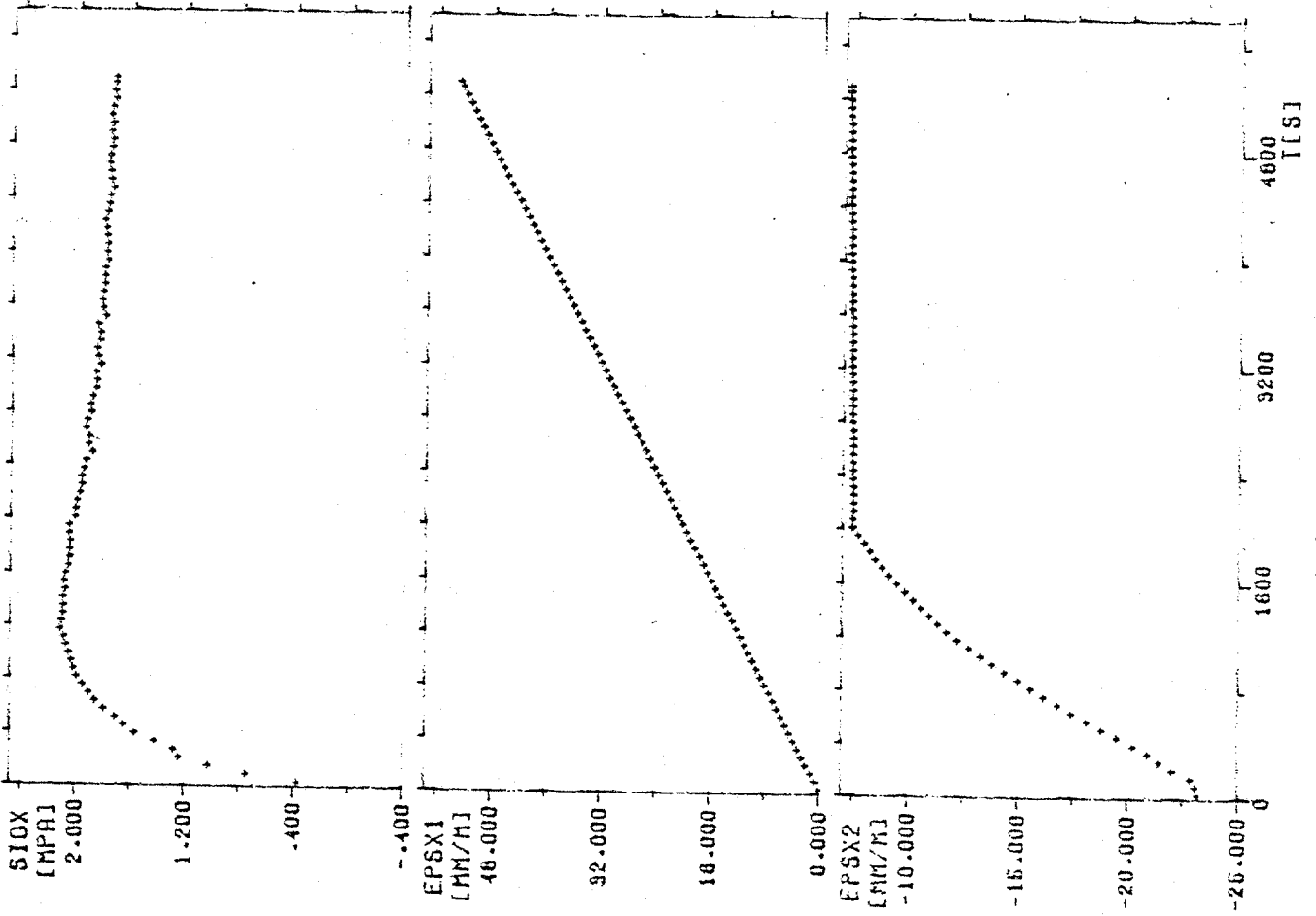
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SHELL 612509

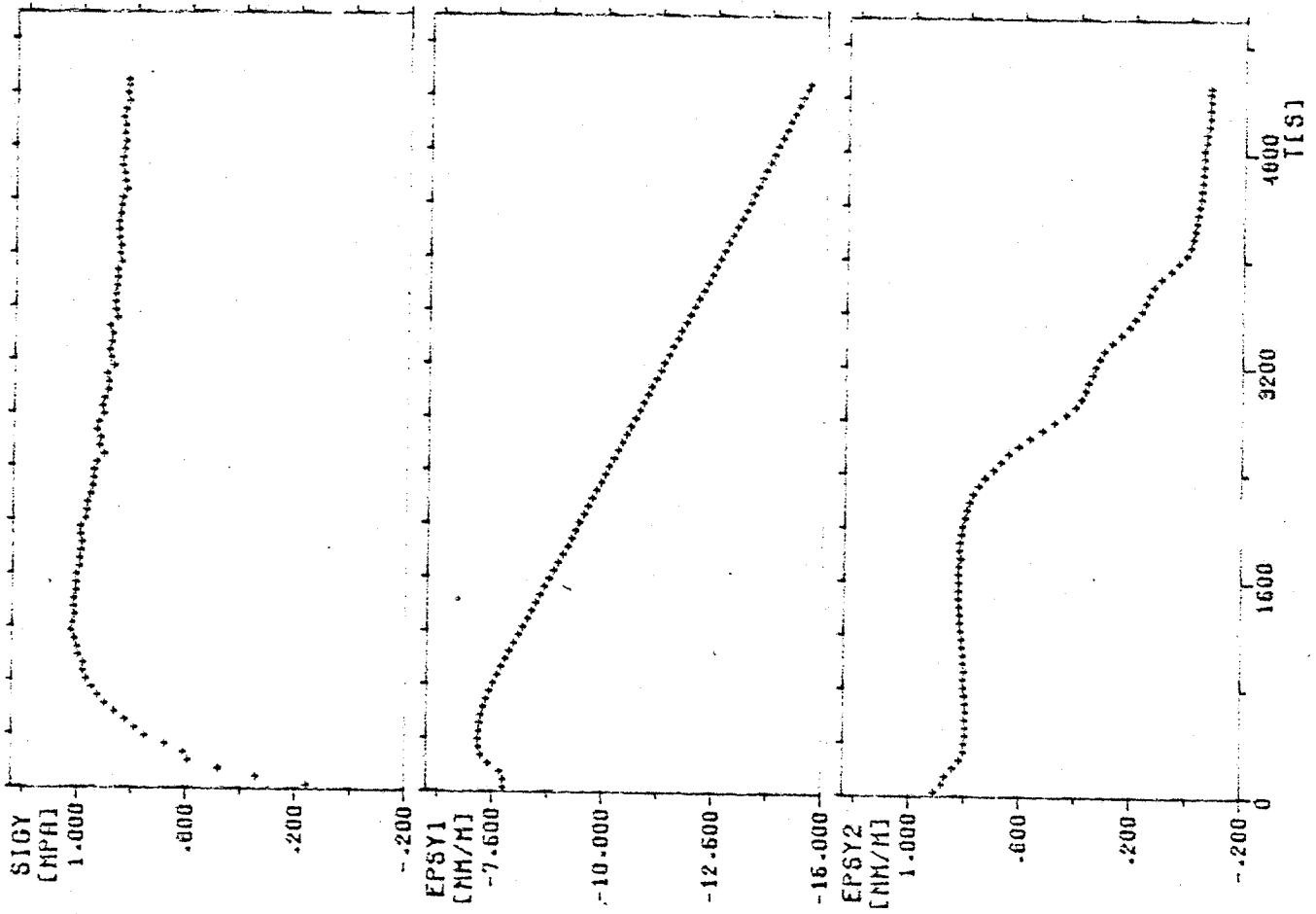


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SHELL 612509



SHELL 612509

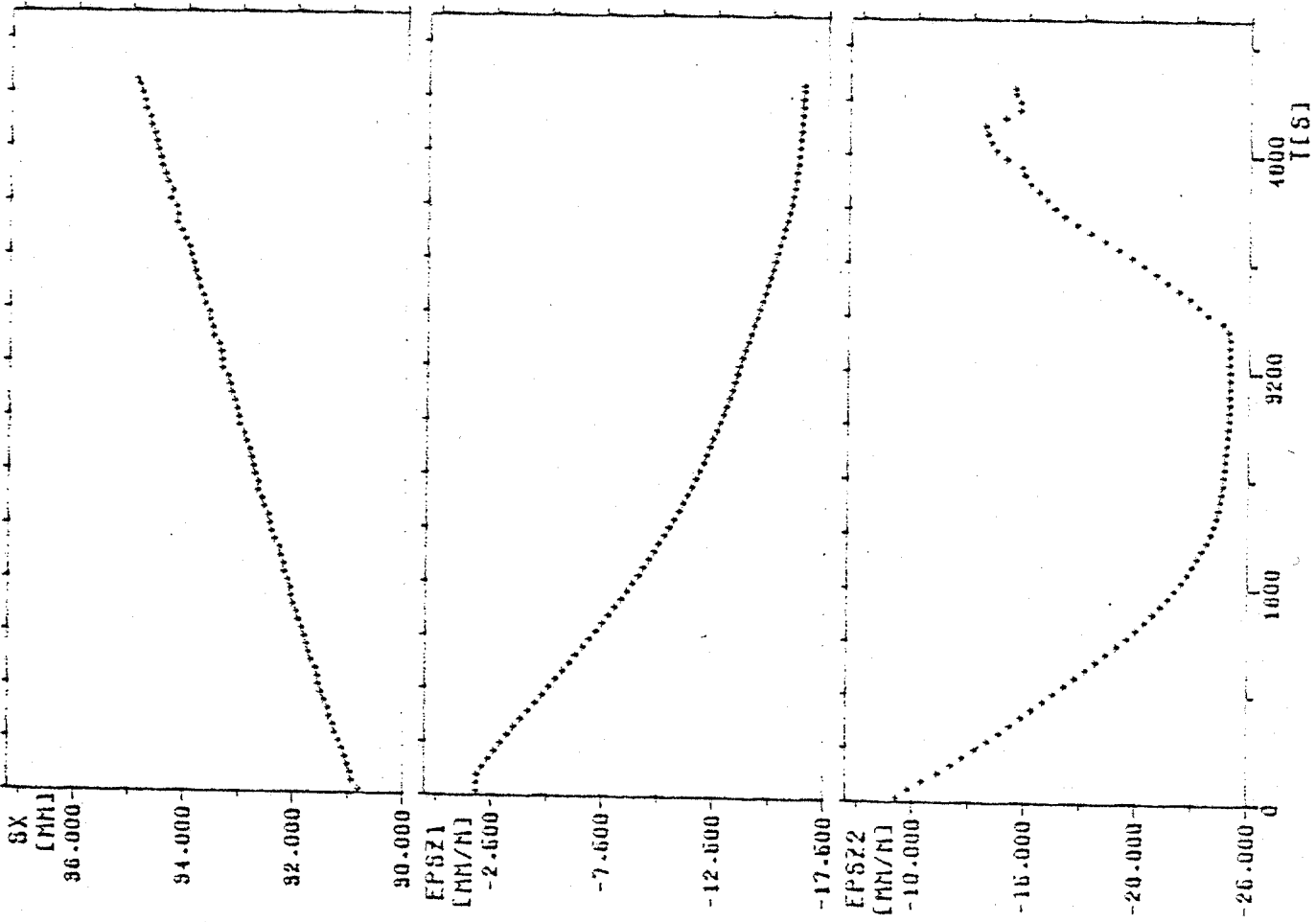
NR: 2002.1 V0M 06:01:03 09:00 UHR



SHELL 612509

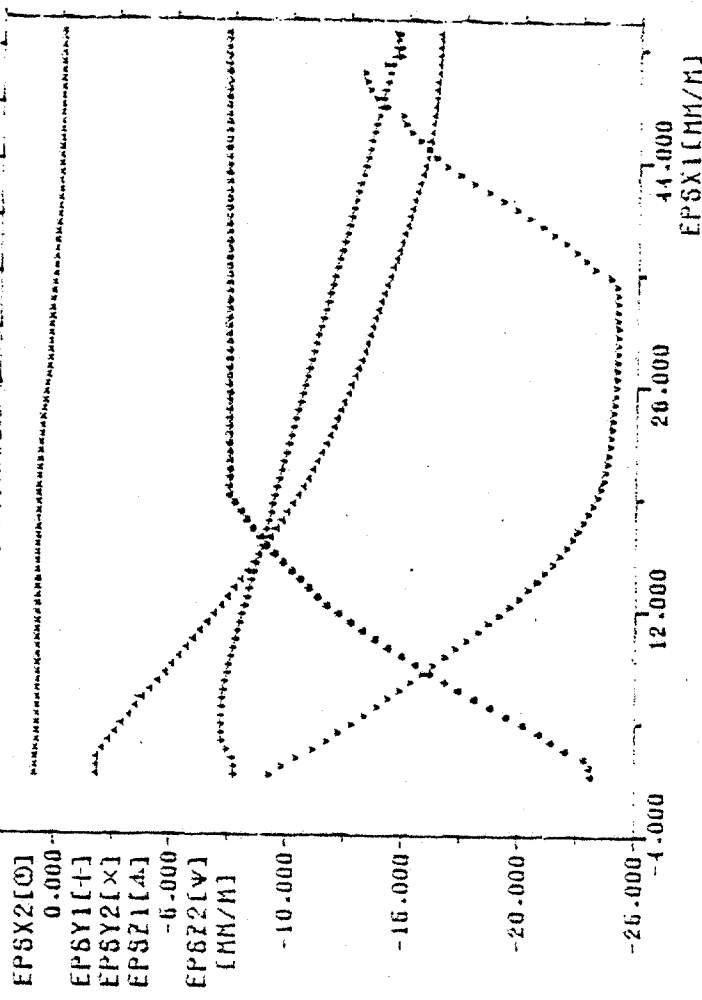
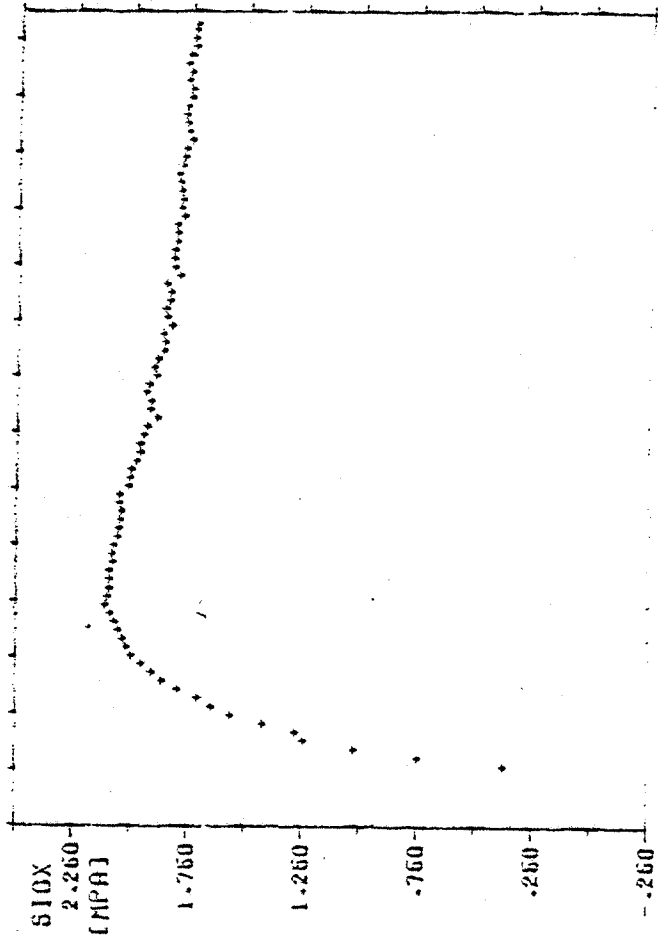
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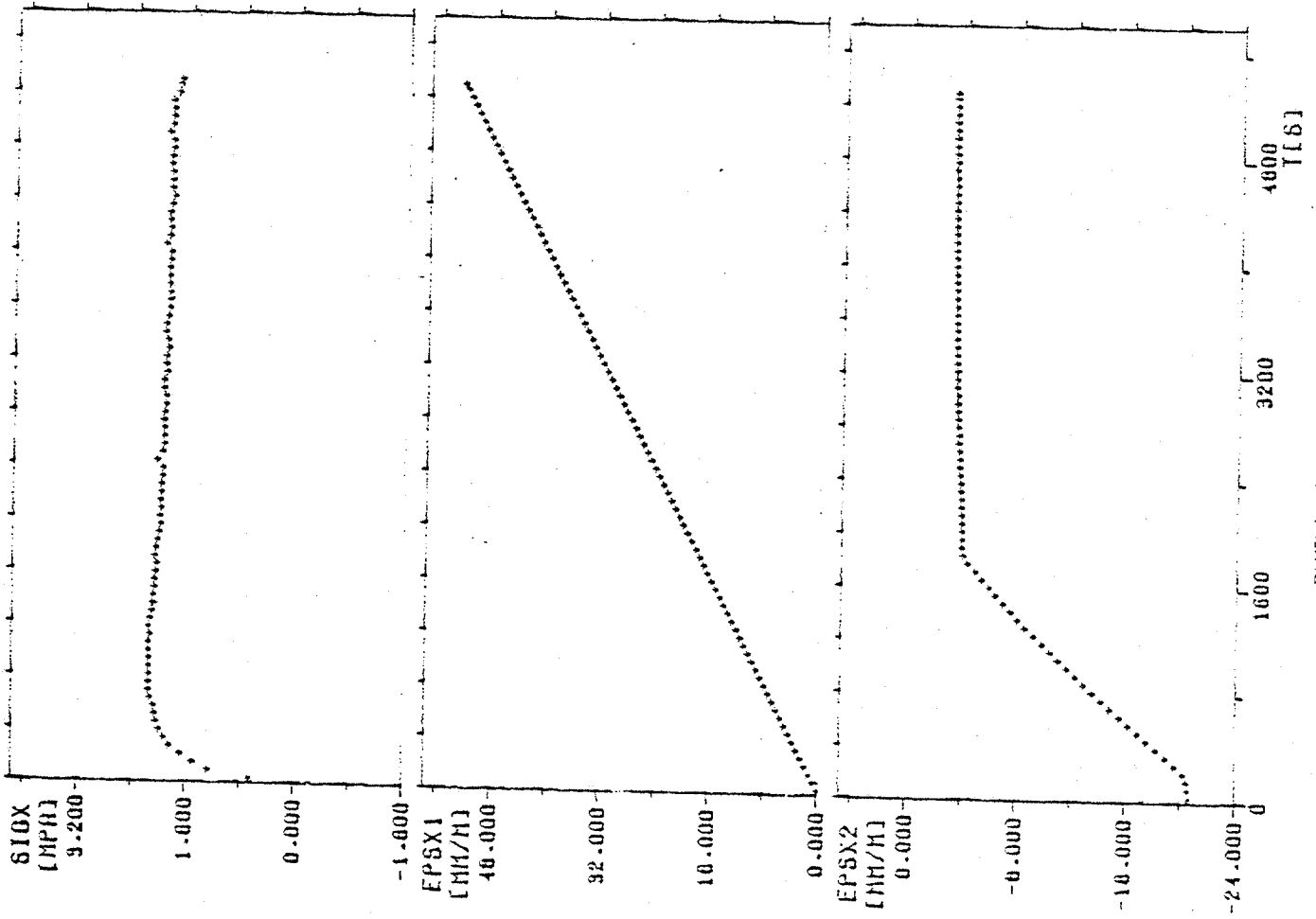
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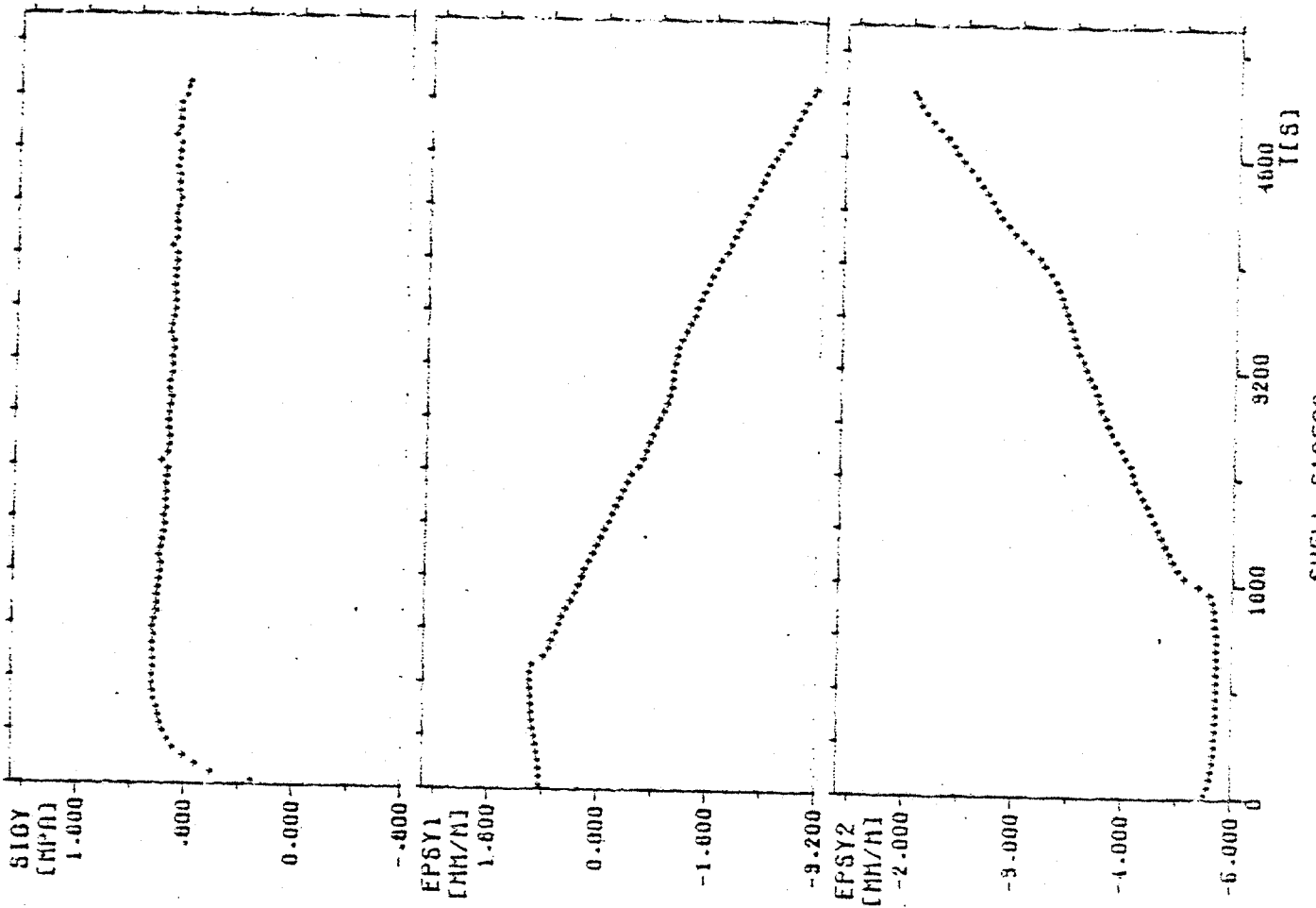


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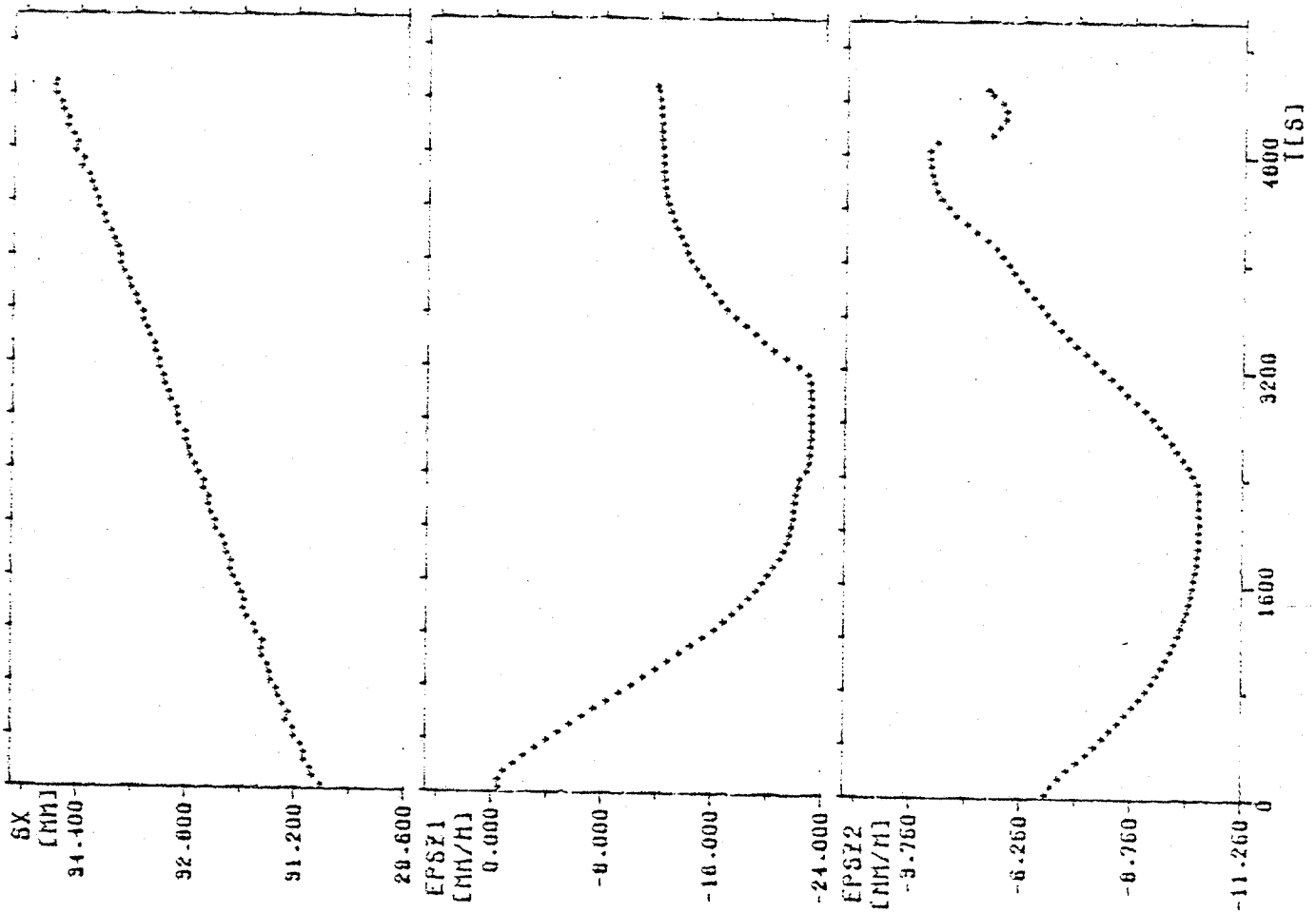
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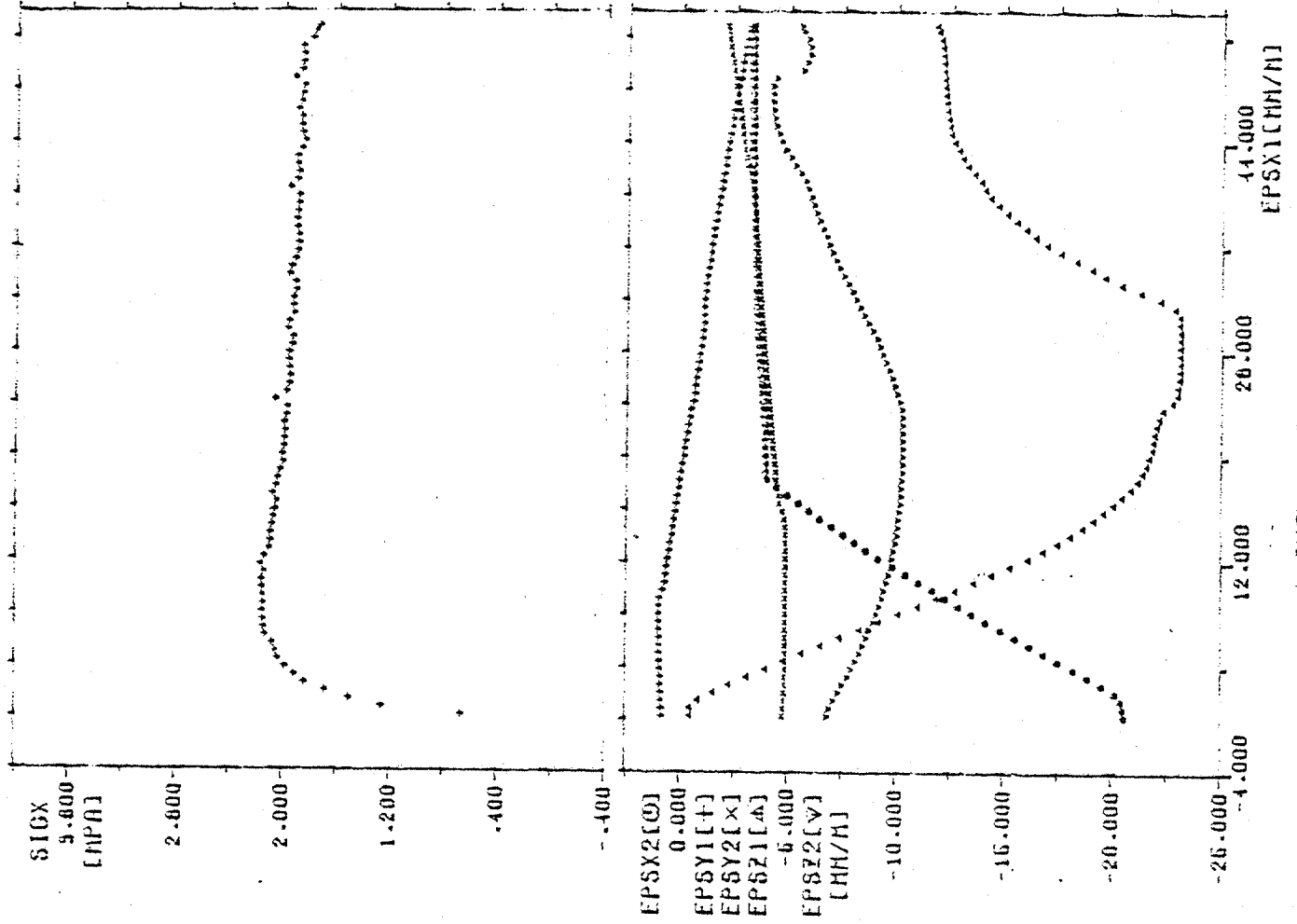
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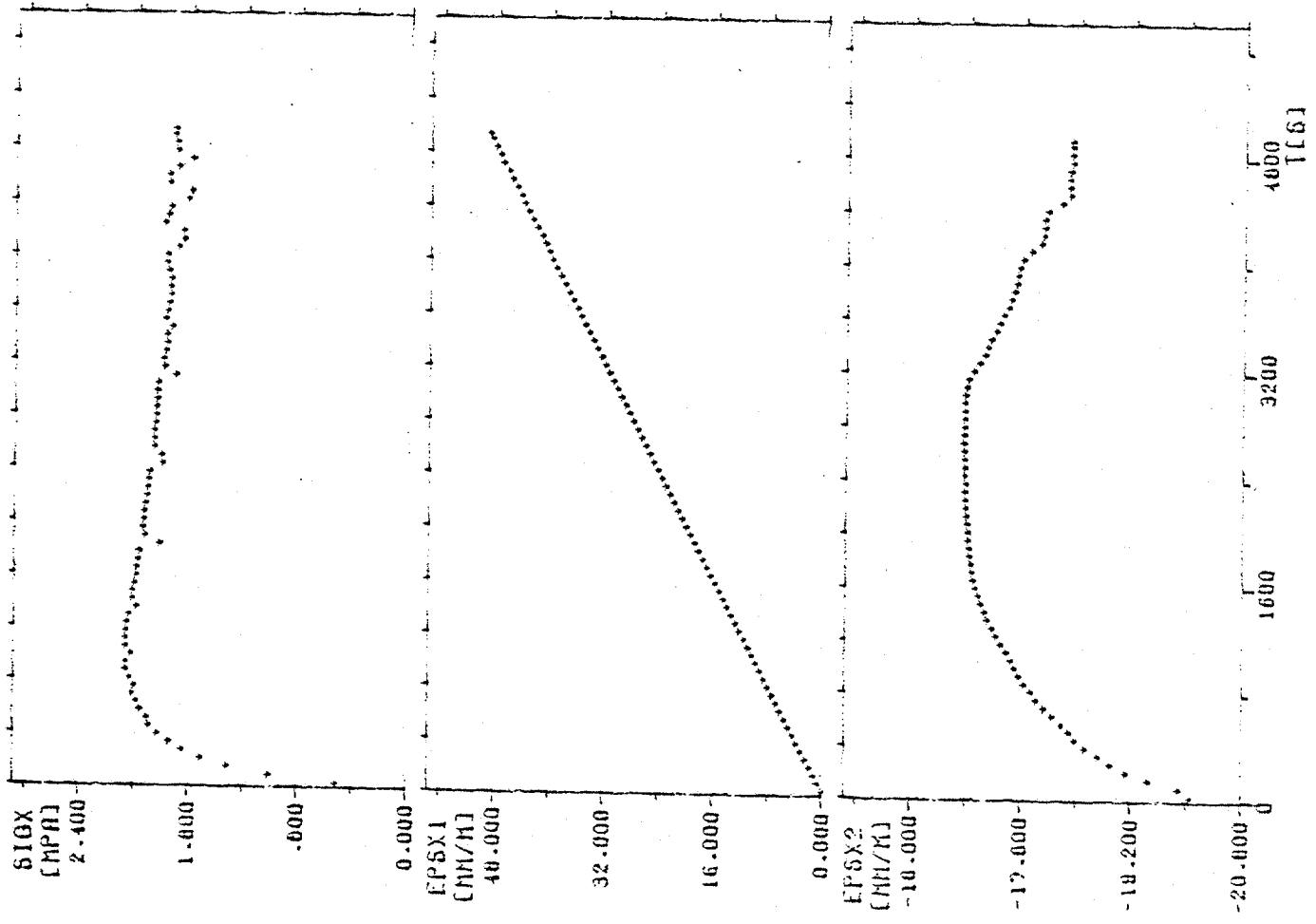
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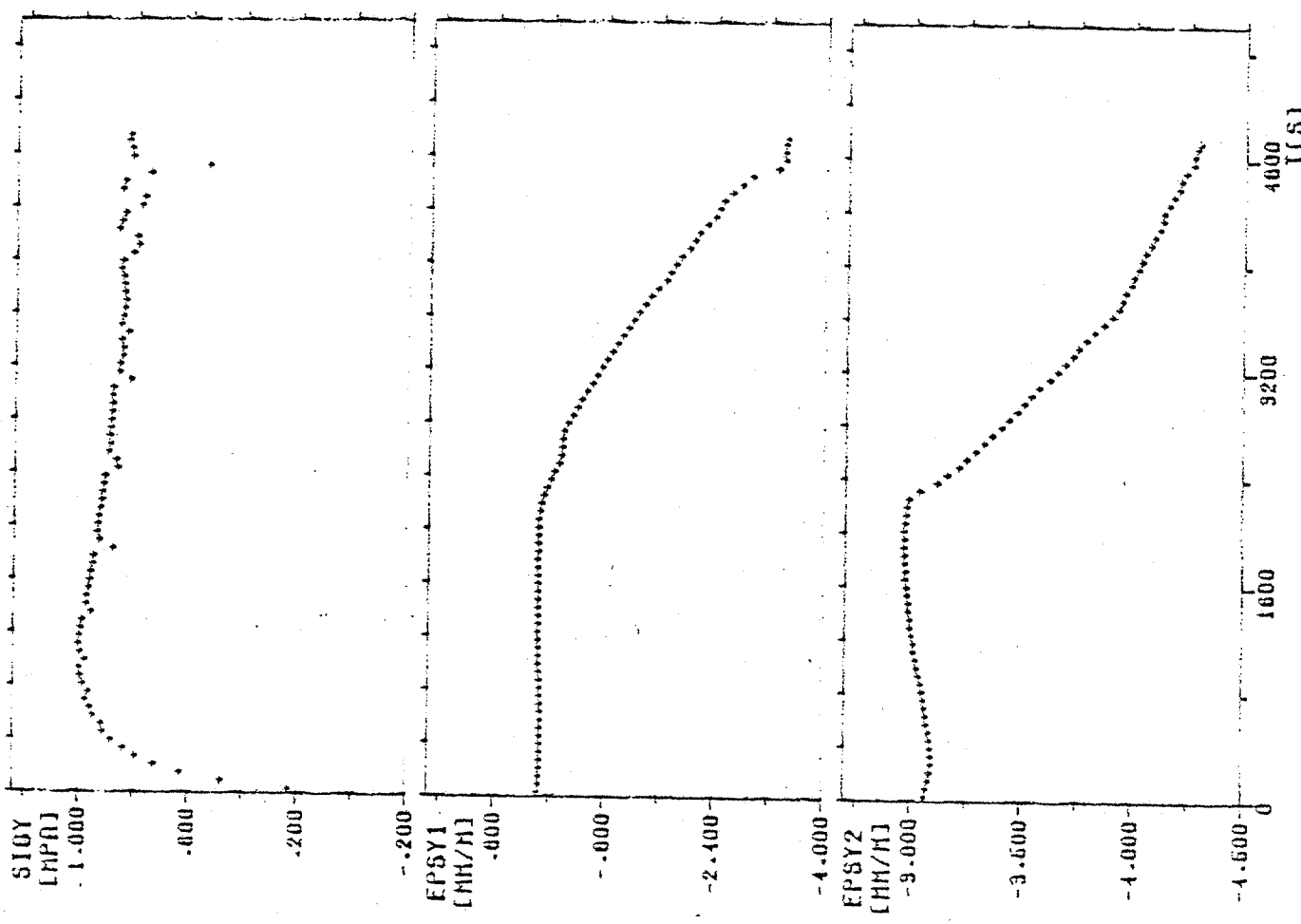
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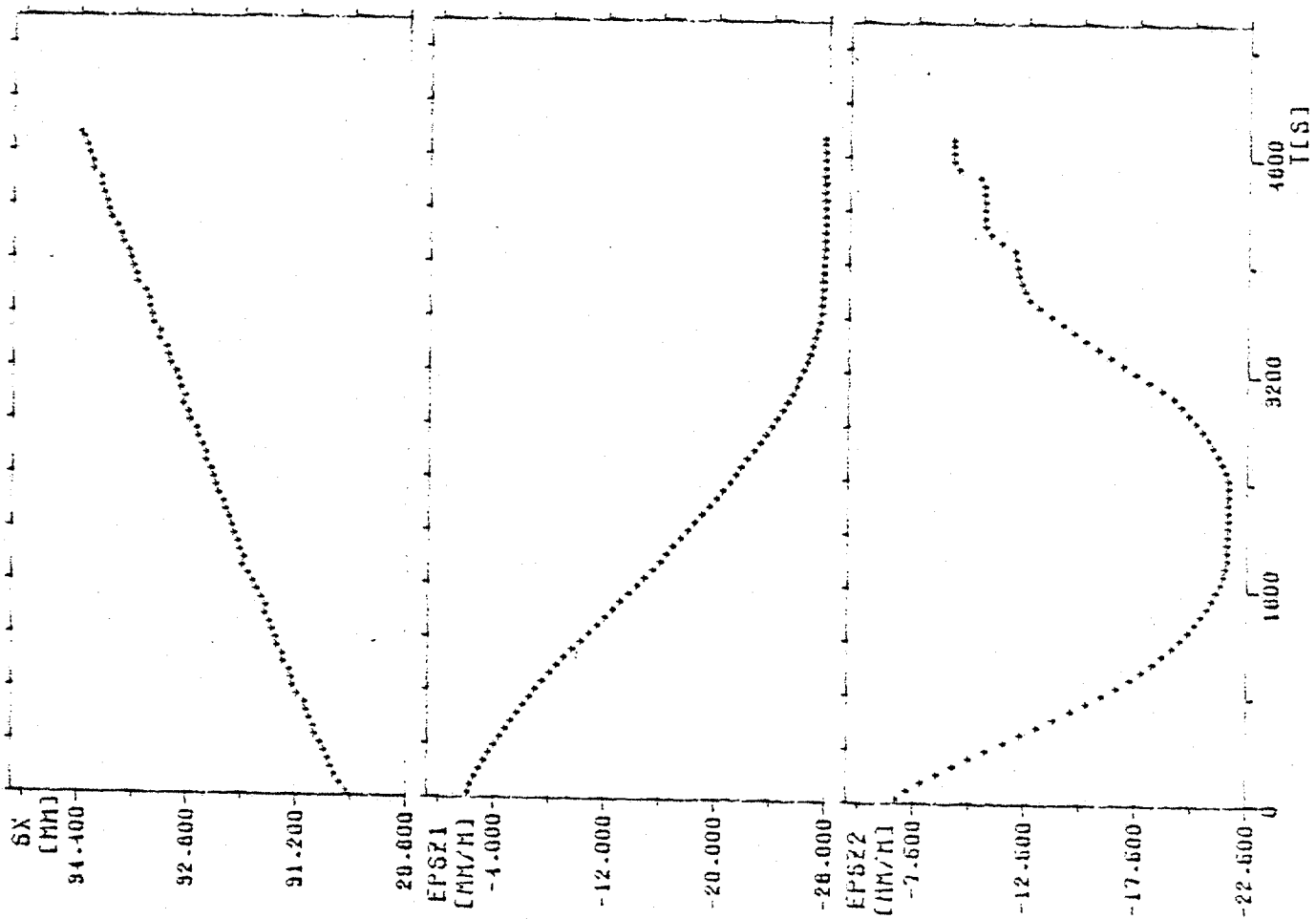
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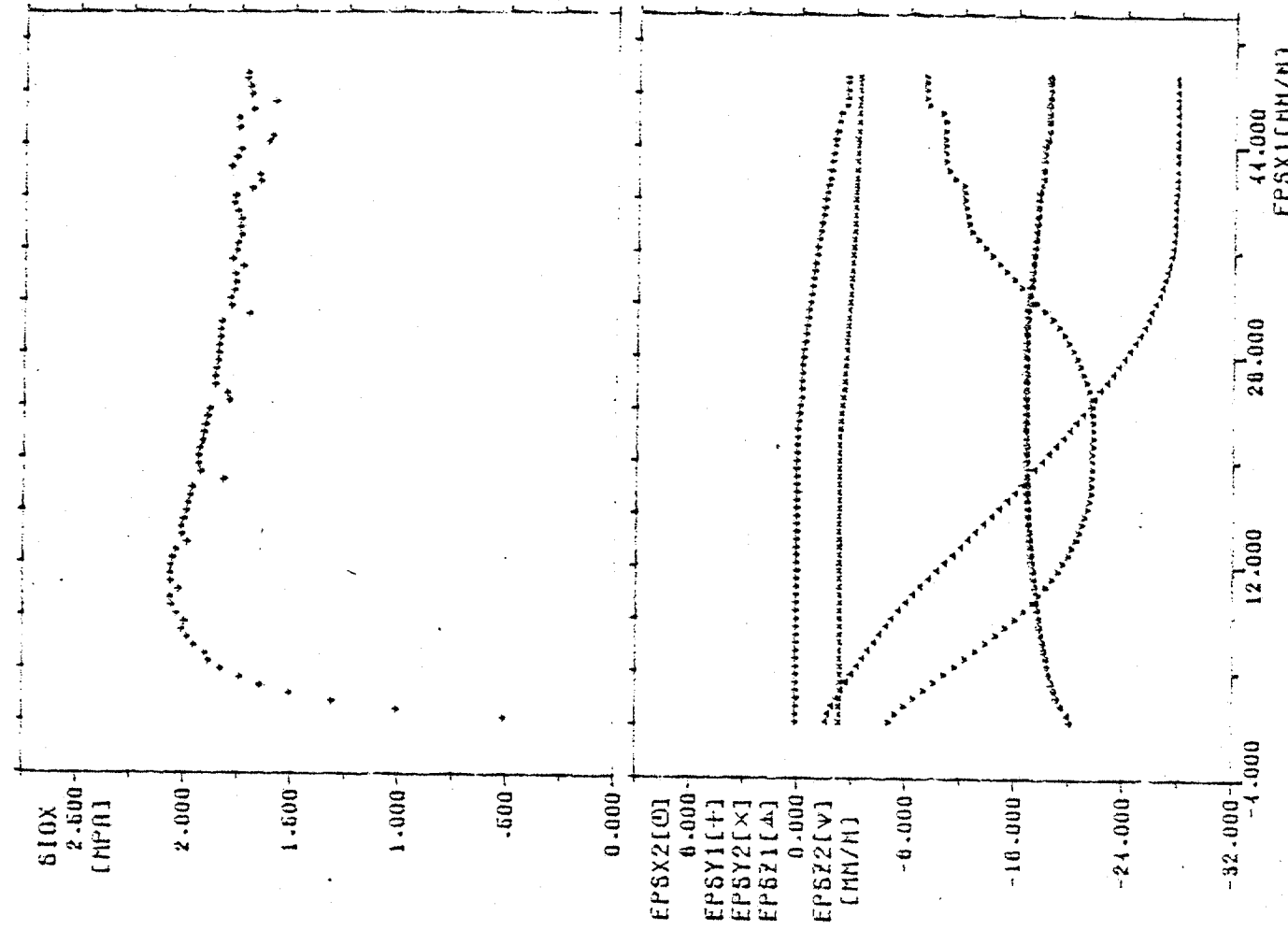
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 NR: 2006.1 VOM 11:01:03 11:02 UHR



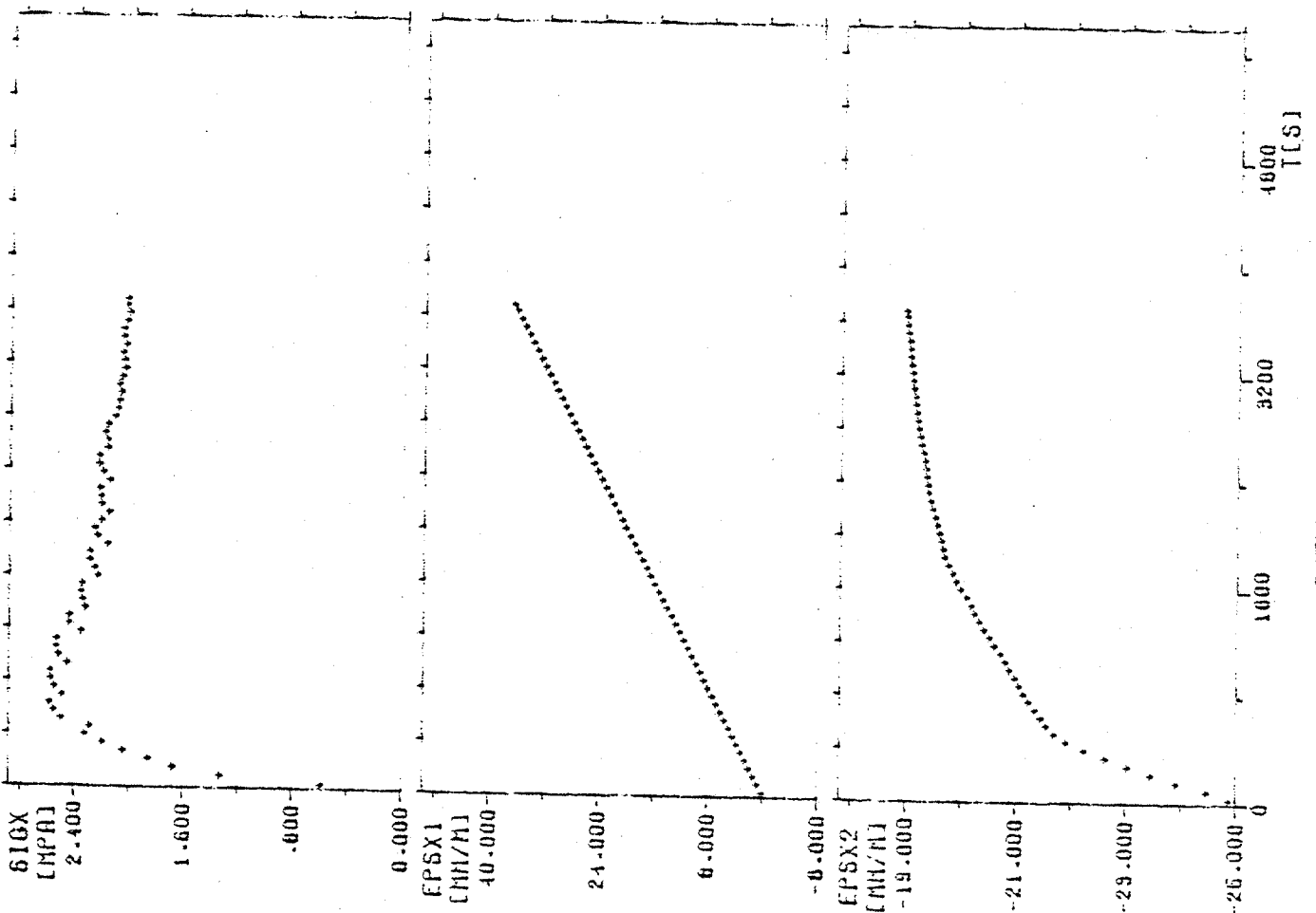
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SHELL 612509  
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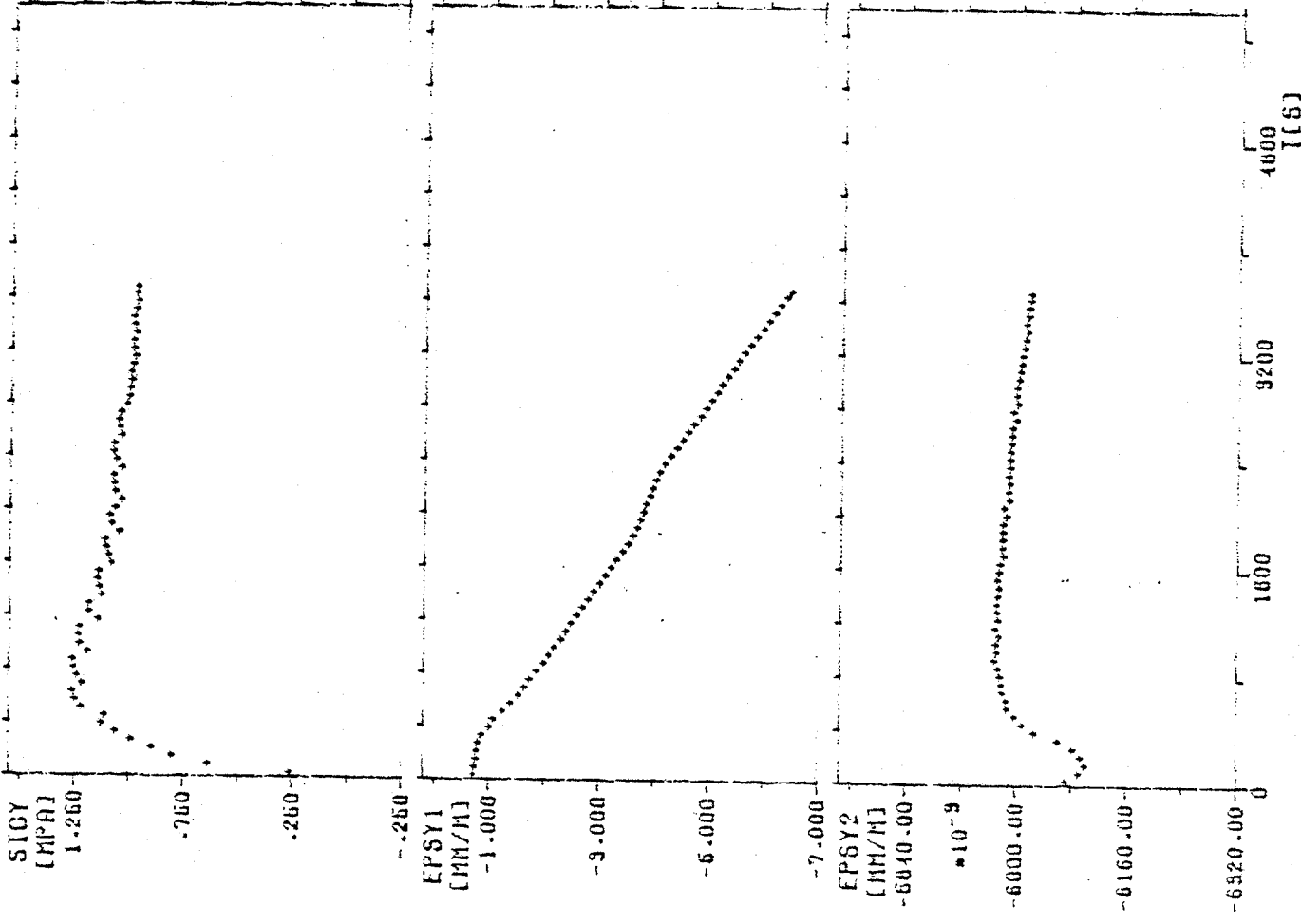


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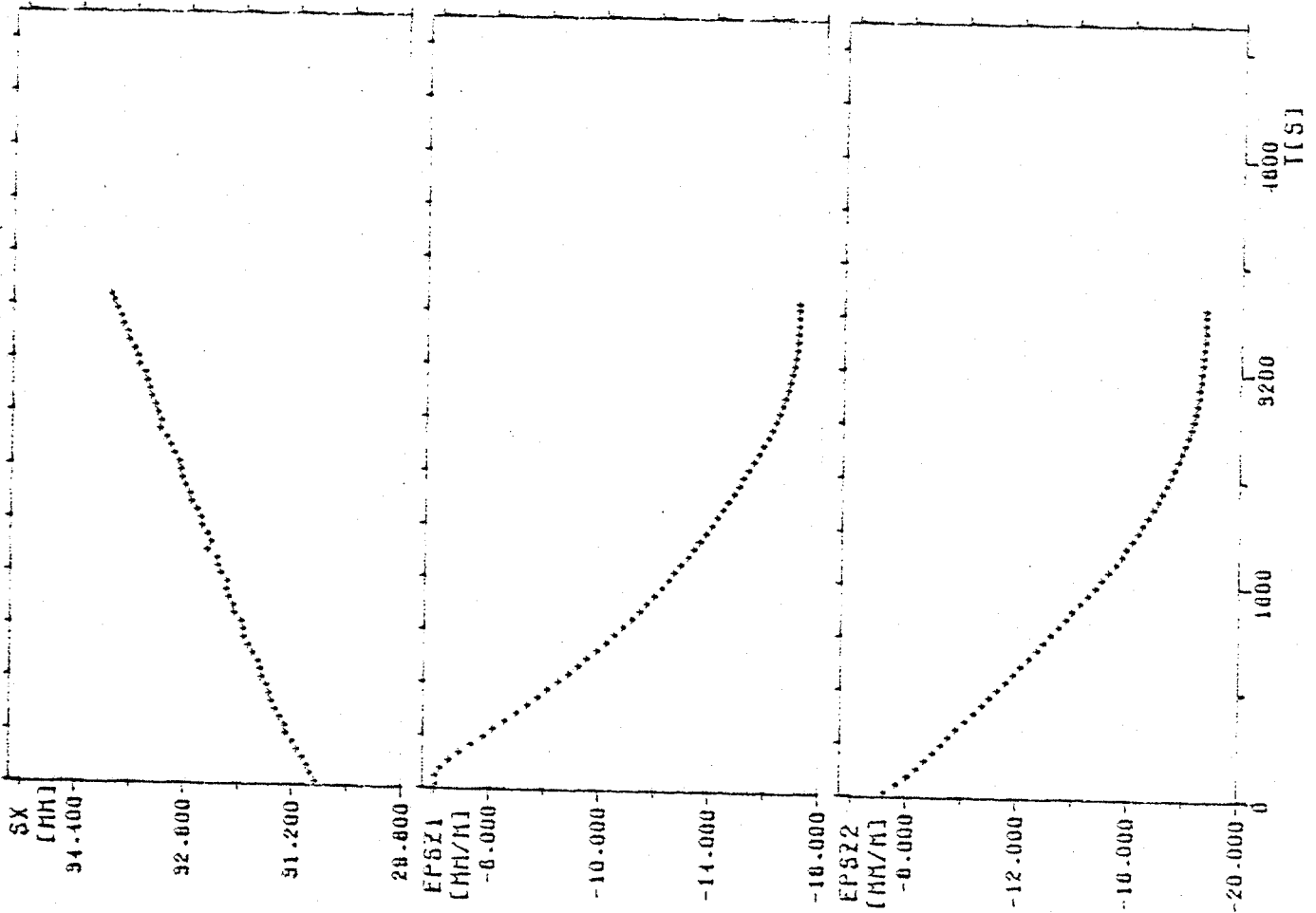
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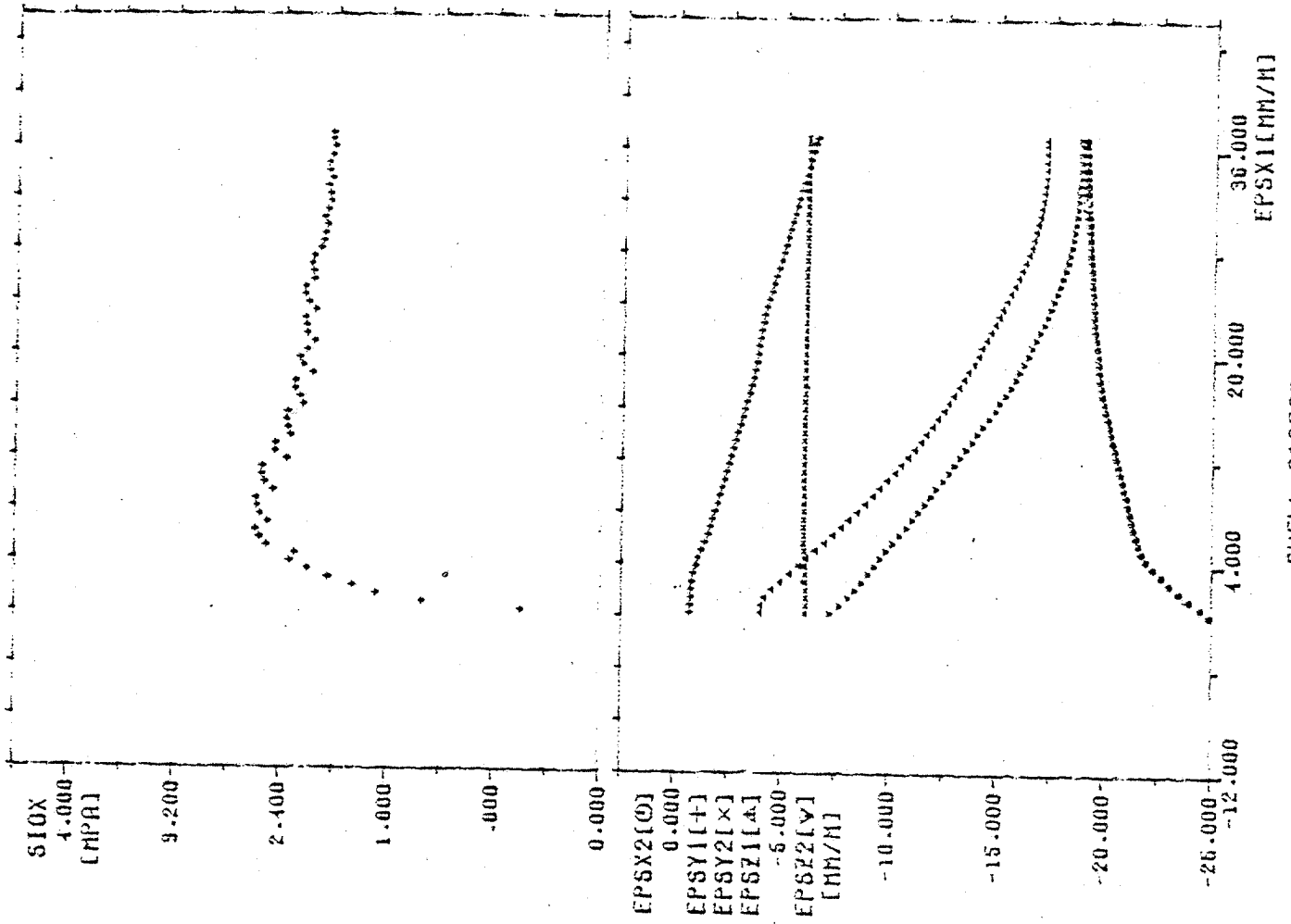
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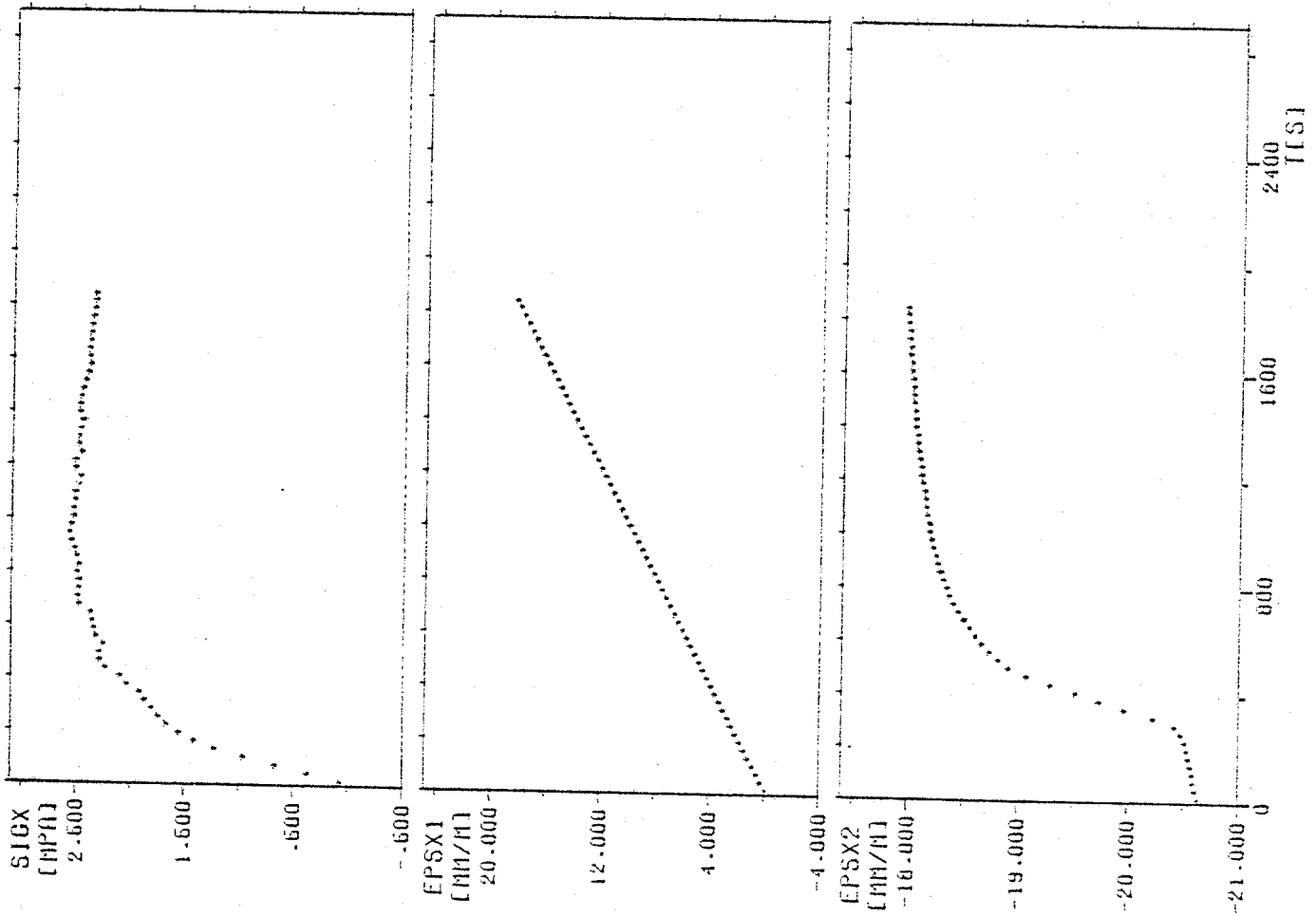
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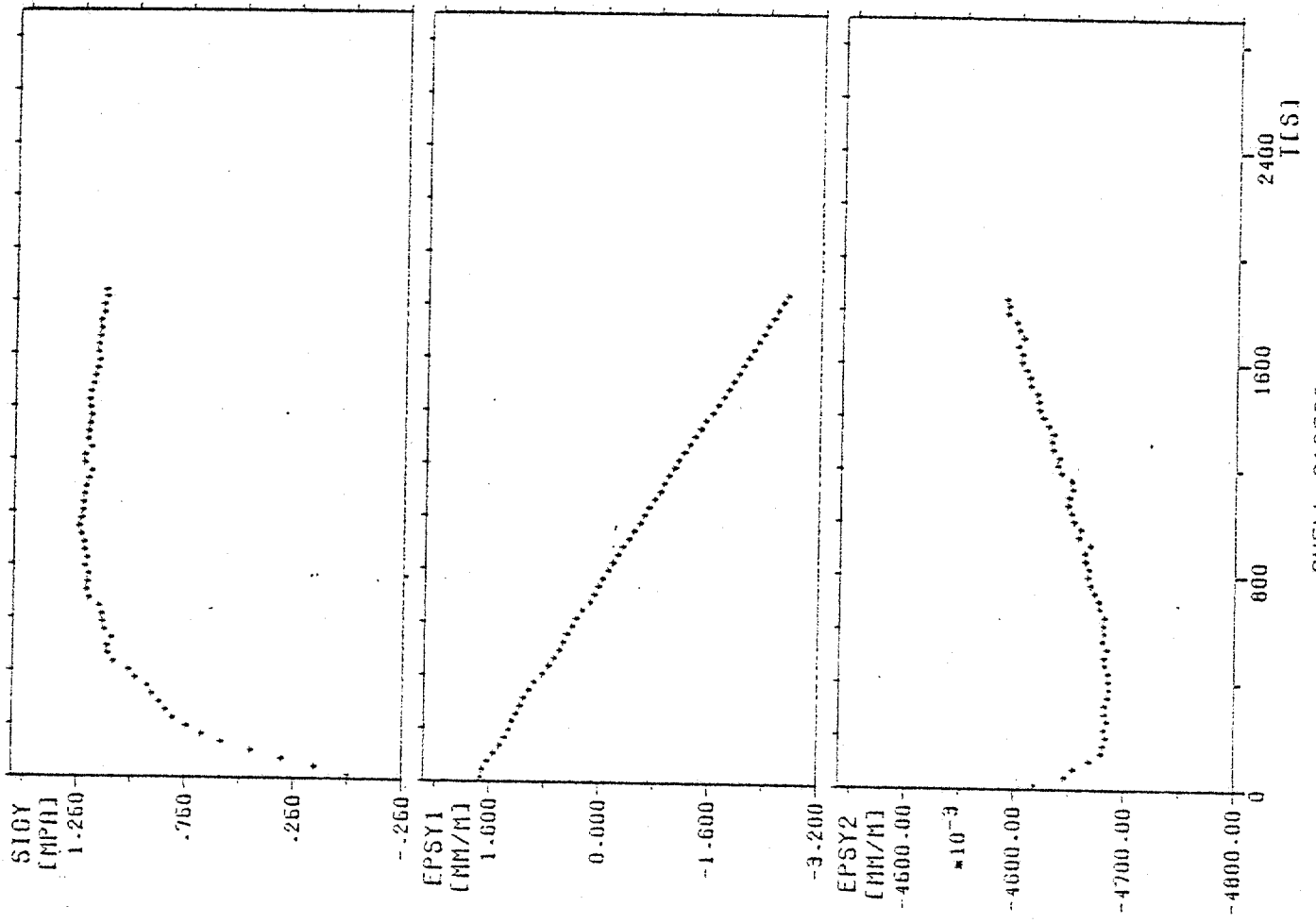
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SHELL 612509

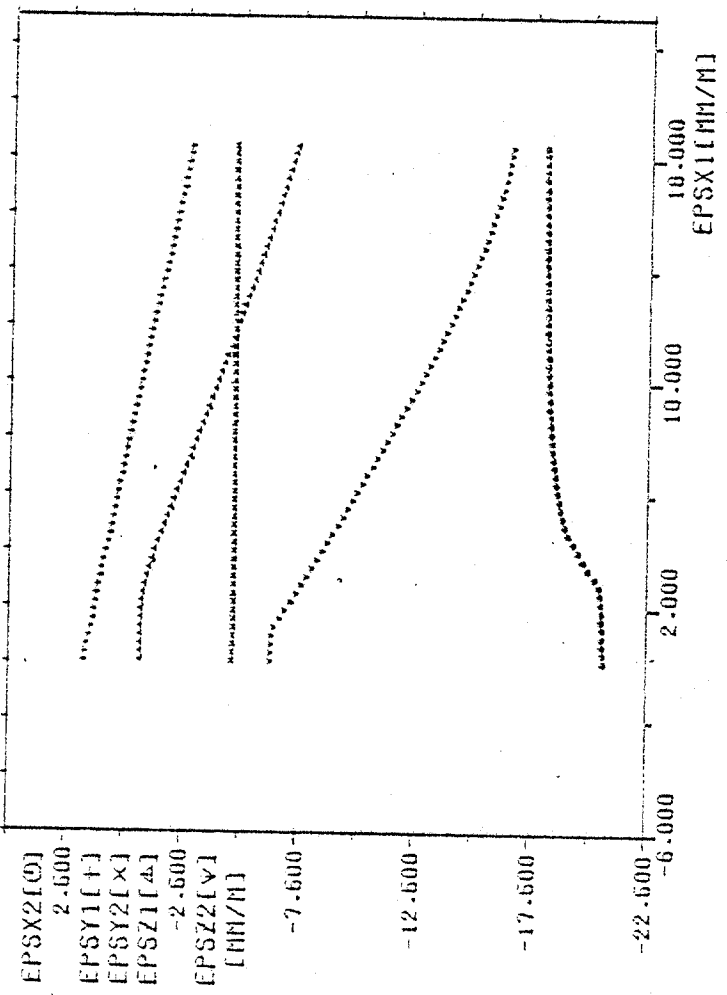
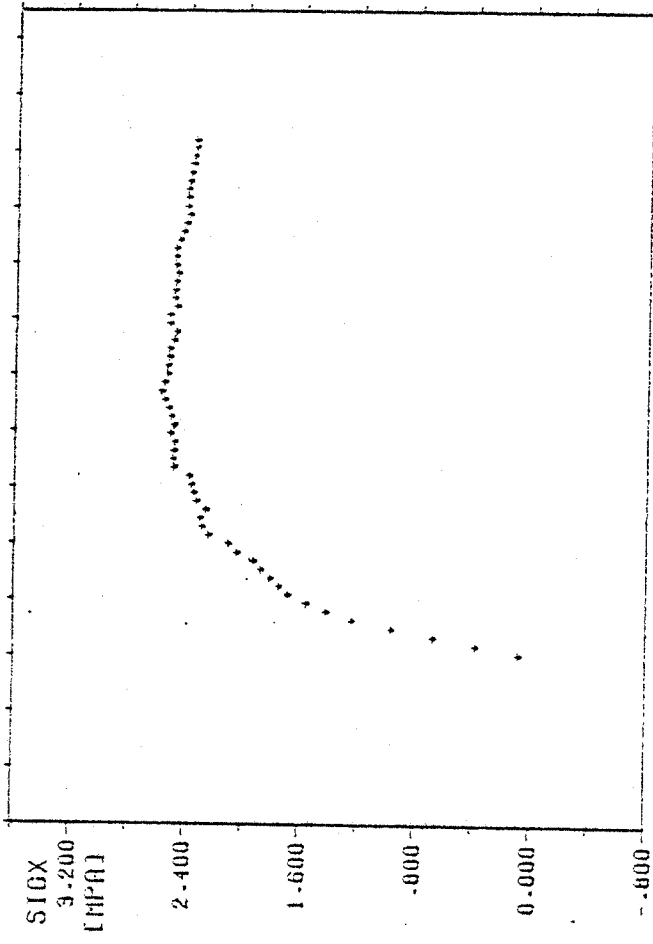
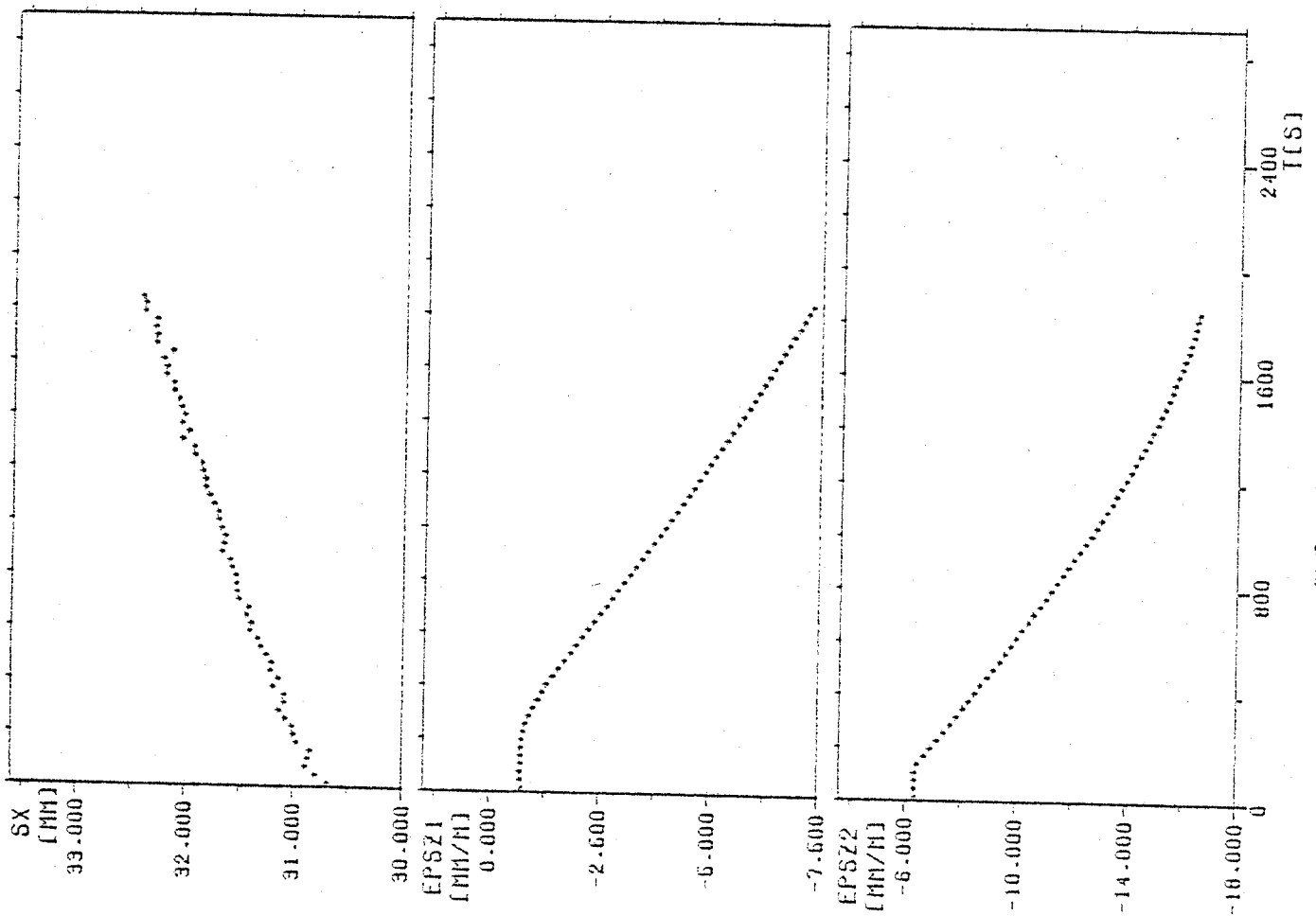
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SHELL 612509

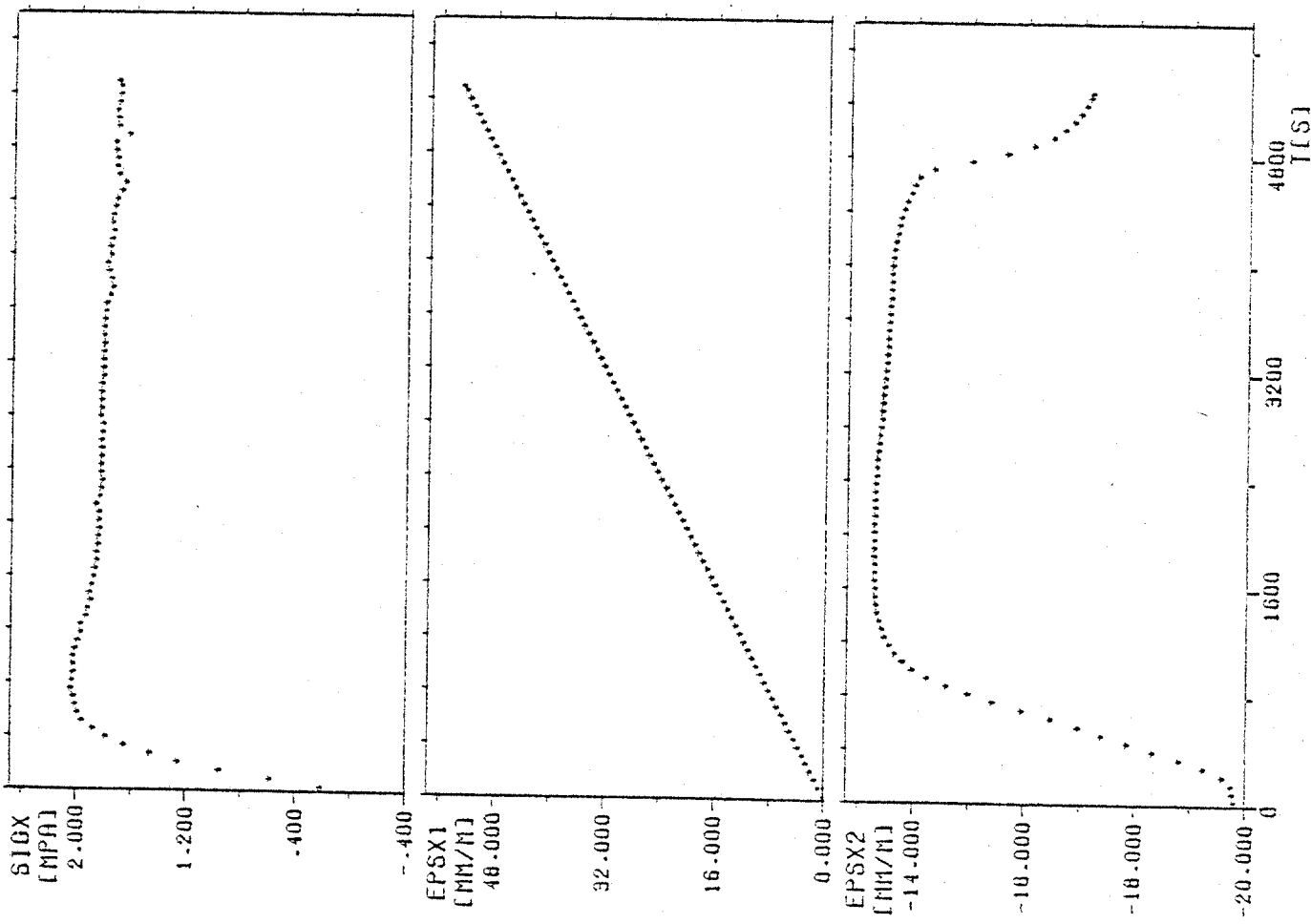
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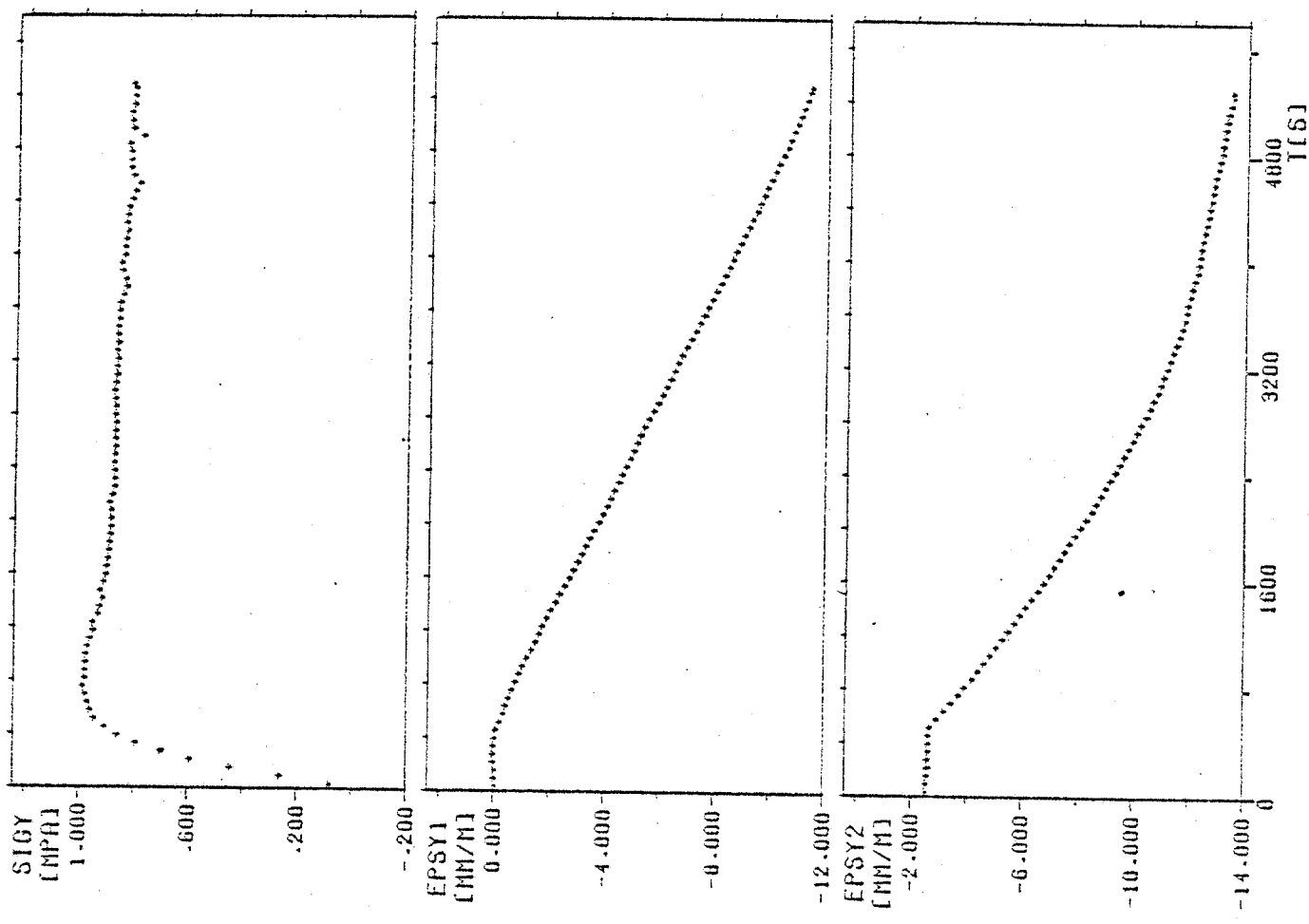
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SHELL 612509  
 NR: 2010.1 VOM 12:01:03 12:53 UHR



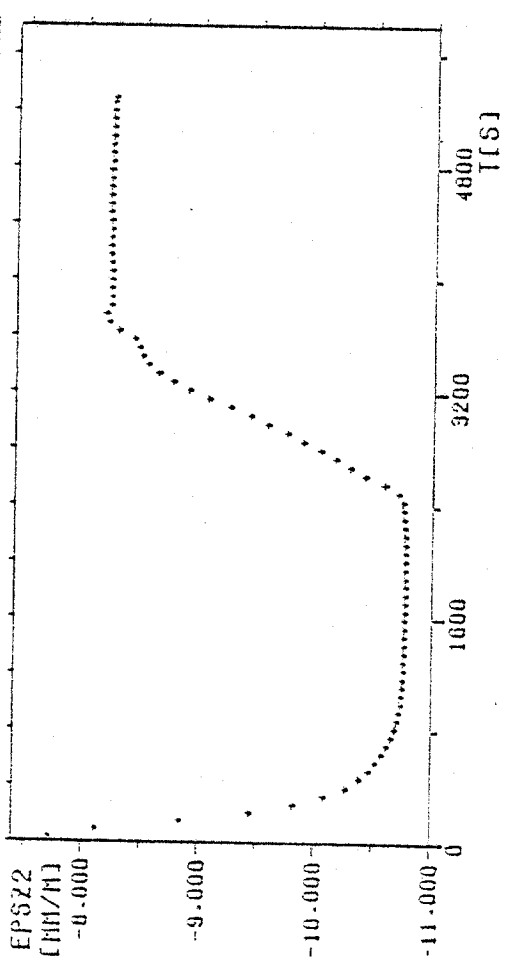
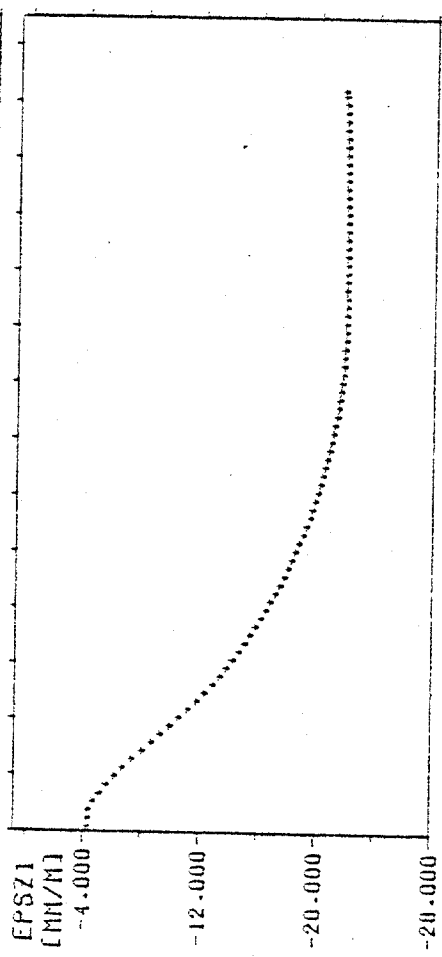
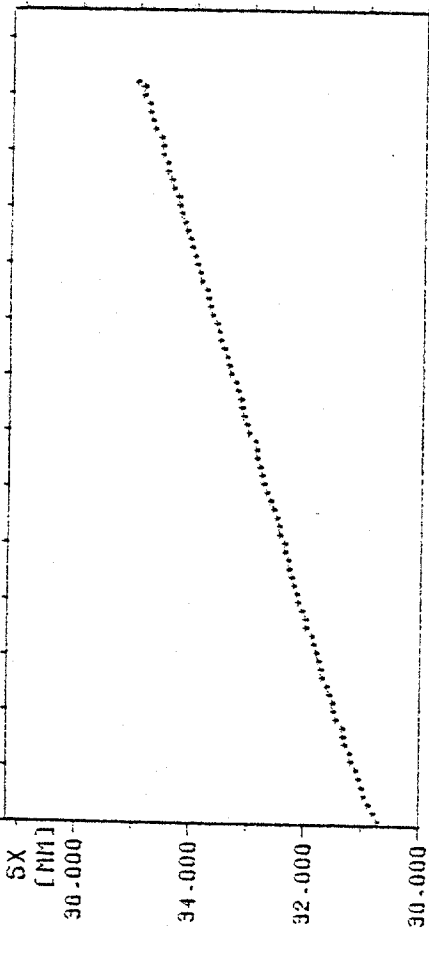
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NR: 2011.1 VOM 12:01:83 14:55 UHR



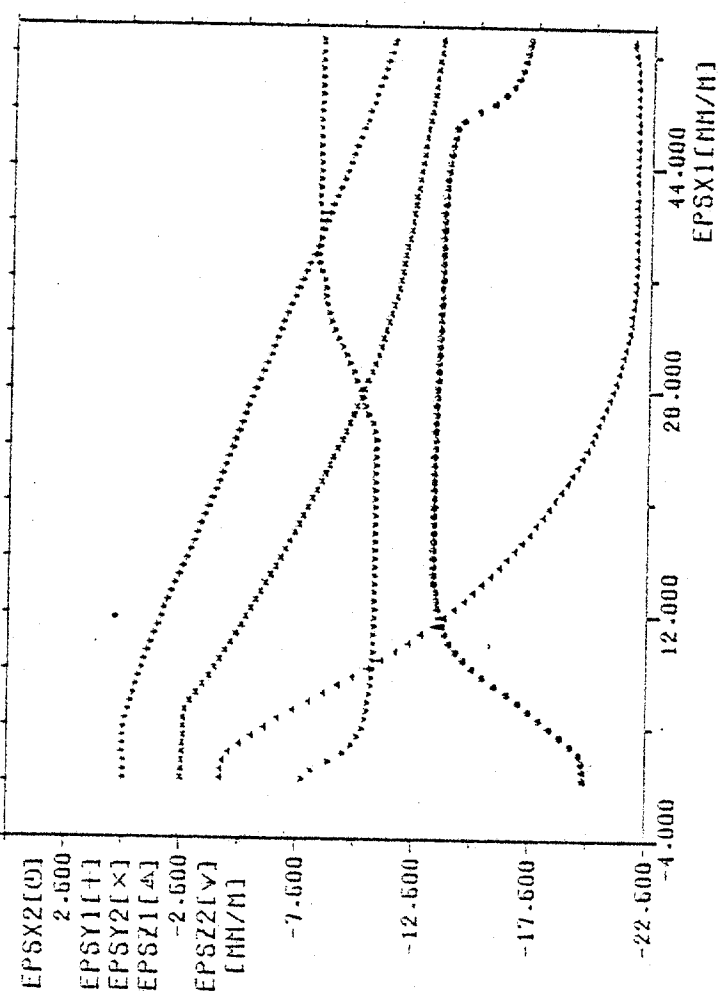
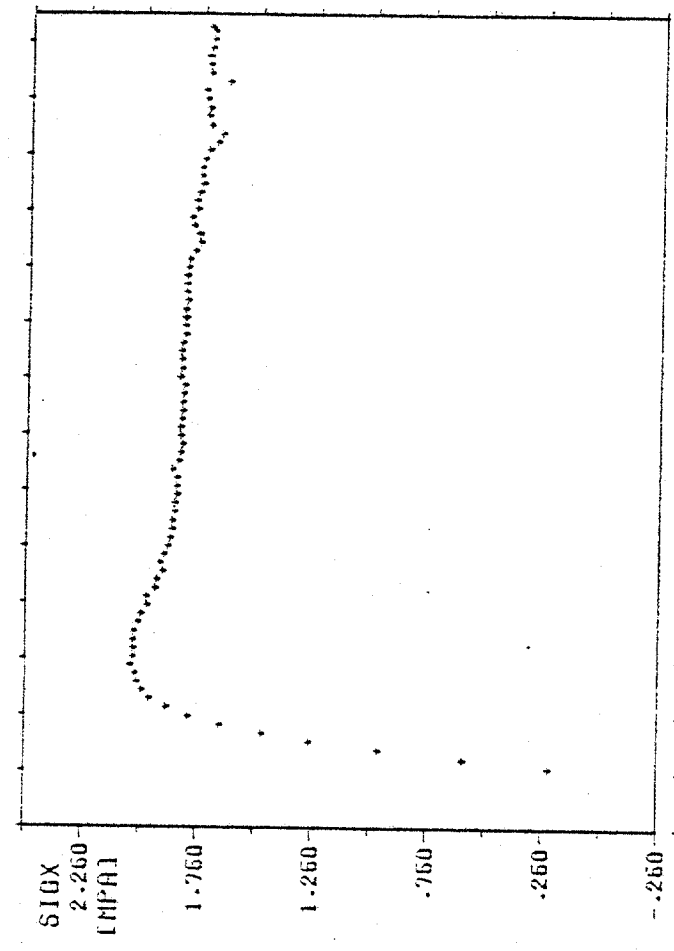
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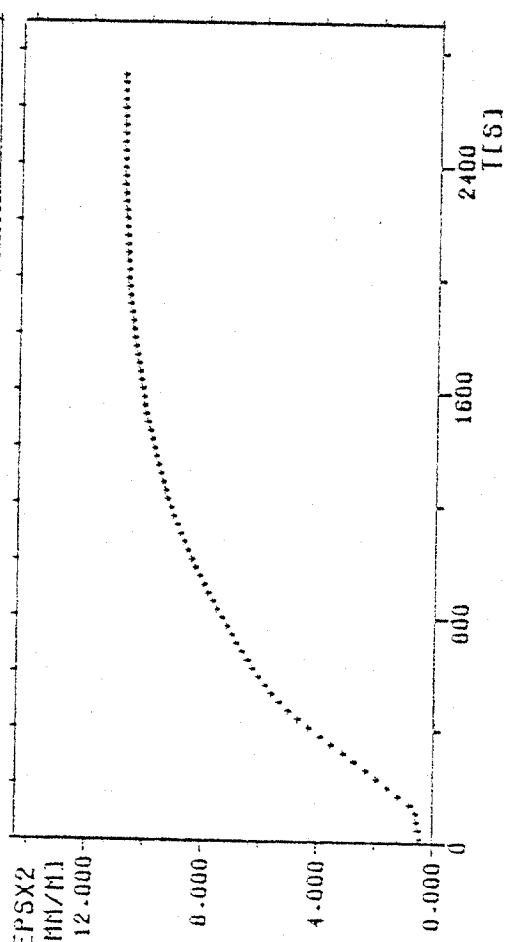
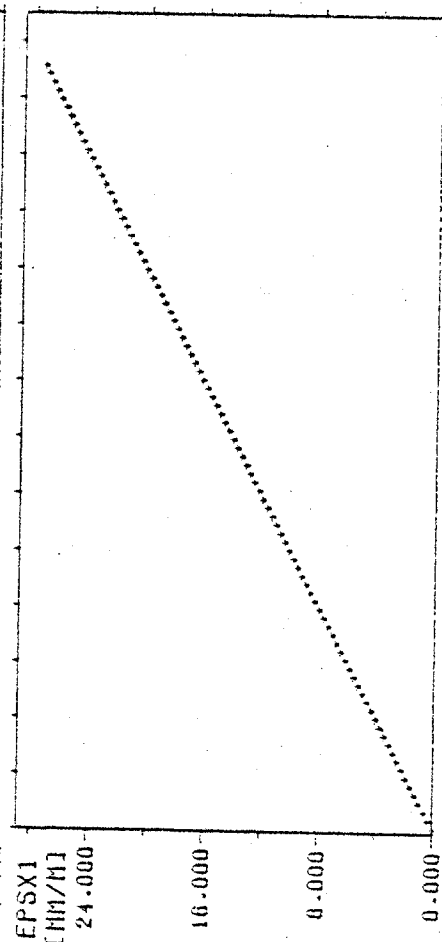
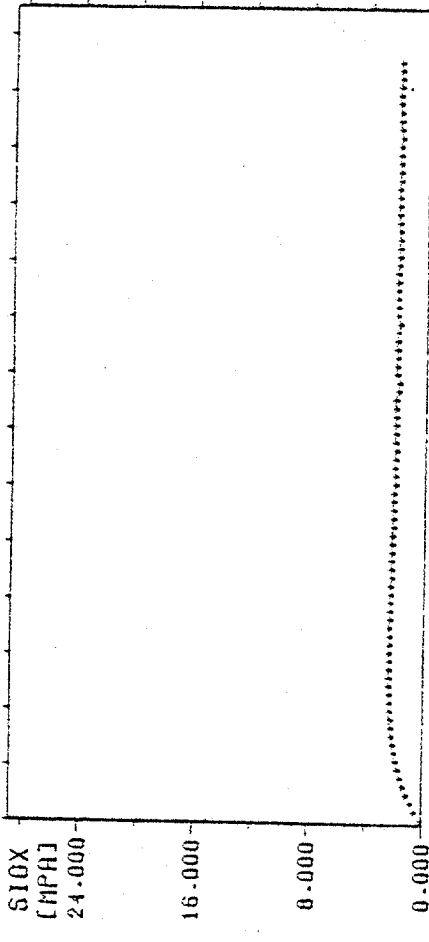
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SHELL 612509

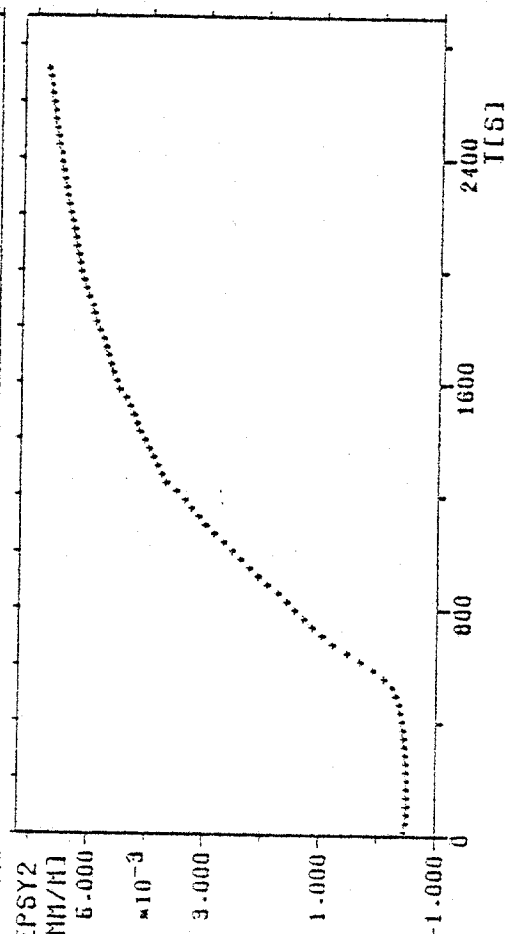
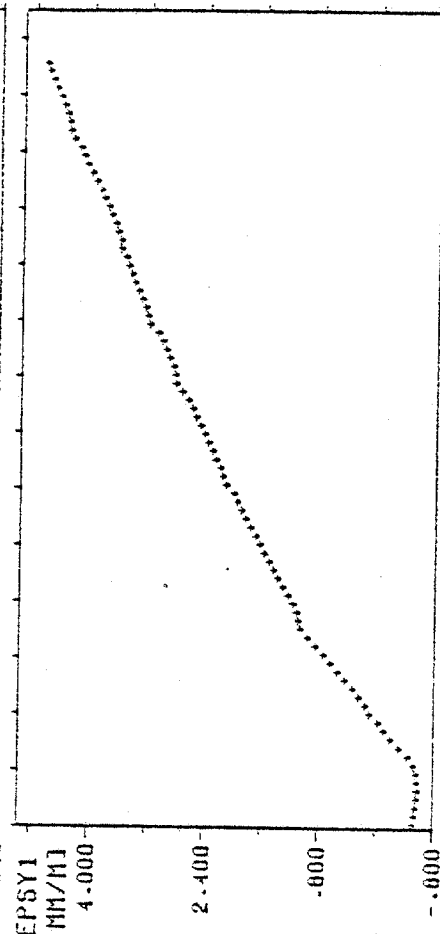
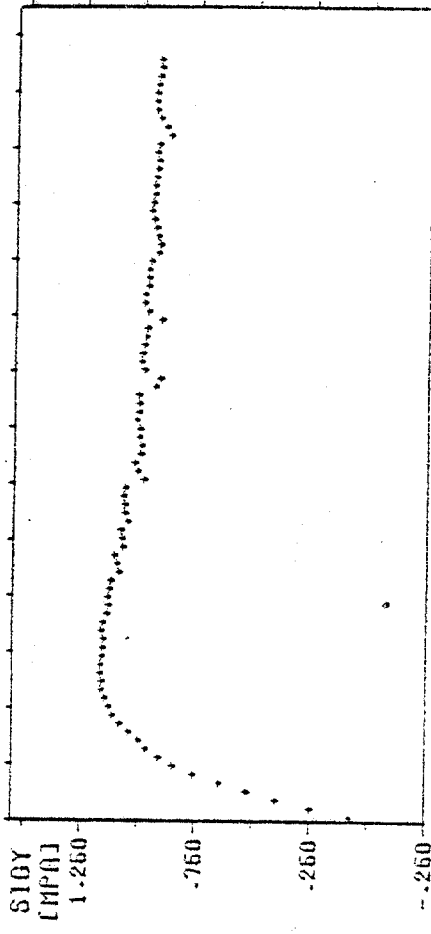
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SHELL 612509

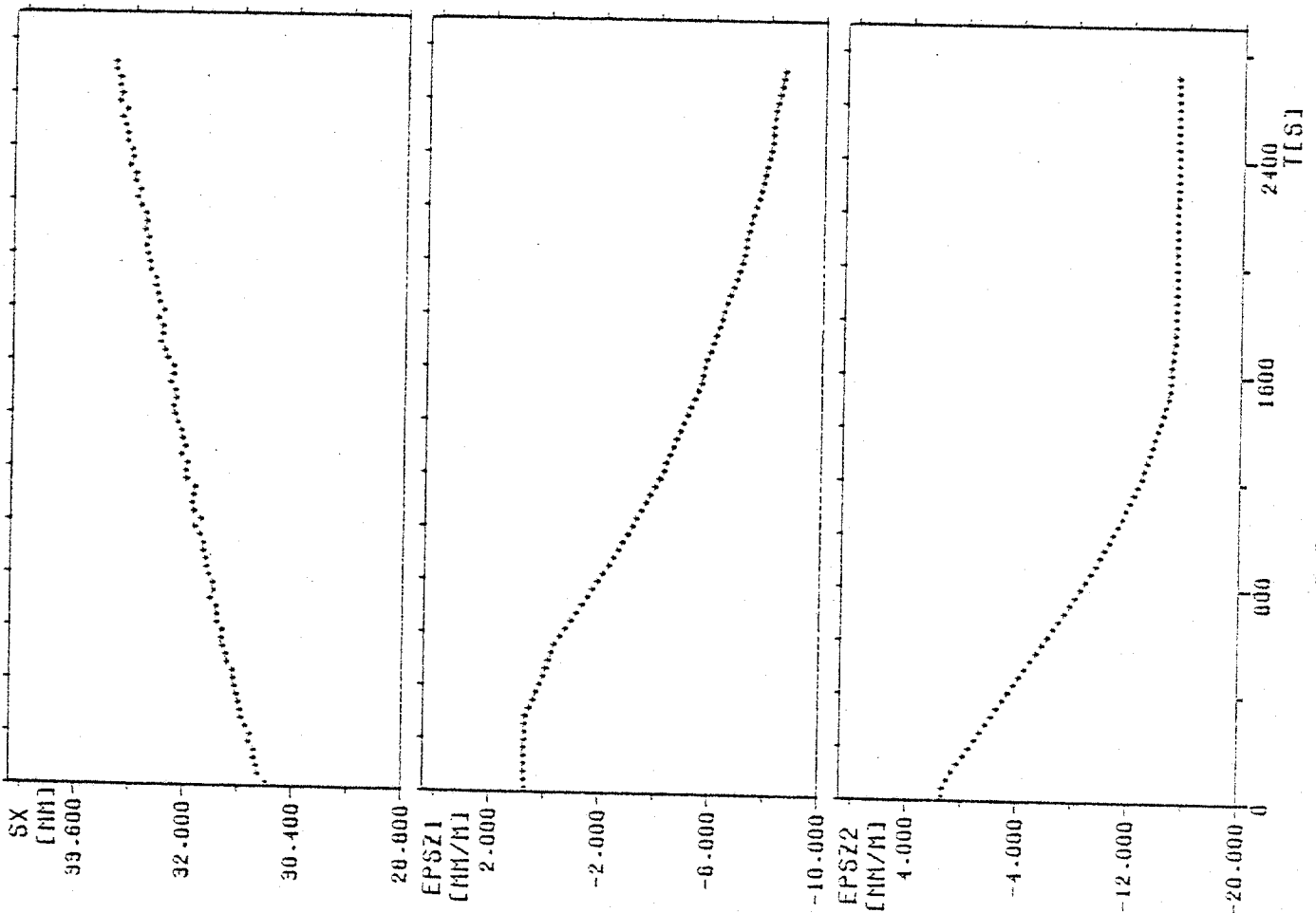
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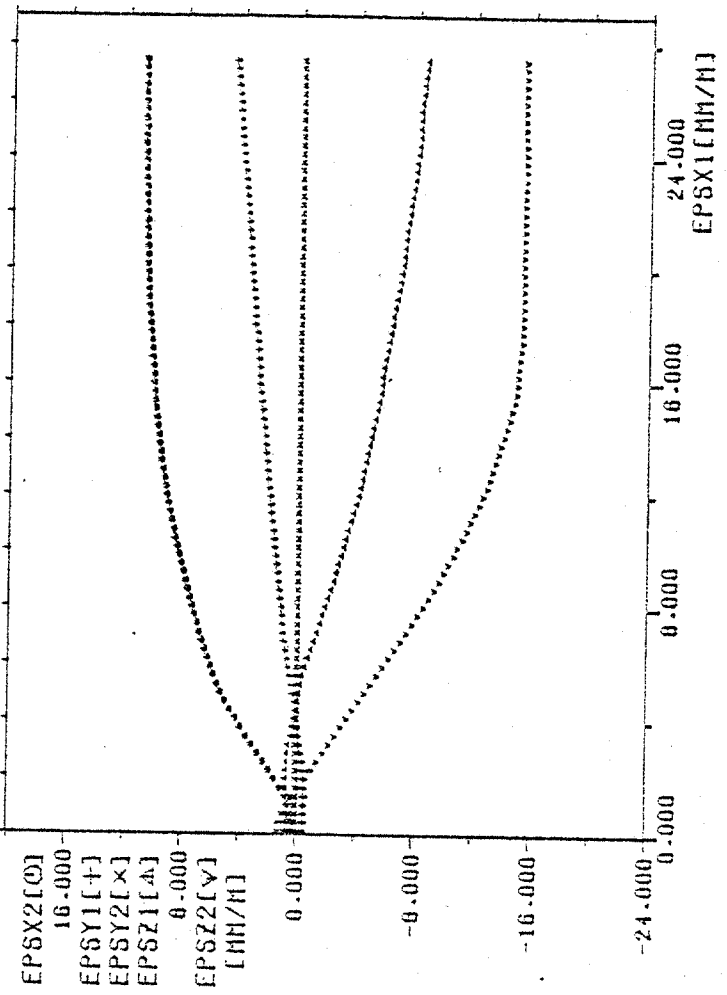
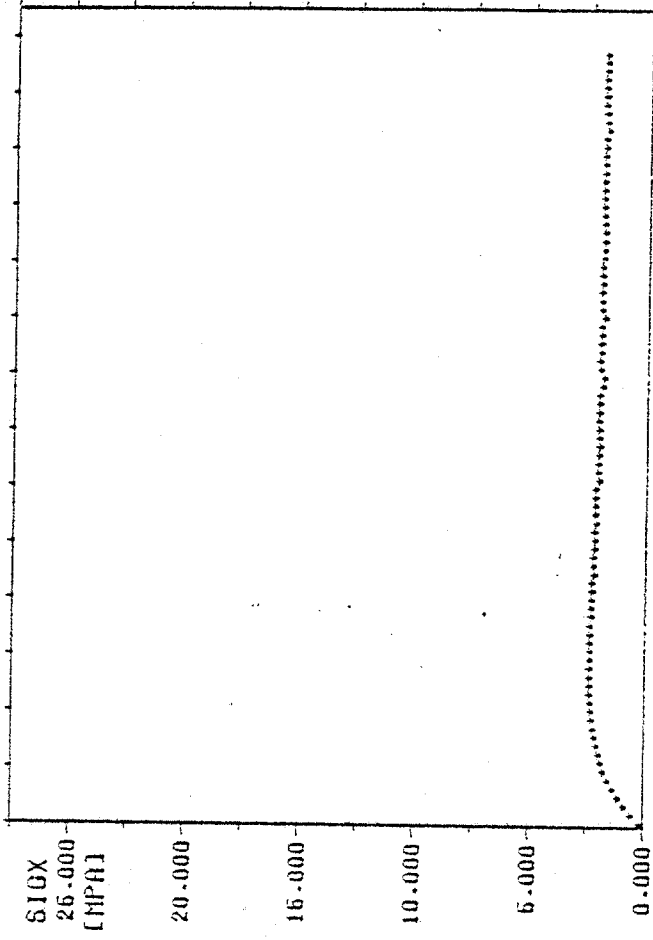
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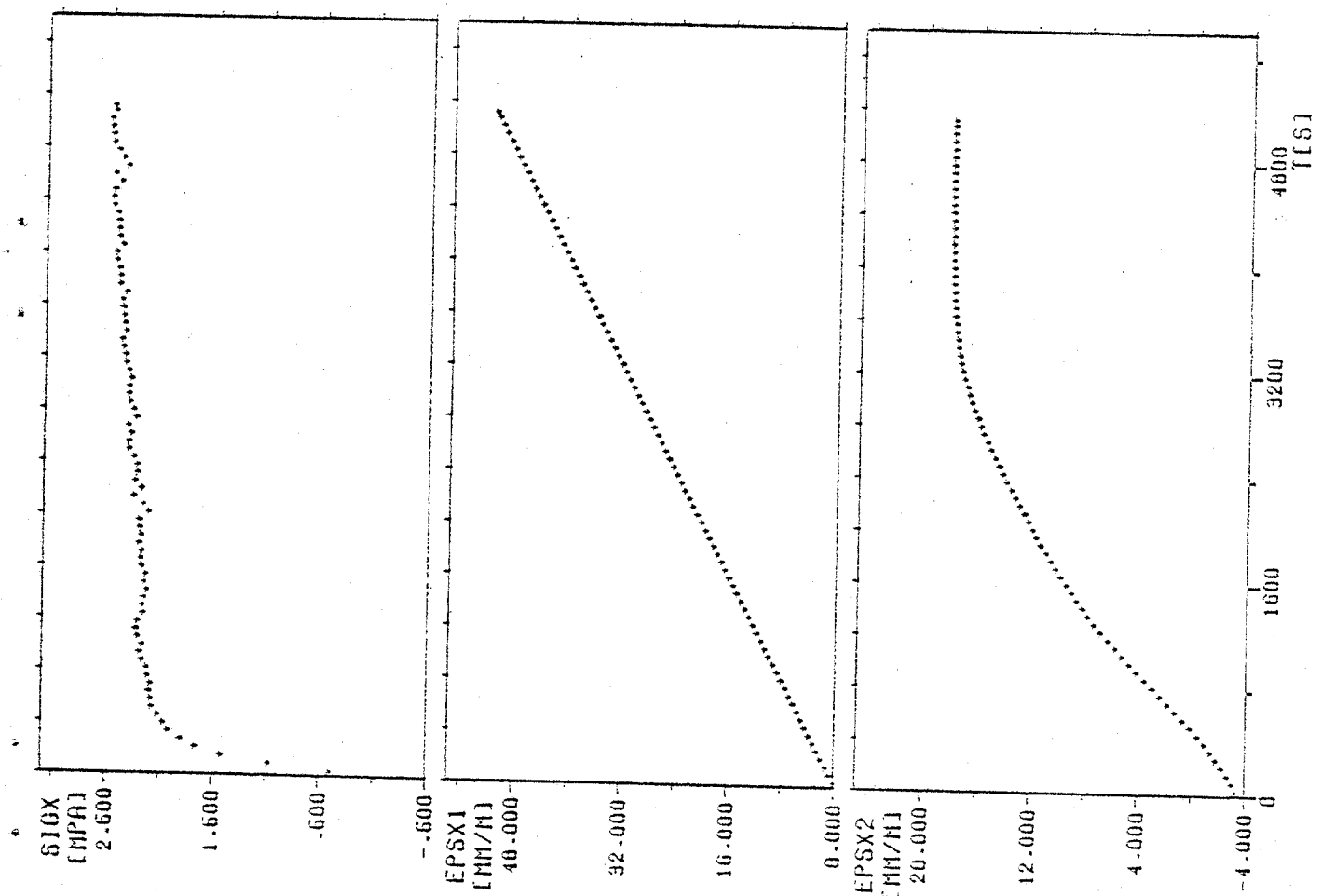
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NR: 2012.1 VOM 14:01:03 13:48 UHR  
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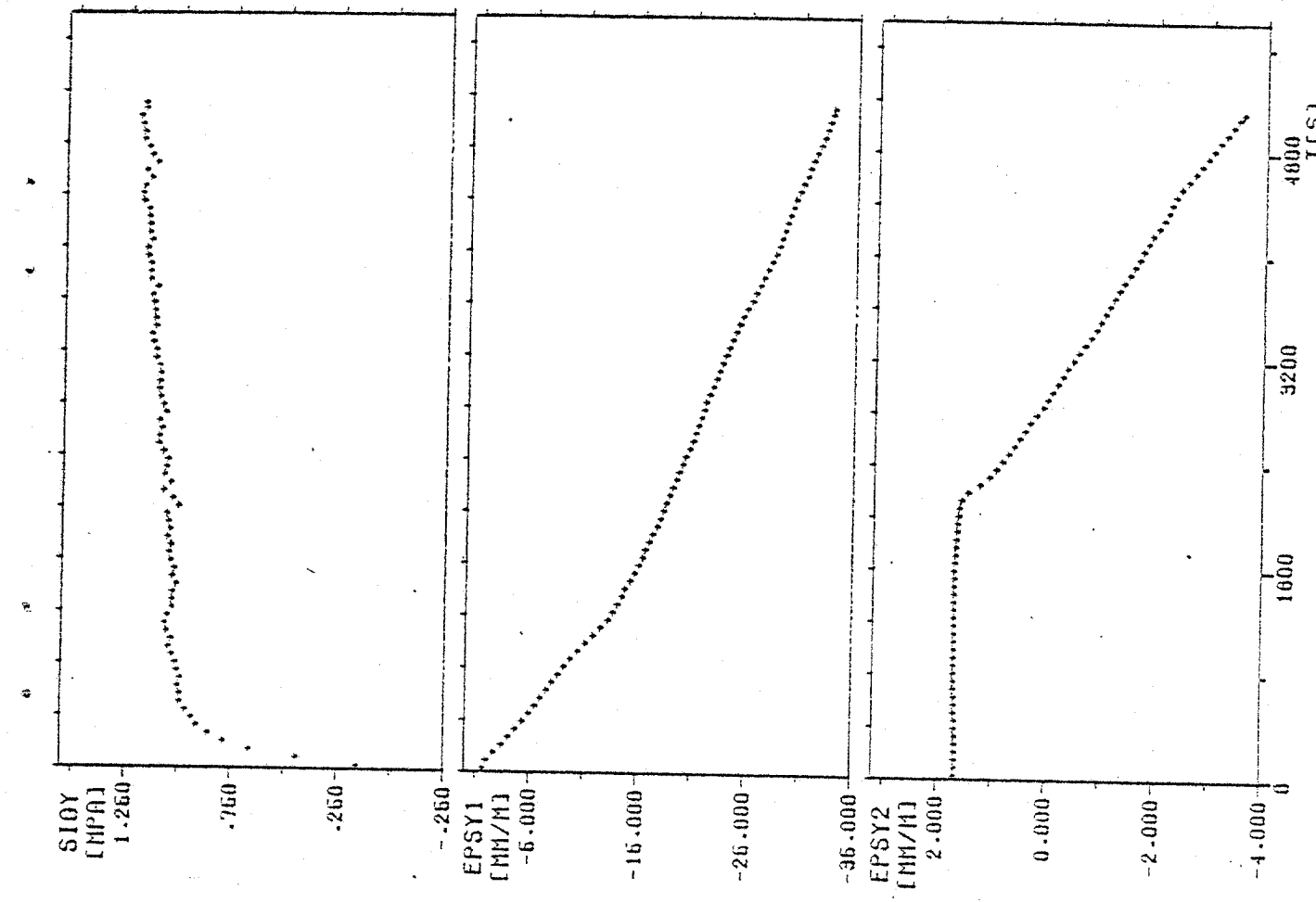


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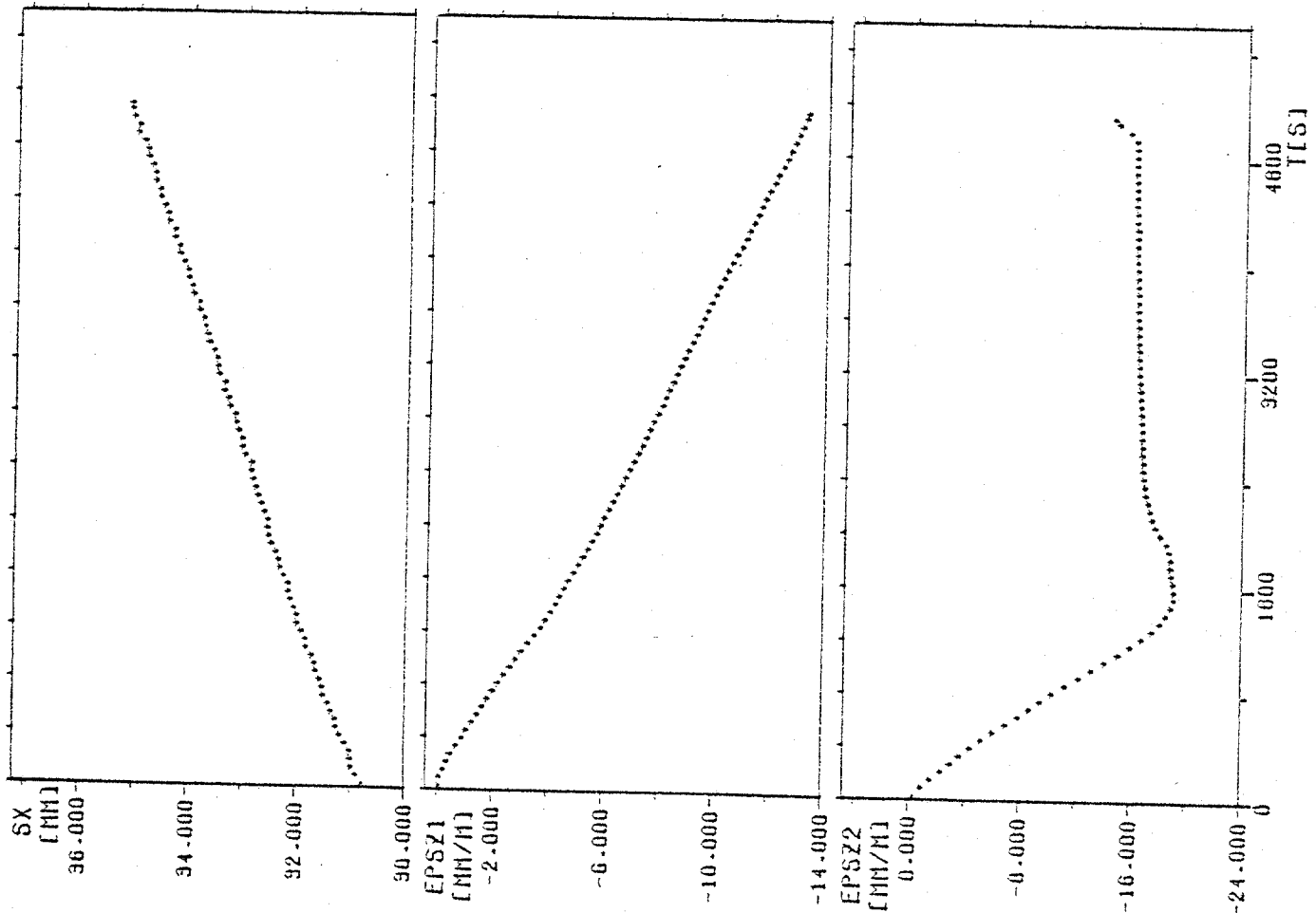
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NR: 2013.1 VOM 19:01:03 08:06 UHR

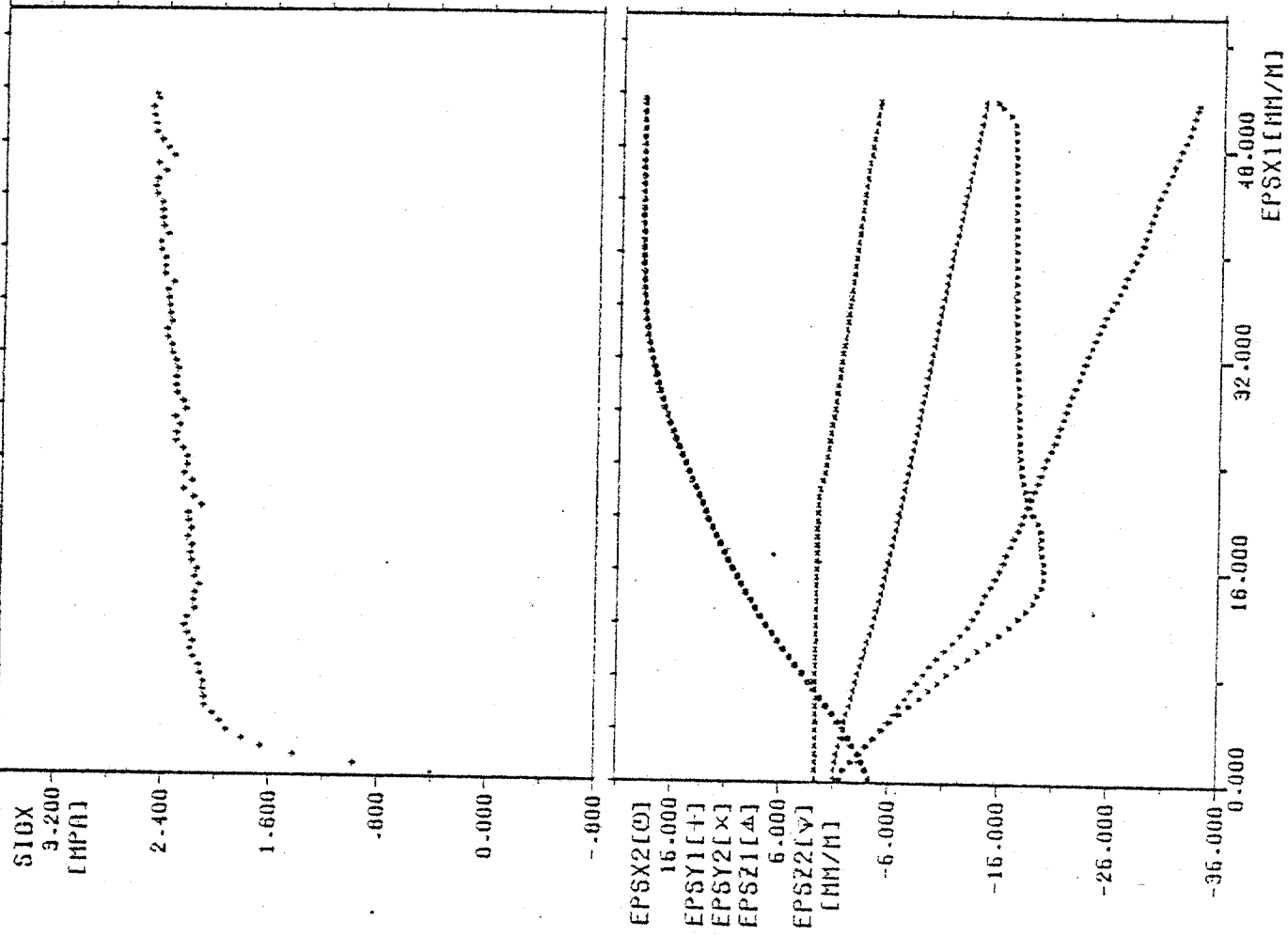


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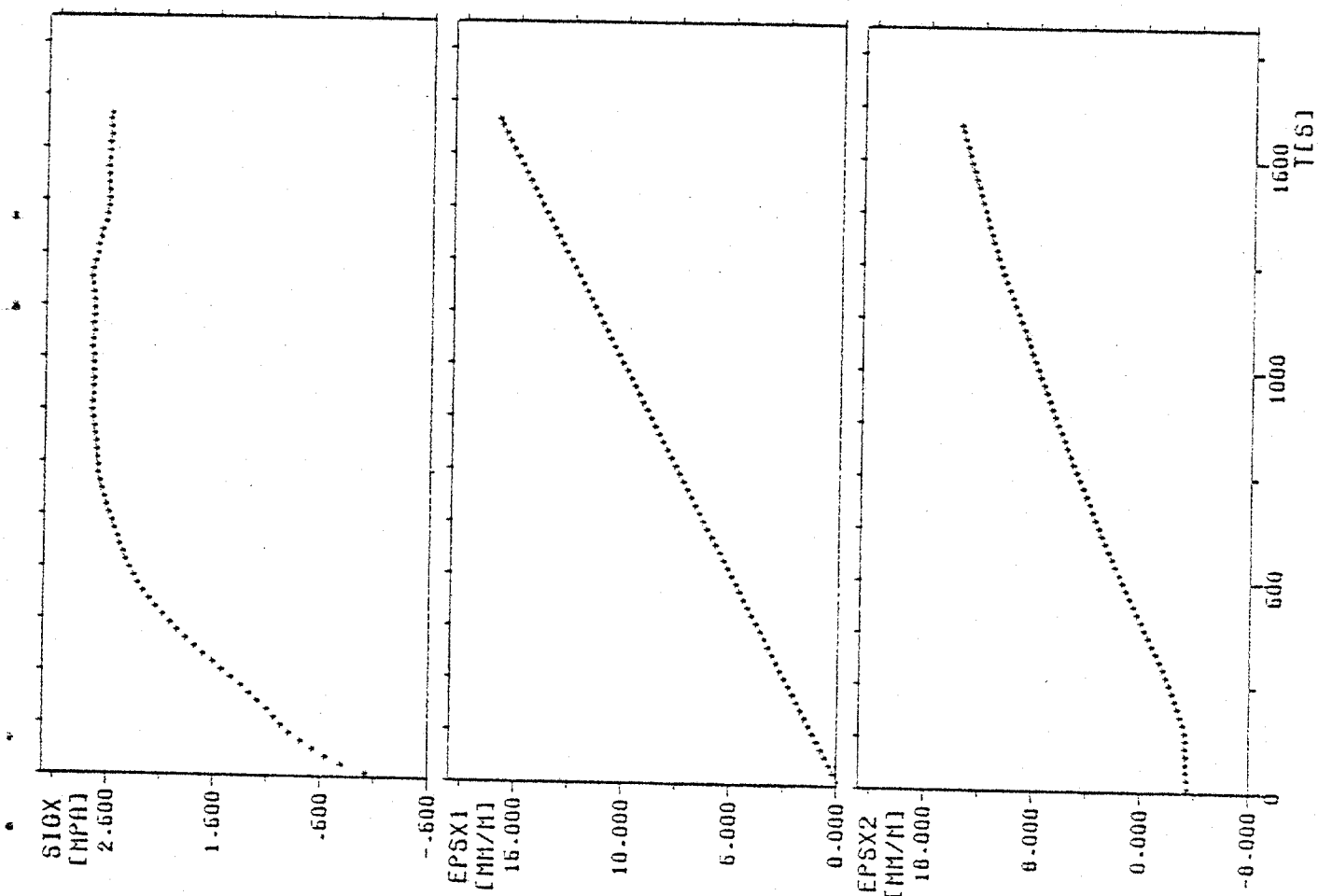
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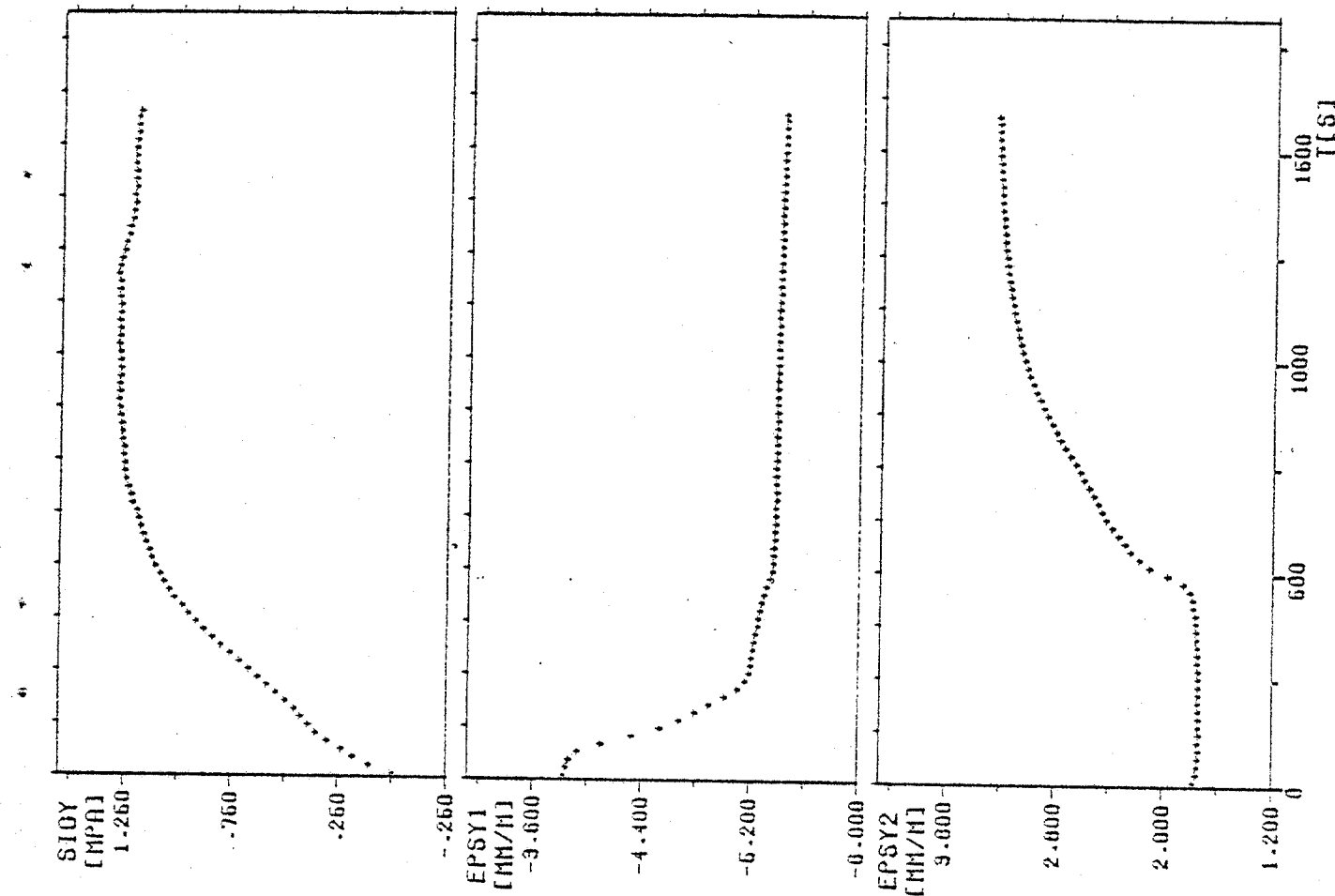


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SHELL 612509

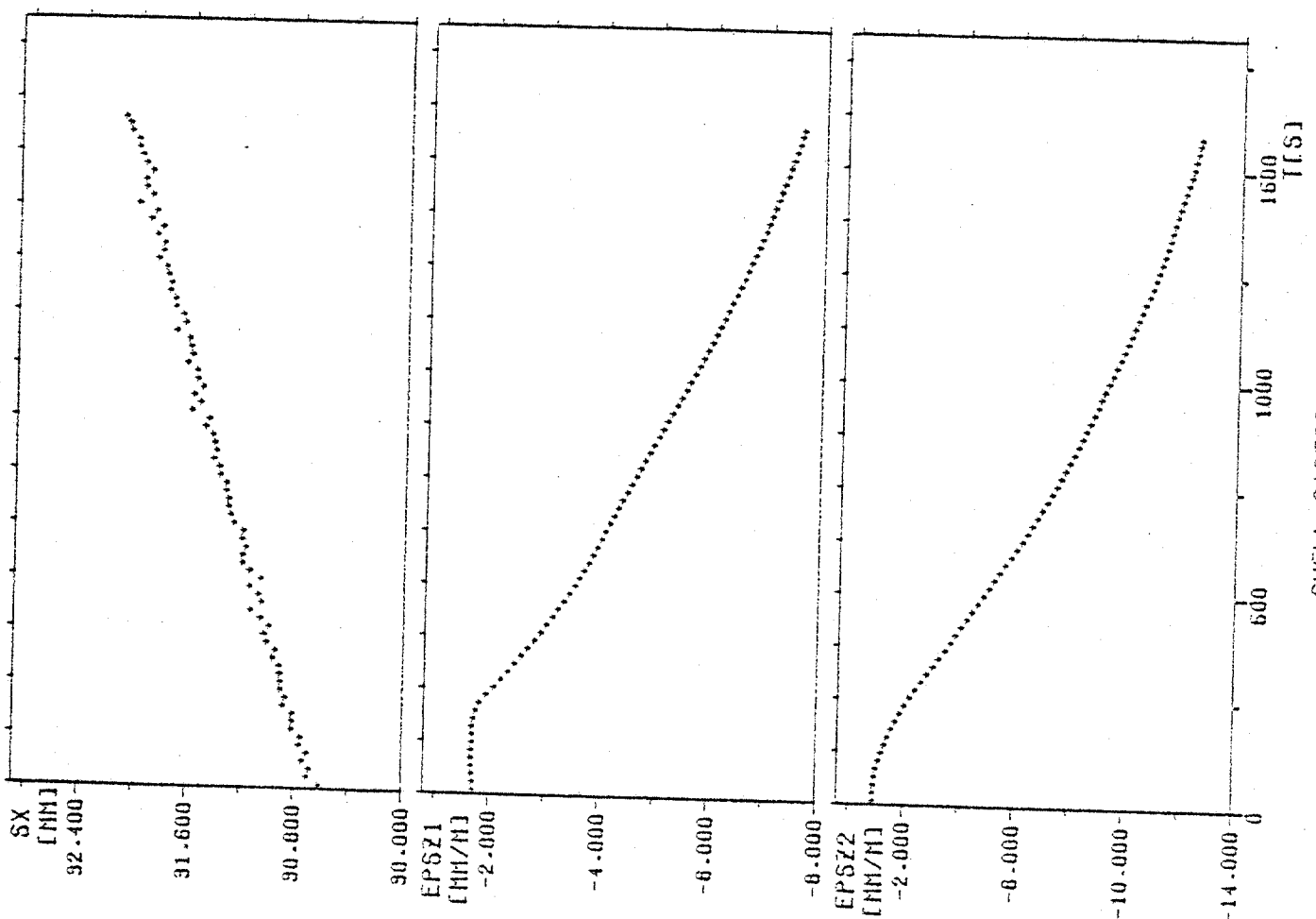
NR: 2014.1 VOM 19.01.83 10:02 UHR



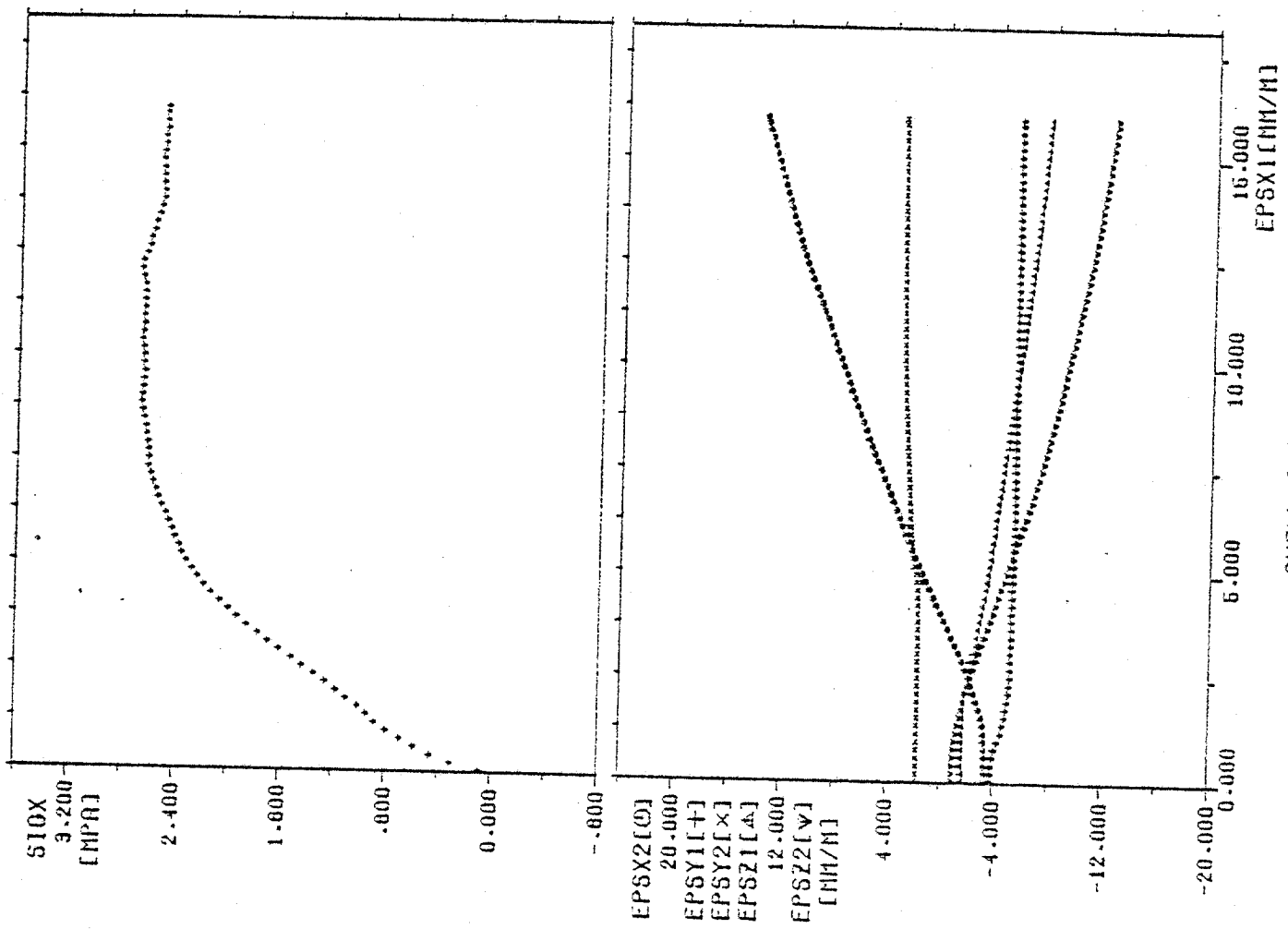
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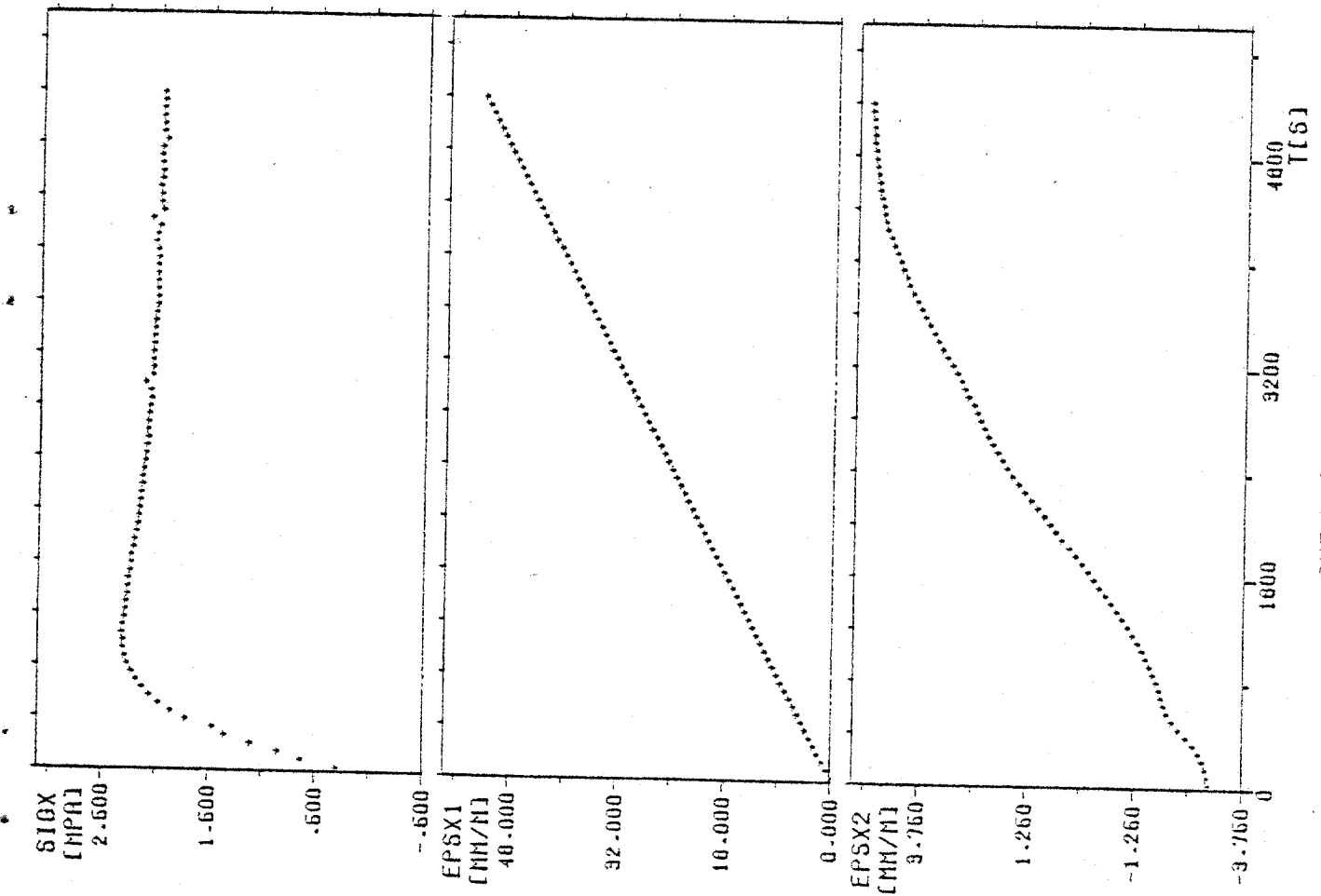




NR: 2014.1 V0H 19.01.83 10.02 UHR  
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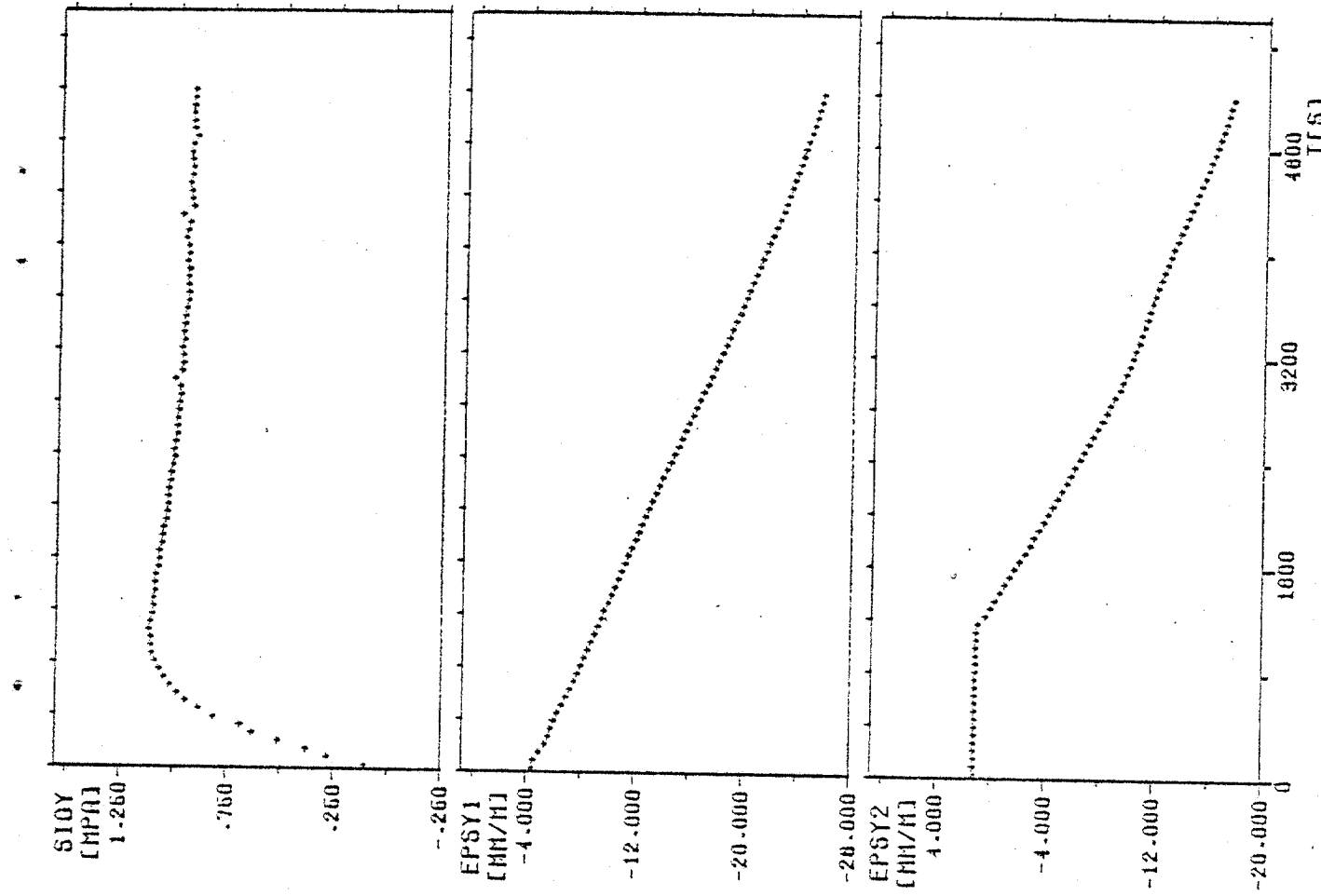


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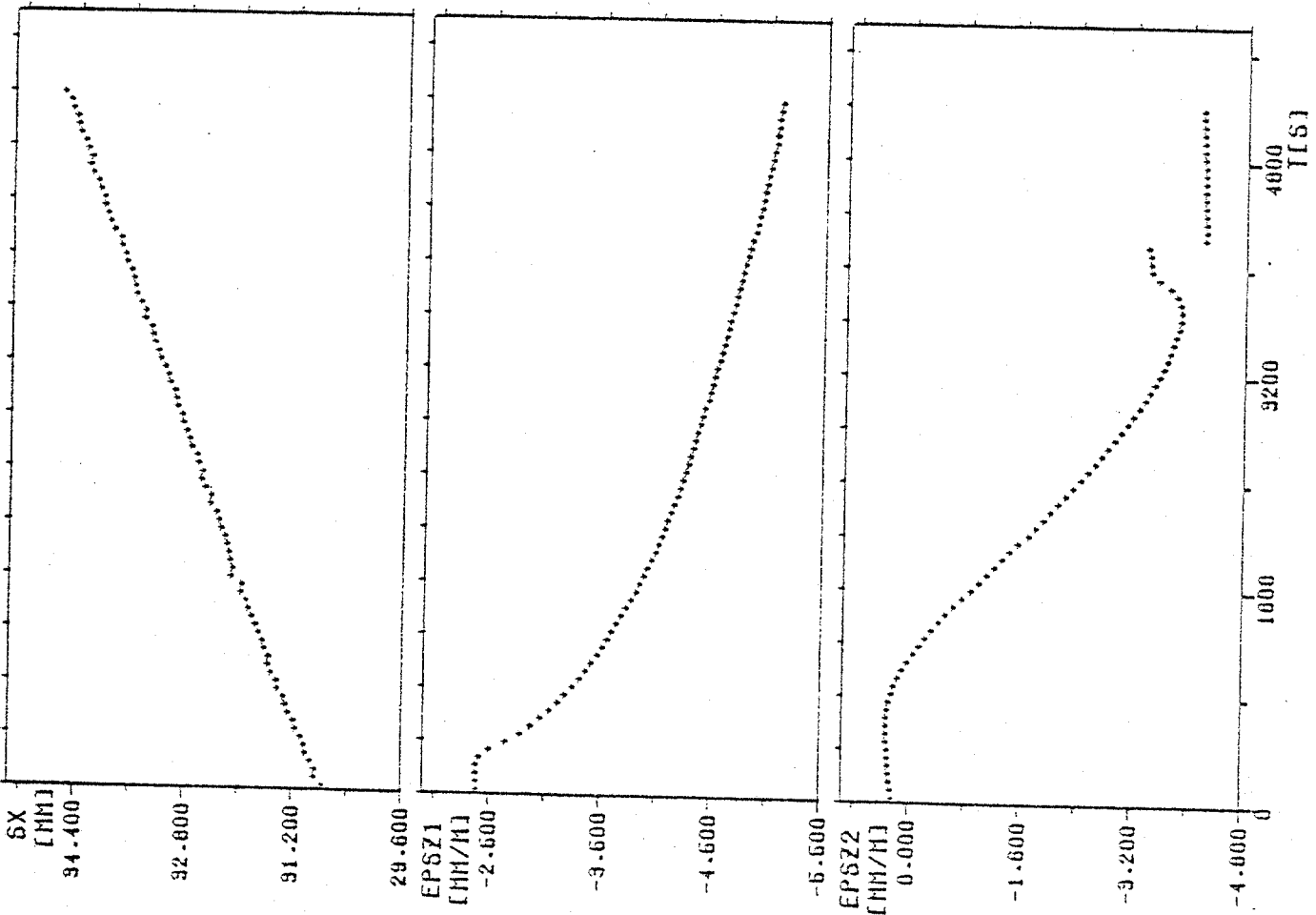
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NR: 2016.1 VOM 19.01.83 11.44 UHR

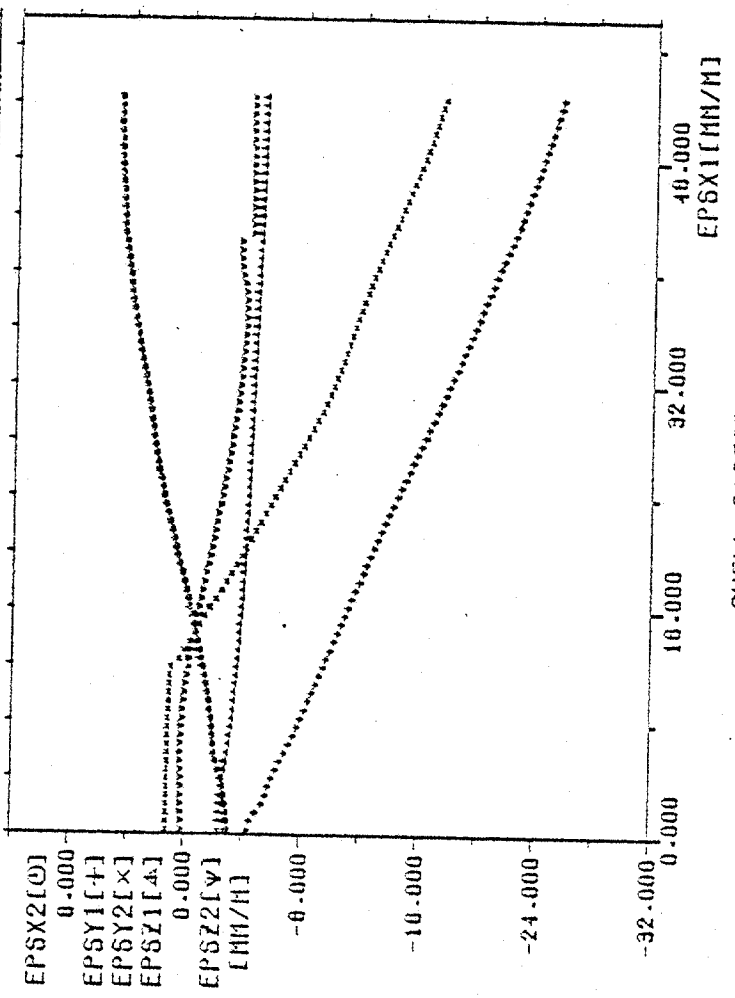
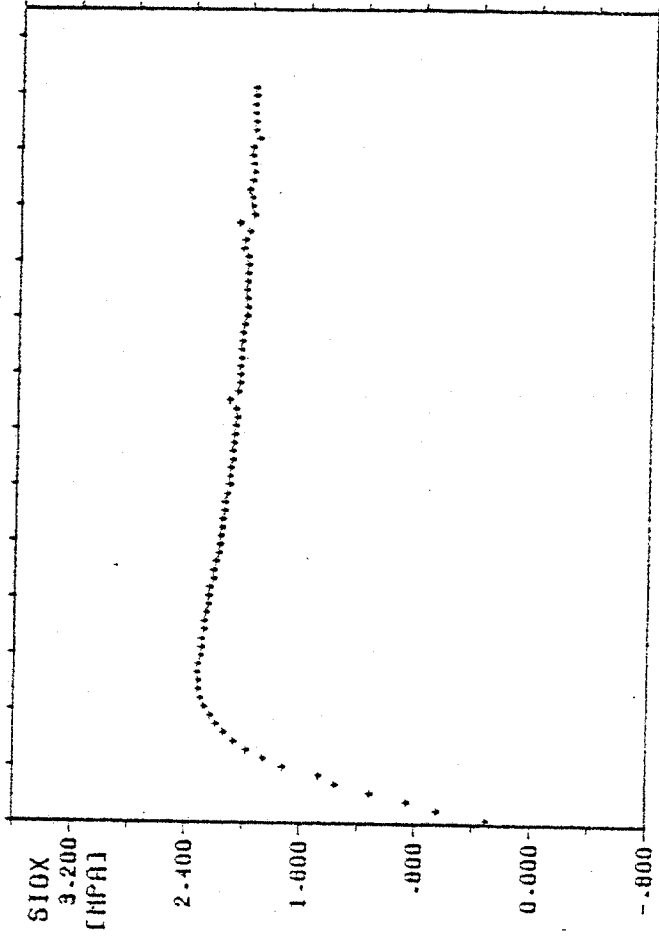


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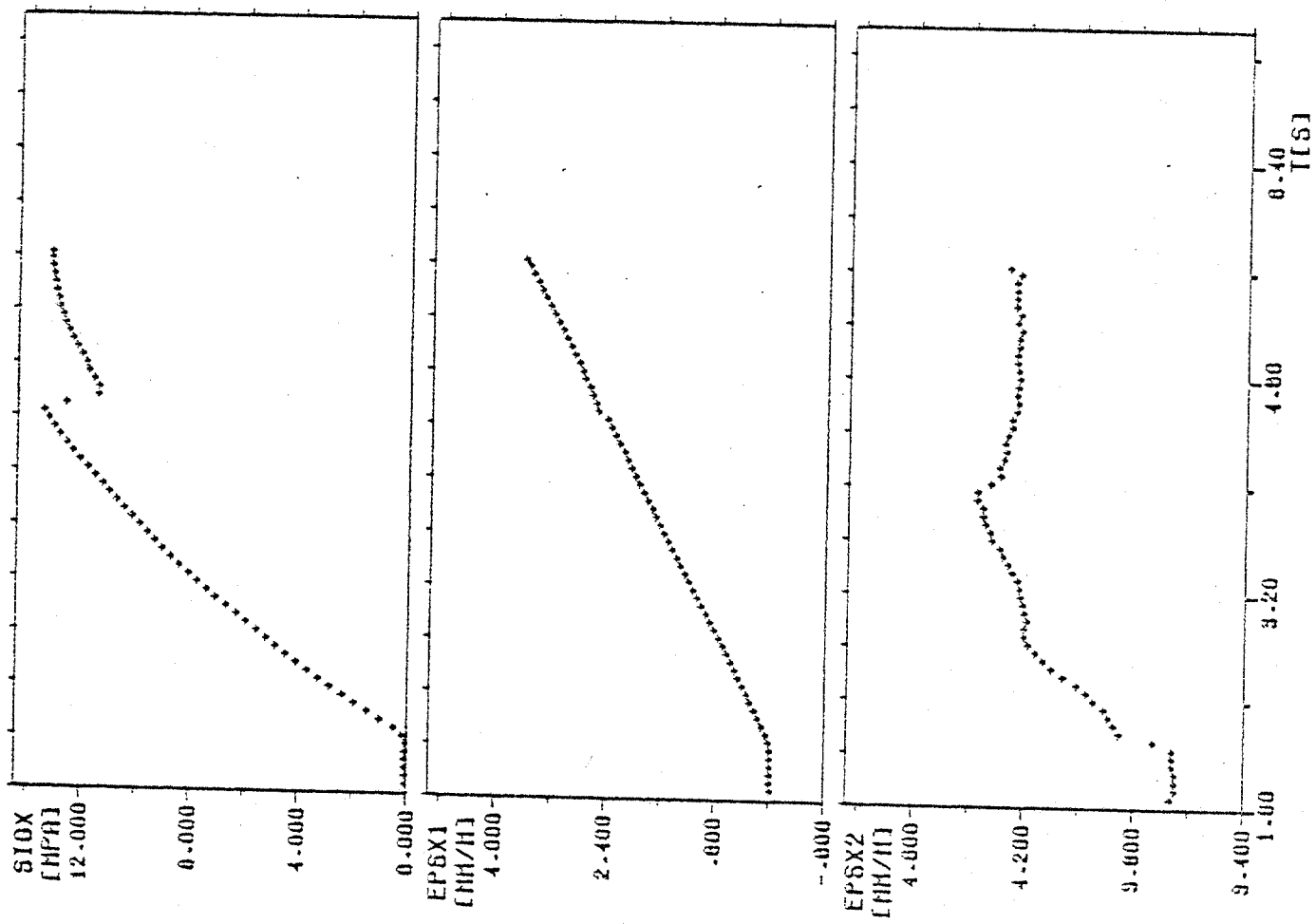
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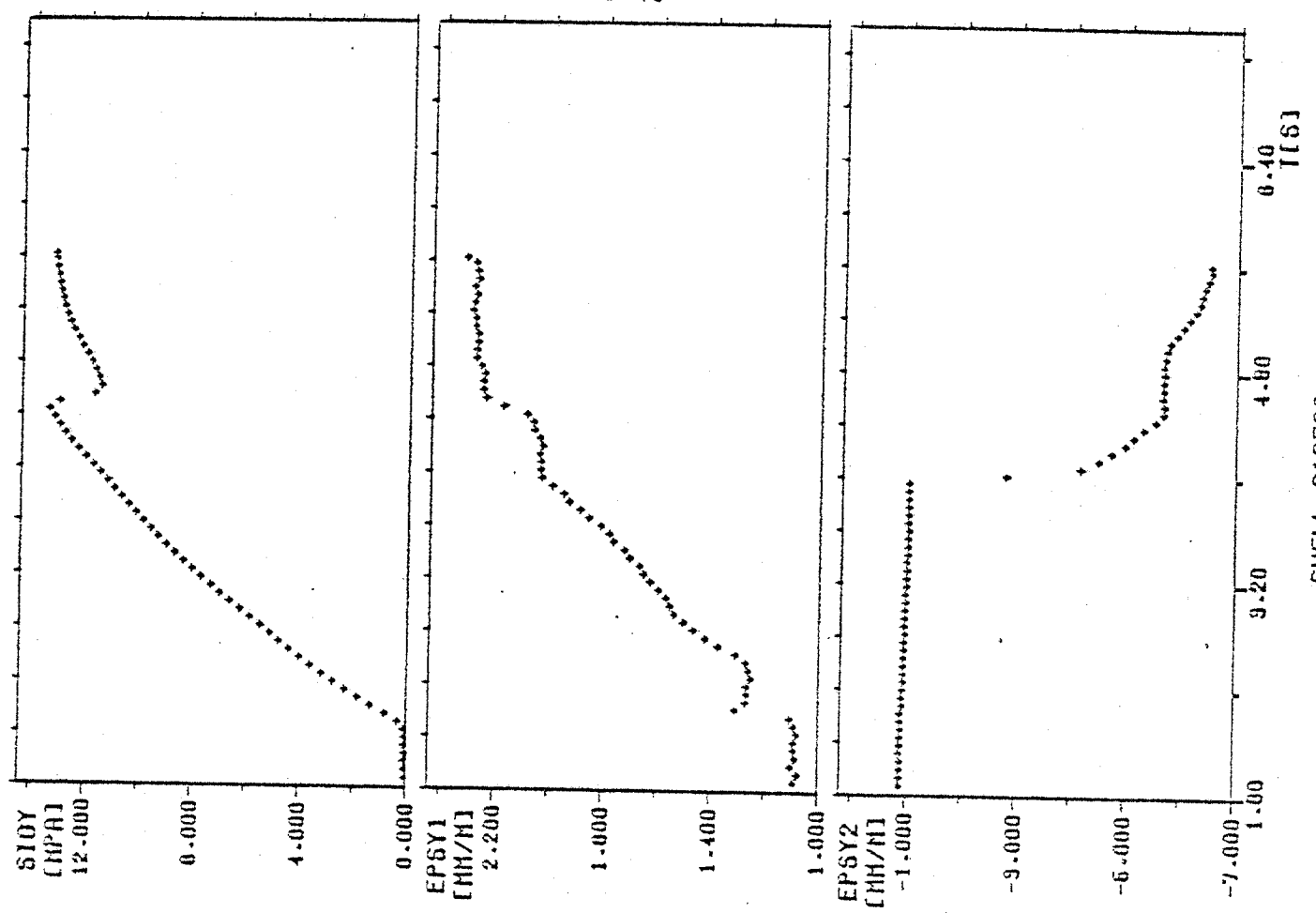
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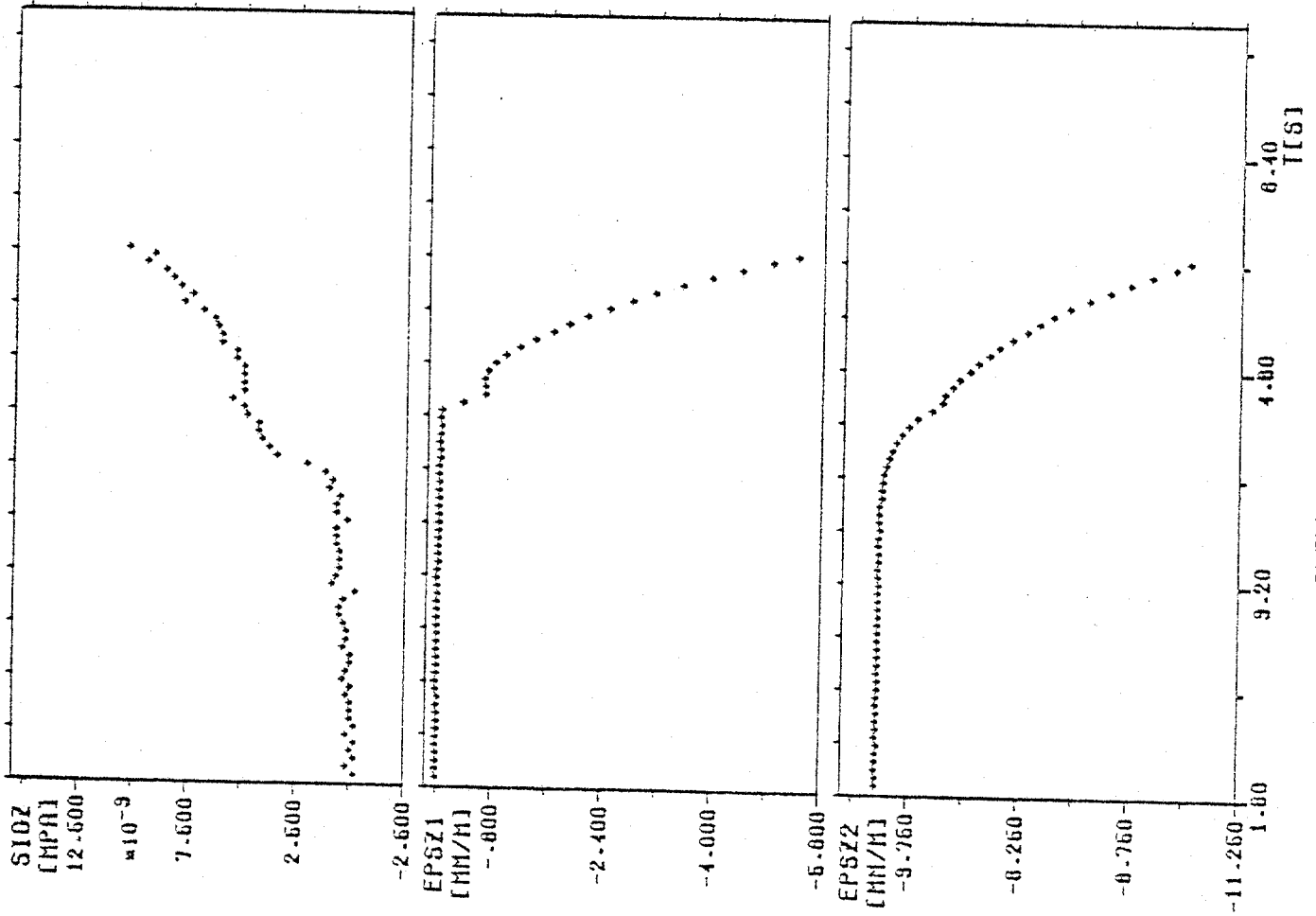
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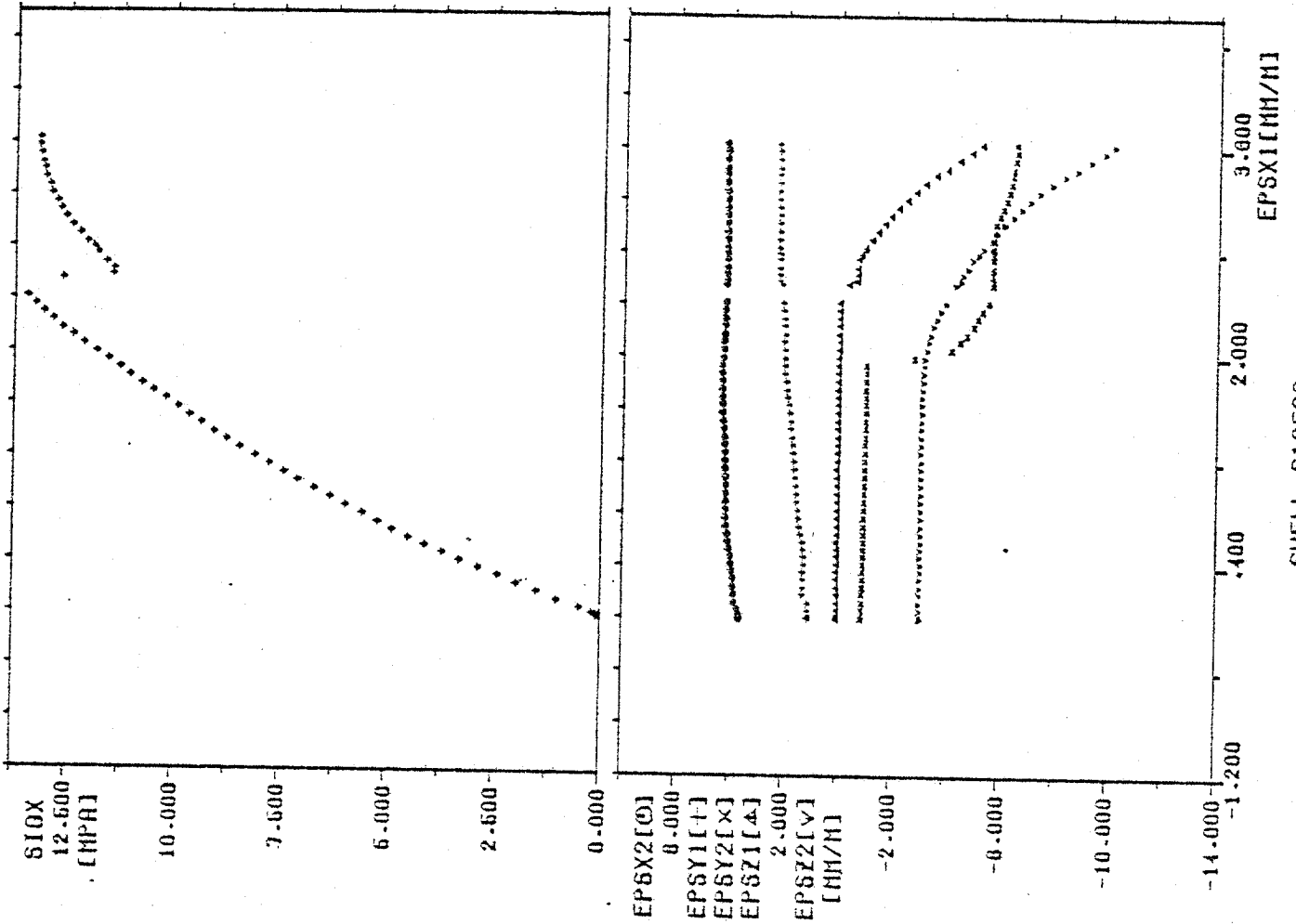
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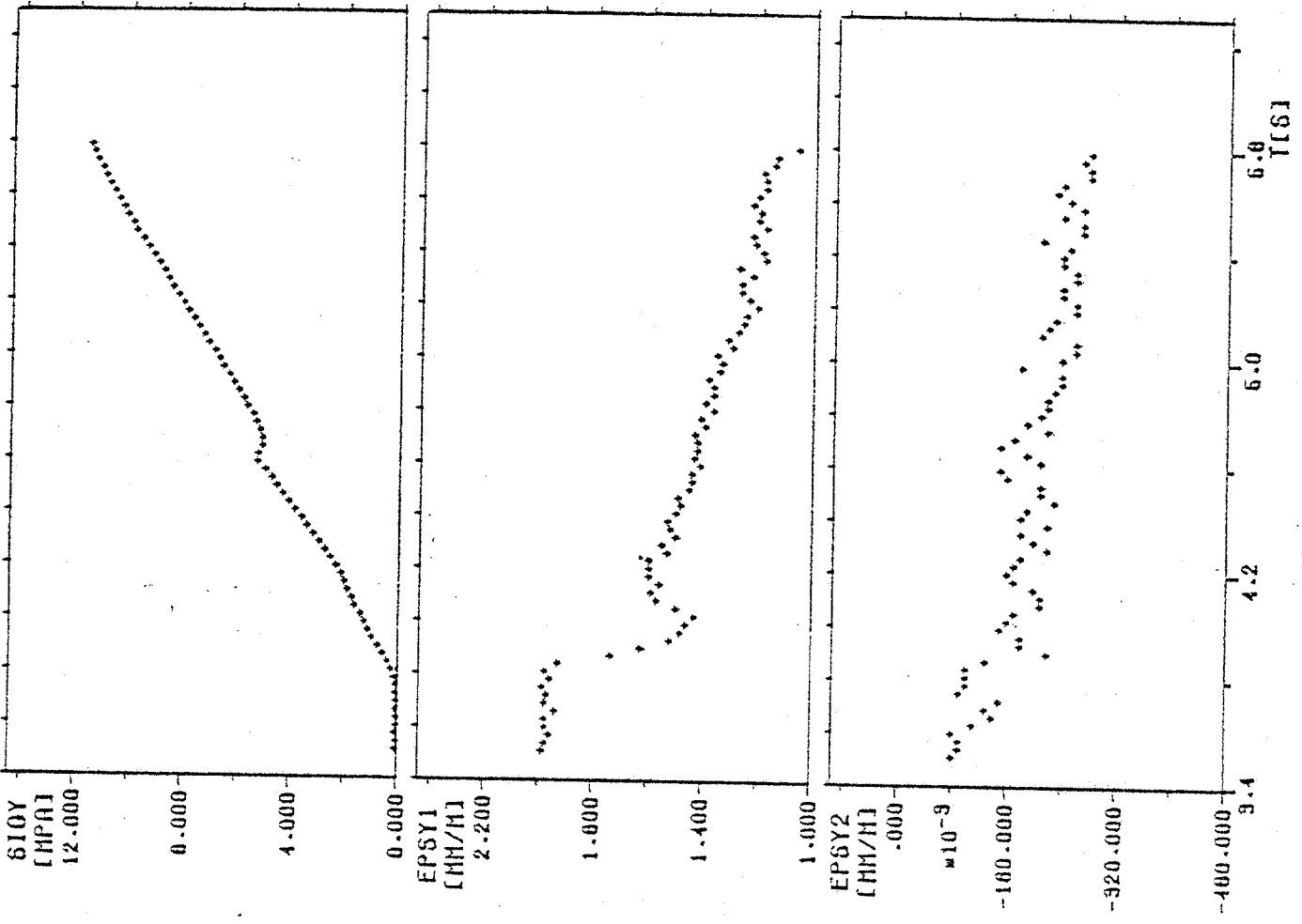
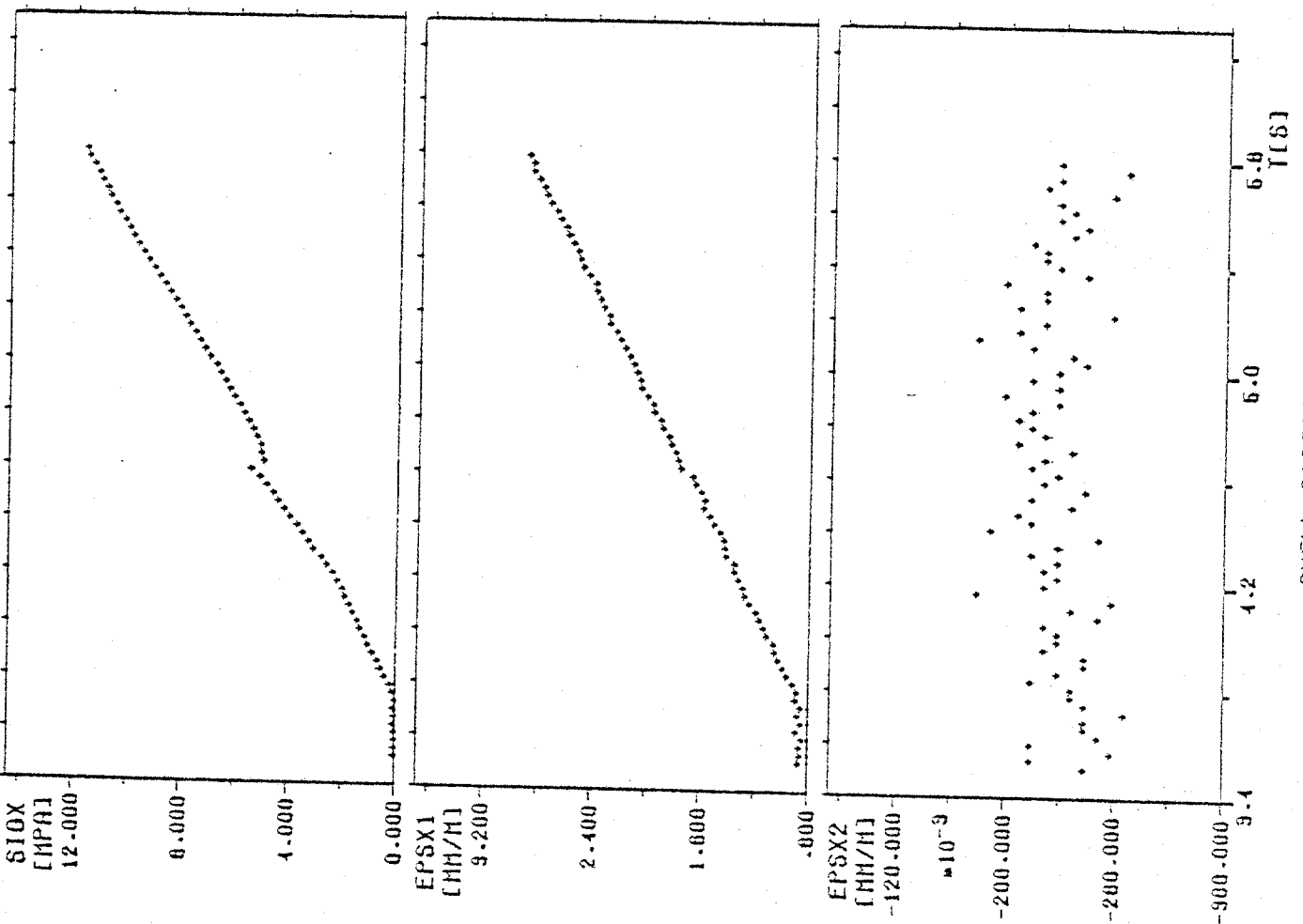
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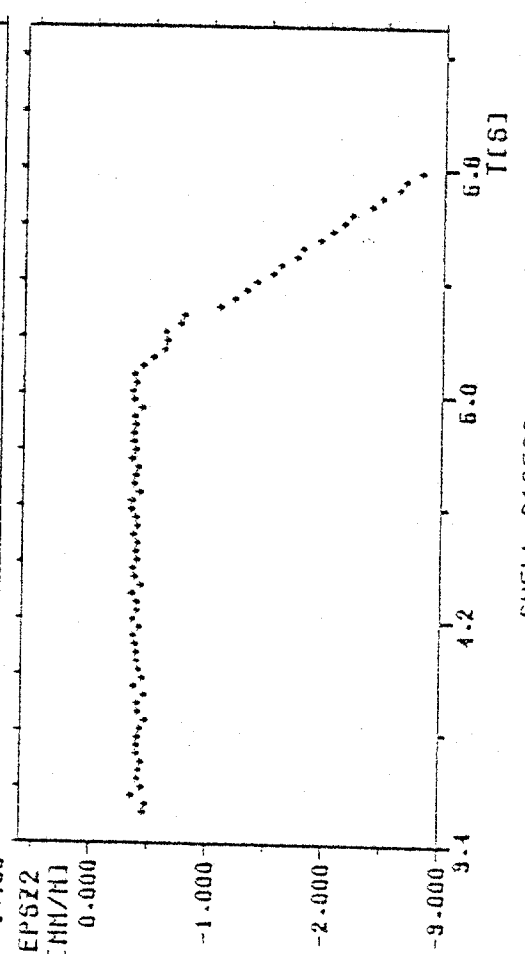
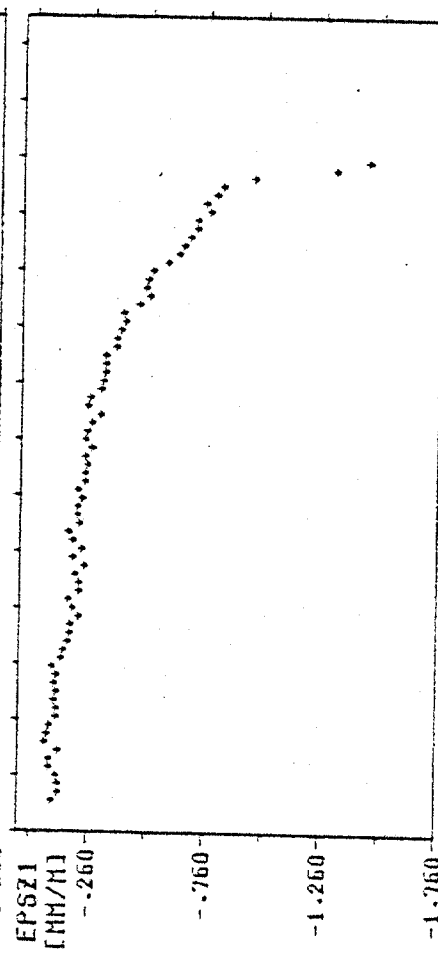
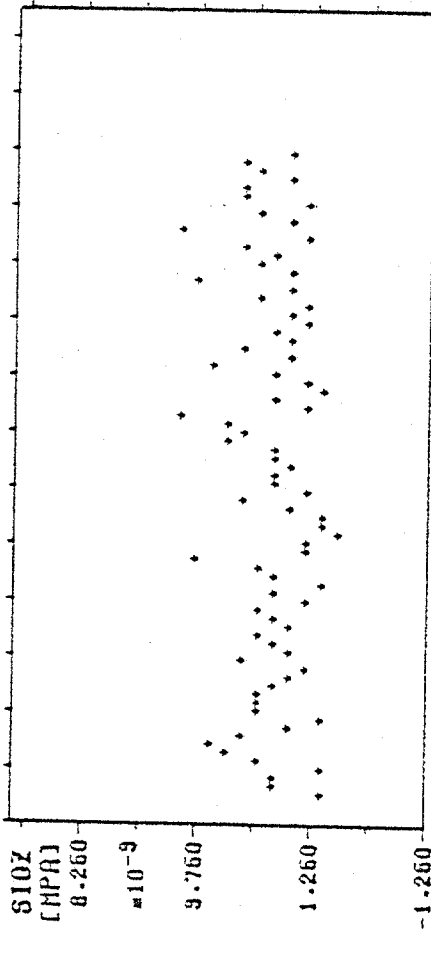


NR: 3005.1 VOM 30.11.02 10:09 UHR  
 SHELL 612609

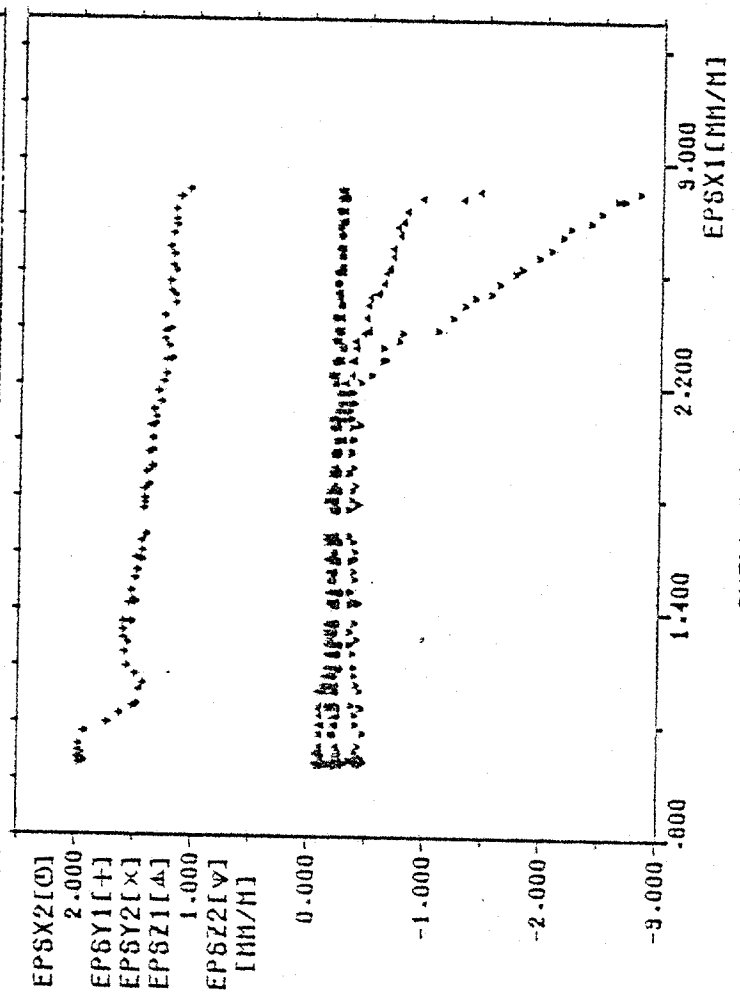
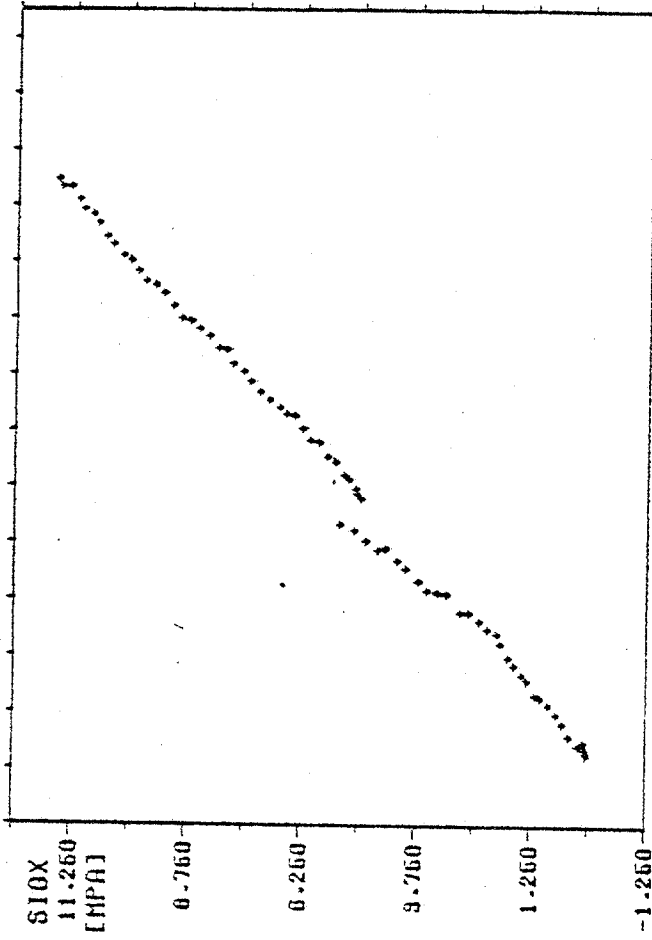


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 SHELL 612609

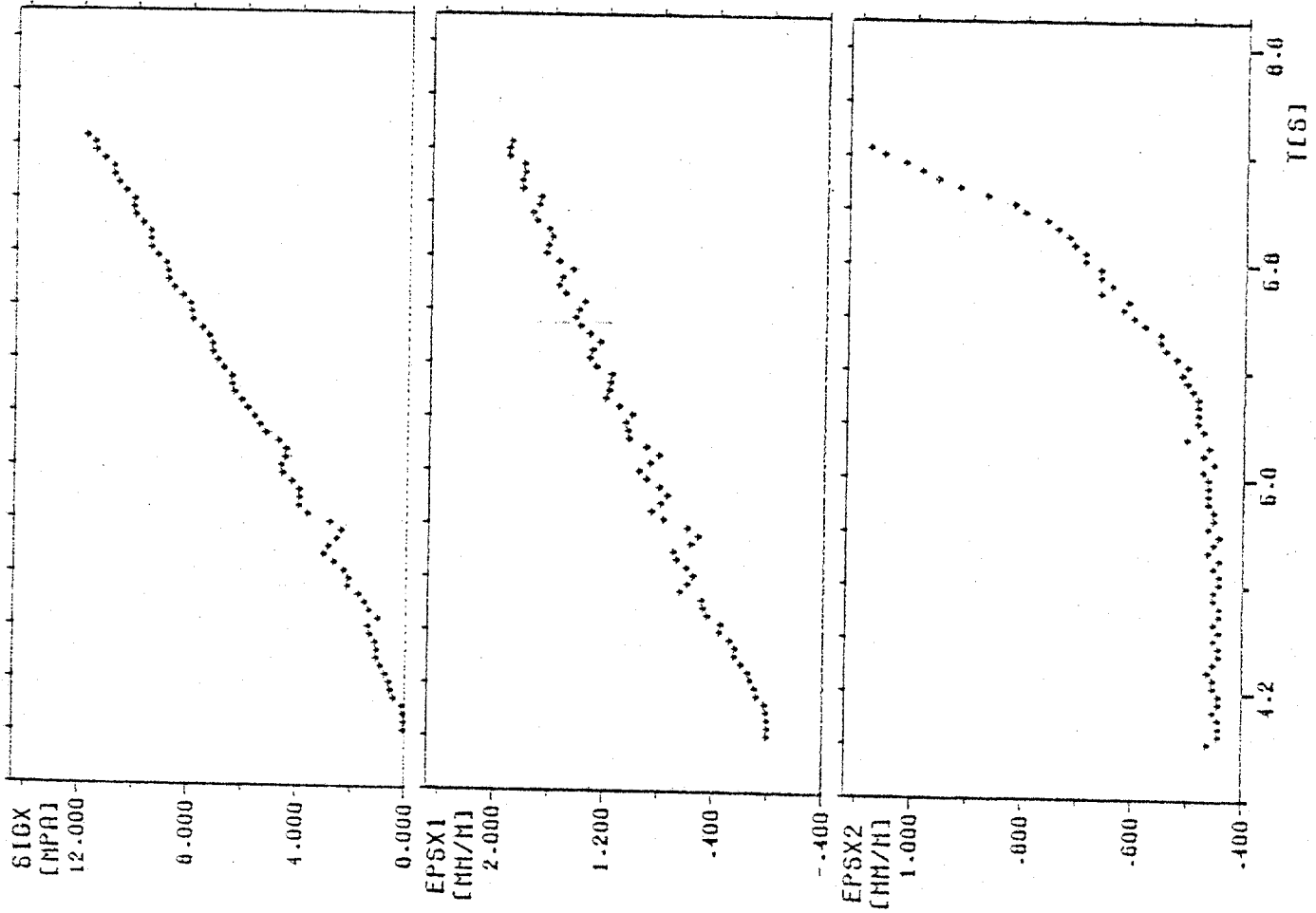




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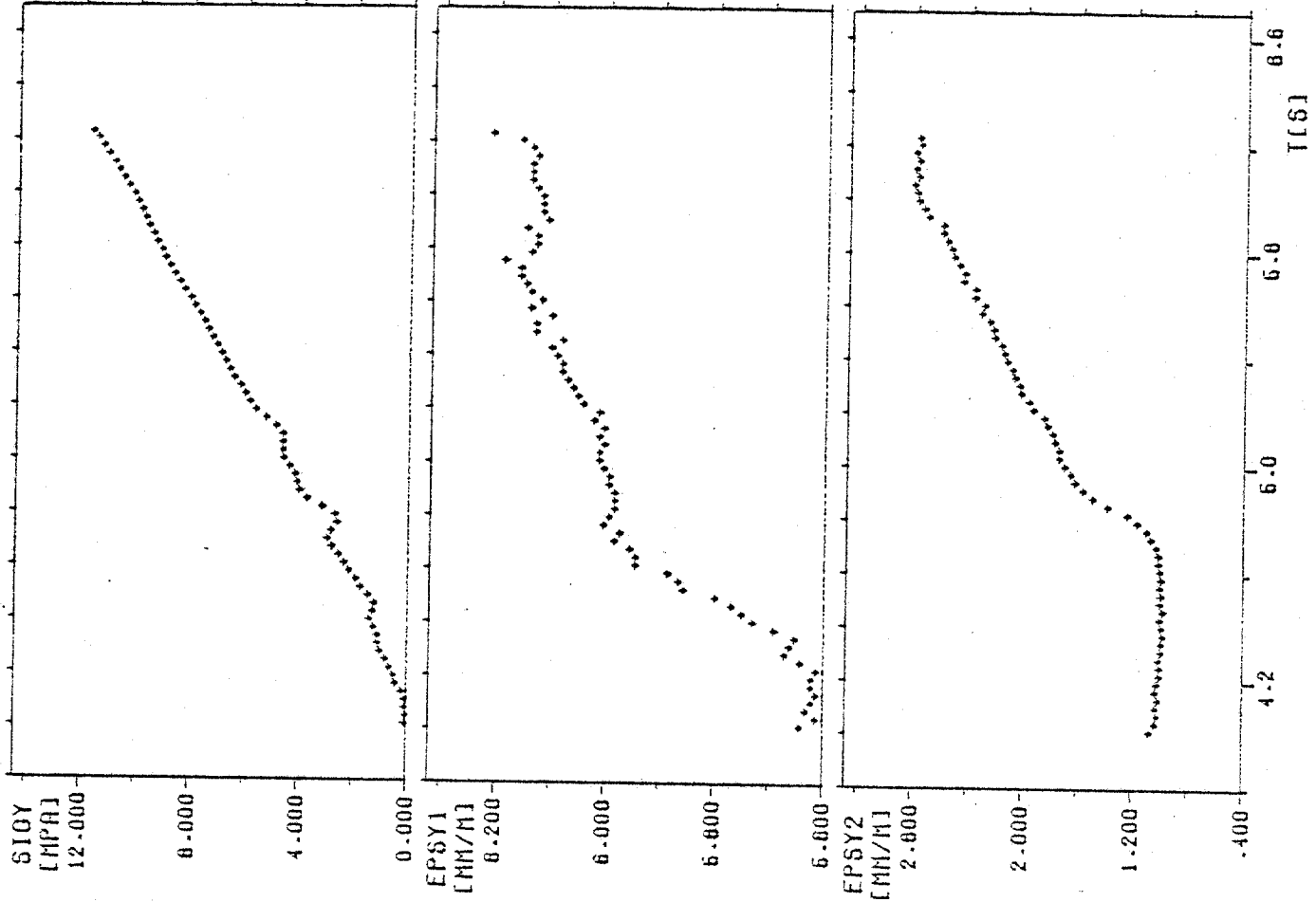


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SHELL 612509

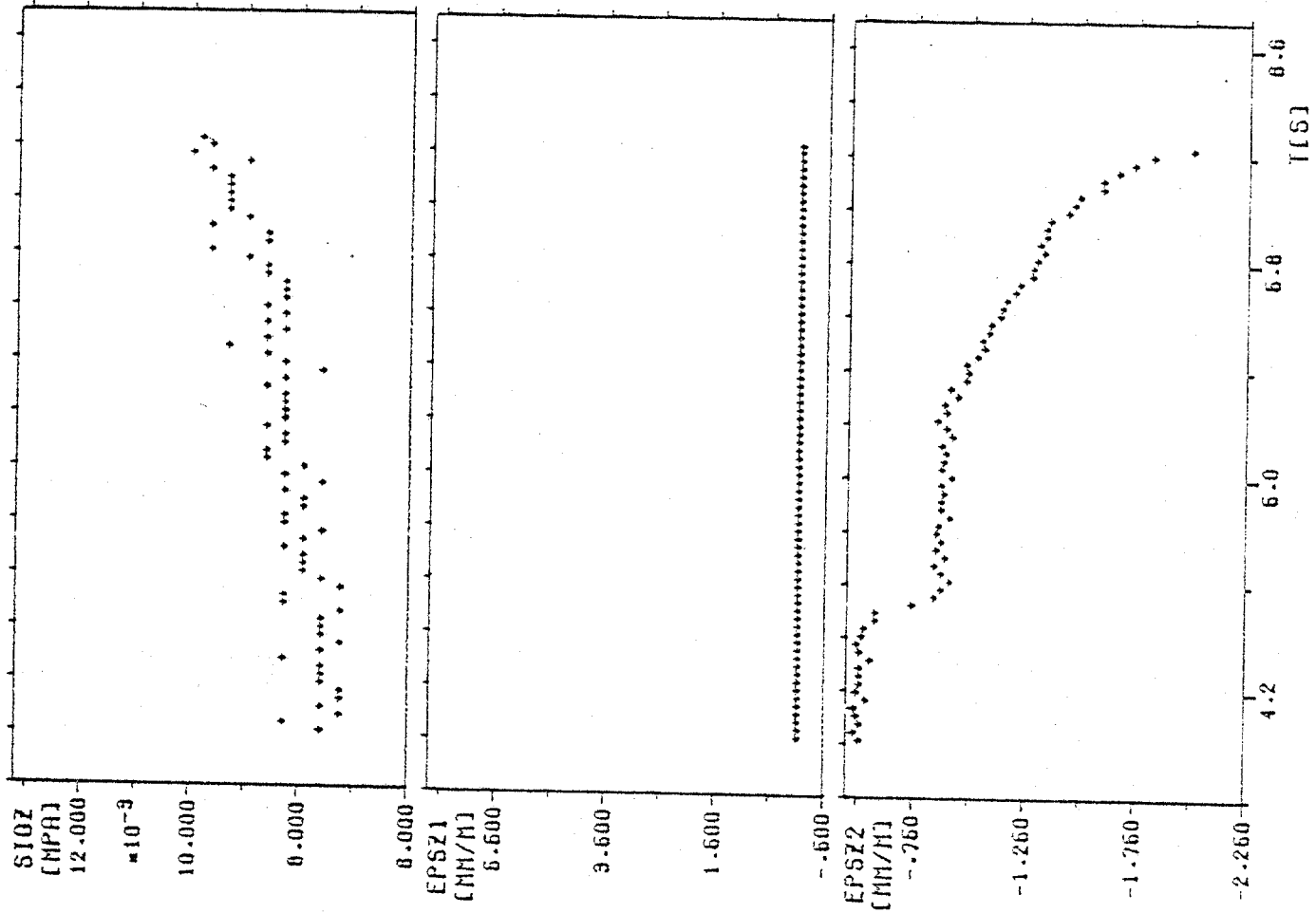
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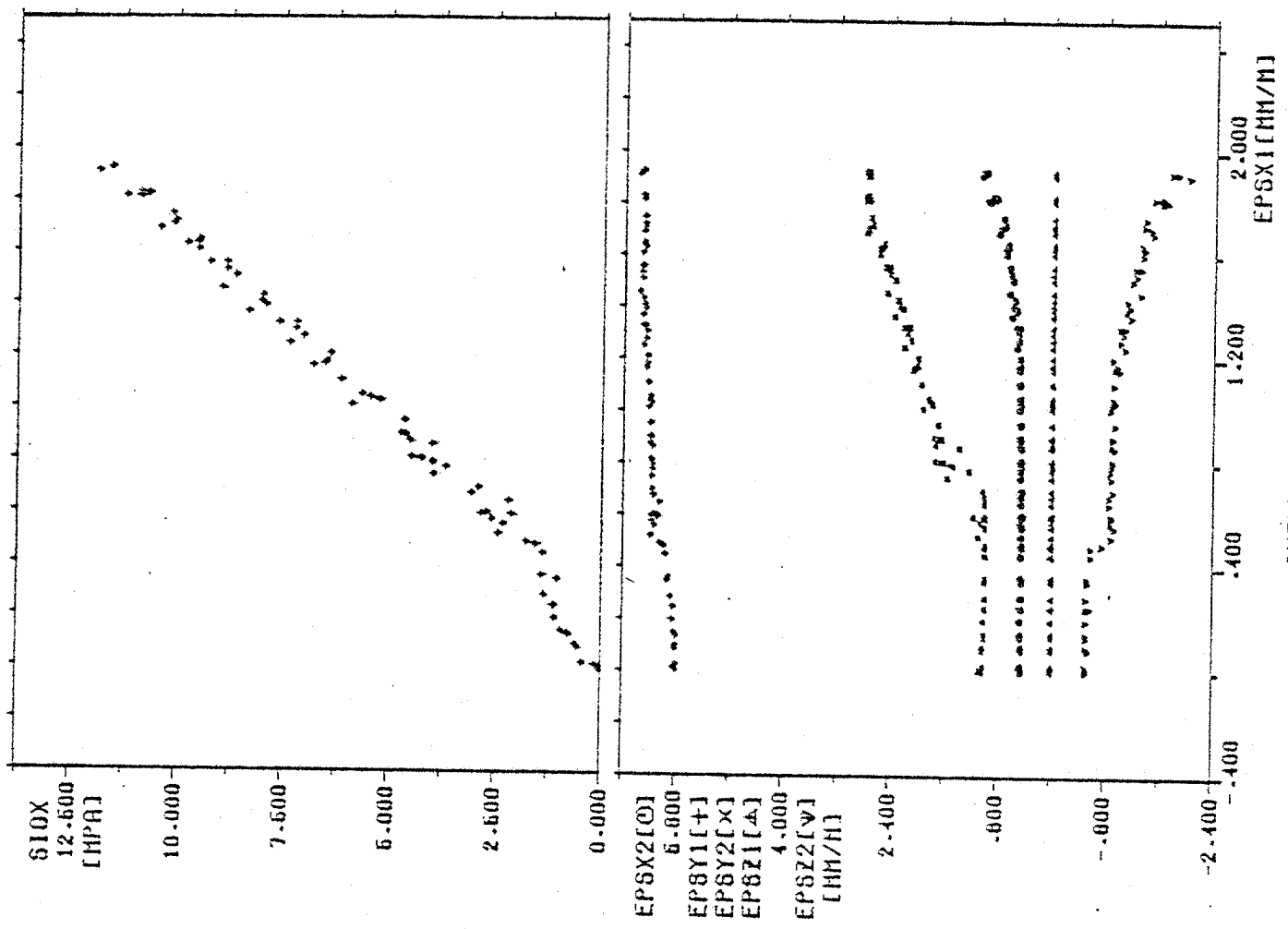
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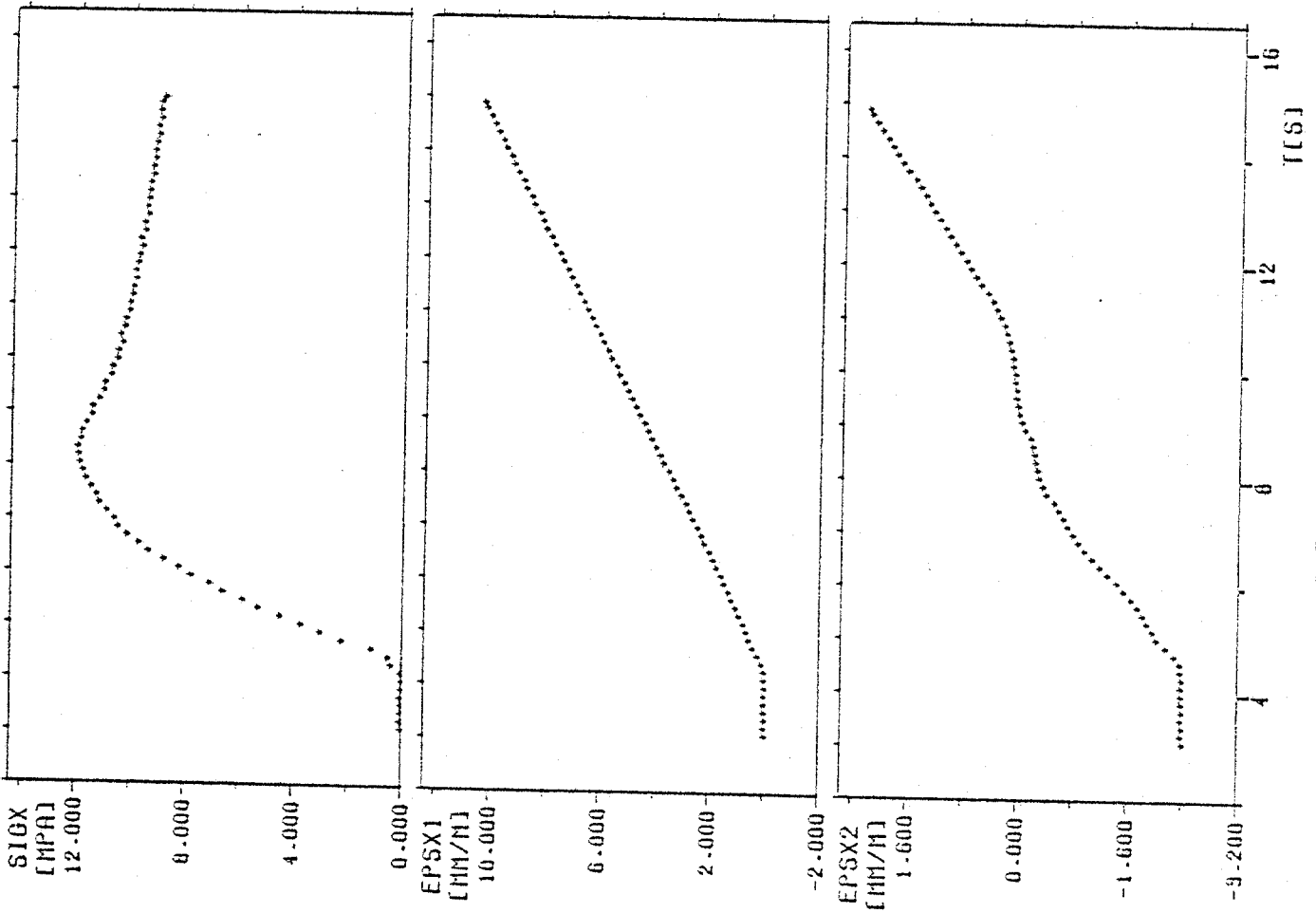




SHELL 612509  
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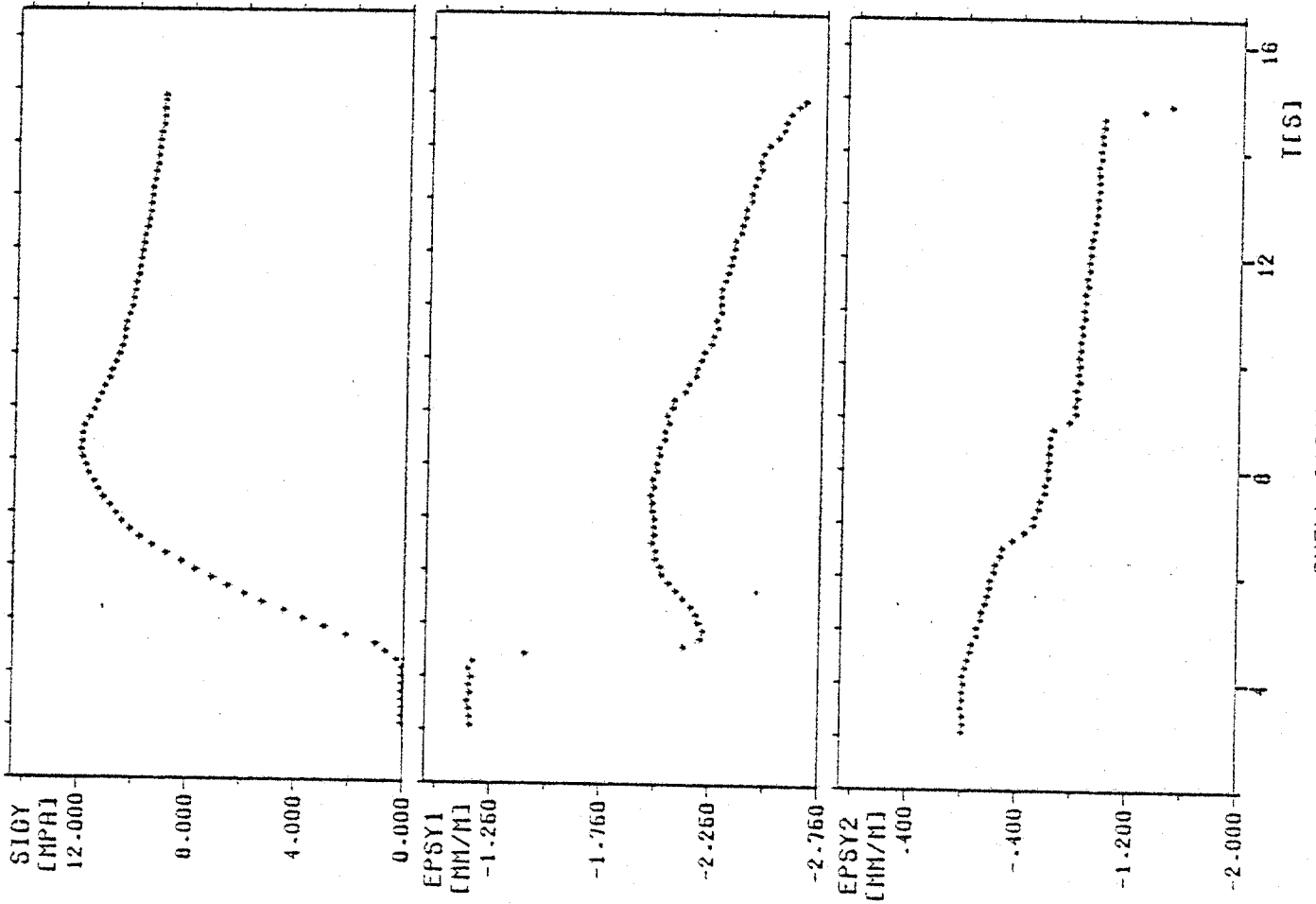


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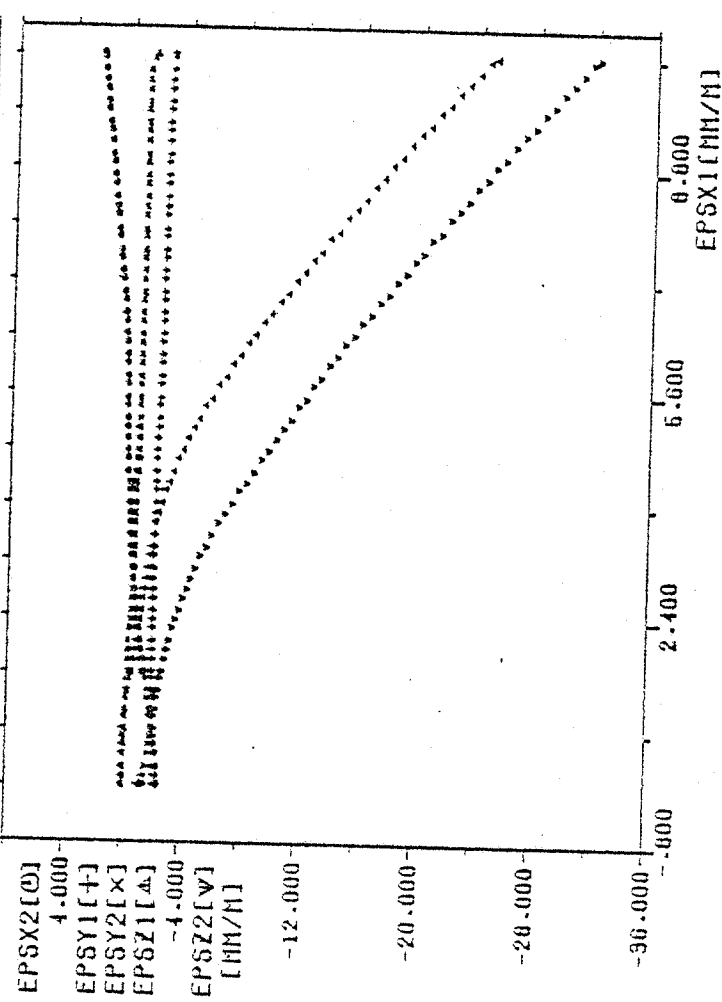
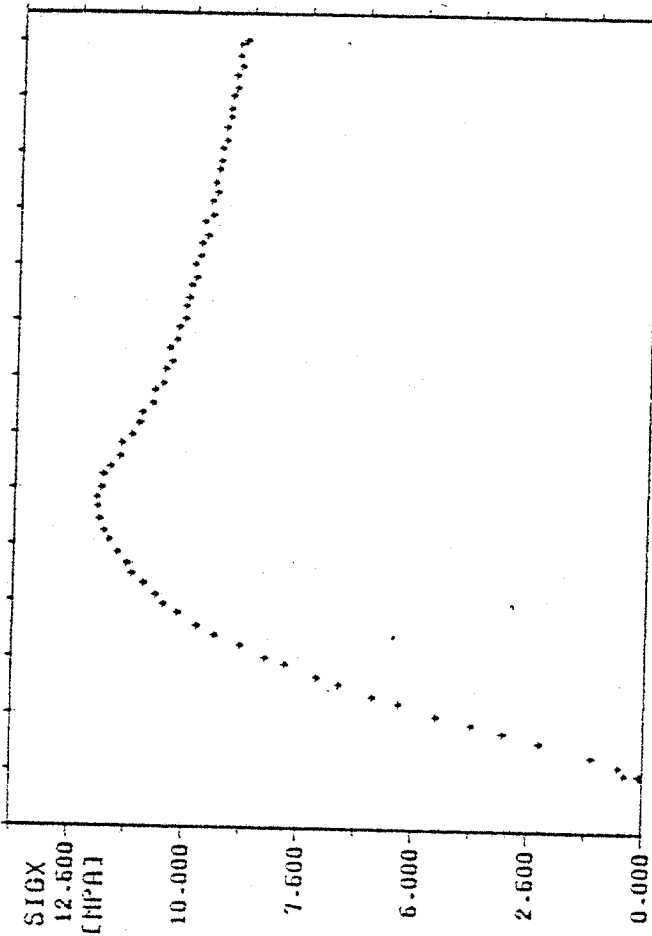
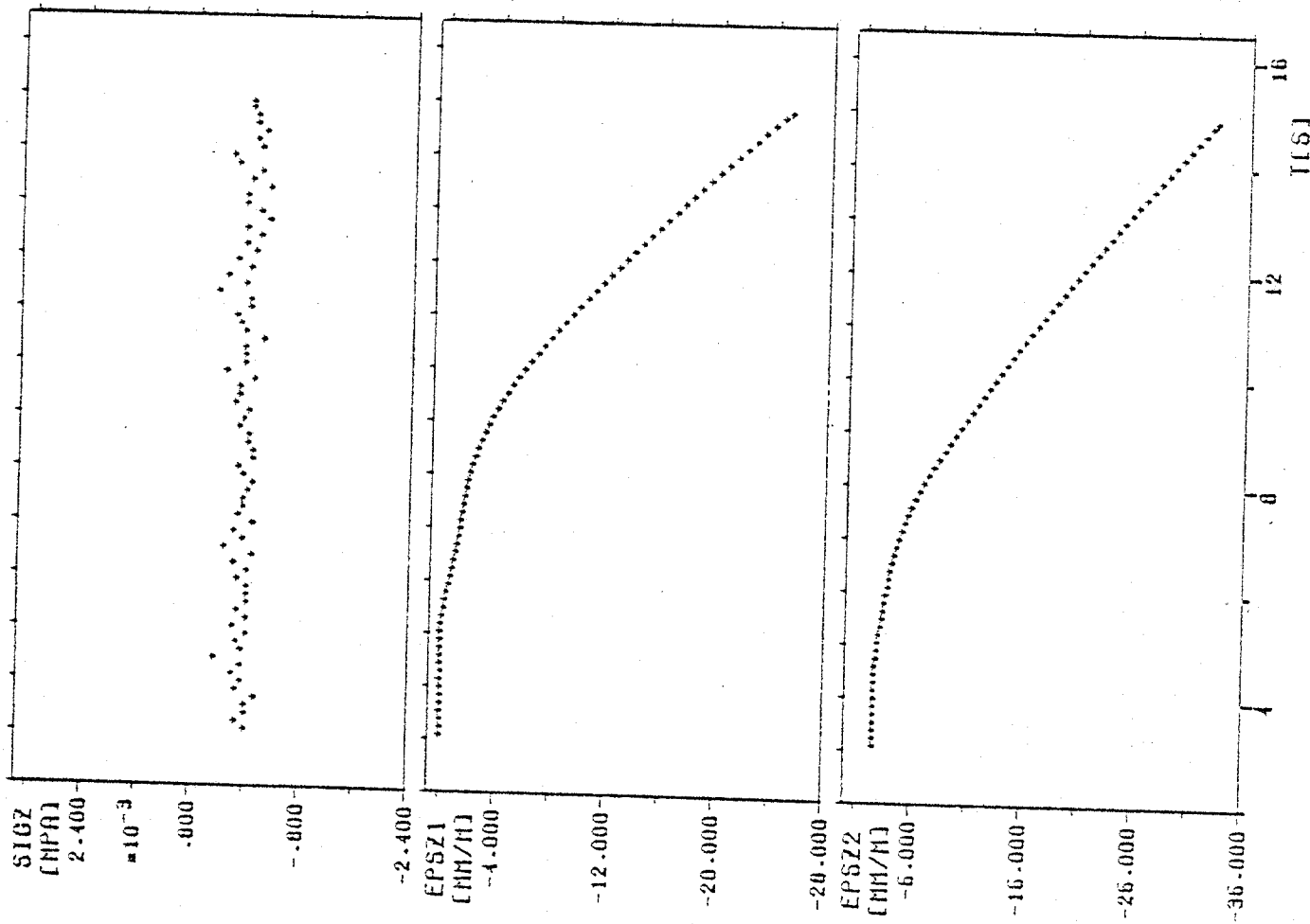
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NR: 3009.1 VOM 02:12:02 13:04 UHR

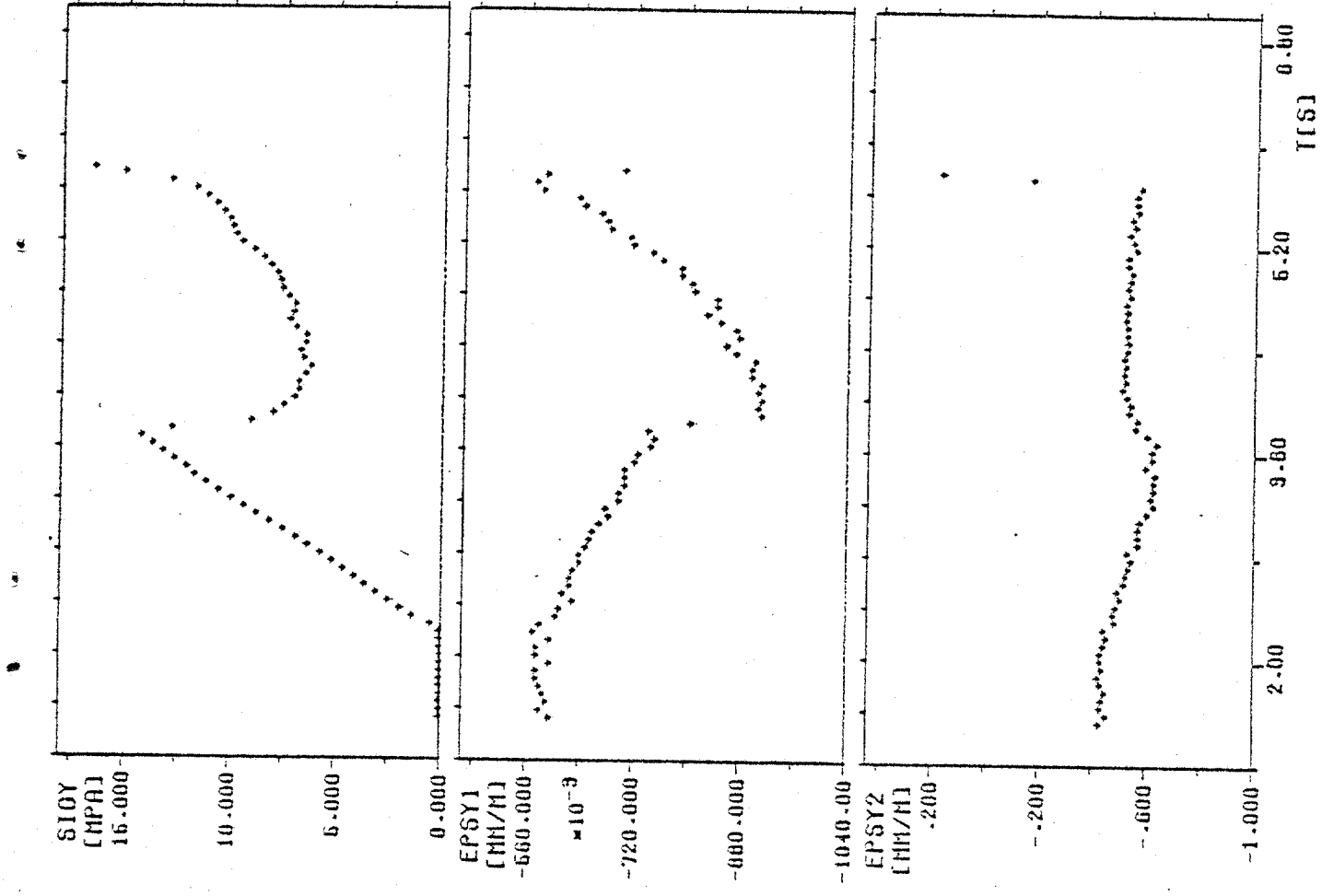


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NR: 3009.1 VOM 02:12:02 13:04 UHR

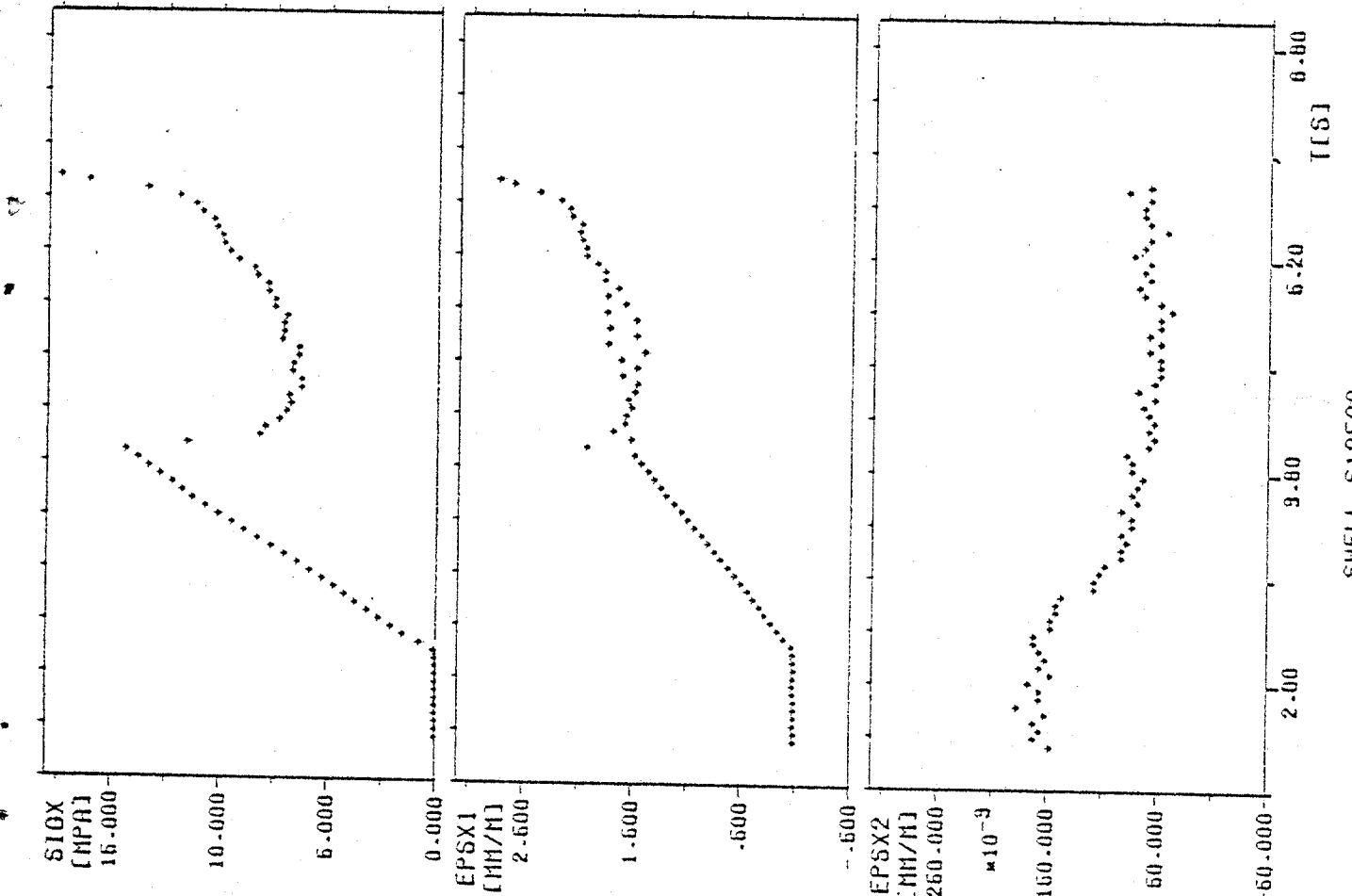


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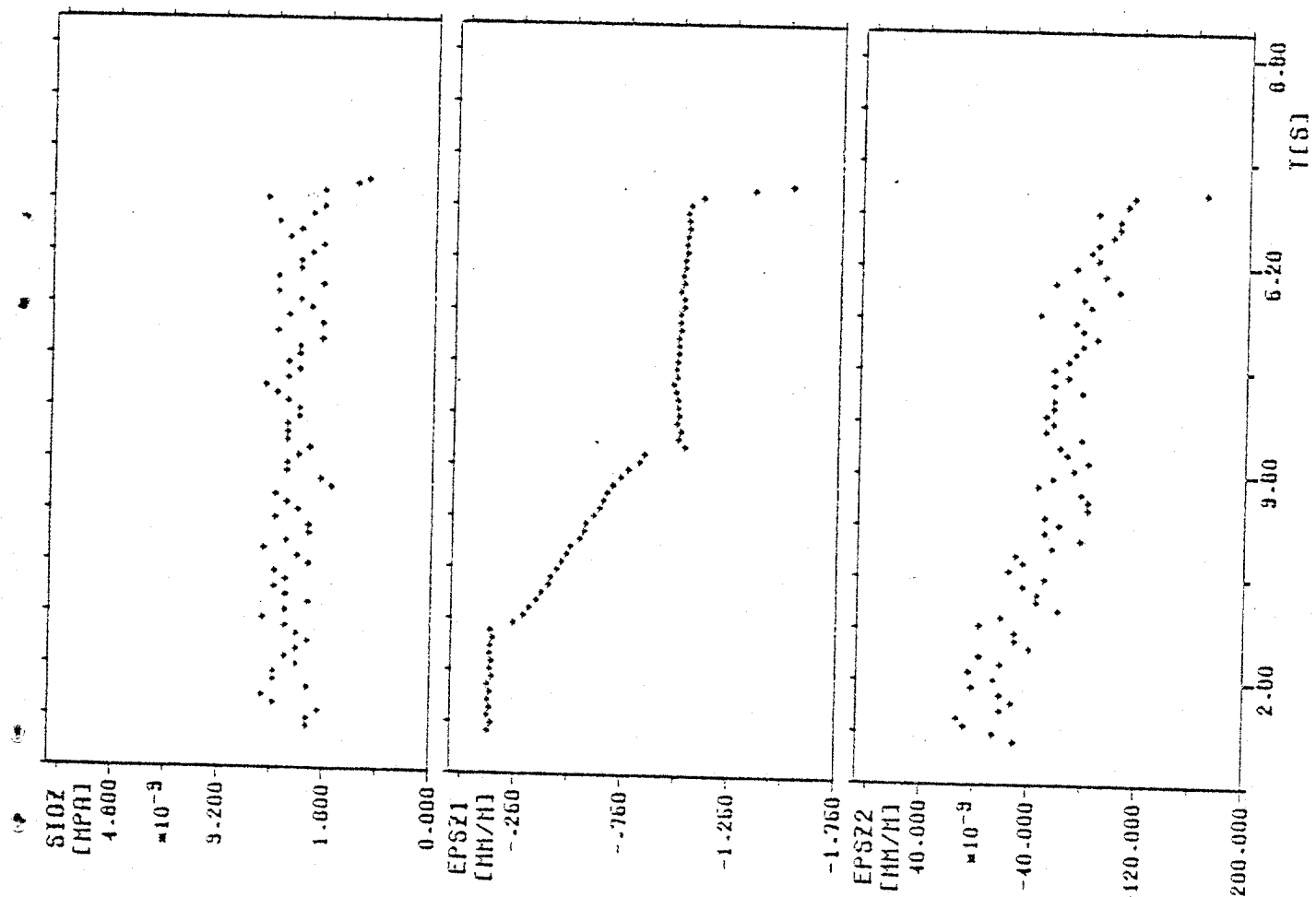
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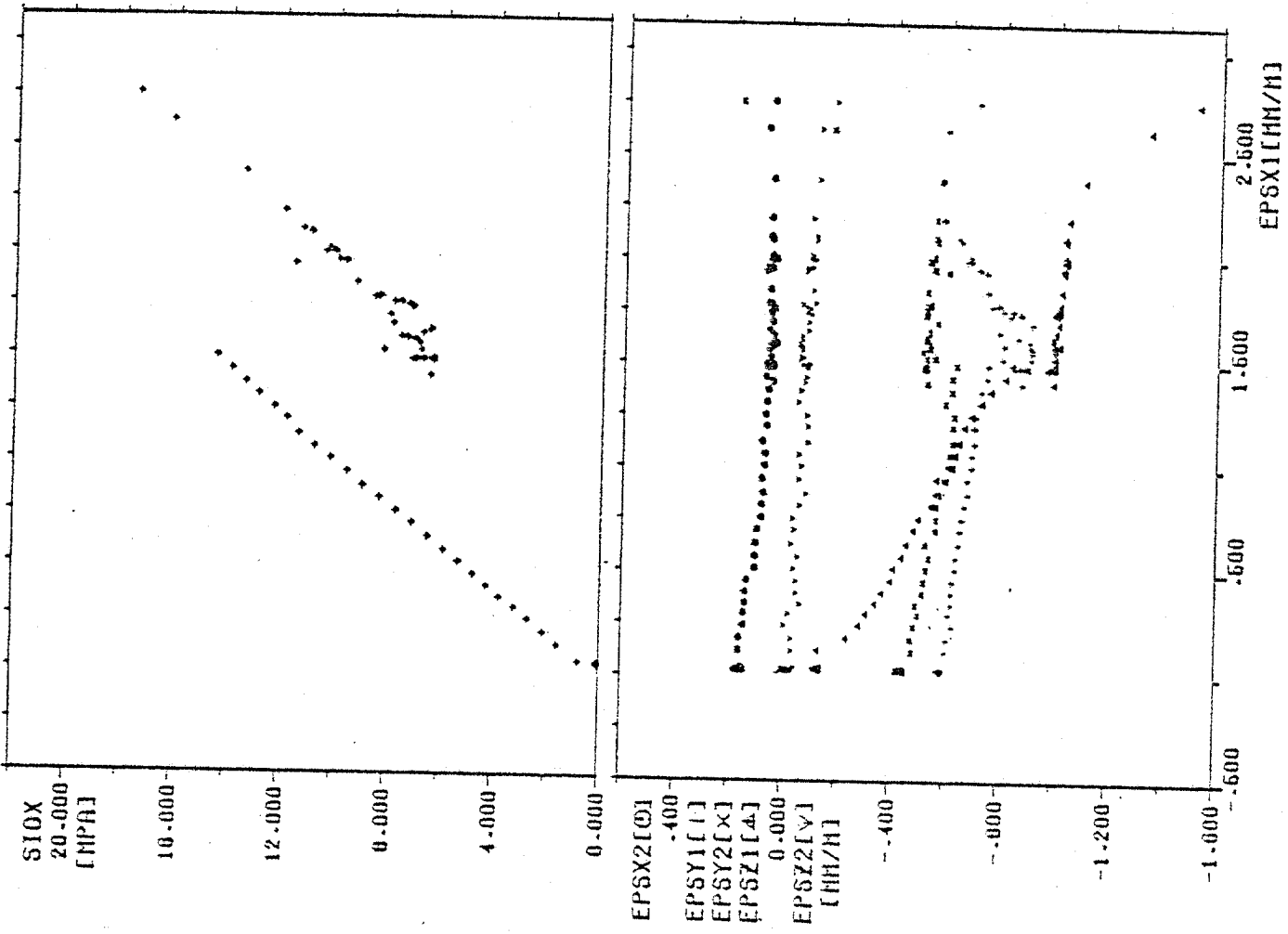
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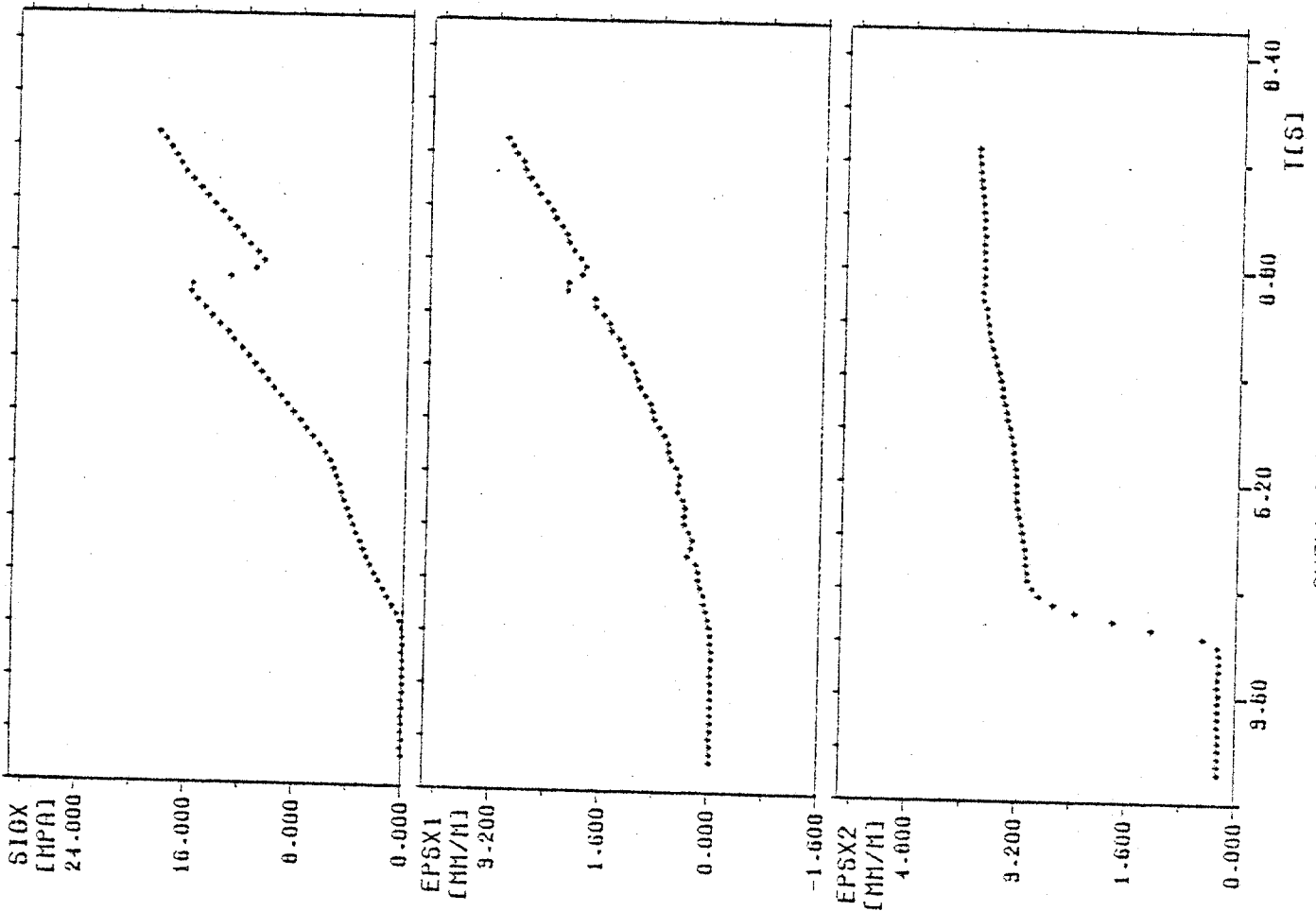
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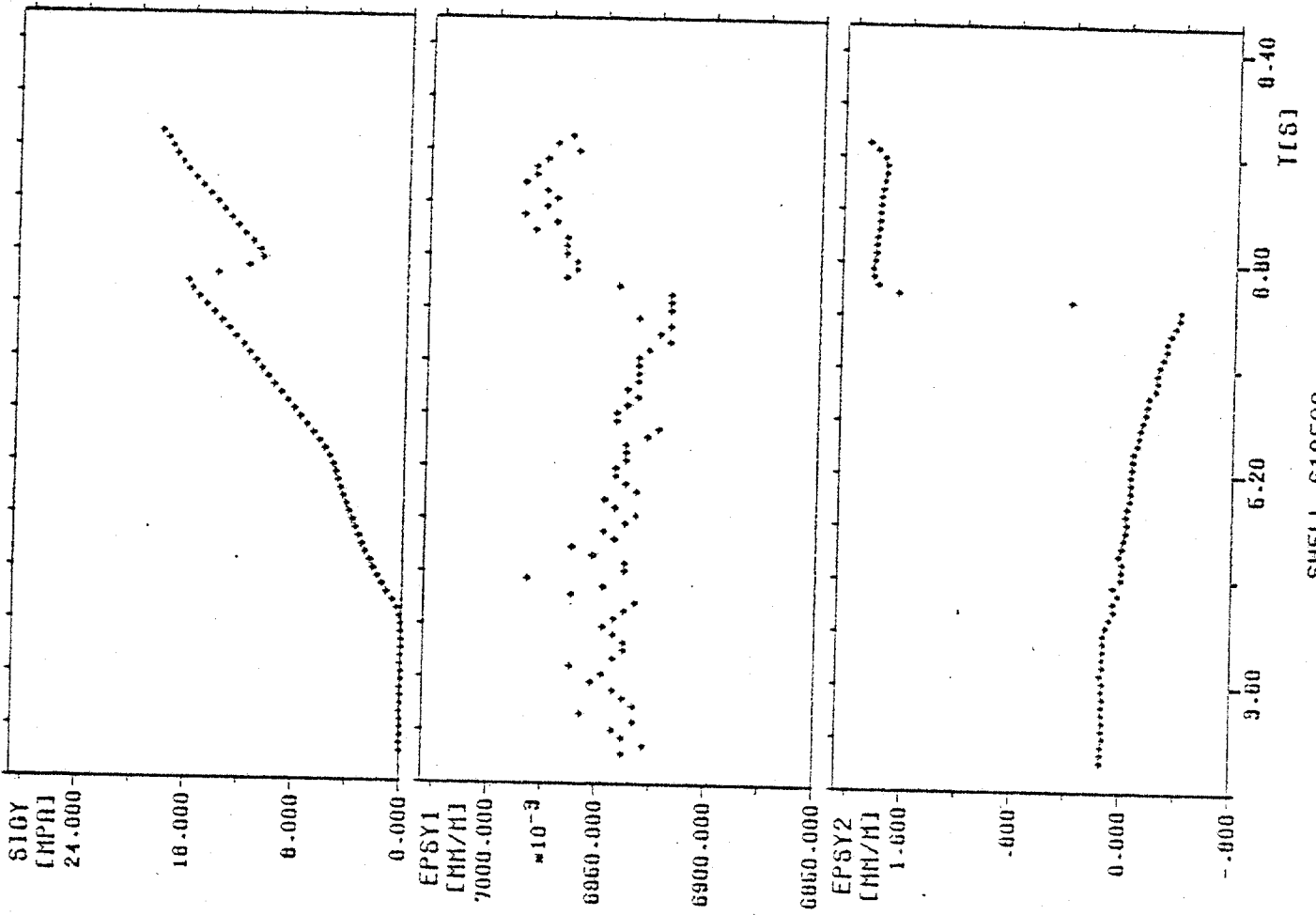
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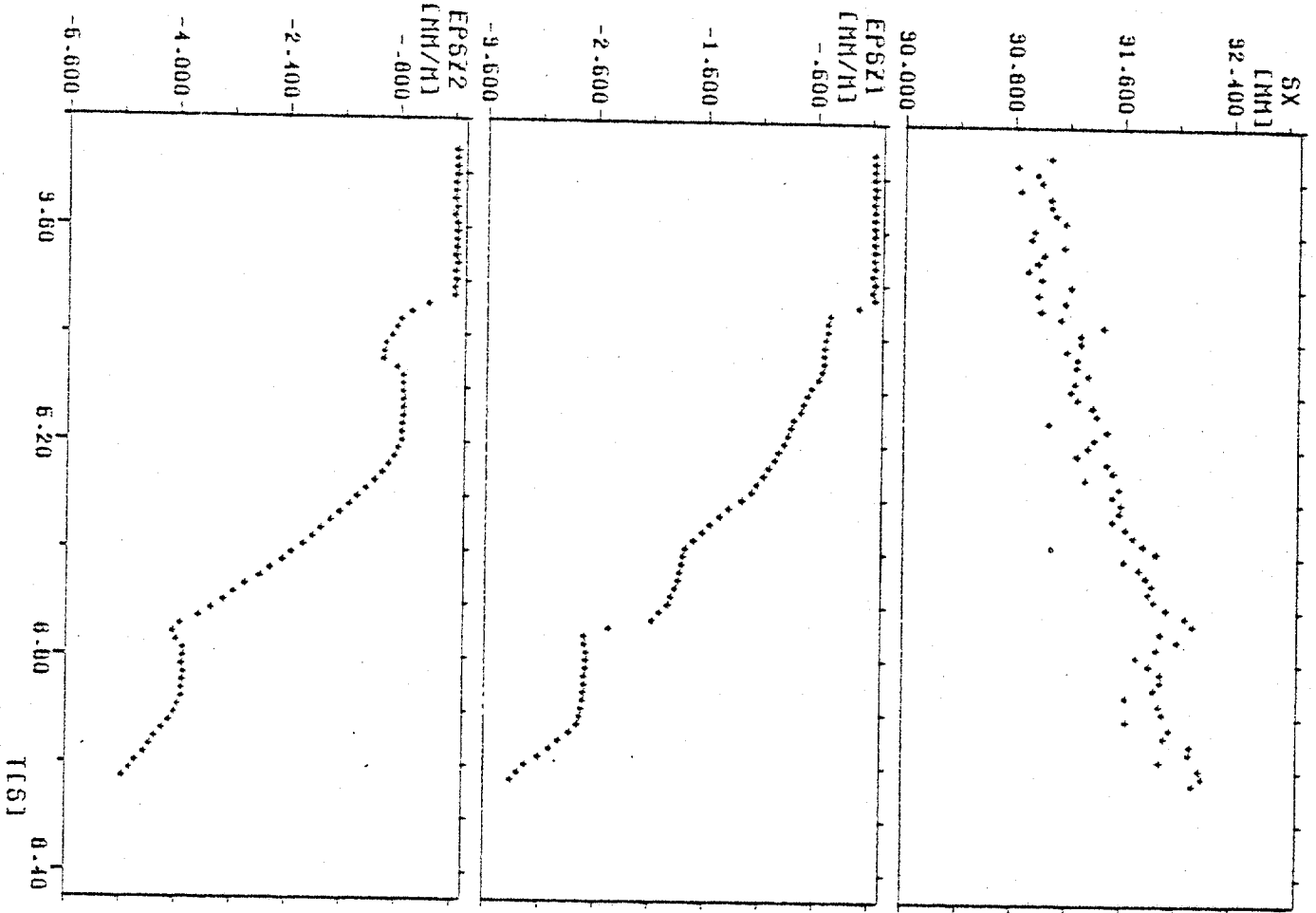
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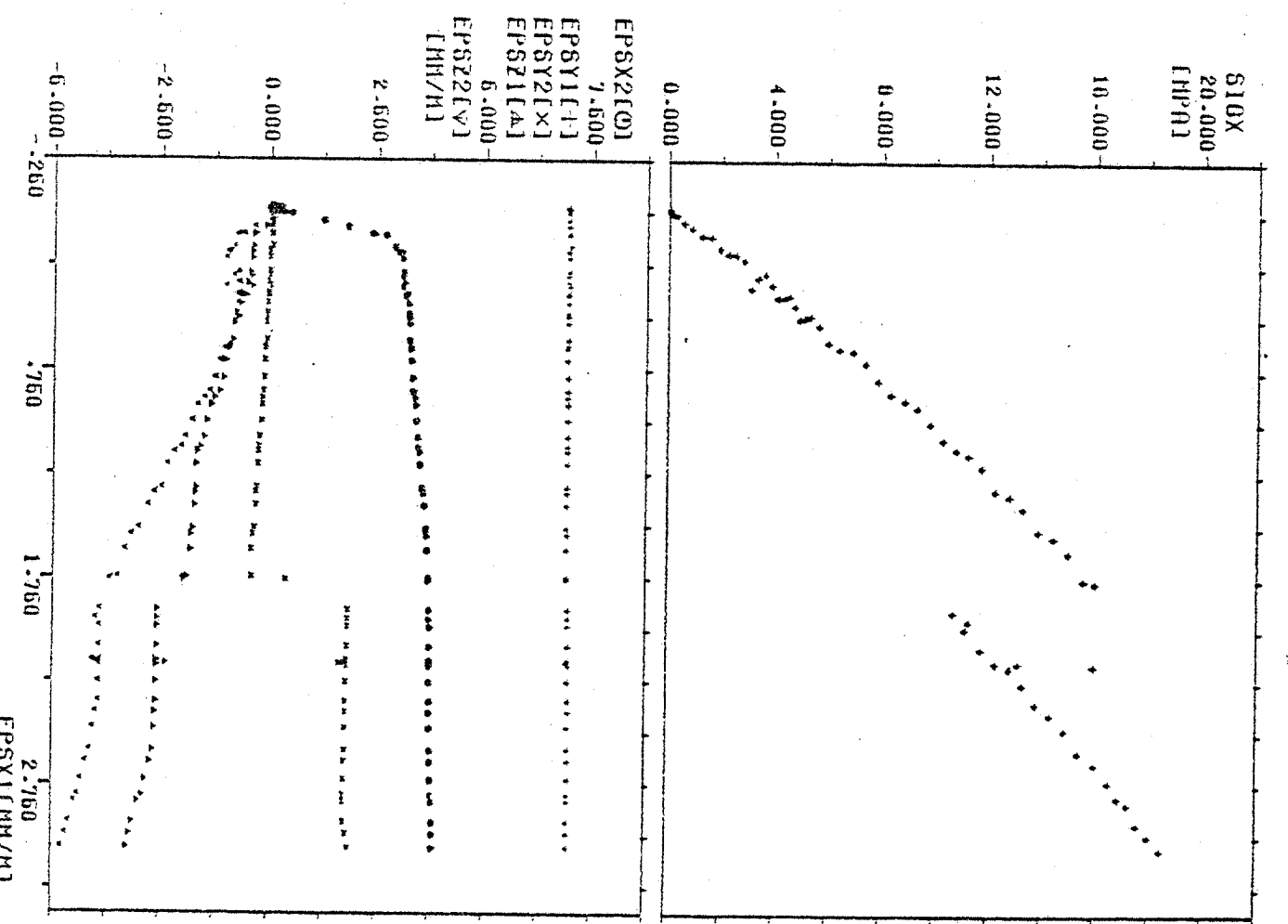


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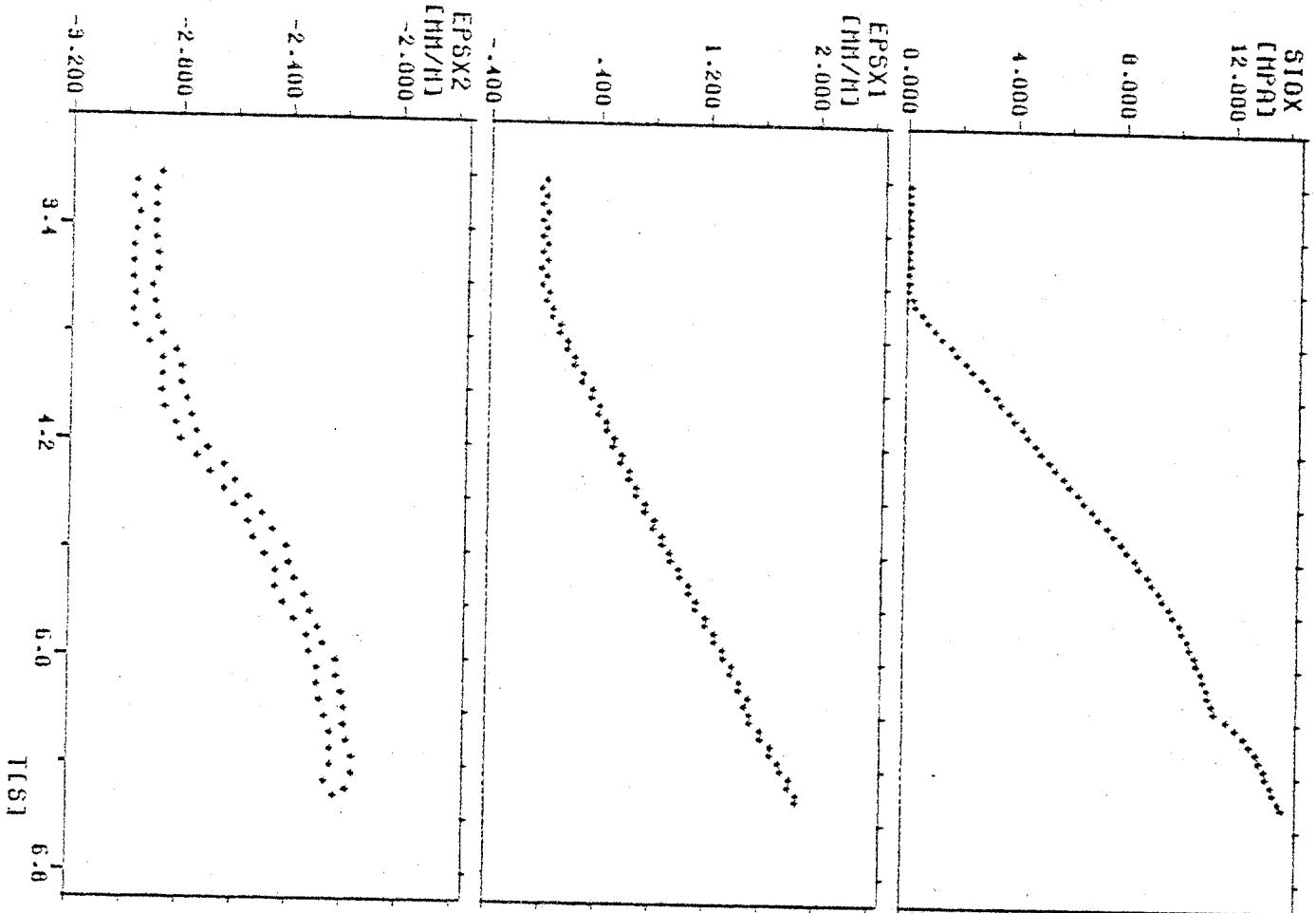
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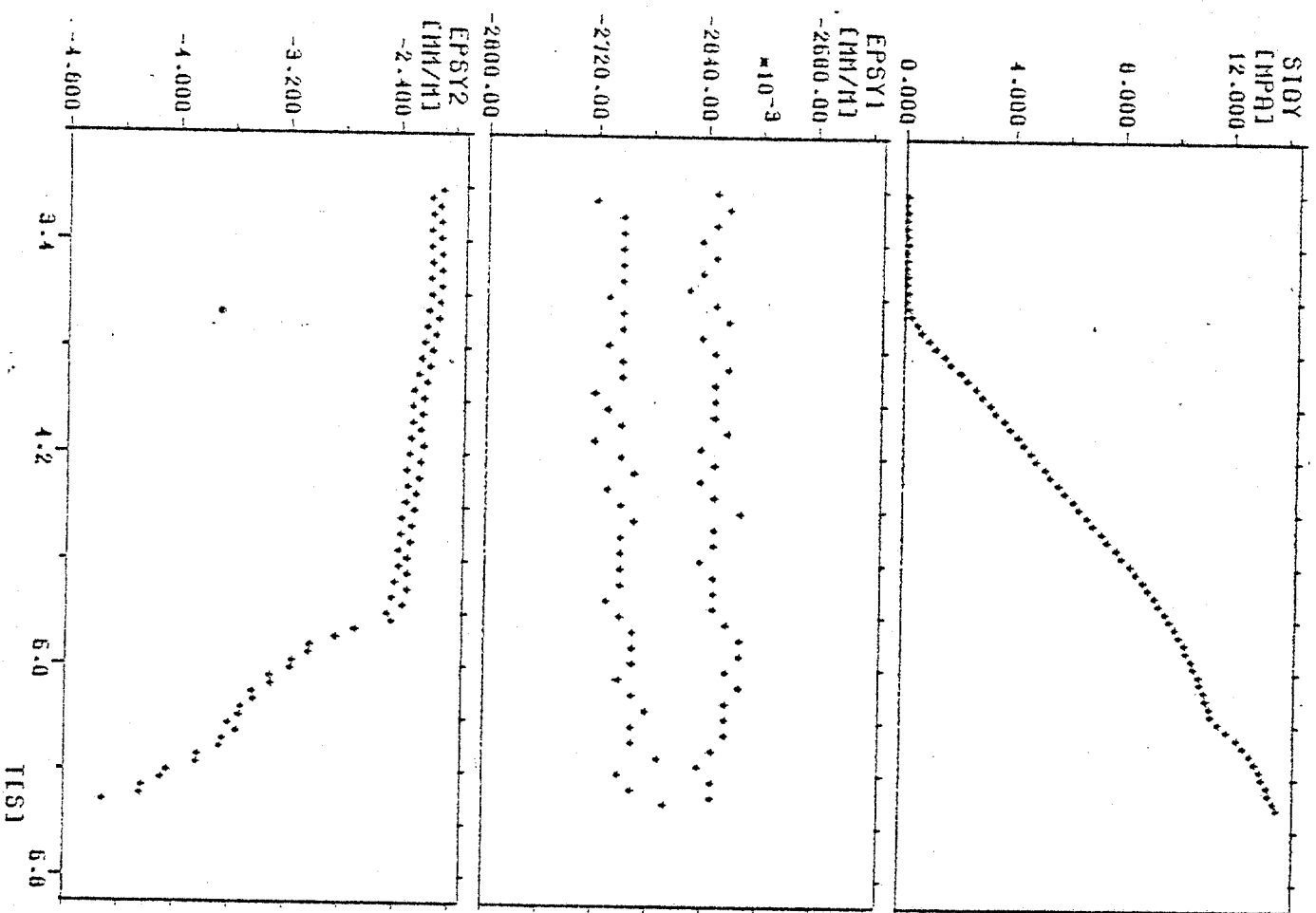
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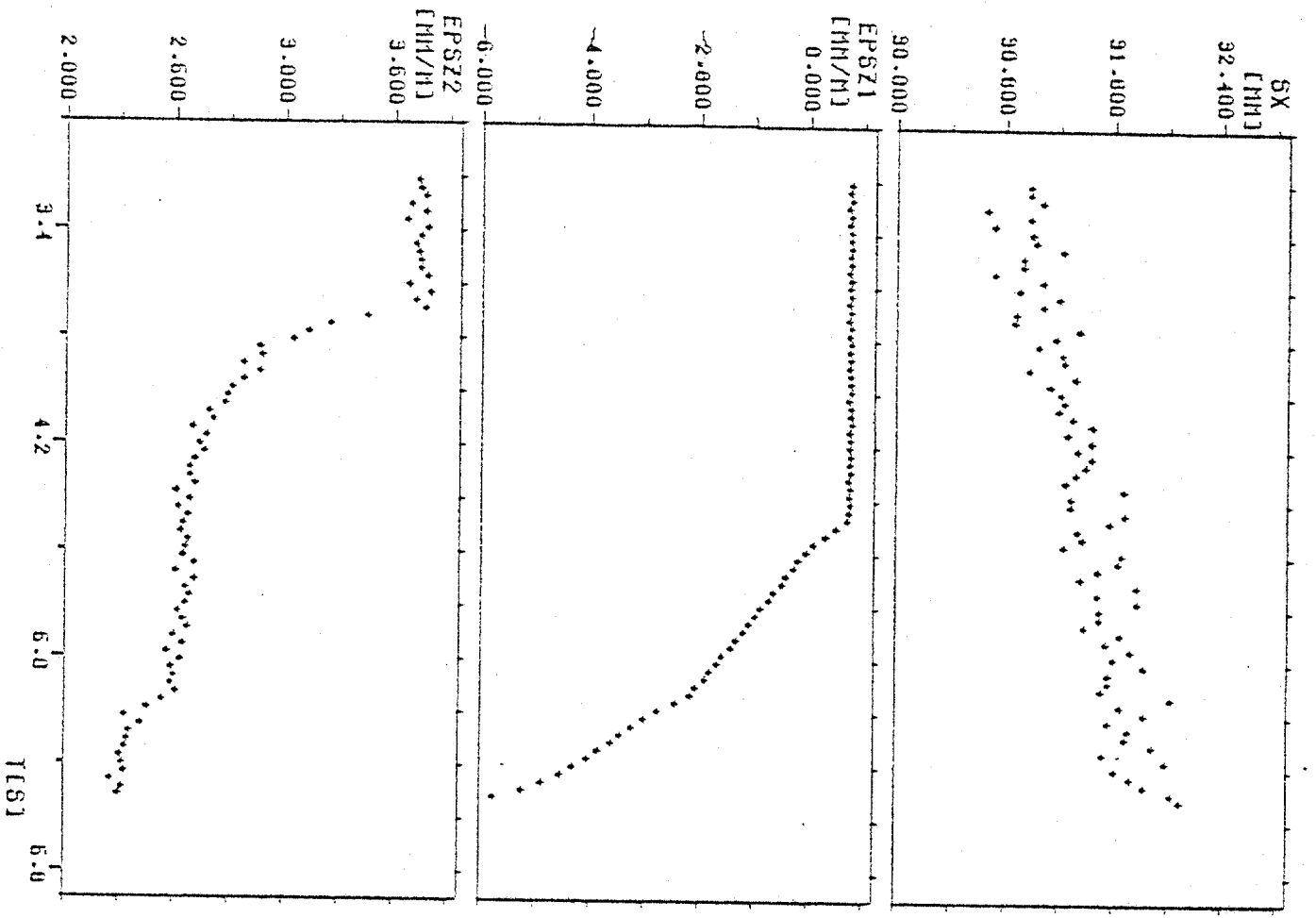


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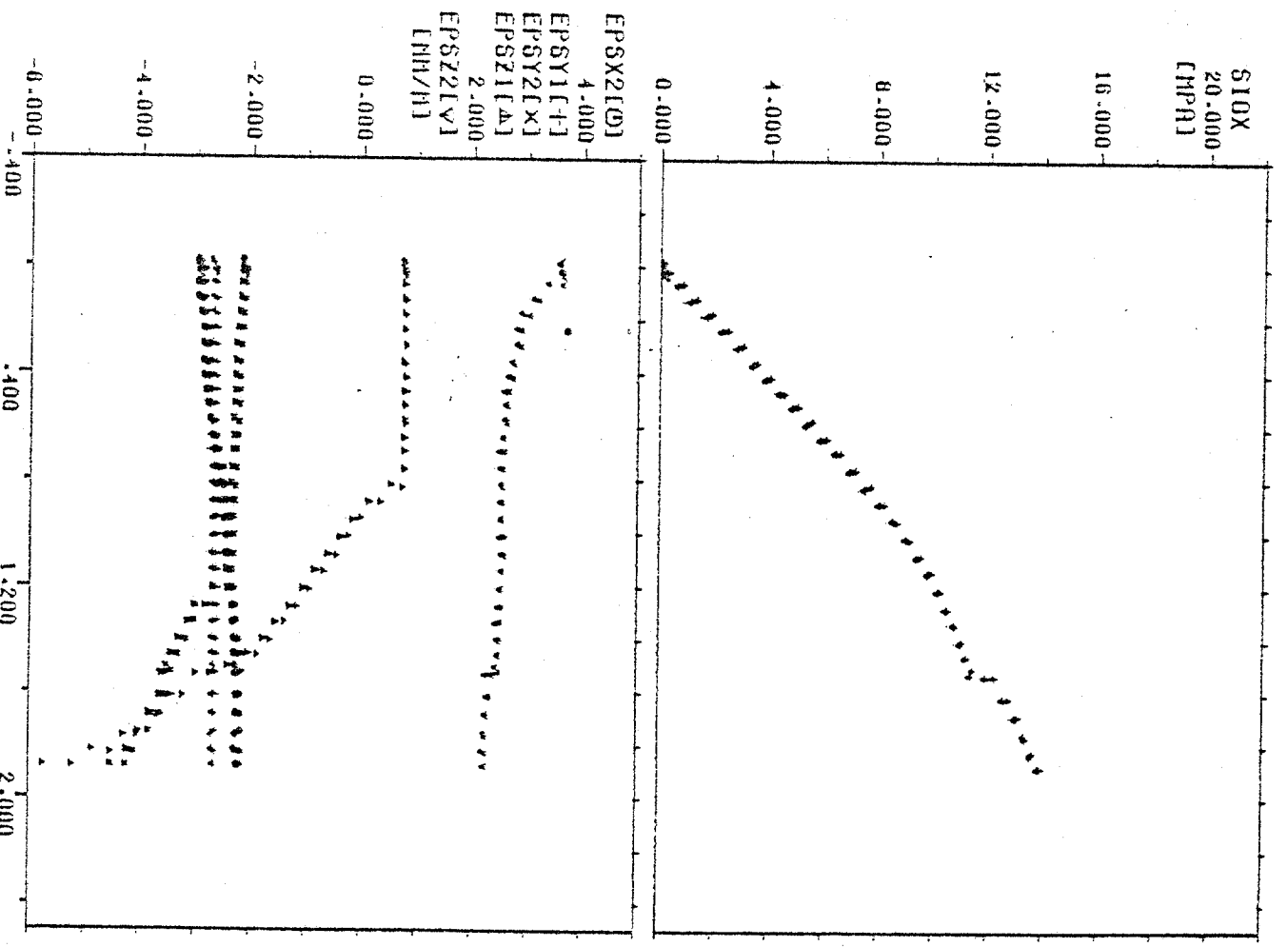


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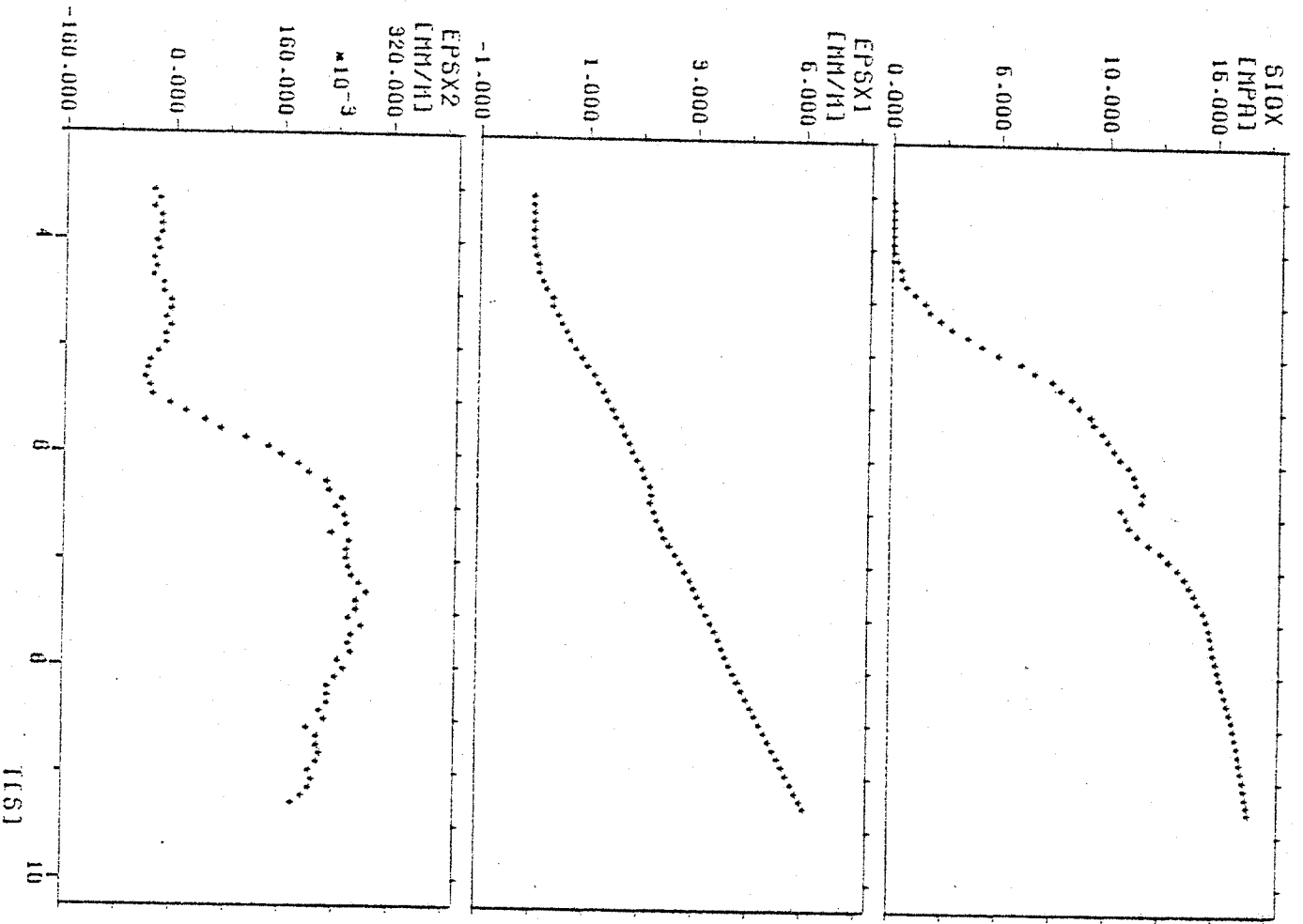




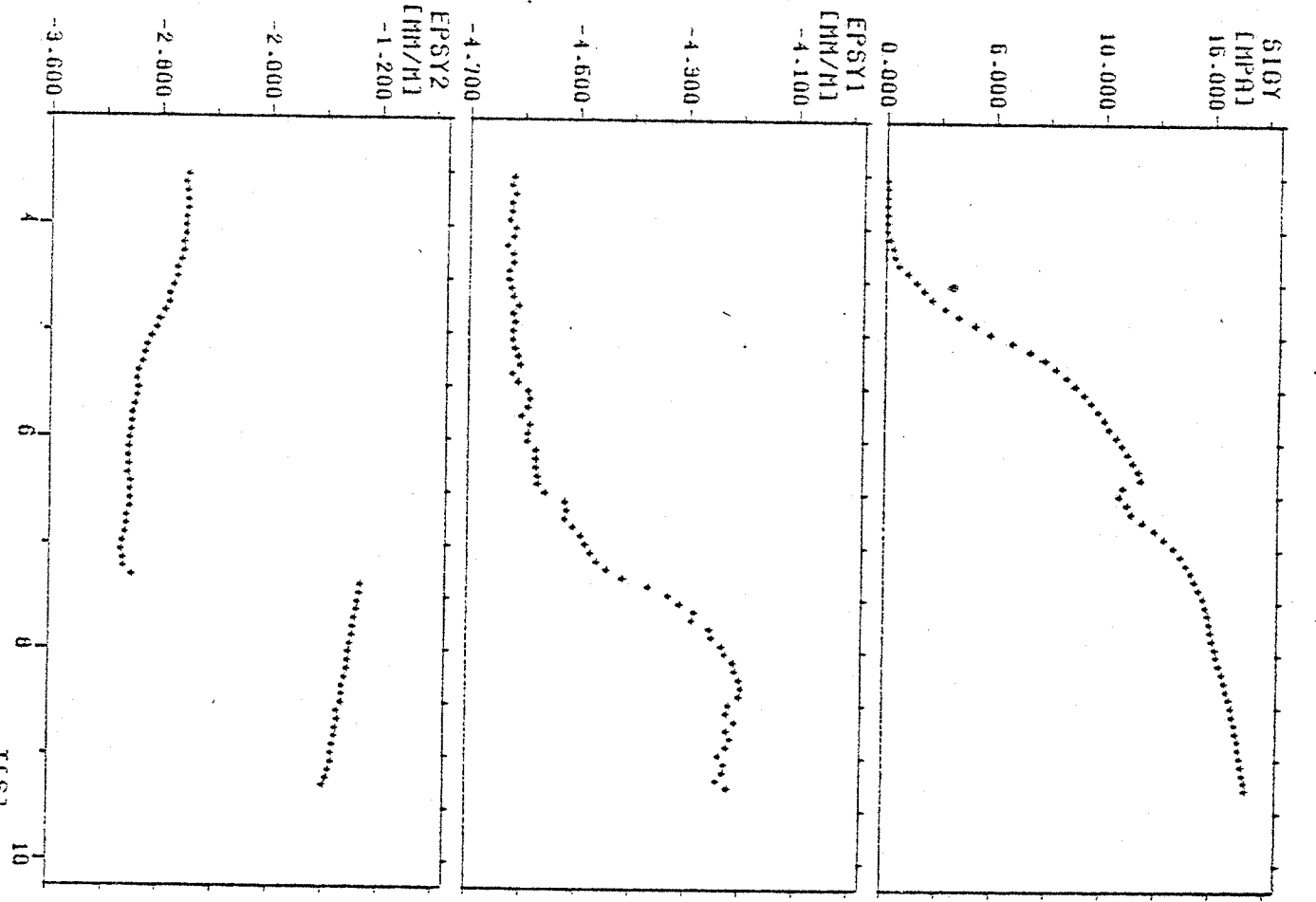
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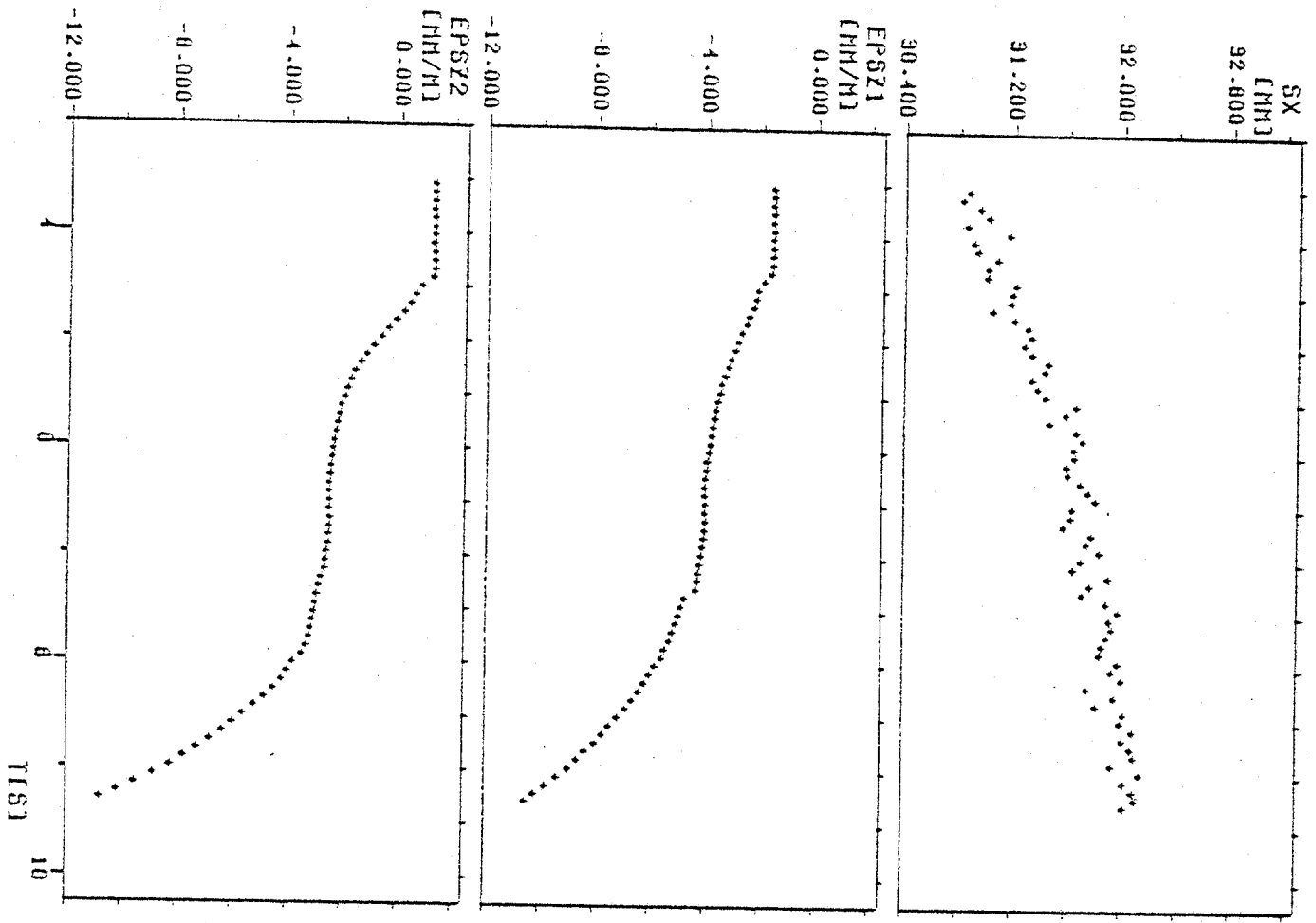
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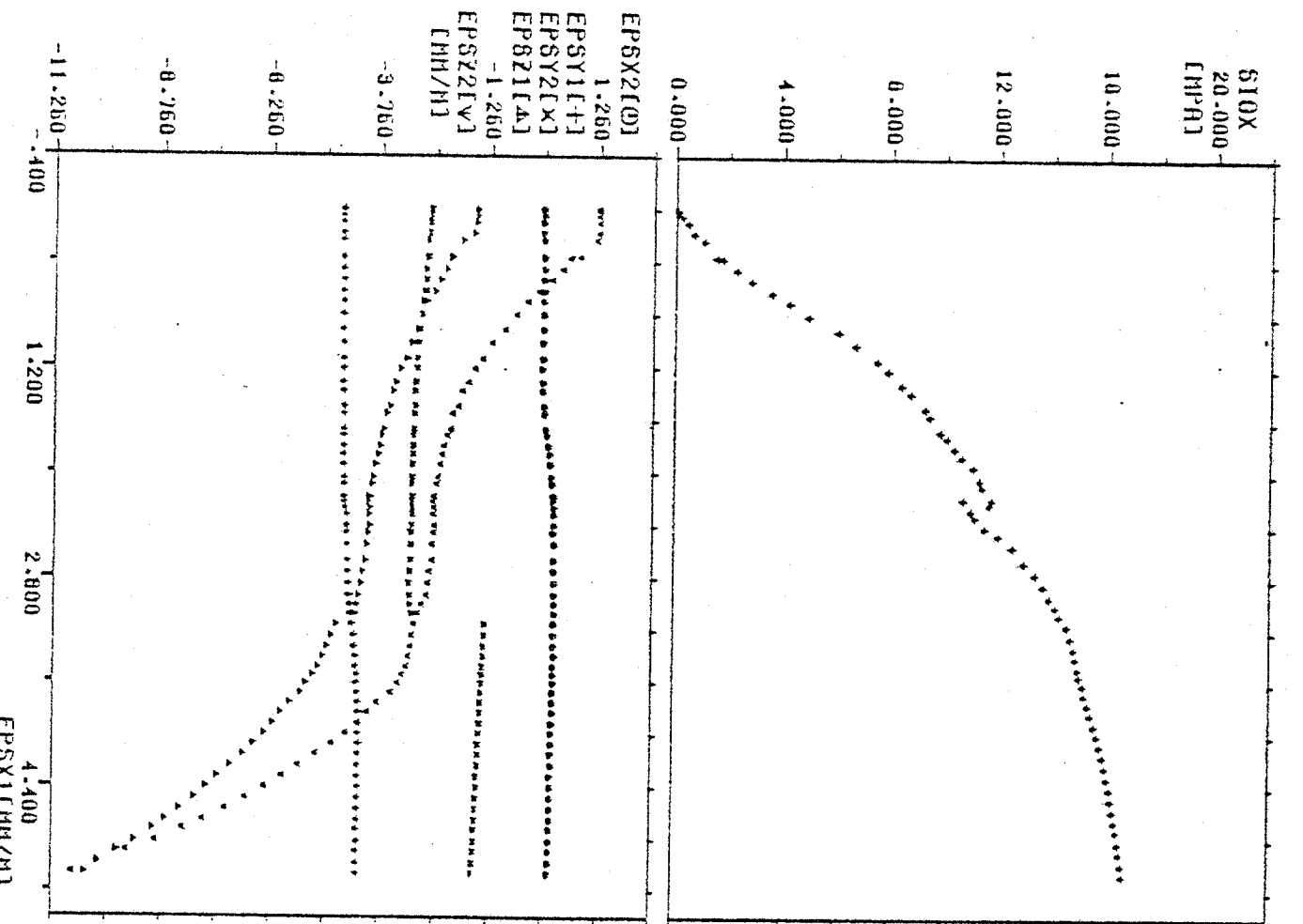
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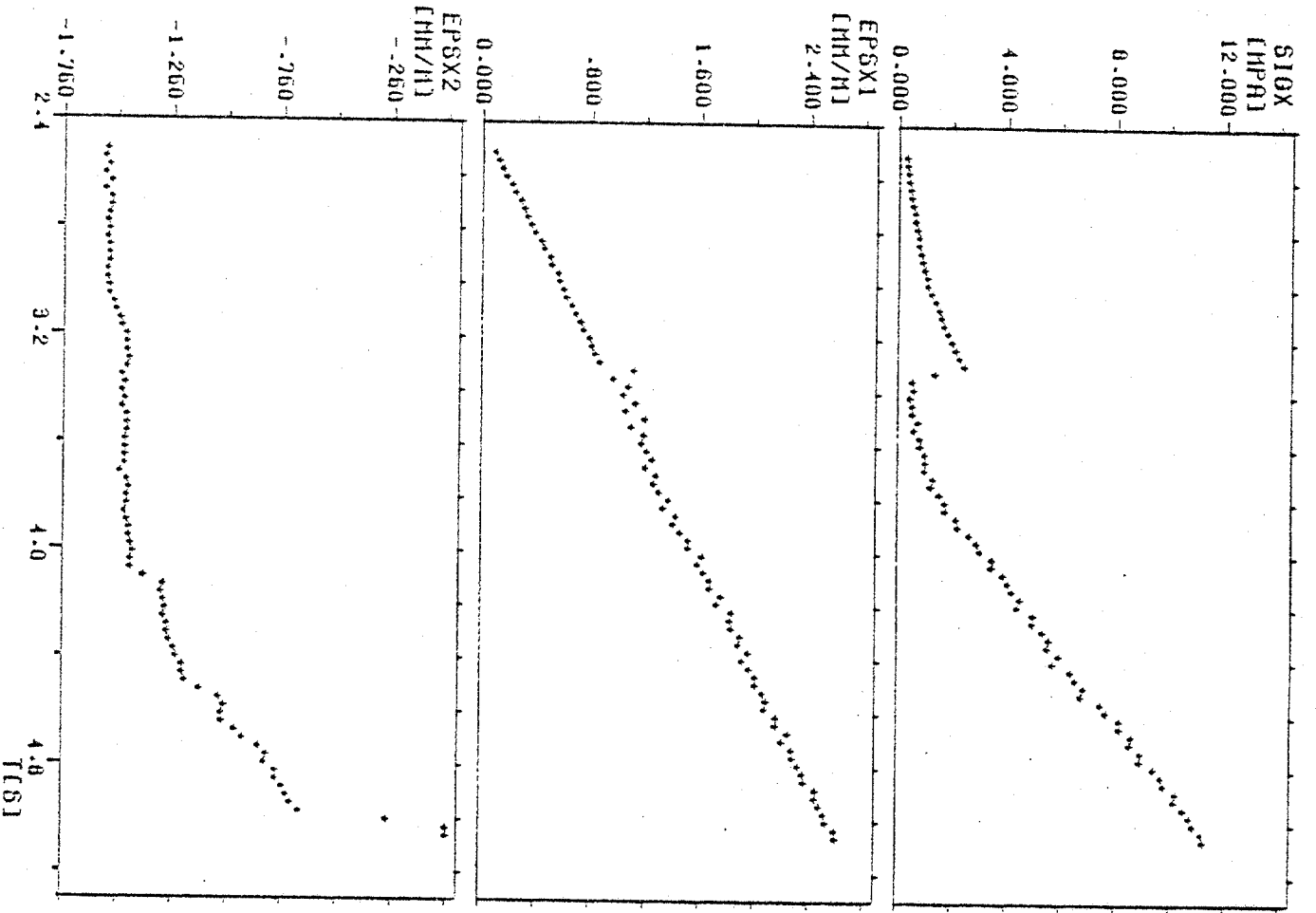
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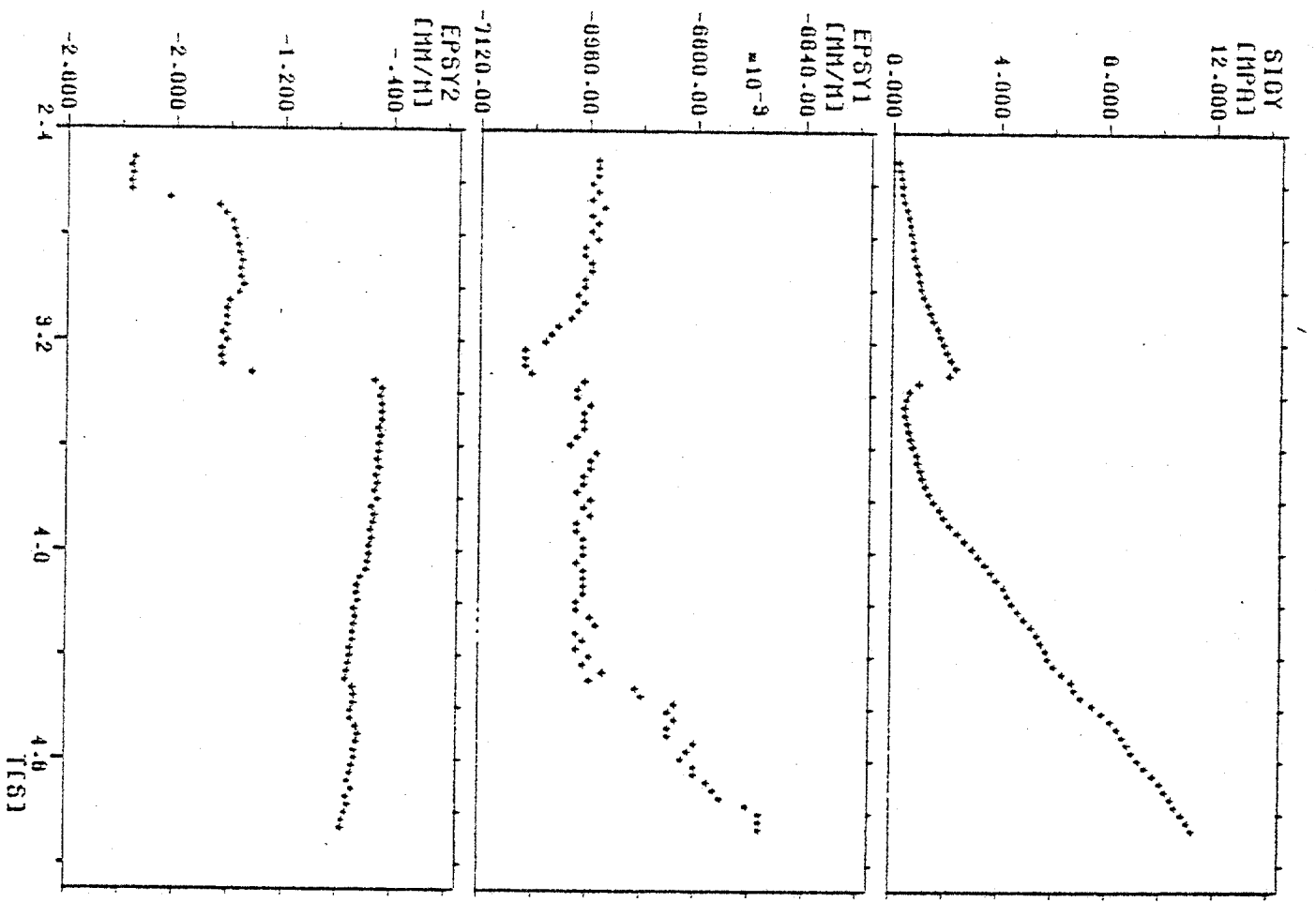
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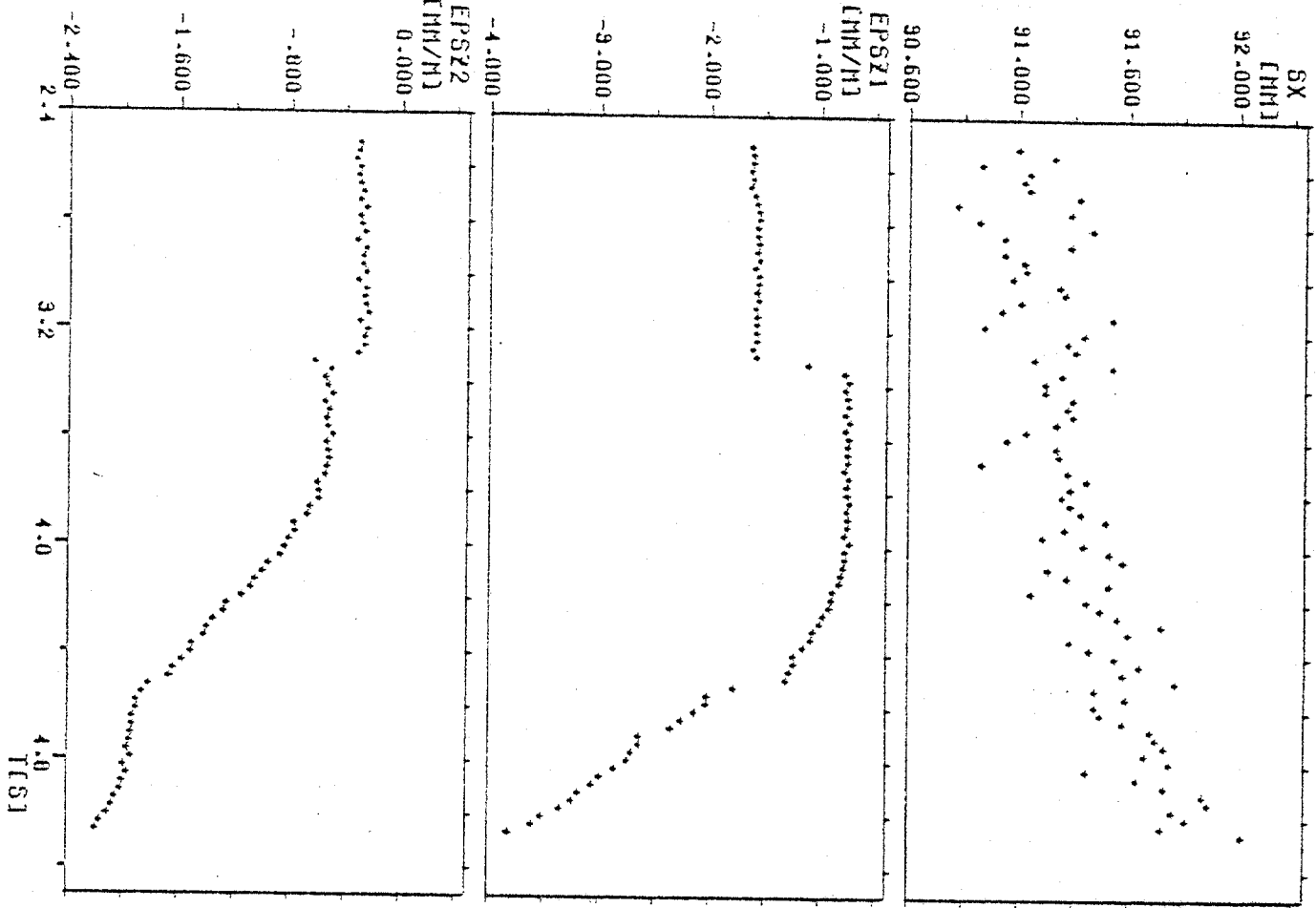
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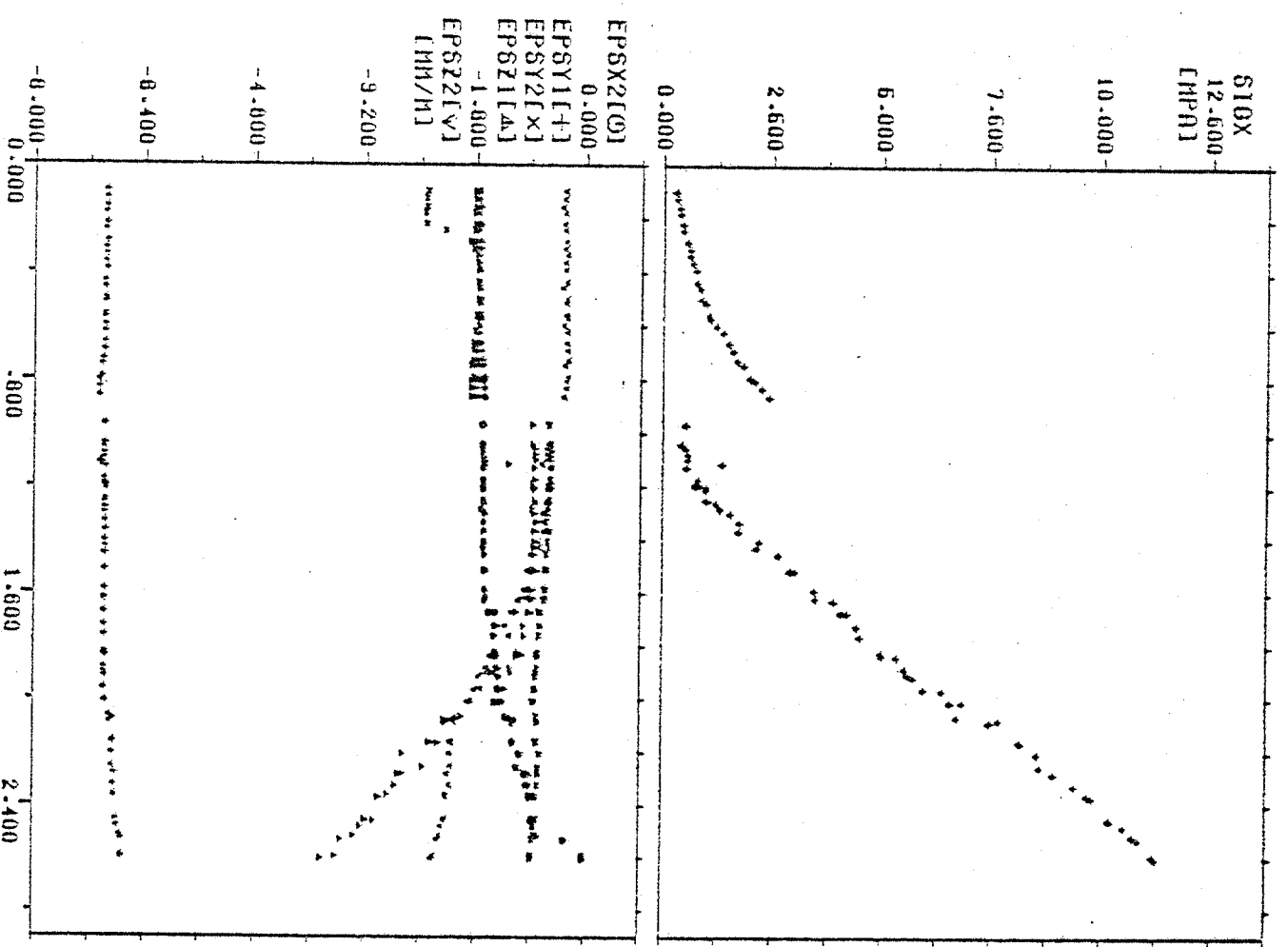
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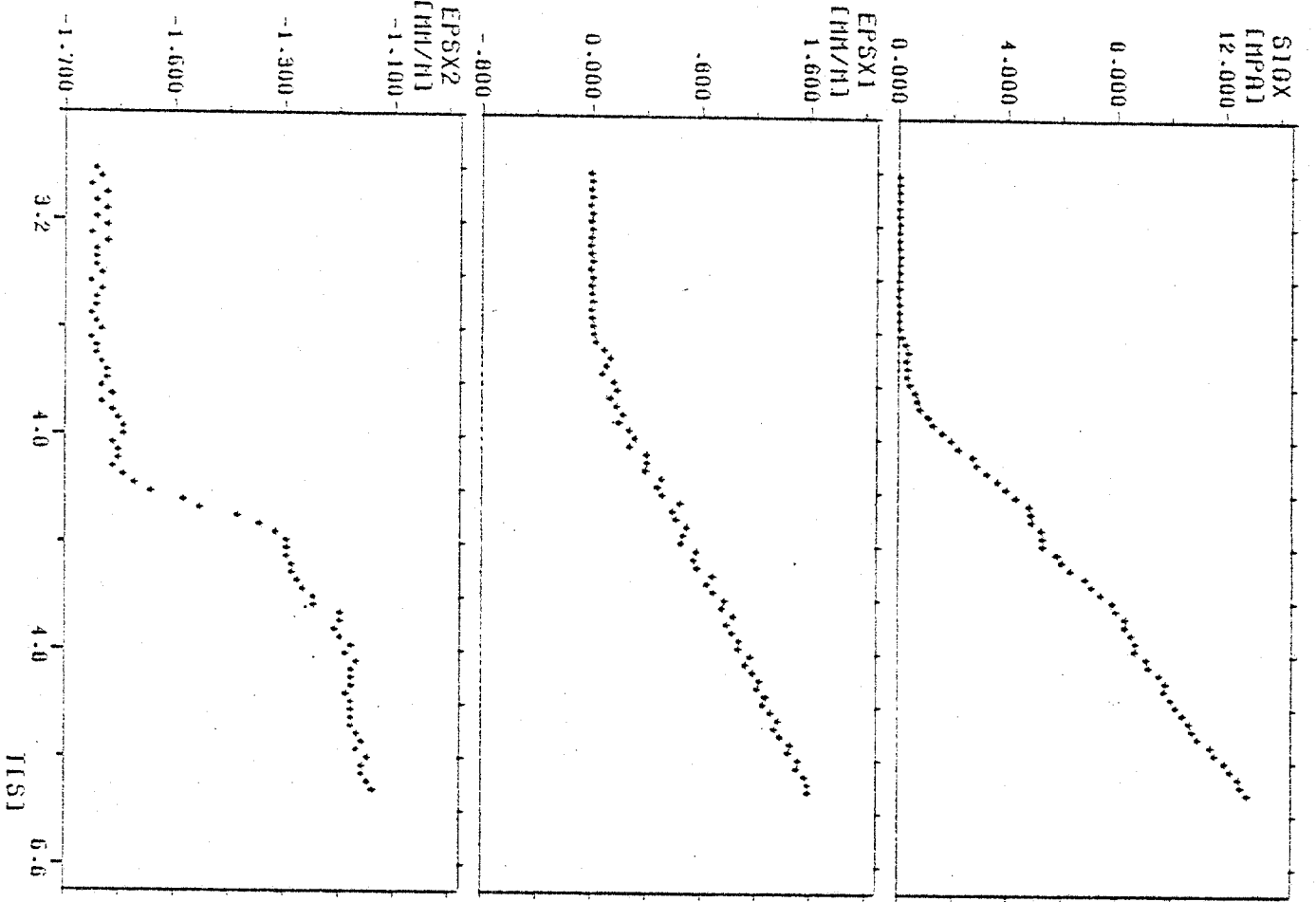


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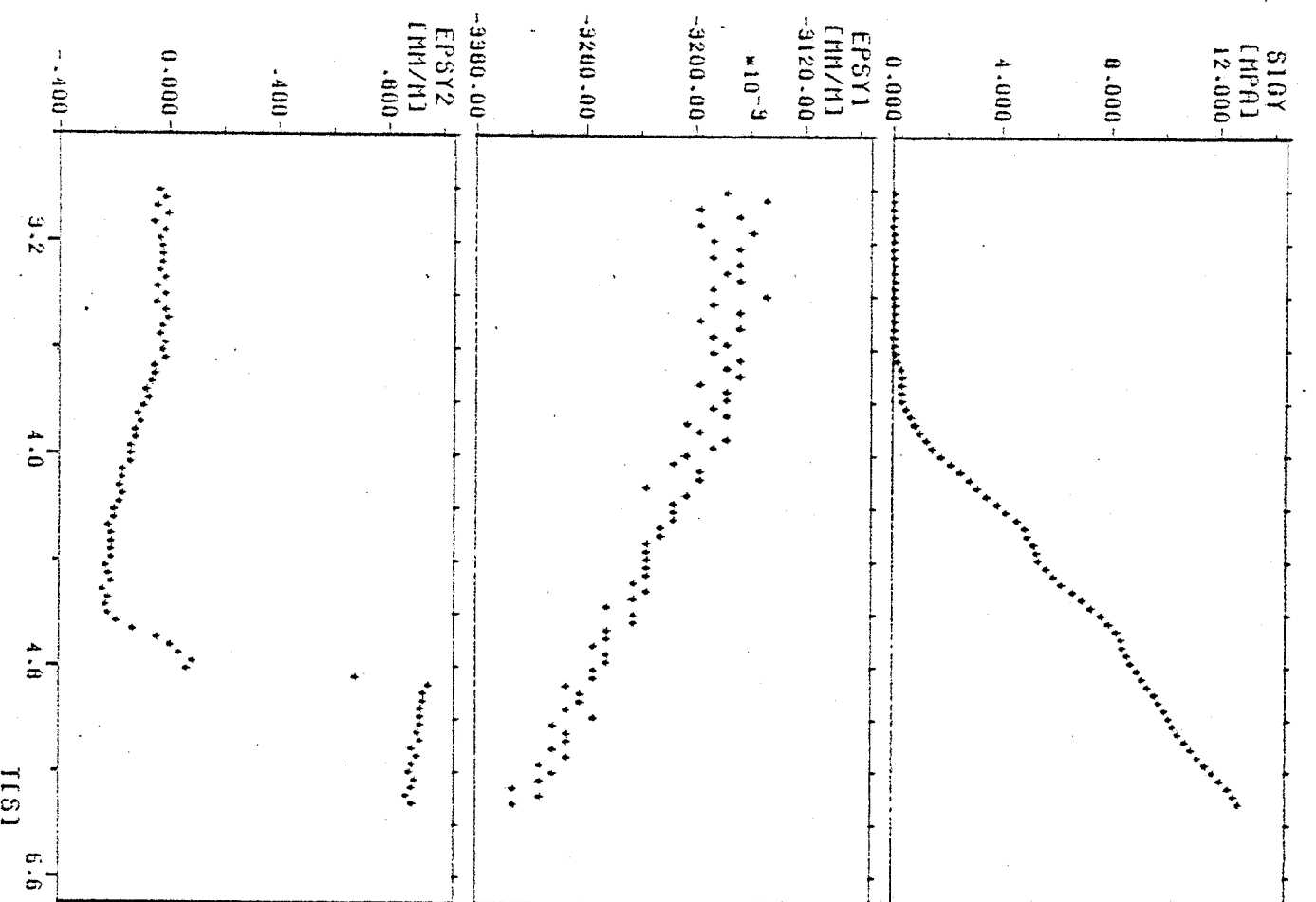


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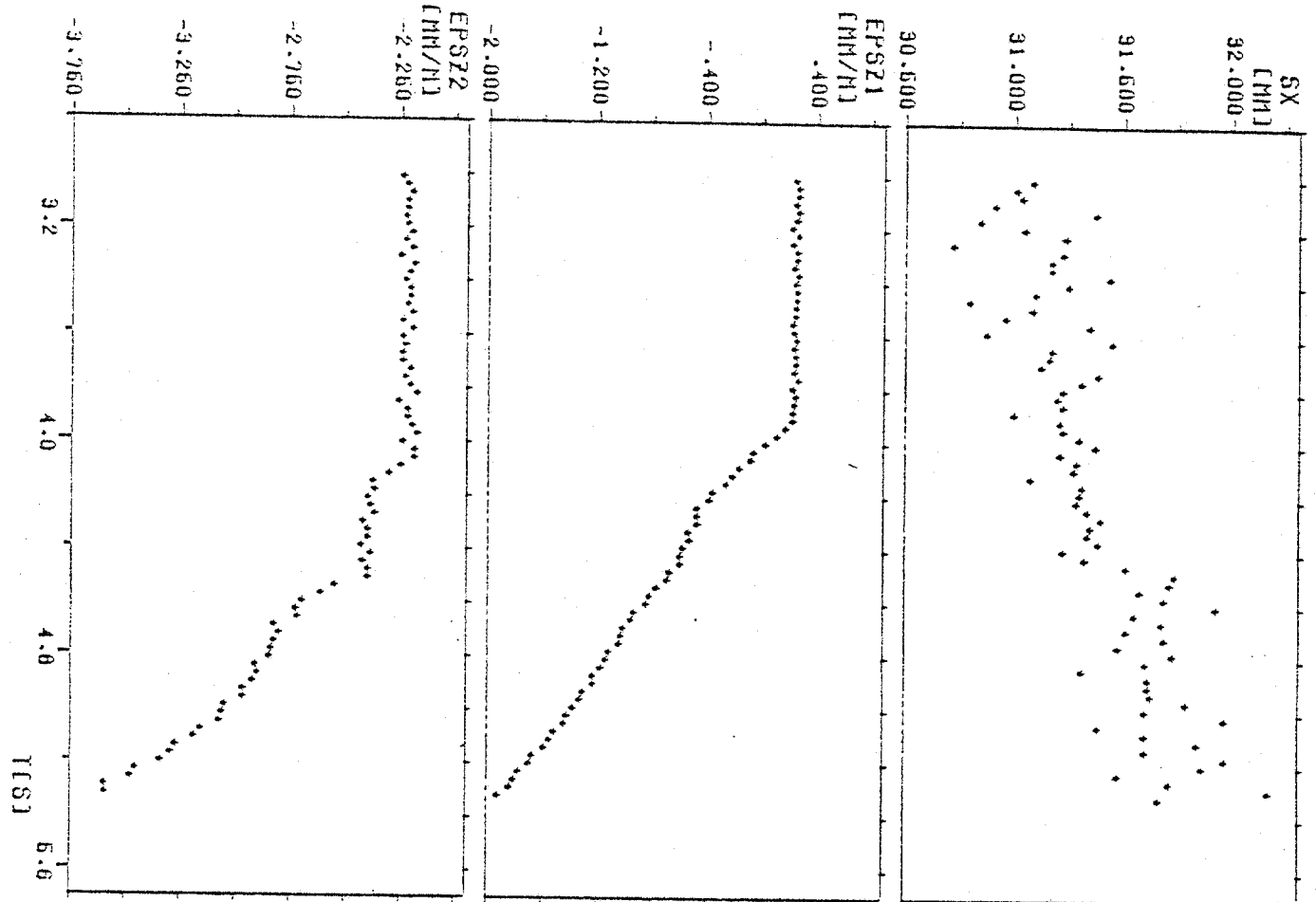
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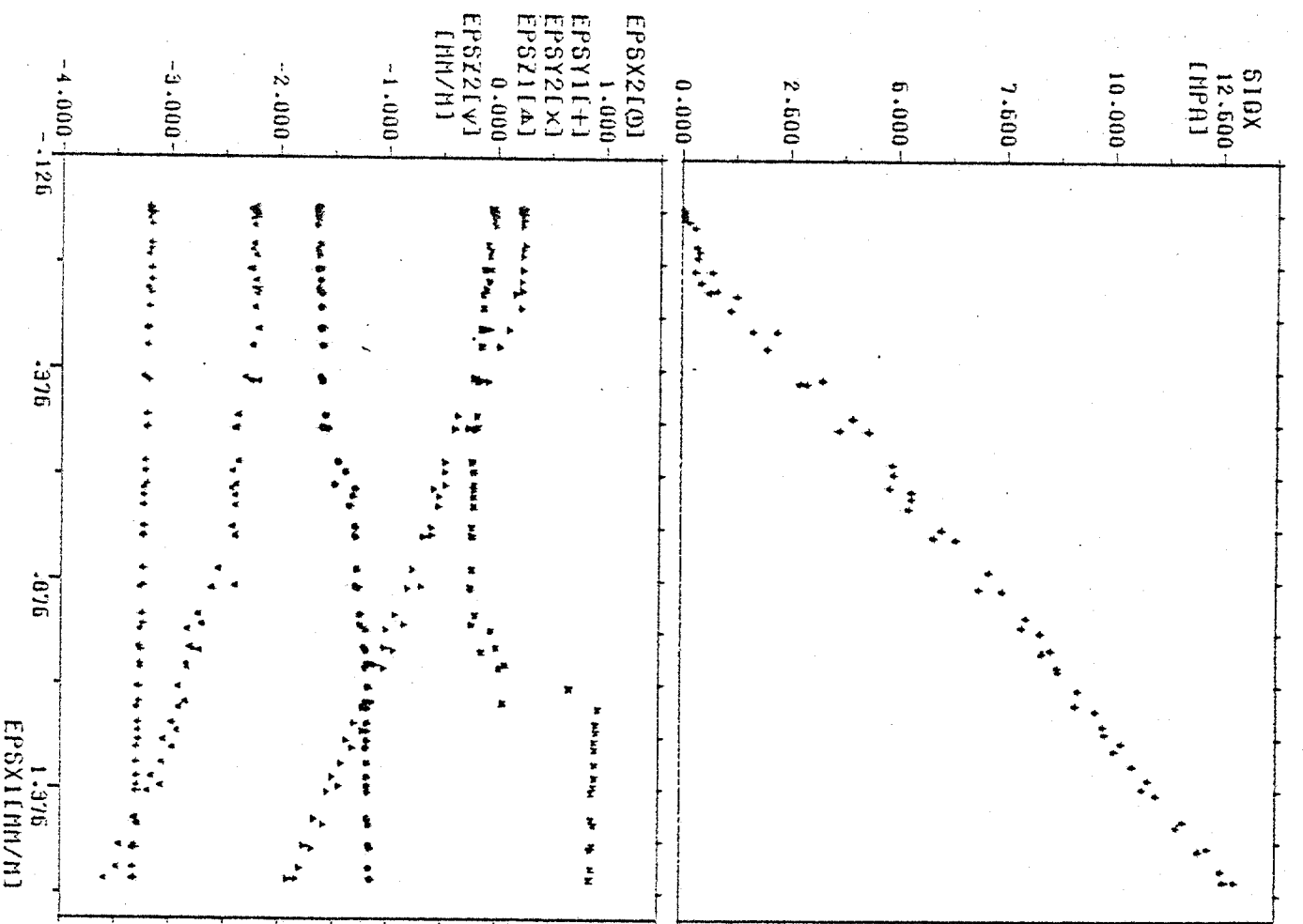
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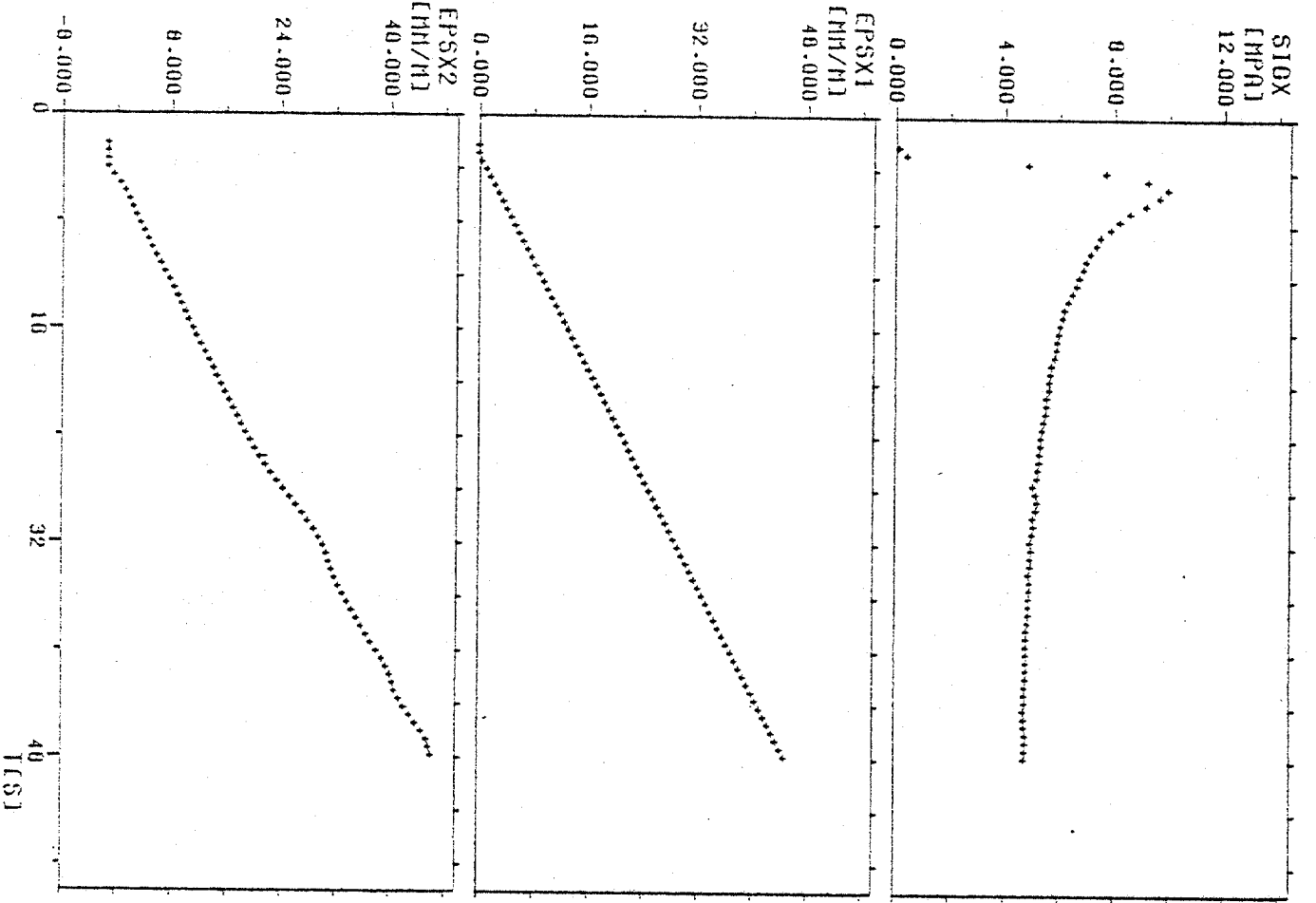
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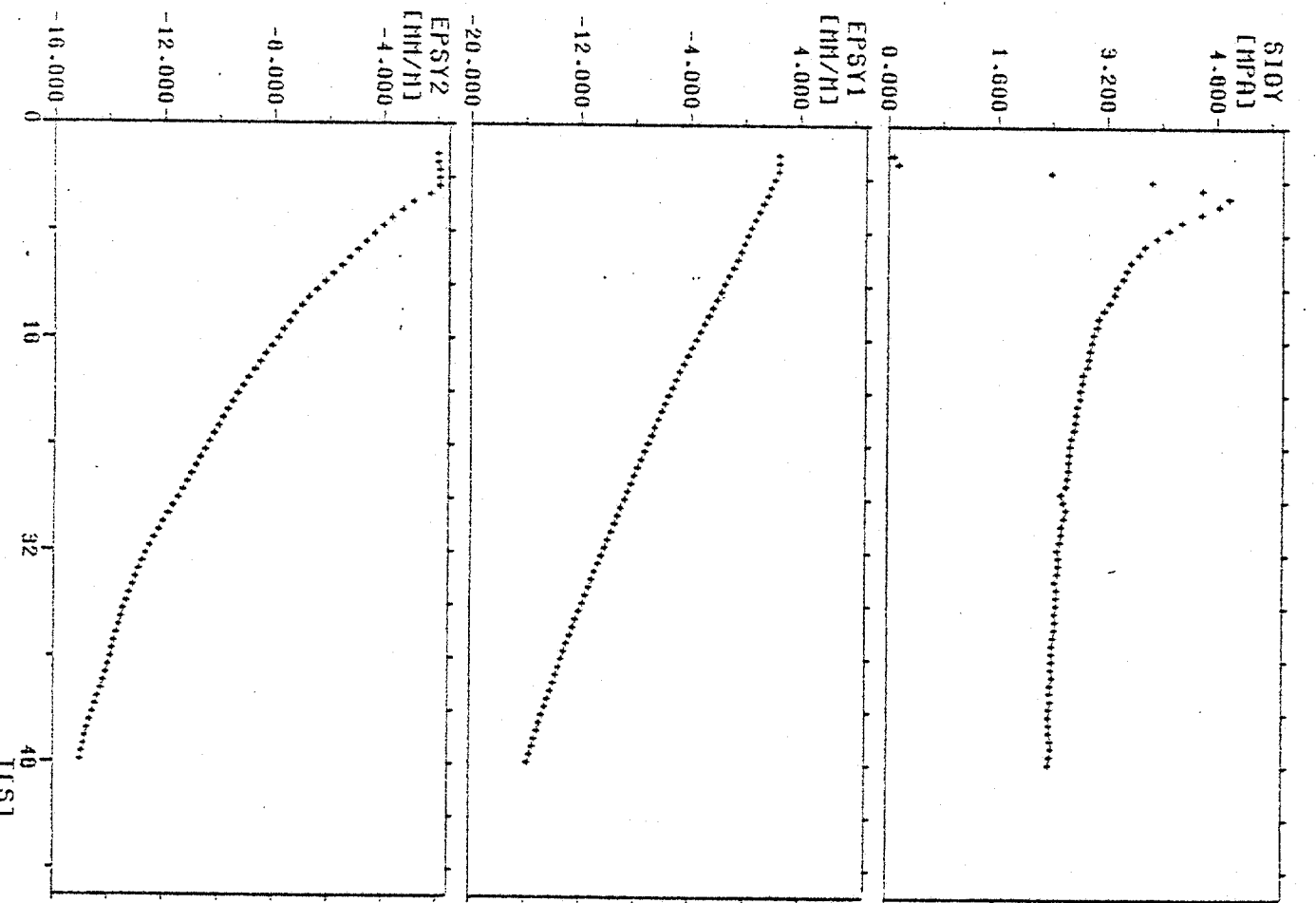


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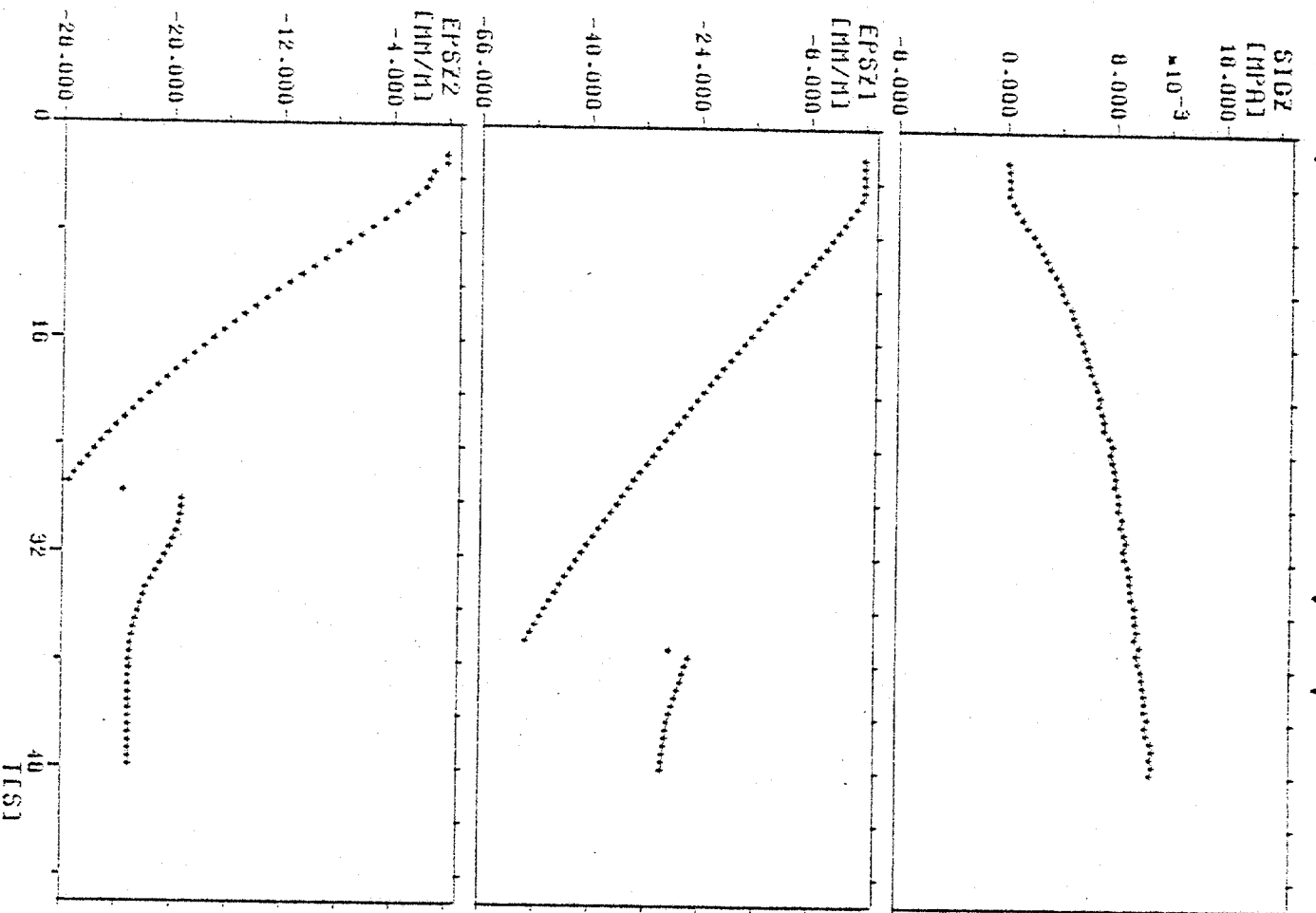
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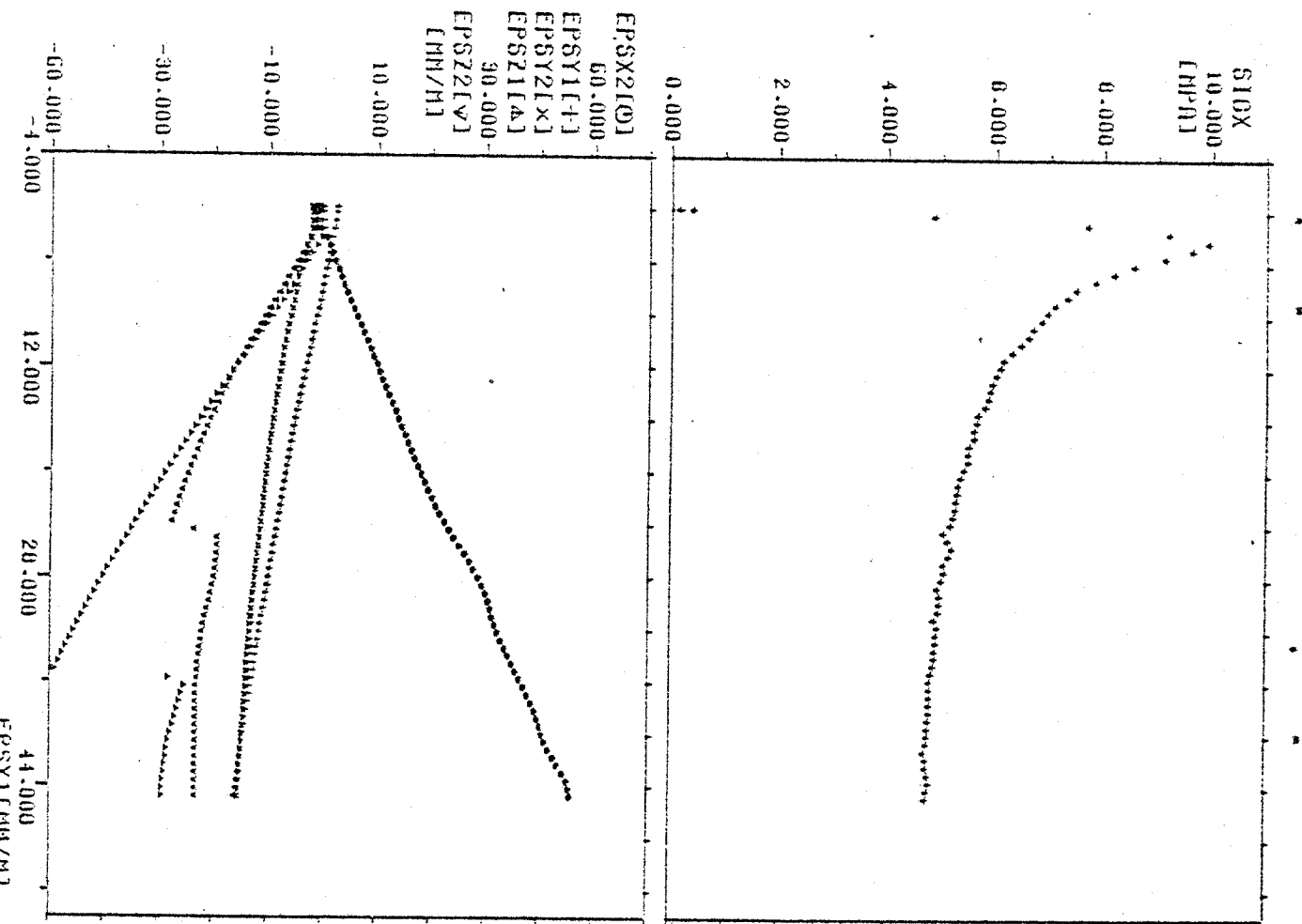
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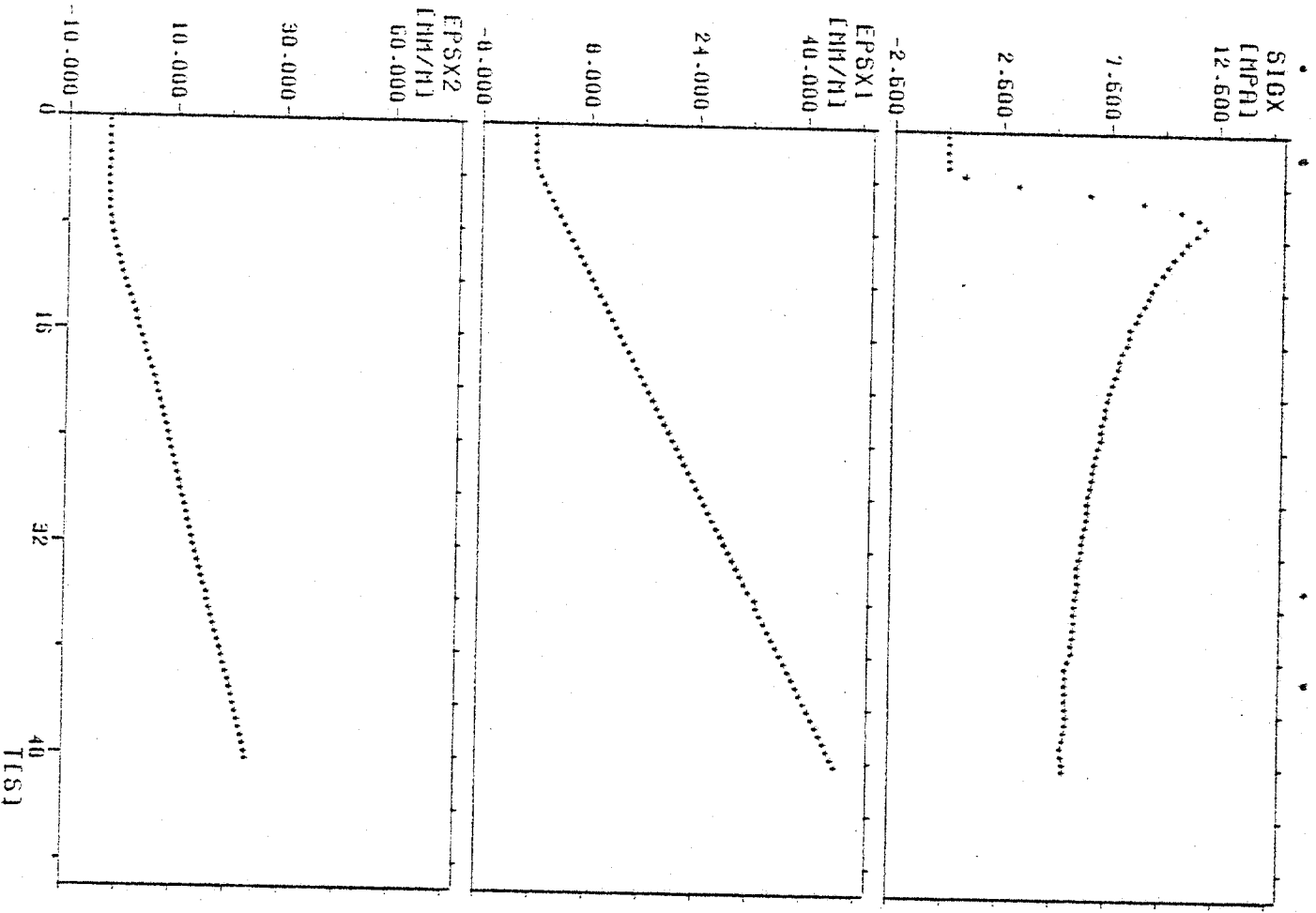




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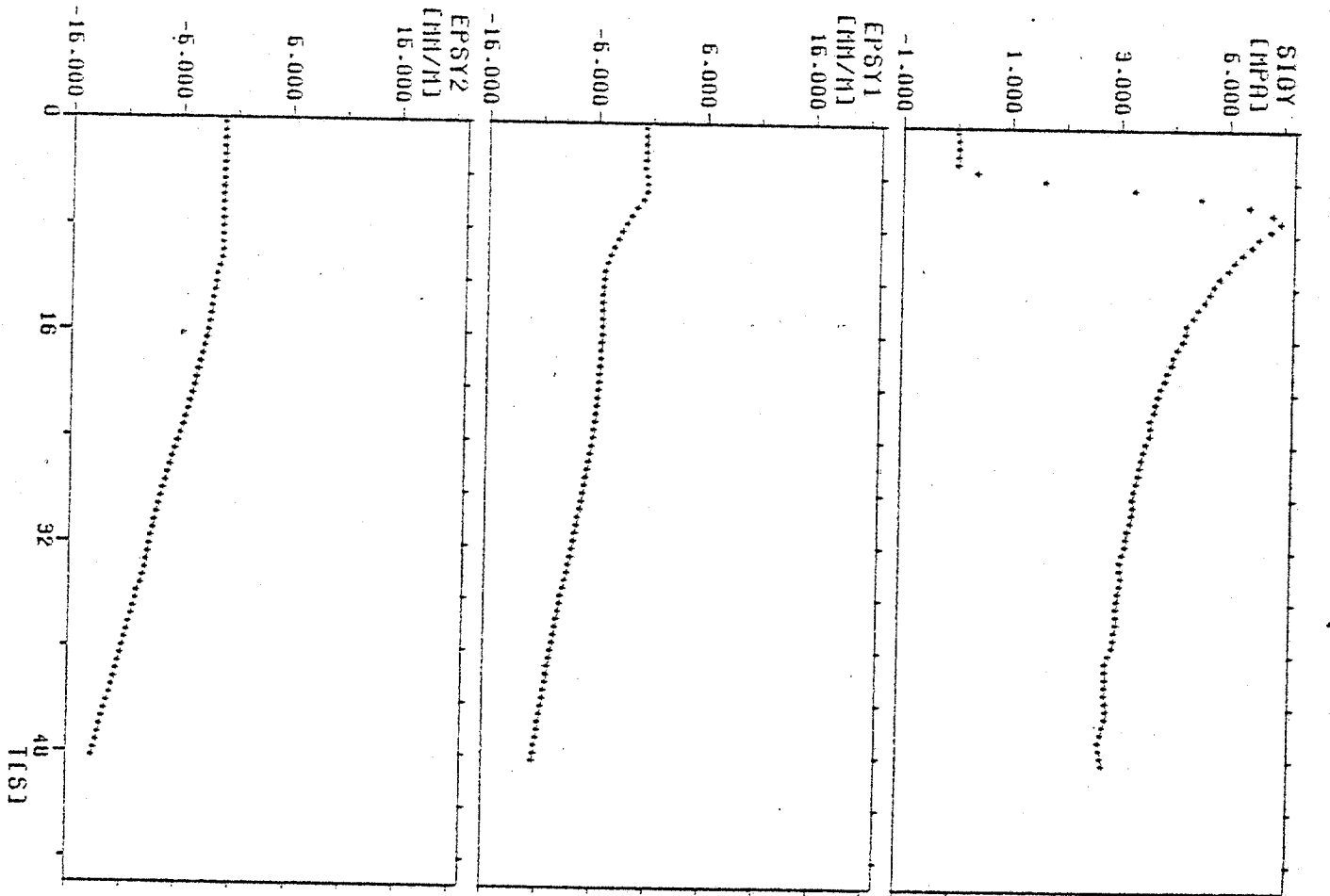


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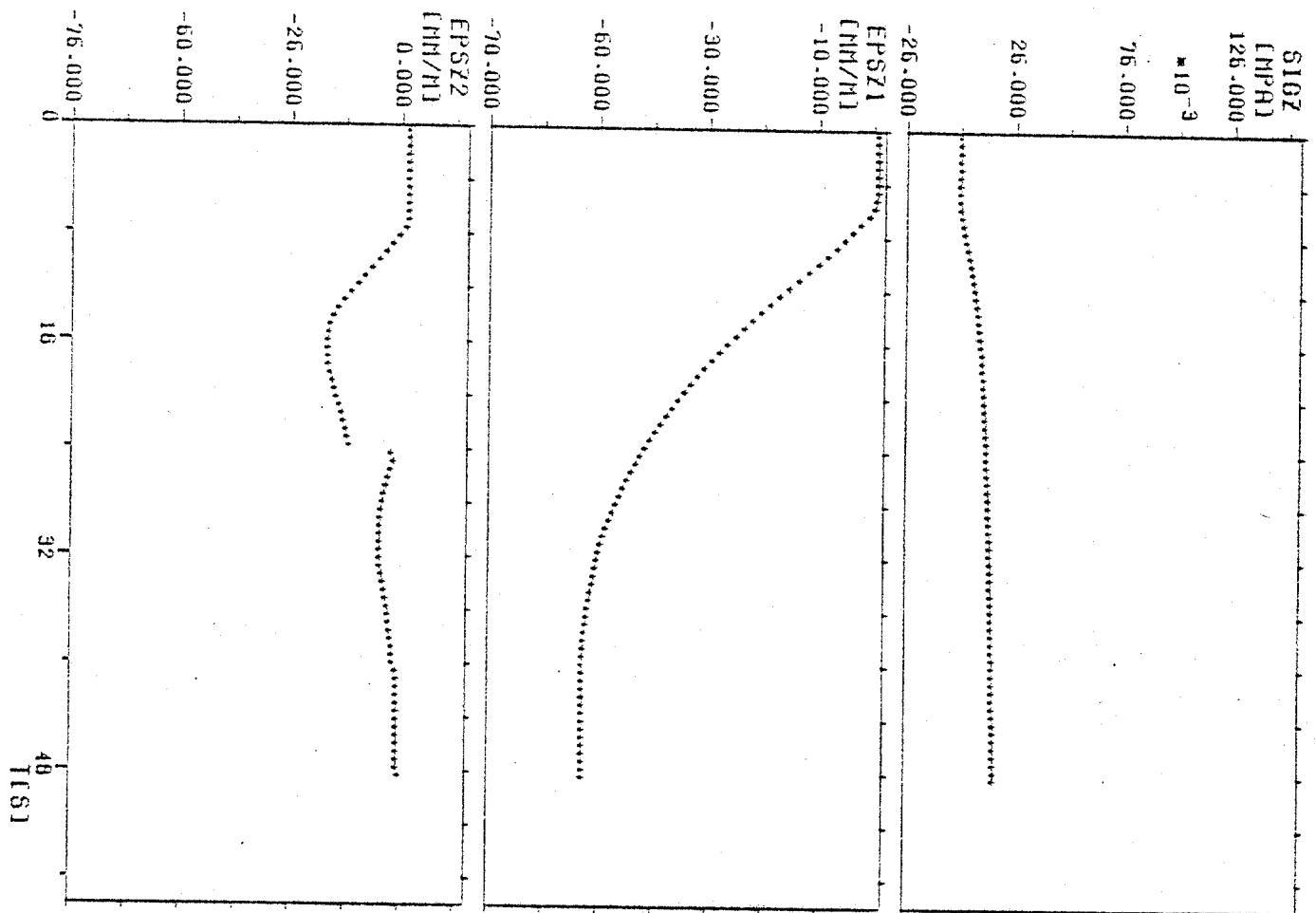
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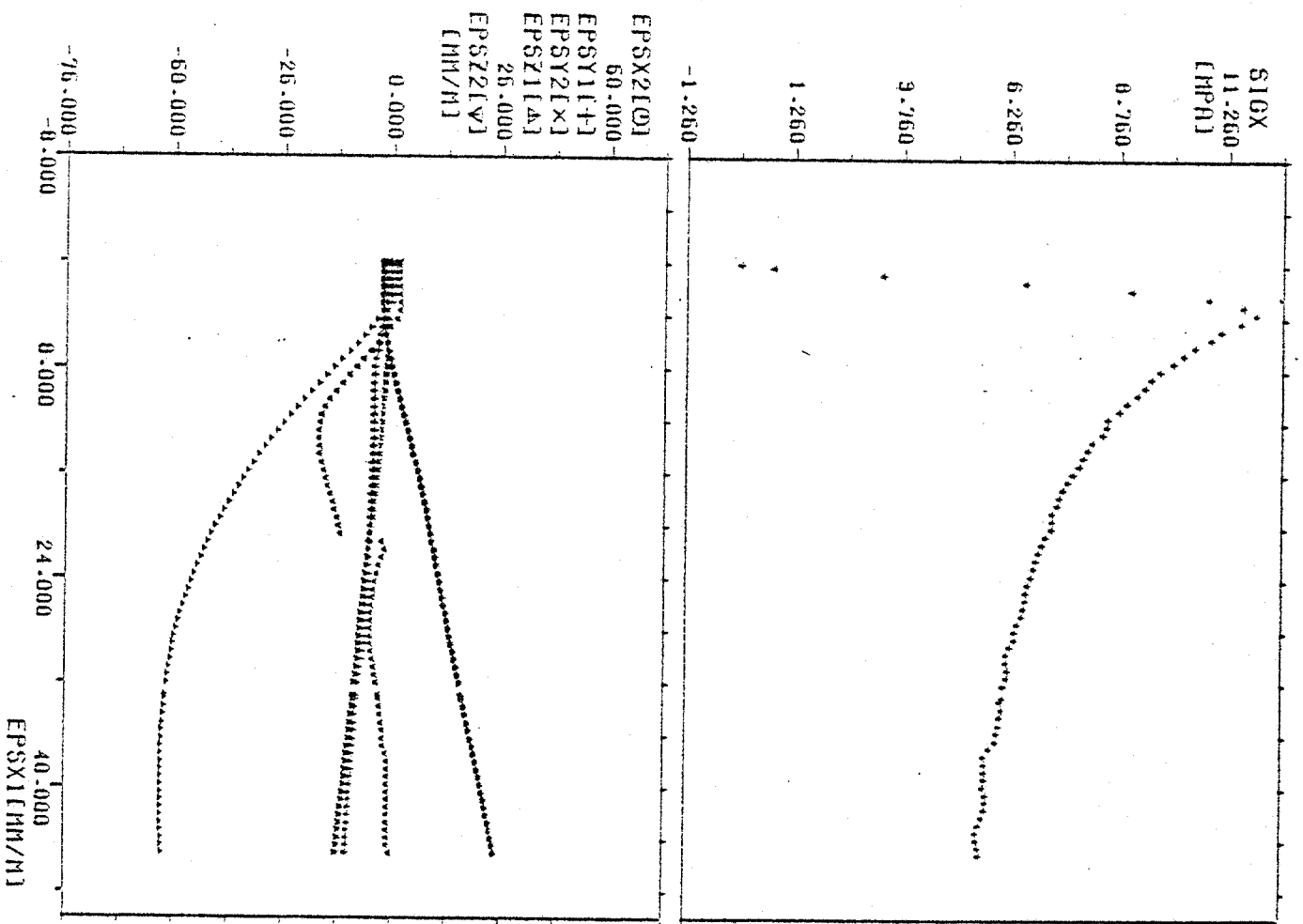
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NR: 4006.1 V0M 02:12:02 11:16 UHR

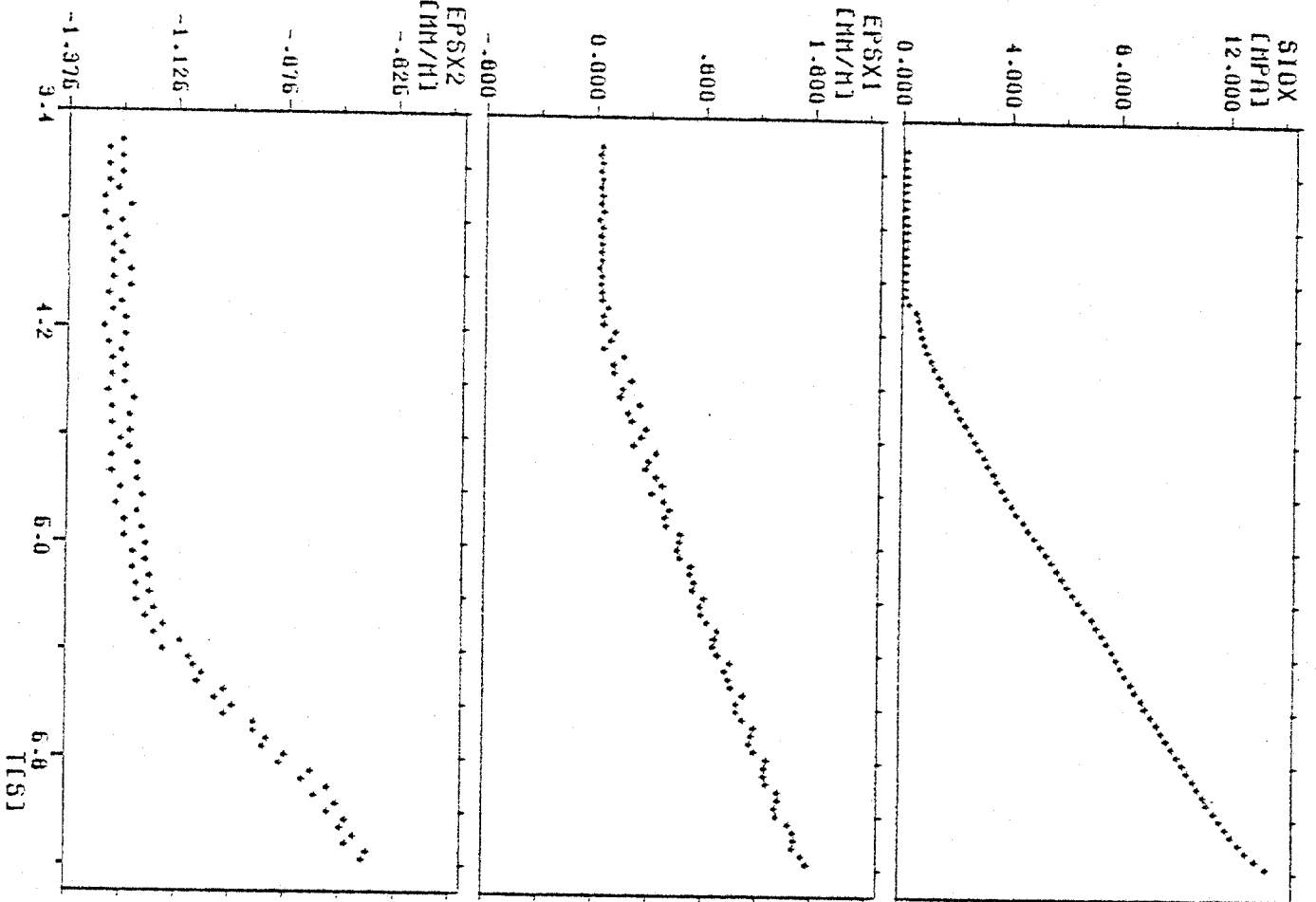
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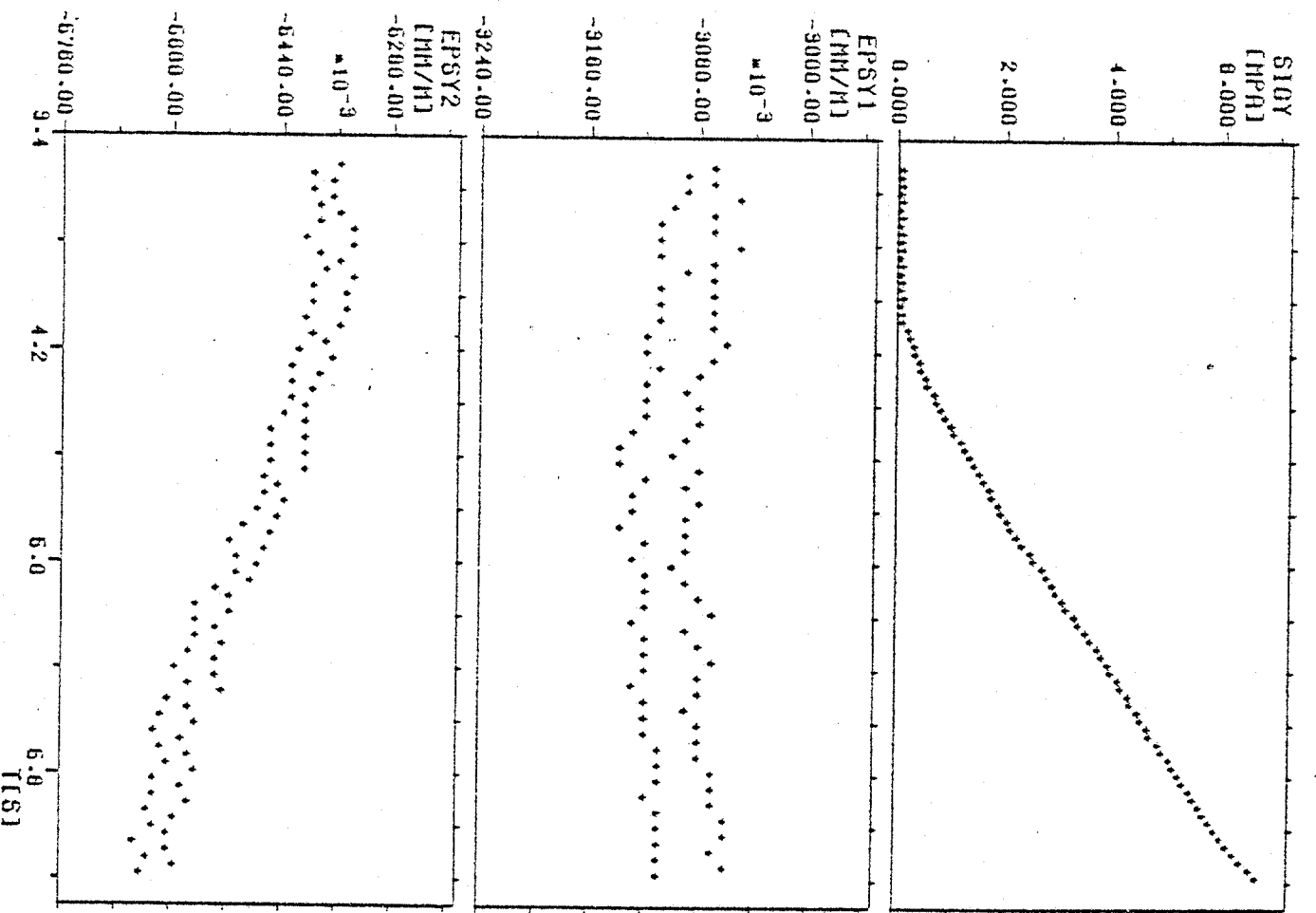
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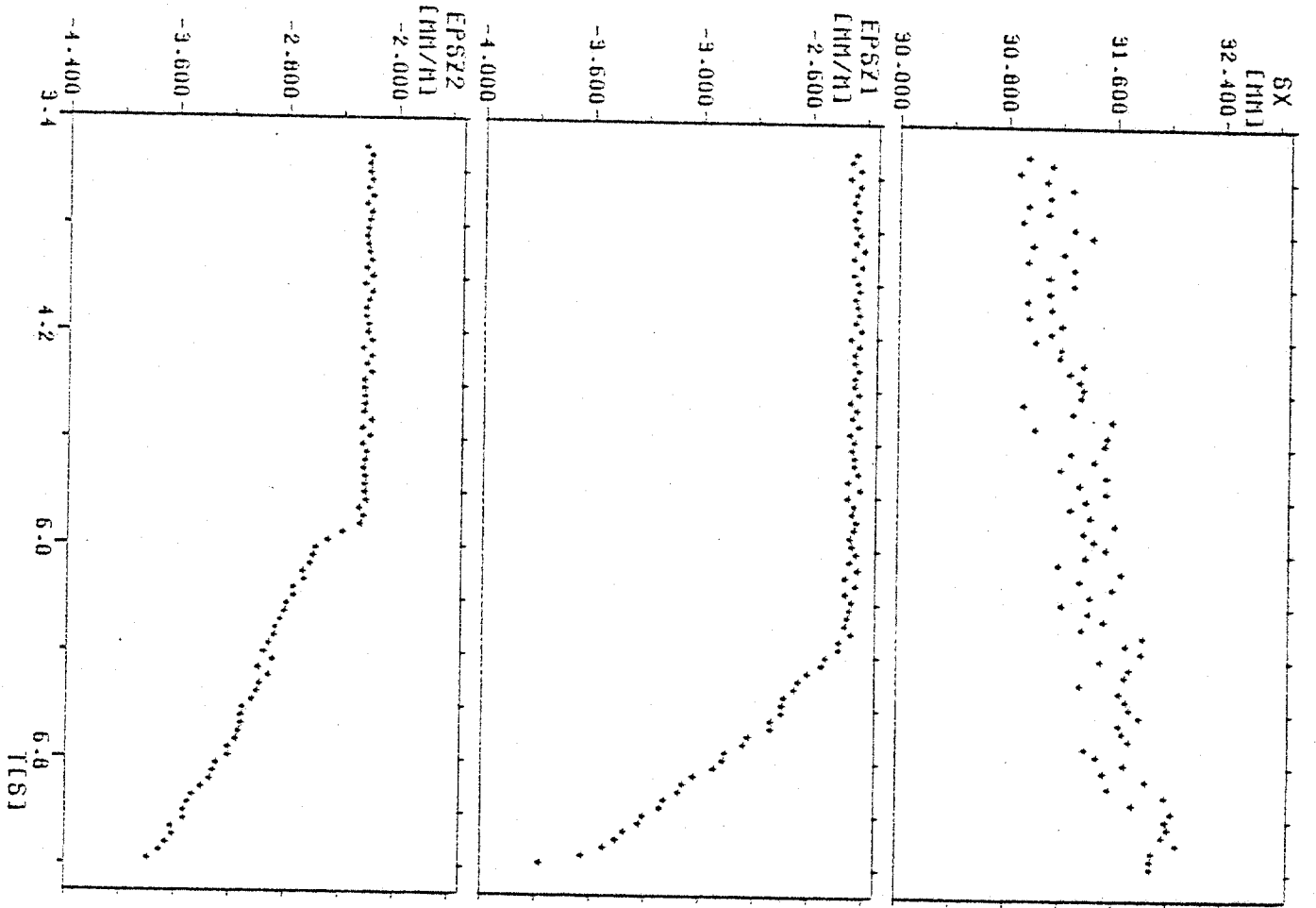
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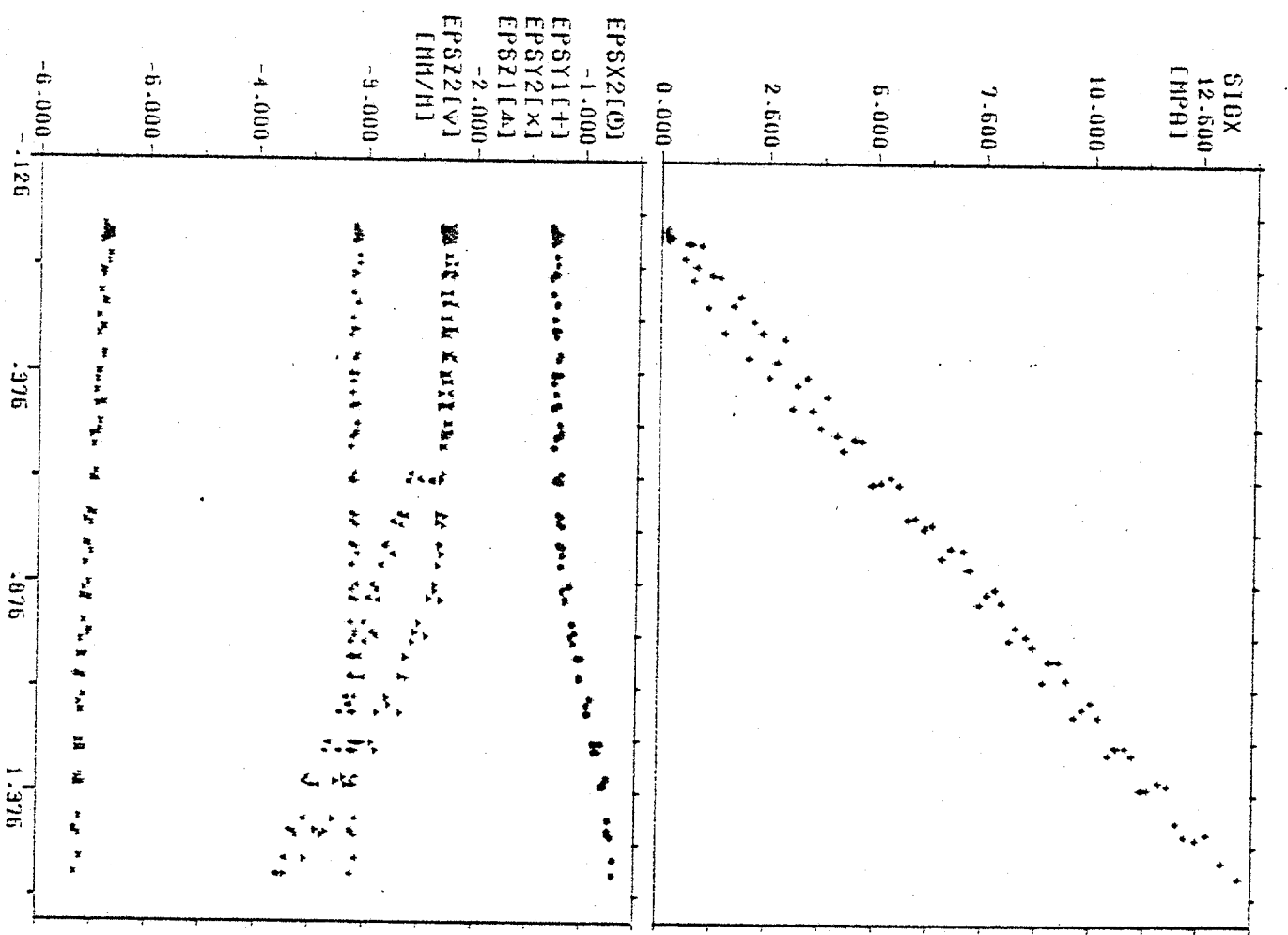
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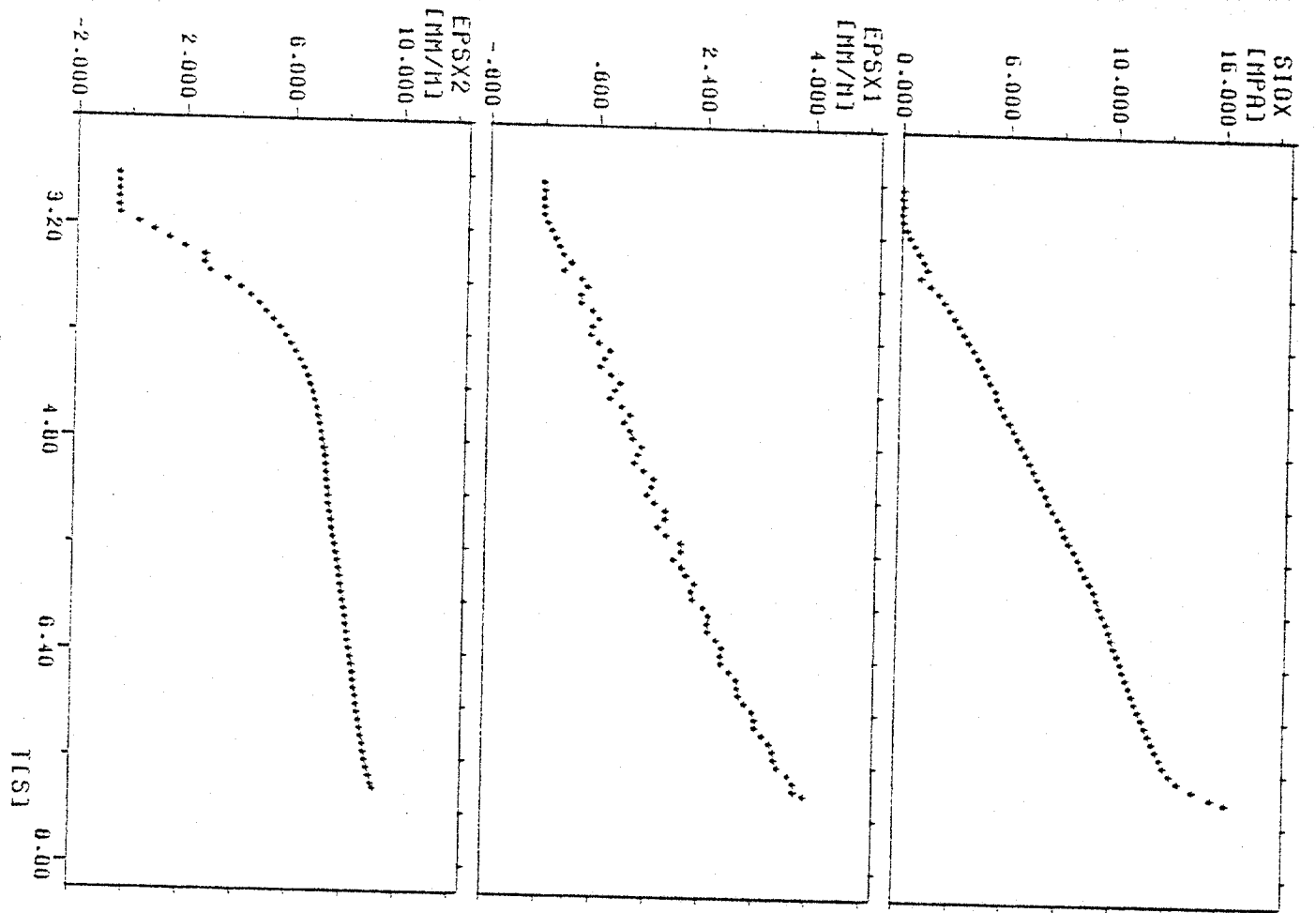


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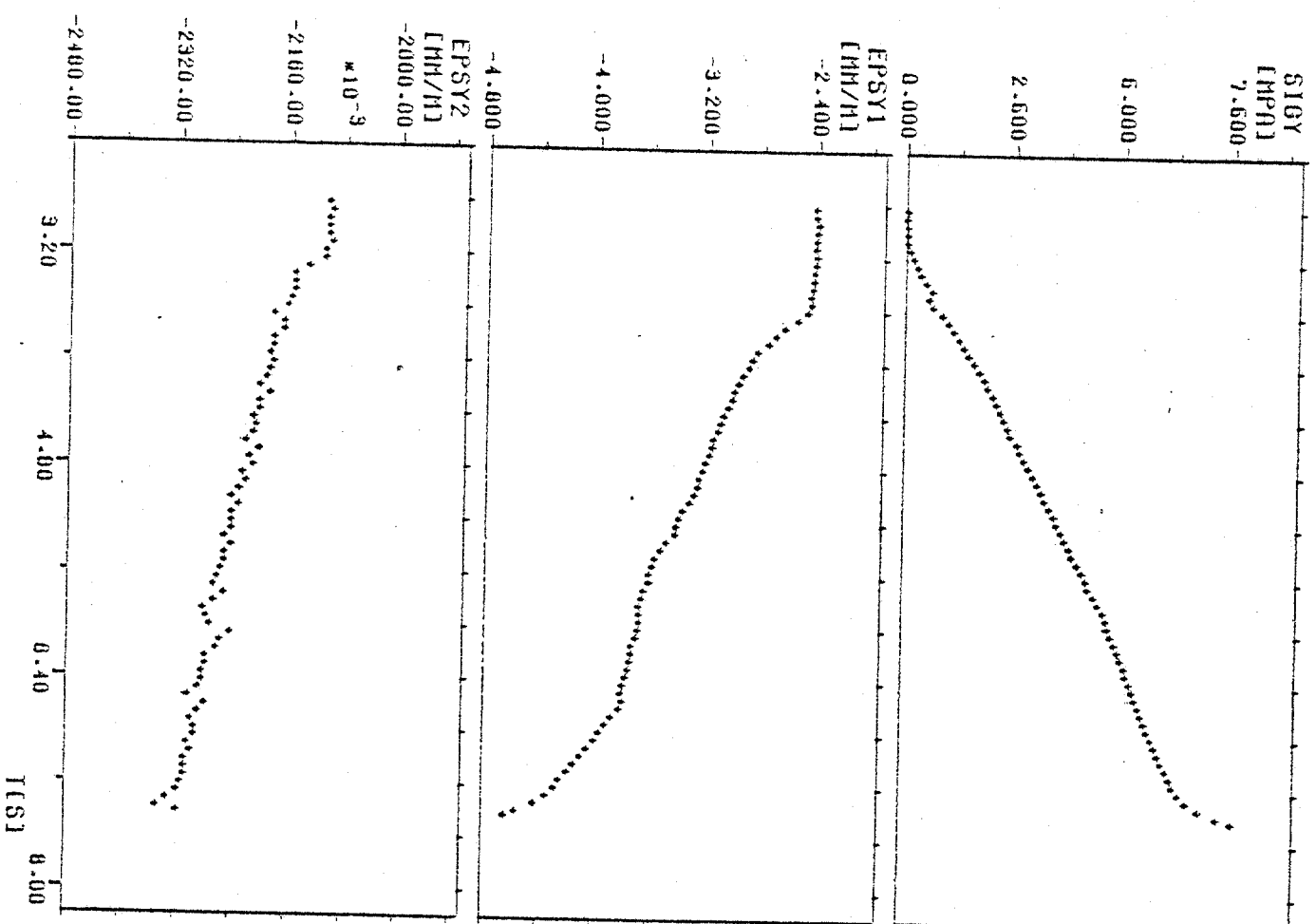


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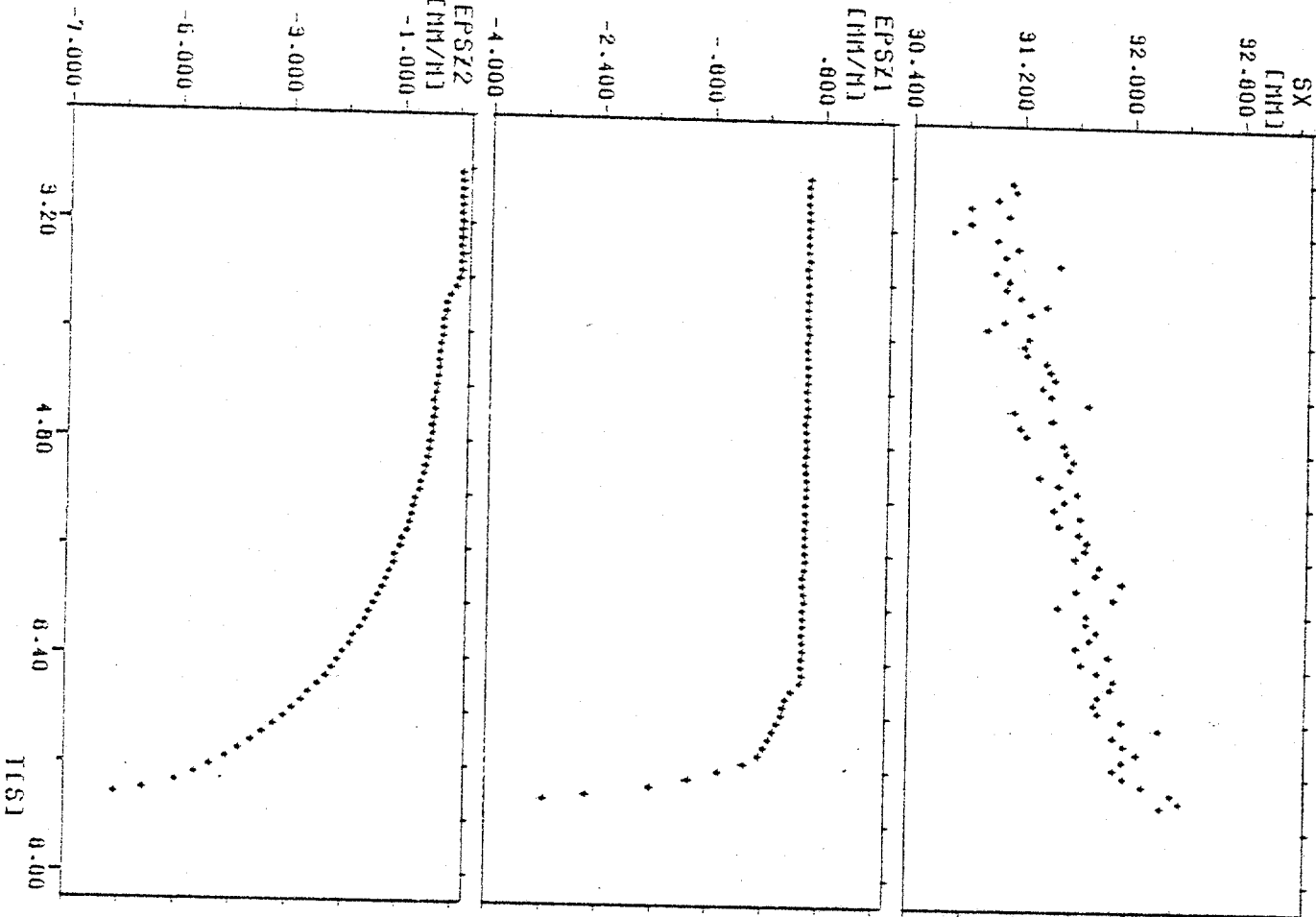
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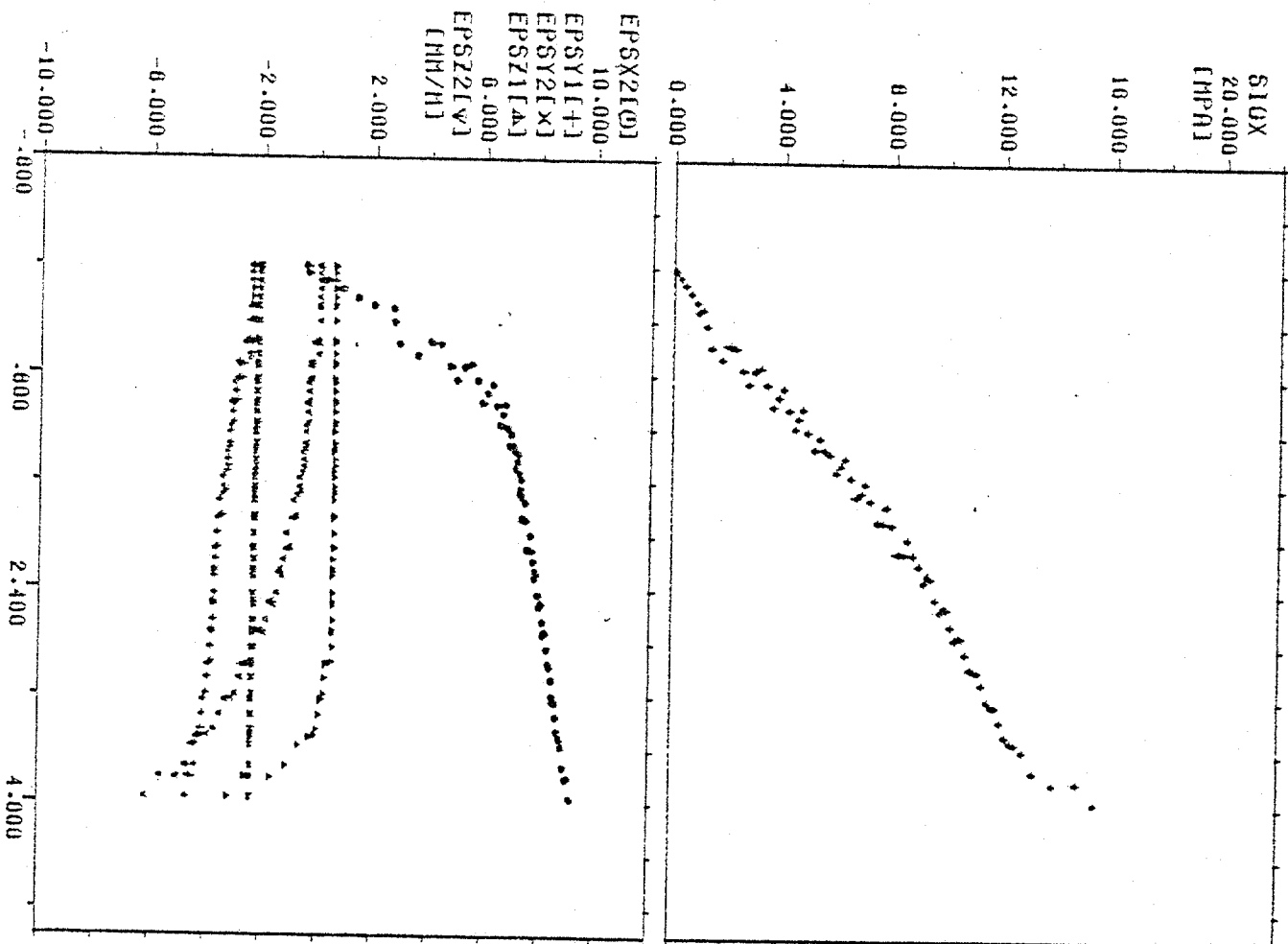
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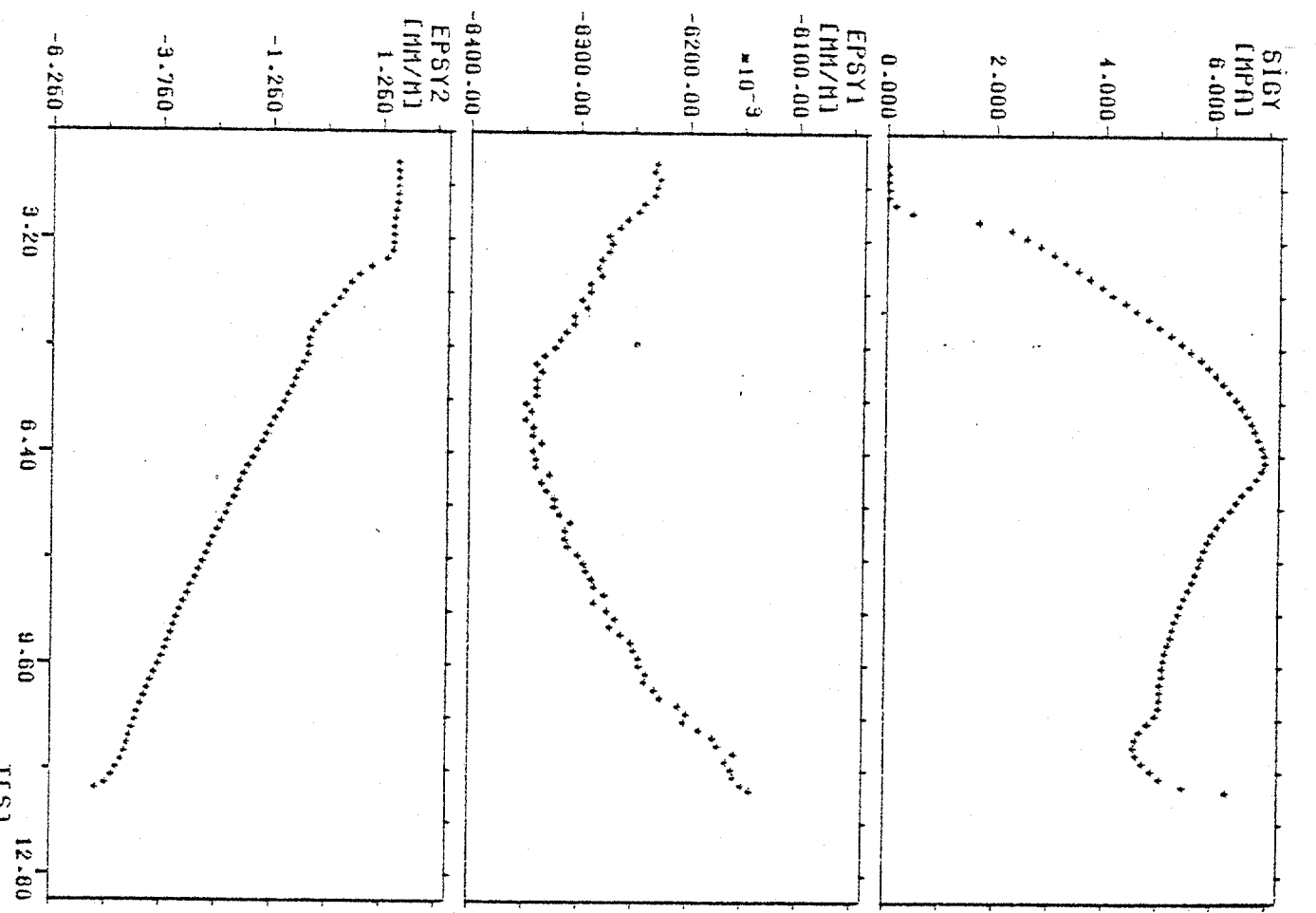
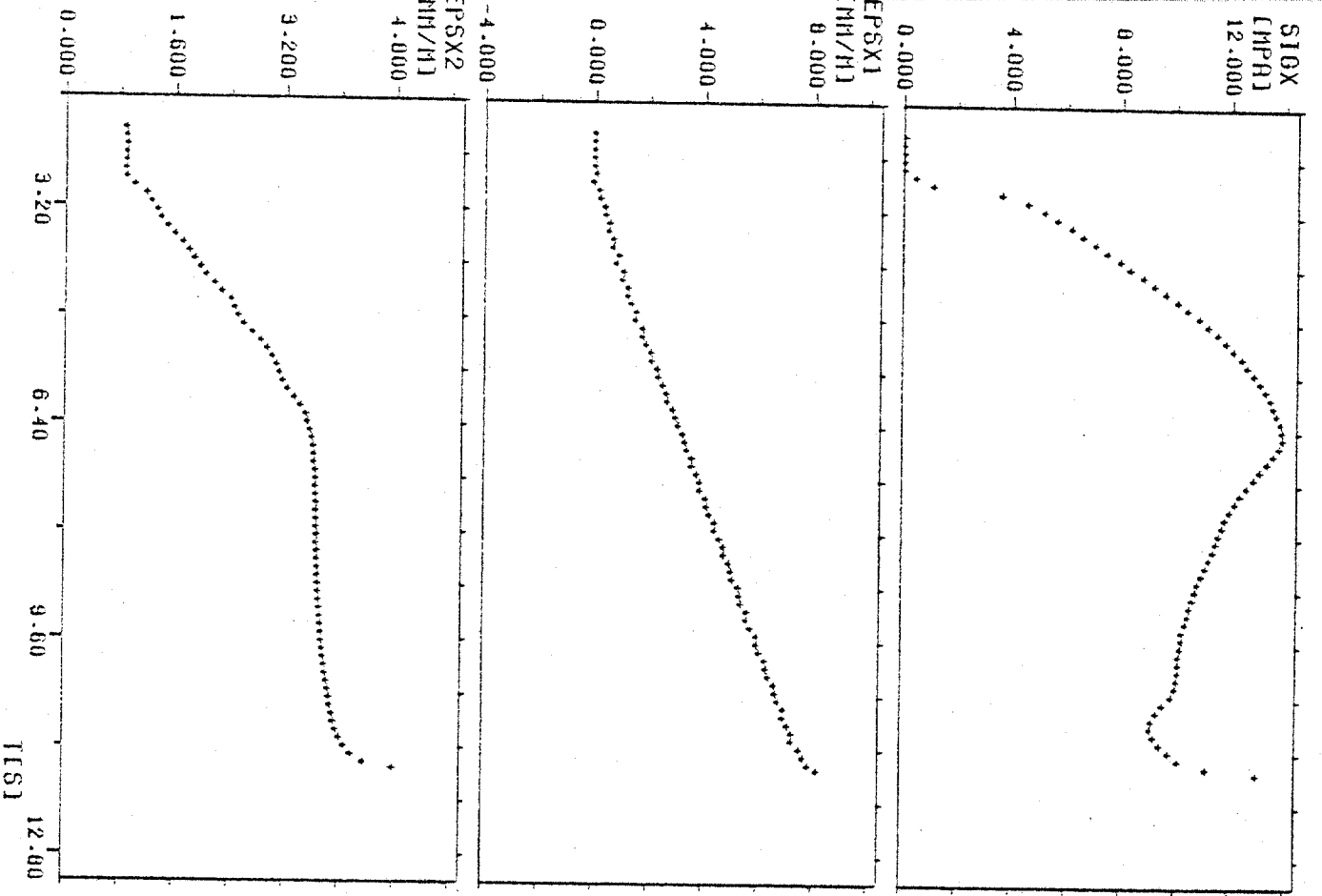
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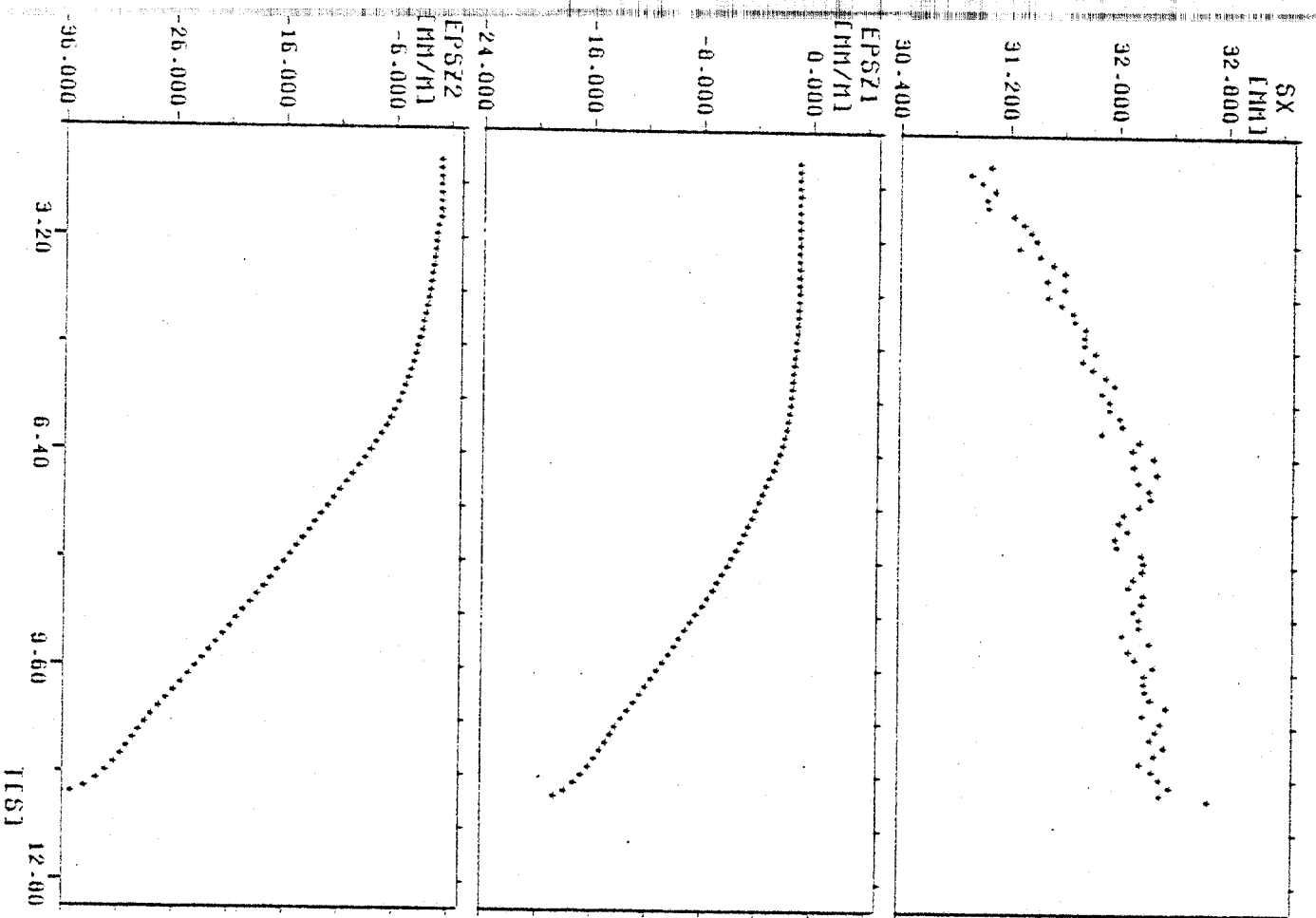
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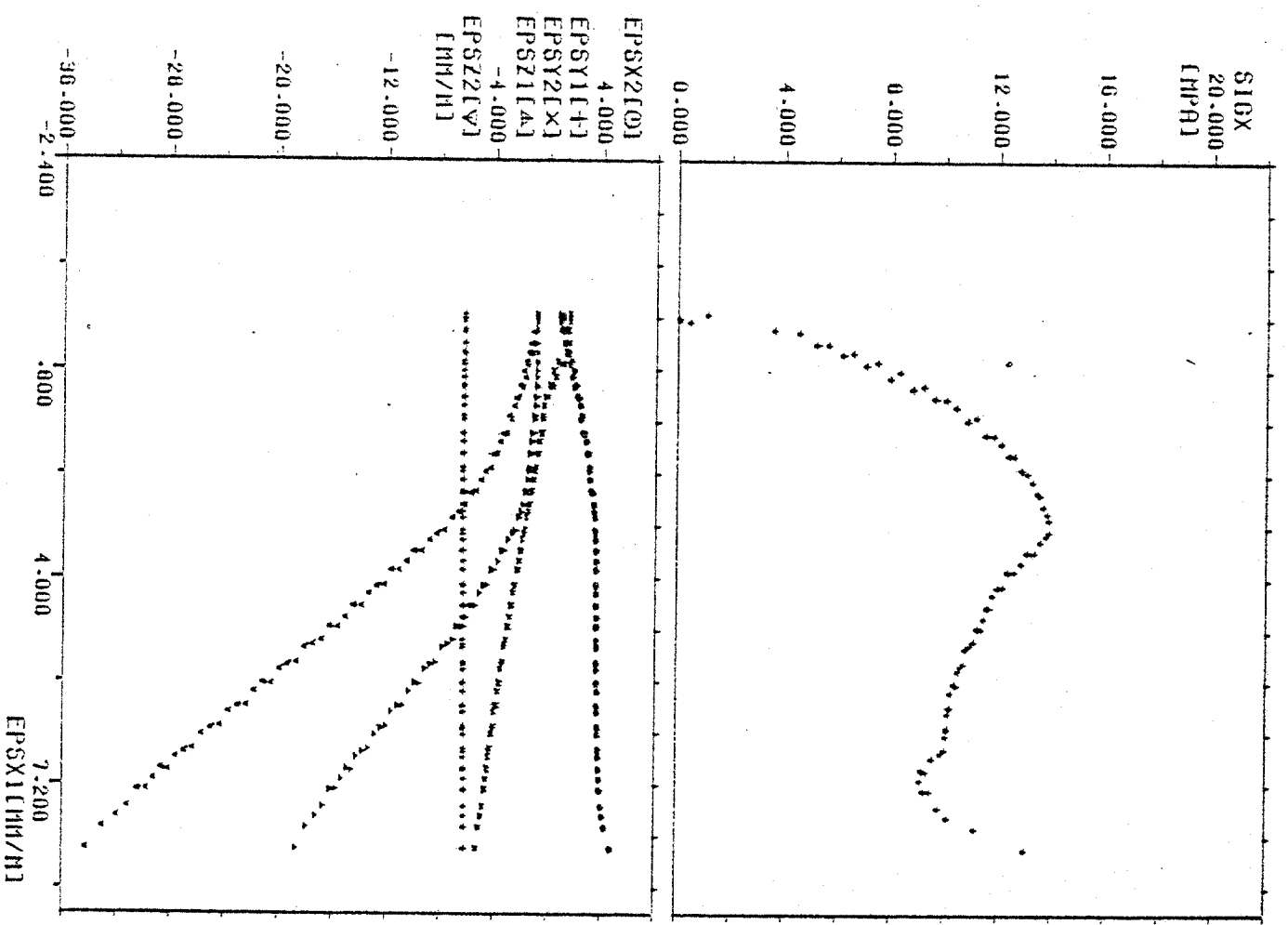
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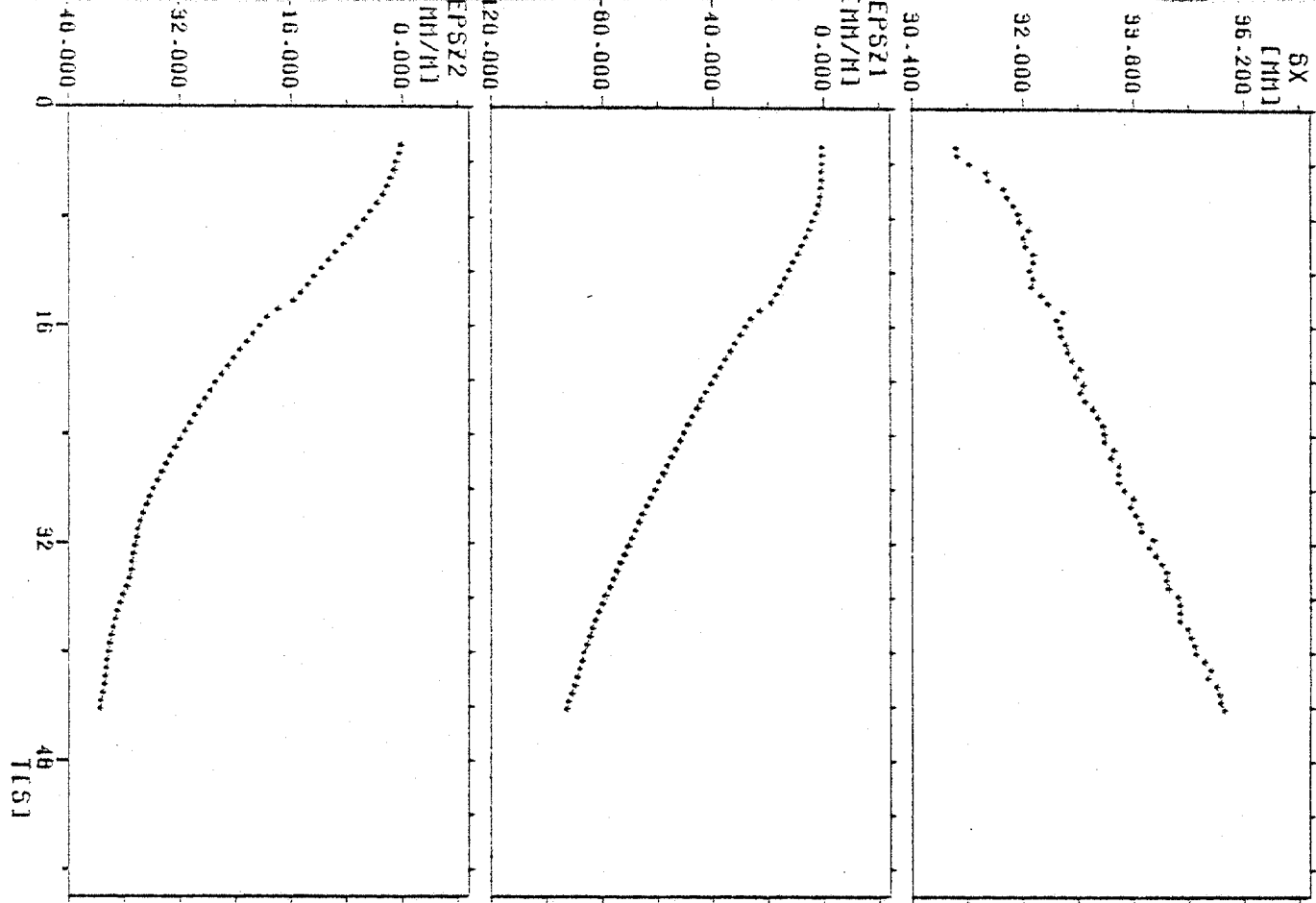




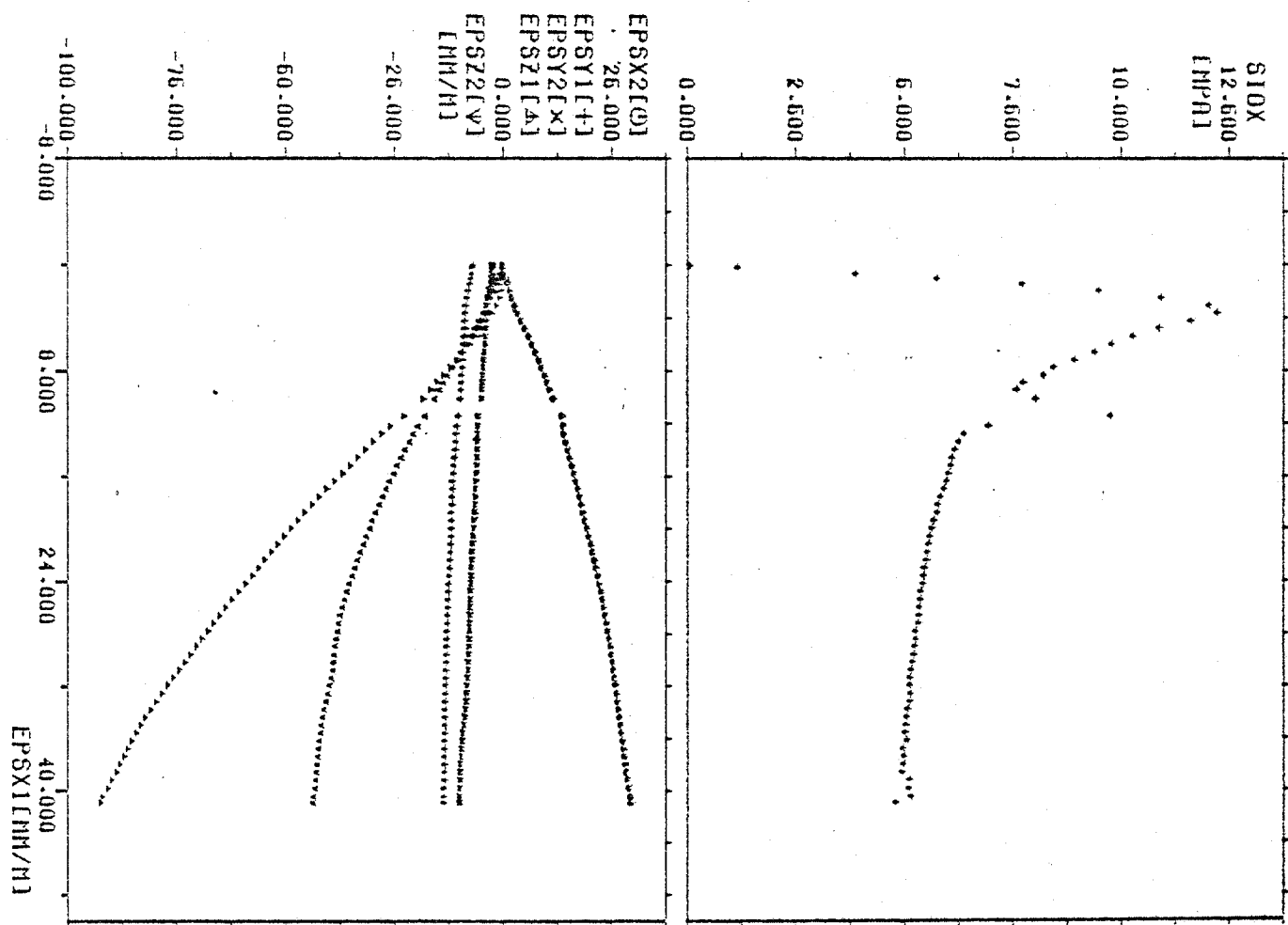
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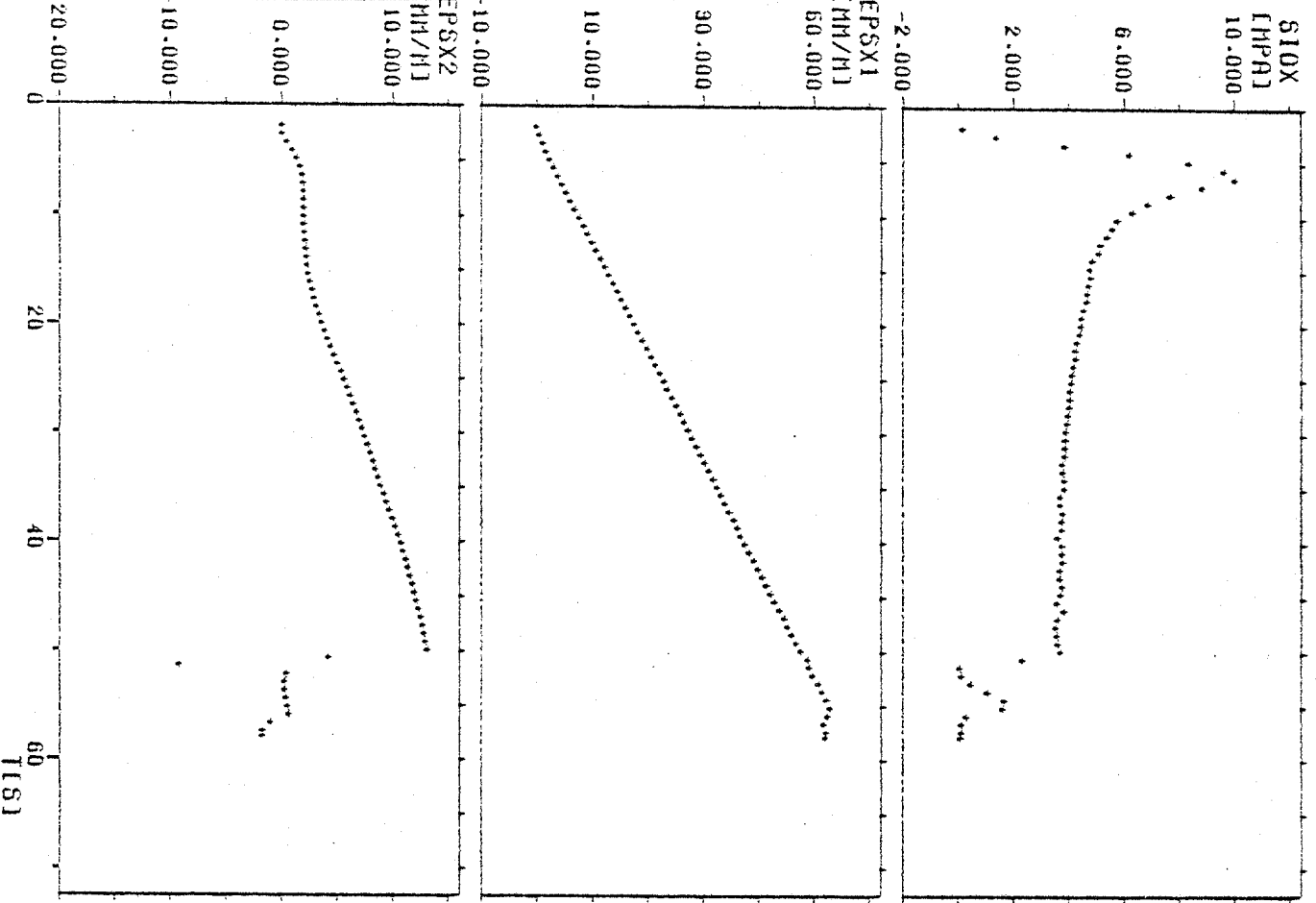
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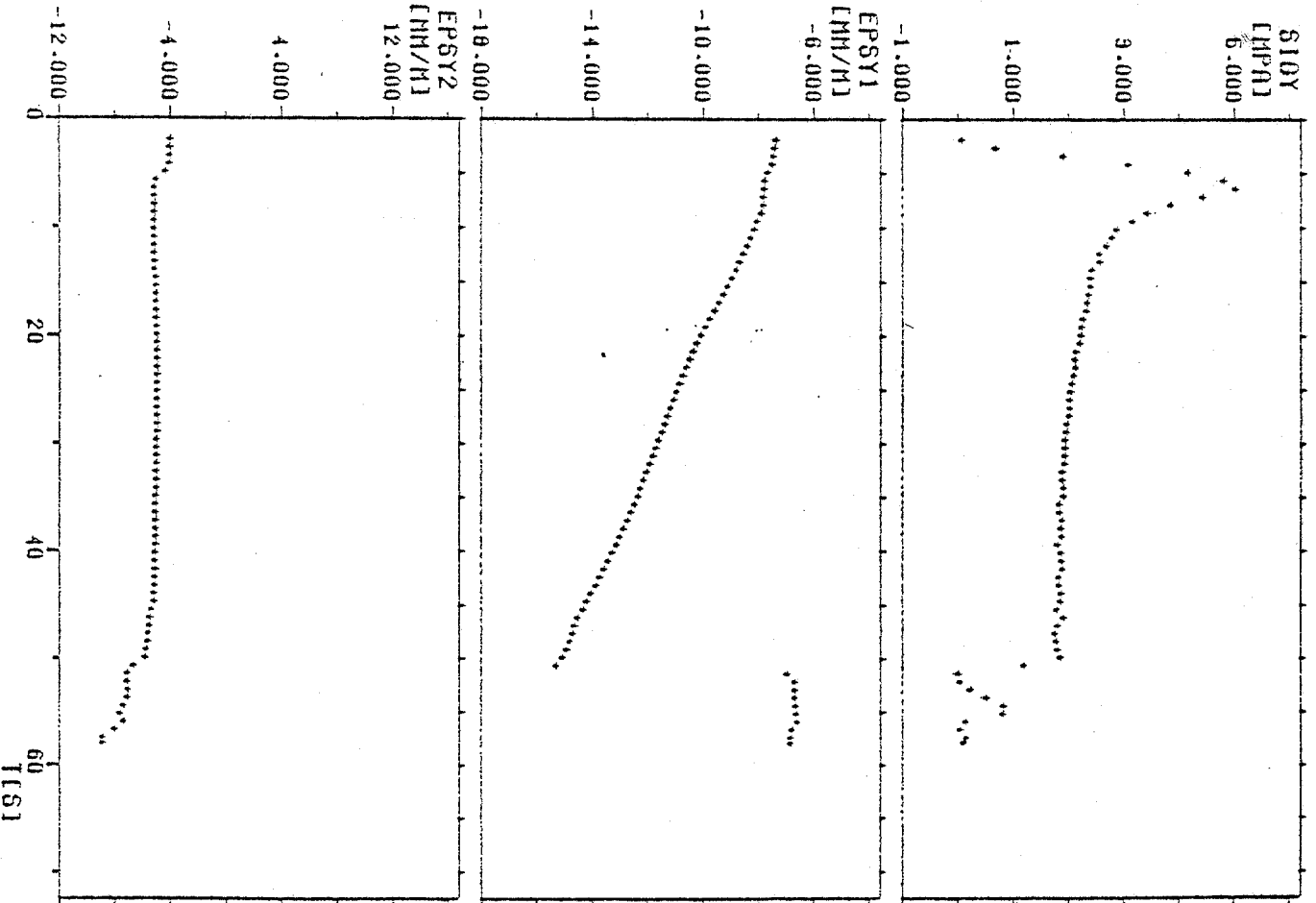
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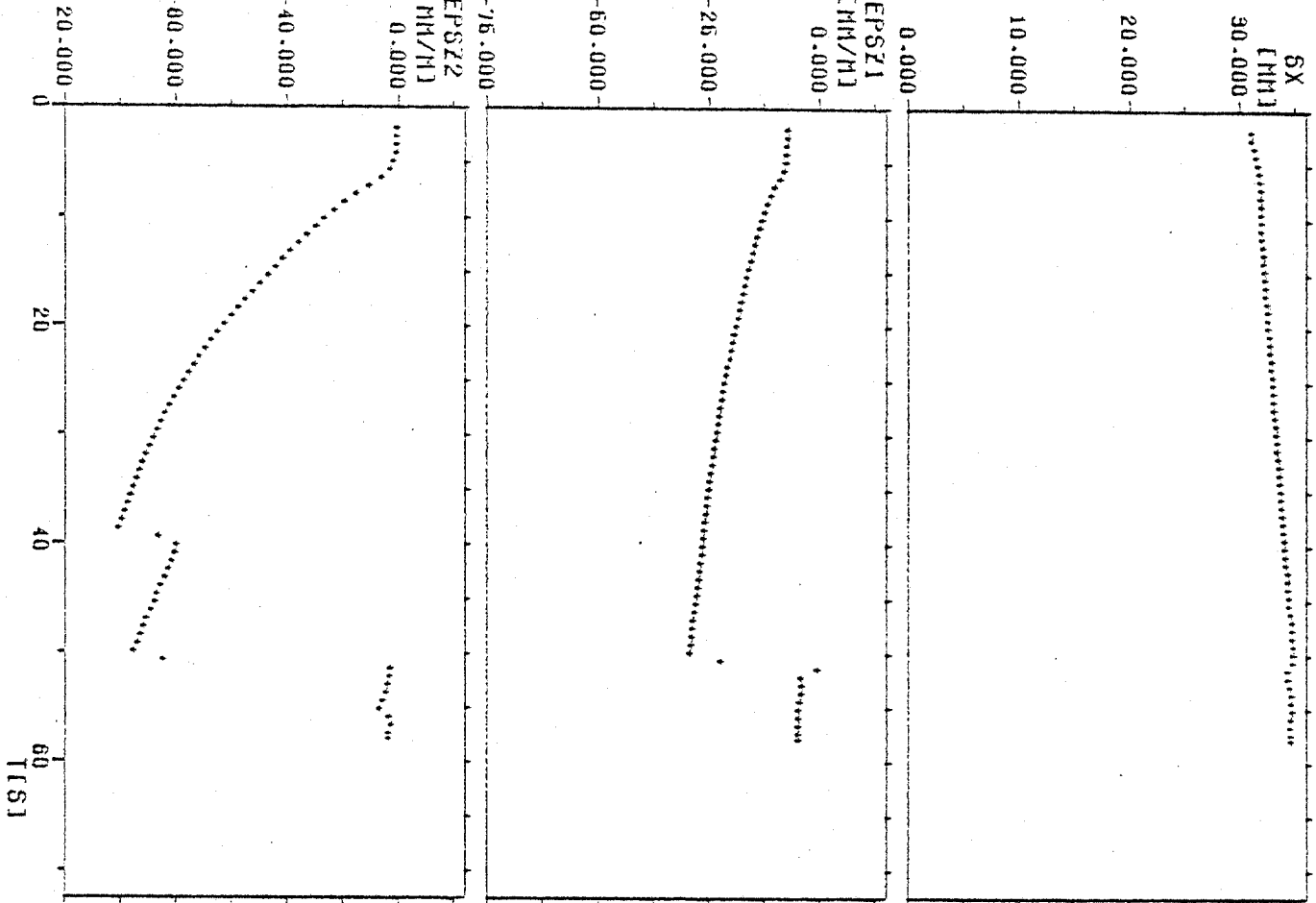
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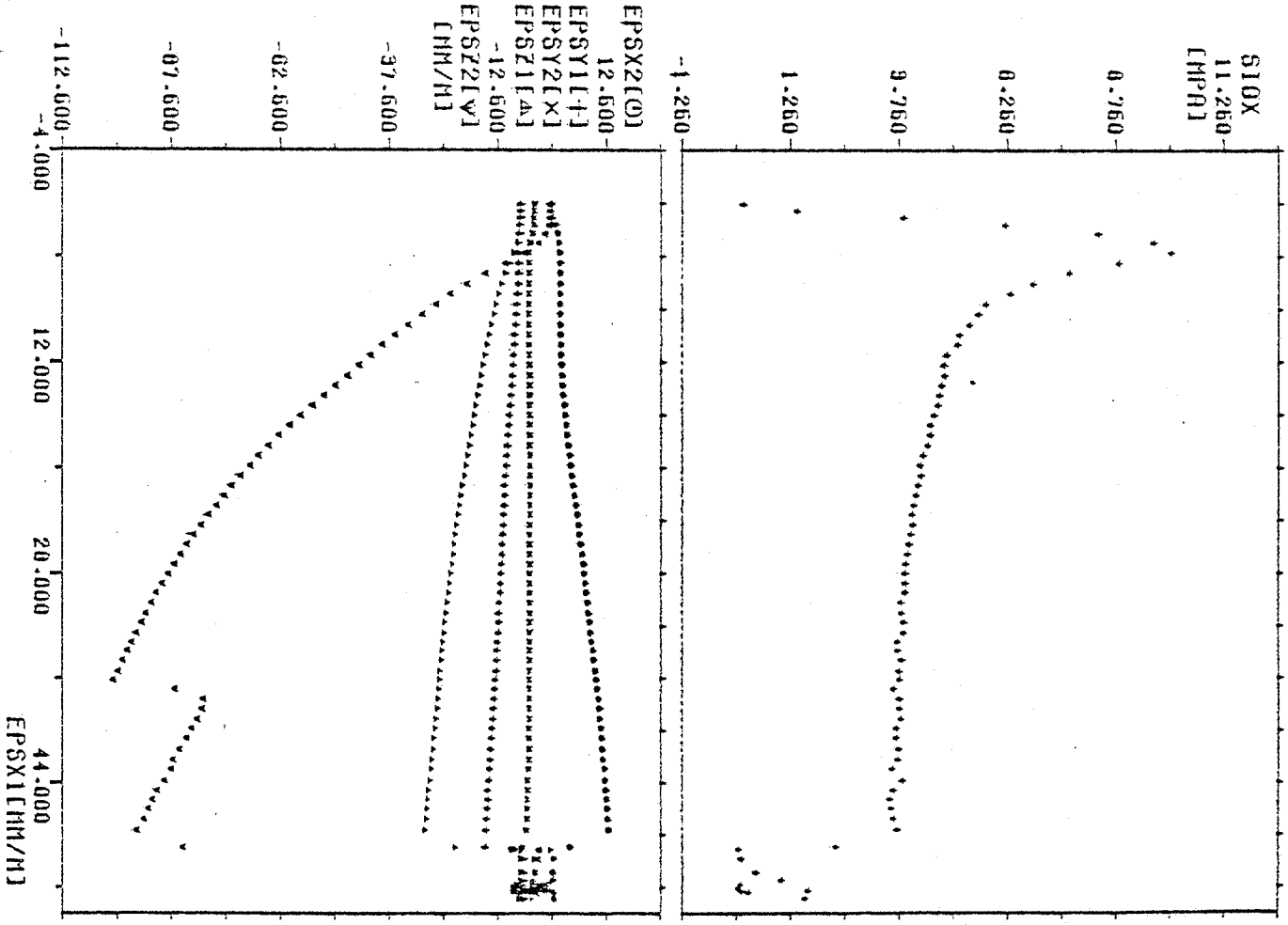
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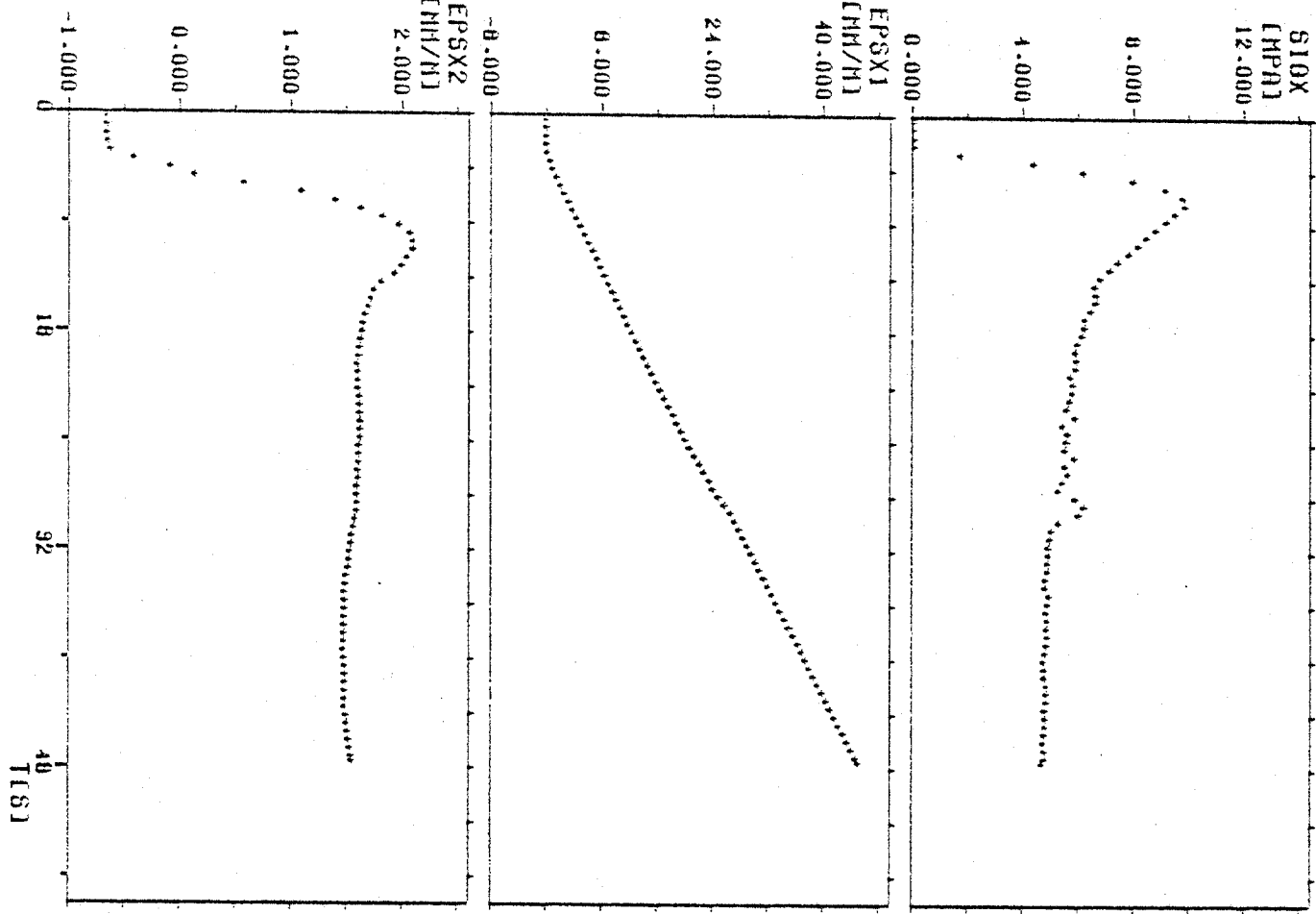
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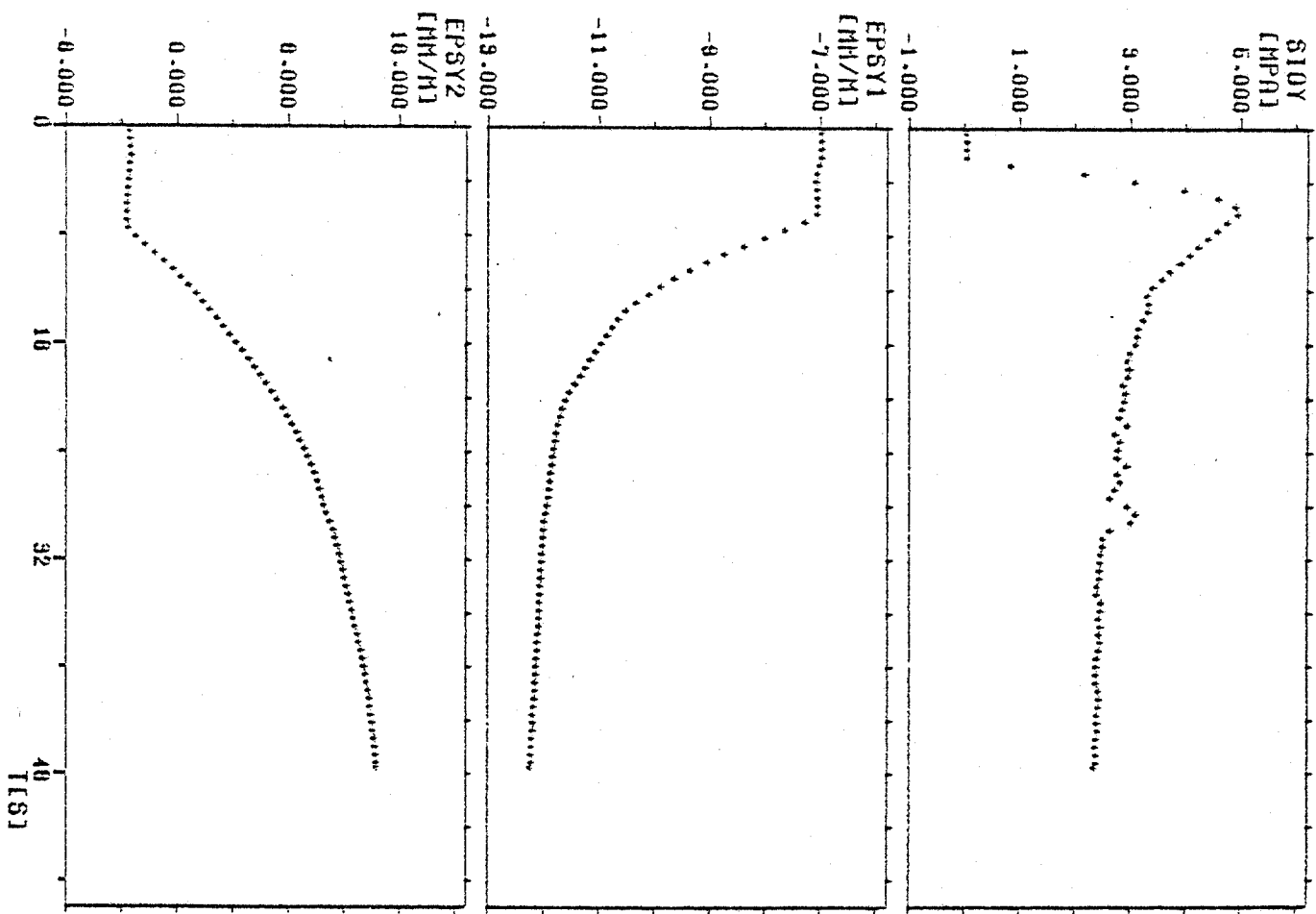
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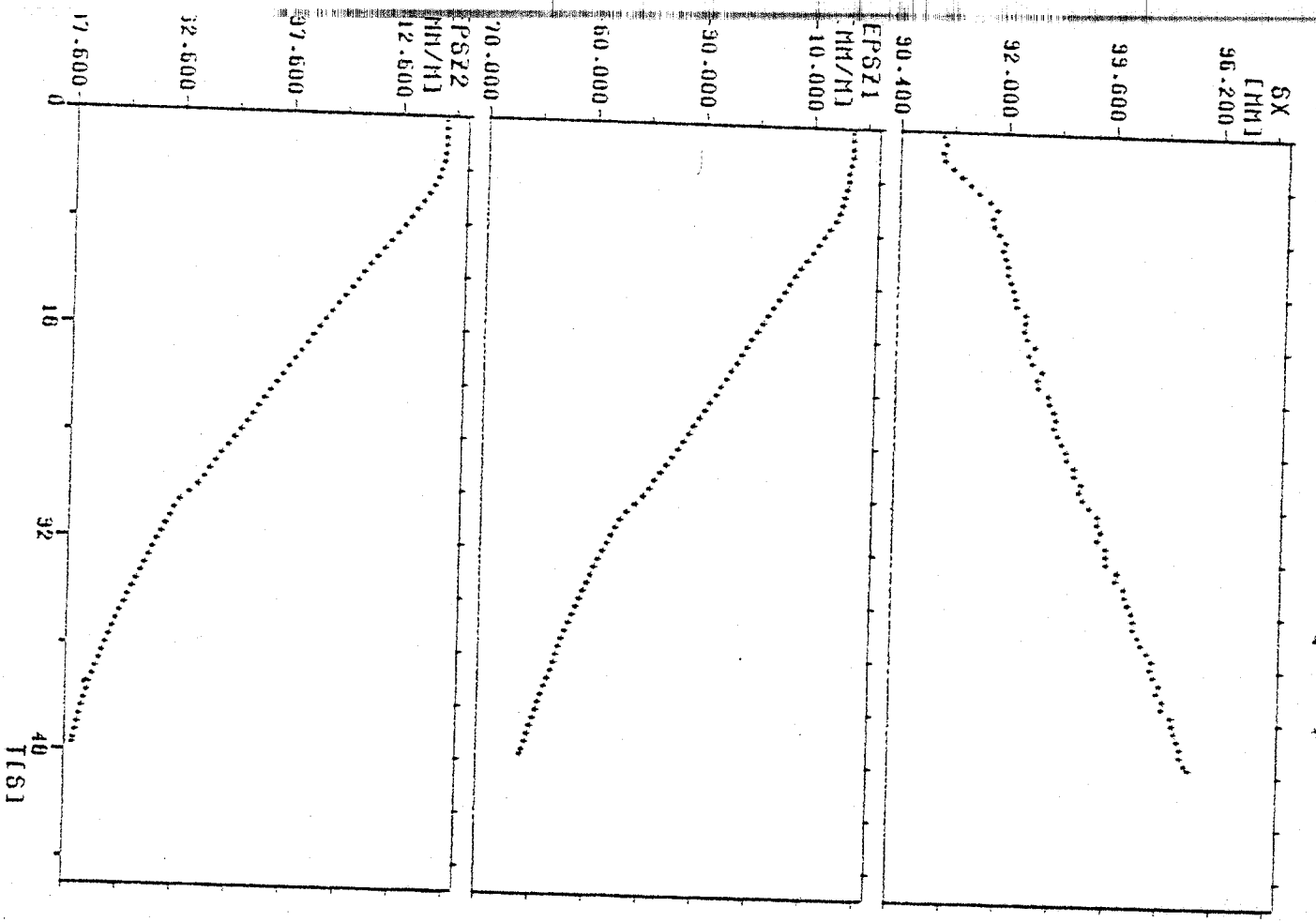
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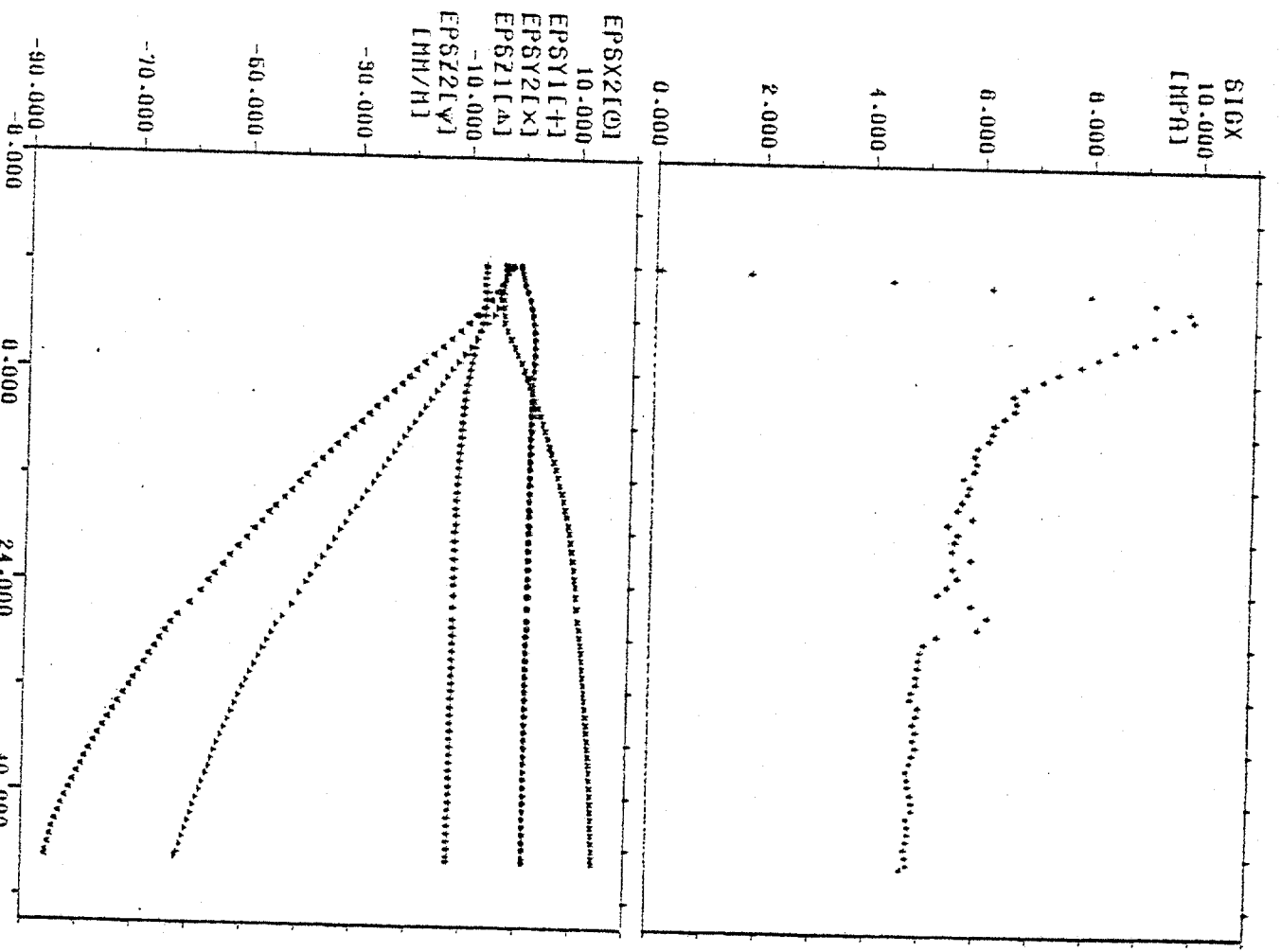
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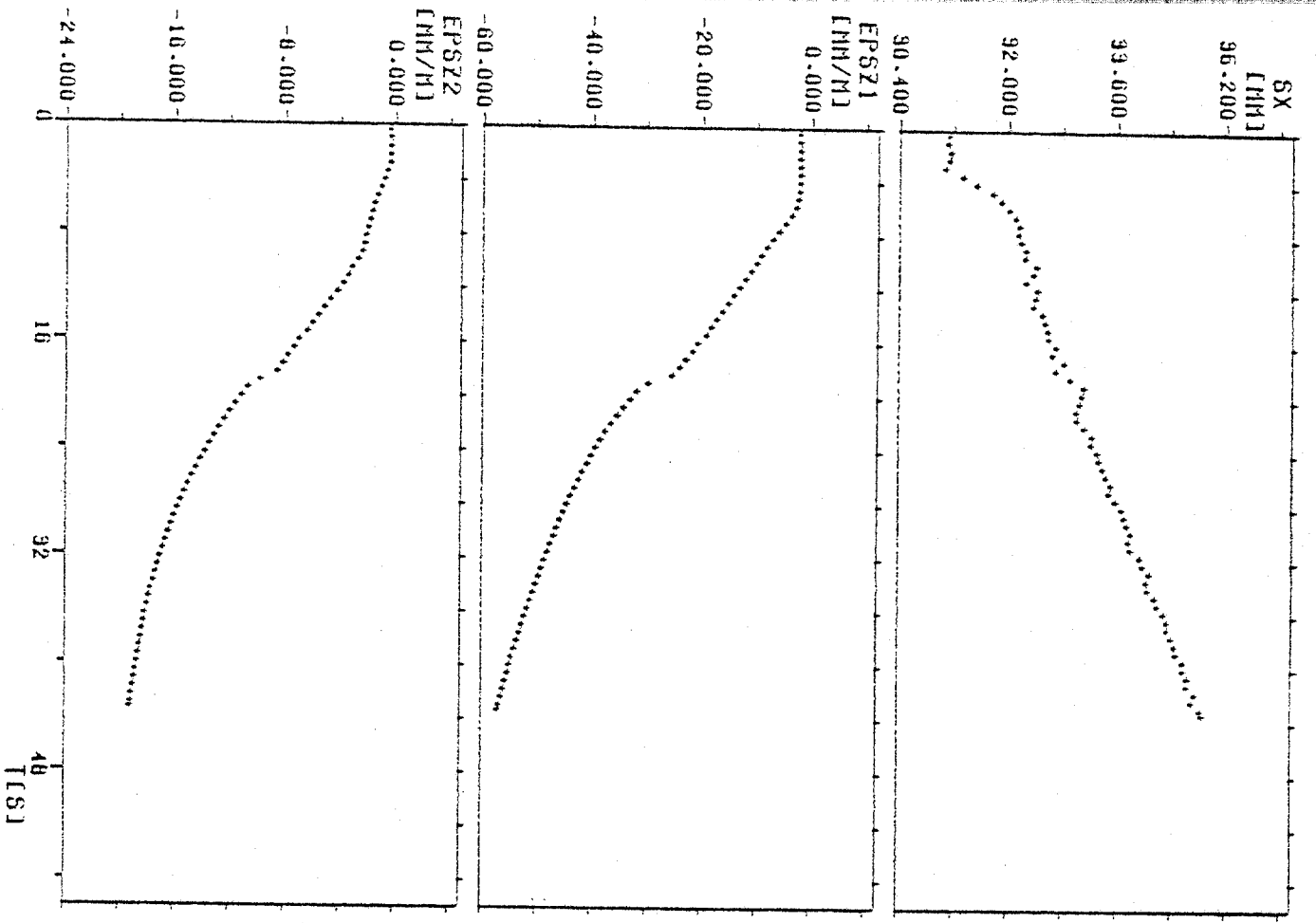
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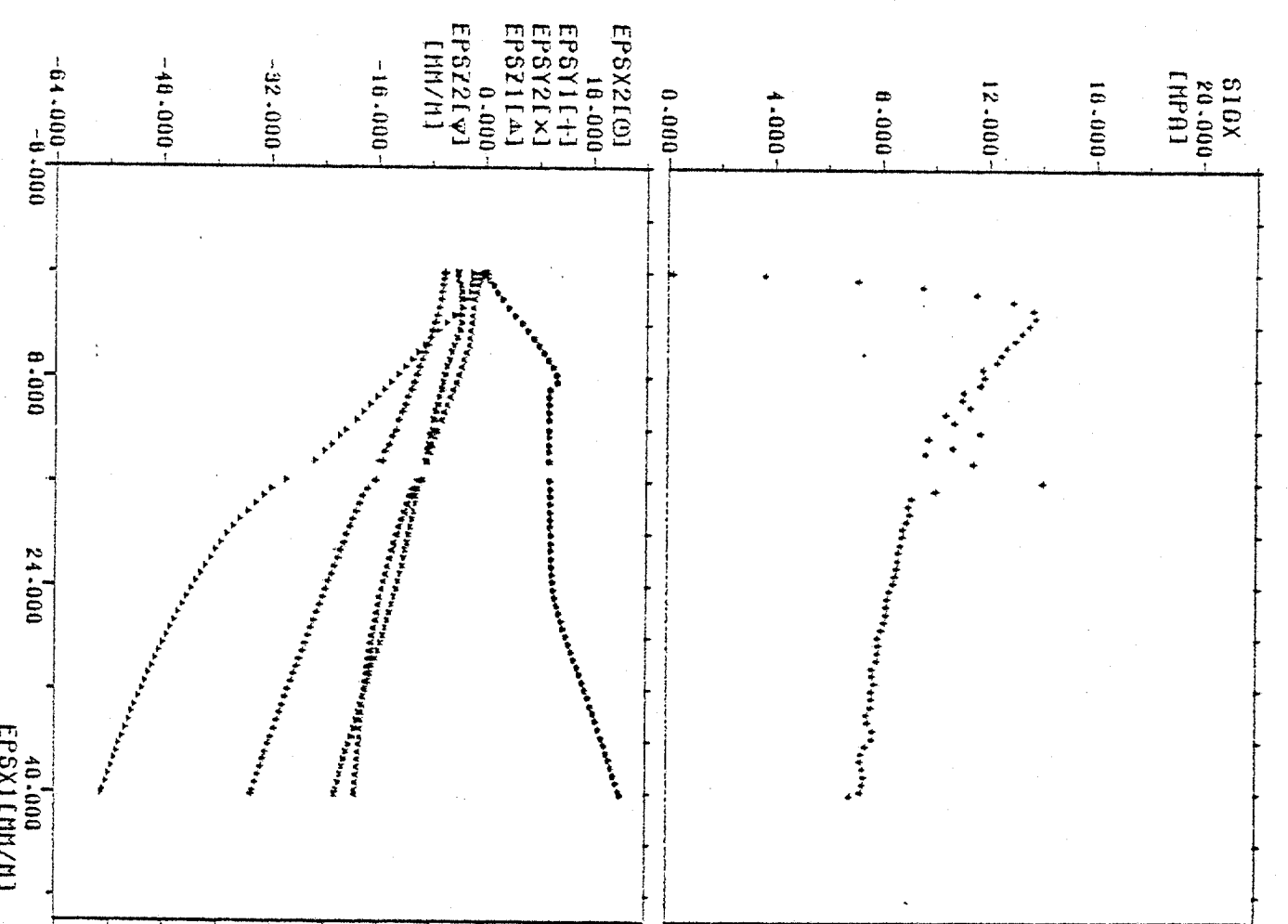
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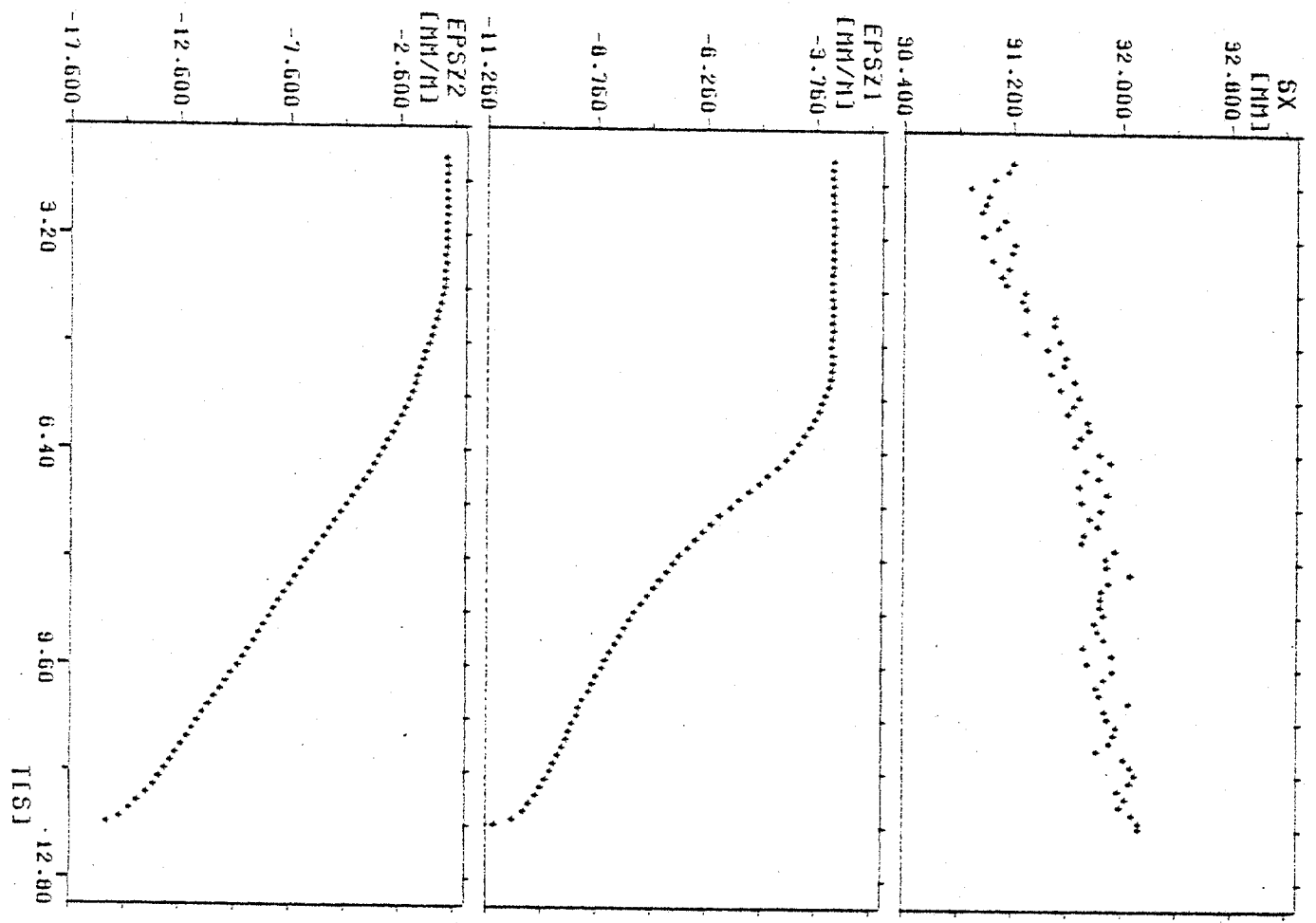
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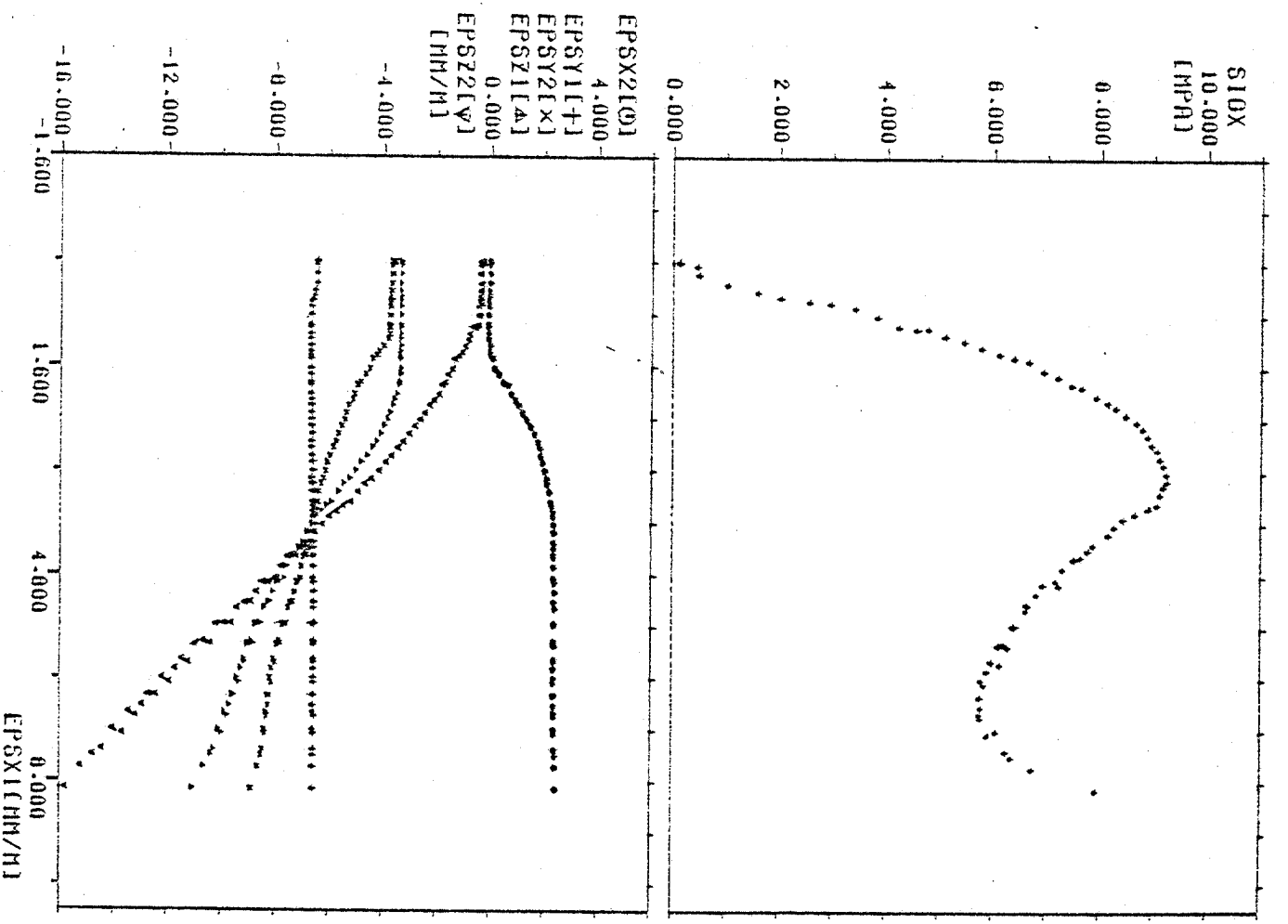
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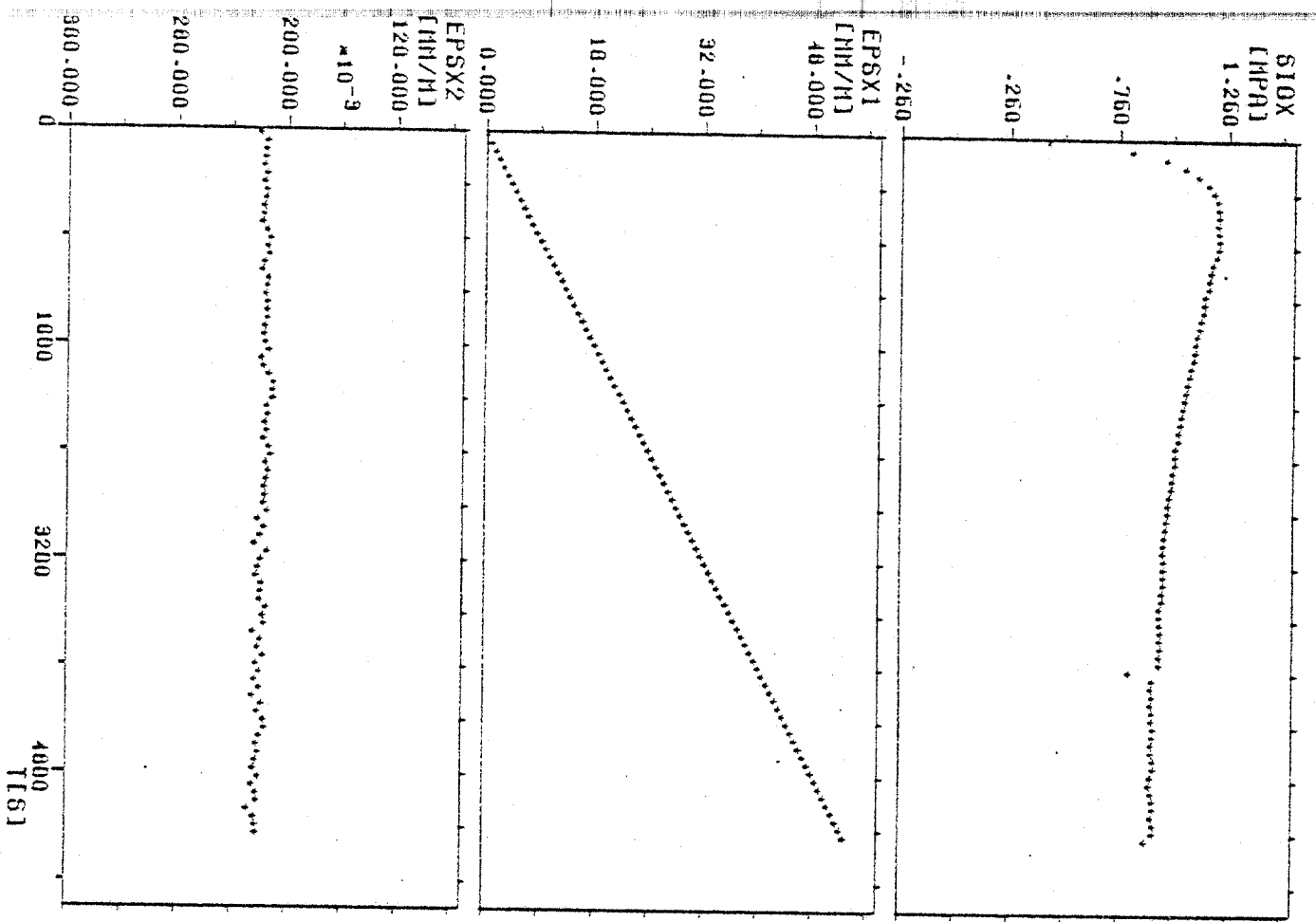


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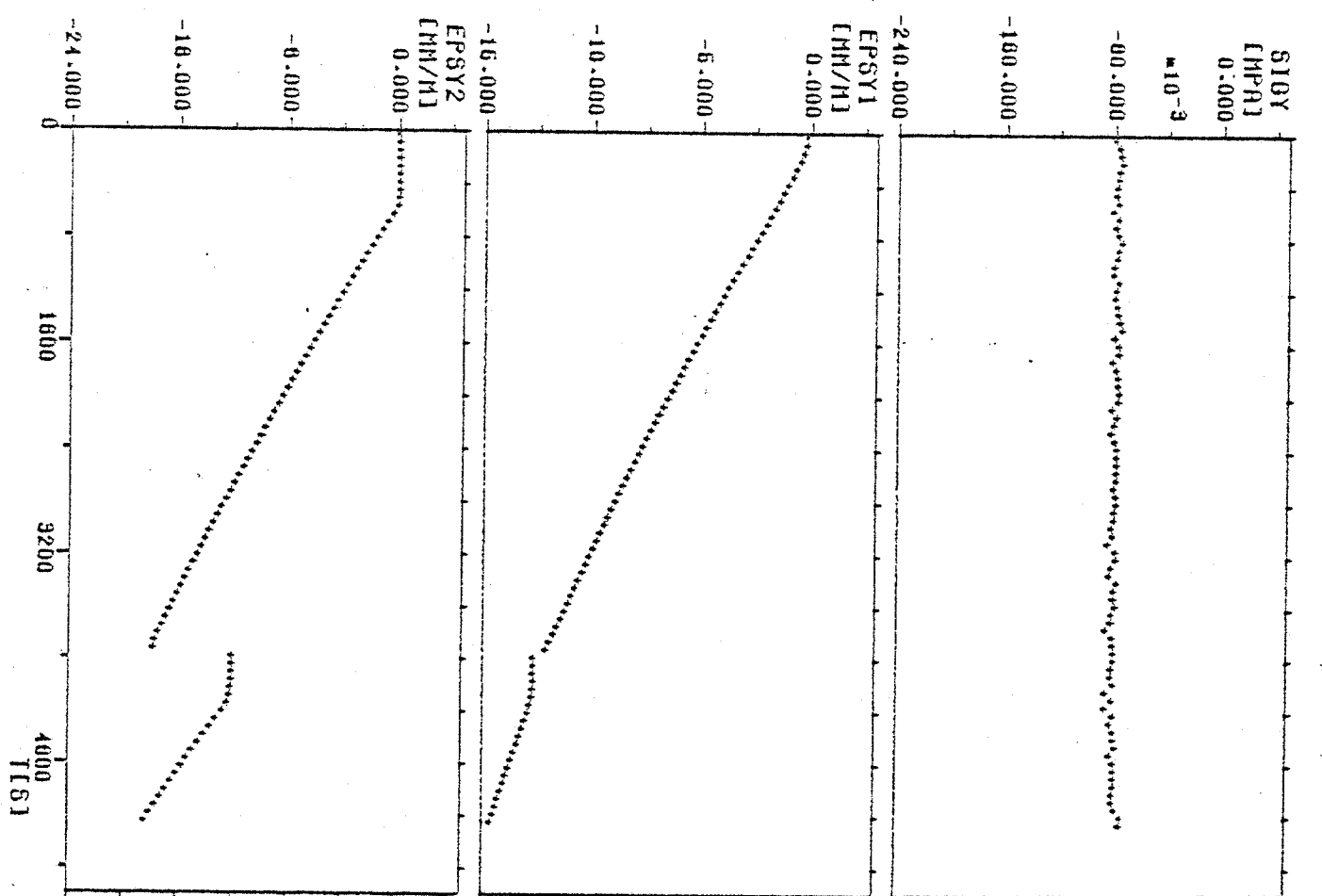


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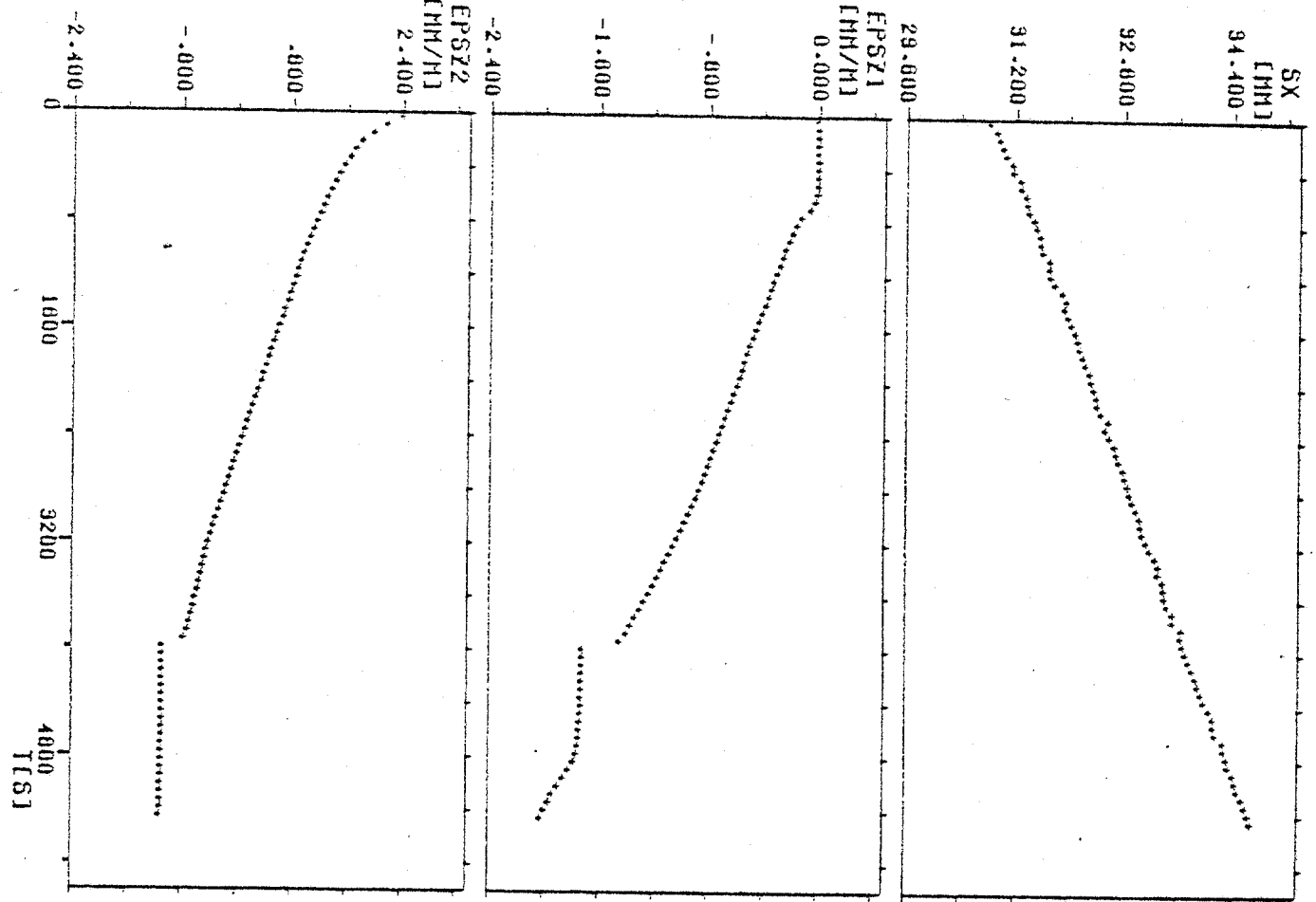




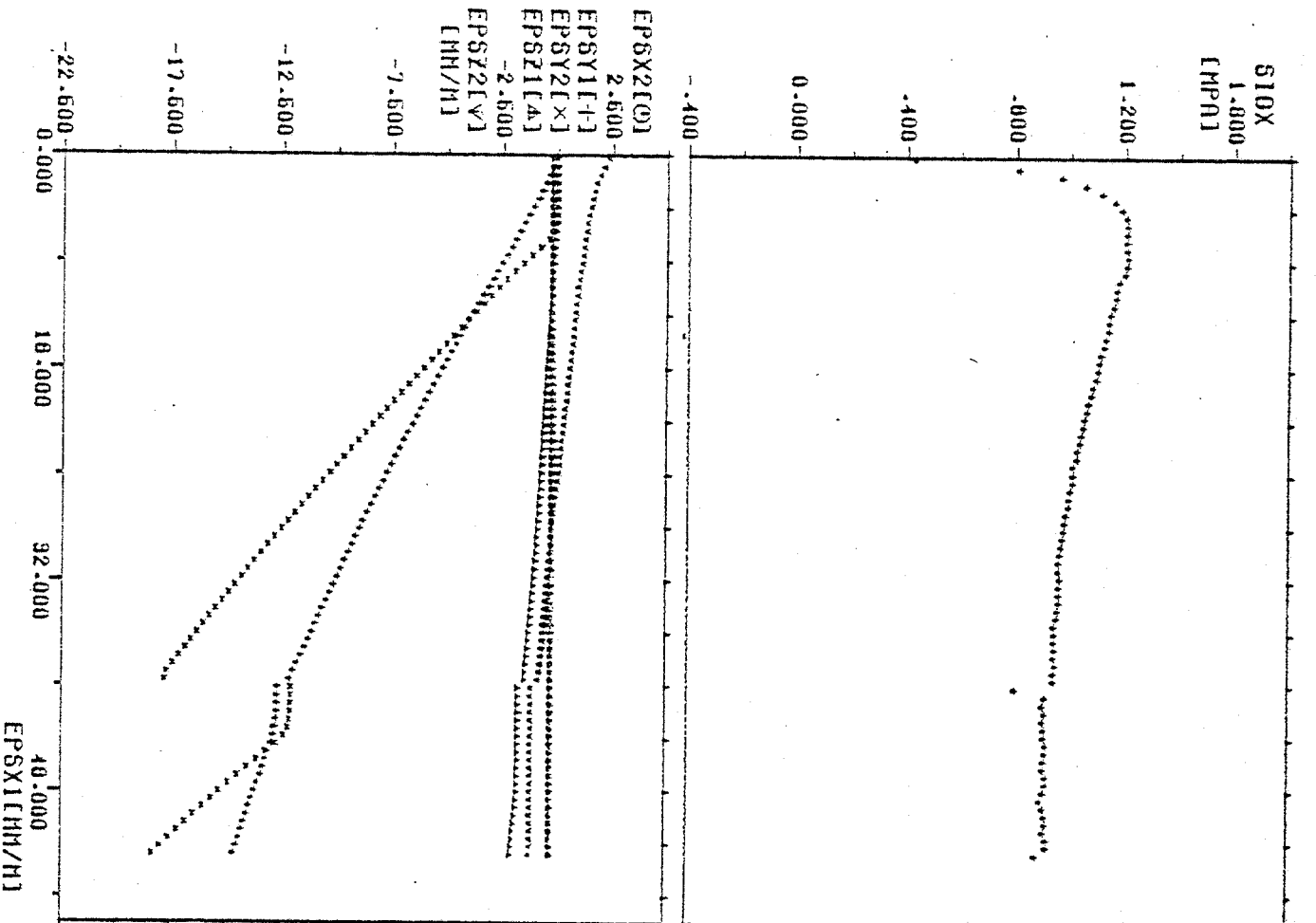
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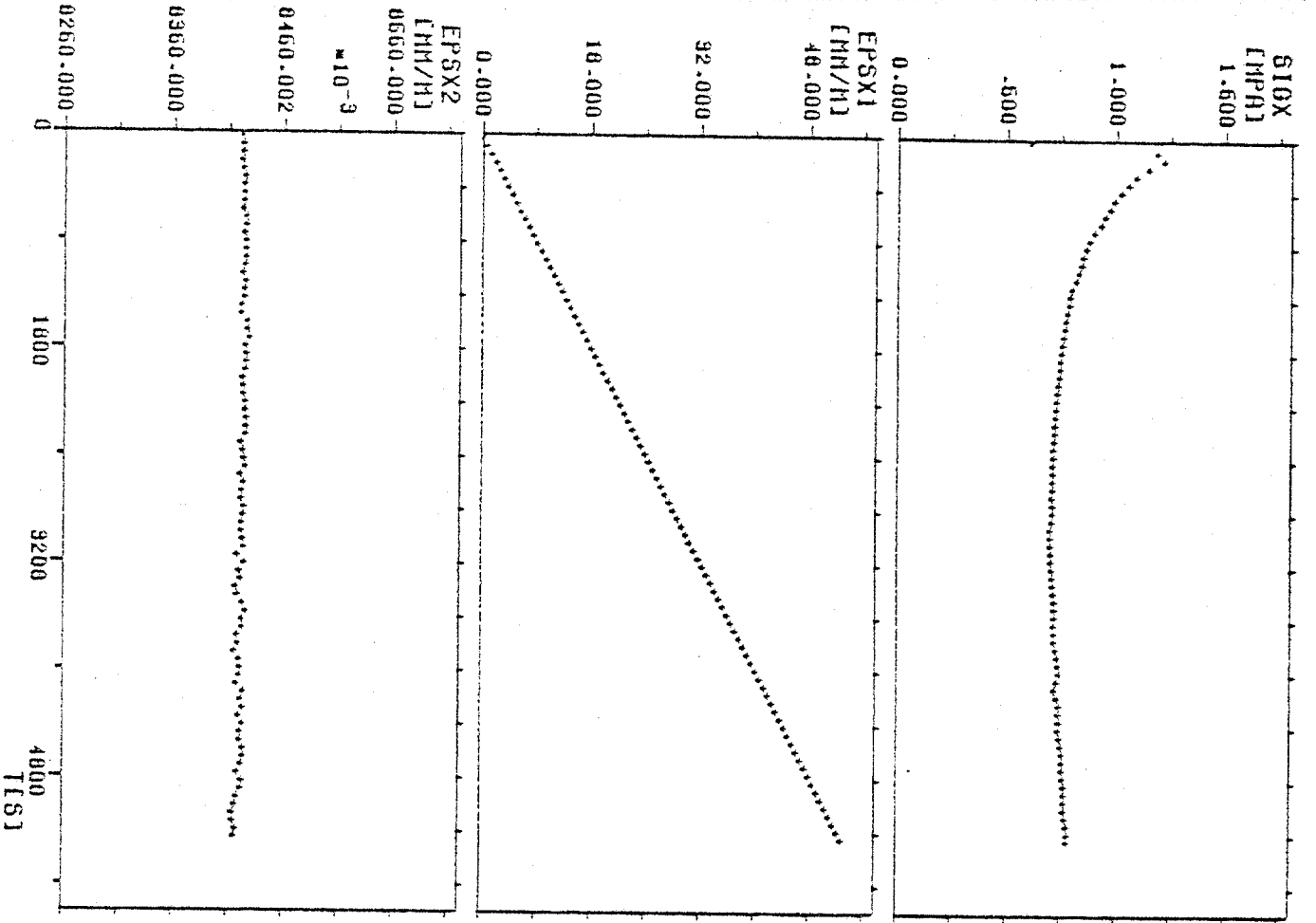
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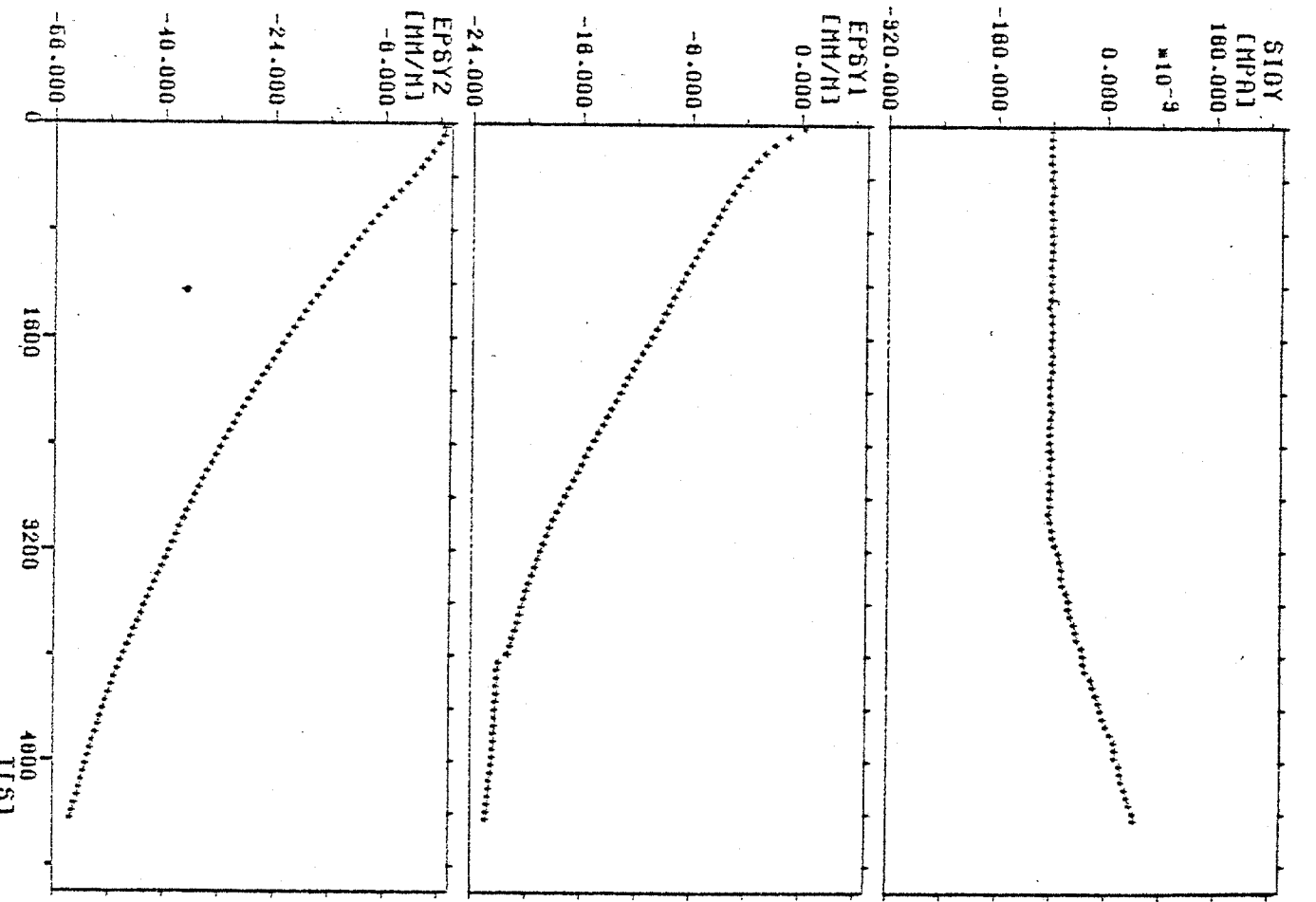
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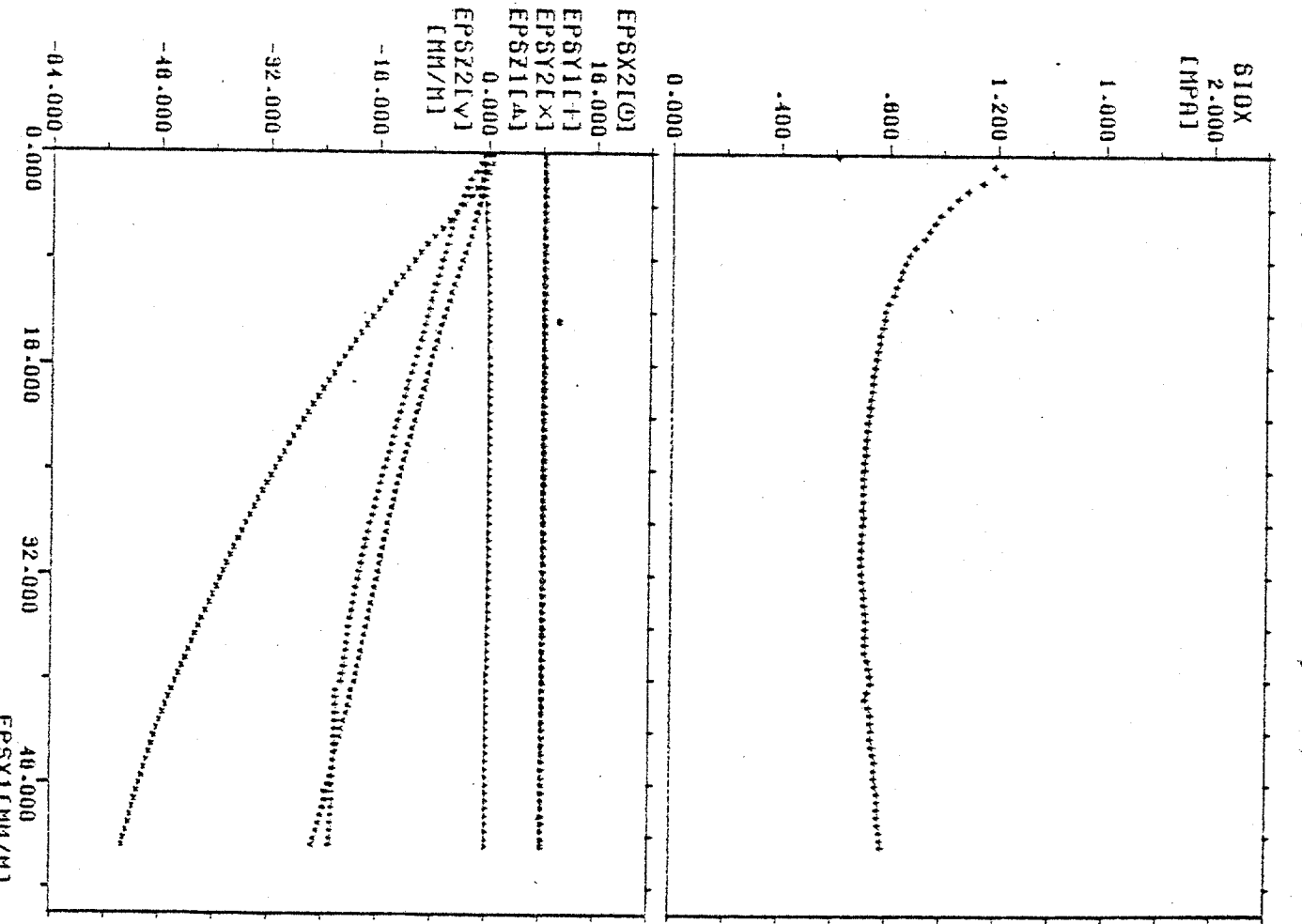
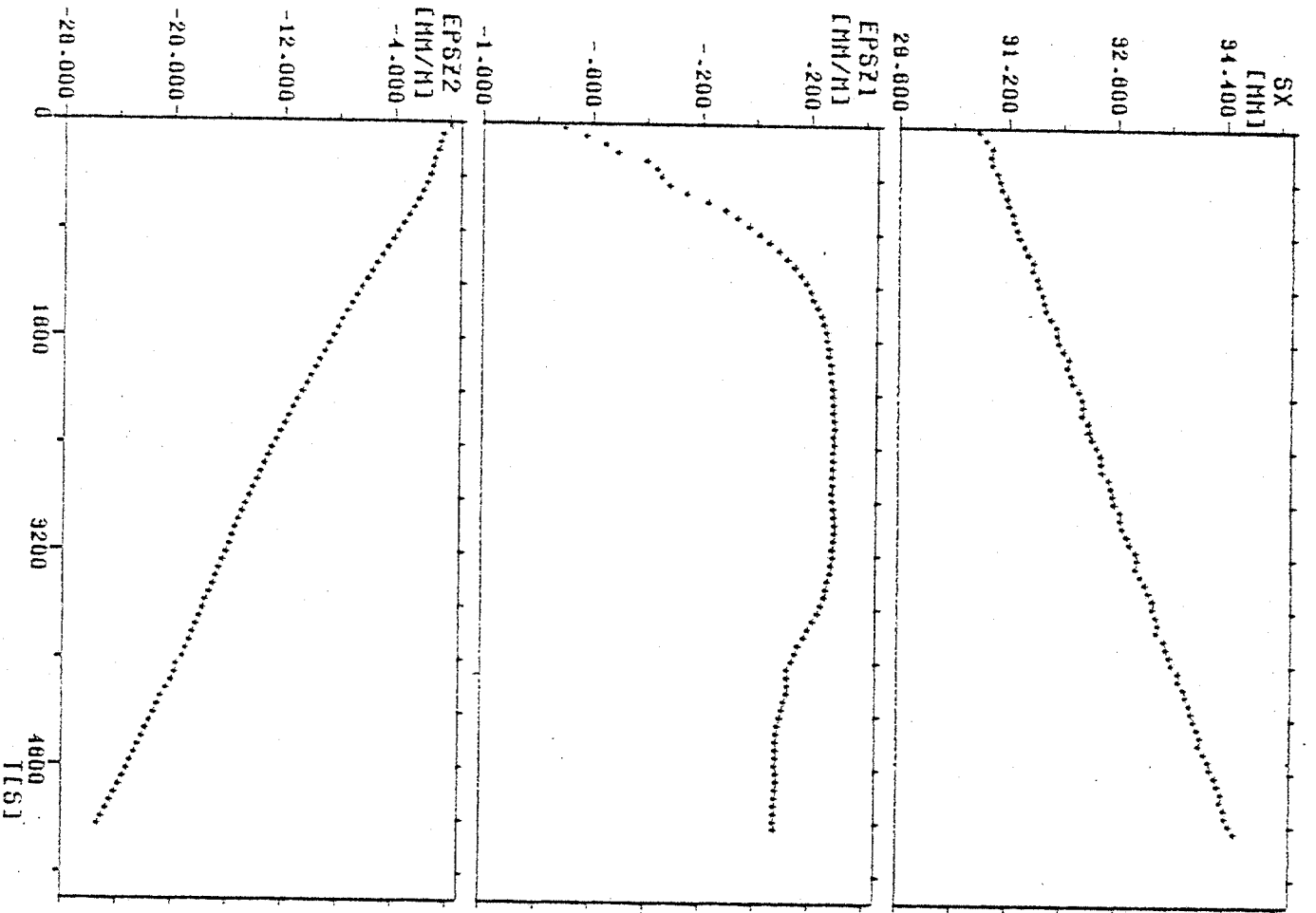
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SHELL 612609  
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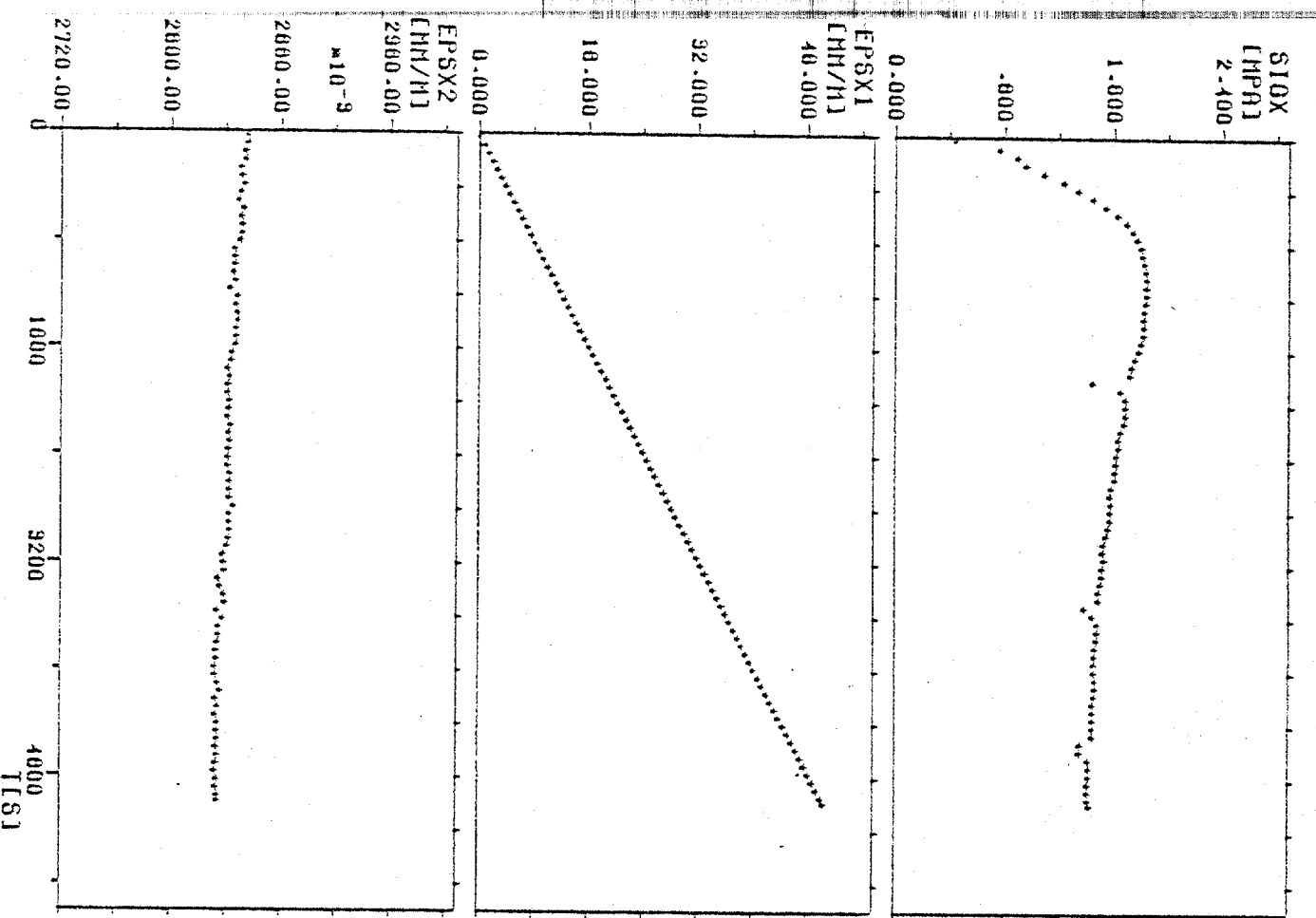


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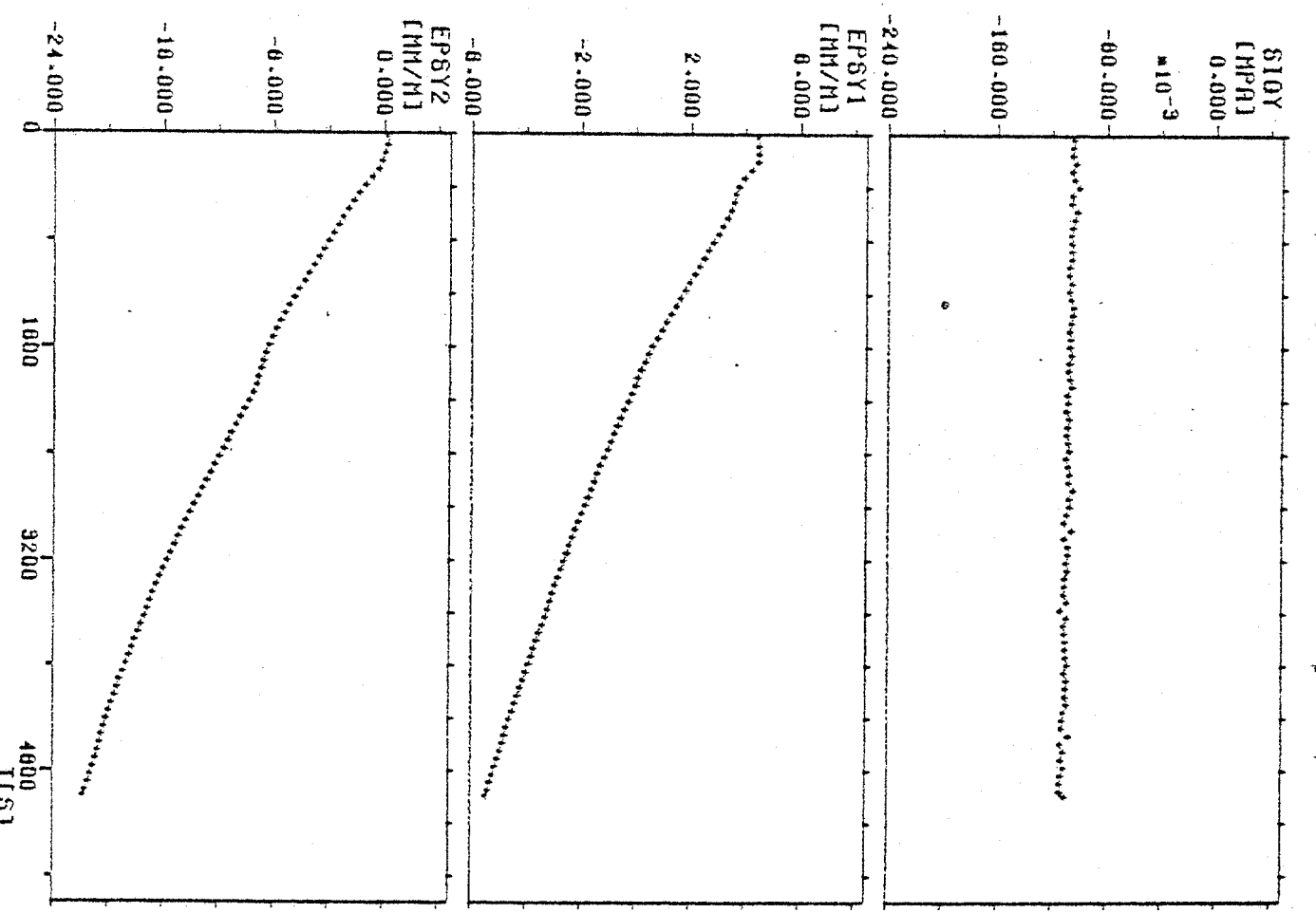


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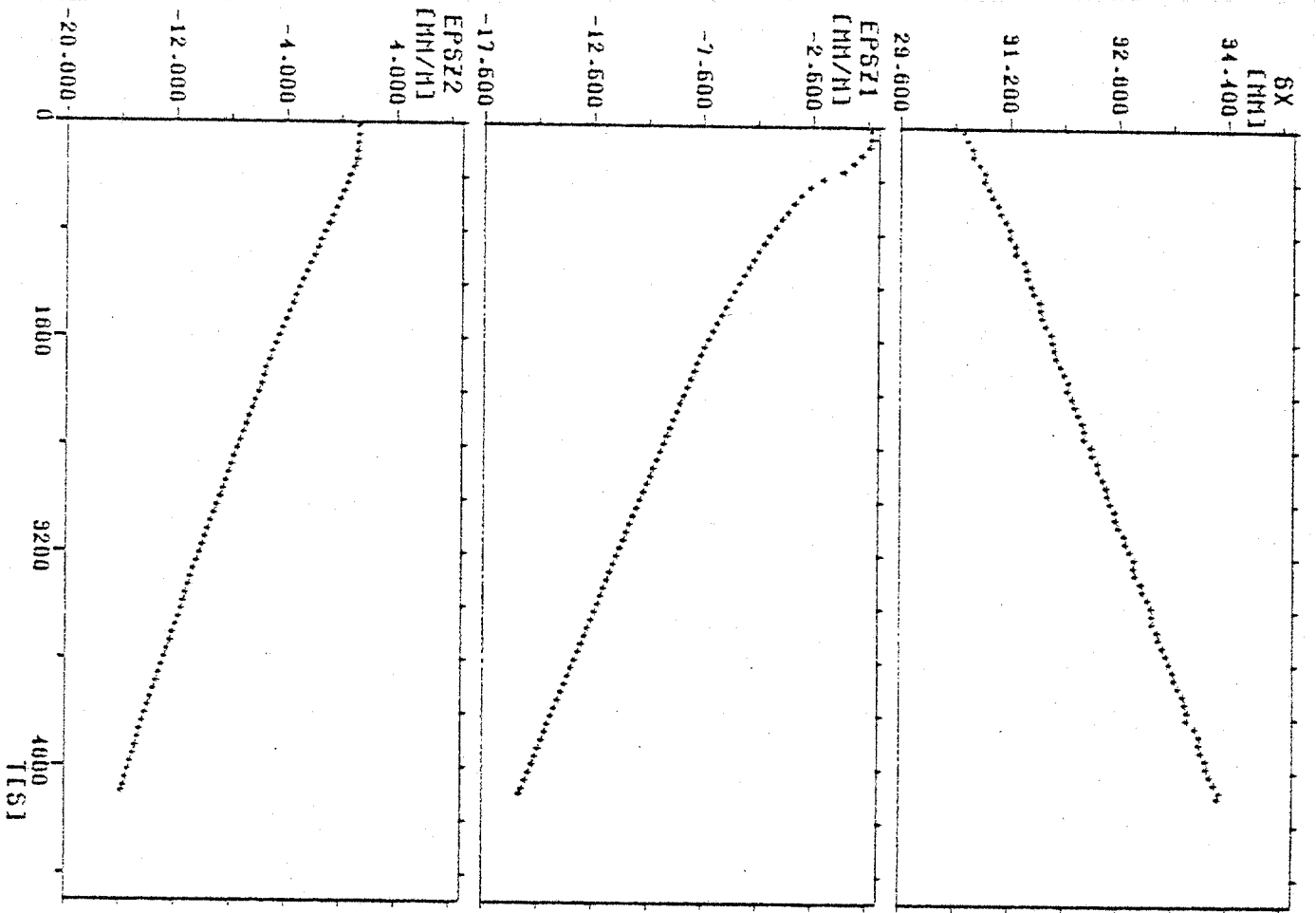
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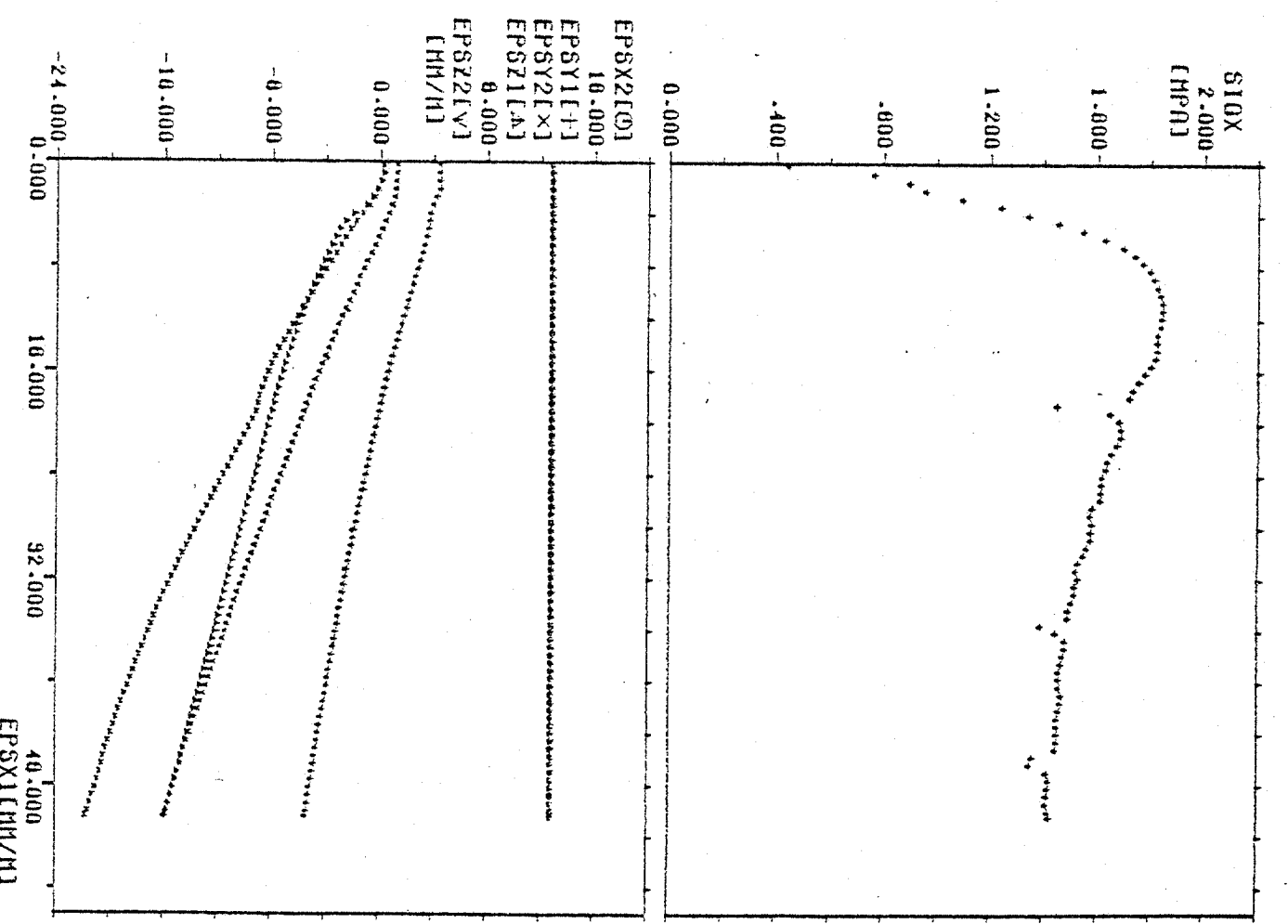
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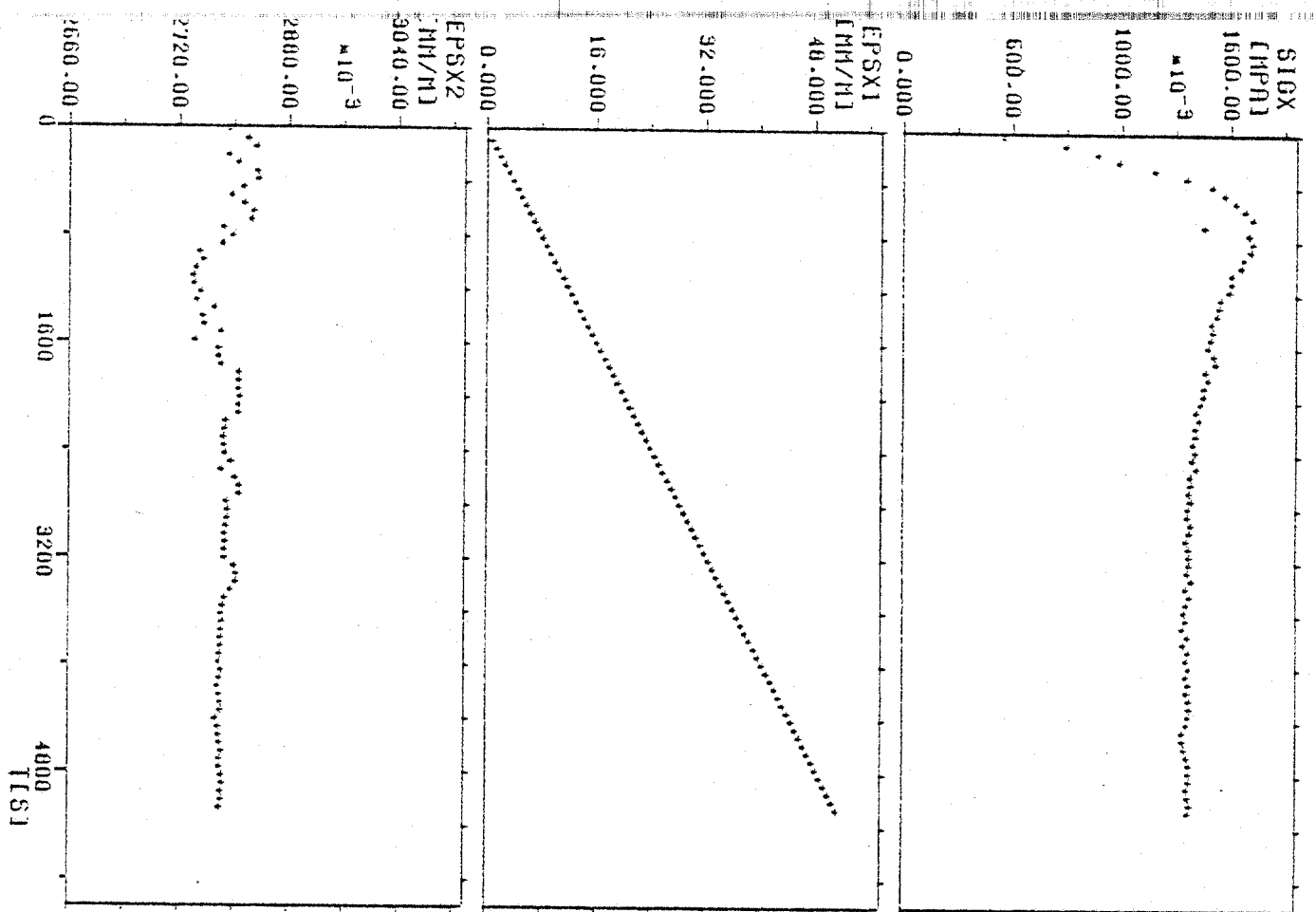
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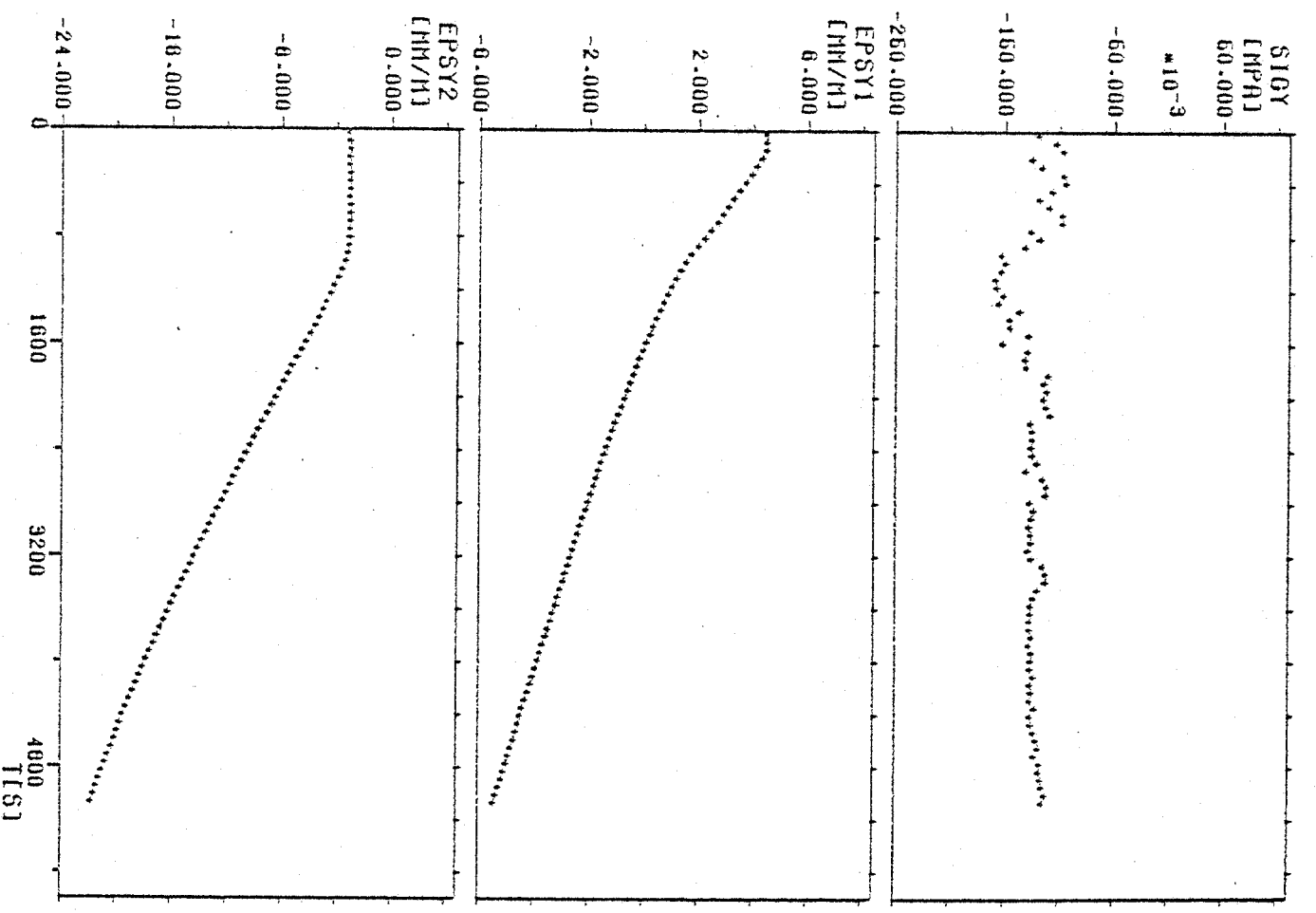
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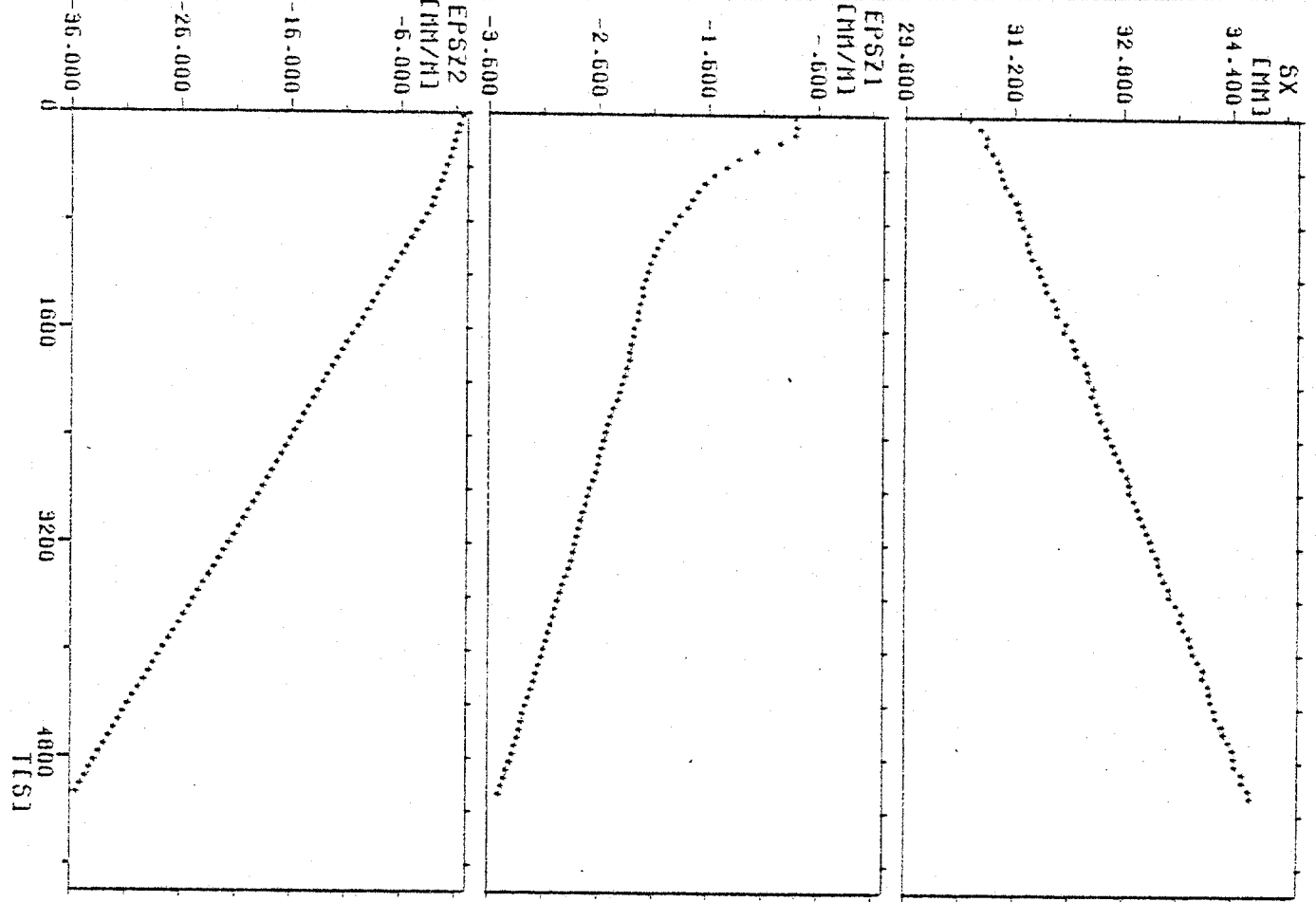
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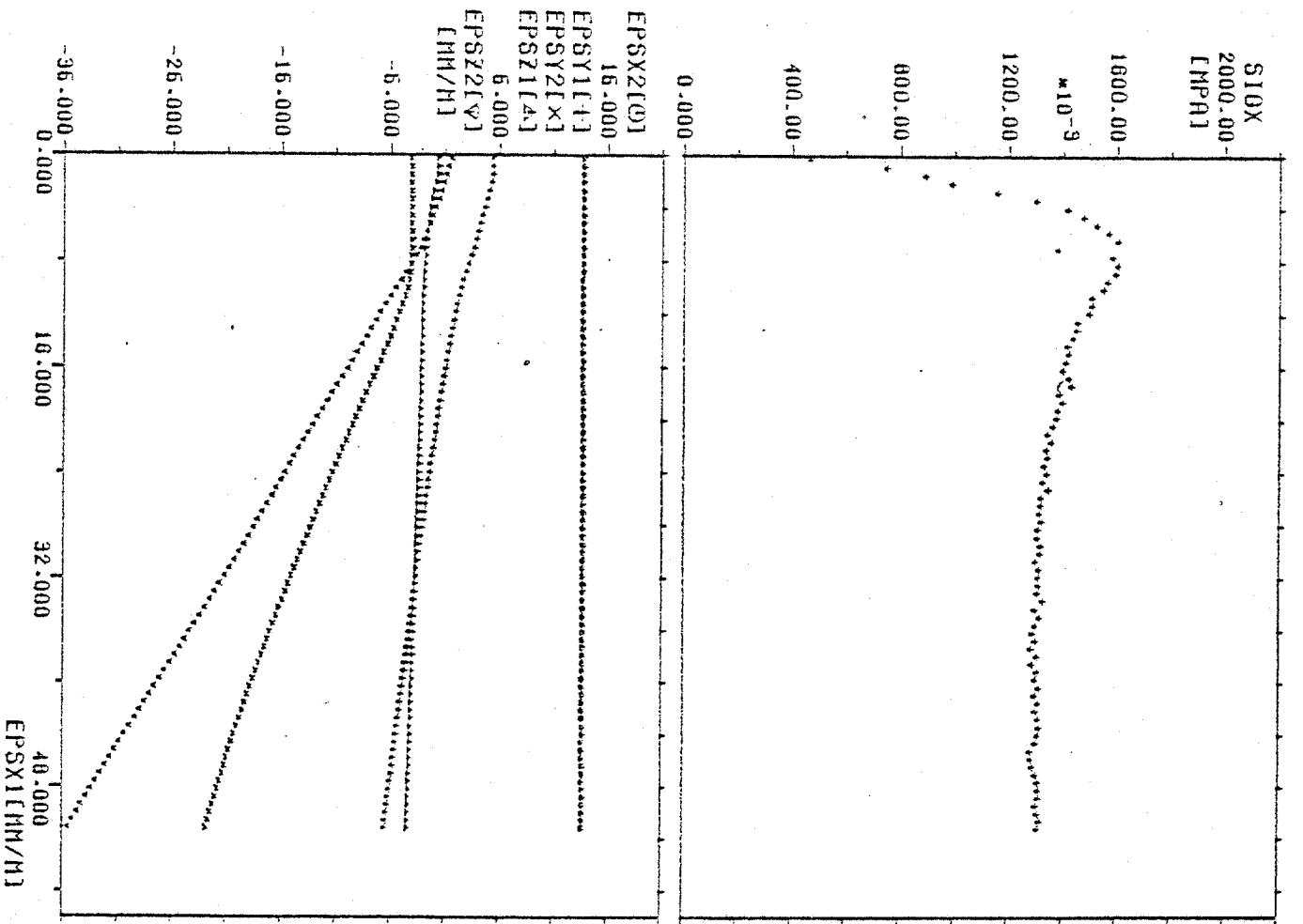
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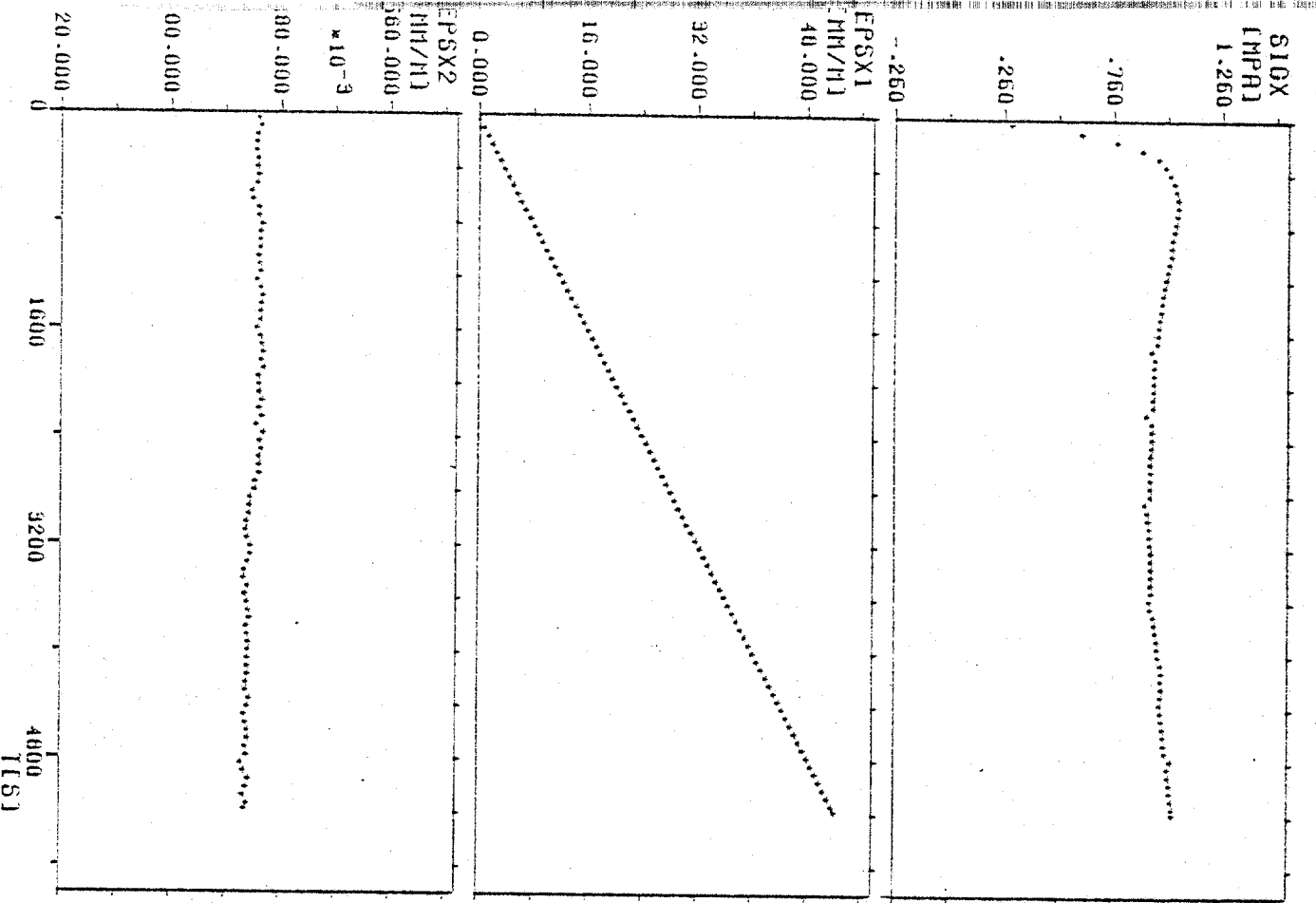


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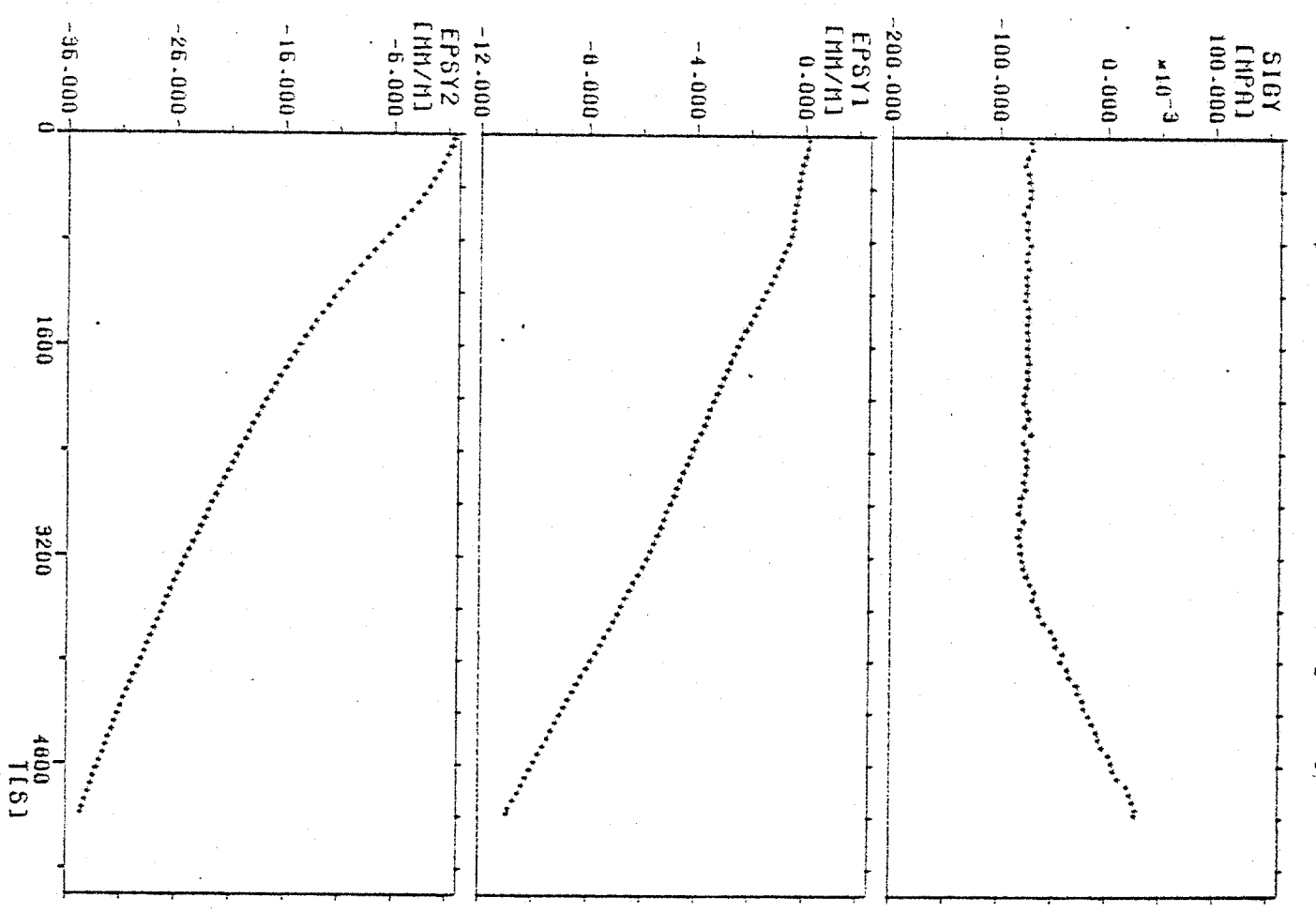


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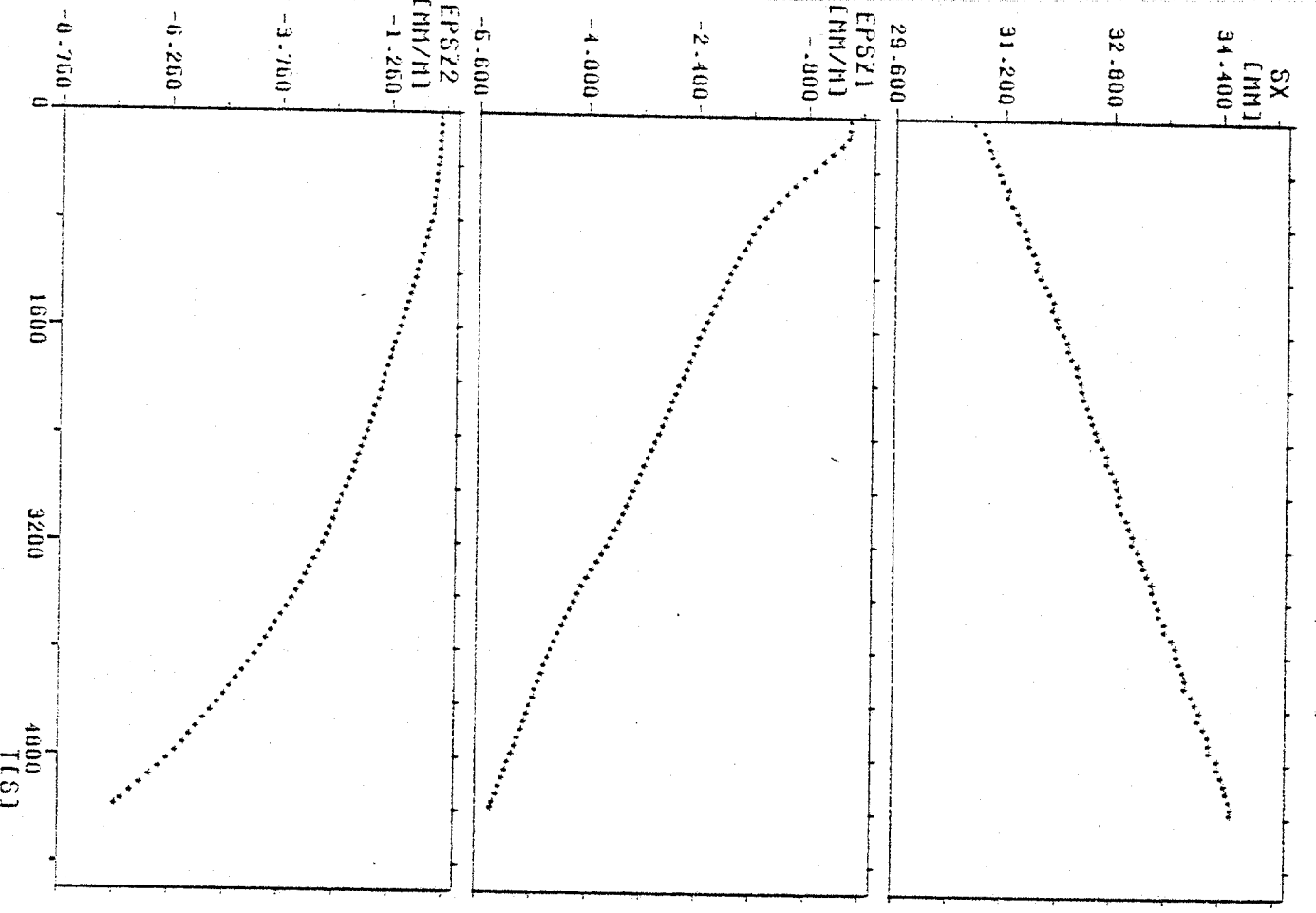




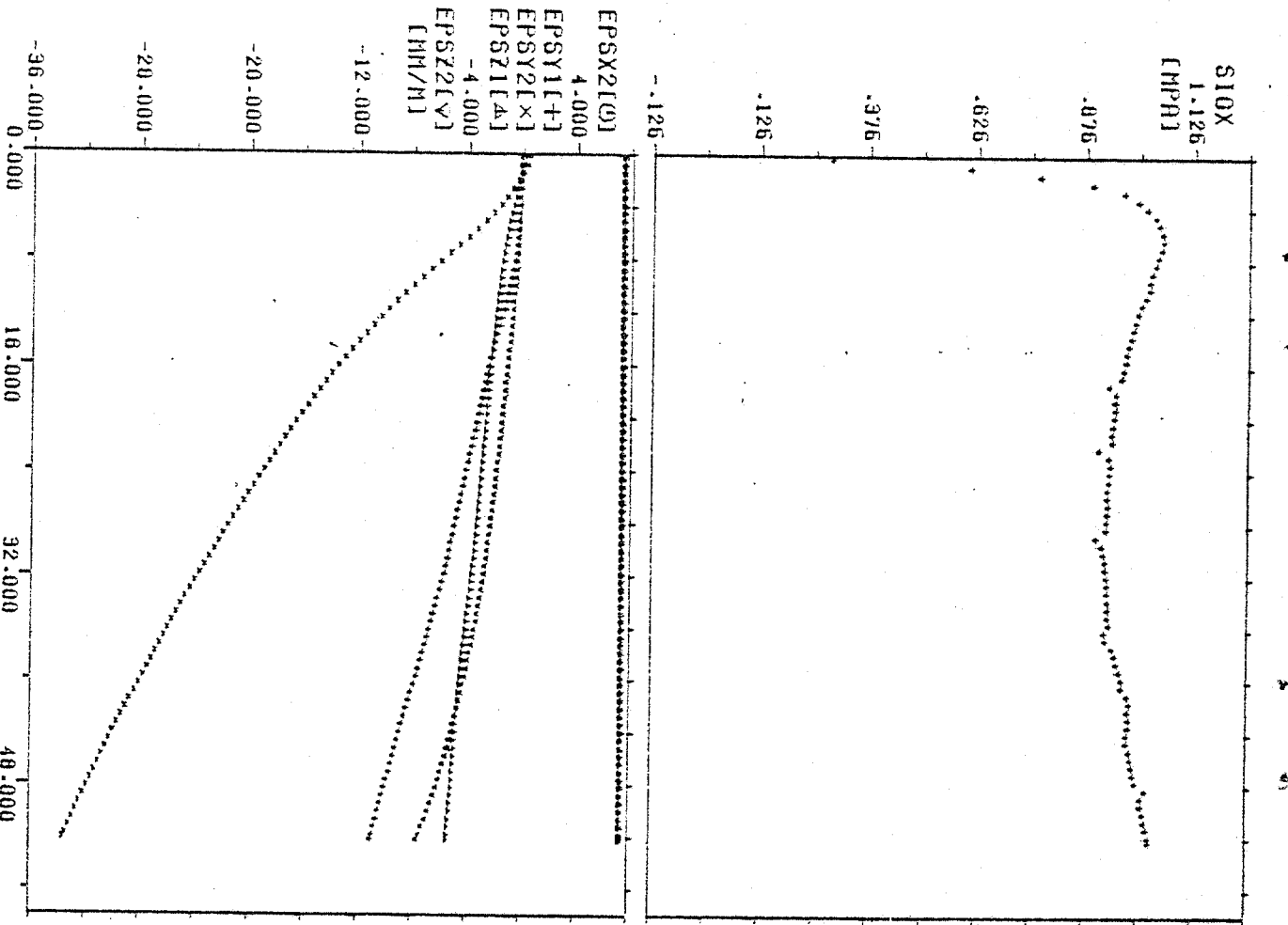
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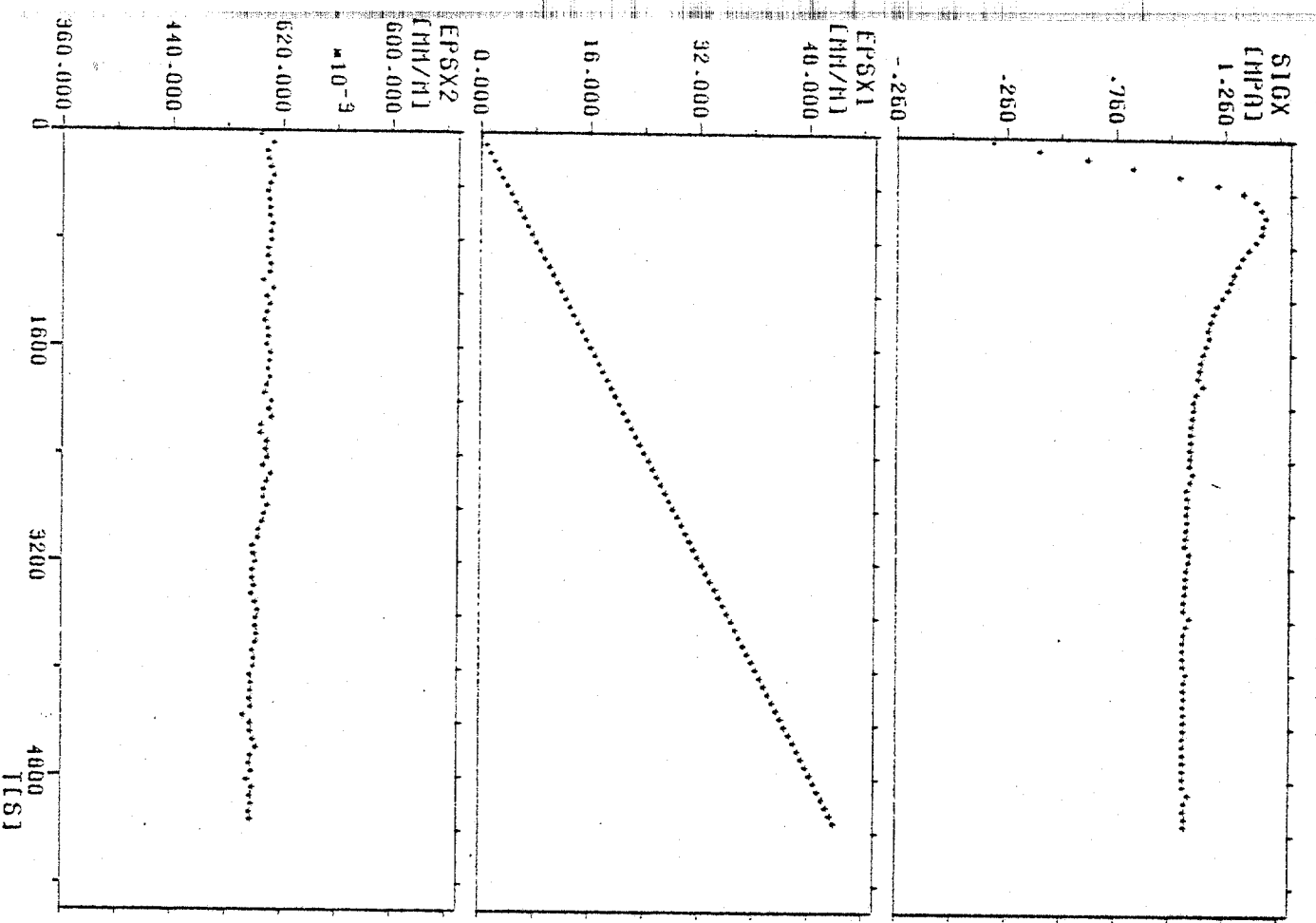
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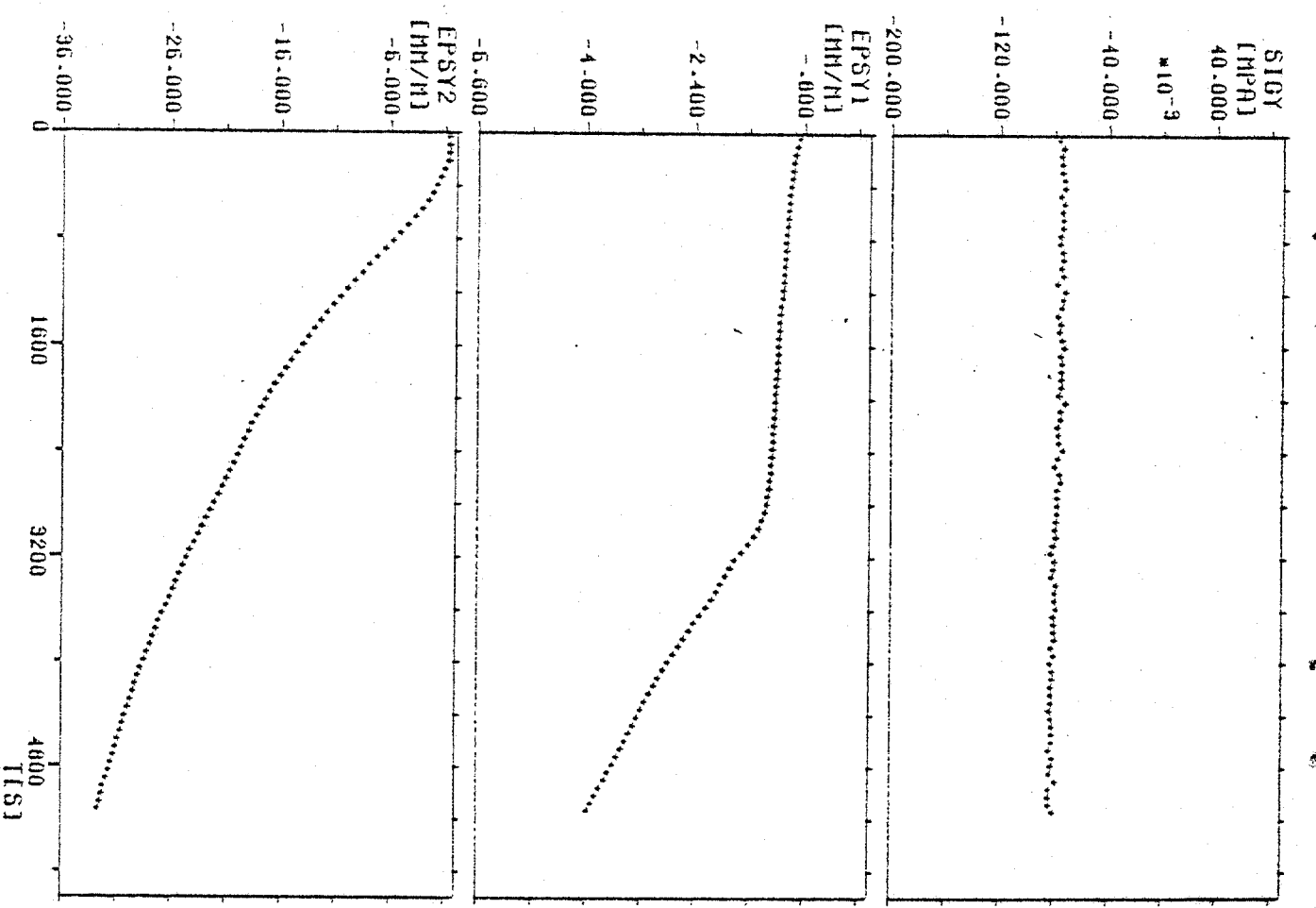
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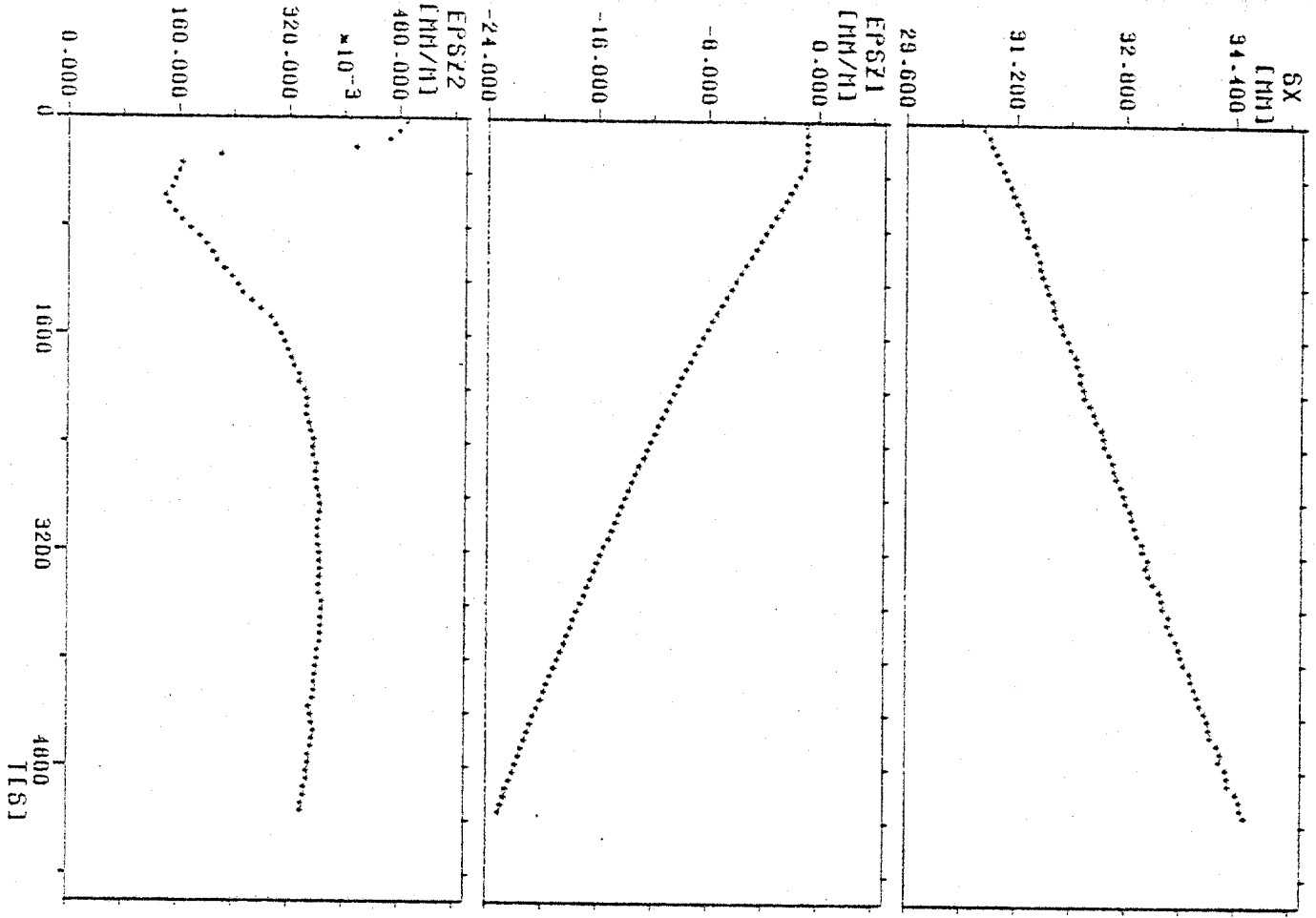
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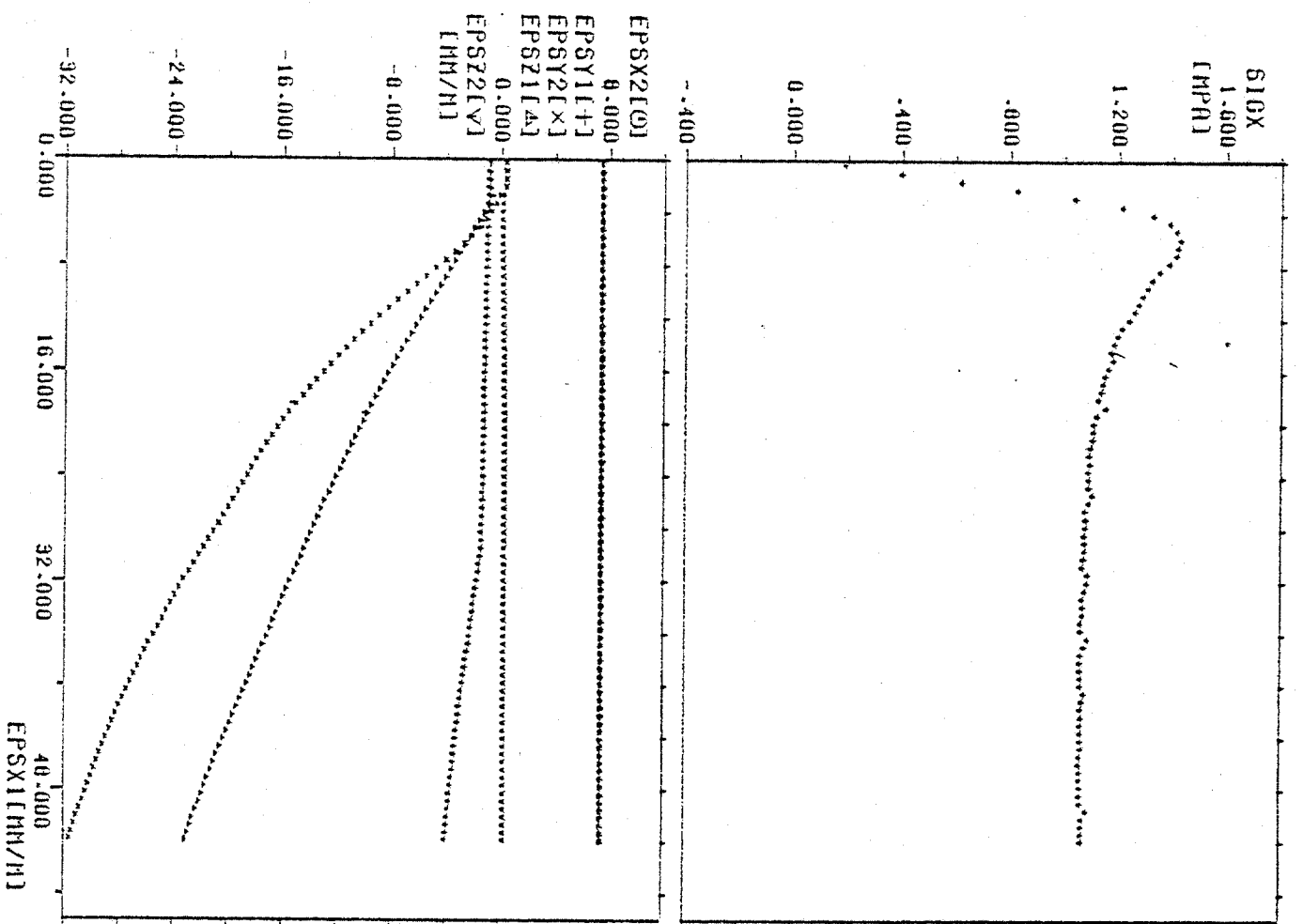
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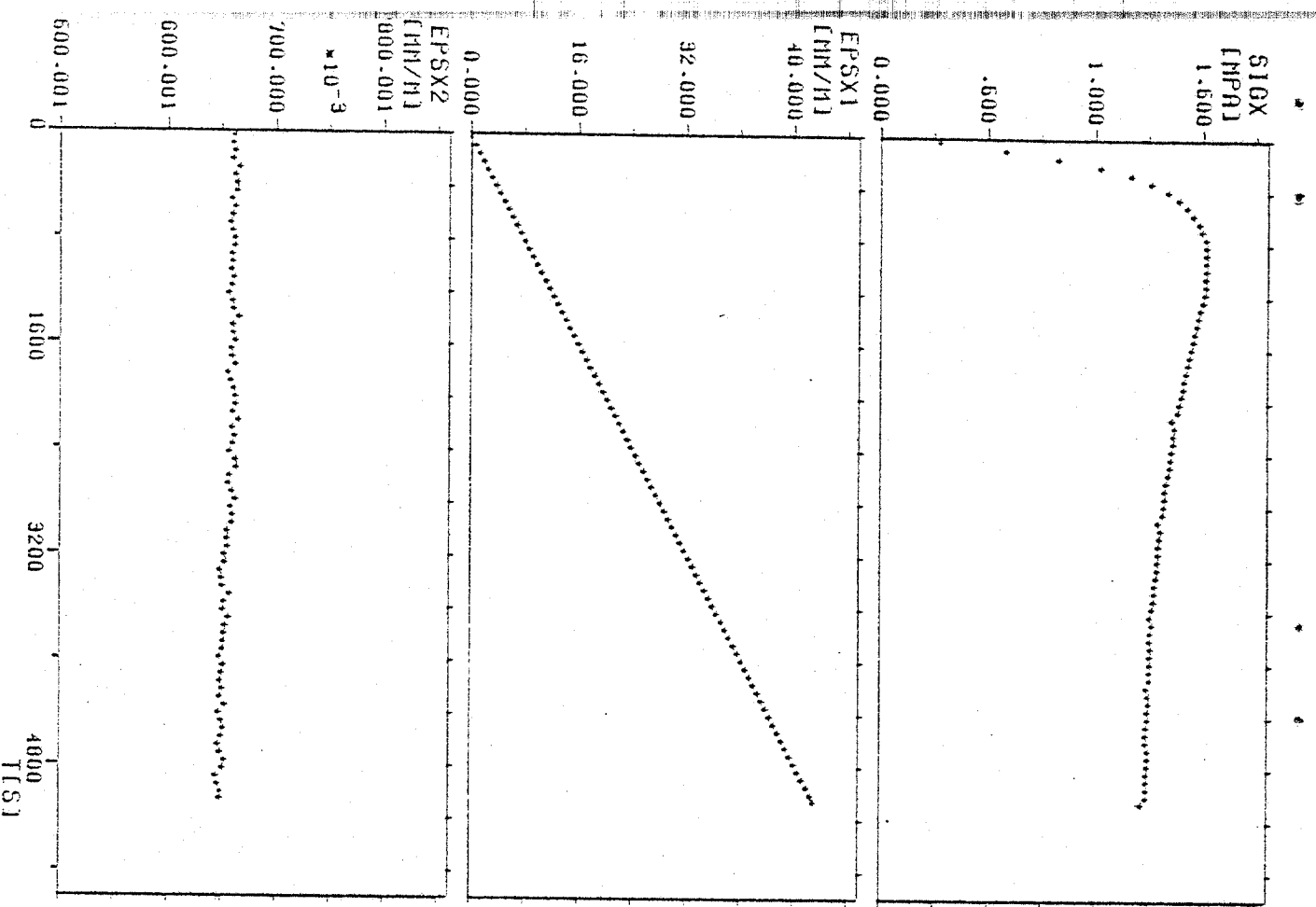
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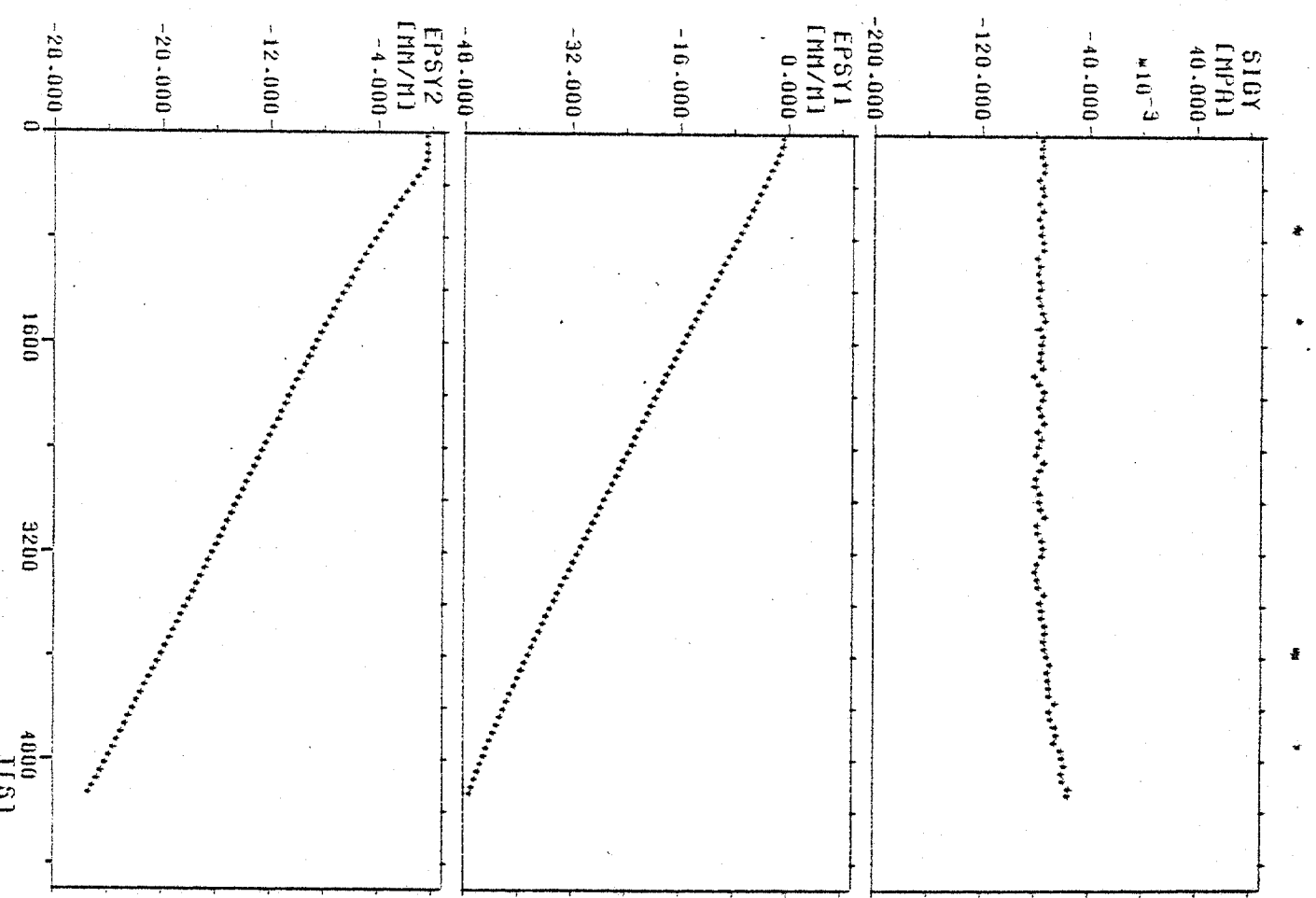
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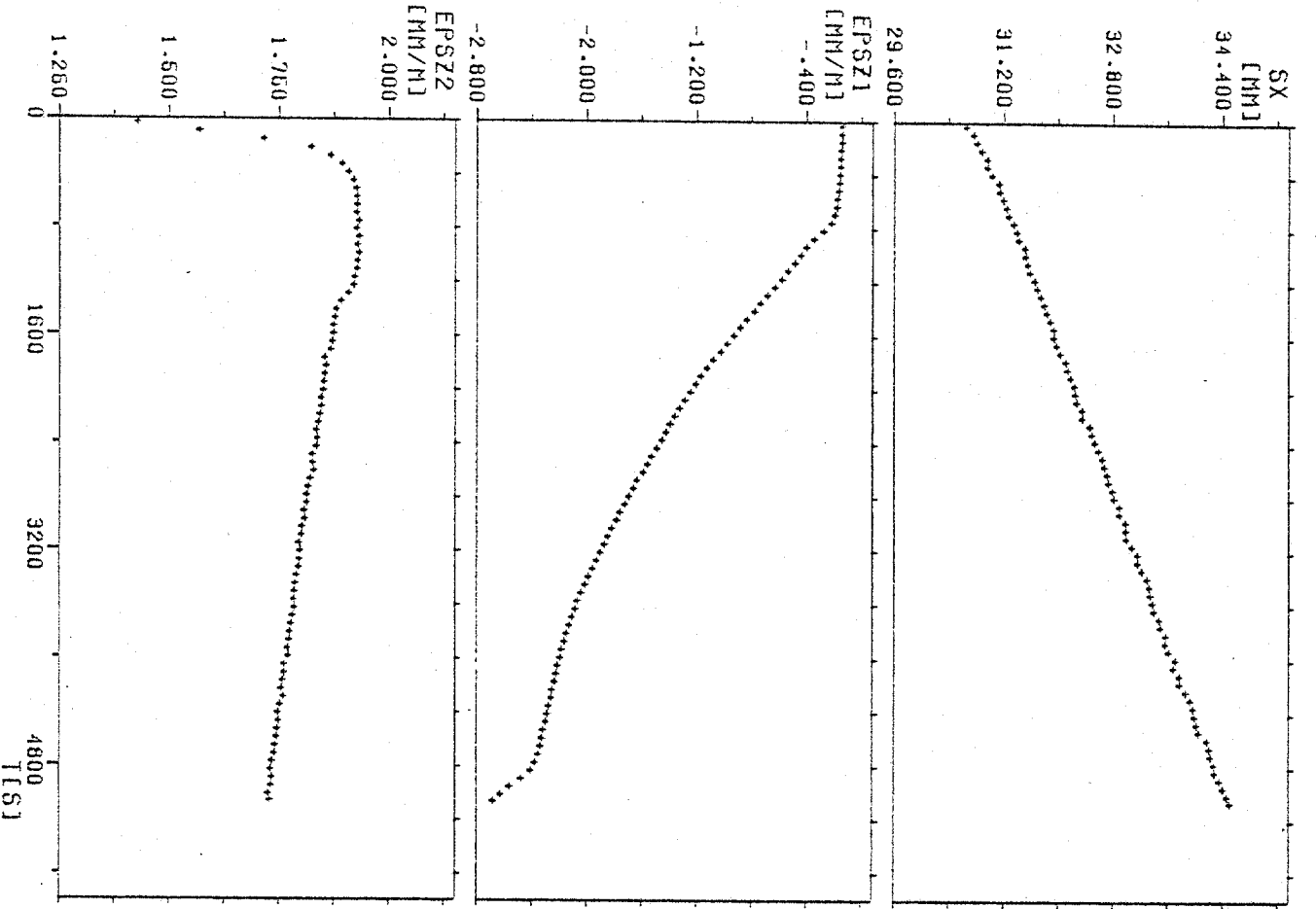
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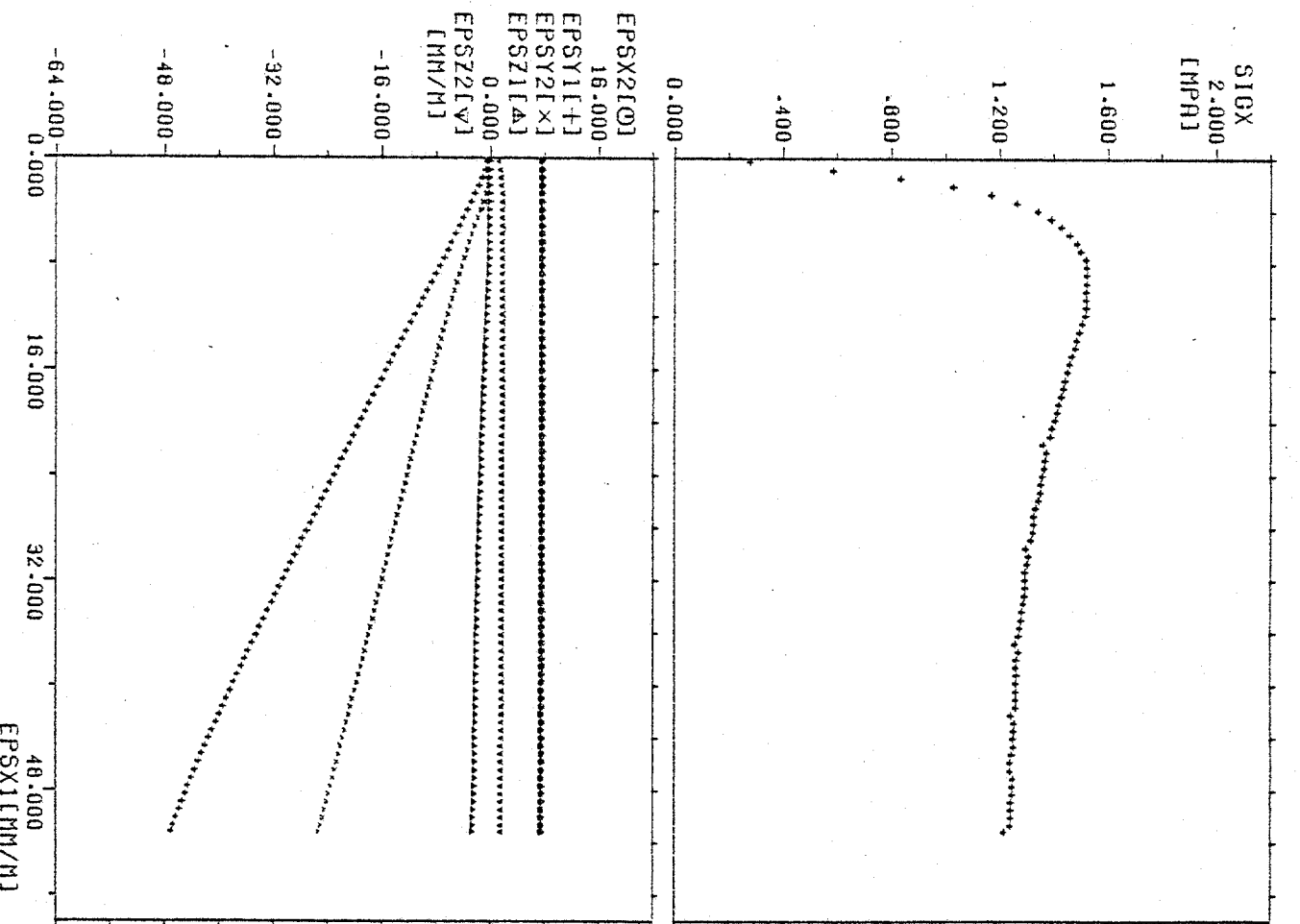
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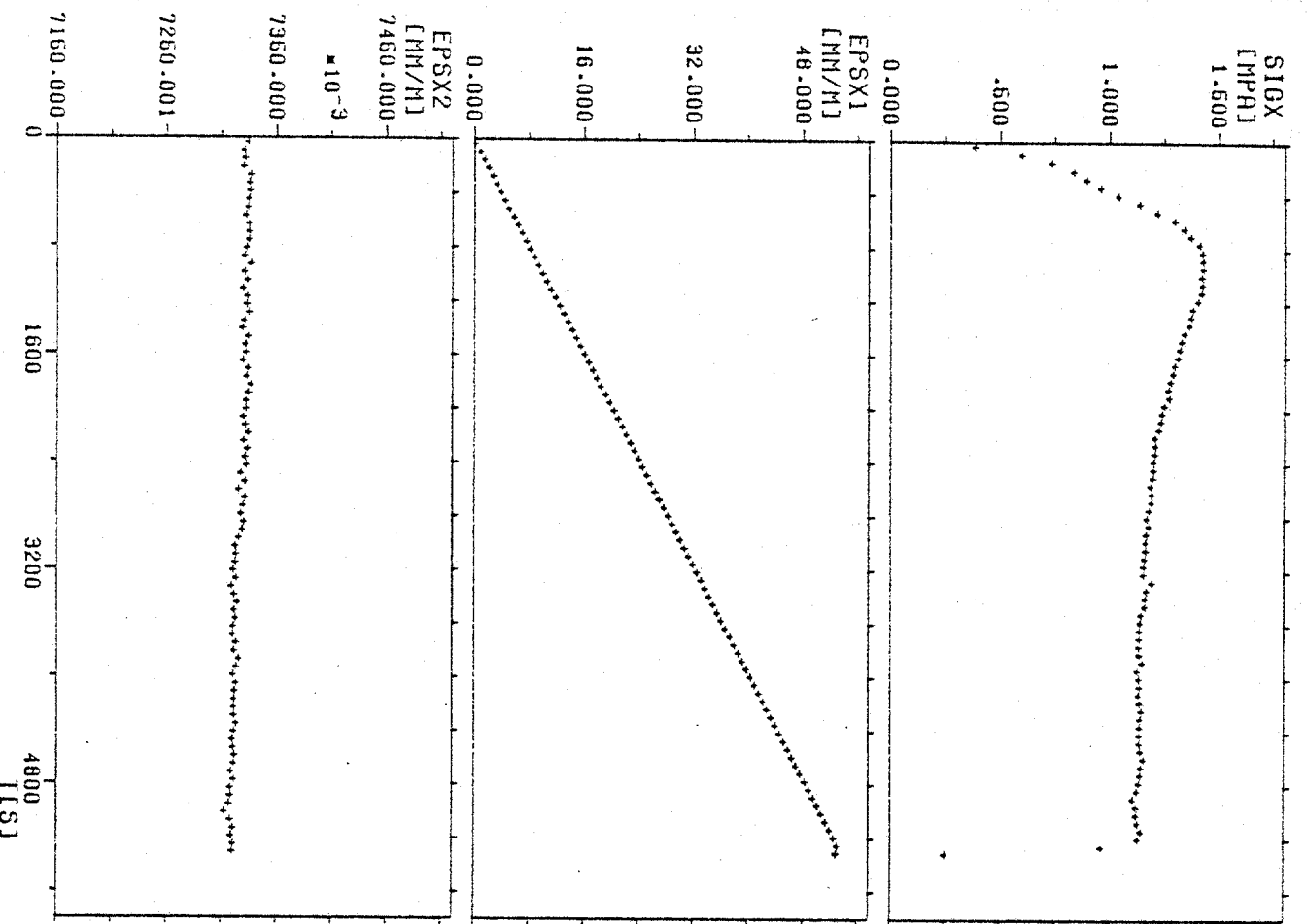
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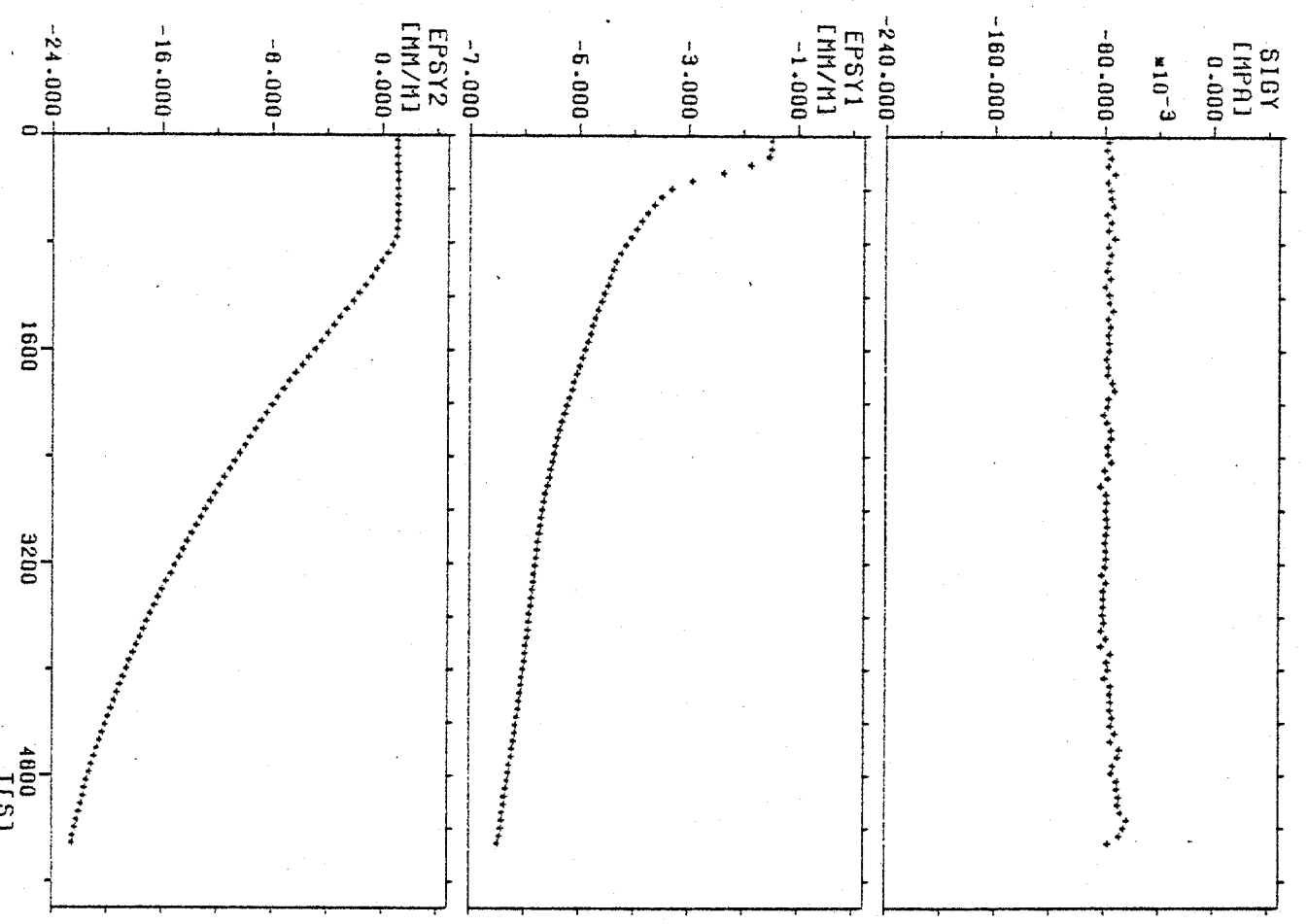
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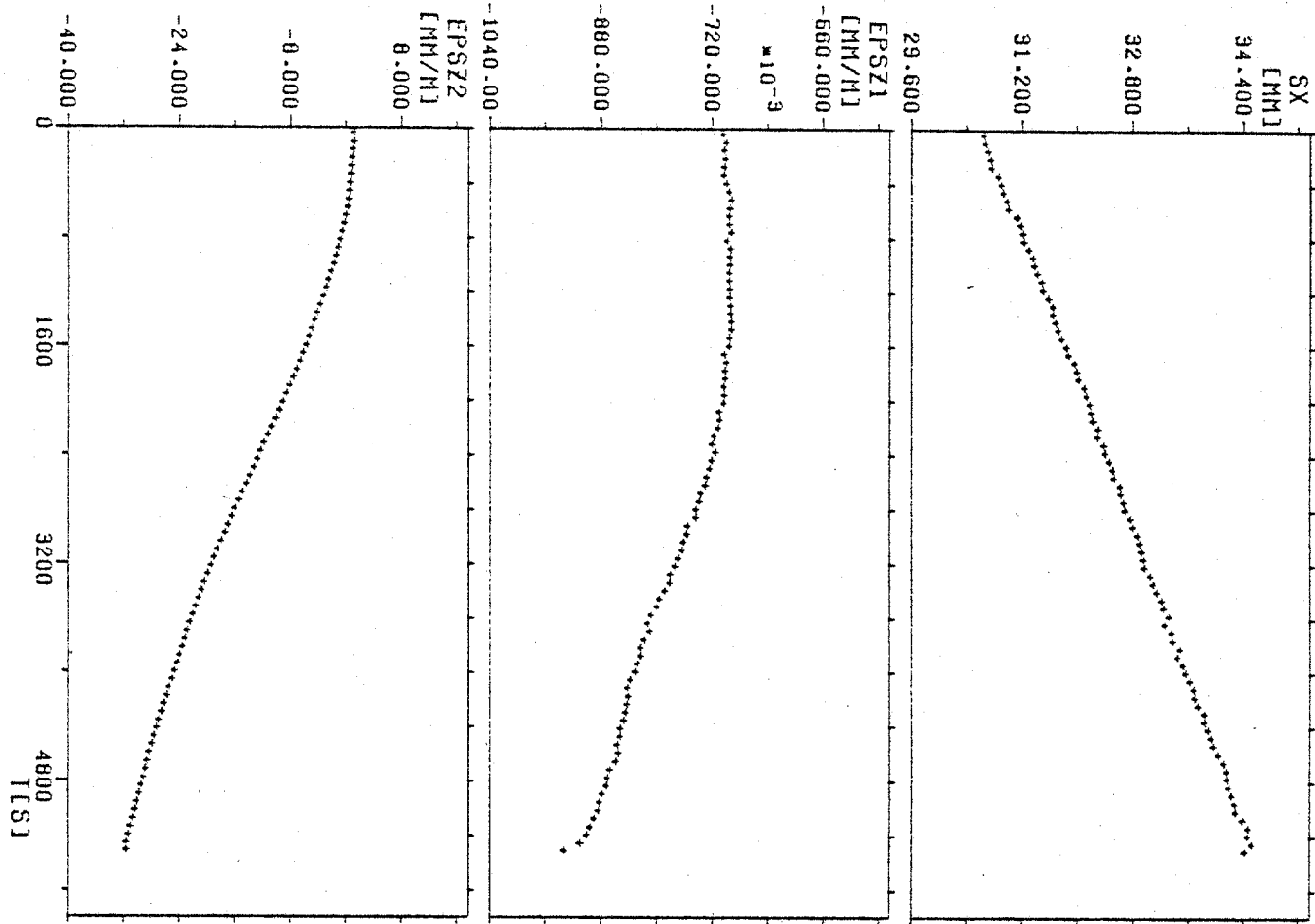
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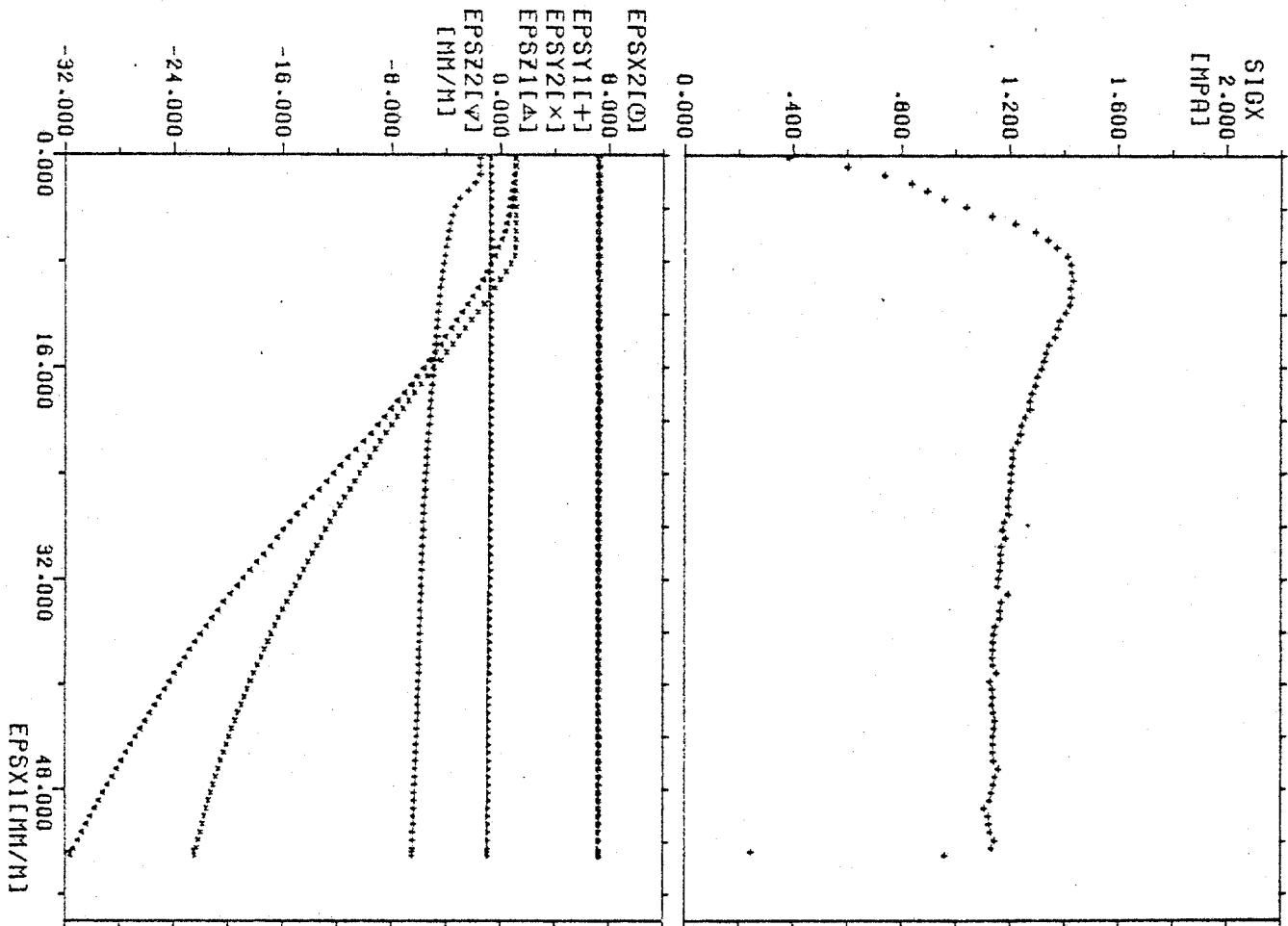
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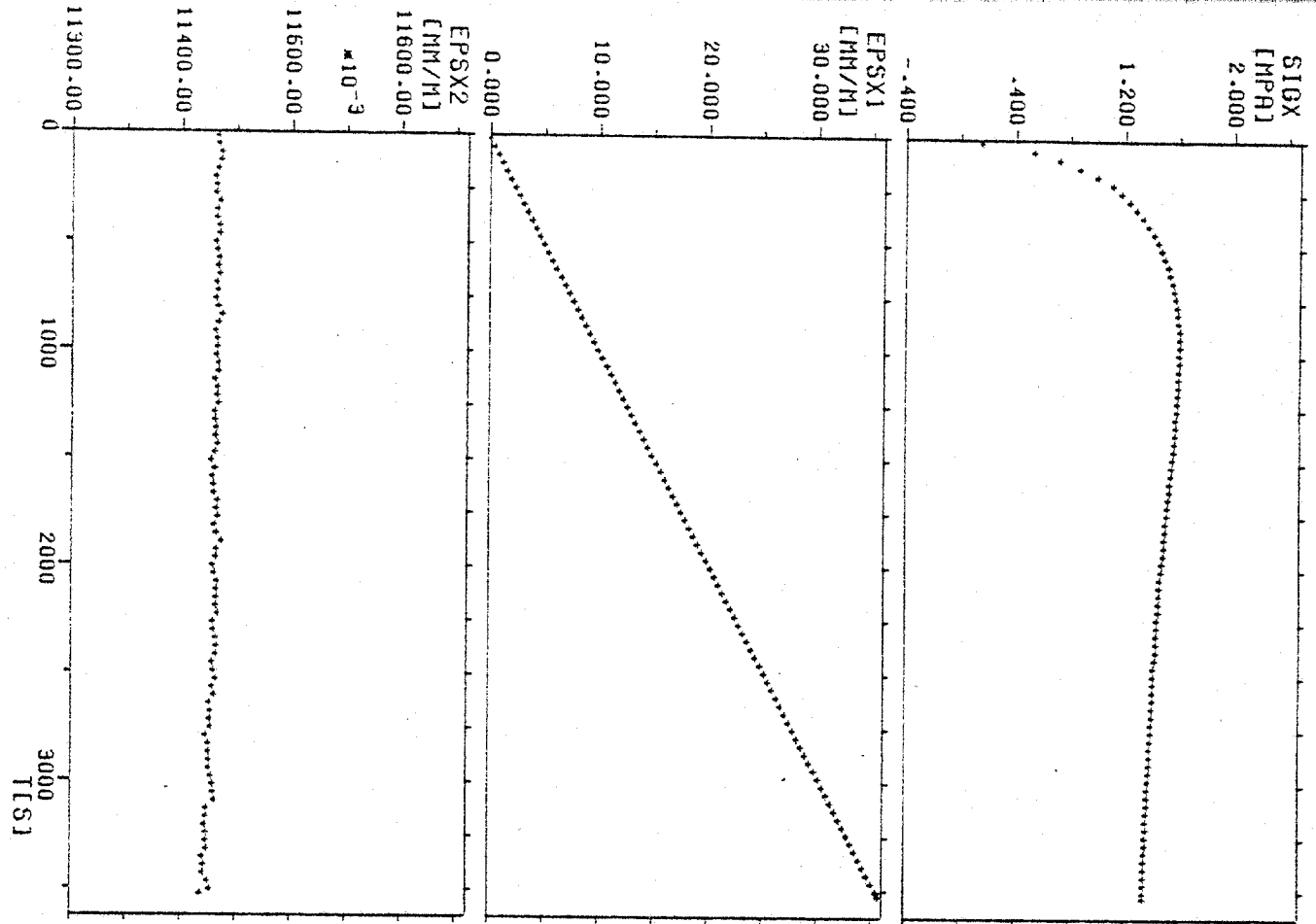


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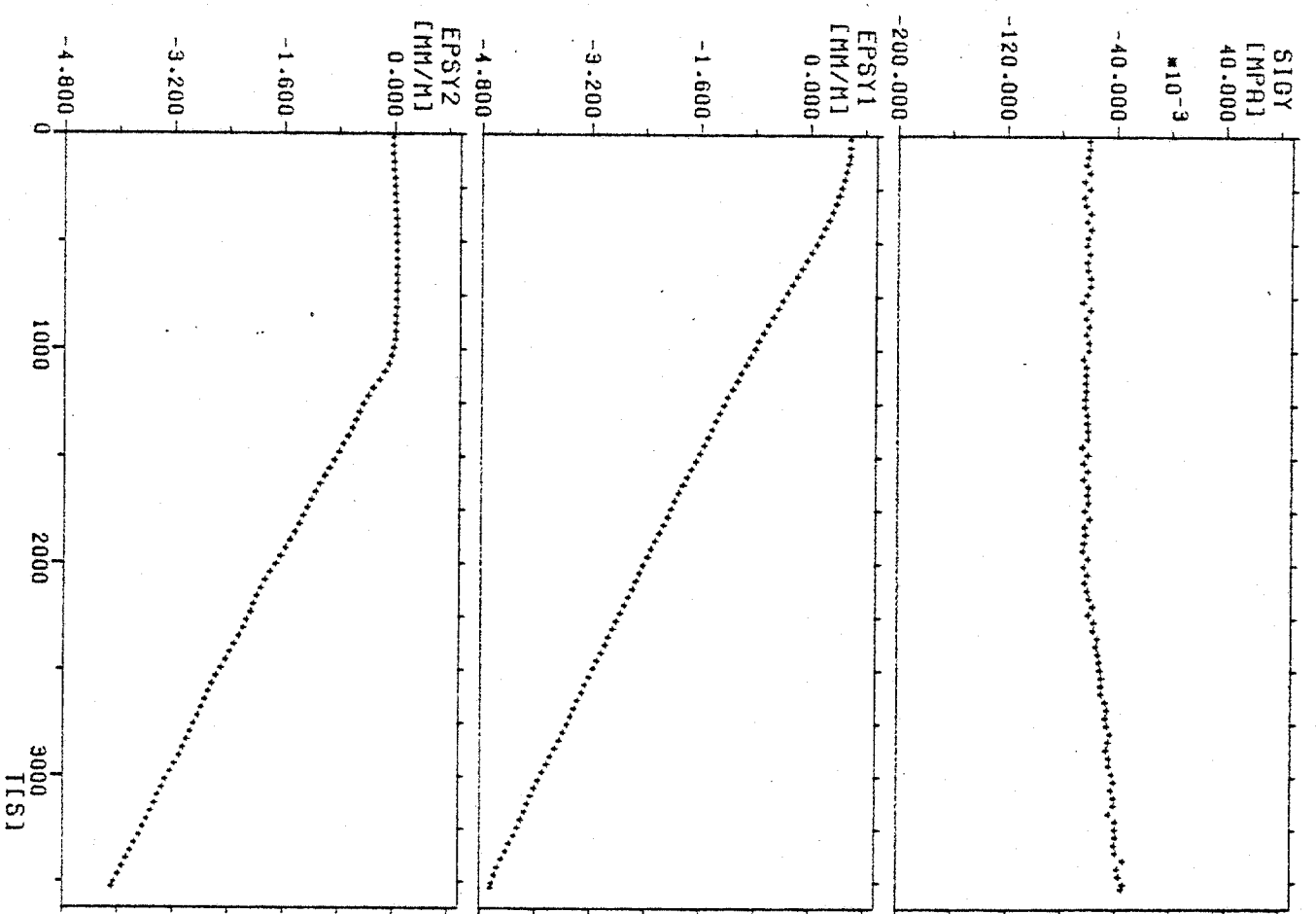


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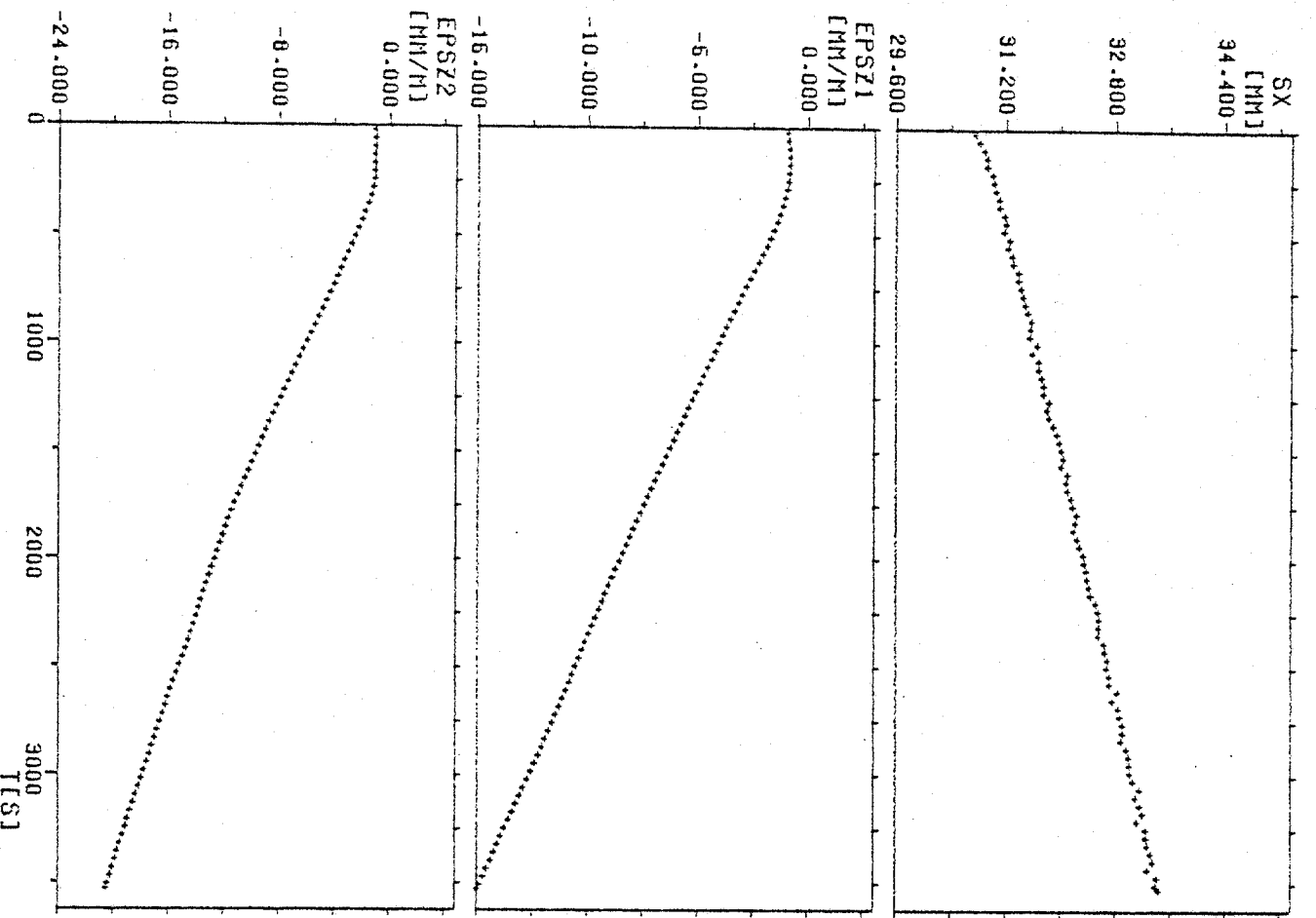




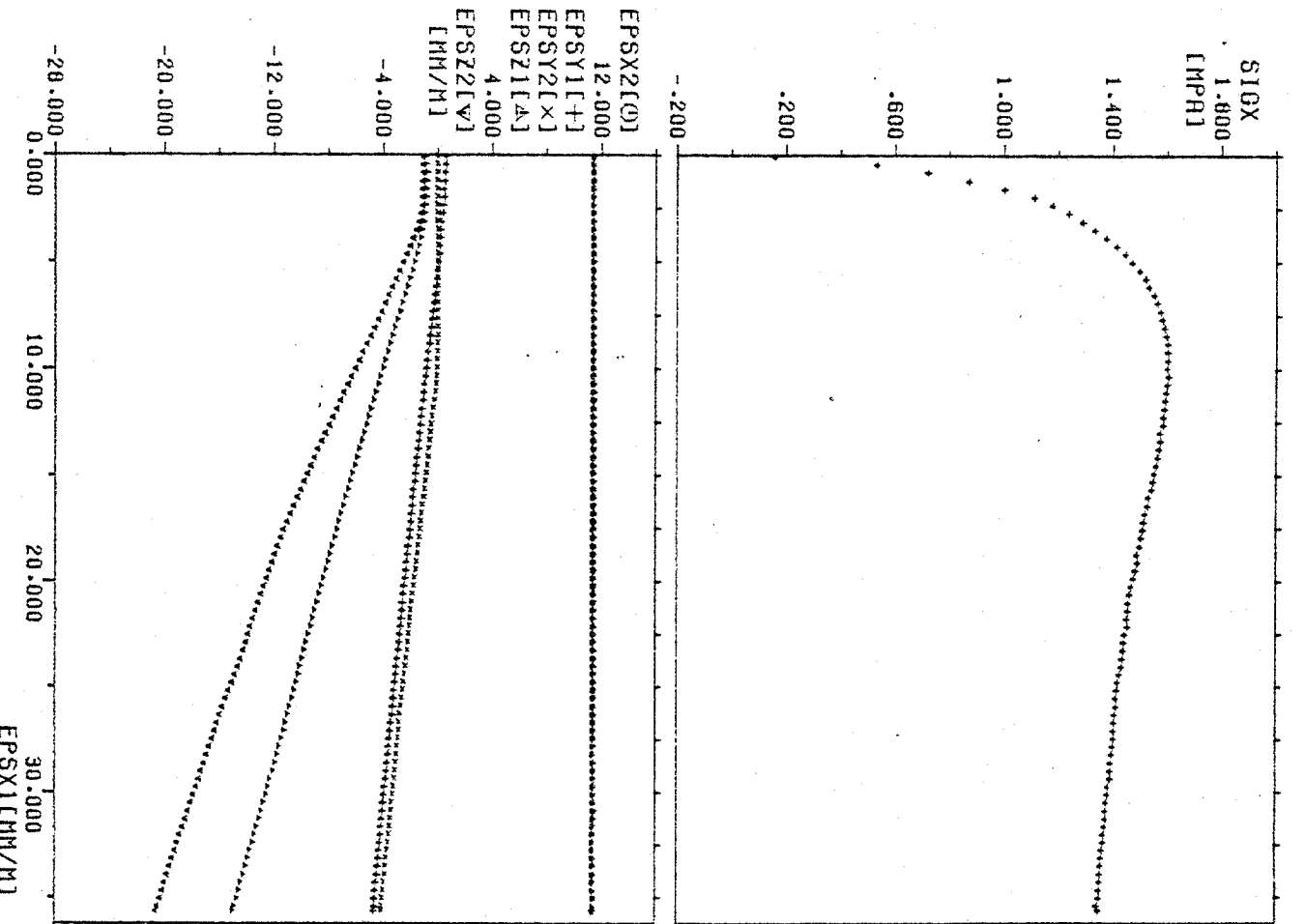
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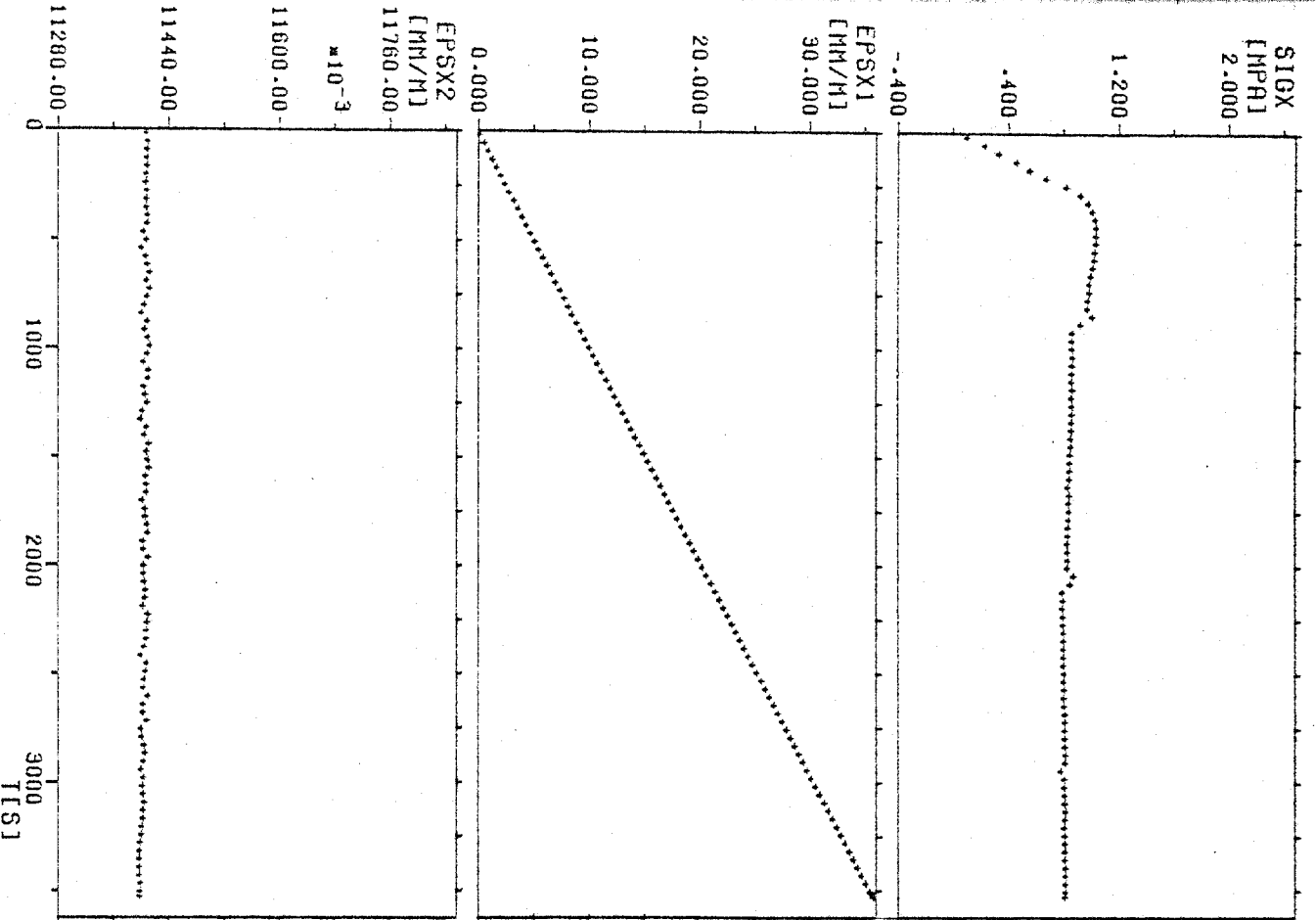
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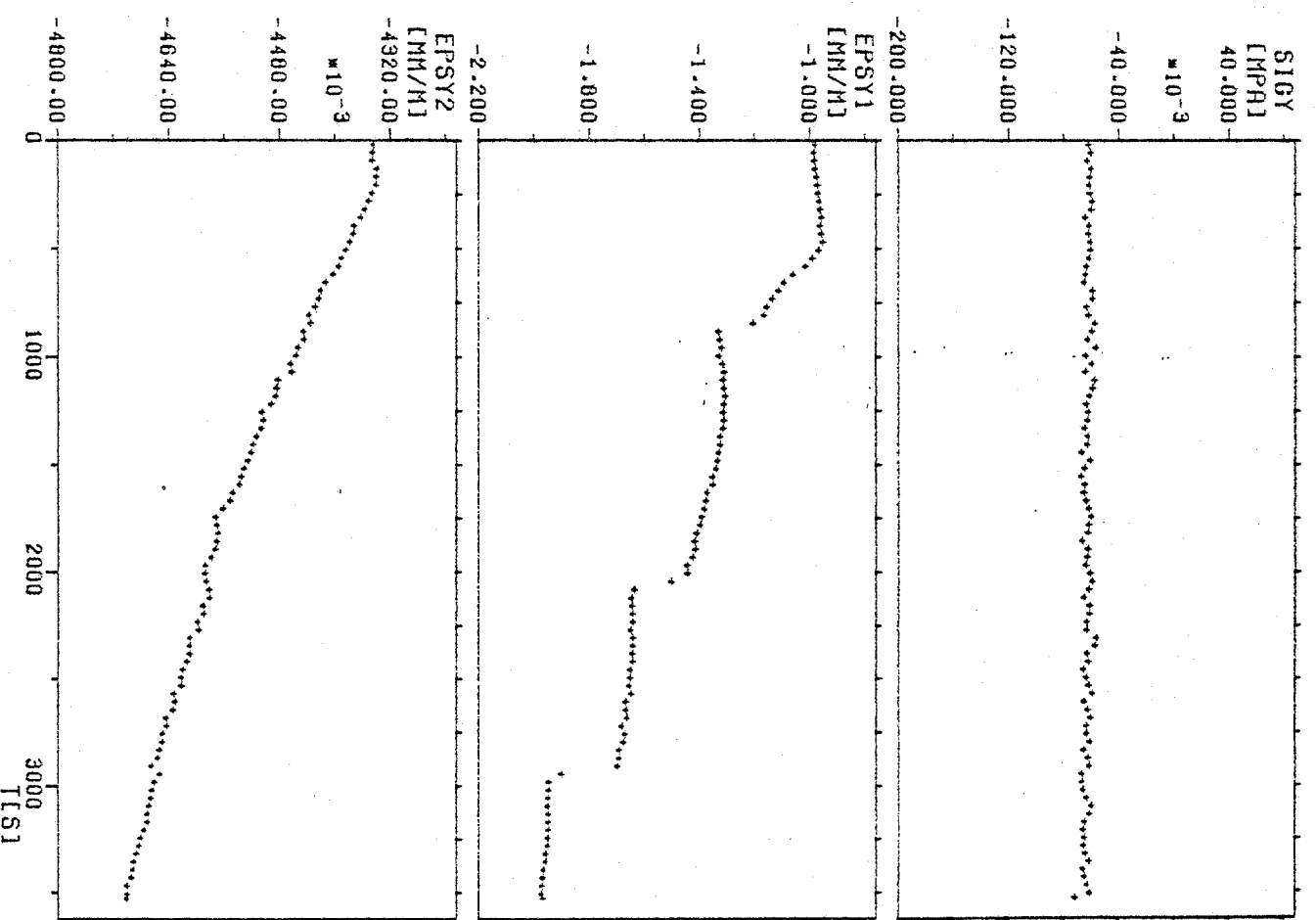
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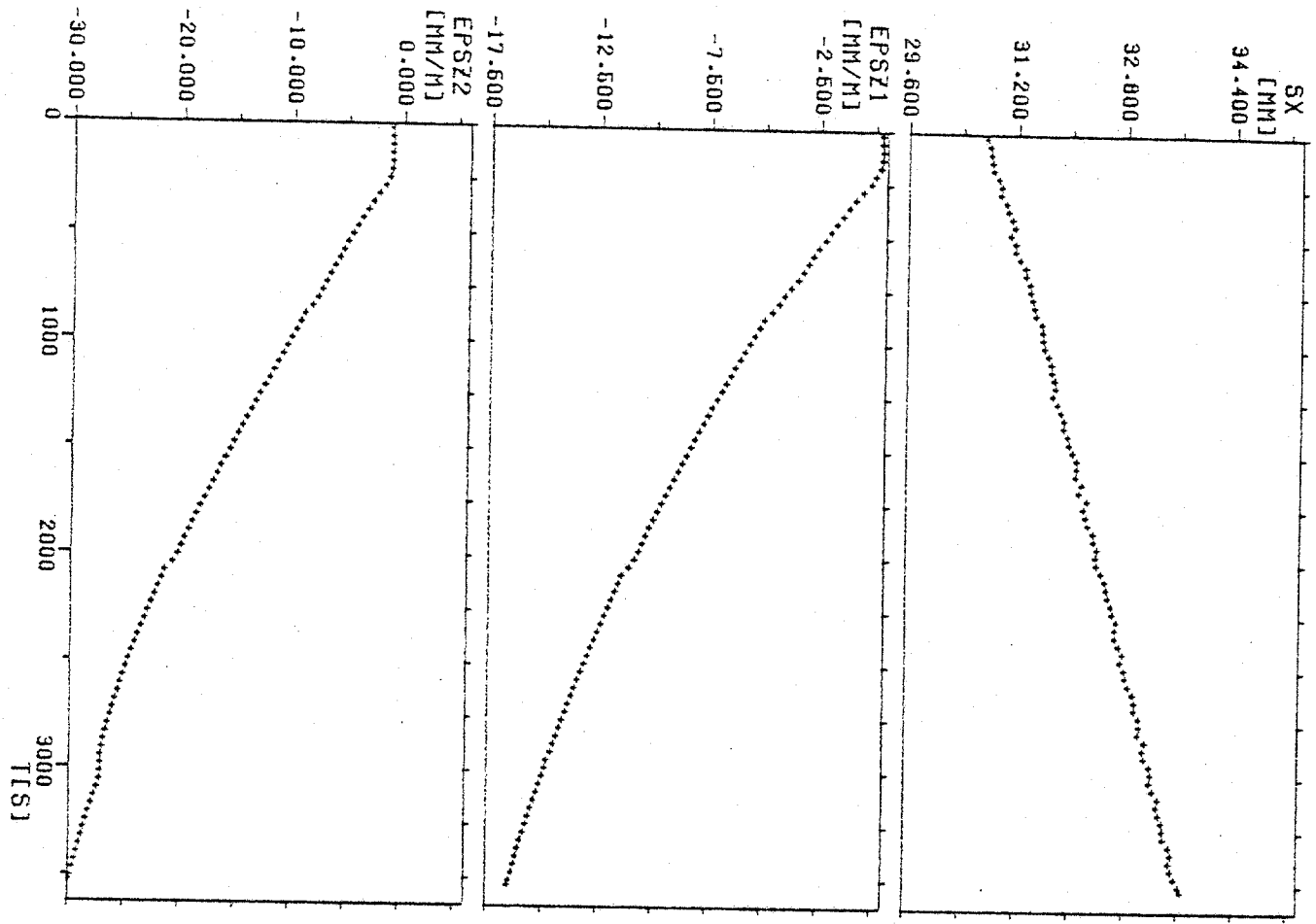
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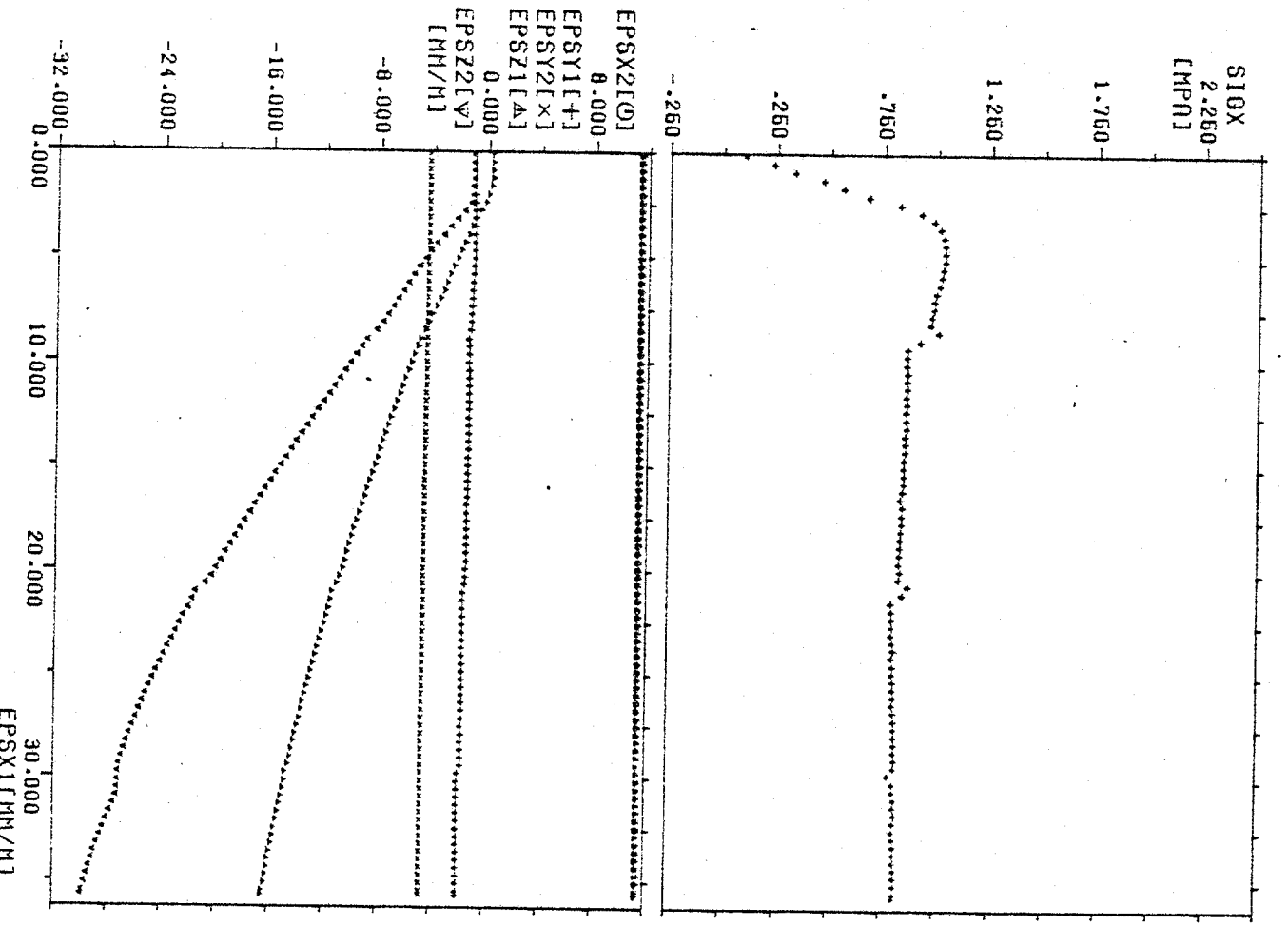
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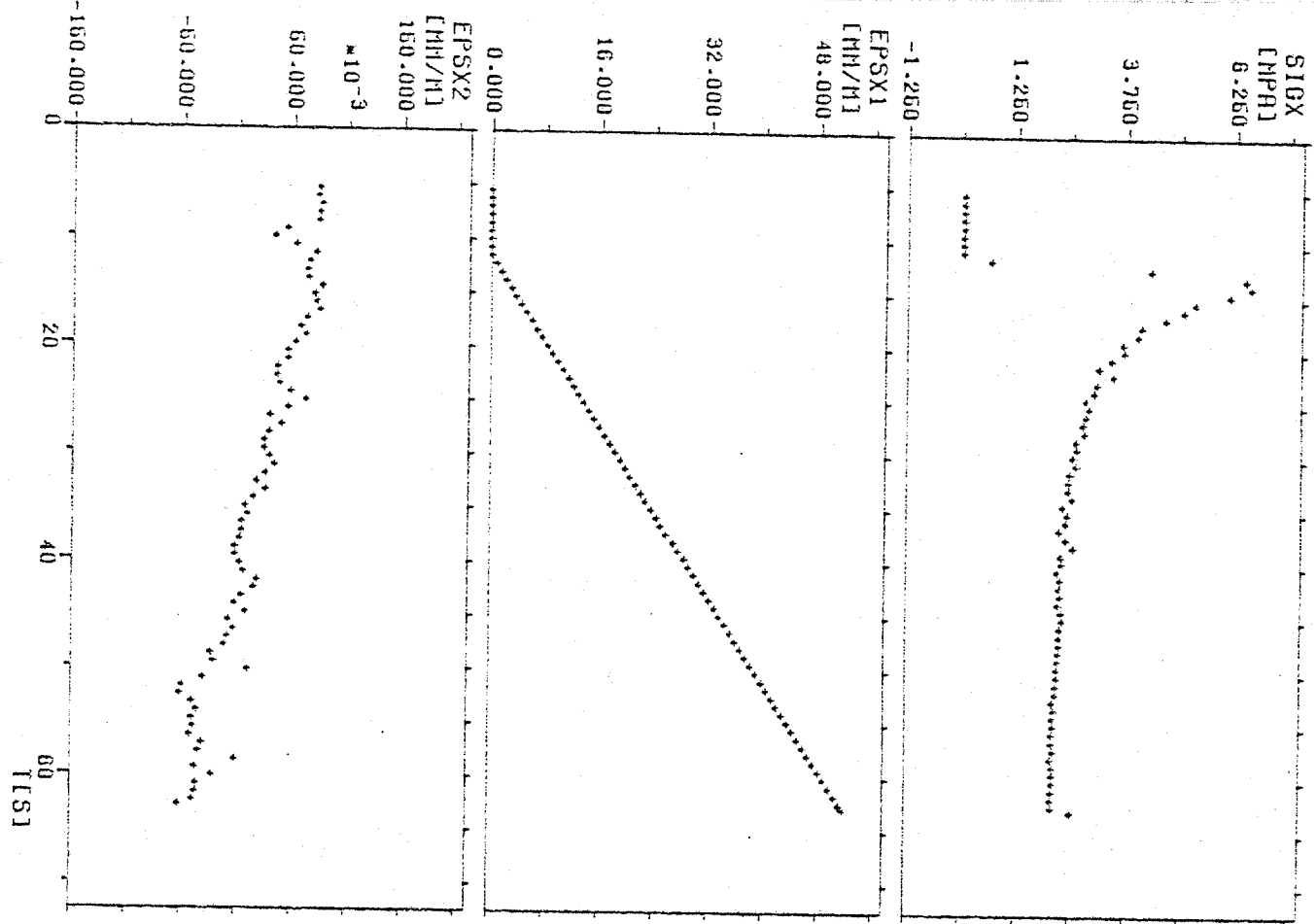
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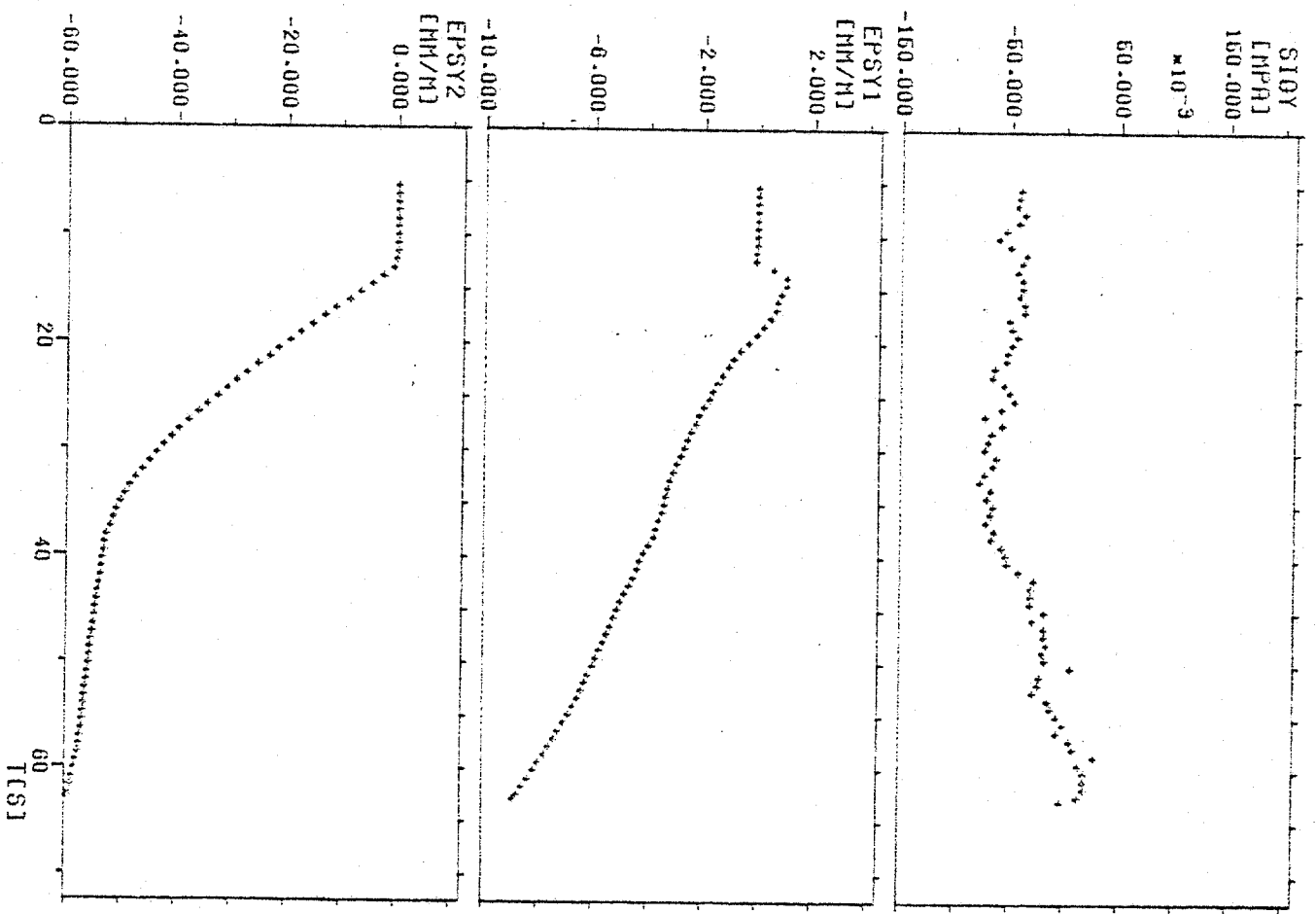
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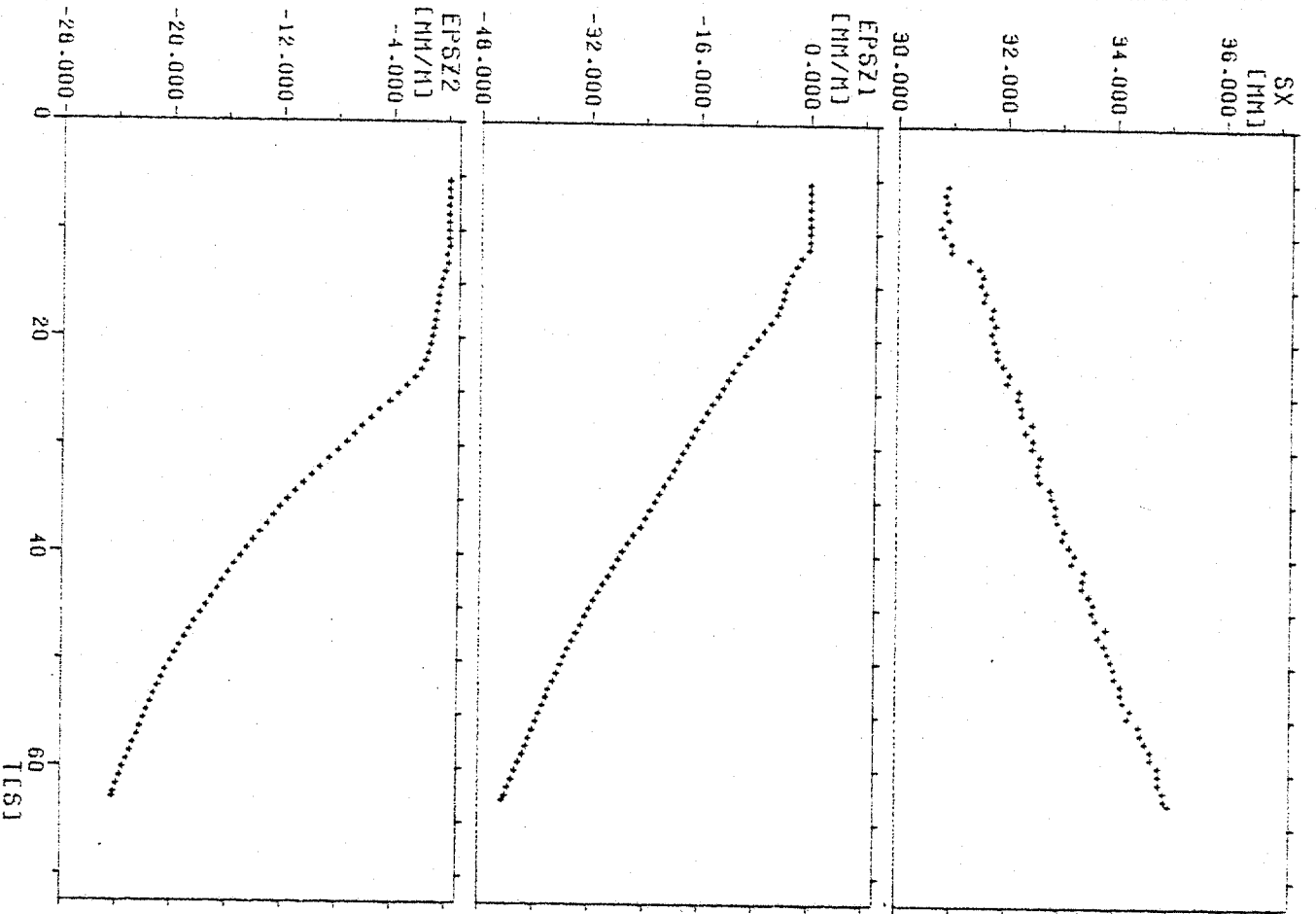
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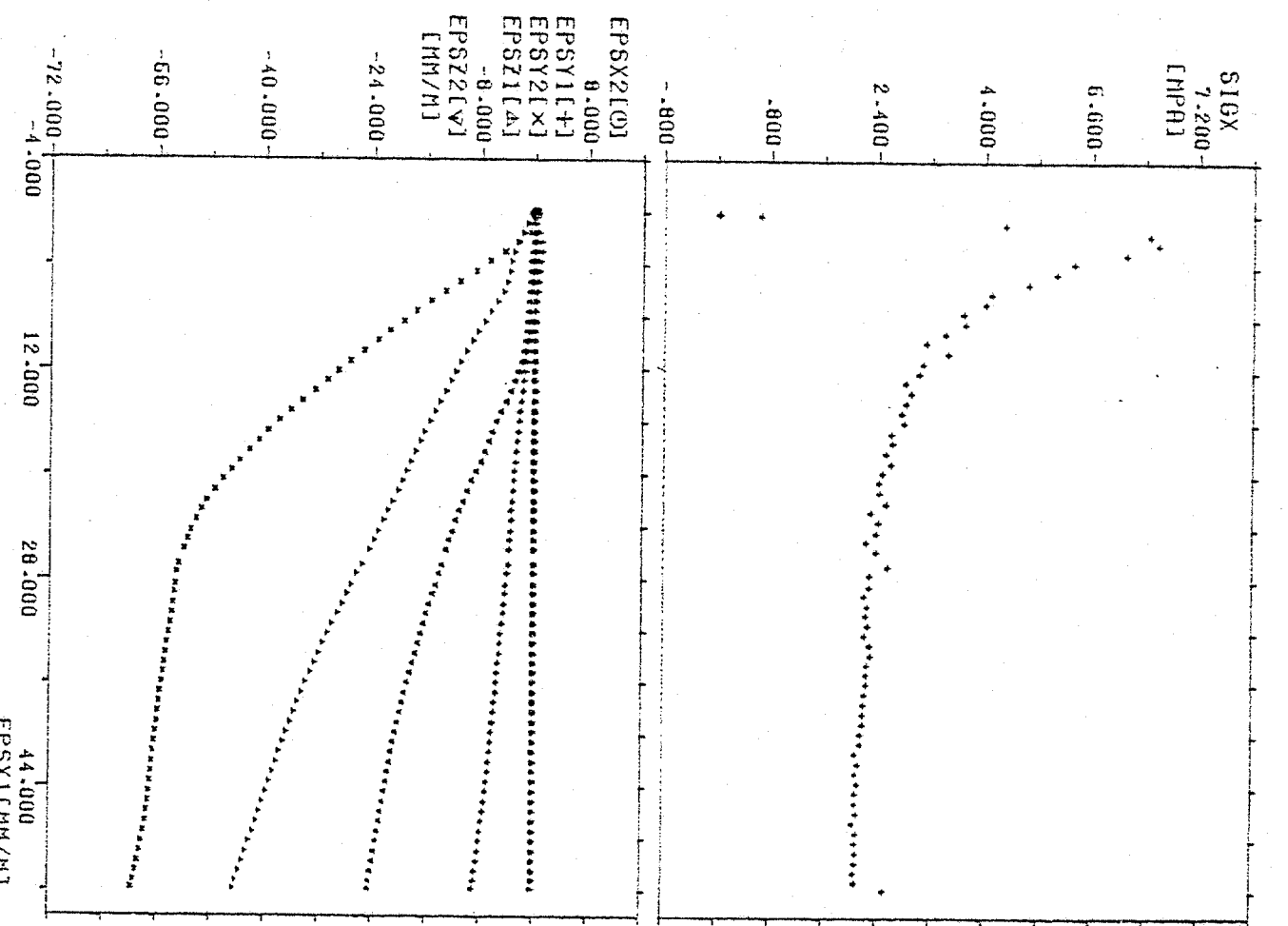
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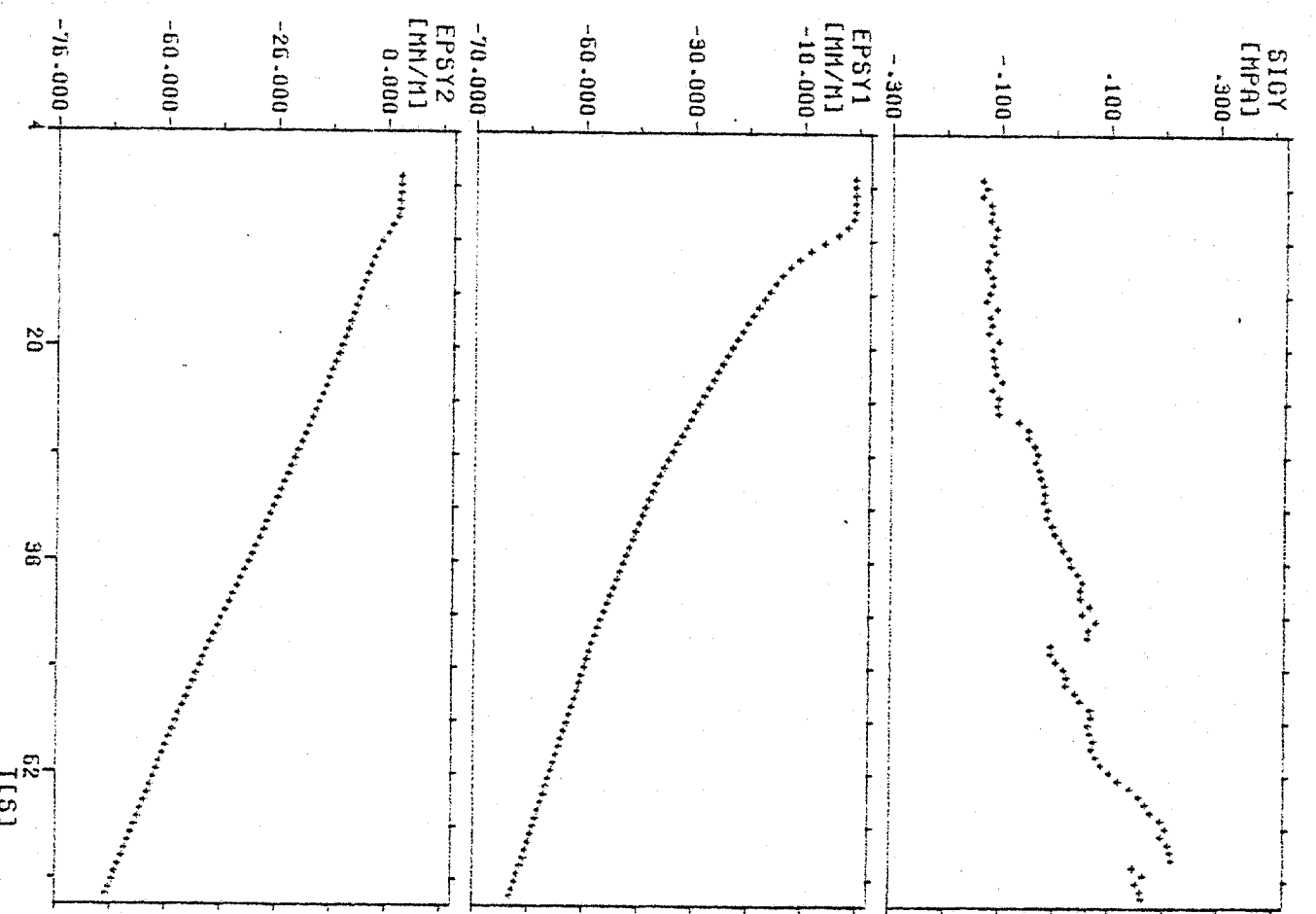
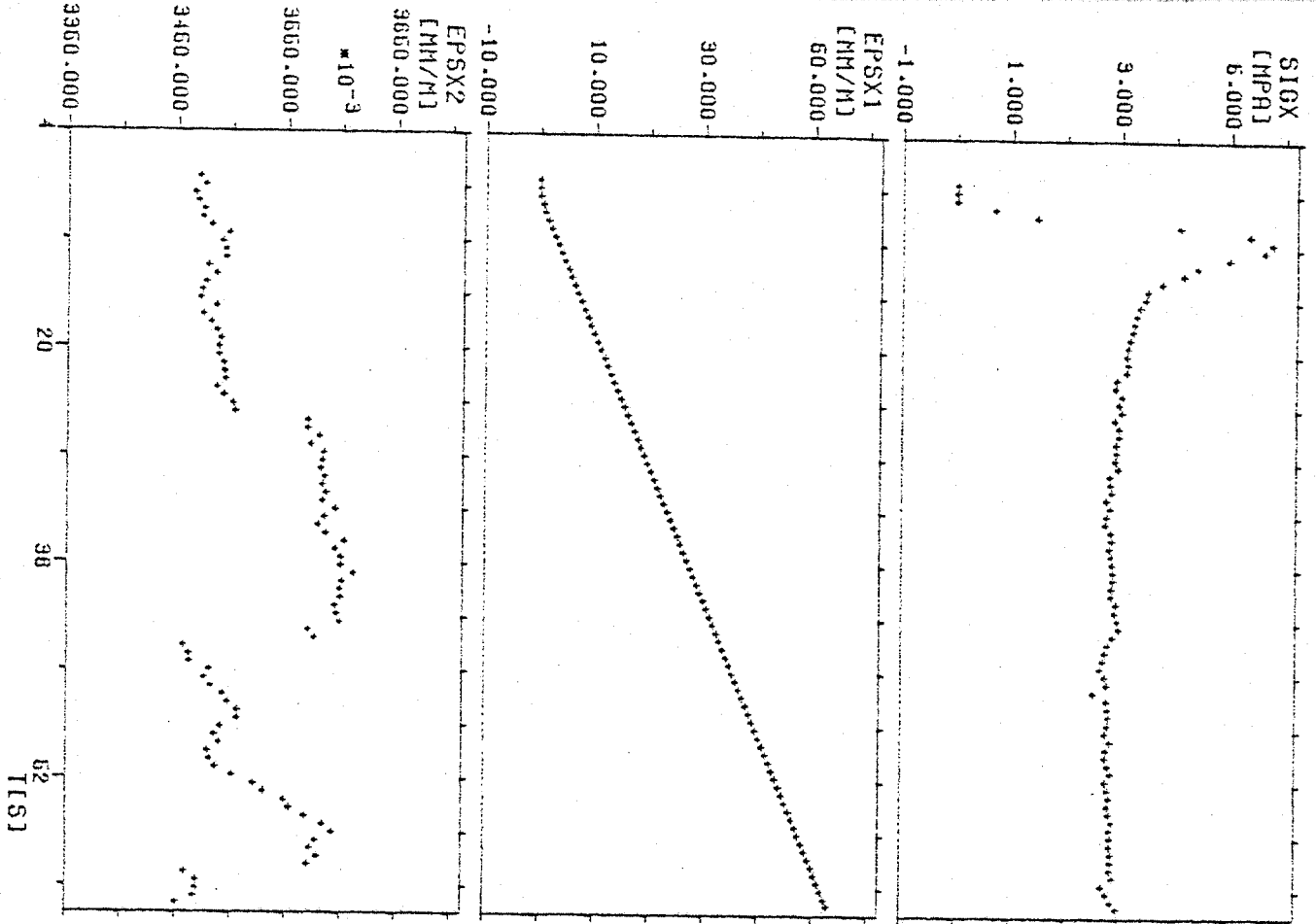
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NR: 6001.1 VOM 31:01:03 08:26 UHR  
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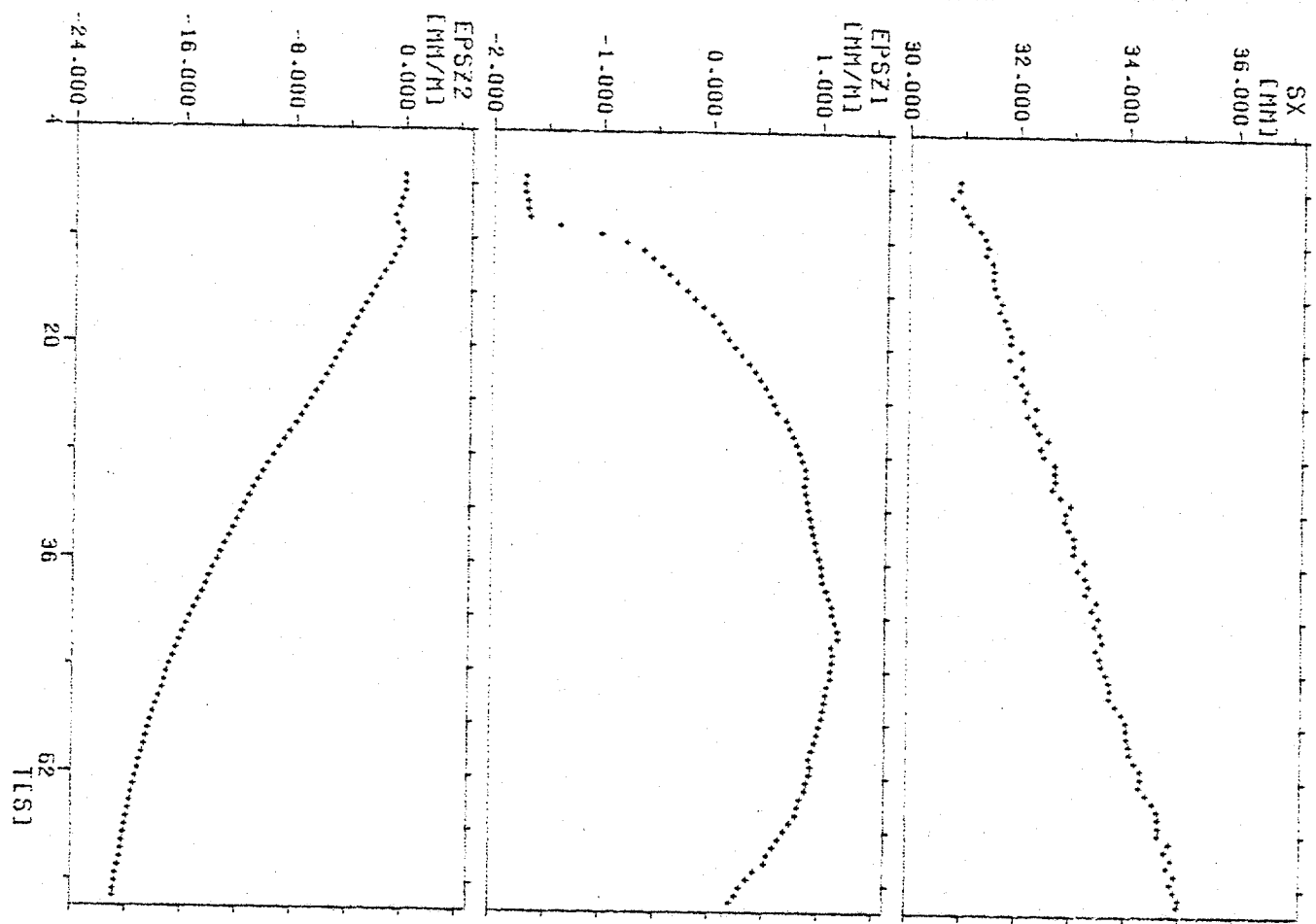


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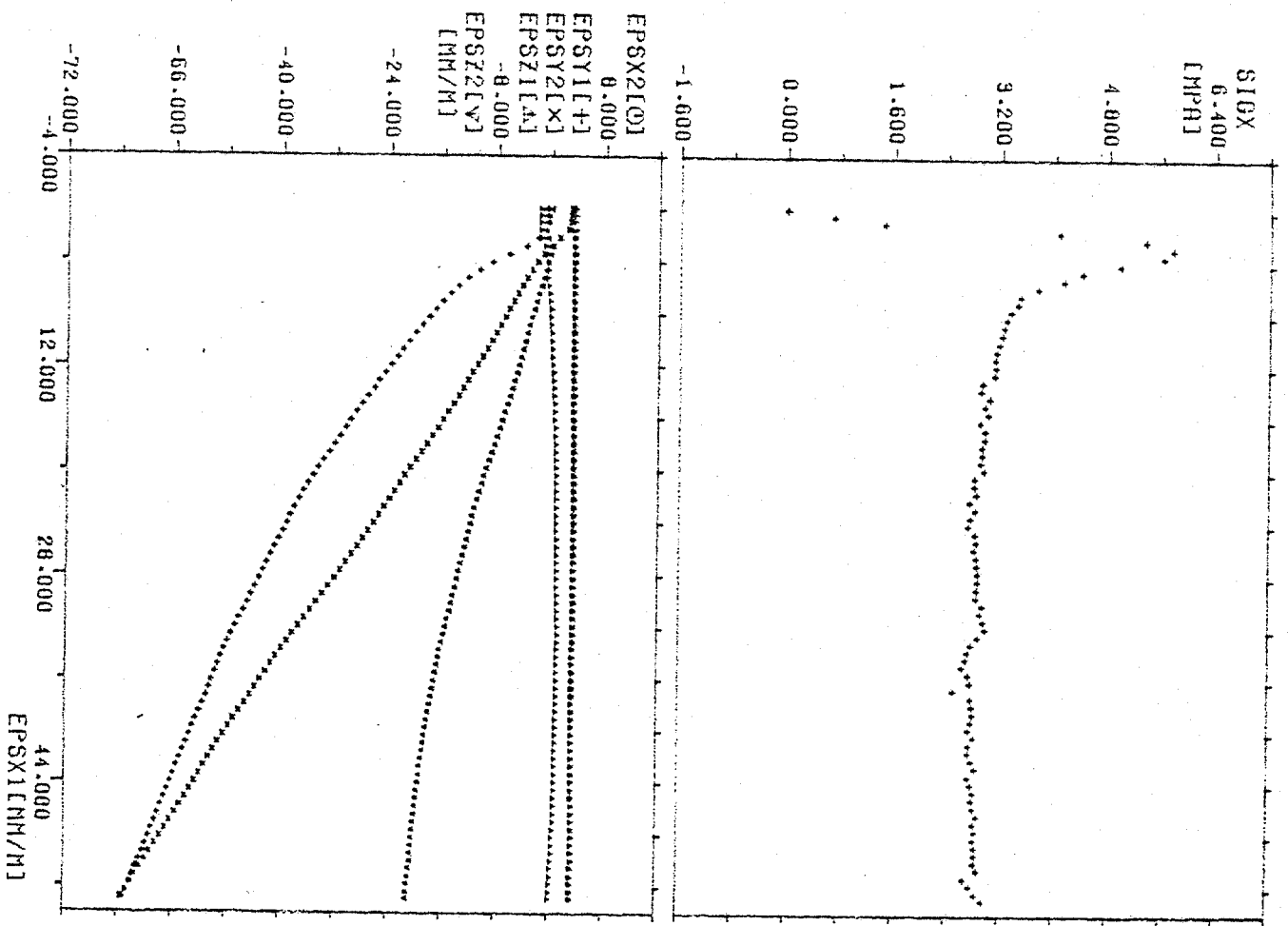


SHELL 612509  
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SHELL 612509  
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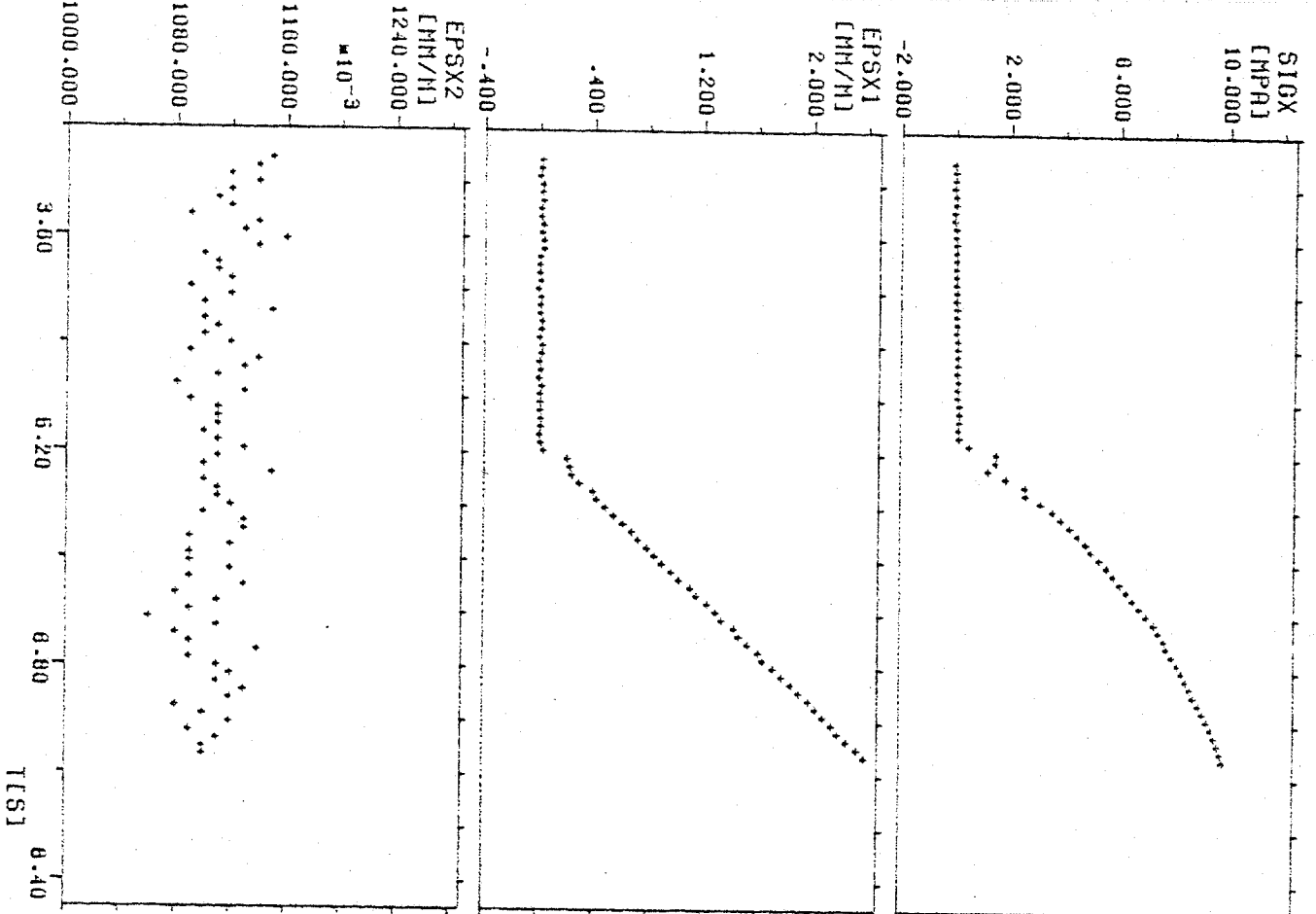


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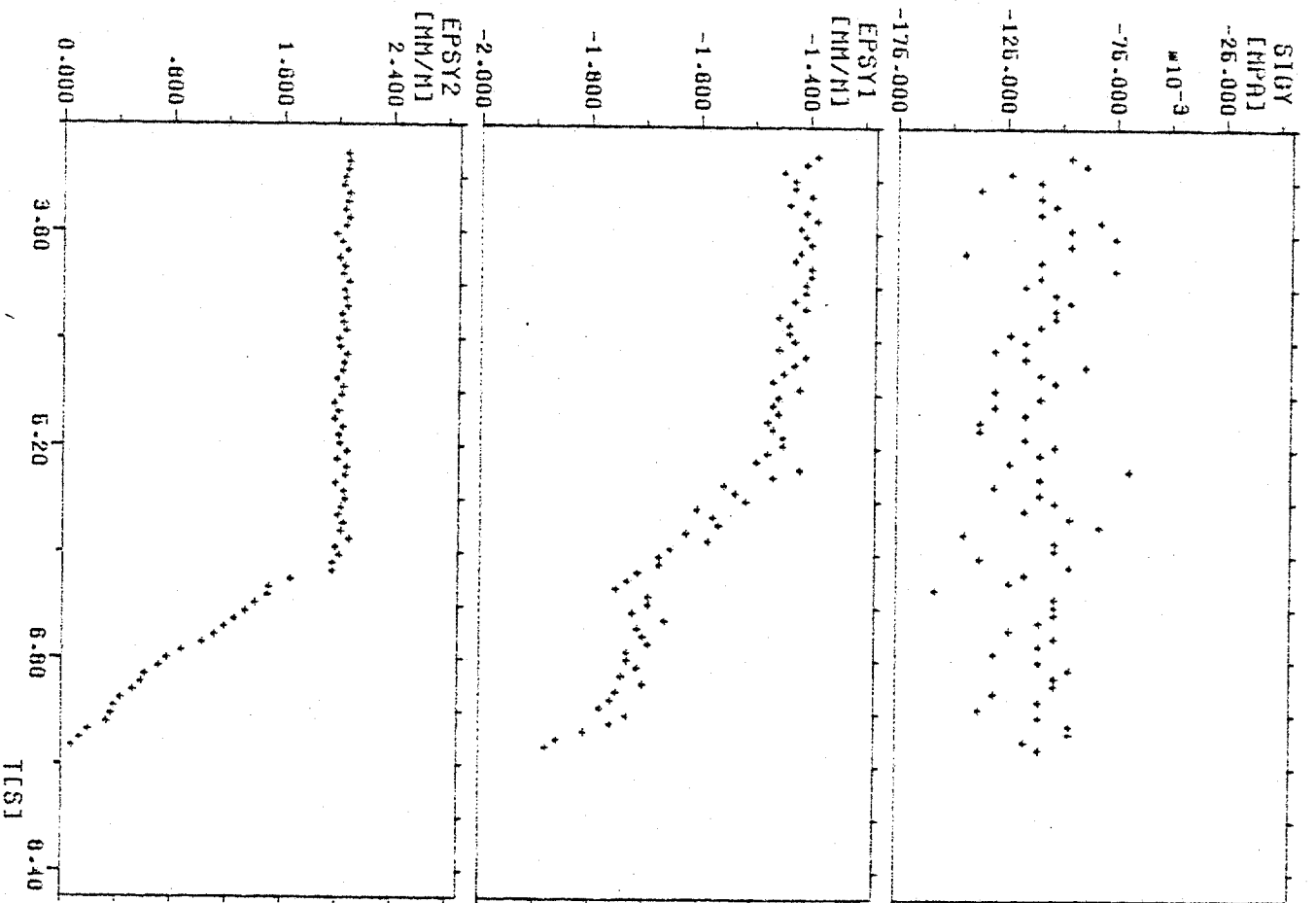


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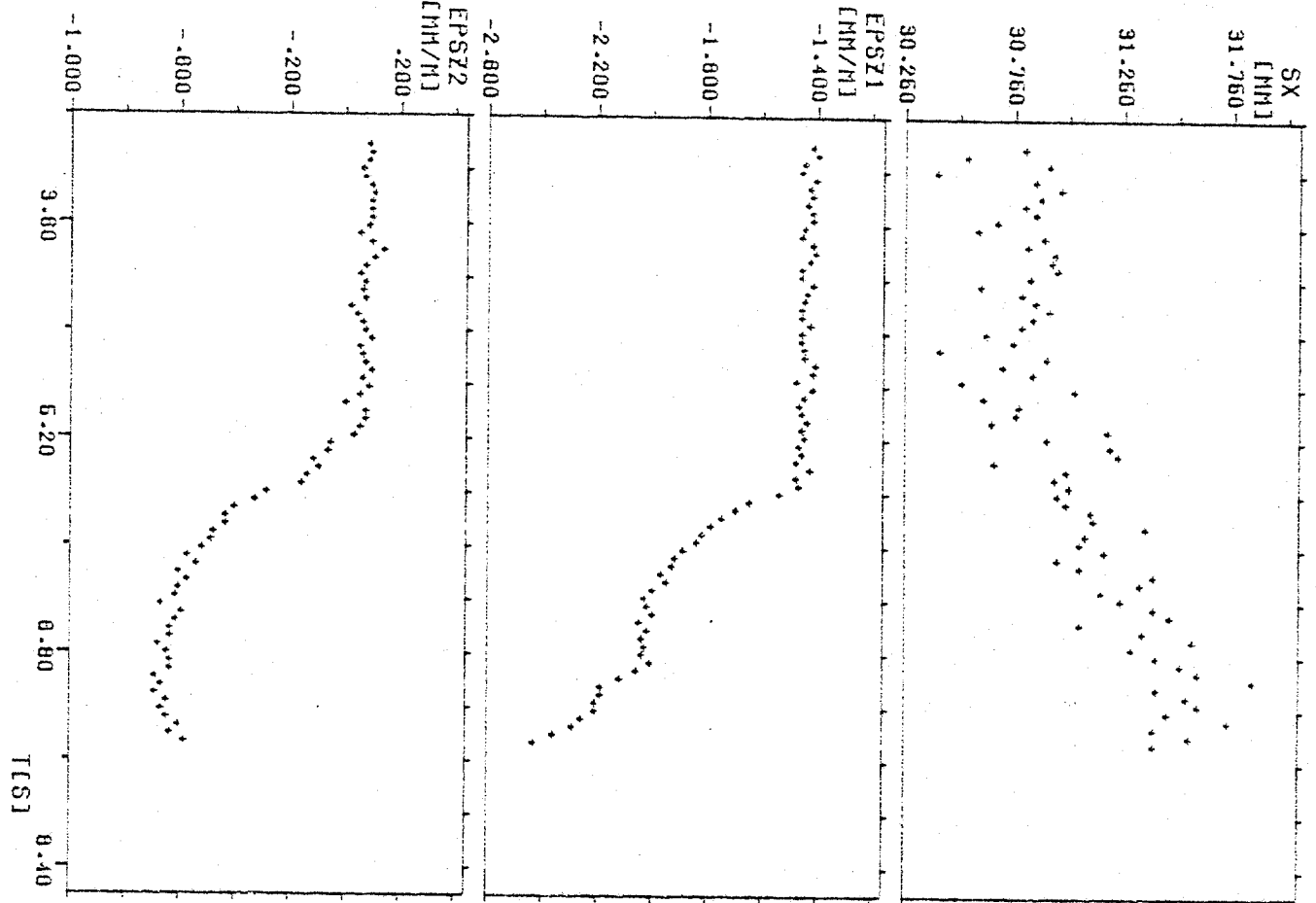




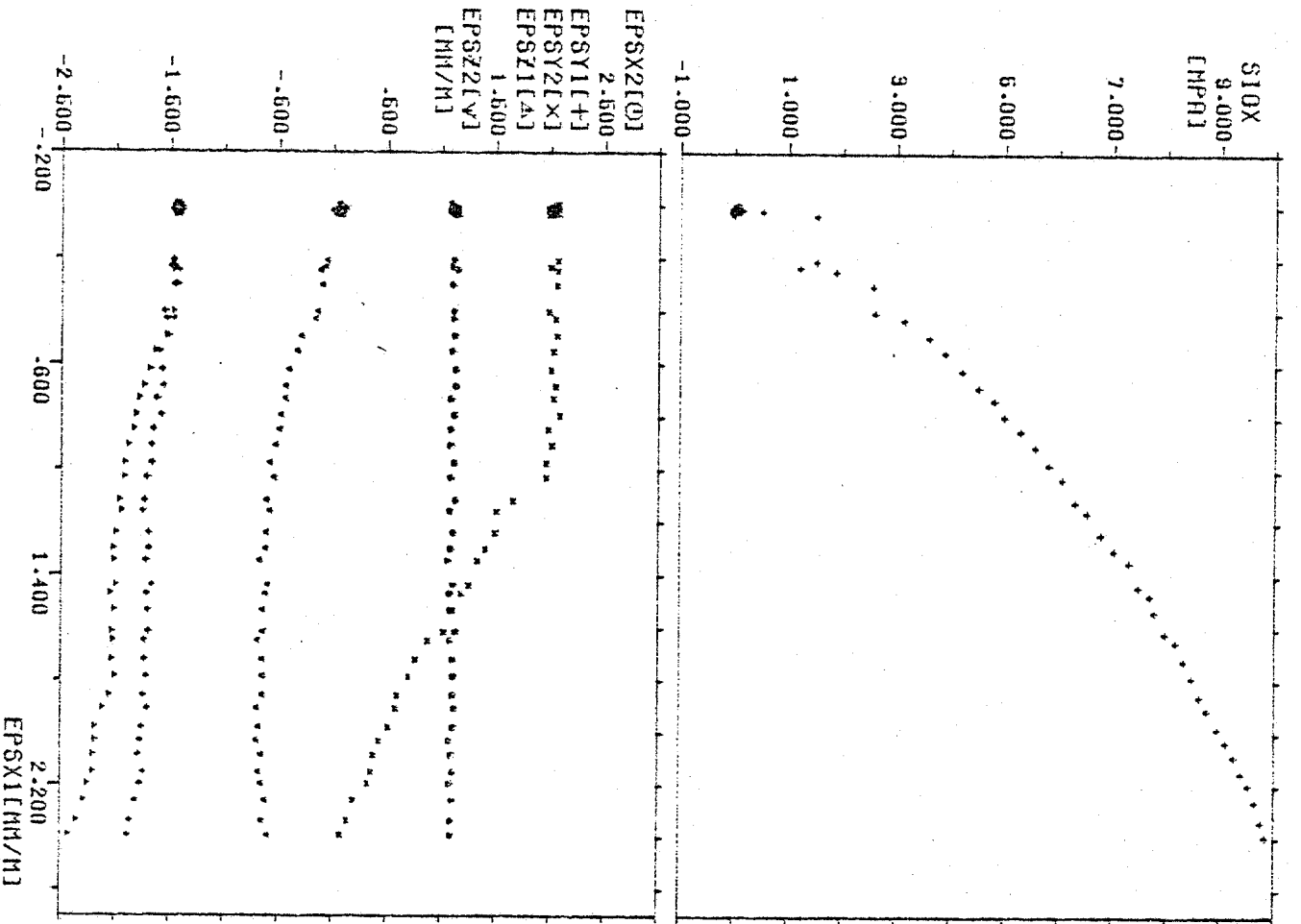
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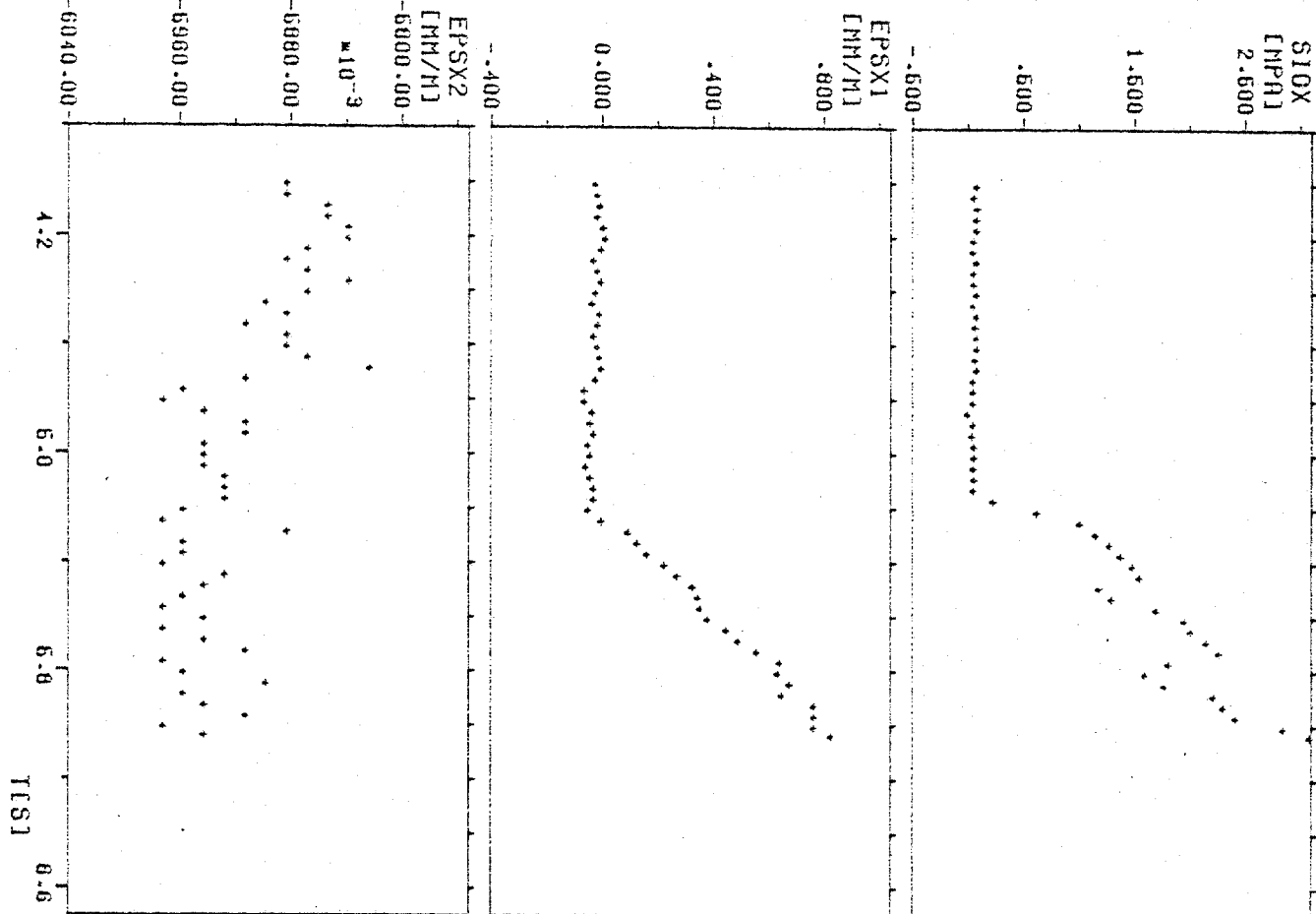
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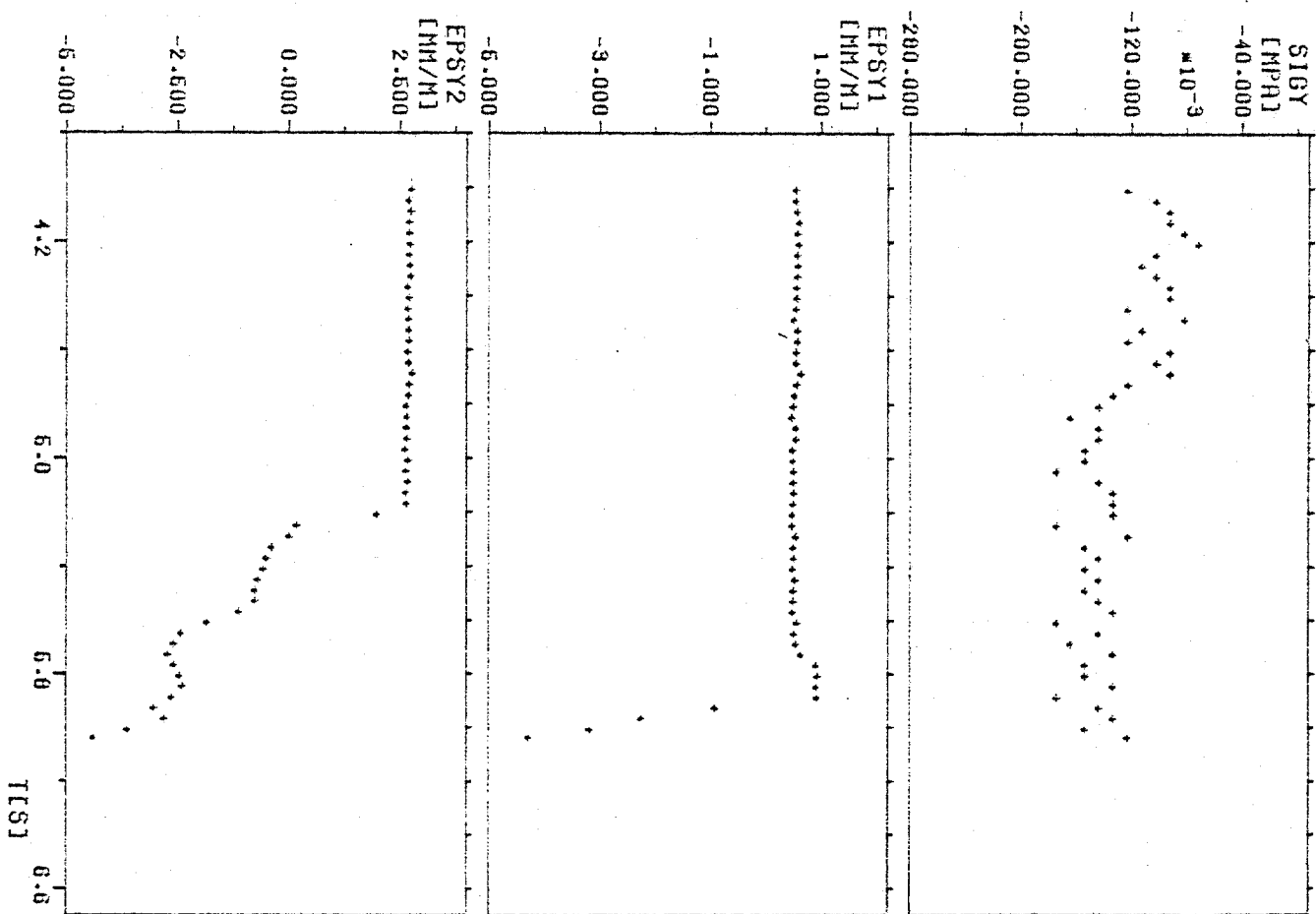
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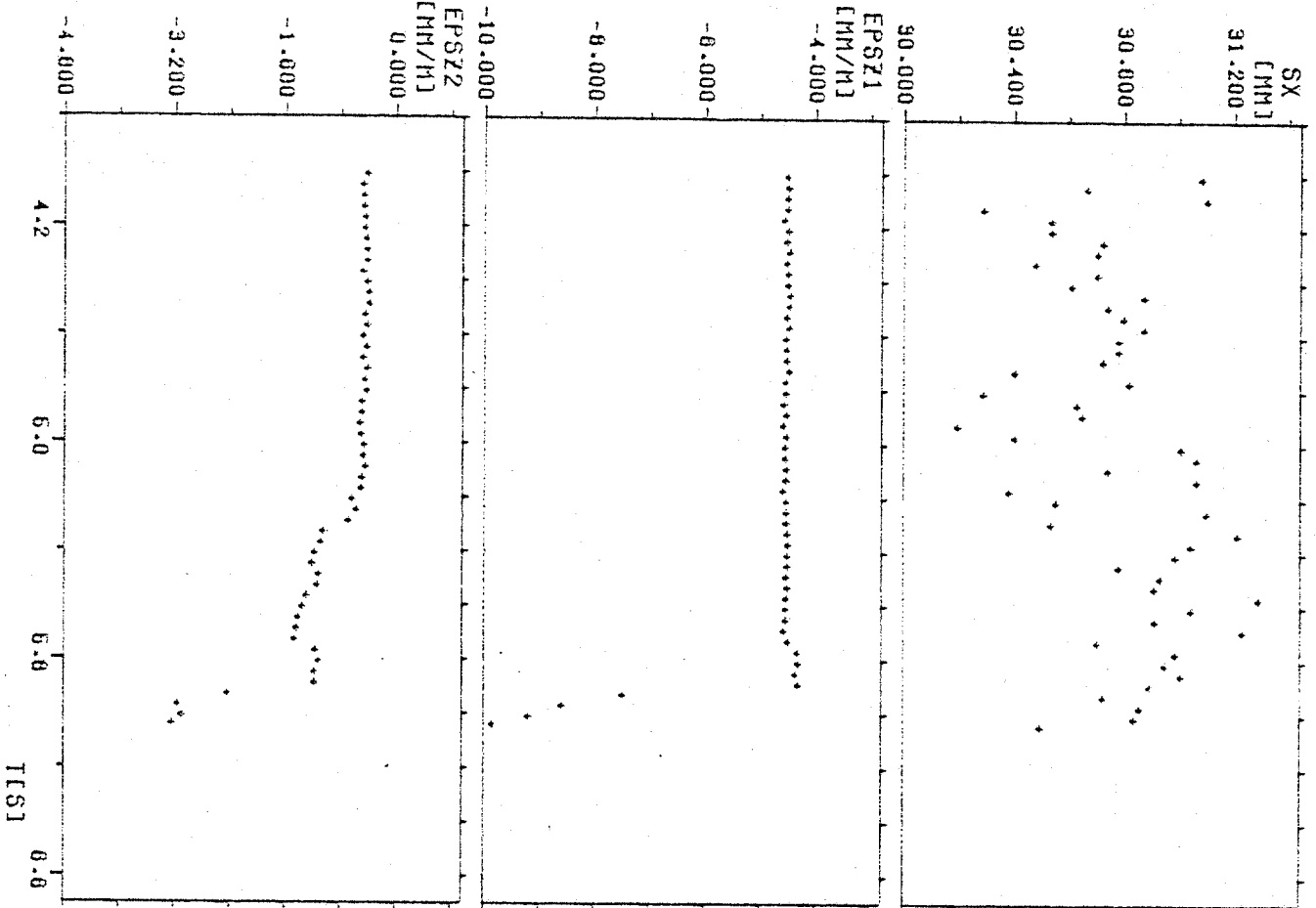
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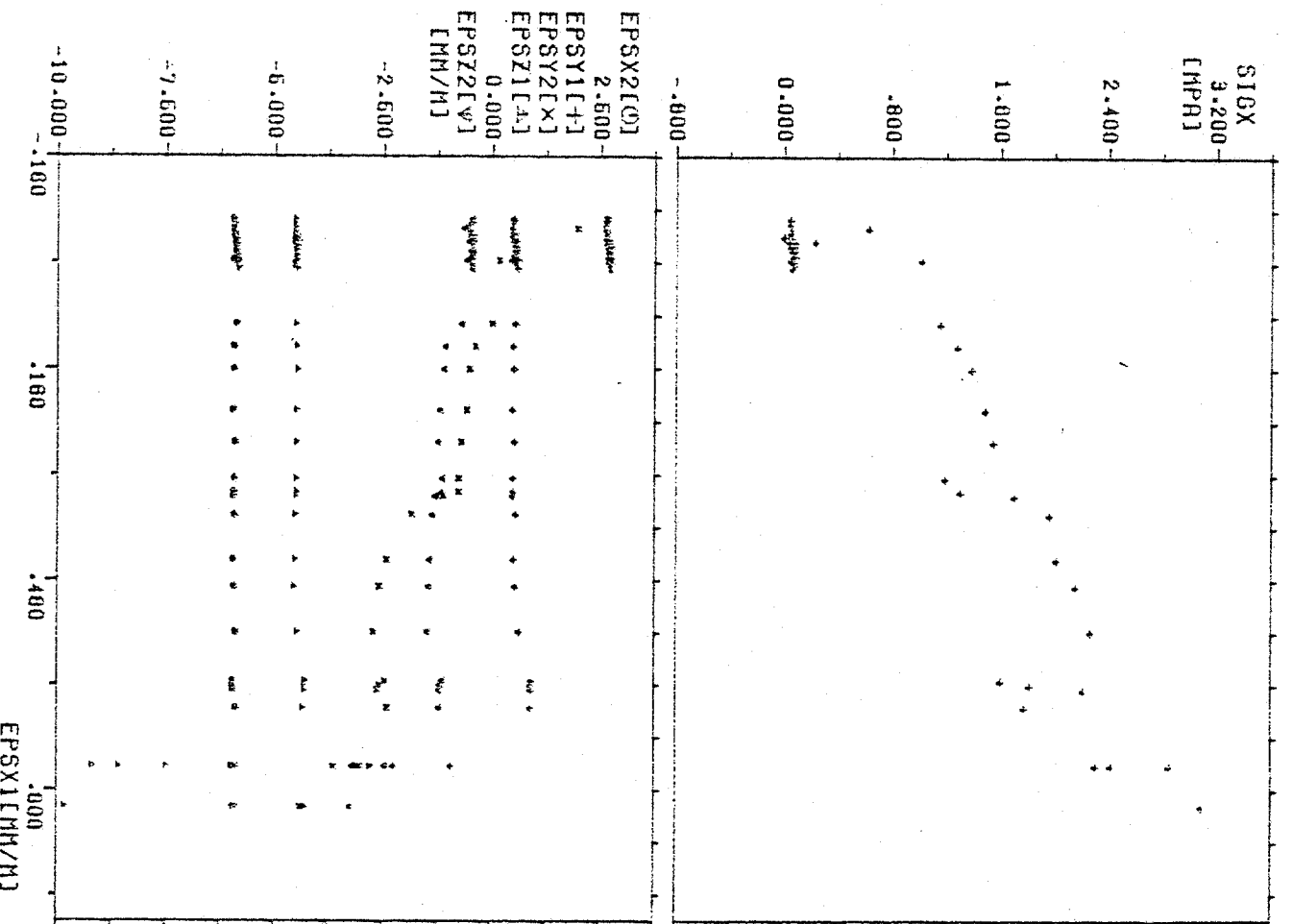
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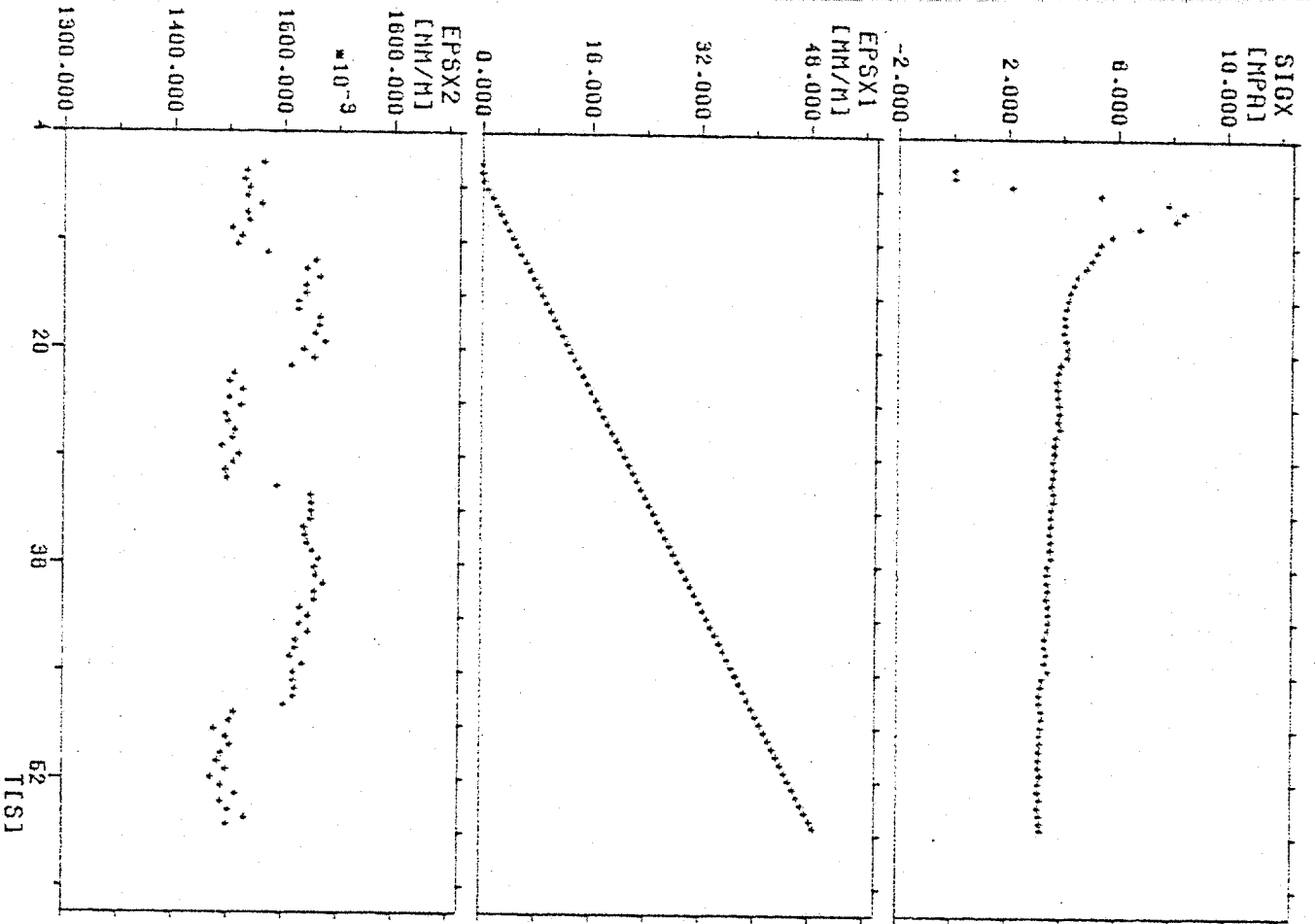
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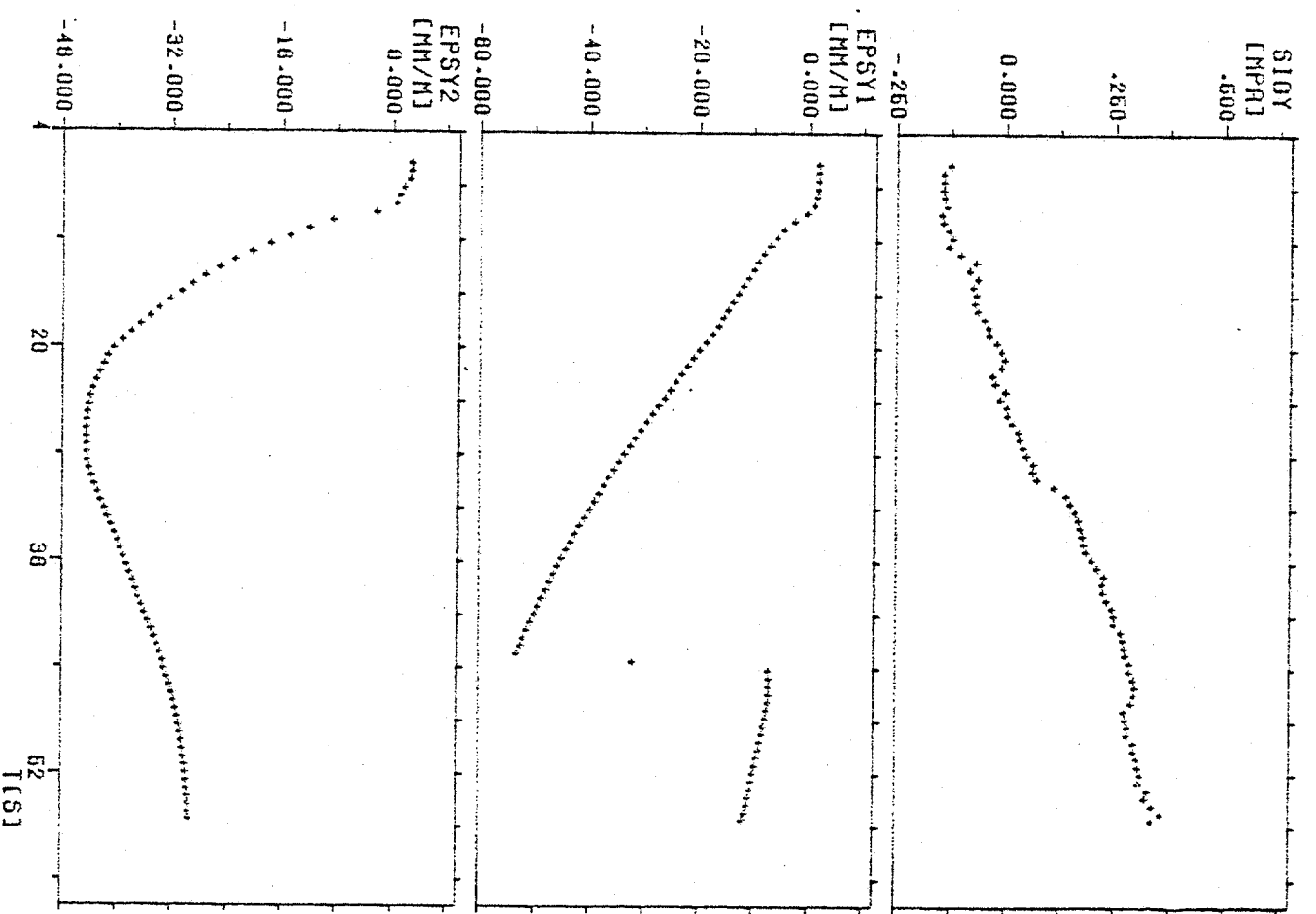
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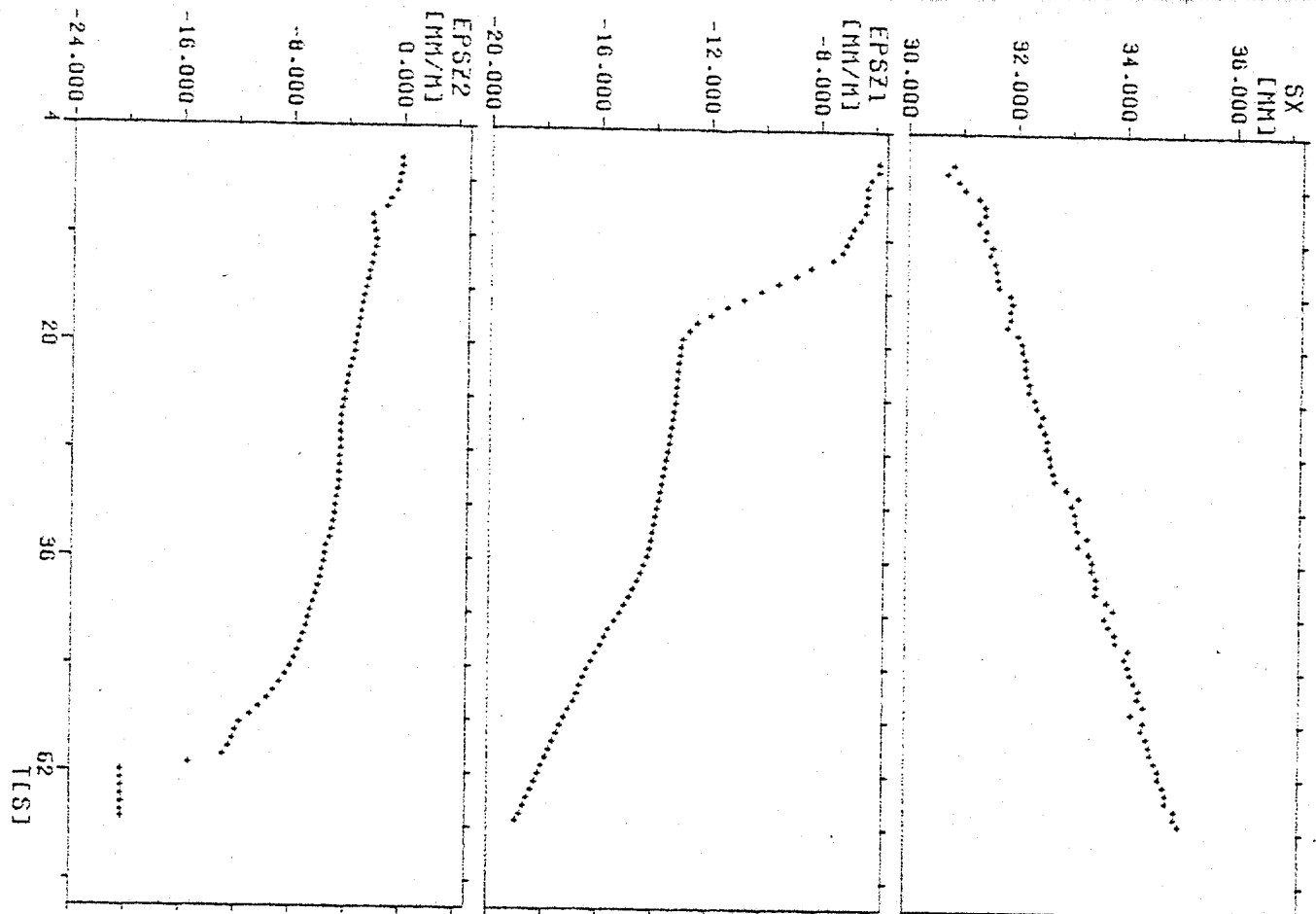
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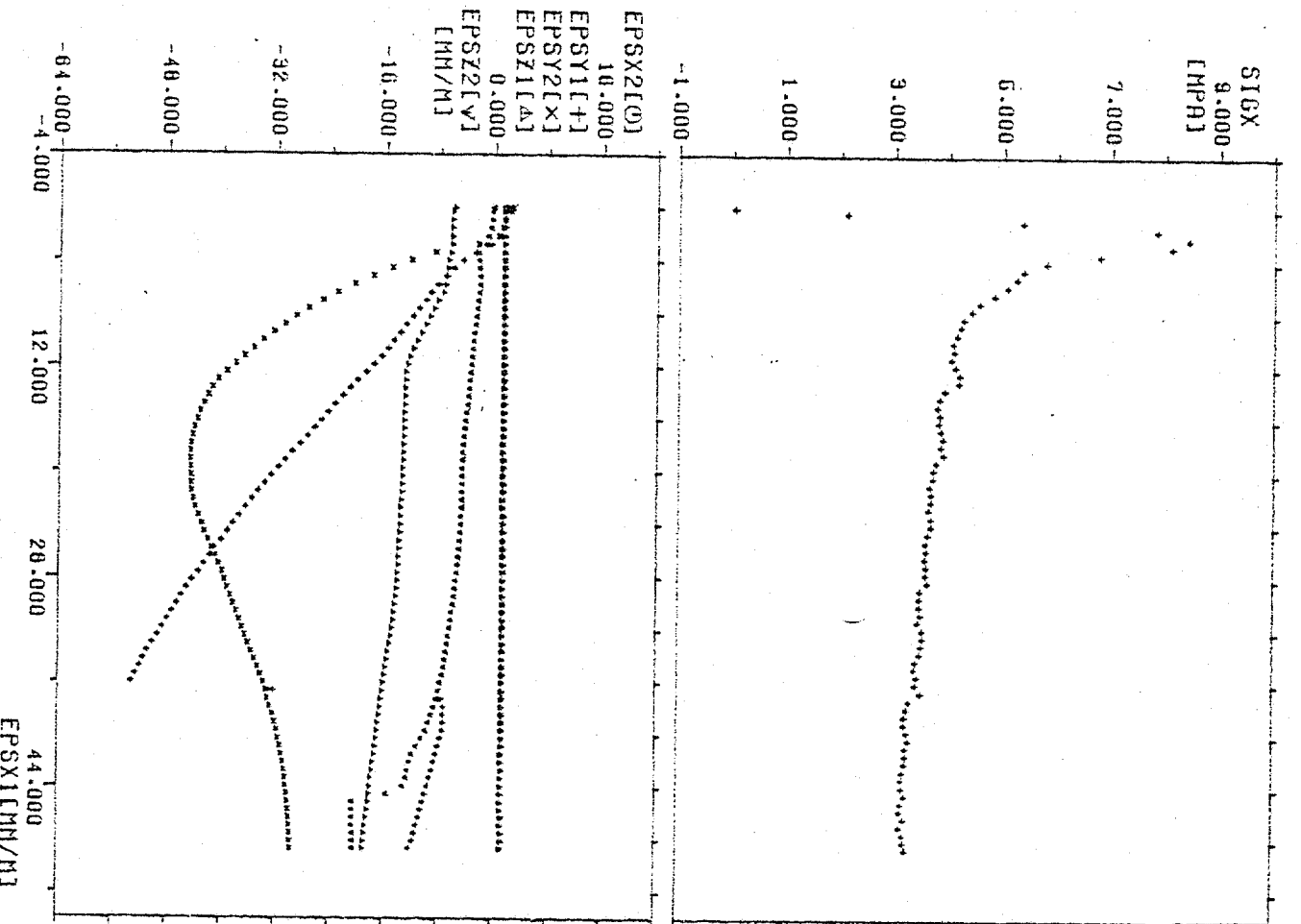
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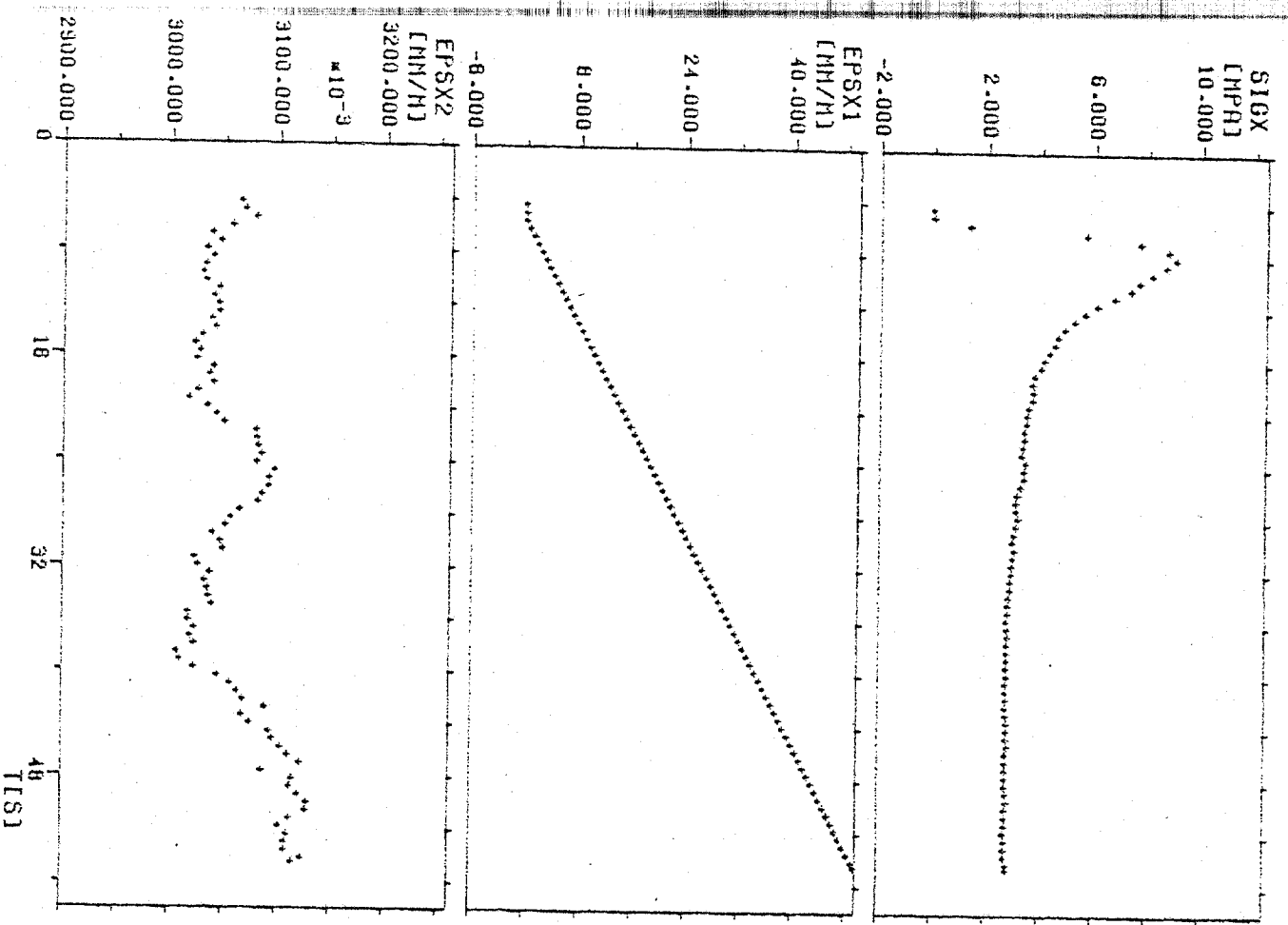
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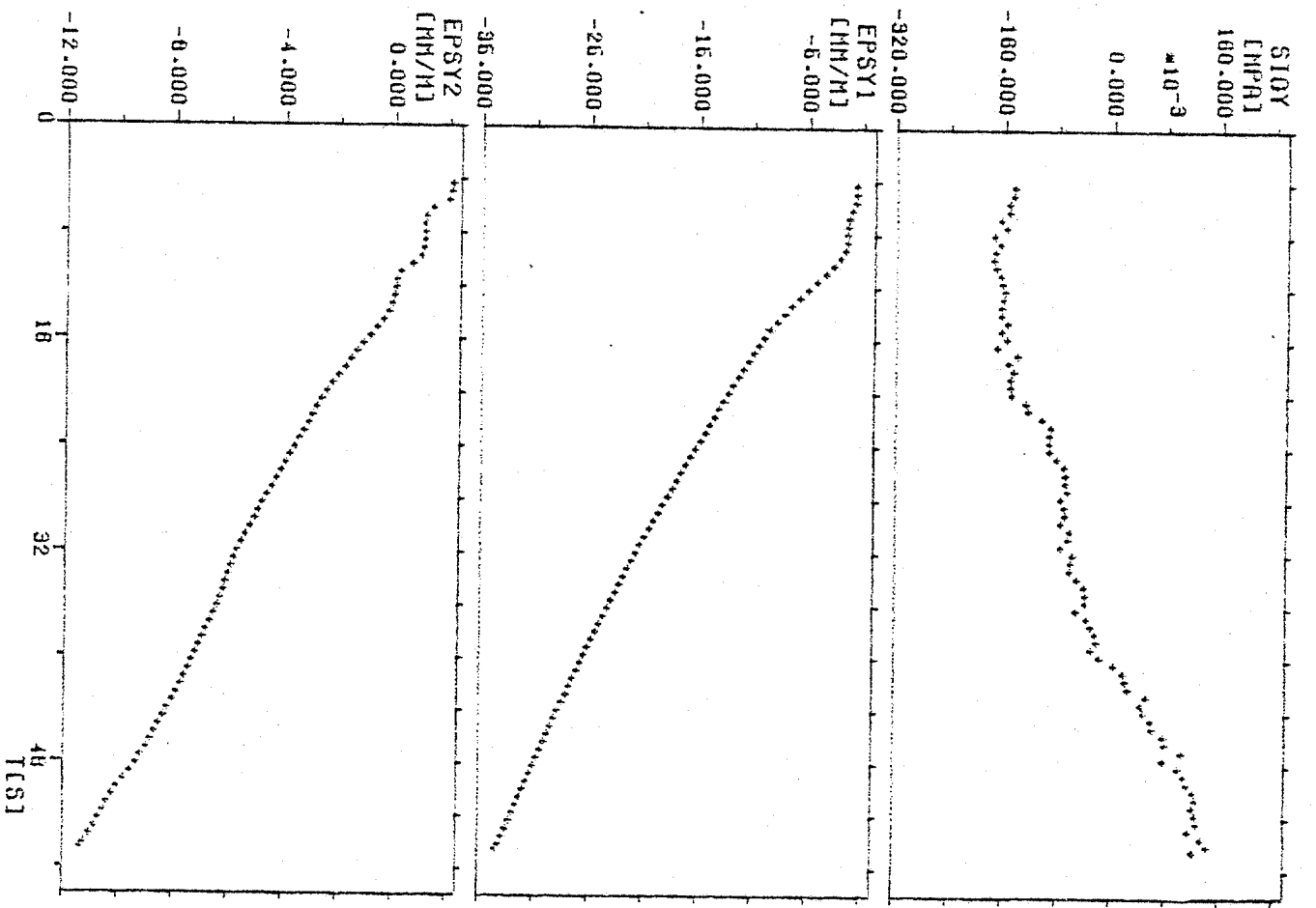
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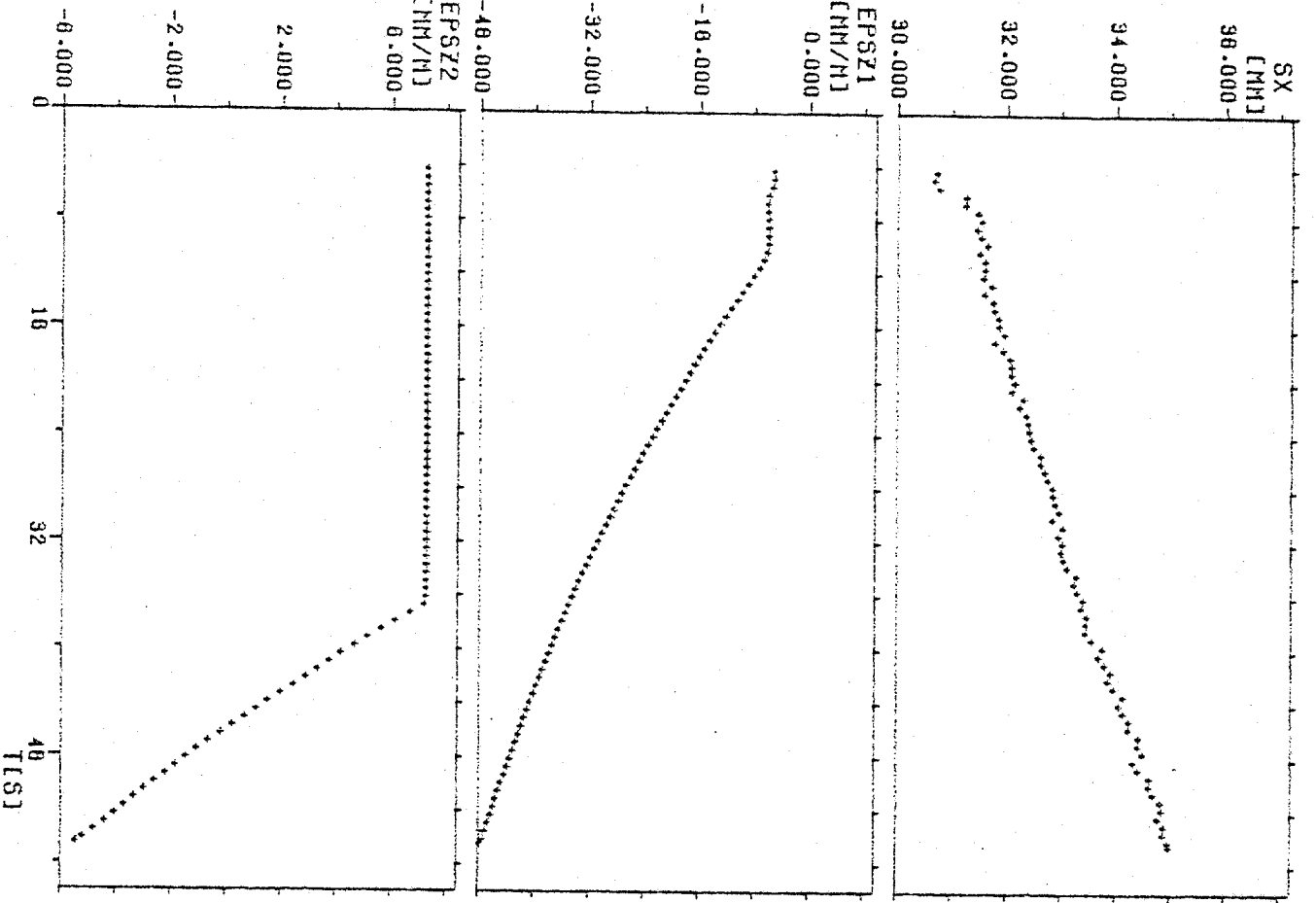
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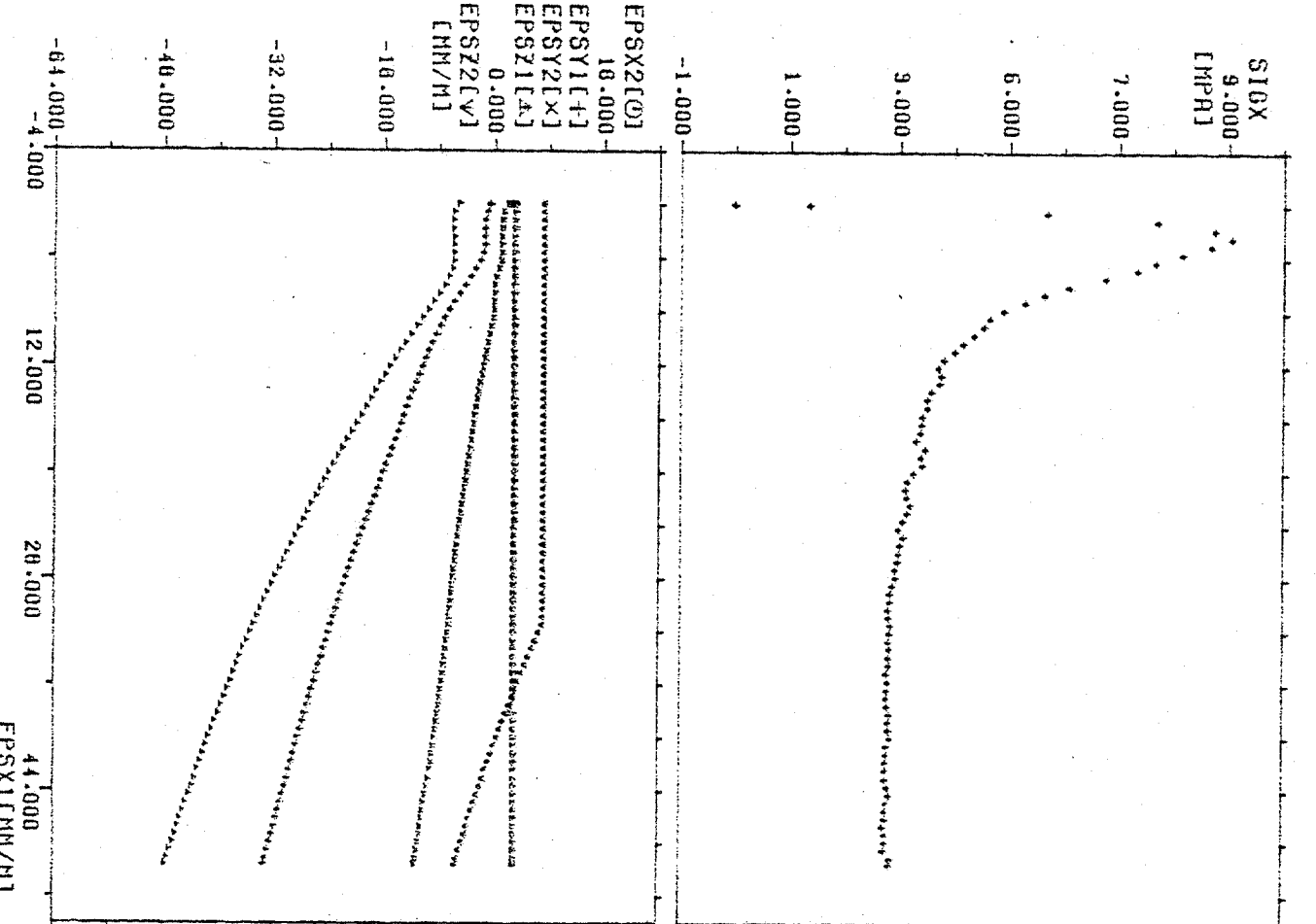
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SHELL 612509  
 NR: 6006.1 VOM 31:01:83 13:24 UHR

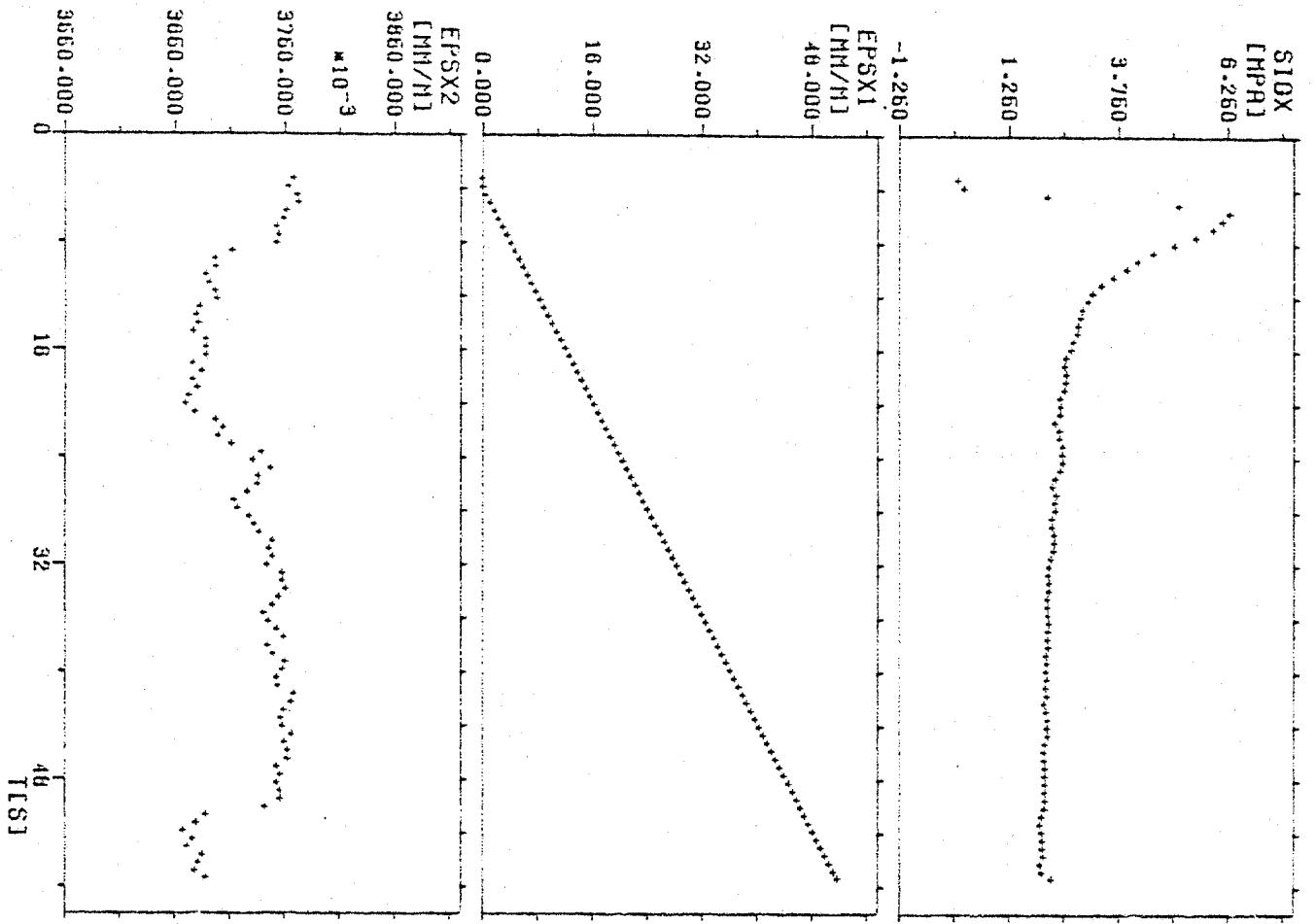


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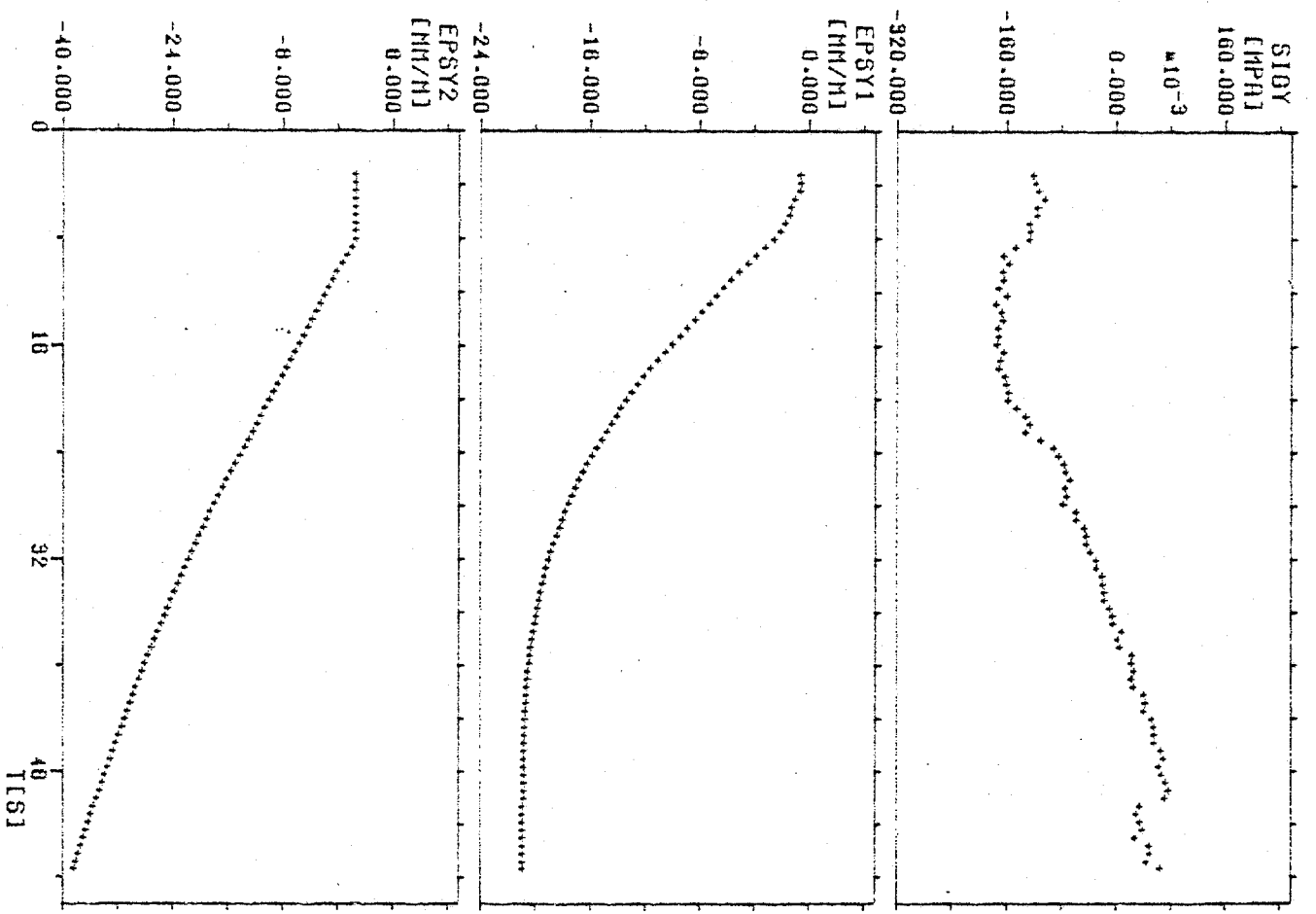


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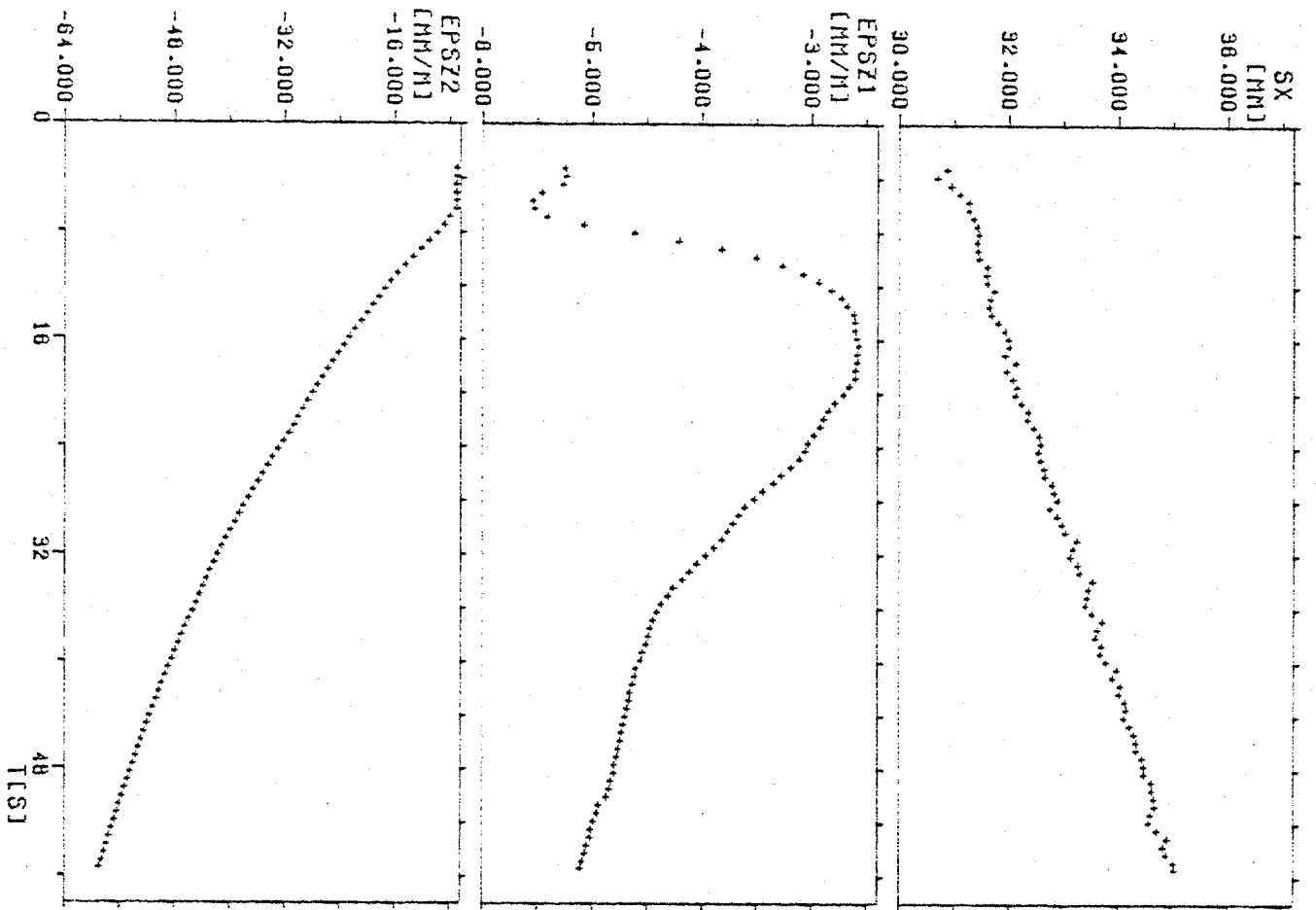




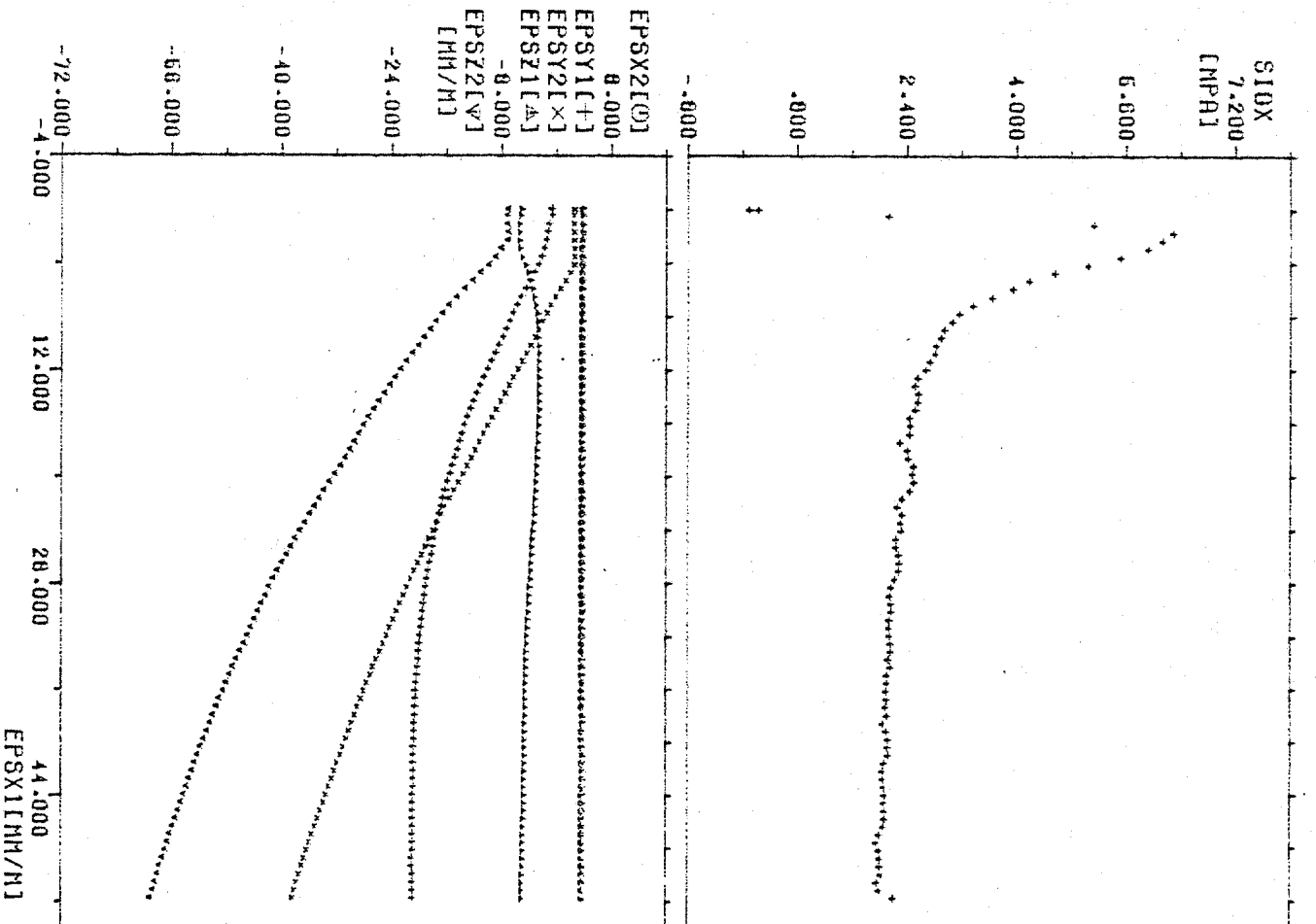
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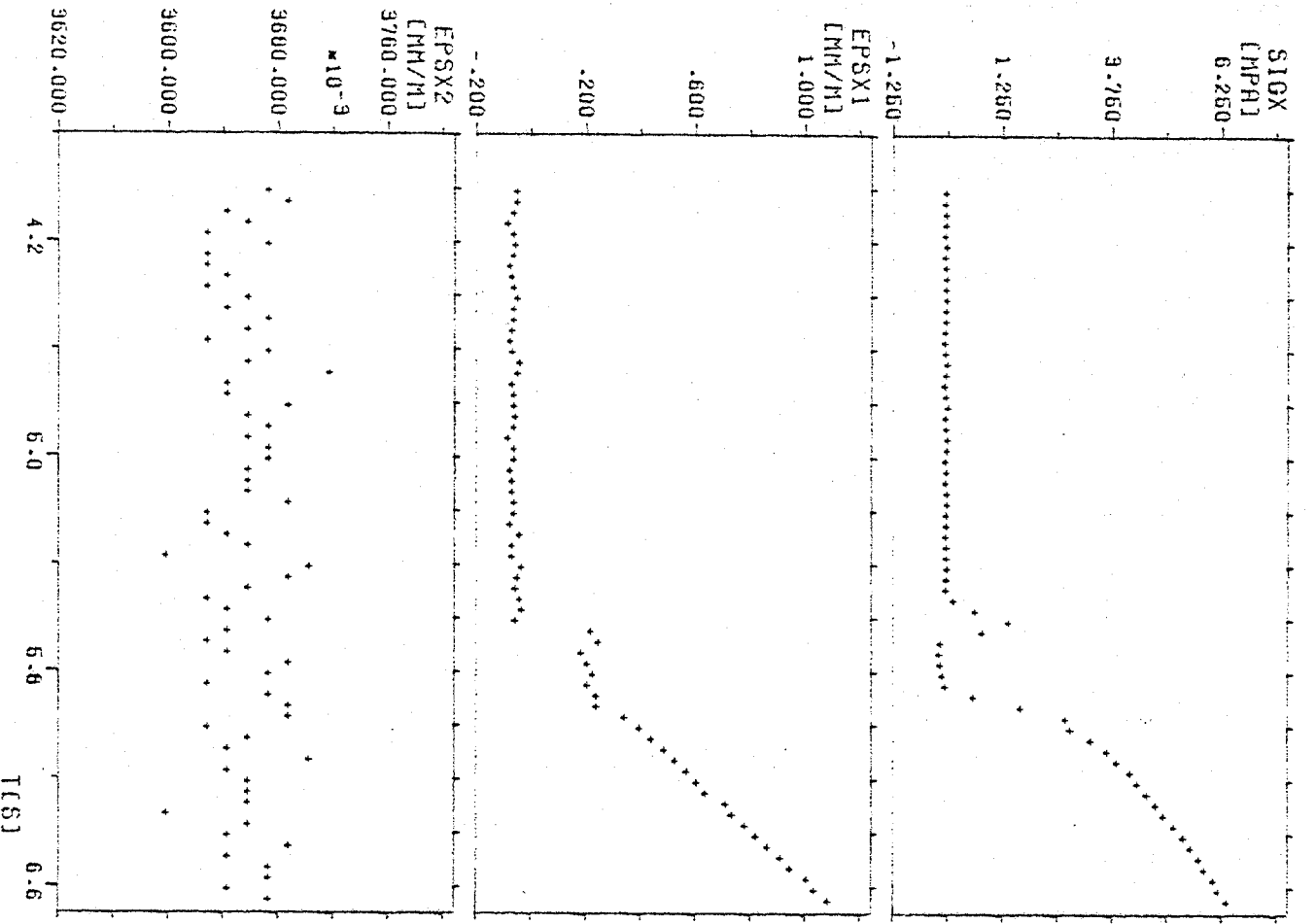
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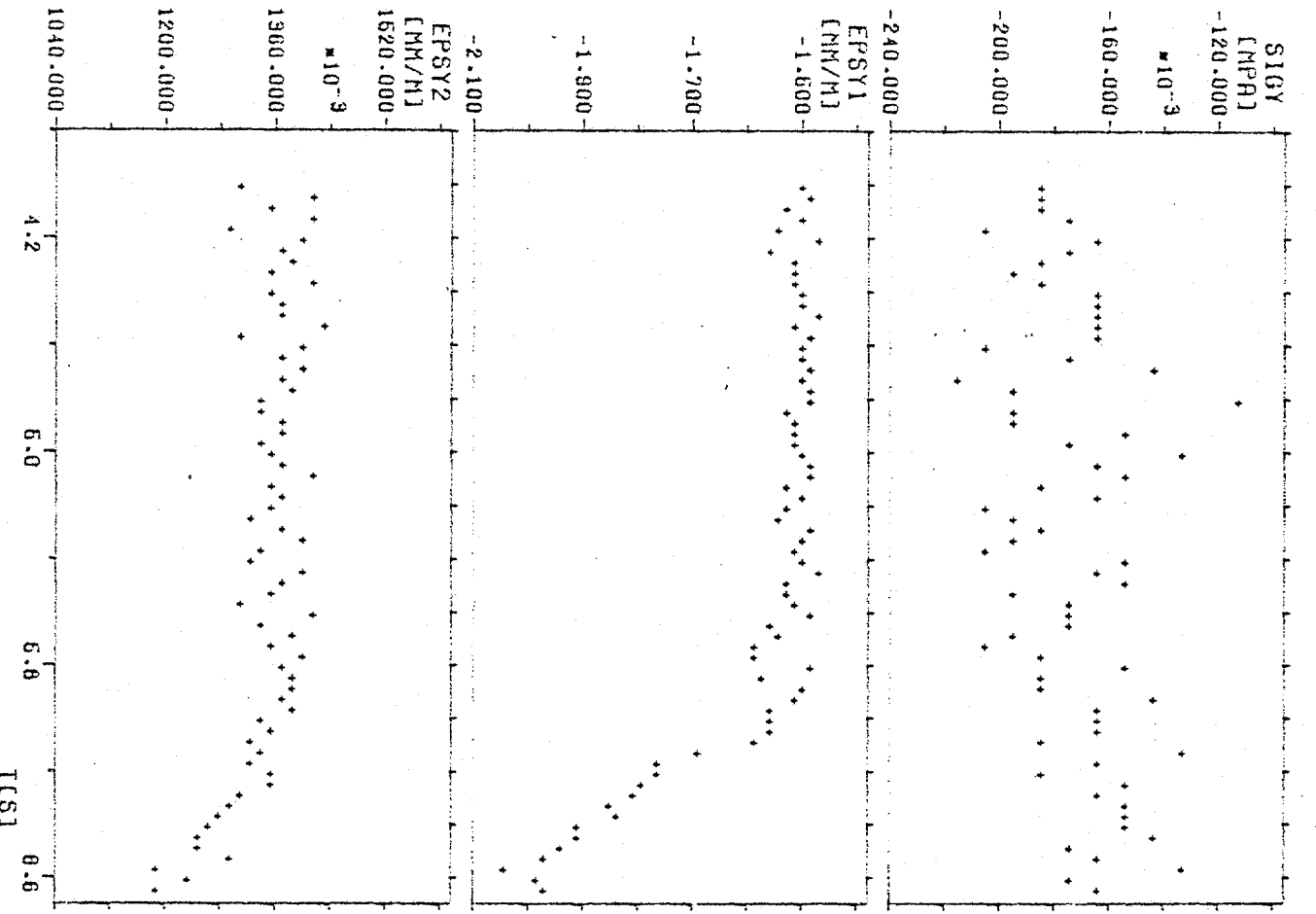
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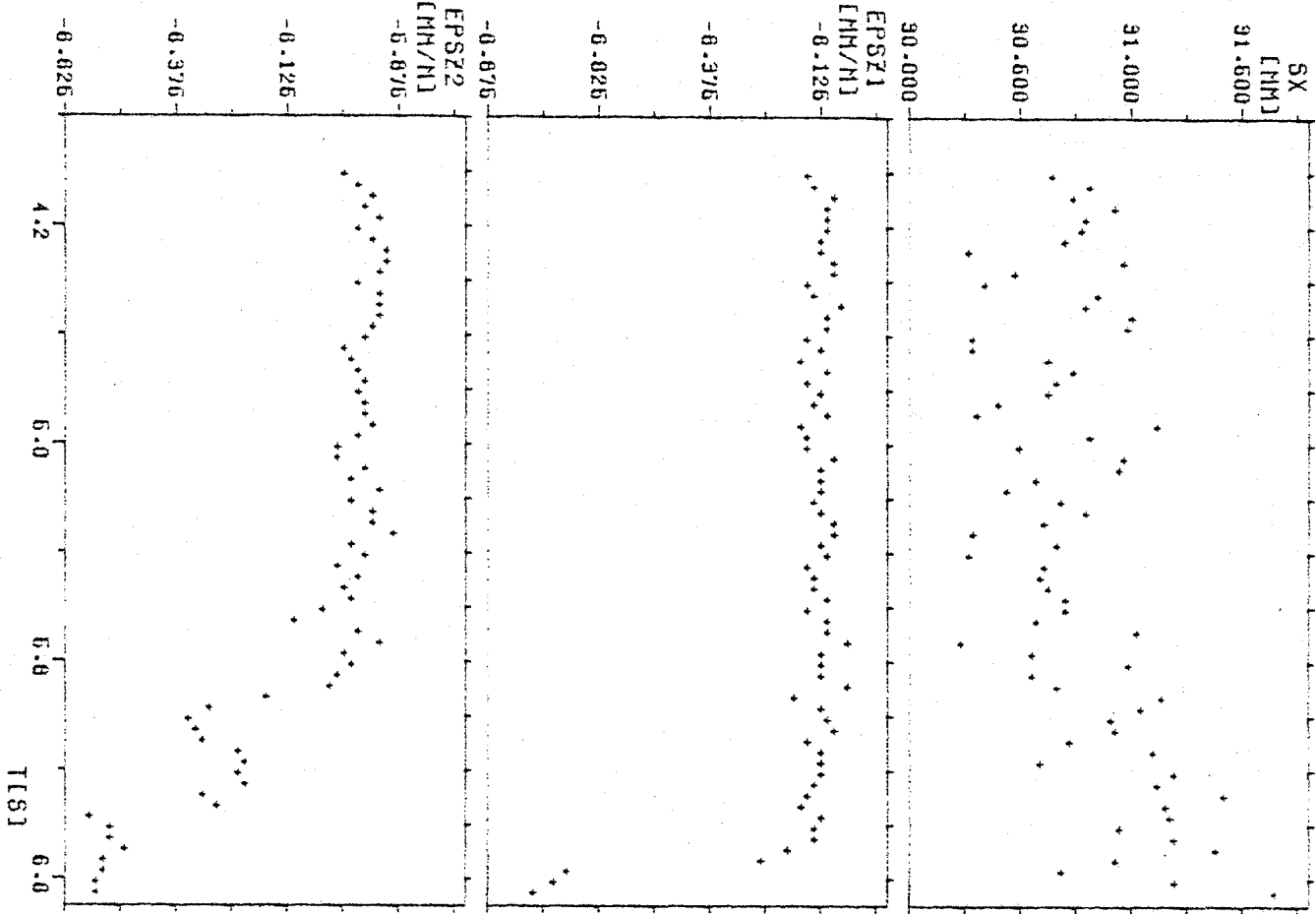
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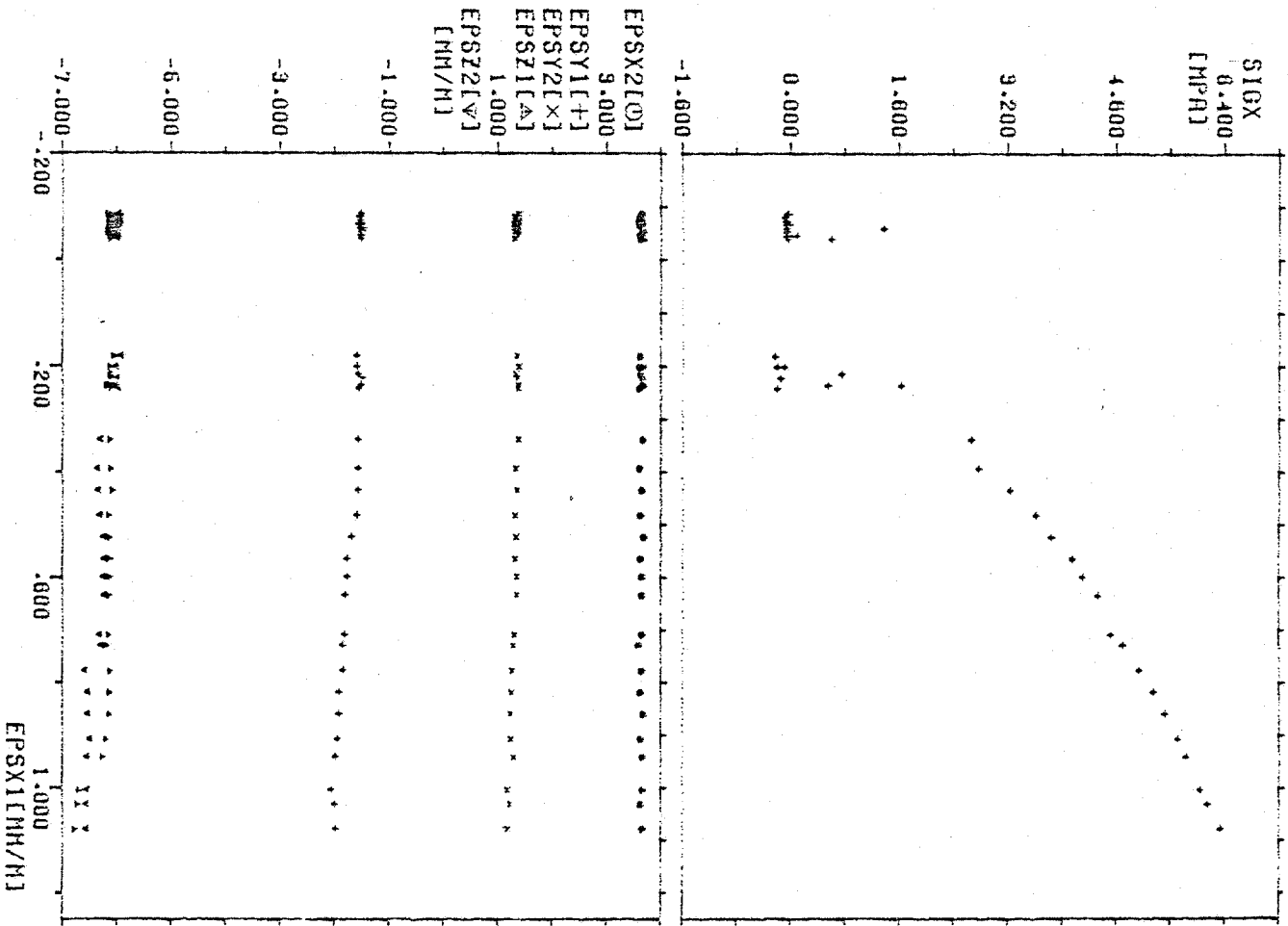
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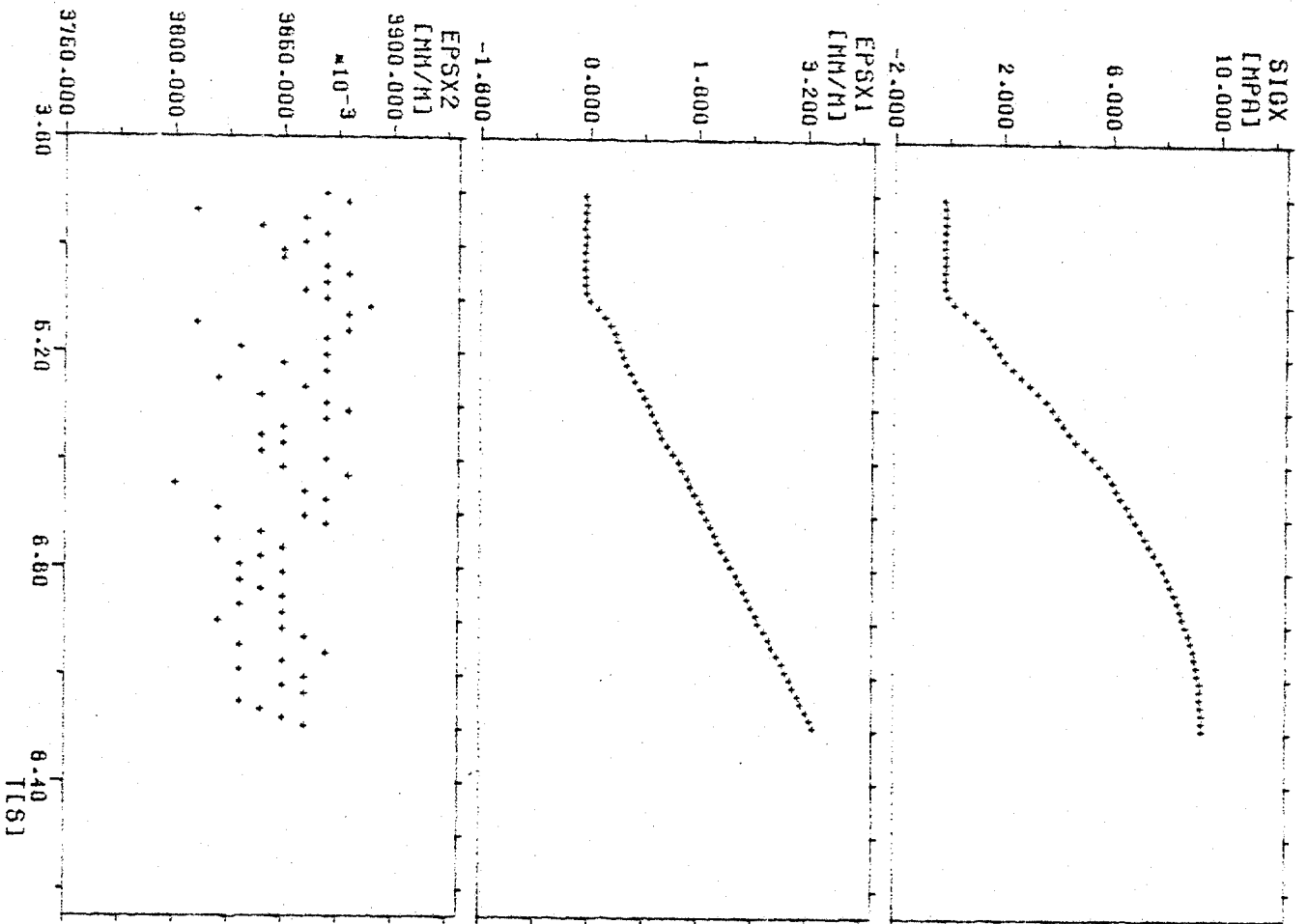
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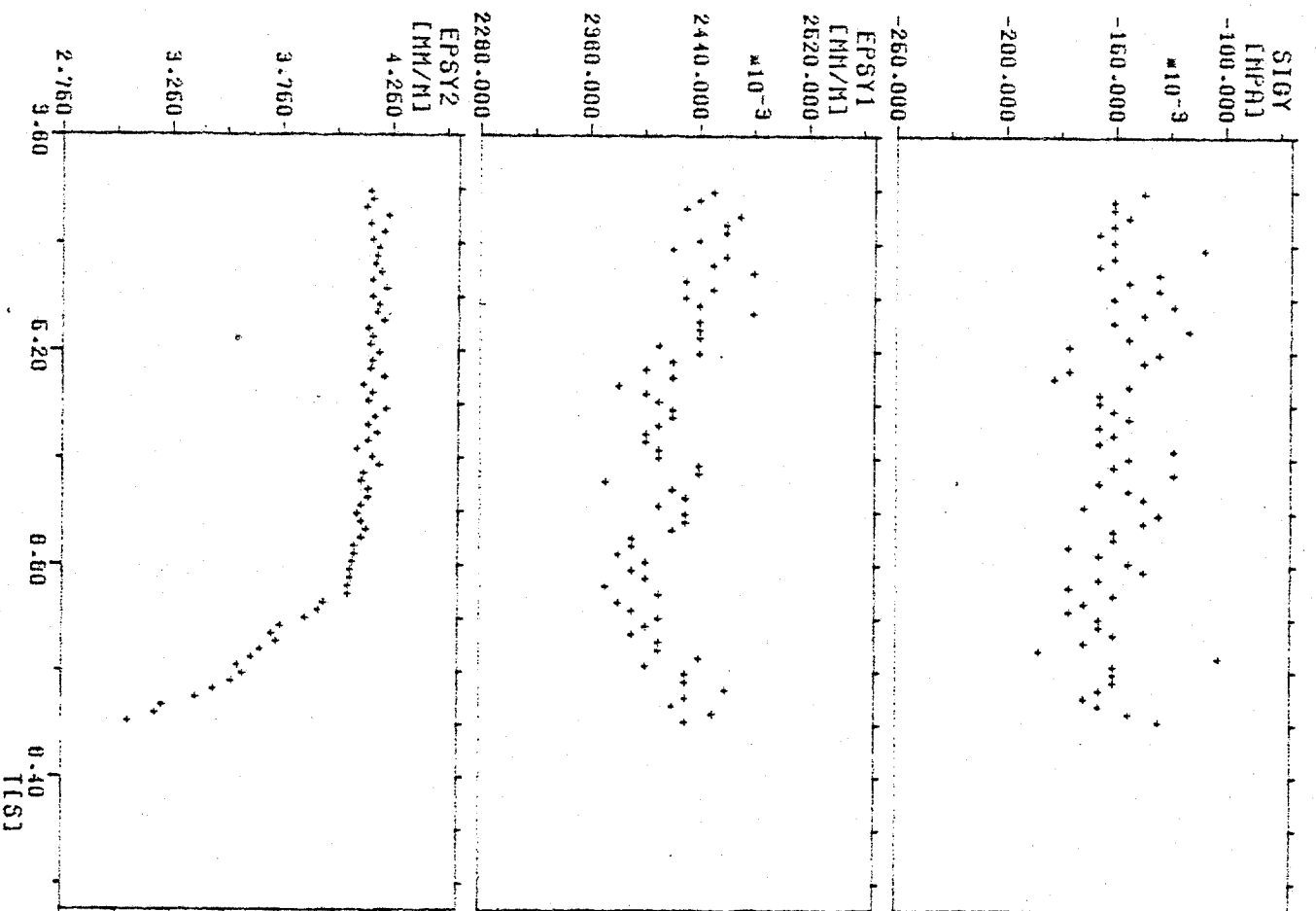
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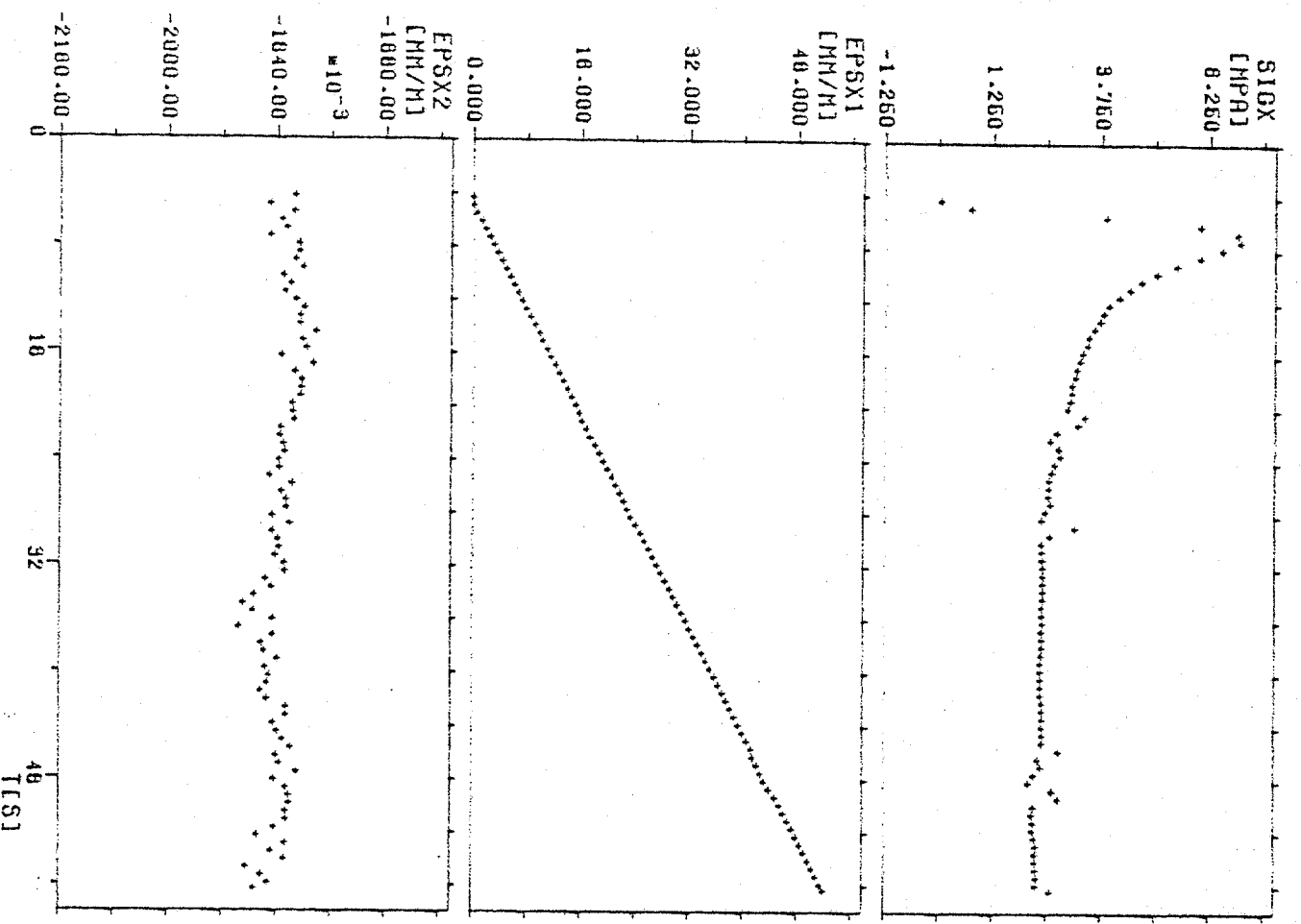
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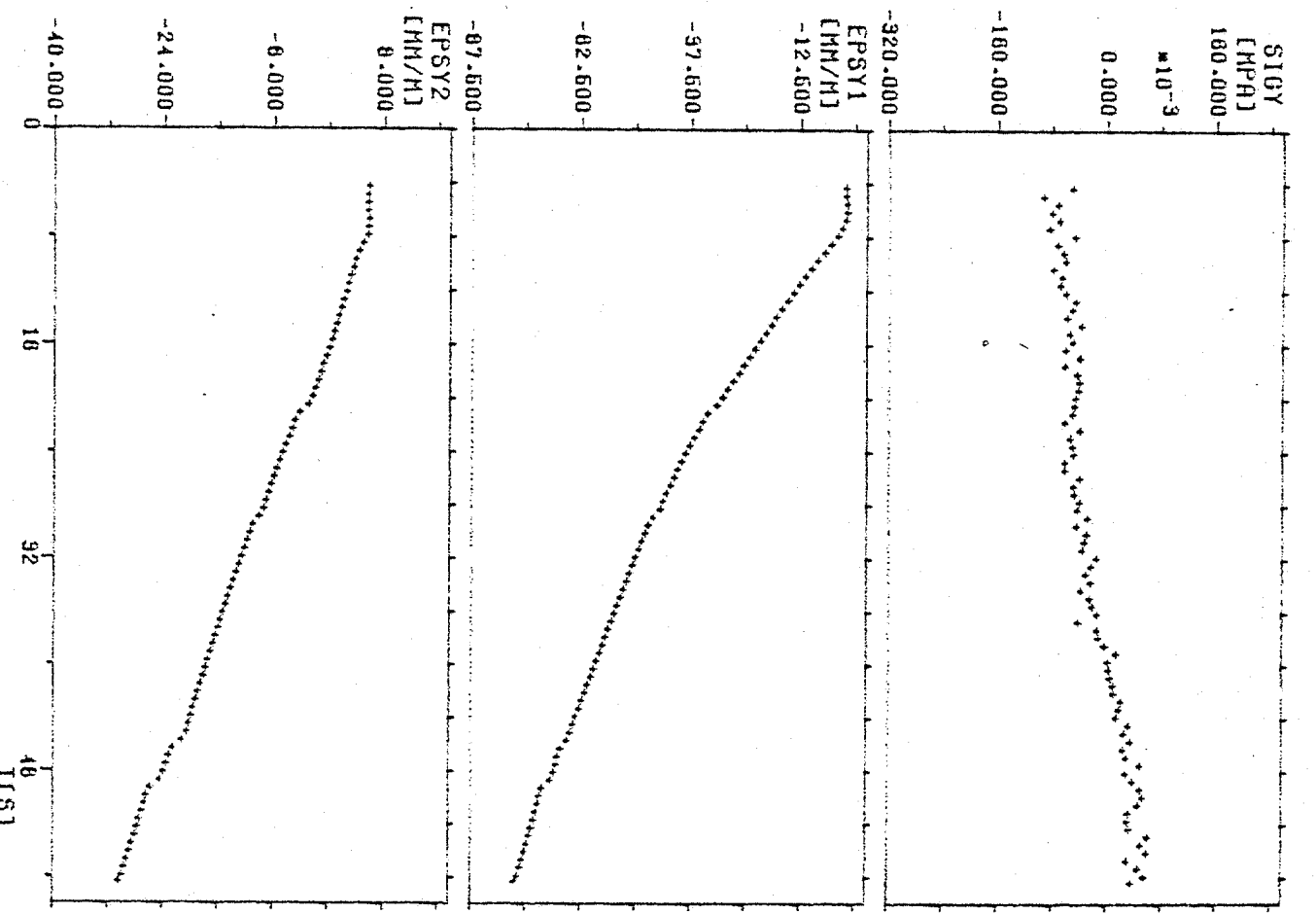
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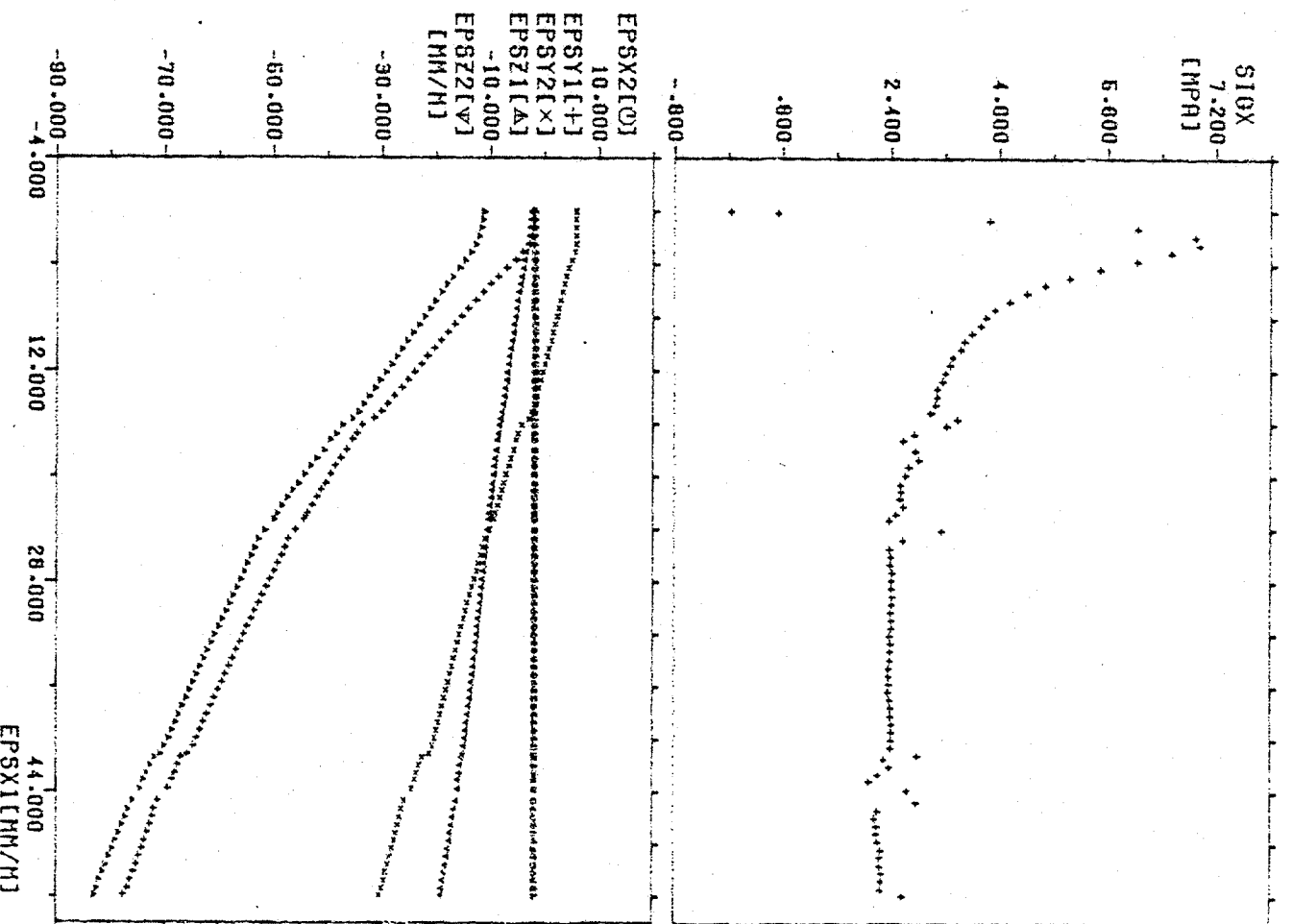
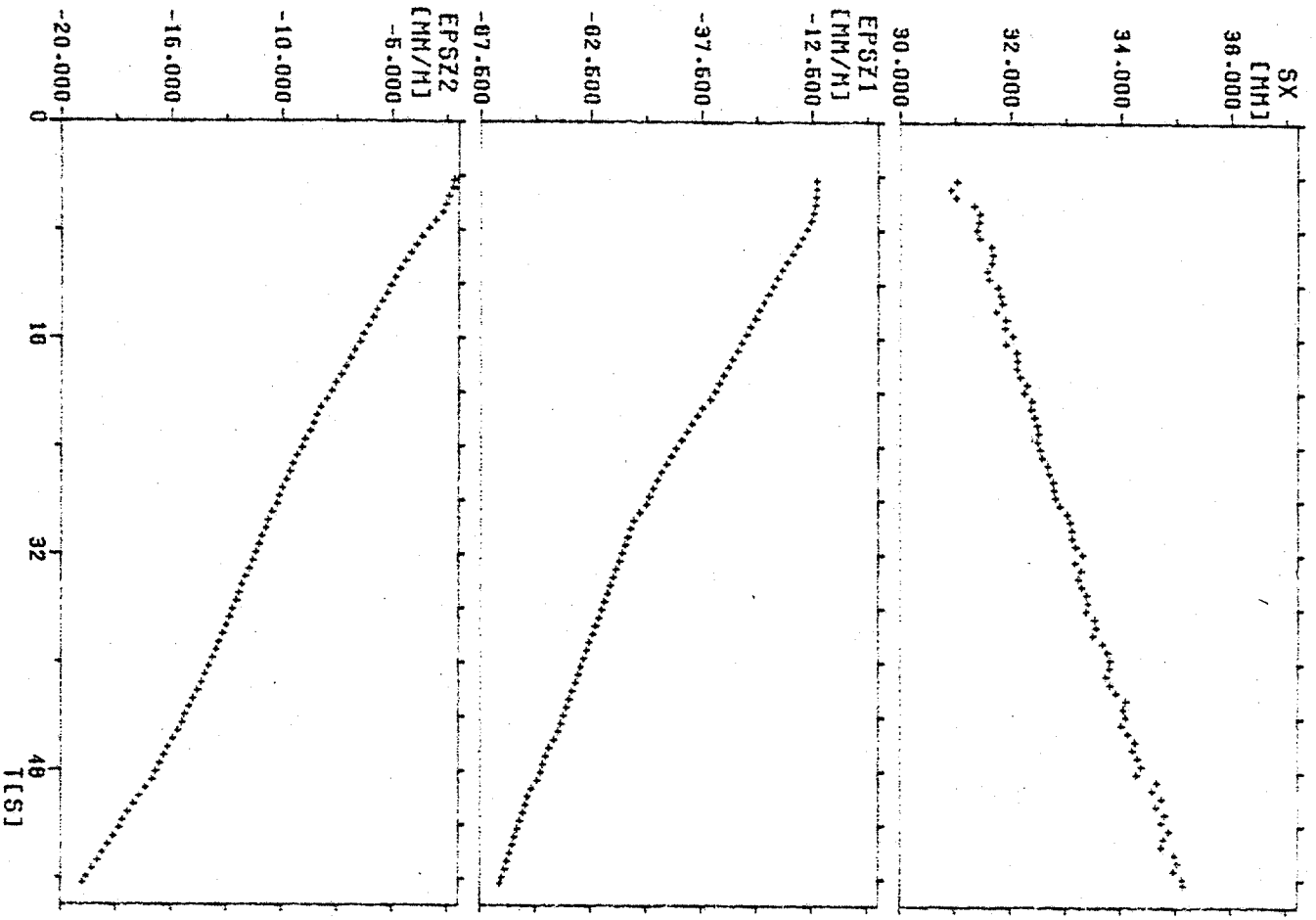
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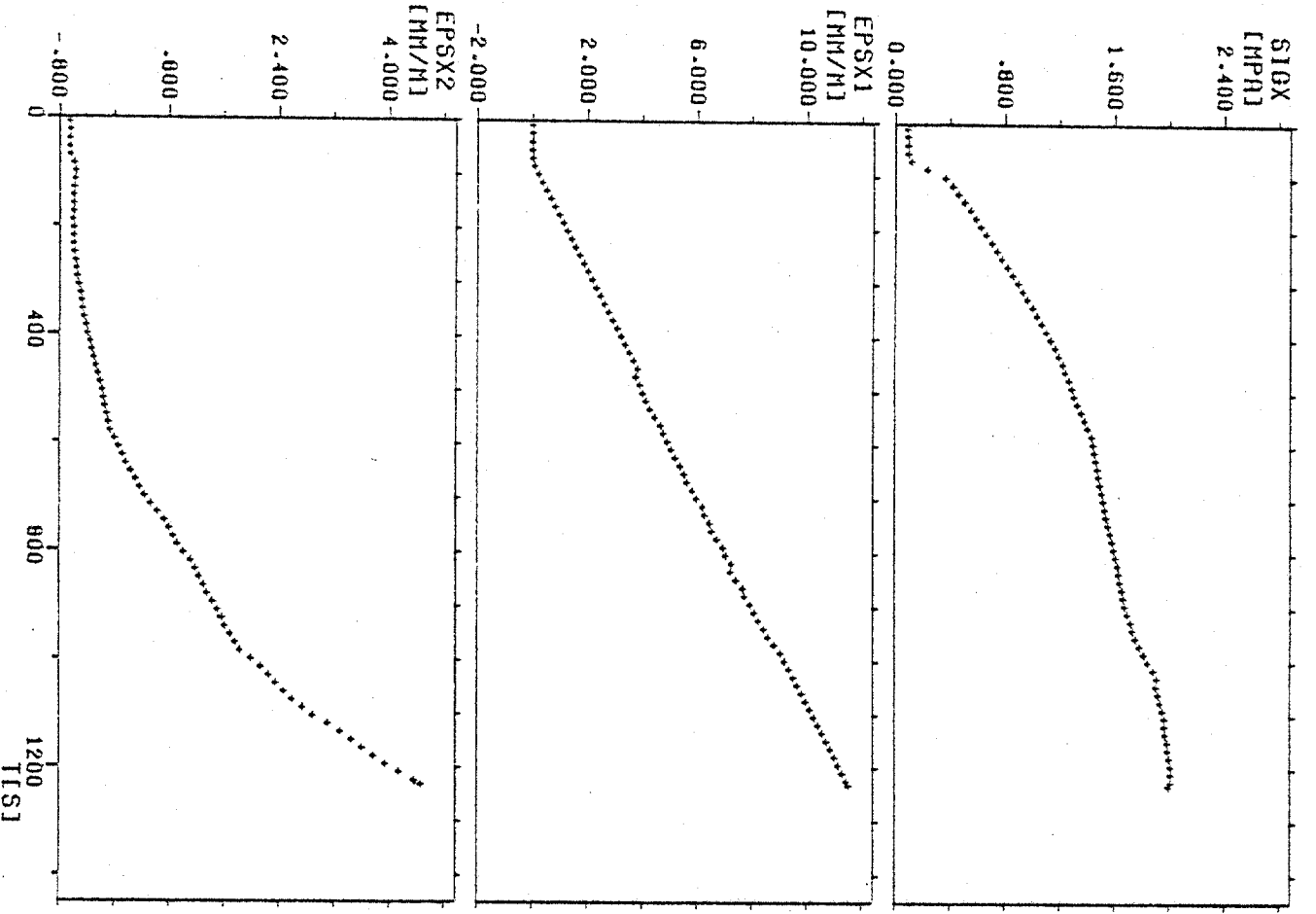


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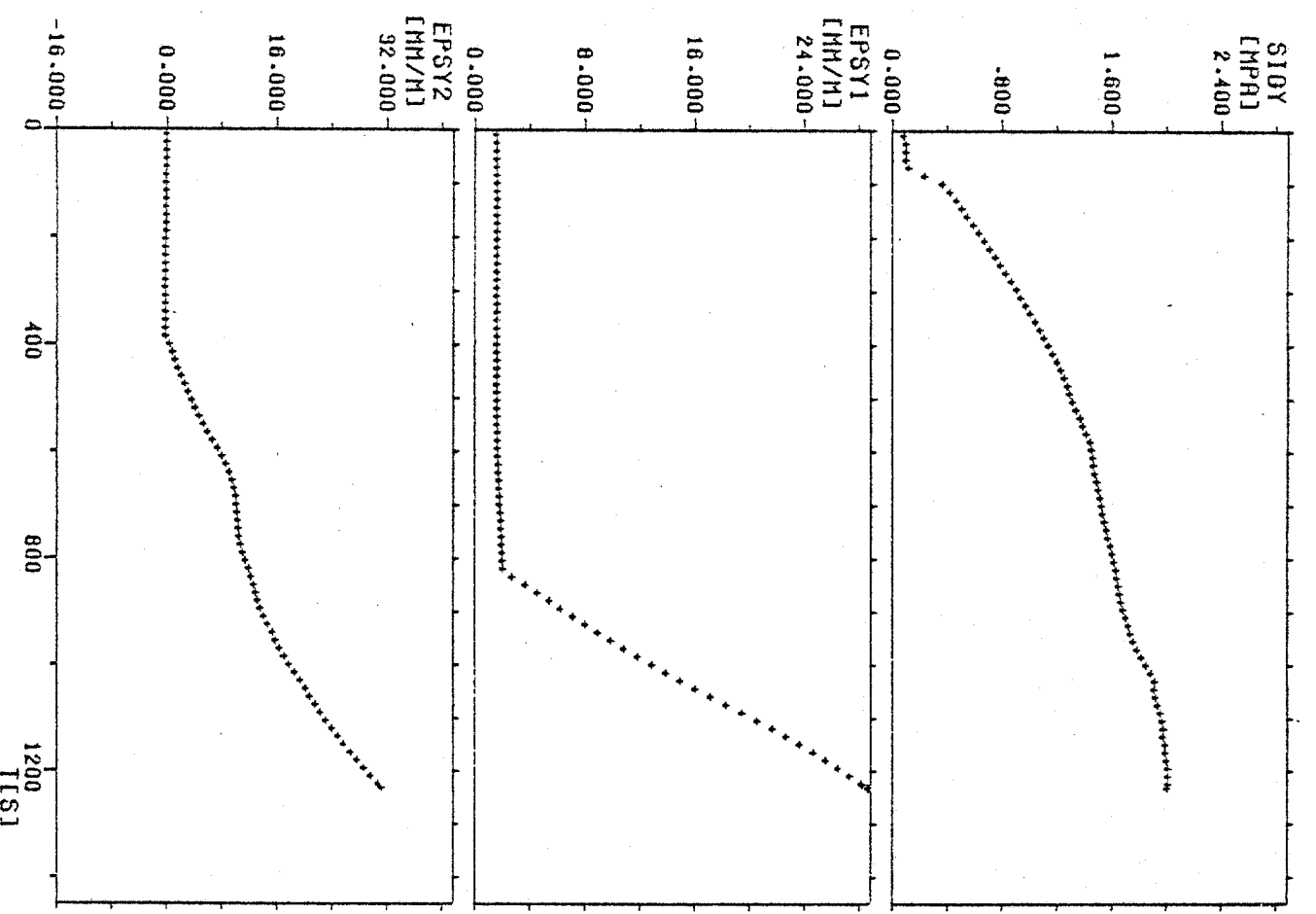


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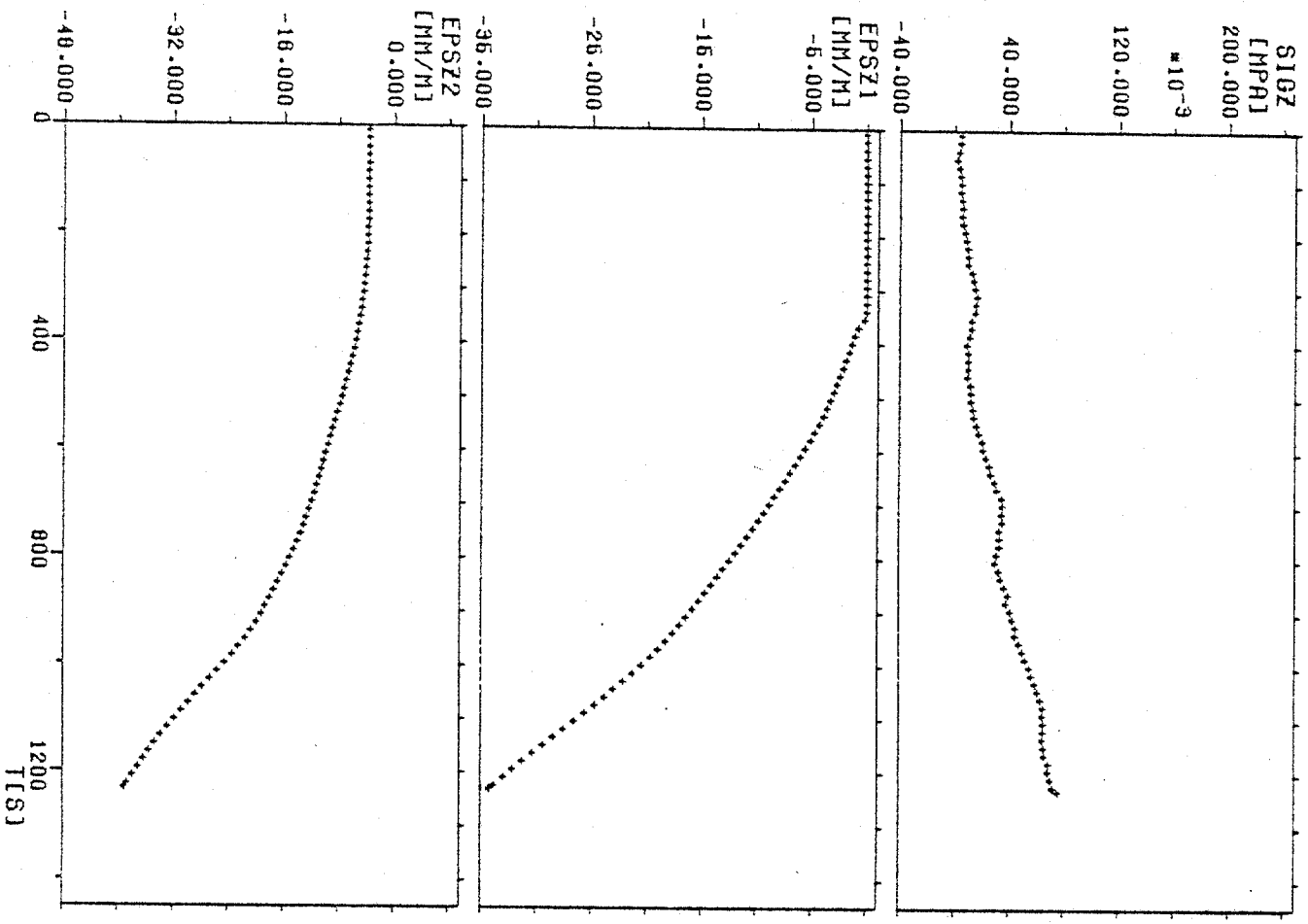


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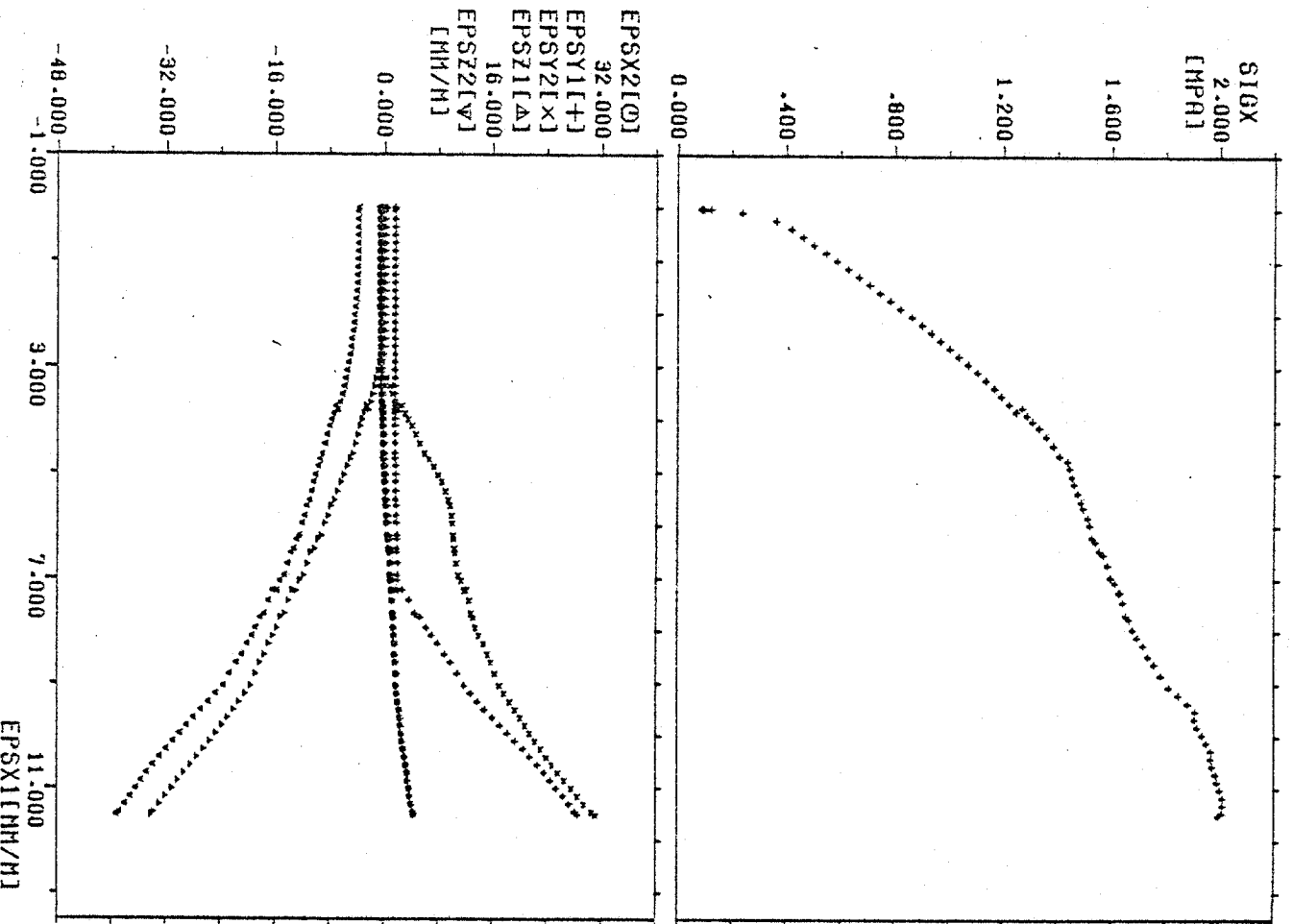


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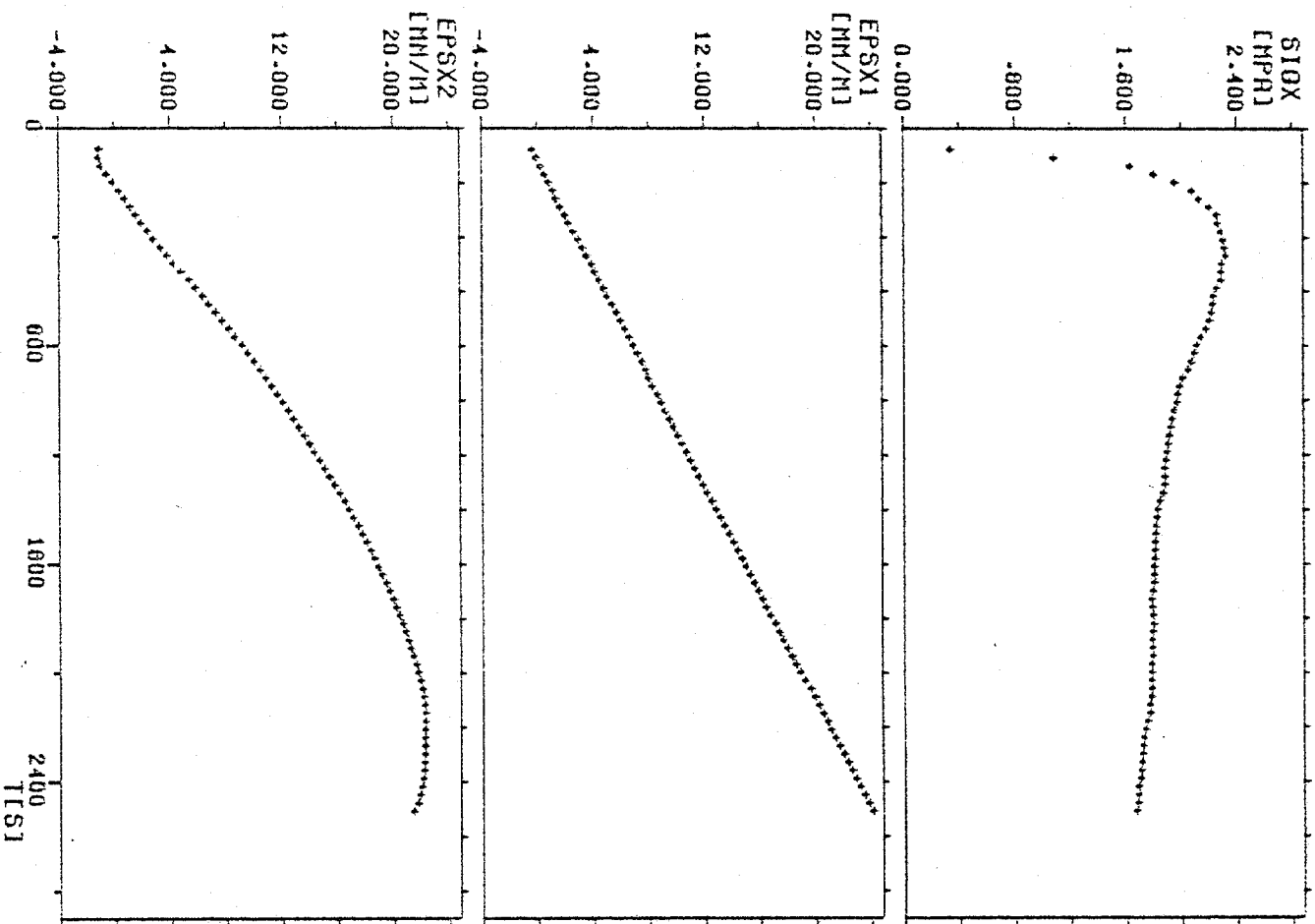




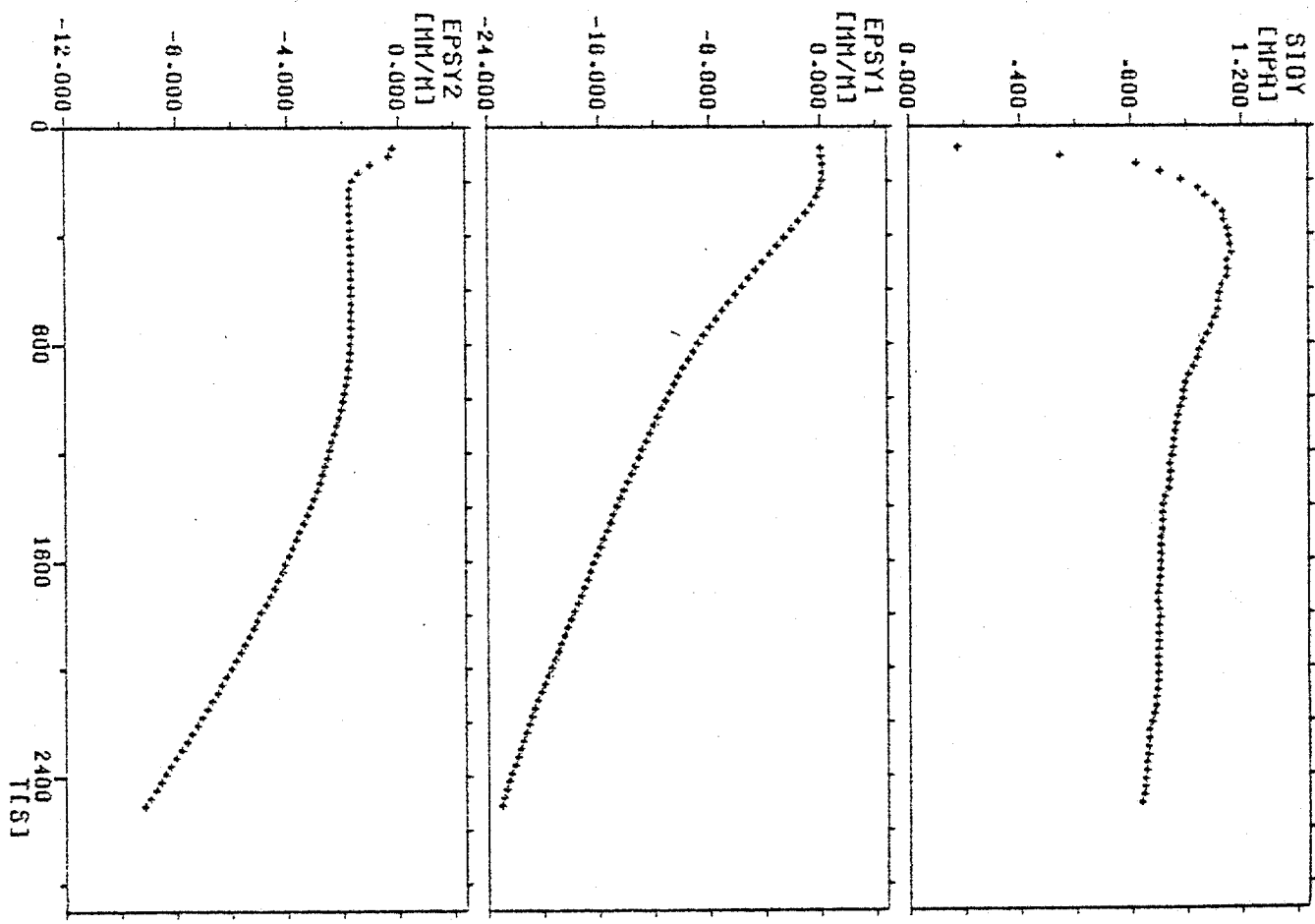
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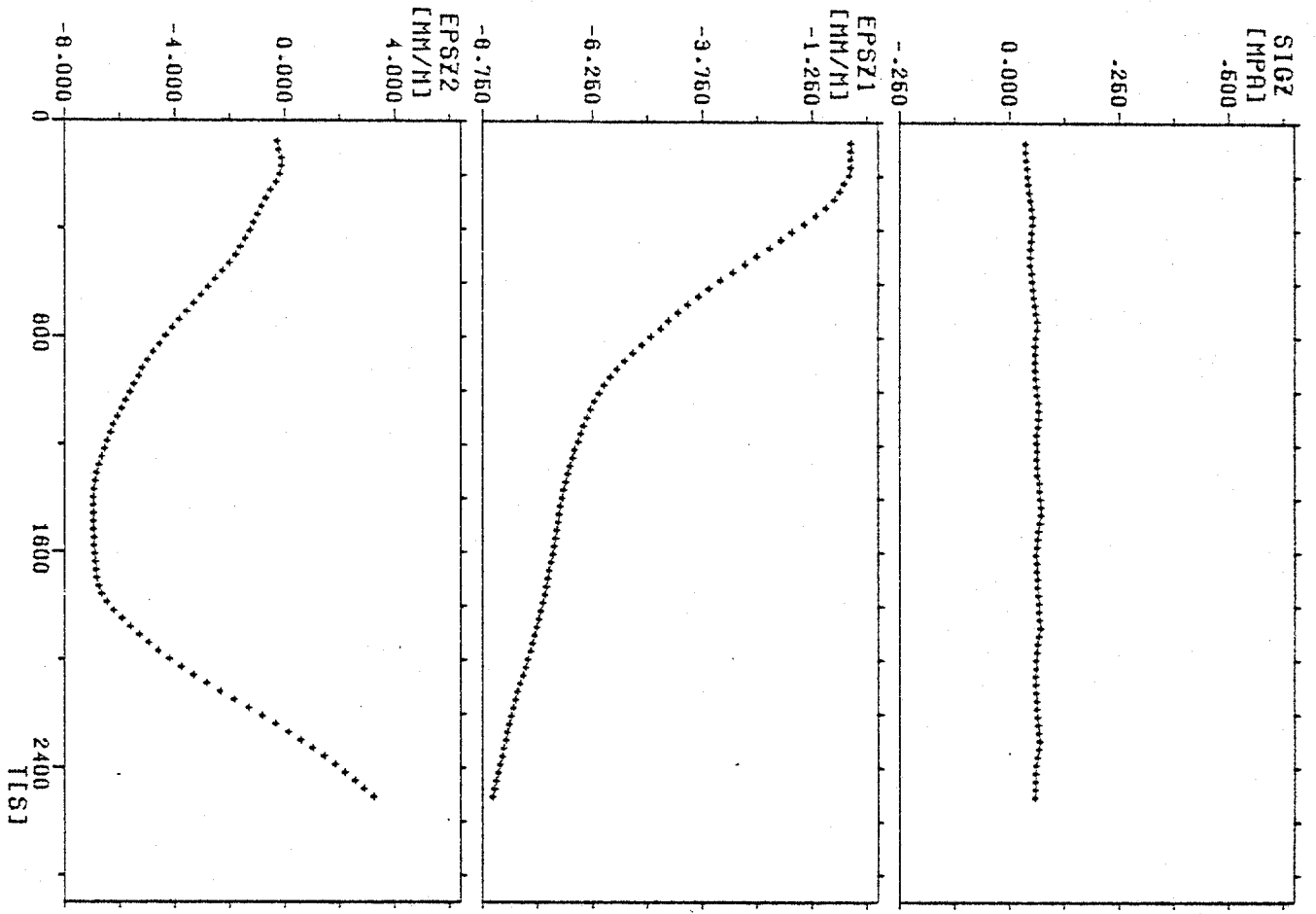
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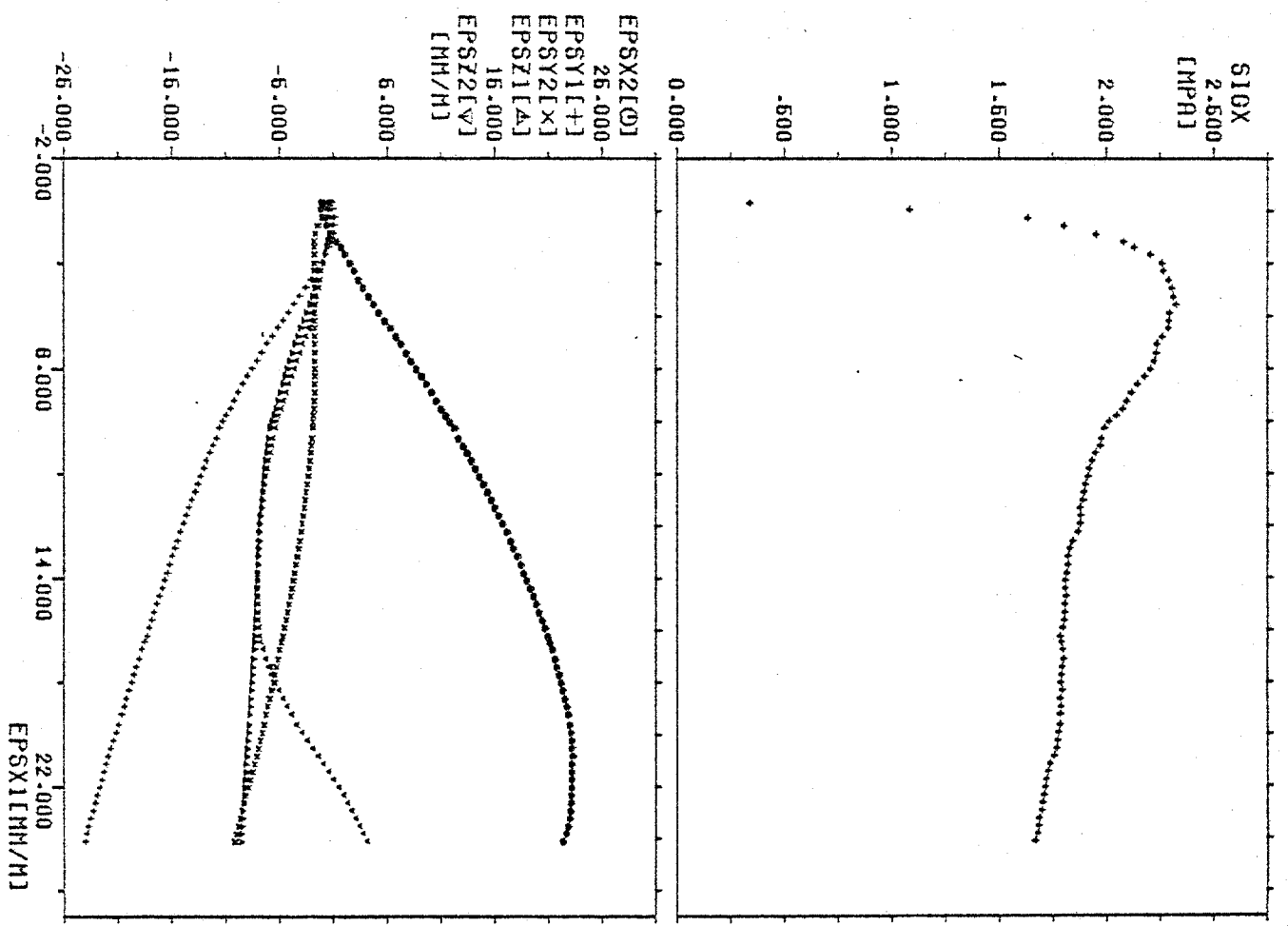
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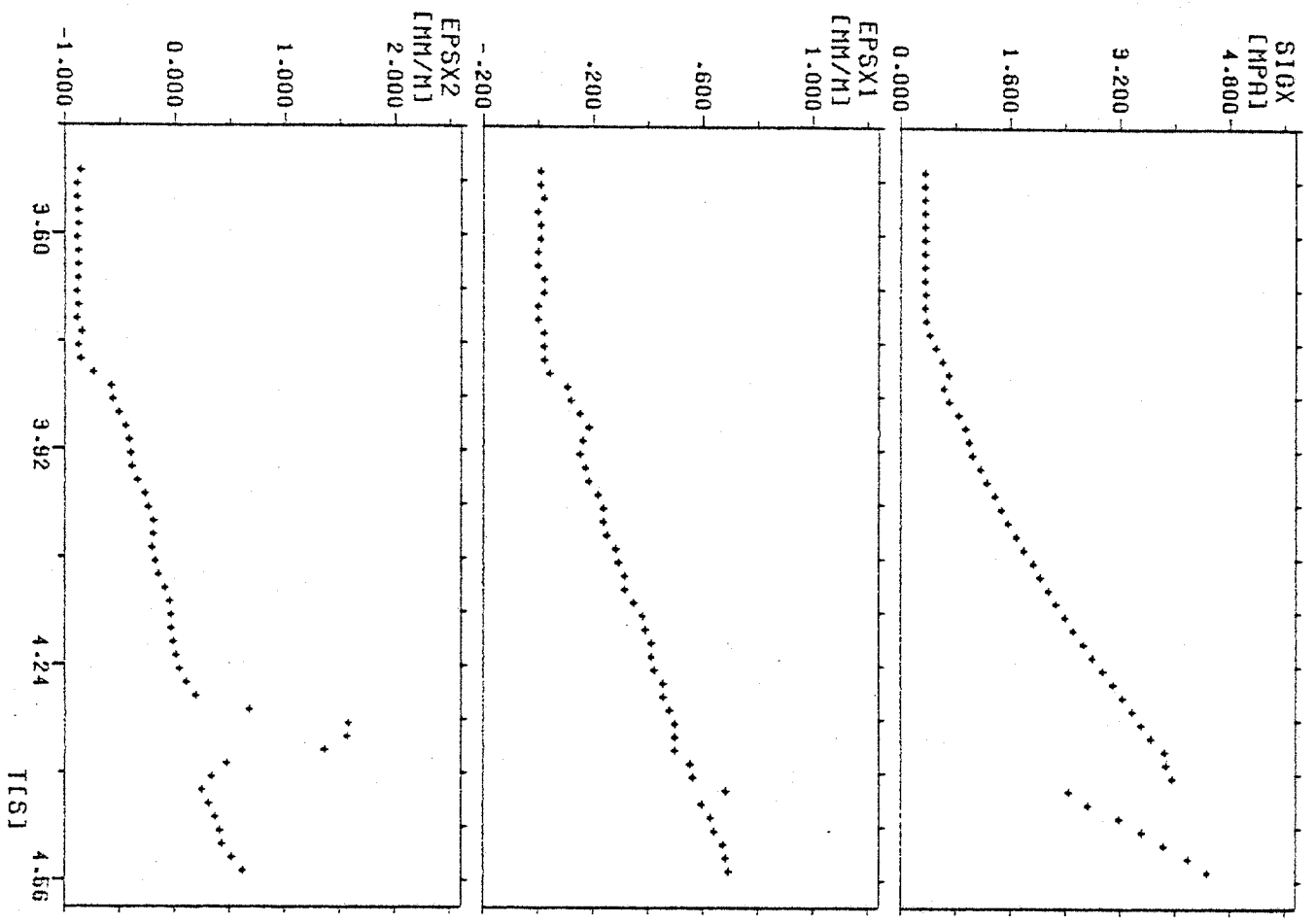
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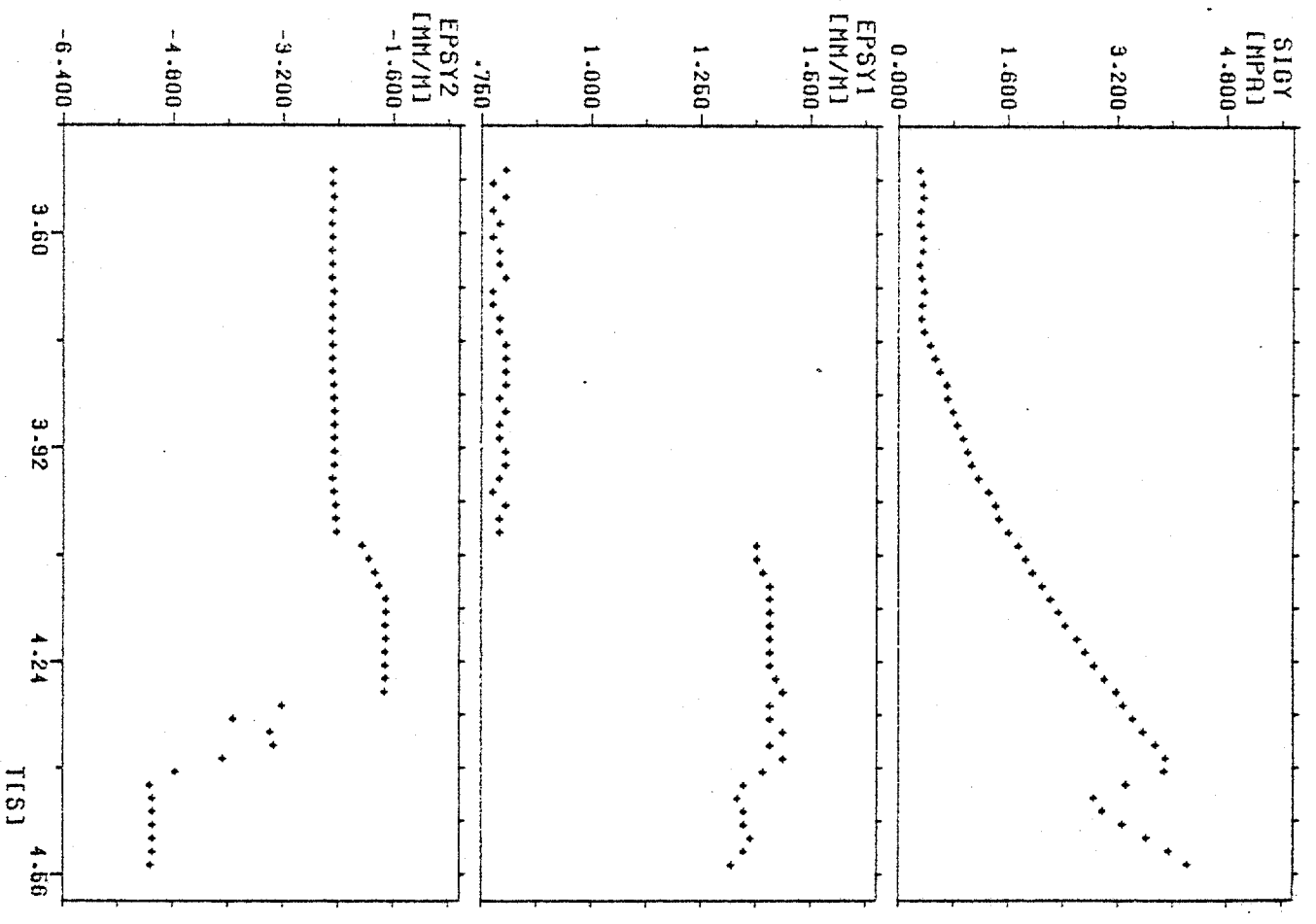
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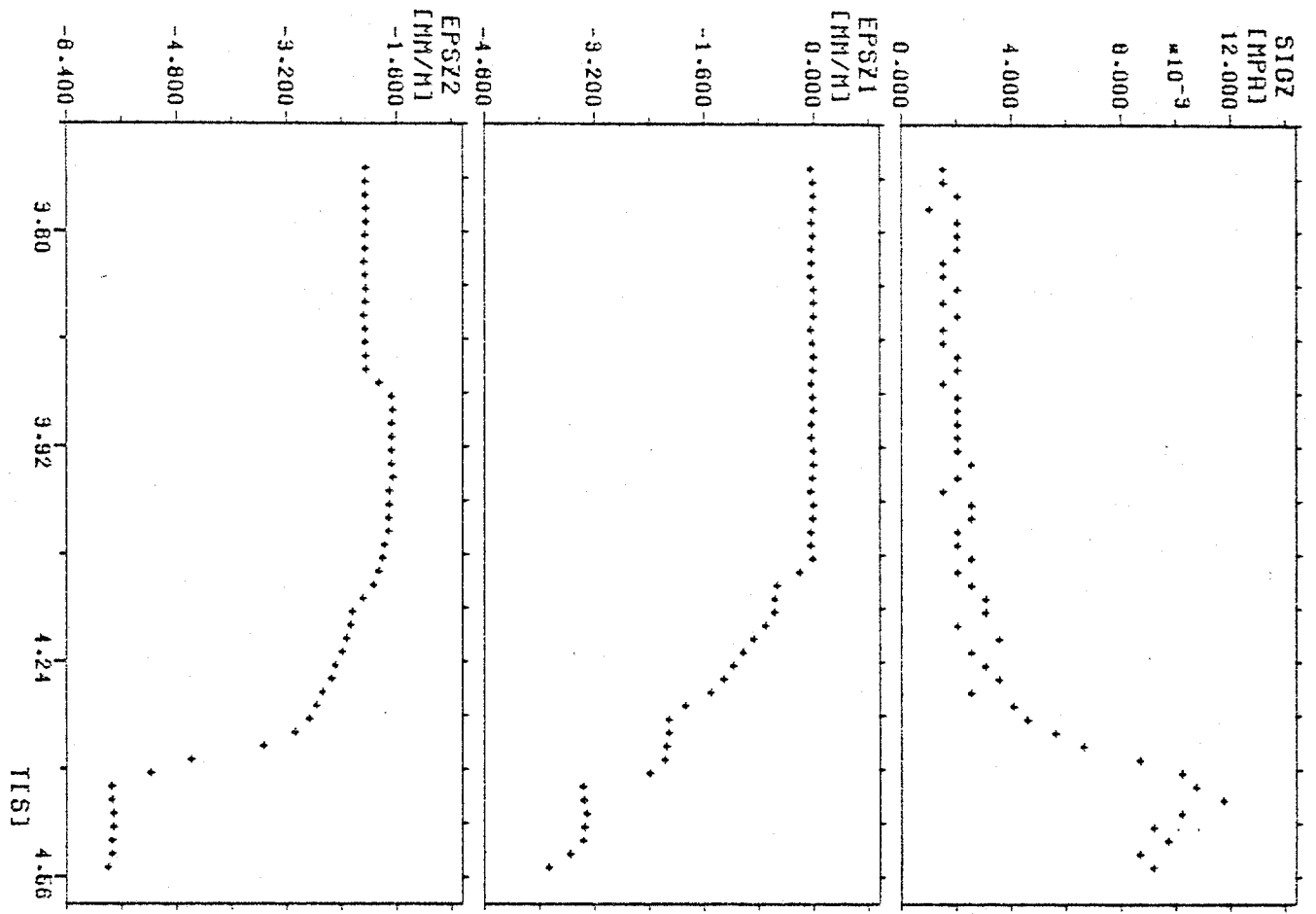
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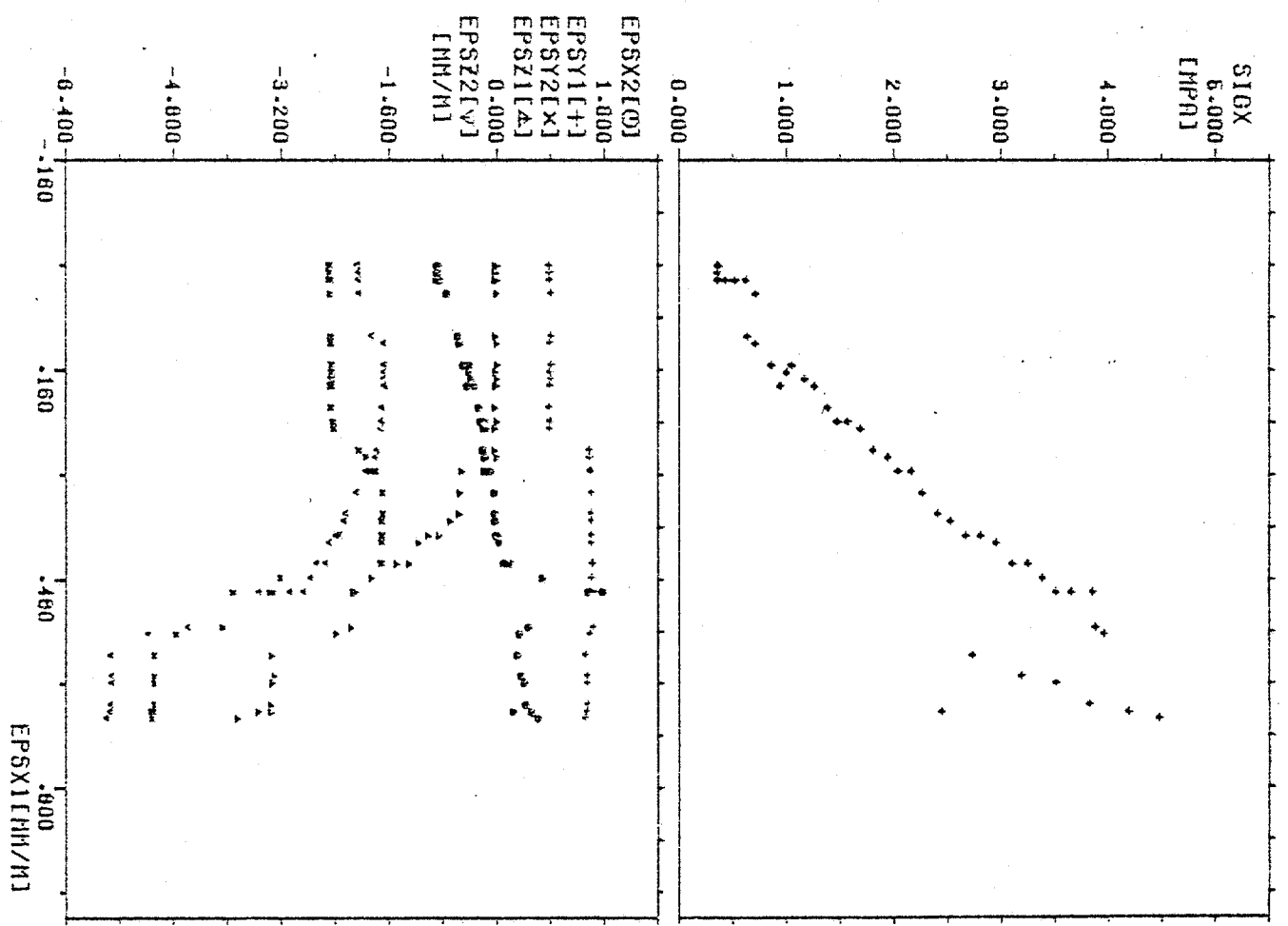
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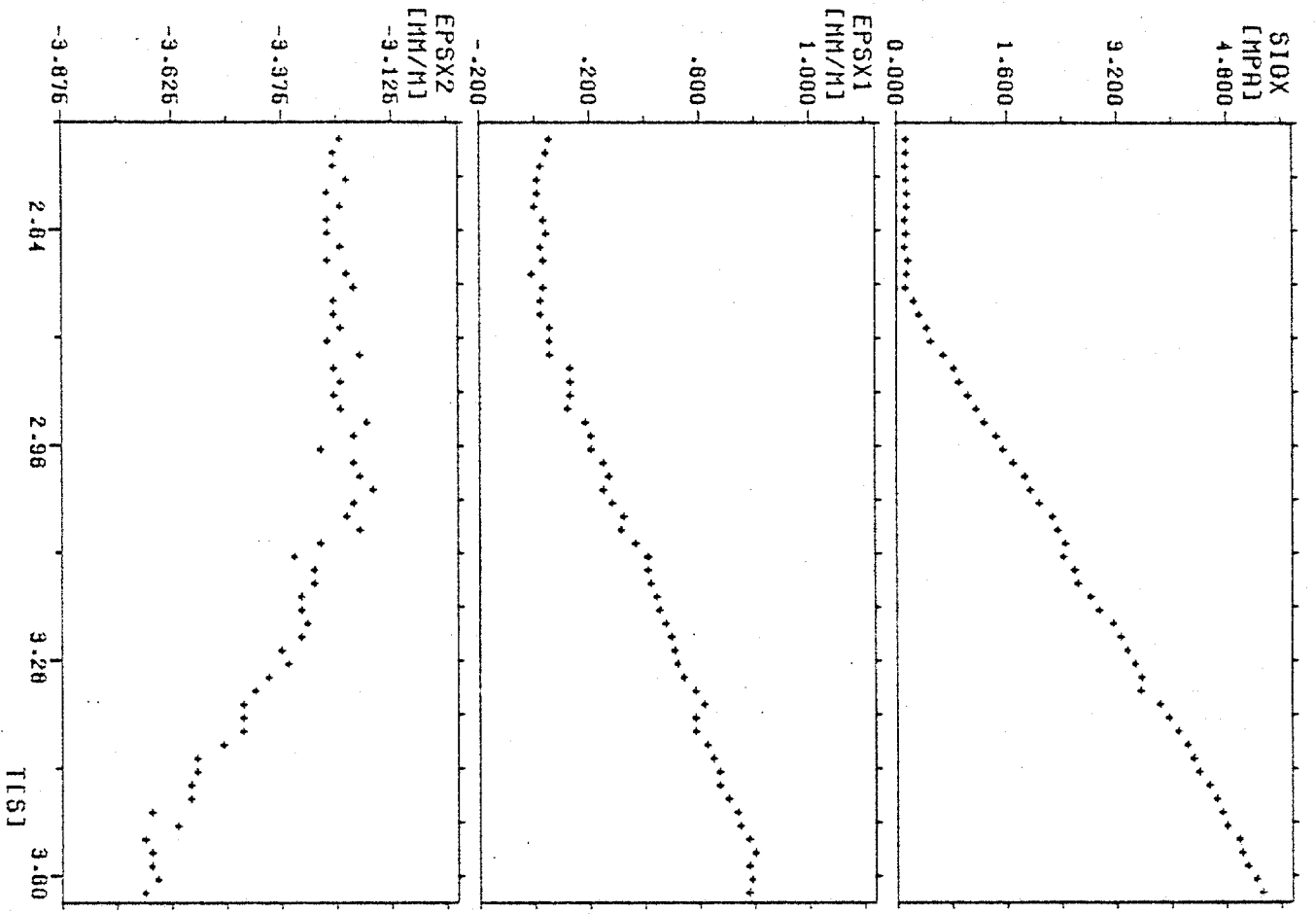
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NR: 3002.1 VOM 10:11:82 15:08 UHR



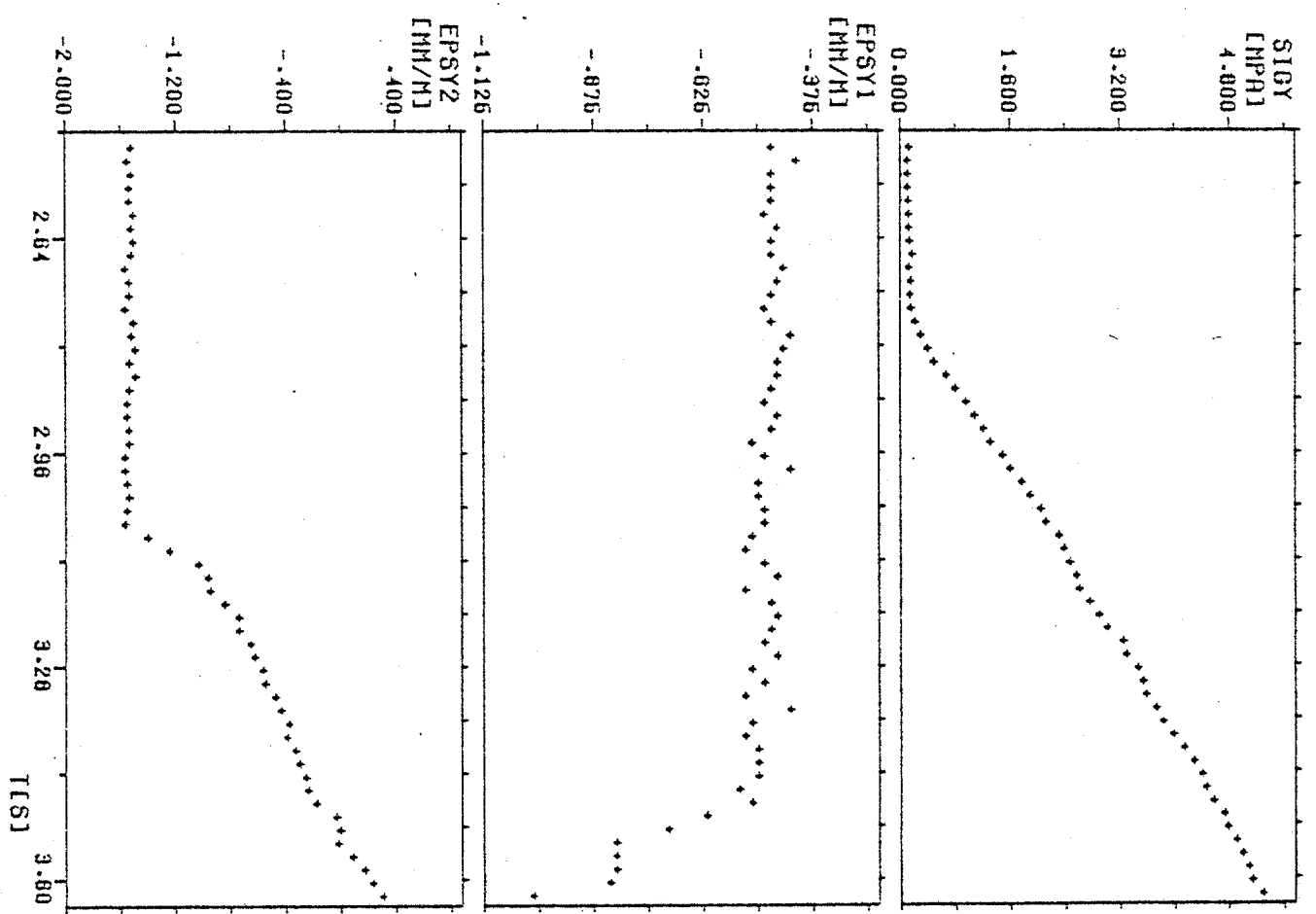
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 NR: 3002.1 VOM 10:11:82 16:08 UHR



SHELL 612509  
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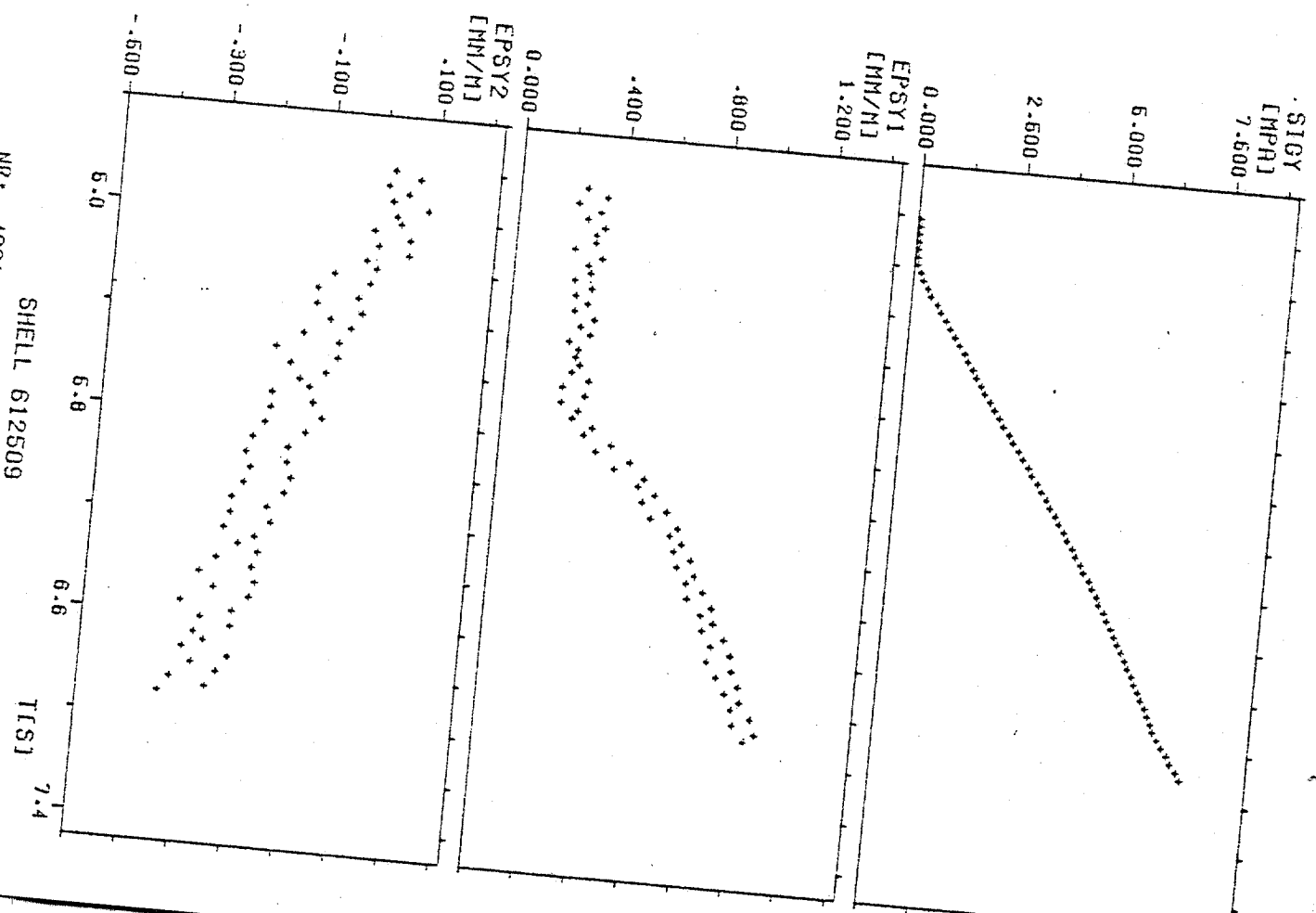
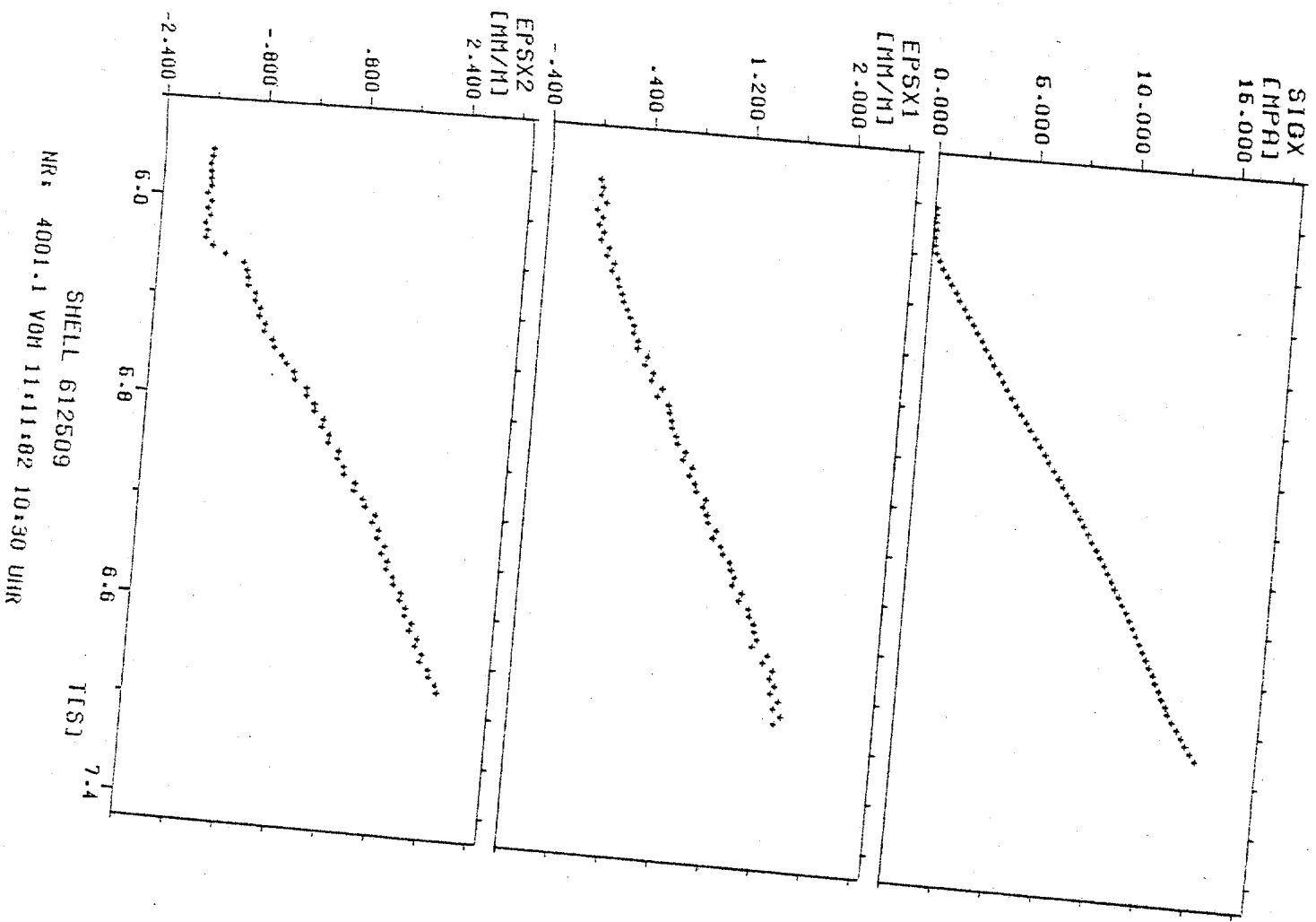


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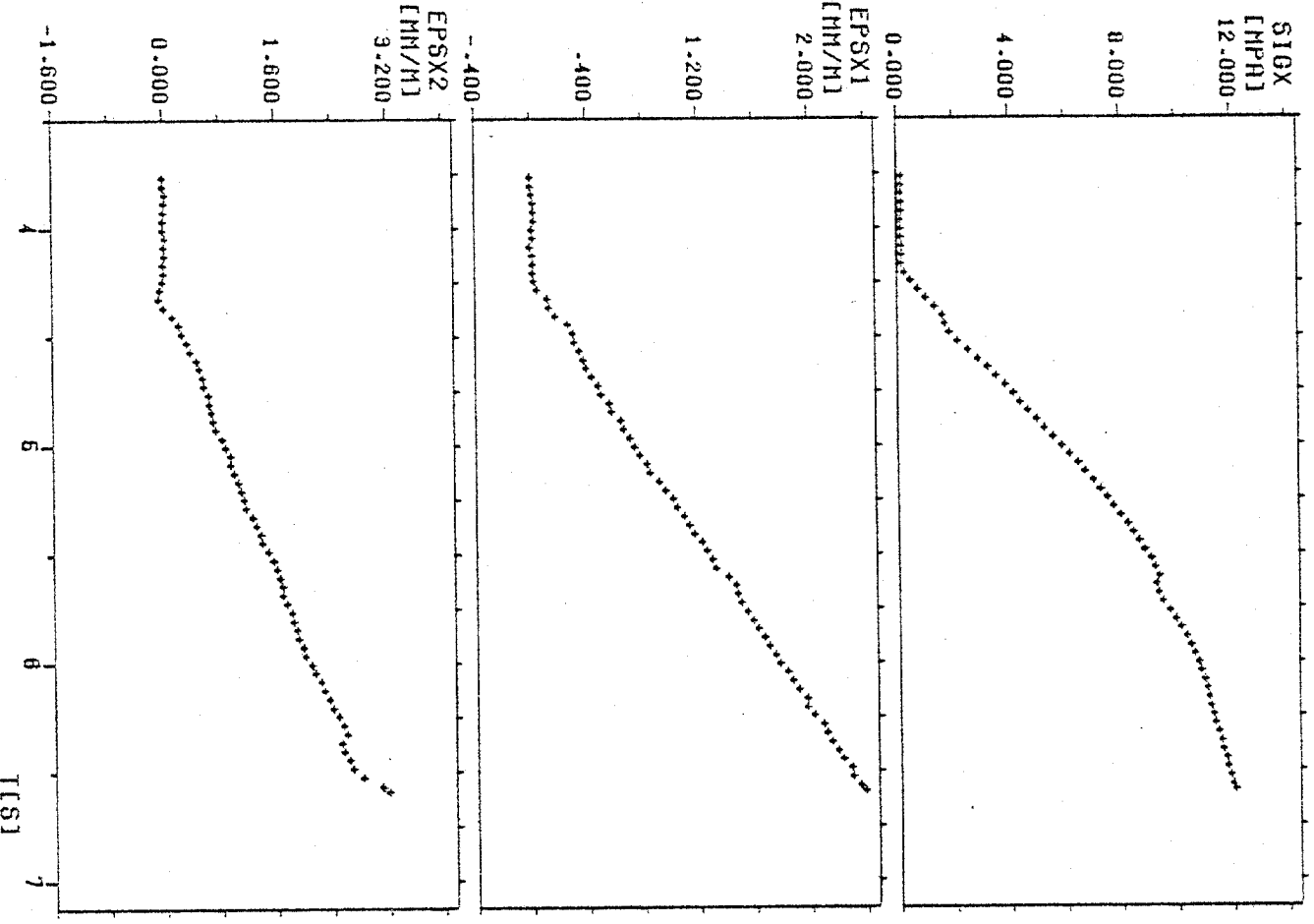


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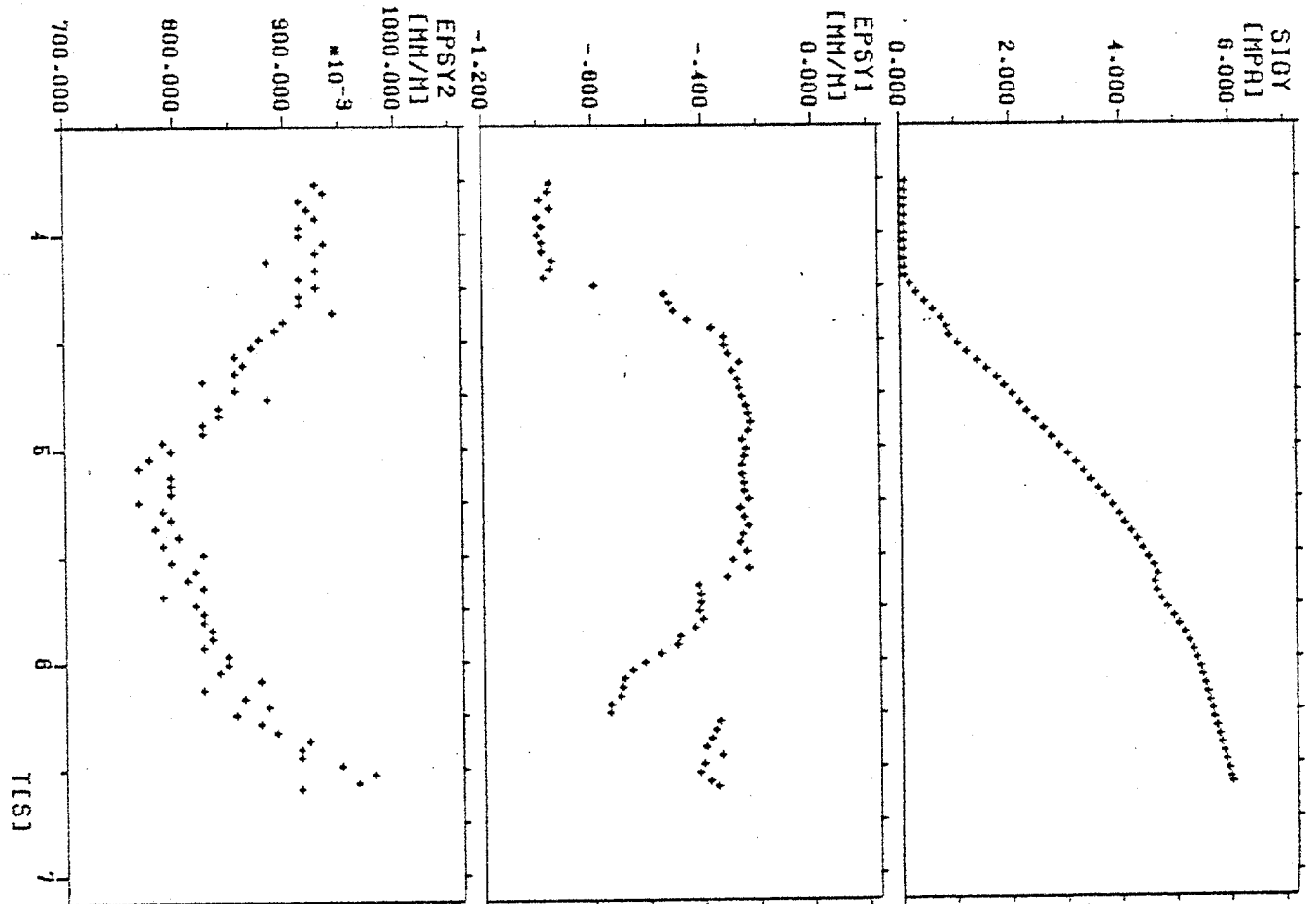




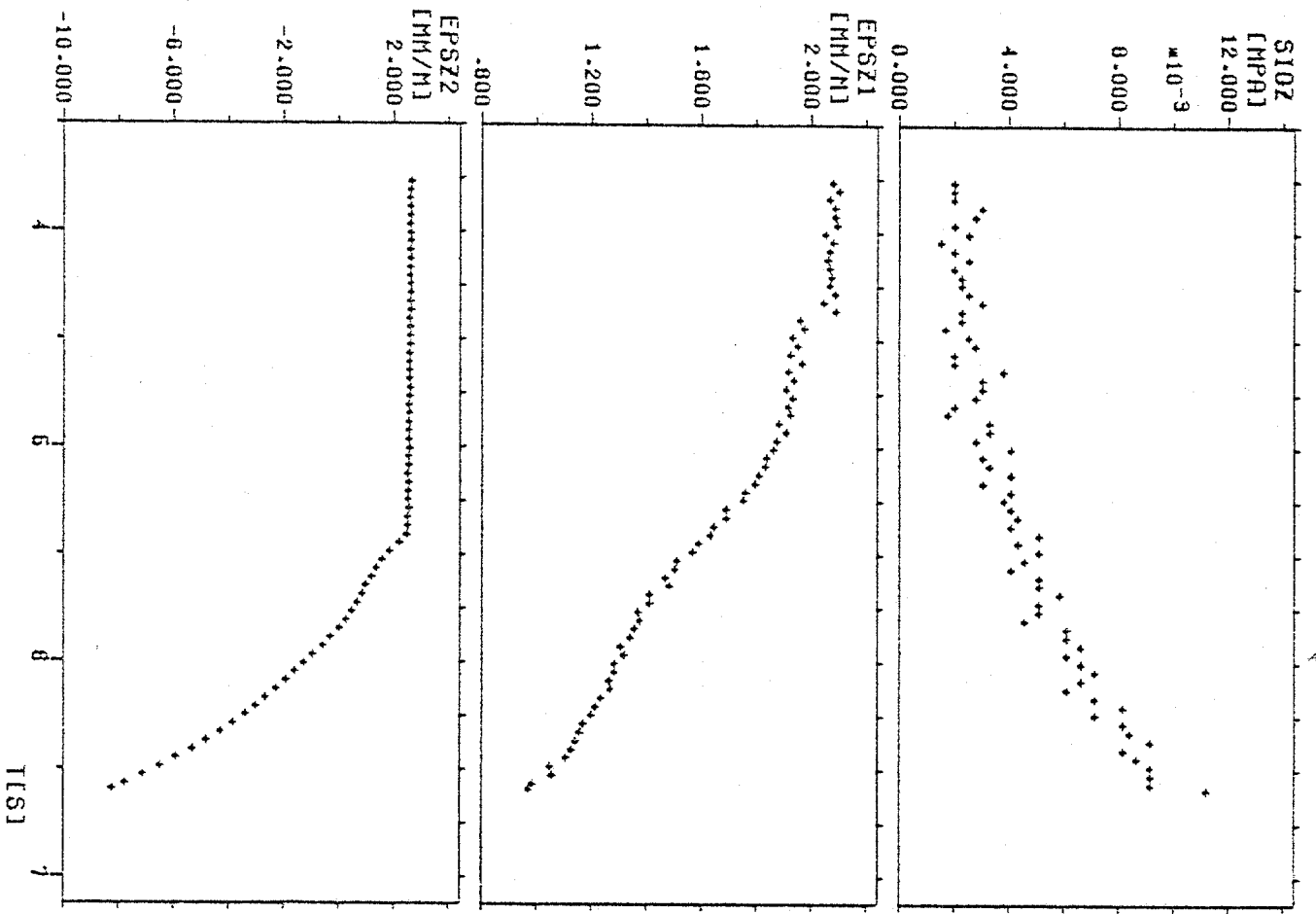




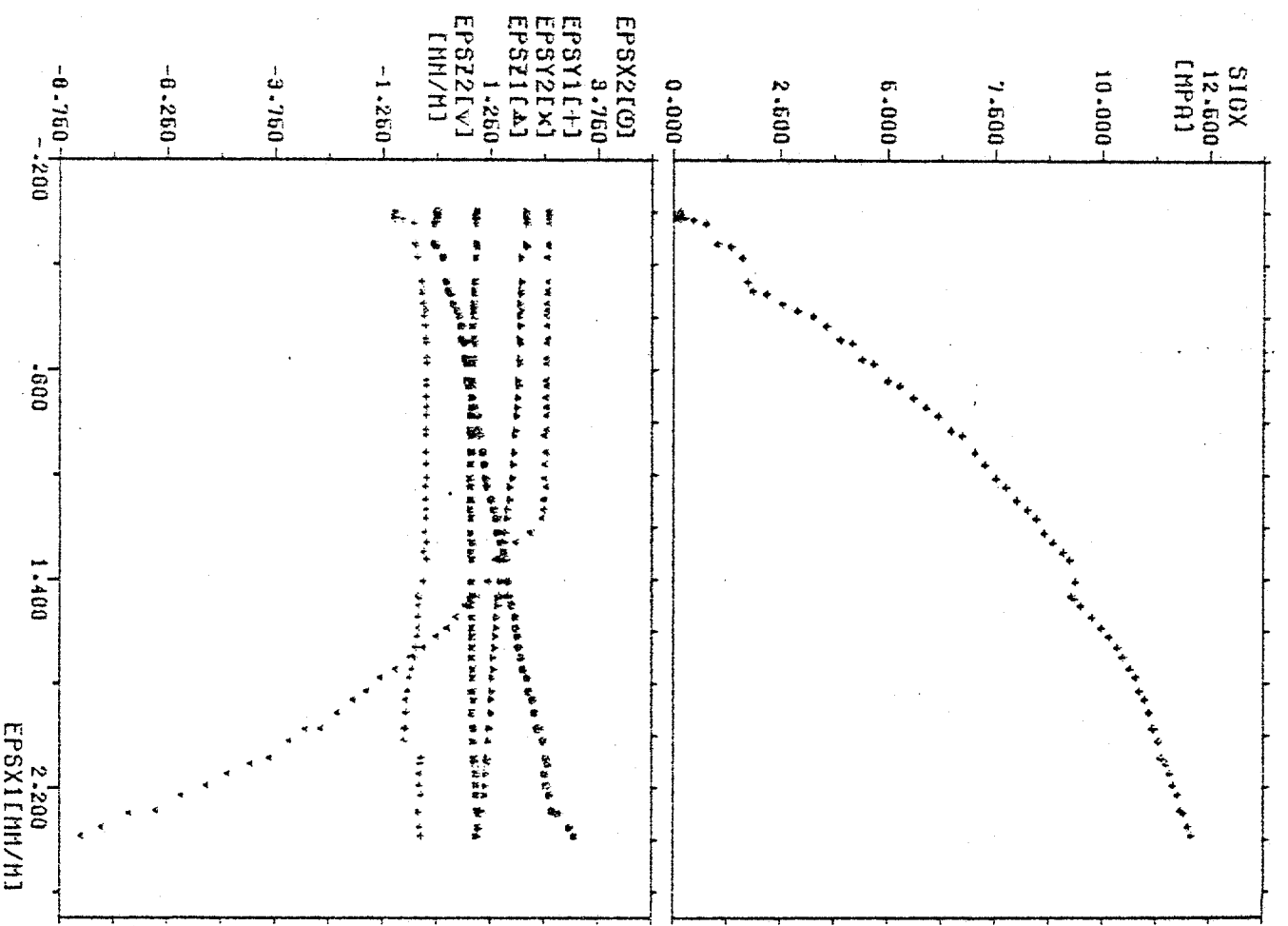
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 NR: 4003.1 VOM 11.11.82 13:58 UHR



SHELL 612509  
 NR: 4003.1 VOM 11.11.82 13:58 UHR



SHELL 612509  
 NR: 4003.1 VOM 11.11.82 13:58 UHR



SHELL 612509  
 NR: 4003.1 VOM 11.11.82 13:58 UHR

HAMBURGISCHE SCHIFFBAU-VERSUCHSANSTALT GMBH.

Bramfelder Str. 164

2000 Hamburg 60

Report No. E 136/83

Appendix C

Uniaxial and Biaxial Compressive  
Strength Tests on Sea Ice Sampled  
from Multiyear Pressure Ridges

SHELL DEVELOPMENT COMPANY

Appendix C

Directory to the Slides  
Comments on Individual Tests  
E 136/83

Directory list to slides and run numbers

Slide No.	Run No.	Comment
1	1002	cube after test, upright as tested, load cell side face
2	1005	cube after test on the loading frame
3	1006	cube prior to test
4	1007	cube after test
5	1008	cube prior to test
6	1009	cube prior to test
7	1010	cube during test with loading platens and $u_{x1}$ deflection transducer
8	1010	cube after test, load cell side faces
9	1011	cube after test
10	1012	cube prior to test
11	1012	cube during test with loading platens and $u_{x1}$ deflection transducer
12	1012	cube after test
13	2002	cube prior to test
14	2004	cube after test
15	2005	cube prior to test
16	2006	cube after test
17	2010	cube after test
18	2011	cube after test, actuator side faces
19	2012	cube prior to test
20	2013	cube after test
21	2014	cube after test
22	2015	cube after test, load cell side faces

Slide No.	Run No.	Comment
23	3005	cube after test
24	3007	cube prior to test
25	3007	cube after test
26	3008	cube after test
27	3008	cube after test
28	3009	cube after test
29	3010	cube prior to test
30	3011	cube after test on the loading frame
31	3013	cube after test, load cell side faces
32	3016	cube prior to test
33	3017	cube after test on the loading frame
34	4005	cube after test
35	4006	cube after test
36	4007	cube after test on the loading frame
37	4008	cube prior to test
38	4009	cube prior to test
39	4010	cube after test
40	4011	cube after test (run no. on the picture is wrong)
41	4012	cube prior to test
42	4012	cube after test, on the loading frame
43	4012	cube after test
44	4013	cube after test
45	4014	cube prior to test
46	4014	cube after test

Slide No.	Run No.	Comment
47	5001	cube prior to test
48	5004	cube after test
49	5005	cube after (!) test
50	5007	cube prior to test
51	5008	cube prior to test
52	5009	cube prior to test
53	5010	cube prior to test
54	5011	cube after test
55	6001	cube after test
56	6002	cube after test, on the loading frame
57	6002	cube after test, load cell side faces
58	6003	cube prior to test
59	6004	cube after test, actuator side face
60	6005	cube after test, on the loading frame
61	6005	cube after test, top and load cell side faces
62	6006	cube after test
63	6007	cube prior to test
64	6008	cube after test, debris on the loading frame
65	6009	cube prior to test
66	6011	cube after test

Slide No.	Run No.	Comment
67	* 1001	cube prior to test
68	* 2001	cube prior to test, on the loading frame
69	* 2001	cube after test, on the loading frame
70	* 3002	cube prior to test
71	* 3002	cube after test, on the loading frame
72	* 3003	cube after test, finger points to 1-corner of cube
73	* 4001	cube prior to test

Pictures of run numbers 5012, 5013 and \* 4003 are missing .

Directory List to Comments

Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [°C]	Strain Rate $\dot{\epsilon}_x^y$ [s <sup>-1</sup> ]	Comments Page No.
1002 1005 1006 1007 1008 1009 1010 1011 1012 1015	1:1	- 5	$10^{-5}$	-- C7 C7 -- C7 C7 C7 -- C7 C7
2002 2004 2005 2006 2010 2011 2012 2013 2014 2015	2:1	- 5	$10^{-5}$	C7 C7 C8 C8 C8 C8 C8 C8 C8 C8
3005 3007 3008 3009 3010 3011 3013 3014 3016 3017	1:1	-20	$10^{-3}$	C9 C9 C9 C9 C9 C9 C9 C9 C10 C10 C10
4005 4006 4007 4008 4009 4010 4011 4012 4013 4014	2:1	-20	$10^{-3}$	C10 C10 C10 C11 C11 C11 C11 C11 C11 C12



Run No.	Stress Ratio $\sigma_x : \sigma_y$	Temperature $T_I$ [°C]	Strain Rate $\dot{\epsilon}_{x1}^y$ [s <sup>-1</sup> ]	Comments Page No.
5001 5004 5005 5007 5008 5009 5010 5011 5012 5013	1:0	- 5	$10^{-5}$	-- C12 C12 C12 -- C12 -- -- -- --
6001 6002 6003 6004 6005 6006 6007 6008 6009 6011	1:0	-20	$10^{-3}$	C12 C13 C13 C13 C13 C13 C13 C13 C13 C13 C14
*1001	1:1	- 5	$10^{-5}$	C14
*2001	2:1	- 5	$10^{-5}$	C14
*3002 *3003	1:1	-20	$10^{-3}$	C14 C14
*4001 *4003	2:1	-20	$10^{-3}$	C15 C15

Comments on individual tests strain transducer attached  
to end of bristles

# 1005

Values of  $\sigma_x$ ,  $\epsilon_{x1}$  and  $\epsilon_{x2}$  not plotted at the end of the test run.  
Strain value  $\epsilon_{x2}$  seems questionable.

# 1006

Minor oscillations after about 3500 seconds.

# 1008

Half the specimen consists of snow ice, larger air pocket inclusions.

# 1009

Strain value  $\epsilon_{x2}$  seems invalid. Several breaks in load curve.

# 1010

Stiff specimen large deformations at upper unloaded surface.

# 1012

Large deformations at upper unloaded surface.

# 1015

Signal error in x-stress channel at starting time leads to wrong scaling of corresponding plots.

# 2002

Minor oscillations. Strain  $\epsilon_{x2}$  seems valid only during the first 2000 seconds.

# 2004

Strain  $\epsilon_{x2}$  seems valid only during the initial 1800 seconds of the run.

# 2005

Minor oscillations after about 3000 seconds, increasing after additional 1000 seconds. Some breaks in force.

# 2006

Several breaks in force. Air pocket inclusions.

# 2010

Few air pocket inclusions. Response characteristics of the specimen lead to more or less expressed oscillations. Detailed analysis performed only until first sharp break in force 1850 seconds after start of ramp.

# 2011

Few air pocket inclusions. Response characteristics of the specimen lead to oscillations. Tuning of control circuit during test necessary.

# 2012

Wrong scaling of stress in x-direction. Stiff specimen.  
Detailed data analysis performed only for the first 1950 seconds.

# 2013

Load increases slightly after the yielding point until end of test.  
Maximum stress is reached with  $\sigma_x = 2.5$  MPa very close to the end.  
Several breaks in force, some oscillations.

# 2014

Detailed analysis only until first sharp break in force at about 1580 seconds after start of the ramp.

# 2015

Slight oscillations around 4200 seconds after start of the ramp.

# 3005

Transparent specimen. Brittle burst 4 seconds after start of ramp, initial yield 1.2 seconds earlier. Strain  $\epsilon_{y2}$  apparently indicates opening crack at 2 seconds after start of ramp ( $t = 4.00$  s).

# 3007

Transparent specimen with some air pocket inclusions. Detailed analysis ends at the moment of burst.

# 3008

Transparent specimen with minor inclusions. Detailed analysis ends at the moment of burst. Strain  $\epsilon_{z2}$  apparently is invalid.

# 3009

Transparent specimen with minor inclusions. Rupture occurs after a period of strain softening following yield. Primary crack pattern seems not to be affected by indentation of bristles into the specimen's surface.

# 3010

Homogeneous transparent specimen. x-strain out of control after first rupture at 1.5 seconds after start of ramp ( $t = 3.6$  s). Specimen totally broken into pieces.

# 3011

Transparent specimen with minor inclusions. Totally broken into pieces after test. Crack pattern apparently independent of bristles' grid. First load peak gives yield strength. Final burst at second peak, which exceeds the first peak by about 16%.

# 3013

Rather transparent specimen with some minor inclusions. Small oscillations during the test can be observed at x and y strains. End of detailed analysis indicates the moment of burst.

# 3014

Some air pocket inclusions. Load break at 2.3 seconds after start of ramp. Previous peak stress (first peak)  $\sigma_x = \sigma_y = 11.7$  MPa which is 70% of the later yield strength. First peak occurs at controlled x strain  $\epsilon_{x1} = 2.20 \cdot 10^{-3}$ . Strain  $\epsilon_{yz}$  shows a jump 3.3 seconds after start of ramp. The readings subsequent to the jump are questionable. Specimen totally broken into pieces.

# 3016

Homogeneous transparent sample. Analysis starts short after start of ramp. First load peak with subsequent sharp break in load at 0.9 seconds after start of ramp. Stress at first peak is  $\sigma_x = \sigma_y = 2.44$  MPa which gives 22% of the yield strength. The first peak occurs at a strain  $\epsilon_{x1} = 0.86 \cdot 10^{-3}$ . Specimen is totally broken after test.

# 3017

Rather homogeneous sample. Controlled strain  $\epsilon_{x1}$  shows small oscillations. First load drop is final. After the test specimen is broken for the most part. The jump in strain  $\epsilon_{yz}$  at  $t = 4.8$  s seems questionable.

# 4005

Turbid specimen with many air bubble inclusions. Sudden burst at test end.

# 4006

Rather homogeneous sample, covered with cracks after test, bursting failure.

# 4007

Rather transparent specimen with a number of smaller air bubble inclusions. Brittle failure about 2.2 seconds after start of ramp. Sample totally burst with preferred crack orientation in plane with the load axes.

# 4008

Specimen with some air bubble inclusions. Brittle failure about 4.5 seconds after start of ramp. Sample totally burst with preferred crack orientation in plane with the load axes.

# 4009

Specimen with bubbly air inclusions. Sample fails about 6.2 seconds after having passed the yield point. It is crushed after test and shows among many other cracks a V-shaped pattern on the one face of the cube the normal of which is directed towards the y-axis' ram.

# 4010

Many air bubble inclusions. Clear prints of bristles at loaded surfaces. Many fine cracks throughout the sample, but no major cracks occurred. The secondary load maximum at 11.5 seconds after start of ramp seems questionable. It is not clear, whether the peak is created by the sample or by an instability of the control circuit.

# 4011

Apparently snow ice with very much air bubble inclusions. The load curve shows a strongly marked maximum, to which follows a period of strain softening with monotonously decreasing load. At about 44 seconds after yield a sudden collapse occurs. After test the specimen was covered with many fine cracks. The loaded surfaces showed clear prints of the bristles.

Run number on photo is erroneous (4010 instead of 4011).

# 4012

Oscillations from 12 to 28 seconds after start of ramp assumingly due to instability in the control circuit. Load curve exhibits a distinct yield point and a sudden collapse about 41 seconds later.

# 4013

Similar behaviour as # 4012, oscillations between 8 and 17 seconds after start of ramp. Specimen was rather homogeneous without major inclusions.

# 4014

Apparently snow ice, many inclusions (mostly air pockets). Main failure plane parallel to y-load axis and inclined between 30 and 45 degrees to the x-load axis. Collapse occurs rather early during strain softening after yield.

# 5004

Specimen with some air bubble inclusions. About 3200 seconds after start of ramp the surface directed to y-load cell gets into contact with its corresponding loading platen, which had been taken back previously to a distance of about 2 mm. However the y-load remains negligible.

# 5005

Snow ice specimen filled with air bubbles. Three load breaks during test, the first at about 1900 seconds after start of ramp in connection with oscillations, the two others at 3500 and at 4500 seconds without oscillations. No cracks can be observed.

# 5007

Wrong measuring range shows listed x-stresses too small. Values must be multiplied by a factor of 10! Plots are corrected. Specimen with many air bubble inclusions. First load break at about 800 seconds after start of ramp occurs in connection with oscillations. Several later load breaks without oscillations.

# 5009

One part of the specimen consists of clear ice, the other part is snow ice with larger cavities and air pocket inclusions.

# 6001

Specimen consists of snow ice with several air bubbles inclusions. Oscillations during the strain softening period after yield (eliminated by tuning of the control circuit).

# 6002

Some oscillations of relatively high frequency occurred during initial load raise which disappear around yield. Many cracks.

# 6003

Specimen fails in a brittle mode. At fracture load drops to zero and stays there. Sample is totally broken after test.

# 6004

Rather large air pocket inclusion. Brittle failure during initial load raise. Sample totally broken with preferred crack orientation parallel to load direction.

# 6005

Extraordinary homogeneous sample. Preferred crack orientation parallel to load direction.

# 6006

After test many small cracks throughout the sample but no major crack pattern.

# 6007

Specimen consists to a large amount of snow ice with large air bubble inclusions. Many short cracks with preferred orientation around parallel to load direction.

# 6008

Very homogeneous sample without larger inclusions. Brittle failure with total destruction of the sample.

# 6009

Rather small air pocket inclusions throughout the specimen. Specimen fails in a brittle mode right at the end of the strain hardening period. The sample is totally destroyed at the end of the test run.



# 6011

Specimen has several bubbly inclusions, which are not distributed uniformly over the cube. After the test the probe is filled with smaller cracks the preferred orientation of which is parallel to the load direction.

In addition a crack system was observed which is inclined to about  $45^\circ$  to the loading direction. Some oscillations occurred during the strain softening period, which disappeared after tuning of the control circuit.

Strain transducer attached to top face of sample (pilot series)

#\*1001

Surface cracking leads to draw back of the hydraulic rams.

#\*2001

Specimen is filled with small air bubbles. After the test run the sample exhibits many short cracks in plane with the loading directions.

#\*3002

Clear sample with glass like transparency. Main cracks coplanar with the load directions. Additional crack planes inclined to about  $45^\circ$  to the load directions. No interference with bristles' grid.

#\*3003

Many small air bubbles throughout the sample. The cube seems to be more ductile parallel to the cube's y-axis. In order to eliminate the control problems resulting from this behaviour the specimen was turned  $90^\circ$  around its z-axis, so the machine's x-axis is parallel to the specimen's y-axis and vice versa. The z-axis, which is parallel to the longitudinal axis of the parental core remains unaffected. After the test the sample is cracked all over the cube. In addition to many small cracks four major failure surfaces can be observed which are inclined to about  $15^\circ$  to the loading axes, the one upward, the other downward.

#\*4001

Some smaller air bubbles within a narrow band parallel to the cube's z-axis and slightly inclined to it's x-axis. Clear prints of the bristles on the loaded surfaces after test, but apparently no affect on the main crack pattern. Failure surfaces, mostly parallel to y-axis and slightly inclined to x-axis of the cube, seem to be located at the grain boundaries.

#\* 4003

After initial sharp load raise many internal cracks form in the sample. The crack formation is connected with a clearly audible crackle. The test is terminated by a sudden brittle fracture of the probe.