

QUANTITATIVE ANALYSIS OF DEFECTS IN  
SILICON

Silicon Sheet Growth Development for the Large  
Area Silicon Sheet Task of the Low-Cost Solar Array Project

QUARTERLY PROGRESS REPORT NO. 4

by

R. Natesh  
J.M. Smith  
H.A. Qidwai

Covering the period 1 January 1979 to 31 March 1979

JPL Contract No. 954977

MATERIALS RESEARCH, INC.  
790 East 700 South Street  
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The JPL Low-Cost Silicon Solar Array Project is sponsored by the U.S. Department of Energy and forms part of the Solar Photovoltaic Conversion Program to initiate a major effort toward the development of low-cost solar arrays. This work was performed for the Jet Propulsion Laboratory, California Institute of Technology, by agreement between NASA and DOE.

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## TECHNICAL CONTENT STATEMENT

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Department of Energy, nor any of their employees, nor any of their contractors, subcontractors, or their employees, make any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

### NEW TECHNOLOGY

No new technology is reportable for the period covered by this report.

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## S E C T I O N I

### S U M M A R Y

This report describes the various steps involved in the chemical polishing and etching of Motorola silicon samples. Data on twins, dislocation pits, and grain boundaries from thirty one (31) Mobil Tyco silicon sample numbers 47 to 77 are also discussed.

A brief review of the changes made to upgrade the Quantimet 720 Image Analysis System is included in this report.



## SECTION II

### INTRODUCTION

The objective of this program is to evaluate and, if possible, predict conversion efficiency for a variety of silicon samples with differences in structural defects, such as grain boundaries, twin boundaries, precipitate particles, dislocations, etc. Quantitative characterization of these structural defects, which have been revealed by etching the surface of silicon samples, can then be performed by using a Quantimet 720 Image Analyzer.

The silicon samples have been obtained by JPL from different manufacturers. Each of these manufacturers use their own crystal growth and fabrication techniques and, therefore, the various types of silicon produced contain a variety of trace impurity elements and structural defects. The two most important criteria in evaluating the various silicon types for solar cell applications are: (i) cost and (ii) conversion efficiency. At present, the solar cells with highest conversion efficiency are made of high purity silicon single crystals, which are free from structural defects such as dislocations, twin boundaries, precipitate particles, etc. But these single crystal solar cells are very expensive and may not meet the DOE goal of 50 cent/watt by 1986. On the other hand, silicon crystals such as EFG ribbons, Dendritic Webs, etc. are NOT single crystals but made of highly ordered crystals which contain large number of dislocations, twin boundaries, grain boundaries, precipitates, etc., compared to the premium grade silicon.

The following important questions must be answered to evaluate the conversion efficiency of low cost and high cost silicon: (i) What effect do these defects have on conversion efficiency of low cost and high cost silicon? (ii) Of the various types of defects, which defect/defects severely affects conversion efficiency? (iii) At what concentrations does this effect become significant? (iv) Is there a rapid, accurate, quantitative method that can be used routinely as a Quality Assurance tool?

Quantitative analysis of surface defects is being performed by using a Quantimet 720 Quantitative Image Analyzer. This system can differentiate and count 67 shades of gray levels between black and white contrasts. In addition, it can characterize structural defects by measuring their length, perimeter, area, density, spatial distribution, frequency distribution (in any preselected direction), and so on. However, the Quantitative Image Analyzer is extremely sensitive to optical contrasts of various defects. Therefore, to obtain reproducible results, the contrasts produced by various defects must be similar and uniform for each defect types along the entire surface area of samples to be analyzed. To achieve this, a chemical cleaning and polishing technique has now been perfected for silicon samples from Mobil Tyco, Wacker, IBM, and Motorola. The cleaning and polishing preparation technique produces a very clean and even surface for silicon crystals suitable for analyses by the QTM 720 Image Analyzer. We are now obtaining quantitative information from a variety of silicon crystals. Quantitative data on 31 Mobil Tyco samples are given in this report.

The Quantimet 720 Image Analyzer is now being upgraded with the addition of a P.D.P. 11/03 minicomputer (with dual floppy discs), a DIGITAL Equipment Corporation LA-120 high speed printer and a Field-Image-Feature Interface module (F.I.F.I.).

These changes will greatly enhance the speed and reliability of the Quantimet 720 system at no additional cost to JPL.

## SECTION III

### CHEMICAL POLISHING AND ETCHING OF MOTOROLA SAMPLES

#### CHEMICAL POLISHING:

In our previous Quarterly Report<sup>1</sup> and One-Time Report<sup>2</sup> on Crystal Cleaning and Polishing techniques, we have discussed in detail the procedures of chemical polishing and chemical etching. These techniques were perfected for Wacker, IBM, and Mobil Tyco samples. However, as mentioned in our Quarterly Report<sup>1</sup>, there is a variation in polishing time for the Wacker, Mobil Tyco, and IBM samples. This variation is due to certain inherent manufacturing, fabrication, and processing variables, which affect the chemical reaction rates for the three types of the samples under otherwise identical polishing conditions. Similarly, the polishing time of the silicon samples manufactured by Motorola has been observed to be different from those of IBM, Wacker, and Mobil Tyco samples.

The results of chemical polishing of Motorola samples are summarized in Table 1. It may be observed from the Table 1 that the polishing temperature of  $50^{\circ} \pm 3^{\circ}\text{C}$  and polishing time of 35-45 seconds are acceptable for the Motorola samples. However, the Wacker samples require 80-85 seconds, the IBM samples require 30 seconds, and the Mobil Tyco samples require 45 seconds for polishing.

It may be noted that samples which are slightly underpolished as well as samples which are well-polished, exhibit bright and shiny surfaces when observed by the naked eye. Therefore, visual observation cannot be used to determine the quality of polishing. However, when the samples are observed in a high quality optical metallograph, the underpolished samples

show faceting and sub-grain type structure, whereas the well-polished samples show clearly defined grain boundaries and some of the twin boundaries in sharp contrast. Therefore, an optical metallograph must be used to determine the quality of polishing.

#### CHEMICAL ETCHING:

We have discussed in detail the composition and variation of the etching solution, the etching procedure, and the variation of the etching times in our previous reports<sup>1,2</sup>. Etching solution III was used to distinctly reveal the structural defects such as grain boundaries, twin boundaries, and dislocation pits for IBM, Wacker, and Mobil Tyco samples. This etching solution contained 10 g  $Cr_2O_3$  in 60 ml deionized water and 60 ml concentrated HF.

All the Mobil Tyco, IBM, and Motorola samples analyzed so far were etched for 50 seconds using etching solution III. The etching solution and etching time of 50 seconds were kept constant for all the samples. Since the samples were etched under identical conditions, the defects densities in these samples can be directly compared from one sample to another.

## SECTION IV

### TECHNICAL DISCUSSION

Chemical polishing and chemical etching of thirty one (31) Mobil Tyco samples and eight (8) Motorola samples were completed in the current reporting period. The 31 Mobil Tyco samples were then analyzed for twin boundaries, grain boundaries, and dislocation pits.

Procedure for QTM analysis, method of selecting fields, and explanation of teletype printouts are discussed below.

#### Measurement of Twins and Dislocation Pits:

In the Mobil Tyco samples, almost all the twins are oriented parallel to one another and run from one edge of the wafer to the opposite edge (parallel to the longitudinal axis of the silicon ribbon). Therefore, in order to measure twin density, 50 fields were chosen along the central transverse axis of the sample. In other words, the central transverse axis is perpendicular to the twins. The distance between each of these 50 fields where measurements for twins were made was 0.31 mm. The long dimension of each field is 0.30 mm. Therefore, each of these fields are adjacent to one another by a distance of 0.01 mm, and therefore, do not overlap one another. It is important that the fields do not overlap, since the same twin should not be counted twice. At the same time, the fields must be close to one another so that almost all the twins are counted by the QTM. On the other hand, counting may also be done using a square raster of 50 fields distributed evenly over the entire sample surface. In this case, the horizontal distance separating each field will

be 2.5 mm, which is much larger than the long dimension of the frame i.e., 0.30 mm. Therefore, under the method of square raster, there is a possibility that areas in the sample where the twin or dislocation density is very high may not be counted. This will result in large errors. Therefore, all the 50 fields were counted along the central transverse axis of the sample.

It has also been found that the dislocation pit density in the Mobil Tyco samples have longitudinal symmetry similar to the twins<sup>1</sup>. Therefore, for the dislocation pit density measurements, all of the fifty fields were counted along the central transverse axis of the Mobil Tyco silicon samples.

#### Measurement of Average Area of Twins and Dislocation Pits:

Before measurements were made for twins, each sample was scanned to determine manually the average area of one twin. The method of determining the average twin area is as follows: First, the sample surface was randomly scanned, and those fields were selected where the twins were not touching each other. Each field, generally containing more than 5 distinct twins, were then displayed on the display module of the QTM. The total area of all the twins in each field was determined and divided by the number of twins in that field to get the average twin area for that field. The average twin area was then determined in an additional 4 fields. The arithmetic average was then calculated from the average twin area in these five fields. Generally, 30 to 40 twins are used in 5 fields to get the average twin area. The same procedure was used to obtain the average dislocation pit area. The average twin area in each sample was then fed into the Register (038) of the HP 9810. This is an important step to get actual number of twins and dislocation pits, especially in areas where the densities of

these defects are high and they touch one another. In order to verify that the average area of a twin so obtained was accurate, an additional six fields were selected at random where the twin density were high, and the twins were touching one another. The twin density in each of these six fields were counted manually, and also counted by the QTM using the average area of a twin. The entire procedure was repeated until close agreement was reached between manual counting and QTM counting. After this procedure, measurements were then made on all the 50 fields for each of the 31 Mobil Tyco samples using the automatic QTM mode.

Explanation of Teletype Printout :

The QTM measurements for twins and dislocation pits on Mobil Tyco samples 47 to 77 are shown in attached teletype printouts. The first paragraph of the teletype printout gives the date, name of the manufacturer, sample number, name of the defect type being measured, size of the X and Y steps, and average values of twin area and dislocation pit area that were measured manually and fed into the Register 038 for each sample. In addition, the teletype printout for twin measurements also shows that the QTM output data is divided by 100. This procedure was followed in order to avoid frequent overflow problems in the Classifier-Collector.

The second paragraph of the teletype printout lists: 1) the 800 X magnification that was used; 2) calibrated equivalent value of one picture point in the units being used i.e. mm for twins and microns for dislocation pits; and 3) calculated area of one field (frame) in the units being used. The frame area of a standard frame in the QTM is 500,000 pictures points (pp). In case of twins, the standard frame was used. However, during dislocation density measurements the uneven sample surfaces caused problems



in focusing dislocation pits over the entire standard frame. Therefore, during dislocation density measurements half the standard frame (250,000 pp) was used. This is shown under "Frame Area" in the QTM data sheets. The unit of measurement was millimeter for twins, and microns for dislocation pits.

The third paragraph of the teletype printout lists the titles for the different measurements, which are explained below:

Field: indicates the sequence number of the field in which measurements were made.

No: denotes the total number of features detected in any field. This is obtained by dividing the total area of a feature by the average area of that feature.

No./Area: denotes the computed number of features/mm<sup>2</sup> or features/microns<sup>2</sup> in each field.

MFPV: denotes the mean free path in the vertical direction. This quantity is the frame area divided by the vertical projection of all detected features in the field (frame).

MFPH: denotes mean free path in the horizontal direction. This is the horizontal analogue of MFPV.

L/A: This quantity is length of detected features per unit area. The unit area is mm<sup>2</sup> in the case of twins and microns<sup>2</sup> in the case of dislocation pits.

Note: The quantity L/A is subject to large errors when twin bands are present. The QTM computes L/A by dividing the perimeter by 2. A twin band usually contains 20 to 100 individual twins, many of them touching

one another. The QTM will compute L/A by dividing the perimeter of the twin band by 2. In other words, the QTM may count the entire twin band as one large area rather than consisting of several individual twins. Thus,  $\bar{L/A}$  is subject to large errors and is underestimated by QTM.

AFETA: This denotes the average area of the features detected in each field. This is to be ignored in the attached teletype printouts, since the average area was determined manually at the start.

Note: The attached teletype printouts show, after 25 and 50 fields, the computed values of average, standard deviation, and standard error for all data from field No. 1 onwards. This averaging can be done at any time during the course of the measurement.

For all the samples (Mobil Tyco 47 to 77), the average twin area was divided by 100 before feeding into Register 038 of the HP 9810. Therefore, the QTM data for "No." and "No./Area" are actual. However, "MFPV" and "MFPH" are to be divided by 100 (because "area" is the numerator and "intercept distance" is the denominator); and "L/A" is to be multiplied by 100 to obtain actual values.

The grain boundaries in each sample were counted under the binocular microscope using 7X magnification. Most of the grain boundaries were parallel or approximately parallel to the twins. In general, there were no complete grains in a sample, i.e., the grain boundaries were running from bottom edge to top edge of a sample.

### Upgrading of the Quantimet 720 Image Analyzer :

During the month of February, the Quantimet Image Analyzer system (QTM 720) was upgraded with the addition of a PDP 11/03 minicomputer, a Field-Image Interface Module (F.I.F.I.), and a DIGITAL Equipment LA-120 teletype. These modifications will result in a significantly improved image analysis system at no additional cost to JPL.

The PDP 11/03 minicomputer, that replaces a Hewlett-Packard Model 9810 desk top calculator, has a dual floppy disk drive and 64K bytes of memory. This new system allows software control of most Quantimet 720 data acquisition and analysis functions. These functions include the X, Y specimen stage motion (with automatic focusing), variable frame position, gray level detection, and feature measurements such as area, perimeter, vertical projection, and horizontal projection.

The link between the PDP 11/03 minicomputer and the Quantimet 720 Image Analyzer is the Field-Image-Feature Interface module<sup>3</sup>. This new module allows feature specific data acquisition, which was not possible on the earlier system. This module transfers data on image fields or on individual features to the computer core memory at very high speed. Geometric, densitometric, and co-ordinate data can be transferred from the Quantimet 720 to the PDP 11/03 minicomputer. Data for all the features in the field may be transferred, or data for only those features selected by the Quantimet size discrimination; or data selected by the image editor may be transferred to PDP 11/03. Pattern recognition can be performed by the PDP 11/03 using shape functions derived from feature measurements.

The results of this pattern recognition can be used to define automatically the region for full image transfer. Also, with this system a computer generated digitised image and a complete character format can be superimposed on the Quantimet 720 display screen<sup>3</sup>. Real time updated histograms, labels on features that satisfy preprogrammed pattern recognition tests, and numerical measurements on selected features can be displayed.

This system allows for very flexible data acquisition and analysis. Since the PDP 11/03 software controls many of the functions of the Quantimet 720, there is less chance for operator error. The time required to scan and analyze a field is now about 5 seconds as compared with about 10 seconds for the earlier system.

Data is recorded on floppy discs. Each disc can record the data from about 80 silicon samples (50 fields per sample). The data is output on a DIGITAL LA-120 Decwriter III printer which replaces a teletype. The LA-120 has a printing rate of 180 characters per second, which is a great improvement over the earlier teletype that had a printing rate of 10 characters a second. The addition of the LA-120 printer and floppy disc data storage system makes a significantly improved data storage and retrieval system.

The F.I.F.I. module allows for feature specific area scans. This additional capability will have to be investigated in order to determine if it can be advantageously applied to the analysis of defects in silicon samples.

This new equipment should become operational sometime in May, but additional time will be required for personnel to learn to operate the new system. Also, a new computer program must be written for the PDP 11/03 minicomputer that will co-ordinate the data acquisition and analysis functions of the Quantimet 720.

## SECTION V

### RESULTS

Sixty two (62) teletype printouts containing data on thirty one (31) Mobil Tyco samples are attached herein. For each sample, there are two teletype printouts, listing data separately for twins and dislocation pits. In addition to the teletype printouts; data on twins, dislocation pits, and grain boundaries have been summarized in Tables 2 to 5 for ease of correlation and comparison. Each table contains data from eight specimens cut from the same ribbon (see Fig. 1).

Grain boundary length/cm<sup>2</sup> have been measured and computed for each sample using a binocular microscope at a magnification of 7X.

There is no clear cut relationship present between twins, grain boundaries and dislocation pits among these samples whether cut from the same ribbon or when samples from different ribbons are compared.

Specimens from ribbon 5-640 MRR #1 contain lowest density of twins/mm<sup>2</sup> when compared with specimens cut from ribbons 5-640 MRR #2, 5-745, and 5-743. Similarly, specimens from ribbon 5-640 MRR #2 show lowest density of dislocation pits when compared to specimens from other ribbons. In general, the twin and dislocation densities in specimens taken from ribbons 5-640 MRR #1 and #2 are comparable. Similarly, the twin and dislocation densities in specimens from ribbon 5-745 and 5-743 are comparable. Specimens from these two ribbons on the whole exhibit higher densities of twins and dislocations when compared with specimens from ribbons 5-640 MRR #1 and #2.

Polishing time of the Motorola samples has been found to be 35-45 seconds using a temperature of  $50^{\circ}\text{C} \pm 3^{\circ}\text{C}$ . The etching solution and etching time of 50 seconds were kept constant for all of the samples. Since the samples were etched under identical conditions, the defect density in the samples can be directly compared.

## SECTION VI

### C O N C L U S I O N S

Polishing and etching procedures have been perfected for Mobil Tyco, Wacker, IBM, and Motorola silicon samples for obtaining proper contrast of structural defects suitable for QIM analyses.

A computer program for automated quantitative image analyses of grain boundaries, twin boundaries, and dislocation pits using a Quantimet 720 Image Analyzer has been perfected and is being used routinely.

Data collected on thirty one (31) Mobil Tyco samples using the Quantimet 720 Image Analyzer is discussed.

After the thirty one (31) Mobil Tyco samples were analyzed, the Quantimet 720 Image Analyzer system was upgraded with the addition of a PDP 11/03 minicomputer (with dual floppy disc drive), a Field-Image-Feature-Interface module, and a DIGITAL Equipment Corporation LA-120 high speed printer.

These changes will result in a much improved data storage and retrieval system, and should increase the speed and reliability of the Quantimet 720 system.



## SECTION VII

### REFERENCES

1. R. Natesh, J. M. Smith, H. A. Qidwai: "Quantitative Analysis of Defects in Silicon," Quarterly Progress Report No. 3, DOE/JPL 954977, Materials Research, Inc., Technical Report: MRI-264, 1979.
2. R. Natesh, H. A. Qidwai: "Quantitative Analysis of Defects in Silicon," One-Time Report on Crystal Etching Preparation Technique, DOE/JPL 954977, Materials Research Inc., Technical Report: MRI-259, 1978.
3. Quantimet 720 Image Analysing Computer Operating Manual, 2nd Edition, Cambridge Instrument Company, Inc., November, 1971.

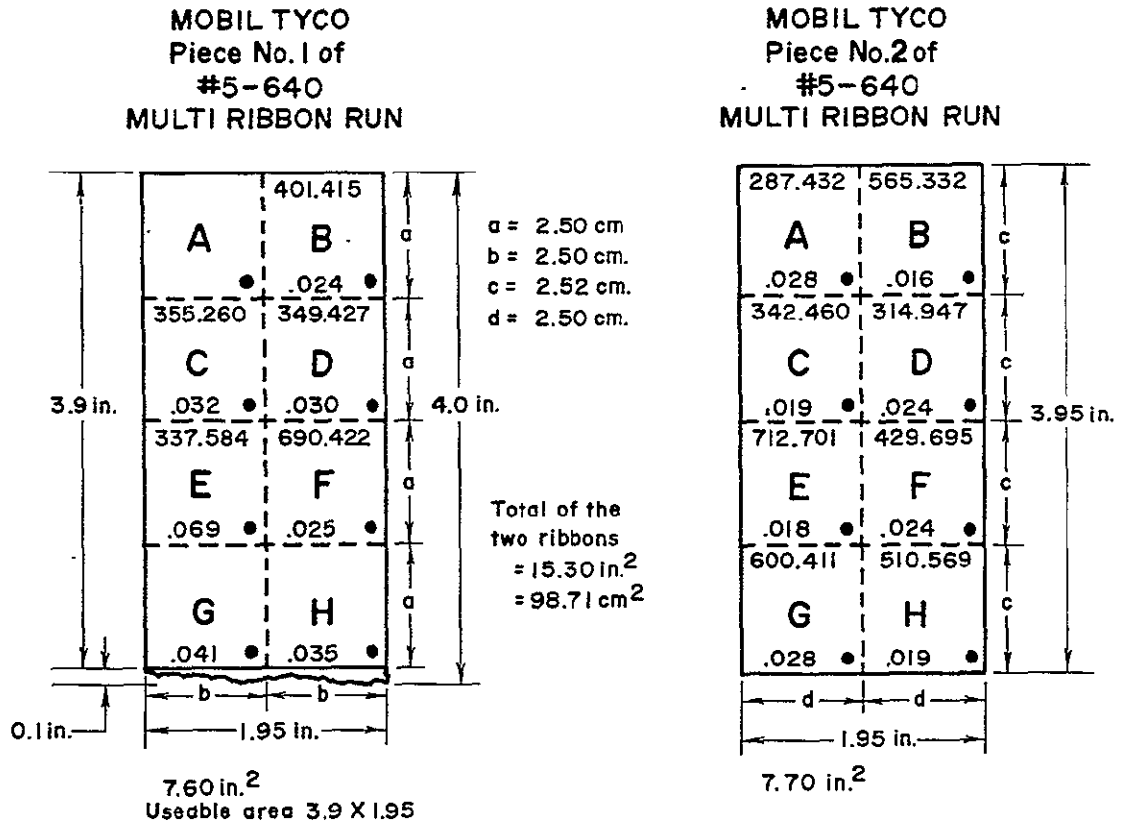
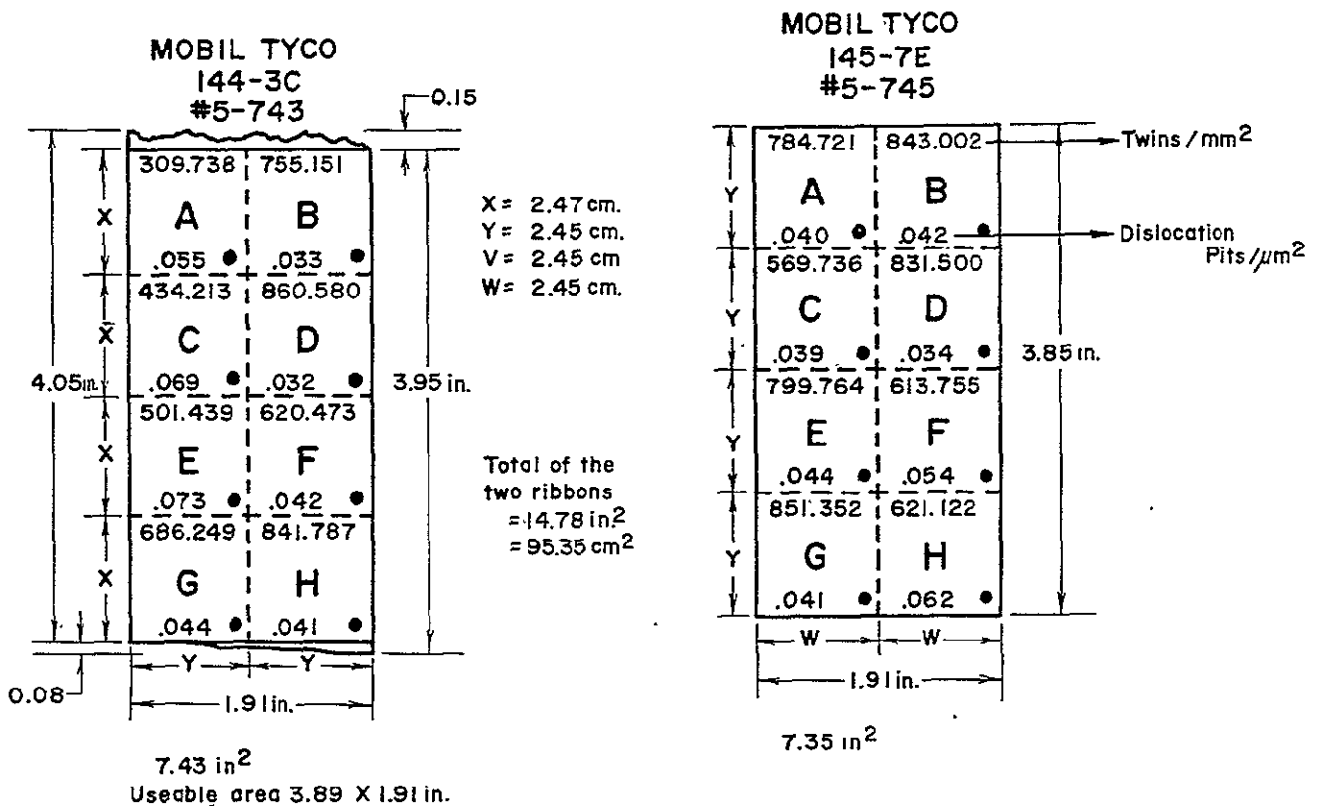


Fig. 1. Schematic sketch showing location of 32 Mobil Tyco samples from four ribbons. In each square (representing a sample), the number at top represents average twin density /mm<sup>2</sup> and the number at bottom represents dislocation density /microns<sup>2</sup>. 24

T A B L E 1

CHEMICAL POLISHING OF MOTOROLA SAMPLES

Polishing solution: mixture of  $\text{HNO}_3$ : $\text{HF}$ : $\text{CH}_3\text{COOH}$  = 1:2:3 by volume

Temperature ( $^{\circ}\text{C}$ )	Time (Sec.)	Surface Condition
50	30	Growth lines persist. Sub-grain type structures present
50	35-45	Good even polishing
50	50	Faceting develops

T A B L E 2

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm <sup>2</sup>	Grain boundary length/cm <sup>2</sup>	No. of Dislocation Pits/field	No. of Dislocation Pits/μm <sup>2</sup>
47	5-745 A	21.78	309.738	0.72	1949.83	0.055
48	5-745 B	53.10	755.151	1.93	1166.29	0.033
49	5-745 C	30.53	434.213	1.82	2428.95	0.069
50	5-745 D	60.51	860.580	3.44	1122.38	0.032
51	5-745 E	32.26	501.439	3.31	2583.40	0.073
52	5-745 F	43.63	620.473	2.30	1493.01	0.042
53	5-745 G	48.25	686.249	2.00	1556.36	0.044
54	5-745 H	59.19	841.787	1.84	1434.39	0.042

T A B L E 3

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm <sup>2</sup>	Grain boundary length/cm <sup>2</sup>	No. of Dislocation Pits/field	No. of Dislocation Pits/μm <sup>2</sup>
55	5-743 A	55.18	784.721	2.27	1423.18	0.040
56	5-743 B	59.27	843.002	0.94	1465.18	0.042
57	5-743 C	40.06	569.736	1.96	1376.75	0.039
58	5-743 D	61.62	831.500	2.00	1189.66	0.034
59	5-743 E	56.23	799.764	2.04	1532.03	0.044
60	5-743 F	43.17	613.955	2.72	1885.17	0.054
61	5-743 G	59.86	851.352	2.48	1458.14	0.041
62	5-743 H	43.67	621.122	1.76	2190.90	0.062

T A B L E 4

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm <sup>2</sup>	Grain boundary length/cm <sup>2</sup>	No. of Dislocation Pits/field	No. of Dislocation Pits/μm <sup>2</sup>
	(MRR #1)					
63	5-640 B	28.22	401.415	1.60	860.36	0.024
64	5-640 C	24.98	355.260	1.40	1136.35	0.032
65	5-640 D	24.57	349.427	2.52	1072.13	0.030
66	5-640 E	23.74	337.584	2.39	2427.54	0.069
67	5-640 F	48.55	690.422	2.19	860.34	0.025
68	5-640 G	18.67	265.506	1.08	1434.89	0.041
69	5-640 H	45.92	653.085	0.59	1245.87	0.035

T A B L E 5

ANALYSIS OF MOBIL TYCO SAMPLES

MRI Sample #	JPL Sample #	No. of Twins/field	No. of Twins/mm <sup>2</sup>	Grain boundary length/cm <sup>2</sup>	No. of Dislocation Pits/field	No. of Dislocation Pits/μm <sup>2</sup>
	(MRR #2)					
70	5-640 A	20.21	287.431	1.92	976.88	0.028
71	5-640 B	39.75	565.332	2.76	576.89	0.016
72	5-640 C	24.08	342.460	2.60	685.26	0.019
73	5-640 D	22.14	314.947	2.19	850.34	0.024
74	5-640 E	50.11	712.701	2.00	621.43	0.018
75	5-640 F	30.21	429.695	1.55	842.35	0.024
76	5-640 G	42.22	600.411	1.82	998.84	0.028
77	5-640 H	35.90	510.569	2.35	650.94	0.019

DATE 1/13/79  
 MUSEIL TYCO SAMPLE # 47, UPL # 145-7 E 5-745 SPEC A  
 TWINS ONLY  
 ITEM OUTPUT DATA DIVIDED BY 1000  
 #31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE FWHM AREA = 84.05 X 1000

MAG 800.0 UNITS/MM CAL FACTOR 0.000375 UNITS/PO  
 FRAME AREA 150.3701KT

FIELD NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
1	7.99	113.611	10.417	0.538	1.990025
2	6.87	27.739	13.2593	5.357	1.000025
3	52.17	742.976	5.515	1.273	0.997725
4	37.22	444.881	3.926	1.563	1.000011
5	17.27	245.637	3.152	1.712	1.000012
6	26.77	389.512	3.482	1.475	1.000011
7	18.12	282.452	2.6785	1.523	1.000008
8	10.31	142.431	2.6944	2.933	1.000009
9	29.49	419.357	5.748	1.892	1.000013
10	54.45	774.891	1.989	1.253	1.000014
11	53.12	783.997	3.538	1.175	1.000016
12	42.20	691.215	4.161	1.062	1.000017
13	19.59	274.761	6.048	1.155	1.000018
14	24.76	352.113	5.068	1.752	1.000019
15	97.13	1281.869	3.926	1.189	1.000020
16	47.52	673.817	4.934	1.913	1.000018
17	35.83	523.779	3.172	1.735	1.000012
18	15.95	226.874	7.212	2.259	1.000015
19	41.67	457.885	3.152	2.341	1.000015
20	22.41	297.992	5.205	1.616	1.000016
21	59.39	843.337	2.757	1.193	1.000012
22	37.25	443.241	3.989	1.784	1.000016
23	34.35	476.611	3.625	6.258	1.000013
24	47.73	672.248	2.509	6.048	1.000015
25	4.95	57.641	3.393	6.250	1.000014
AVERAGE					
NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
26	22.23	401.347	1.752	0.902	1.000011
SD	21.65	337.722	5.283	2.108	1.000017
SE	4.33	61.592	1.056	0.422	1.000011
26	2.54	37.592	18.759	10.417	1.000004
27	1.29	18.078	62.793	62.570	1.000006
LAST FIELD DELETED					
27	5.46	97.690	3.719	5.768	1.000004
28	4.76	67.625	11.719	8.929	1.000005
29	2.54	37.592	18.759	10.417	1.000004
30	2.85	43.514	11.7045	8.523	1.000003
31	21.32	373.240	1.4417	0.573	1.000017
32	2.82	43.928	23.438	0.417	1.000015
33	42.03	597.749	4.261	1.349	1.000011
34	7.84	111.322	6.248	3.2538	1.000003
35	9.34	132.824	1.719	5.708	1.000007
36	25.23	358.793	4.767	1.259	1.000004
37	81.79	1162.004	2.841	0.741	1.000016
38	43.20	611.493	3.472	2.982	1.000013
39	1.76	25.261	37.599	13.393	1.000004
40	5.02	77.324	4.423	3.827	1.000005
41	3.67	52.281	1.045	6.152	1.000004
42	1.12	15.870	37.509	14.428	1.000003
43	17.18	244.347	11.719	2.885	1.000019
44	29.66	421.863	5.357	1.752	1.000019
45	15.74	223.883	11.029	3.348	1.000009
46	6.55	93.144	13.393	6.466	1.000006
47	2.39	28.403	23.438	8.753	1.000005
48	9.60	136.583	7.212	3.435	1.000006
49	7.28	133.586	25.736	9.868	1.000005
50	10.93	194.962	5.152	4.167	1.000006
51	9.34	132.824	7.813	3.996	1.000006
52	9.96	141.596	7.212	3.233	1.000015
53	42.47	633.975	2.679	3.713	1.000007
54	46.67	653.734	6.486	1.769	1.000025
AVERAGE					
NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
21.73	339.738	13.583	4.493	3.449	1.000009
SD	23.89	297.166	8.125	3.996	1.000007
SE	2.54	49.439	1.136	0.542	1.000001

ORIGINAL PAGE IS  
 OF POOR QUALITY



DATE 1/13/79  
 MOBIL TYCO SAMPLE # 47 JPL 3) 1.45-7E-5-745 SPEC 4  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.18 PP

MAG 800.0 UNITS-MICRONS CAL FACTOR 0.375000 UNITS/PP  
 FRAME AREA 3.51562500 14

FIELD NO.	NO	AREA	MFPV	MFPH	L/A	AFETA
1	535.14	0.015	223.72	84.308	0.016	1.179966
2	1133.98	0.032	47.275	46.137	0.031	2.275548
3	1292.68	0.037	48.930	41.909	0.030	3.022773
4	739.58	0.021	65.149	65.836	0.022	2.012203
5	6305.98	0.179	10.793	10.575	0.136	4.329421
6	1664.09	0.047	35.218	33.906	0.042	2.805990
7	4667.95	0.135	15.214	15.241	0.096	4.364971
8	3433.95	0.098	20.288	18.516	0.075	4.169063
9	899.03	0.026	54.474	54.601	0.026	1.954897
10	546.91	0.016	117.174	105.337	0.013	2.713140
11	419.50	0.012	142.261	115.314	0.010	2.752956
12	612.74	0.017	98.892	90.667	0.017	3.138179
13	331.85	0.009	136.067	130.028	0.011	1.539799
14	889.77	0.024	50.295	50.027	0.028	1.517913
15	421.04	0.012	195.313	137.868	0.014	5.476842
16	716.22	0.022	100.375	94.127	0.017	3.514681
17	871.40	0.025	73.529	59.111	0.021	3.487879
18	191.12	0.005	217.014	224.020	0.006	1.529876
19	3231.47	0.092	20.859	19.001	0.073	3.802782
20	218.15	0.006	212.144	211.625	0.007	1.822650
21	144.28	0.001	2018.343	3024.194	0.001	1.506696
22	1077.92	0.003	361.969	339.674	0.005	1.429261
23	1650.19	0.041	29.178	29.016	0.050	1.987641
24	1563.32	0.044	28.661	28.971	0.049	1.722816
25	2012.42	0.057	23.275	23.461	0.062	1.921875

AVERAGE

NO.	NO	AREA	MFPV	MFPH	L/A	AFETA
SD	1376.86	0.032	169.198	202.175	0.034	2.665178
SD	1499.17	0.040	390.061	581.958	0.032	1.098579
SE	299.83	0.019	78.312	116.212	0.006	3.219716

26	1108.30	0.032	69.574	41.245	0.036	1.611433
27	3781.27	0.138	15.708	17.352	0.084	3.609989
28	3110.23	0.088	19.039	18.046	0.078	2.817902
29	6515.80	0.185	11.149	11.068	0.132	4.612609
30	1634.17	0.046	24.212	24.684	0.057	1.480585
31	817.37	0.023	48.475	51.174	0.028	1.344032
32	1168.53	0.031	35.109	36.211	0.040	1.499724
33	3151.93	0.090	15.279	15.914	0.091	2.062879
34	1106.18	0.033	32.197	30.674	0.034	1.227579
35	3388.01	0.096	16.468	15.161	0.090	2.536453
36	3352.90	0.095	17.823	17.432	0.082	2.120399
37	3324.85	0.091	12.237	12.337	0.082	1.216947
38	3.57	0.000	7812.500	5859.375	0.000	0.890625
39	145.56	0.004	279.851	258.978	0.005	1.247426
40	3831.65	0.109	11.294	12.567	0.115	1.962816
41	3723.36	0.106	13.974	14.576	0.101	3.425970
42	2415.25	0.069	24.414	25.594	0.059	2.856193
43	2617.41	0.074	20.546	20.604	0.071	2.022789
44	863.90	0.026	62.210	63.651	0.023	3.280061
45	59.07	0.002	529.661	541.908	0.002	2.151563
46	227.80	0.006	372.419	213.068	0.006	2.212530
47	1949.53	0.056	25.650	27.388	0.055	2.220830
48	3289.38	0.094	14.974	15.612	0.094	2.141295
49	12963.80	0.369	8.614	8.809	0.154	16.146154
50	2518.92	0.072	18.411	18.371	0.079	1.889676

AVERAGE

NO.	NO	AREA	MFPV	MFPH	L/A	AFETA
SD	1949.83	0.055	281.117	256.993	0.047	2.689924
SD	2235.34	0.064	1115.269	996.033	0.049	2.165699
SE	316.12	0.009	157.723	128.132	0.006	0.006275

DATE 1/13/79  
 MOBIL TYCO SAMPLE # 48 JPL # 145-7E-1-745 SPEC  
 TWINS ONLY  
 ATM OUTPUT DATA DIVIDED BY 100  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA .33-52X100

MAG-800.2 UNITS-MM CAL. FACTOR 0.000375 UNITS/PP  
 FRAME AREA 0.070318

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	50.18 713.557	4.934	1.915	1.176	1.000019
2	123.27 1753.169	7.500	1.369	0.795	1.000042
3	2.00 0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$\$\$\$\$
4	2.00 0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$\$\$\$\$
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
43.36	616.726	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	0.493	\$\$\$\$\$\$\$\$\$\$\$\$
SD	59.48	717.914	\$\$\$\$\$\$\$\$	0.511	\$\$\$\$\$\$\$\$\$\$\$\$
SE	65.24	738.957	\$\$\$\$\$\$\$\$	0.255	\$\$\$\$\$\$\$\$\$\$\$\$
5	16.77 238.451	6.742	1.606	1.349	0.000013
6	23.38 261.663	6.626	2.930	1.435	1.000012
7	63.27 928.348	4.934	1.210	0.919	1.000024
8	18.82 257.727	11.719	1.178	0.349	1.000011
9	29.84 423.855	5.868	1.329	0.917	1.000010
10	23.51 334.341	11.719	2.441	1.416	1.000011
11	1.49 1.49.542	31.257	9.375	1.128	1.000024
12	58.59 833.307	5.238	1.225	0.919	1.000010
13	52.62 892.586	3.125	1.762	1.467	1.000012
14	132.18 1453.195	4.075	1.218	1.939	1.000015
15	81.24 1155.343	3.827	4.025	1.364	1.000010
16	29.65 421.745	4.673	1.349	1.851	1.000011
17	49.82 708.565	2.930	1.065	1.107	1.000013
18	36.37 517.210	9.066	1.488	0.795	1.000013
19	48.93 683.108	6.048	1.008	1.064	1.000010
20	74.58 1069.727	4.464	1.165	0.952	0.000018
21	61.31 871.917	1.750	0.856	1.275	1.000017
22	19.45 276.637	5.859	2.435	1.485	1.000011
23	43.44 617.767	4.688	1.953	0.629	1.000026
24	81.53 1159.586	2.500	0.997	1.195	1.000018
25	65.81 935.985	4.464	1.003	1.388	1.000015
26	67.24 956.351	2.930	0.893	1.272	1.000024
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
47.36	673.561	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.786	\$\$\$\$\$\$\$\$\$\$\$\$
SD	39.73	437.069	\$\$\$\$\$\$\$\$	0.398	\$\$\$\$\$\$\$\$\$\$\$\$
SE	6.00	85.716	\$\$\$\$\$\$\$\$	1.478	\$\$\$\$\$\$\$\$\$\$\$\$
27	33.35 474.357	1.906	1.616	1.749	0.000031
28	77.36 1109.186	6.250	1.150	0.933	1.000017
29	26.61 378.467	6.924	1.550	0.712	1.000010
30	115.13 215.115	12.300	2.155	1.496	1.000015
31	9.93 141.289	9.848	3.989	3.304	1.000015
32	56.71 806.577	5.048	1.752	0.645	1.000024
33	67.36 958.048	6.466	1.172	0.933	1.000018
34	63.89 901.618	8.152	1.258	1.845	1.000014
35	59.74 839.871	5.859	1.218	0.883	1.000013
36	48.36 687.775	3.906	1.276	1.855	1.000013
37	73.93 1051.392	3.348	1.962	1.163	1.000010
38	72.55 1031.875	5.859	2.038	0.565	0.000010
39	54.21 773.936	5.208	1.674	0.667	1.000017
40	72.43 1032.178	5.515	2.373	0.534	1.000014
41	73.75 1048.846	5.859	2.344	1.515	1.000014
42	58.56 832.883	5.357	2.060	0.571	1.000015
43	18.32 260.514	9.868	2.930	1.392	0.000012
44	16.89 240.149	7.500	1.786	1.589	1.000017
45	11.25 159.958	7.500	2.799	1.411	1.000014
46	68.53 974.596	1.838	0.651	1.235	1.000017
47	67.69 961.442	7.500	3.472	1.360	1.000017
48	67.84 964.837	3.472	1.179	1.129	1.000012
49	54.47 774.755	4.678	1.823	1.632	1.000019
50	73.12 1039.936	4.808	2.115	1.528	1.000017
51	116.20 1652.612	5.768	1.417	1.797	1.000018
52	95.70 1361.124	2.757	1.219	0.984	1.000010
53	97.08 1382.642	2.930	1.194	1.987	1.000015
54	86.19 1223.776	5.859	1.324	3.725	1.000025
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
53.17	755.151	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.761	\$\$\$\$\$\$\$\$\$\$\$\$
SD	29.37	417.737	\$\$\$\$\$\$\$\$	1.352	\$\$\$\$\$\$\$\$\$\$\$\$
SE	4.93	56.847	\$\$\$\$\$\$\$\$	1.348	\$\$\$\$\$\$\$\$\$\$\$\$

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DATE 1/7 1/13/79

MOBIL TYCO SAMPL# 48 JRL 3 145-7C 5-745 SPEC 3

DISLOCATION PITS ONLY

31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE

AVERAGE DISLOCATION PIT AREA = 5.29 PP

MAG-8000 UNITS-MICRONS CAL. FACTOR 0.375000 UNITS/PP  
FRAME AREA 3.515625000 U.A.

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	1687.80	0.054	42.683	0.788	4.099918
2	0.00	0.000	0.000	0.000	0.000000
3	76.48	0.004	48.565	2.26.136	0.307528
4	203.15	0.008	201.613	1.82.742	1.751313
5	329.62	0.016	24.697	25.819	3.282644
6	2306.99	0.066	32.228	32.261	3.2446160
7	172.27	0.035	356.464	237.944	2.138338
8	2209.83	0.063	32.150	30.458	2.919935
9	626.84	0.018	86.485	79.719	1.619141
10	769.94	0.022	72.900	65.882	1.577867
11	6860.88	0.195	11.365	11.313	4.384625
12	443.64	0.013	234.375	113.774	5.203125
13	278.45	0.008	218.023	196.541	2.135470
14	202.84	0.006	334.821	264.831	2.218980
15	71.08	0.002	808.190	787.815	2.033654
16	1127.22	0.032	68.631	66.635	3.455077
17	1954.06	0.056	36.127	34.029	3.492852
18	1164.46	0.033	71.347	53.510	3.686170
19	512.46	0.015	173.290	149.918	2.978394
20	891.30	0.008	607.155	558.036	1.741587
21	1567.49	0.045	78.760	37.911	5.852611
22	4717.39	0.134	86.895	15.780	4.454754
23	2107.18	0.060	41.372	46.945	4.883324
24	474.29	0.013	148.810	97.656	2.556725
25	425.14	0.012	124.337	108.130	1.557959

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1336.50	0.038	0.000	0.000	0.000000
SD	1588.13	0.045	0.000	0.000	0.000000
SE	317.68	0.007	0.000	0.000	0.000000

26	703.19	0.020	57.269	46.619	2.117378
27	720.13	0.020	12.811	11.604	6.461965
28	5.19	0.000	8522.727	9375.000	1.265625
29	29.87	0.001	2180.233	1689.038	1.481257
30	65.78	0.002	946.979	669.643	2.330357
31	2921.93	0.083	24.574	22.085	2.905937
32	491.12	0.014	129.132	124.502	2.628372
33	134.59	0.004	426.136	373.506	1.589286
34	7.27	0.000	9375.000	5859.375	3.375000
35	149.53	0.004	275.888	207.962	2.927207
36	96.03	0.003	1284.247	1102.941	4.202206
37	31.95	0.001	4687.500	3472.222	3.960930
38	170.89	0.005	330.106	290.248	2.270089
39	896.79	0.026	76.781	70.436	2.647321
40	254.44	0.007	246.711	232.633	2.126756
41	784.31	0.022	101.351	90.144	3.969369
42	328.36	0.009	1692.111	166.815	2.598577
43	2201.32	0.068	132.139	130.389	3.055193
44	2155.95	0.061	36.736	23.211	3.612226
45	1568.05	0.045	46.291	31.823	2.923520
46	2055.95	0.058	41.299	27.911	3.748621
47	423.63	0.012	172.335	169.224	2.251004
48	581.47	0.017	131.119	117.925	3.379395
49	1153.66	0.033	91.019	82.170	5.903341
50	493.76	0.014	136.067	119.123	3.531851

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1166.29	0.033	0.000	0.000	0.000000
SD	1554.13	0.044	0.000	0.000	0.000000
SE	219.79	0.006	0.000	0.000	0.000000

DATE 1/13/79  
 MOBIL TYCO SAMPLE # 49 JPL # 145-7E 5-745 SPEC  
 TWINS ONLY  
 OTM OUTPUT DATA DIVIDED BY 100  
 31-MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 31.40X100  
 MAG-800-2 UNITS-MM CAL. FACTOR = 4.000375 UNITS/PP  
 FRAME AREA = 0.370313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	44.59	84.112	3.976	1.242	1.000012
2	90.09	1280.202	4.167	1.157	0.000031
3	58.36	830.234	3.750	1.756	0.000008
4	12.52	178.004	1.047	2.841	0.000006
5	12.87	182.498	1.152	2.930	0.000008
6	22.68	322.491	1.523	2.038	0.000009
7	8.28	117.764	0.234	1.968	0.000012
8	3.63	51.635	0.143	1.375	0.000005
9	24.08	342.420	1.922	1.995	0.000008
10	109.84	1562.180	6.696	1.242	0.000008
11	73.45	1040.396	7.500	1.476	0.000018
12	88.73	1148.195	7.500	1.399	0.000000
13	55.51	789.469	6.696	1.194	1.000012
14	37.26	529.936	5.944	1.379	1.000011
15	84.04	1195.131	4.167	1.003	1.000005
16	41.46	163.357	2.696	1.374	1.000005
17	33.12	471.054	1.047	1.933	1.000009
18	16.97	299.193	1.152	1.858	1.000010
19	3.96	43.482	0.234	1.525	1.000003
20	30.76	437.537	1.813	2.734	1.000014
21	0.00	0.000	0.000	0.000	0.000000
22	8.28	117.764	0.143	1.515	1.000005
23	44.46	285.693	6.696	2.173	1.000005
24	12.84	282.180	6.944	2.016	1.000005
25	11.91	169.398	1.393	4.934	1.000011
26	15.73	220.751	1.423	1.934	1.000012
AVERAGE					
SD	30.65	435.967	0.000	0.000	0.000000
SE	4.41	85.800	0.000	0.000	0.000000
27	24.11	342.373	1.922	2.232	1.000010
28	19.97	141.762	1.345	5.308	1.000009
29	29.68	422.137	1.047	2.734	1.000012
30	7.58	107.799	1.704	6.048	1.000007
31	7.52	106.893	1.438	6.048	1.000007
32	48.28	686.653	6.466	1.934	1.000011
33	53.76	764.558	6.348	1.003	1.000010
34	68.06	967.026	5.515	1.096	1.000016
35	45.99	654.041	6.250	1.136	1.000017
36	0.00	0.000	0.000	0.000	0.000000
37	5.93	71.364	1.500	5.375	1.000007
38	3.53	49.823	2.786	5.425	1.000005
39	47.01	668.535	6.250	1.157	1.000012
40	54.90	789.863	1.989	3.884	1.000013
41	26.75	137.623	1.324	1.325	1.000007
42	17.52	249.115	5.682	3.409	1.000018
43	28.25	401.755	3.250	1.287	1.000018
44	35.73	538.195	1.712	1.464	1.000013
45	5.35	76.993	1.873	1.500	1.000012
46	1.88	26.723	6.500	2.786	1.000008
47	29.89	297.127	1.423	2.568	1.000012
48	21.56	306.638	1.152	1.974	1.000008
49	8.44	120.028	5.682	4.167	1.000009
50	11.62	165.322	7.212	3.289	1.000006
AVERAGE					
SD	37.53	434.213	0.000	0.000	0.000000
SE	27.91	396.876	0.000	0.000	0.000000
SE	3.95	56.127	0.000	0.000	0.000000

DATE 1/13/79  
 MOBIL FYCO SAMPLE # 49, JPL # 145-7E, 5-745 SPEC  
 DISLOCATION PITS ONLY  
 .4 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.10PP

MAG-800, 0 UNITS-MICRONS CAL FACTOR-1.375000 UNITS/PP  
 FRAME AREA- 3.515625000 04

FIELD NO	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	774.12	0.022	76.406	63.862	3.024	2.718064
2	411.96	0.012	64.763	107.388	0.013	2.569158
3	4529.41	0.129	17.416	16.729	0.096	3.597384
4	5283.07	0.153	15.233	17.834	0.117	4.226283
5	2543.73	0.072	25.027	26.709	0.062	2.565862
6	2832.75	0.081	20.302	23.592	0.072	2.678170
7	3337.12	0.095	20.723	27.335	0.083	3.030656
8	1973.75	0.054	34.328	32.805	0.049	2.566406
9	111.75	0.003	4464.286	2678.371	0.001	1.754680
10	245.49	0.007	221.739	221.631	0.007	3.827446
11	46.26	0.001	1077.386	966.495	0.002	1.158944
12	78.43	0.002	860.792	637.755	0.002	2.445692
13	1203.92	0.034	51.968	47.954	0.033	2.121498
14	241.57	0.007	225.994	199.893	0.007	1.665245
15	5199.02	0.148	15.269	14.348	0.112	3.979372
16	2012.16	0.057	33.745	34.228	0.049	2.847575
17	2702.55	0.077	26.717	26.687	0.064	3.014351
18	2826.08	0.083	24.206	23.549	0.068	2.543072
19	805.69	0.023	101.561	114.890	0.020	4.059212
20	5411.96	0.154	13.775	13.879	0.117	3.644498
21	12846.27	0.365	7.593	7.461	0.261	9.391628
22	1729.80	0.049	35.205	26.634	0.054	2.180305
23	2645.29	0.075	30.458	27.549	0.055	3.655437
24	1816.47	0.052	29.923	30.359	0.056	1.863734
25	1992.94	0.057	37.892	39.160	0.060	1.923745
26	444.93	0.013	116.315	116.315	0.014	1.405631

AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
	2456.46	0.079	299.676	312.454	0.057	2.923993
SD	2644.82	0.075	870.242	536.554	0.054	1.566364
SE	518.69	0.015	170.668	105.227	0.011	2.397139

27	3736.47	0.106	19.270	19.708	0.084	3.568242
28	1426.57	0.040	52.112	55.277	0.039	4.666915
29	3954.94	0.112	18.159	19.438	0.087	3.776839
30	4251.18	0.121	17.326	17.810	0.093	3.633958
31	78.04	0.002	744.048	493.421	0.002	1.805444
32	363.33	0.010	188.632	130.753	0.010	2.458284
33	54.90	0.002	1041.667	584.397	0.002	1.789773
34	3912.55	0.026	73.071	68.481	0.024	2.796875
35	3720.20	0.106	19.671	21.497	0.080	4.149422
36	4800.59	0.137	19.812	18.716	0.085	5.232404

LAST FIELD DELETED

36	6448.43	0.183	12.083	12.225	0.134	4.772688
37	722.55	0.021	170.145	101.681	0.013	3.572377
38	2263.33	0.007	190.549	139.717	0.010	1.475464
39	245.49	0.007	226.442	203.294	0.008	1.544498
40	4236.47	0.121	15.097	15.780	0.106	2.828998
41	1542.16	0.044	40.209	27.990	0.049	2.593231
42	477.06	0.014	120.247	116.315	0.014	2.253925
43	1197.45	0.005	11.597	12.197	0.005	5.470747
44	5571.76	0.156	13.288	14.734	0.118	4.494930
45	595.49	0.017	89.542	77.163	0.023	2.483312
46	472.94	0.013	109.139	103.022	0.017	1.304567
47	4636.47	0.132	15.007	14.392	0.113	3.341922
48	2887.84	0.082	23.333	22.418	0.072	2.569634
49	1994.93	0.057	35.364	33.452	0.048	2.799841
50	1719.32	0.049	35.436	36.337	0.046	2.193935

AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
	2428.95	0.069	221.495	159.753	0.056	3.726973
SD	2414.47	0.069	654.413	405.484	0.049	1.409986
SE	341.46	0.013	92.548	57.372	0.007	3.199402

DATE 1/15/79  
 MOBILE TYPE SAMPLE # 53 JPL # 3145-75 5-745 (SPEC)  
 TWINS ONLY  
 QTM OUTPUT DATA DIVIDED BY 100  
 31 MM STEOP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 29.49X120

MAG-877.7 INITS-MM CAL. FACTOR = 0.000375 INITS/PP  
 FRAME AREA = 0.070313

FIELD NO.	NO.	AREA	MFPV	MFPH	L/A	AFETA
1	140.31	1999.465	15.357	1.389	0.838	1.000006
2	124.46	1770.098	14.898	1.843	0.653	1.000007
3	56.09	932.924	13.675	1.157	0.981	1.000003
4	96.94	1378.585	13.408	1.047	1.080	1.000007
5	73.61	1046.833	16.048	1.803	0.600	1.000018
6	5.56	79.035	10.833	0.868	1.129	0.000003
7	34.08	484.717	7.212	0.157	1.413	1.000004
8	94.12	1338.534	13.360	1.339	0.840	1.000005
9	83.23	1183.734	13.074	0.772	1.419	1.000005
10	127.28	1810.189	4.688	1.720	1.688	1.000001
11	21.00	319.083	7.813	0.750	1.317	1.000003
12	46.75	654.996	6.250	0.641	0.456	1.000007
13	35.31	502.132	5.048	0.046	0.525	1.000001
14	49.39	702.404	11.750	1.180	0.987	1.000003
15	82.07	1167.286	12.885	1.065	1.099	0.000019
16	84.22	1197.763	3.538	1.419	0.935	1.000005
17	79.46	1130.438	7.573	1.769	0.661	1.000007

NO.	NO.	AREA	MFPV	MFPH	L/A	AFETA
SD	73.18	1440.715	5.784	2.213	5.737	1.000006
SE	36.73	522.042	0.213	2.049	2.879	1.000003
SE	8.01	126.687	0.973	0.497	0.698	1.000003

18	53.23	757.767	3.125	1.693	1.752	1.000004
19	28.08	410.705	18.029	4.808	1.267	0.000006
20	20.54	292.184	5.357	0.315	0.517	1.000001
21	22.86	325.079	4.808	0.576	0.715	0.000008
22	83.74	1006.546	2.344	1.914	1.207	1.000003
23	78.67	1118.912	1.720	0.872	1.155	1.000006
24	18.33	263.741	5.515	2.604	0.416	0.000008
25	8.81	125.291	11.029	0.125	1.363	1.000005
26	8.16	87.559	8.929	5.298	0.227	1.000005
27	25.00	357.007	5.357	0.472	1.384	1.000001

NO.	NO.	AREA	MFPV	MFPH	L/A	AFETA
SD	58.16	827.157	5.757	2.079	1.834	1.000004
SD	37.80	537.592	1.641	1.855	0.379	0.000005
SE	7.27	193.460	0.701	0.357	0.558	1.000003

28	66.29	942.827	3.606	1.084	0.989	0.000006
29	71.67	1019.259	0.750	1.194	1.917	1.000003
30	109.49	1557.188	7.212	0.717	0.435	1.000005
31	70.44	1031.844	0.676	1.442	0.813	1.000004
32	85.24	1212.275	1.409	1.036	1.099	0.000002
33	3.13	44.505	11.250	1.745	0.277	0.000006
34	10.85	154.316	20.833	6.048	0.187	0.000009
35	71.60	1018.292	4.808	1.576	0.739	1.000003
36	64.69	928.091	3.178	0.893	1.243	0.000003
37	65.85	935.538	3.676	0.966	1.131	0.000001
38	55.68	791.897	14.808	1.729	0.667	0.000004
39	65.54	932.184	5.682	1.282	0.536	1.000003
40	23.50	334.271	5.944	0.750	0.325	0.000002
41	55.75	792.865	4.934	2.679	0.461	0.000002
42	6.16	87.559	20.833	6.944	0.183	1.000005
43	5.44	77.400	17.145	6.466	0.184	1.000003
44	36.90	524.868	3.348	1.645	0.731	1.000001
45	103.06	1465.740	3.757	1.953	0.643	0.000006
46	116.84	1661.678	3.696	1.330	1.367	1.000007
47	116.16	1652.003	3.906	2.083	0.595	1.000005
48	92.93	1321.602	4.360	1.339	0.835	0.000002
49	70.92	1008.617	3.409	1.187	0.960	1.000002
50	93.91	1335.631	4.934	1.856	1.621	0.000002
51	53.64	762.372	3.989	1.225	0.909	0.000002

NO.	NO.	AREA	MFPV	MFPH	L/A	AFETA
SD	67.51	860.583	6.517	2.640	2.346	0.000005
SD	36.06	512.821	5.645	2.711	2.930	1.000003
SE	5.35	71.839	0.790	1.310	1.410	0.000003

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 OF POOR QUALITY

DATE 1/15/79  
 MOBILE TYCO SAMPLE 7-57 JPL 1457E 5-745 SPEC. 0  
 DISLOCATION PITS ONLY  
 31-MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE DISLOCATION PIT AREA = 5.4

MAG = 800X UNITS - MICRONS CAL. FACTOR = 0.375000 UNITS/PO  
 FRAME AREA = 3.51562500

FIELD NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
1	2.96	15625.000	13392.857	1.000	1.125917
2	13.15	2400.845	2343.750	0.232	1.665625
3	22.26	1258.521	1492.90	0.029	2.613540
4	31.48	1284.241	1512.097	0.001	1.138793
5	53.70	1019.222	892.657	1.322	1.841964
6	936.11	213.98	213.365	0.379	3.243738
7	695.33	79.291	84.612	0.319	2.314762
8	59.07	366.211	352.444	0.195	1.578735
9	86.65	737.915	615.736	0.102	1.272245
10	45.93	774.793	822.368	0.392	1.799244
11	91.15	15.817	16.073	1.135	18.215998
12	3345.74	22.529	23.344	0.972	3.960809
13	1990.56	33.445	29.779	1.751	3.397511
14	304.26	154.733	124.172	1.313	1.557657
15	87.7.22	69.793	58.339	1.326	2.377637
16	559.81	113.774	136.861	0.718	1.057743
17	282.41	233.911	183.824	0.397	1.247720
18	1518.33	47.182	39.577	1.334	4.273113
19	3064.63	28.548	24.452	1.067	4.572138
20	1877.74	35.525	27.095	0.954	3.913478
21	2147.22	31.365	25.926	1.955	2.687355
22	1394.37	58.741	52.976	1.322	2.816314
23	769.26	68.331	67.592	0.924	2.975388
24	1288.48	46.411	43.403	1.738	1.256647
25	1747.19	93.784	74.492	0.349	2.258894

AVERAGE					
NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
P41	3.340	236.429	339.399	1.371	3.771677
SD	1883.32	3047.381	2629.017	0.728	3.251677
SE	376.36	609.476	524.003	0.806	1.653323

26	2826.85	25.462	27.531	0.064	3.423569
27	2912.41	36.952	29.593	1.353	3.579257
28	2353.33	21.314	21.8.531	0.327	3.260593
29	364.44	174.581	127.378	0.310	2.493243
30	257.52	245.142	212.194	0.398	1.746512
31	275.93	168.311	168.311	1.011	1.854259
32	3471.48	27.072	15.524	0.954	4.173568
33	2955.56	21.812	22.645	1.069	3.224477
34	1281.85	50.512	49.525	0.330	2.927014
35	266.67	129.468	189.012	1.378	1.715172
36	146.85	382.653	309.218	1.375	1.773300
37	1167.59	298.567	206.498	1.006	1.339638
38	571.11	119.123	113.774	1.317	0.957255
39	397.04	142.912	132.415	1.012	2.451997
40	939.56	65.314	65.249	0.824	2.793346
41	492.96	135.673	140.766	0.712	2.253117
42	959.37	50.917	52.345	0.331	1.860552
43	1154.81	50.187	49.368	0.133	2.113132
44	1472.96	150.896	26.916	0.345	3.495417
45	62.22	674.459	496.332	0.392	1.945977
46	0.30	35555555	35555555	0.338	5555555555
47	14.26	3125.200	1953.125	0.337	7.832937
48	14.81	1762.858	858.456	0.331	3.833571
49	495.37	172.970	126.709	0.316	3.824117
50	187.59	270.123	224.292	0.336	1.531754

AVERAGE					
NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
1122.38	3.732	55555555	55555555	1.326	5555555555
SD	1524.67	0.343	55555555	0.925	5555555555
SE	215.61	0.306	55555555	0.304	5555555555

DATE 1/15/79  
 MOBIL TYCJ SAMPLE # 51 JPL # 145-7E 6-745 JPEC T  
 TWINS ONLY  
 TIM OUTPJT. DATA DIVIDED BY 10X  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE THIN AREA = 39.4X132

MAG-800.0 UNITS-MM CAL. FACTOR- 1.000375 UNITS/PP  
 FRAME AREA- 2.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	105.45	1513.964	3.676	0.913	1.221	3.397997
2	42.62	676.233	5.682	1.320	3.829	3.337314
3	34.04	484.173	4.808	1.576	0.717	0.000912
4	41.98	596.982	7.208	1.589	3.734	0.330315
5	1.51	21.509	23.438	20.833	3.067	3.000007
6	19.04	271.837	11.719	3.348	3.352	3.337311
7	44.23	629.026	5.048	1.220	3.768	3.397314
8	31.45	447.298	6.456	1.829	3.619	3.337324
9	42.62	676.233	5.515	1.972	1.191	3.337317
10	77.19	1097.833	5.559	1.488	0.749	3.337329
11	97.87	1391.934	4.898	1.431	3.789	3.330034
12	59.31	839.287	4.838	1.703	1.375	3.337315
13	44.37	626.831	3.576	1.311	3.805	3.337317
14	3.39	1.43.896	23.833	11.719	3.115	3.337314
15	2.35	33.361	62.500	26.786	3.045	3.337311
16	2.31	28.532	\$\$\$\$\$\$\$\$\$	31.259	3.035	3.337319
17	3.30	3.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.033	\$\$\$\$\$\$\$\$\$
18	89.44	1272.099	2.344	0.772	1.457	3.337331
19	56.02	796.708	2.259	3.997	1.248	3.337318
20	52.72	749.739	5.859	1.893	3.635	0.000034
21	9.28	131.248	13.393	2.930	3.363	3.337314
22	2.84	43.384	62.507	9.868	3.999	3.337316
23	63.86	865.624	8.929	2.137	3.528	3.337325
24	85.14	1225.133	2.929	2.259	3.493	3.337344
25	103.37	1427.493	4.067	3.901	1.239	3.337313
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	44.29	629.851	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.644	\$\$\$\$\$\$\$\$\$
SE	33.68	478.974	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.424	\$\$\$\$\$\$\$\$\$
	6.74	95.793	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.325	\$\$\$\$\$\$\$\$\$
26	82.83	1149.630	6.944	2.537	0.469	3.337341
27	95.96	1364.712	7.212	1.786	3.635	3.337317
28	23.00	284.444	8.523	2.287	3.483	3.337317
29	5.68	89.768	11.719	5.357	0.237	3.337314
30	54.94	781.344	5.859	1.242	0.880	3.337313
31	78.33	1114.374	4.776	3.997	1.112	3.337312
32	34.31	483.731	8.929	1.677	3.677	3.337313
33	79.77	1124.639	4.808	1.232	3.917	3.337321
34	46.23	657.119	8.152	1.293	3.824	3.337313
35	6.73	95.693	23.833	5.682	3.233	3.337316
36	5.85	97.449	2.375	3.916	3.291	3.337313
37	3.52	53.341	37.500	17.145	3.367	3.337312
38	15.80	224.746	12.577	3.472	3.325	3.337319
39	15.15	215.528	11.719	2.016	3.523	3.337319
40	4.60	65.495	23.833	9.929	3.152	3.337317
41	0.34	4.829	187.807	93.750	3.311	3.337312
42	1.98	28.393	46.775	18.750	3.744	3.337315
43	6.77	95.254	17.719	5.482	3.921	3.337319
44	3.82	53.992	17.577	13.393	3.388	3.337317
45	12.57	177.778	7.570	1.995	3.547	3.337314
46	0.00	3.000	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.333	\$\$\$\$\$\$\$\$\$
47	4.54	64.527	37.577	6.696	3.163	3.337314
48	24.97	355.117	11.729	2.083	3.523	3.337319
49	16.14	229.575	11.719	2.885	3.376	3.337317
50	37.37	527.188	4.934	1.311	3.837	3.337319
AVERAGE						
	NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	35.26	531.439	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.535	\$\$\$\$\$\$\$\$\$
SE	32.62	463.954	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.387	\$\$\$\$\$\$\$\$\$
	4.61	65.613	\$\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$\$	3.355	\$\$\$\$\$\$\$\$\$



DATE 1/15/79  
 MOBILE TYCO SAMPLE # 51 JPL # 145-75 S-745 SPEC  
 DISLOCATION PITS, ONLY  
 .31 MM STEP SIZE  
 MEASUREMENTS ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.1  $\mu^2$

MAG-800.0 UNITS-MICRONS, CAL. FACTOR 7.375000 UNITS/ $\mu^2$   
 FRAME AREA- 3.515425300  $\mu^2$

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	41.76	0.001	116.071	1019.022	1.002	1.179375
2	1275.68	0.036	51.596	51.118	0.032	2.564978
3	899.31	0.026	73.128	54.222	0.026	2.216656
4	1353.03	0.098	52.847	51.426	0.082	2.941193
5	11572.16	0.329	12.066	11.875	0.136	14.458896
6	1394.81	0.040	44.222	42.154	0.039	2.036628
7	1344.31	0.038	49.867	47.717	0.033	2.537171
8	5002.16	0.142	16.161	13.740	0.107	4.021843
9	39.02	0.001	246.105	2678.571	0.001	7.332731
10	1870.4	0.001	292.7688	2283.585	0.001	1.617182
11	128.04	0.001	260.167	1399.754	0.001	2.517672
12	100.59	0.003	273.485	496.032	0.003	1.182533
13	2237.84	0.064	43.123	32.973	0.044	5.553471
14	6002.16	0.171	13.676	12.250	0.128	4.378981
15	7887.25	0.224	12.164	11.716	0.134	7.759452
16	4275.10	0.122	16.083	16.119	0.091	3.941713
17	6537.06	0.186	13.856	10.856	0.147	3.623194
18	78.43	0.002	344.595	548.246	0.002	2.083333
19	970.20	0.028	14.464	44.222	0.029	3.77816
20	8692.80	0.247	14.474	13.642	0.103	12.655965
21	350.59	0.010	63.943	116.315	0.011	2.539773
22	5995.29	0.171	12.987	12.457	0.129	3.795313
23	404.12	0.001	130.389	134.698	0.001	1.583760
24	222.55	0.006	210.023	192.111	0.008	1.149667
25	66.86	0.002	694.444	625.100	0.003	3.922175

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	2671.85	0.076	489.561	396.986	0.051	3.662396
SE	3259.82	0.093	355.174	706.555	0.052	3.279282
SE	651.98	0.019	171.035	141.331	0.012	3.455856

26	1330.78	0.029	154.879	16.749	0.028	2.233431
27	315.69	0.009	145.801	148.810	0.012	1.115302
28	2274.90	0.069	33.602	28.626	0.055	2.852327
29	3936.47	0.112	11.211	17.164	0.095	2.789711
30	434.71	0.001	1065.341	1217.532	0.002	3.732077
31	301.37	0.009	259.695	129.489	0.009	2.771334
32	1542.94	0.044	45.388	38.772	0.040	2.529679
33	38.67	0.001	1488.095	1512.097	0.001	1.469938
34	260.78	0.007	165.636	162.043	0.017	1.770157
35	3939.80	0.111	12.354	19.294	0.086	3.765991
36	5688.24	0.161	12.069	10.073	0.150	3.310413
37	4142.75	0.118	17.878	16.852	0.094	3.732569
38	9976.66	0.284	8.462	8.444	0.193	5.874615
39	2189.61	0.062	27.943	28.784	0.058	2.329917
40	1356.86	0.039	40.921	39.607	0.041	1.782280
41	2944.71	0.084	22.482	18.803	0.080	2.386335
42	3881.18	0.110	17.080	16.444	0.098	2.661120
43	2293.73	0.065	27.308	27.436	0.060	2.422726
44	4757.45	0.135	15.005	14.372	0.114	3.014120
45	5155.49	0.147	14.039	13.909	0.118	3.301297
46	1278.82	0.036	57.657	38.256	0.038	2.061925
47	2289.32	0.065	27.158	27.836	0.061	2.148765
48	1100.98	0.031	45.754	44.986	0.035	1.368474
49	1316.86	0.037	42.867	45.268	0.038	1.939297
50	377.26	0.011	151.699	148.134	0.011	1.659937

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	2583.40	0.073	322.467	274.952	0.056	3.055929
SE	2836.21	0.080	672.568	574.719	0.050	2.510792
SE	396.86	0.011	95.115	81.278	0.007	3.355957

DATE 1/15/79  
 MOBIL TYCO SAMPLE # 52 JPL # 145-7E 5-745 SPEC #  
 THINS ONLY  
 QTM OUTPUT DATA DIVIDED BY 100  
 .31 MM STEP SIZE

MEASUREMENTS ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 39.40X100

MAG 800.0 UNITS-MM CAL FACTOR 0.000375 UNITS/PP  
 FRAME AREA 0.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	0.00	0.000	0.000	0.000	0.000000
2	0.00	0.000	0.000	0.000	0.000000
3	2.34	33.216	93.750	37.500	0.932
4	44.93	639.064	5.559	17.933	0.595
5	54.28	771.930	6.698	21.344	0.525
6	54.67	777.544	6.696	17.589	0.691
7	38.85	552.515	7.813	2.206	0.507
8	78.09	1117.643	5.682	2.509	0.456
9	63.72	926.199	7.212	1.995	0.571
10	75.39	1079.877	5.208	1.674	0.680
11	81.78	1153.041	3.506	3.942	0.184
12	42.86	609.591	5.515	2.107	0.525
13	17.66	251.228	11.929	3.676	0.312
14	25.92	368.655	6.944	3.178	0.381
15	12.79	180.585	20.833	1.500	0.157
16	0.00	0.000	0.000	0.000	0.000000
17	2.63	37.427	62.500	18.750	0.337
18	33.03	469.708	6.944	2.360	0.536
19	0.00	0.000	0.000	0.000	0.000000
20	37.59	533.801	4.573	1.500	0.749
21	58.55	804.211	6.252	11.689	0.656
22	68.65	975.374	5.382	1.284	0.845
23	52.66	749.006	6.409	1.302	0.885
24	52.76	750.409	6.152	2.641	0.432
25	84.12	1196.725	3.576	1.139	0.000000

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	39.24	558.119	0.000	0.472	0.000000
SE	27.94	397.439	0.000	0.334	0.000000
SE	5.59	79.486	0.000	0.067	0.000000

26	81.41	1157.895	4.464	1.142	0.329
27	106.91	1520.468	3.024	3.928	0.216
28	110.10	1565.848	3.748	1.563	0.779
29	75.36	1071.913	3.538	3.962	1.179
30	78.45	1115.789	3.315	2.660	1.739
31	39.74	565.146	4.934	1.103	1.040
32	111.68	1588.384	1.750	0.924	0.219
33	33.78	480.468	8.523	2.315	0.483
34	25.26	359.298	5.515	1.488	0.755
35	69.57	989.474	8.152	6.913	0.582
36	56.22	799.532	4.261	1.379	0.819
37	91.09	1295.439	4.760	1.512	0.749
38	17.20	244.676	23.438	7.500	0.149
39	6.74	95.906	37.500	12.500	0.093
40	38.62	549.240	3.989	1.705	0.696
41	34.24	487.018	4.934	1.720	0.669
42	19.14	272.281	10.417	3.472	0.320
43	3.42	48.655	26.786	14.423	0.080
44	10.00	142.222	14.423	4.808	0.243
45	94.11	1338.480	3.774	3.910	1.232
46	6.38	90.760	14.423	4.360	0.248
47	0.76	13.760	93.750	62.500	0.027
48	1.15	16.374	46.875	26.786	0.348
49	0.46	6.553	93.750	46.875	0.029
50	88.49	1258.483	6.253	2.107	0.544

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	43.63	620.473	0.000	0.555	0.000000
SE	83.83	481.081	0.000	1.409	0.000000
SE	4.78	68.035	0.000	0.358	0.000000

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 OF POOR QUALITY

DATE 1/15/79  
 MOBIL TYCO SAMPLE # 52 JPL # 145-7E 7-745 SPEC F  
 DISLOCATION: PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION P/T AREA = 5.51 PP

MAG-800.0 UNITS-MICRONS CAL. FACTOR 3.75000 UNITS/PP  
 FRAME AREA 3.515625000

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	2278.95	0.065	22.042	0.058	2.875942
2	2444.65	0.070	29.640	0.054	3.773344
3	553.18	0.016	279.218	0.007	4.870739
4	693.10	0.020	105.456	0.017	3.929250
5	987.93	0.027	19.517	0.022	3.633754
6	1983.67	0.028	95.859	0.018	5.483363
7	1566.61	0.045	35.386	0.049	1.819903
8	253.54	0.007	229.779	0.008	2.025290
9	823.23	0.020	56.964	0.026	3.184573
10	689.47	0.020	93.098	0.018	3.753785
11	621.60	0.018	172.909	0.016	3.767775
12	230.31	0.007	808.190	0.007	4.957731
13	259.35	0.007	151.360	0.019	1.445776
14	2489.94	0.071	33.003	0.075	3.296621
15	1799.27	0.031	55.082	0.034	1.892813
16	2831.40	0.081	24.113	0.066	3.364863
17	4203.99	0.120	16.293	0.098	3.757137
18	2786.39	0.079	21.742	0.077	3.692339
19	233.21	0.007	219.068	0.008	1.688914
20	2697.46	0.077	23.891	0.070	3.882909
21	892.68	0.025	65.074	0.024	2.542107
22	1207.26	0.034	45.956	0.036	2.033569
23	38.48	0.001	1464.844	0.002	1.497625
24	714.34	0.020	84.536	0.021	3.477982
25	3234.12	0.092	26.924	0.064	5.199049

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1393.19	0.040	67.403	0.035	3.065378
SE	1114.24	0.022	328.133	0.026	1.167838
SE	222.85	0.006	61.627	0.005	3.232168

26	498.91	0.014	105.219	0.015	1.832124
27	692.00	0.017	151.699	0.012	4.743941
28	44.10	0.001	3348.914	0.001	3.417188
29	208.71	0.006	379.555	0.006	2.450284
30	249.36	0.007	260.417	0.007	1.971629
31	172.41	0.005	247.361	0.007	1.741827
32	203.81	0.006	254.065	0.007	1.815194
33	4409.44	0.125	16.396	0.101	4.343343
34	1107.08	0.031	57.026	0.035	2.123298
35	379.31	0.011	138.479	0.013	1.571691
36	1680.34	0.048	35.701	0.049	2.155241
37	1278.04	0.036	51.568	0.033	3.494629
38	308.81	0.009	160.241	0.011	1.277929
39	1632.30	0.046	136.893	0.047	2.206728
40	1126.01	0.034	44.452	0.034	3.328439
41	4307.62	0.123	17.268	0.097	3.612367
42	287.84	0.008	159.710	0.011	1.185336
43	1370.96	0.030	59.751	0.033	2.455113
44	817.61	0.023	74.731	0.025	3.199777
45	31.58	0.001	1488.095	0.001	1.112216
46	2422.14	0.069	26.770	0.061	3.873499
47	6859.35	0.195	9.881	0.167	3.496459
48	5860.07	0.144	14.738	0.117	4.762977
49	4718.69	0.134	14.572	0.132	3.893773
50	358.62	0.010	129.310	0.014	1.192597

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1493.31	0.042	229.147	0.037	2.778326
SE	1546.36	0.044	535.742	0.036	1.134817
SE	218.65	0.005	75.765	0.005	1.163487

DATE 1/16/79  
 M881L TYCO SAMPLE # 53 JPL # 145-7E 1 7-745 SPEC. G  
 TWINS-ONLY  
 JTM OUTPJT DATA BEING DIVIDED BY 100  
 31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA=28.11X100

MAG-800.0 UNITS-MM CAL. FACTOR- 0.000375 UNITS/PP  
 FRAME AREA 0.070313

FIELD NO.	NO.	AREA	MFPV	MFPH	LVA	FETA
1	93.60	1331.151	3.155	1.826	1.440	7.000028
2	89.40	1271.449	3.530	1.369	0.843	0.000044
3	105.69	1520.174	3.178	1.410	0.848	0.000038
4	96.48	1370.133	3.948	0.947	0.168	0.000025
5	74.64	1061.481	4.360	1.311	0.859	0.000025
6	10.00	142.172	11.029	4.464	7.259	0.000005
7	4.22	57.172	17.500	5.625	7.380	0.000008
8	28.56	405.771	5.859	0.757	0.451	0.000028
9	45.32	644.579	4.573	1.736	1.691	0.000018
10	113.63	1161.001	5.068	1.030	1.024	0.000022
11	71.50	1015.957	4.808	1.820	0.640	0.000022
12	71.43	1015.945	4.233	1.276	0.933	0.000022
13	44.43	631.900	5.859	1.537	0.712	0.000021
14	36.39	517.586	4.261	1.453	1.029	0.000011
15	170.43	1428.294	3.233	1.194	1.950	0.000025
16	112.91	1160.882	5.357	1.589	1.693	0.000032
17	101.89	1449.038	3.676	1.242	0.957	0.000040
18	63.46	802.613	3.827	0.933	1.147	0.000013
19	58.31	829.250	3.027	1.413	0.848	0.000014
20	113.09	1061.889	4.729	1.717	0.405	0.000005
21	22.00	313.182	5.715	1.720	0.656	0.000005
22	110.57	1572.489	5.859	1.576	1.720	0.000044
23	51.33	730.084	4.808	1.820	0.635	0.000025
24	58.52	832.286	2.799	1.218	0.976	0.000017
25	2.76	29.345	23.750	26.786	1.045	0.000028
26	1.25	17.738	62.500	26.786	0.045	0.000002
27	2.36	29.345	37.500	15.625	0.080	0.000004
28	1.00	14.167	187.500	23.750	0.040	0.000004
29	9.75	138.630	15.625	3.289	0.331	0.000004
30	90.57	1285.146	5.859	1.803	0.635	0.000033
31	9.25	131.547	15.625	6.250	0.195	0.000007
32	9.53	135.594	2.530	5.515	0.213	0.000009
33	69.13	983.059	3.676	2.415	0.560	0.000025
34	107.83	1533.531	5.696	1.913	0.589	0.000043

	NO.	AREA	MFPV	MFPH	LVA	FETA
AVERAGE	55.29	786.408	17.421	6.962	0.633	0.000020
SD	39.38	560.096	35.043	16.476	0.358	0.000013
SE	6.75	96.056	6.010	2.826	0.061	0.000002

35	66.70	948.654	2.688	1.234	0.891	0.000018
36	47.85	682.501	1.466	1.410	0.736	0.000013
37	94.34	1341.776	4.573	1.143	0.973	0.000019
38	60.69	863.149	4.360	1.359	0.816	0.000015
39	66.74	949.160	4.167	1.884	1.219	0.000015
40	44.82	637.496	11.934	1.659	0.701	0.000012
41	12.74	181.130	19.068	1.125	0.365	0.000012
42	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	0.000	SSSSSSSSSSSS
43	0.89	12.649	23.750	31.050	0.043	0.000004
44	4.52	64.256	118.750	9.868	0.128	0.000006
45	5.41	76.904	23.438	8.152	0.144	0.000021
46	15.40	219.076	11.719	2.534	0.427	0.000006
47	21.84	313.653	6.466	1.465	0.739	0.000005
48	3.66	52.119	26.786	5.515	0.173	0.000003
49	26.82	381.485	5.466	2.038	0.549	0.000012
50	63.16	855.560	5.208	1.953	1.584	0.000018

	NO.	AREA	MFPV	MFPH	LVA	FETA
AVERAGE	48.25	686.249	SSSSSSSSSS	SSSSSSSSSS	0.407	SSSSSSSSSSSS
SD	37.77	537.777	SSSSSSSSSS	SSSSSSSSSS	0.360	SSSSSSSSSSSS
SE	5.34	75.972	SSSSSSSSSS	SSSSSSSSSS	0.051	SSSSSSSSSSSS

DATE 1/16/79  
 MOBIL TYCO SAMPLE # 53 JPL # 145-7E 5-745 SPEC. G  
 DISLOCATION PIPS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIP AREA = 5.33 PP

MAG-800.3 UNITS-MICRONS. CAL. FACTOR- 1.375000 UNITS/PP  
 FRAME AREA- 3.51562500 34

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	335.65	0.010	1789.712	138.479	1.124232
2	579.71	0.014	143.562	112.816	3.777382
3	81.85	0.002	515.410	591.978	1.125079
4	0.20	0.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
5	111.26	0.033	412.926	242.248	1.342383
6	3826.00	0.103	21.909	21.956	5.004773
7	5493.62	0.156	18.594	17.599	9.573676
8	4309.19	0.123	17.316	18.225	5.234976
9	1701.13	0.048	245.554	138.702	2.170763
10	335.46	0.010	206.954	144.109	2.923692
11	212.29	0.006	289.352	282.380	1.877351
12	489.49	0.014	116.460	116.757	2.512949
13	479.36	0.014	106.293	93.755	2.393185
14	2438.27	0.269	33.242	31.639	5.676727
15	334.13	0.009	159.168	127.725	1.688542
16	421.76	0.012	309.496	179.942	6.322579
17	741.28	0.021	75.911	61.315	1.935921
18	363.23	0.012	147.871	112.397	2.231405
19	242.59	0.007	232.954	182.339	1.527967
20	4289.31	0.122	17.773	17.566	4.999951
21	500.56	0.014	92.092	82.454	1.311844
22	61.35	0.002	815.217	535.714	1.483367
23	2071.29	0.059	24.861	25.566	2.277645
24	98.12	0.003	710.227	794.492	1.564827
25	6427.92	0.183	13.785	13.332	4.986841

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1432.65	0.241	SSSSSSSS	SSSSSSSS	0.331	SSSSSSSSSSSS
SD 1865.62	0.053	SSSSSSSS	SSSSSSSS	0.334	SSSSSSSSSSSS
SE 373.12	0.011	SSSSSSSS	SSSSSSSS	0.997	SSSSSSSSSSSS

26	2715.23	0.077	23.768	23.137	2.397263
27	4192.12	0.119	18.939	17.364	2.776593
28	2569.98	0.073	31.136	27.967	2.329722
29	974.48	0.028	73.959	57.551	2.442933
30	1011.69	0.033	439.926	438.084	1.858994
31	2516.38	0.071	28.263	24.549	2.917795
32	2649.16	0.075	26.468	25.777	2.171925
33	1197.71	0.034	211.149	252.116	1.127147
34	0.00	0.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
35	6.38	0.000	4934.211	5859.375	1.593757
36	174.67	0.005	289.152	194.185	1.925322
37	368.48	0.010	167.112	128.425	1.879927
38	8.53	0.000	4464.286	4687.507	2.838594
39	484.95	0.014	116.171	119.916	2.295120
40	1136.92	0.034	336.022	372.419	1.145541
41	2966.42	0.084	21.638	21.201	2.791636
42	5114.63	0.145	14.261	14.537	2.582592
43	2836.59	0.081	23.740	23.716	2.932545
44	4755.35	0.135	14.869	14.757	2.515777
45	5034.33	0.143	14.750	15.568	2.823791
46	1258.47	0.036	48.550	42.249	2.453575
47	675.23	0.019	101.024	68.581	2.181576
48	1433.58	0.041	37.447	31.165	1.657562
49	349.72	0.017	122.709	125.839	1.175447
50	530.94	0.014	91.912	95.997	1.251567

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1553.36	0.244	SSSSSSSS	SSSSSSSS	0.336	SSSSSSSSSSSS
SD 1782.66	0.051	SSSSSSSS	SSSSSSSS	0.336	SSSSSSSSSSSS
SE 252.11	0.007	SSSSSSSS	SSSSSSSS	0.705	SSSSSSSSSSSS

DATE: 1/20/79  
 MOBIL TYCO SAMPLE #54 UPL # 145-7E.S-745 SPEC #  
 TWINS ONLY  
 JIM DITZT DIVIDED BY 100  
 31. MM SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA: 26.31X10

MAG-800.2 UNITS/MMICAL FACTOR: 1.000375 UNITS/PP  
 FRAME AREA: 7.070113

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	87-59 1167.617	11.719	1.759	1.337	1.000040
2	23-54 334.847	11.417	1.822	1.675	1.000075
3	78-85 1361.159	12.417	1.259	1.488	1.000024
4	13-98 198.800	6.502	11.719	1.296	1.000056
5	6-79 282.381	24.786	11.029	1.117	1.000038
6	45-59 647.134	14.423	2.841	1.379	1.000018
7	110-88 1569.816	8.929	1.442	1.763	1.000077
8	46-98 668.188	10.417	1.974	1.552	1.000013
9	131-27 1857.012	10.417	2.916	1.557	1.000044
10	131-45 1442.895	15.625	2.565	1.429	1.000067
11	41-23 586.359	12.533	1.995	1.541	1.000011
12	95-45 1357.462	8.523	1.453	1.747	1.000029
13	78-36 1114.484	8.523	1.289	1.371	1.000031
14	30-44 717.386	11.417	1.839	1.579	1.000013
15	49-52 1774.834	10.417	1.723	1.589	1.000012
16	6-14 187.351	26.756	9.868	1.123	1.000010
17	7-62 2128.436	11.259	14.423	1.393	1.000015
18	5-28 172.291	23.438	2.438	1.253	1.000017
19	74-92 1265.286	11.719	1.488	1.717	1.000025
20	49-24 700.318	10.417	1.659	1.543	1.000012
21	22-48 1031.292	7.523	1.855	1.627	1.000033
22	37-95 539.611	8.929	1.233	1.363	1.000019
23	43-38 574.311	12.533	11.974	1.539	1.000011
24	36-25 515.574	20.833	3.750	1.293	1.000018
25	39-09 554.732	12.529	1.689	1.611	1.000039
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
53.46	757.319	18.742	4.602	1.447	1.000022
SD	34.47	19.254	5.269	1.214	1.000015
SE	5.89	3.481	1.054	1.043	1.000023
26	48-12 585.257	18.750	1.989	1.283	1.000032
27	71-73 1320.104	14.423	3.472	1.307	1.000048
28	38-97 554.231	15.625	2.155	1.496	1.000012
29	22-73 823.301	11.719	3.827	1.285	1.000017
30	142-64 2328.662	12.530	11.719	1.268	1.000081
31	149-52 1998.541	13.393	2.467	1.453	1.000056
32	81-15 1154.144	11.029	1.633	1.661	1.000029
33	27-21 1382.563	11.719	2.524	1.448	1.000035
34	136-93 1514.663	8.929	1.563	1.728	1.000026
35	51-15 727.427	15.425	2.373	1.456	1.000020
36	47-79 679.735	24.833	3.472	1.315	1.000027
37	55-19 784.657	12.533	1.259	1.512	1.000029
38	174-59 1487.485	13.393	1.178	1.365	1.000052
39	121-71 11733.964	20.533	2.131	1.491	1.000049
40	81-76 1191.293	11.719	2.679	1.413	1.000033
41	97-14 1381.559	9.868	1.417	1.736	1.000029
42	95-31 1355.454	11.729	1.205	1.682	1.000027
43	28-87 417.659	17.245	1.636	1.317	1.000016
44	20-37 288.668	17.833	5.357	1.211	1.000029
45	111-72 1588.893	7.212	4.882	1.277	1.000074
46	36-60 527.595	8.929	2.885	1.411	1.000015
47	7-66 108.938	17.048	11.719	1.123	1.000036
48	3-42 48.696	11.259	6.375	1.128	1.000011
49	5-28 72.291	23.438	17.445	1.083	1.000020
53	3-57 53.794	26.756	17.745	1.383	1.000031
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
59.19	841.787	17.339	4.618	1.416	1.000025
SD	39.31	14.161	4.819	1.233	1.000019
SE	5.56	2.333	1.682	1.229	1.000033

ORIGINAL PAGE IS  
 OF POOR QUALITY

DATE 1/20/79  
 MOBIL TYCO SAMPLE # 54 JPL # 145-7E 5-745 SPEC F  
 DISLOCATION PITS ONLY  
 31- MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.34  $\mu^2$

MAG 600X UNITS-MICRONS-CAL. FACTOR 3.375000 UNITS/PP  
 FRAME AREA 3.515625000  $\mu^2$

FIELD NO.	NO./AREA	MFPV	MFRH	L/4	AFETA	
1	17.27	0.031	453.721	0.001	1.139922	
LAST FIELD DELETED						
2	227.63	0.006	387.397	0.007	2.373047	
3	1901.12	0.037	549.993	0.040	1.934777	
4	4917.79	0.140	115.369	0.105	4.380611	
5	663.56	0.216	111.485	0.142	3.351278	
6	243.75	1.226	174.793	0.204	3.275863	
7	779.21	0.122	92.456	0.133	2.85796	
8	975.84	0.022	56.232	0.091	1.757337	
9	601.90	0.002	558.036	0.003	1.292553	
10	326.59	0.009	188.632	0.012	1.566072	
11	3066.67	0.087	181.97	0.092	2.037754	
12	513.17	0.115	144.009	0.017	2.551738	
13	1476.78	0.042	39.945	0.048	1.993844	
14	948.13	0.027	58.959	0.039	1.858967	
15	2173.97	0.062	28.740	0.055	3.203591	
16	3985.39	0.113	30.187	0.081	5.241292	
17	1376.22	0.031	47.713	0.035	1.587754	
18	960.86	0.027	53.510	0.036	1.449213	
19	448.69	0.113	578.704	0.099	1.203482	
20	146.44	0.004	561.377	0.005	2.199375	
21	2636.52	0.075	33.011	0.057	4.828925	
22	1606.93	0.046	33.931	0.050	1.949446	
23	713.11	0.020	60.758	0.028	1.171772	
24	157.30	0.033	378.024	0.005	1.007227	
25	2189.89	0.062	30.577	0.051	3.763386	
26	1747.94	0.050	35.525	0.046	3.365625	
AVERAGE						
	NO.	NO./AREA	MFPV	MFRH	L/4	AFETA
SD	1607.65	0.046	1169.926	118.901	0.041	2.065370
SD	1724.93	0.049	221.172	168.885	0.034	2.013117
SD	344.99	0.010	44.234	32.777	0.037	1.462622
26	661.42	0.019	77.610	59.981	0.026	1.080521
27	944.19	0.027	57.542	65.375	0.029	1.772578
28	53.75	0.002	784.252	174.793	0.002	3.917259
29	289.51	0.008	455.097	157.828	0.002	5.721217
30	147.57	0.014	471.136	269.397	0.005	1.583736
31	2235.21	0.007	211.625	219.555	0.008	1.471875
32	176.28	0.002	1171.875	1257.000	0.001	2.018977
33	335.77	0.010	274.694	151.454	0.013	2.083837
34	1151.10	0.043	33.186	33.411	0.051	1.495085
35	1355.02	0.039	48.400	45.021	0.036	3.061847
36	2561.80	0.076	23.885	22.423	0.072	2.343179
37	157.42	0.005	254.755	245.419	0.007	1.356457
38	869.48	0.025	13.128	57.551	0.025	2.981378
39	383.90	0.011	143.555	114.051	0.013	1.470823
40	666.85	0.019	95.556	82.465	0.019	2.149249
41	1211.61	0.034	49.629	146.480	0.035	2.181879
42	779.49	0.022	76.334	66.995	0.024	1.735749
43	1405.81	0.040	43.423	41.173	0.039	2.785414
44	1718.73	0.049	31.046	34.677	0.045	2.920737
45	5719.65	0.153	12.949	14.124	0.135	3.384641
46	1612.92	0.046	35.906	29.115	0.051	1.829612
47	1479.40	0.042	44.376	35.714	0.042	1.876584
48	2881.65	0.082	24.262	24.462	0.065	3.871387
49	5146.82	0.146	12.552	12.416	0.132	3.012422
50	249.76	0.007	221.631	239.344	0.008	1.558594

X 1434.39  
 SD 1590.67

DATE 1/20/79  
 MOBIL TYCO #55 JPL 1.44-3C S 5-743 SPECA  
 TWINS ONLY  
 DIM OUTPJT DIVIDED BY 100  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 25.84 X 100

MAG-832.0 UNITS-MM CAL. FACTOR = 1.00375 UNITS/PP  
 FRAME AREA = 27.2313

FIELD NO.	NO./AREA	FPV	MPH	L/A	AFETA	
1	104.70	2057.929	11.429	2.841	1.403	1.000088
2	104.45	1485.518	7.500	1.702	1.840	1.000016
3	122.45	1941.452	8.929	1.250	1.859	1.000022
4	115.54	2496.594	11.429	2.757	1.421	1.000037
5	128.21	401.238	15.625	3.538	1.309	1.000013
6	143.53	518.645	5.682	1.974	1.608	1.000007
7	149.73	737.258	7.813	2.155	1.535	1.000019
8	157.62	819.539	11.029	2.966	1.069	1.000007
9	151.53	875.129	17.745	1.399	1.741	1.000013
10	147.02	668.731	13.393	1.524	1.699	1.000008
11	142.34	602.133	13.393	2.259	1.488	1.000009
12	191.87	1306.609	8.152	1.194	1.915	1.000015
13	156.15	798.624	9.868	1.803	1.597	1.000011
14	154.53	775.597	12.500	1.736	1.613	1.000013
15	192.84	1320.329	11.719	1.103	1.939	1.000013
16	190.83	1291.778	9.768	1.154	1.888	1.000014
17	173.34	1043.000	11.029	1.369	1.832	1.000013
18	154.18	770.554	10.417	1.705	1.635	1.000019
19	133.17	471.689	13.393	2.930	1.392	1.000011
20	155.19	2207.038	15.625	3.233	1.357	1.000008
21	140.89	570.210	8.528	1.359	1.813	1.000006
22	139.75	11563.922	11.429	1.563	1.667	1.000023
23	193.23	1325.903	8.929	1.194	1.829	1.000012
24	148.53	693.196	11.466	1.753	1.719	1.000005
25	153.29	757.895	2.152	1.803	1.621	1.000009

AVERAGE

NO.	NO./AREA	FPV	MPH	L/A	AFETA	
SD	76.96	1894.583	10.725	1.808	1.684	1.000019
SE	39.15	556.786	2.845	1.716	1.211	1.000021
	7.83	111.357	1.569	1.143	1.342	1.000004
26	171.40	1015.480	11.029	1.116	1.928	1.000017
27	145.32	644.513	9.868	1.218	1.872	1.000006
28	193.67	1289.577	9.375	1.334	1.877	1.000013
29	175.93	1079.976	5.859	1.487	1.925	1.000008
30	143.98	582.869	5.696	1.674	1.691	1.000007
31	113.35	189.886	12.750	1.357	1.221	1.000004
32	153.68	763.399	6.944	1.856	1.621	1.000007
33	130.30	430.960	8.152	2.435	1.491	1.000005
34	135.81	367.114	11.029	1.752	1.619	1.000004
35	115.67	222.910	11.429	1.409	1.333	1.000004
36	114.98	213.790	7.438	1.724	1.355	1.000005
37	132.28	459.230	12.500	1.614	1.416	1.000007
38	119.93	283.454	25.086	1.530	1.319	1.000007
39	111.57	150.258	29.803	1.360	1.256	1.000003
40	111.30	160.716	17.345	1.976	1.355	1.000003
41	115.83	225.112	20.833	1.676	1.317	1.000005
42	8.28	117.785	18.750	1.261	1.272	1.000003
43	0.119	2.752	55555555	187.500	1.035	1.000001
44	142.38	732.305	13.393	2.568	1.475	1.000016
45	23.14	329.137	18.750	1.261	1.264	1.000008
46	105.26	1497.375	5.048	1.974	1.603	1.000002
47	158.90	837.702	9.868	2.641	1.432	1.000012
48	6.42	91.366	93.750	11.719	1.095	1.000008
49	5.80	82.559	46.875	17.745	1.772	1.000004
50	9.33	132.645	18.750	1.989	1.280	1.000003

AVERAGE

NO.	NO./AREA	MPH	FPV	L/A	AFETA	
SD	55.18	784.721	75555555	6.451	1.564	1.000013
SE	40.45	575.237	55555555	5.099	1.265	1.000016
	5.72	81.351	55555555	1.677	1.337	1.000002

ORIGINAL PAGE IS  
 OF POOR QUALITY



DATE 1/20/79  
 MOBILE TYCO #55 JPL # 144-3075-743 SPEC A  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 3.22 PP

MAG-800.1 UNITS-MICRONS GAL. FACTOR-  
 FRAME AREA - 3.515625000 JA

FIELD NO. NO./AREA MFPV MFPH L/A AFETA  
 MAG-800.1 UNITS-MICRONS GAL. FACTOR-3.515625000 UNITS/PP  
 FRAME AREA - 3.515625000 JA

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	140.23	2.704	1367.547	223.332	1.354441
2	60.15	0.992	2757.353	214.041	1.154016
3	8.43	0.000	7514.706	8522.727	1.6546875
4	2.09	0.000	55555555	55555555	1.000
5	2300.38	0.065	26.506	138.426	1.062
6	4181.61	0.119	19.426	20.829	1.086
7	1437.55	0.041	39.226	42.594	1.044
8	1280.27	0.008	461.823	203.804	1.006
9	2.72	0.000	13392.857	23437.500	1.000
10	33.91	0.001	1186.709	1284.247	1.002
11	201.92	0.006	245.711	148.674	1.007
12	23.95	0.001	4616.379	838.235	1.031
13	394.44	0.011	416.674	128.777	1.015
14	1563.03	0.044	49.293	47.144	1.033
15	32.76	0.001	615.217	1041.667	1.002
16	52.68	0.001	1143.293	347.222	1.002
17	239.27	0.007	1217.532	227.012	1.004
18	452.30	0.013	1071.389	163.028	1.013
19	4077.01	0.116	17.323	19.334	1.095
20	1.00	0.000	55555555	55555555	1.000
21	1934.57	0.055	44.579	35.769	1.048
22	27.59	0.001	616.776	1512.097	1.006
23	446.36	0.013	254.755	203.382	1.013
24	4295.21	0.122	15.349	17.445	1.105
25	5493.68	0.156	22.989	23.603	1.073

AVERAGE  
 NO. NO./AREA MFPV MFPH L/A AFETA  
 1107.21 0.031 55555555 55555555 1.025 555555555555  
 SD 1629.72 0.046 55555555 55555555 1.003 555555555555  
 SE 325.94 0.032 55555555 55555555 1.007 555555555555

26	72.13	0.002	694.424	794.292	1.002
27	489.31	0.012	119.885	121.595	1.016
28	5.25	0.000	10416.667	183.145	1.006
29	372.41	0.011	138.912	152.936	1.012
30	3552.68	0.101	27.547	23.327	1.062
31	800.18	0.028	10.955	11.523	1.153
32	3302.95	0.085	37.844	22.541	1.385
33	481.73	0.013	14.931	14.247	1.122
34	2178.54	0.052	11.428	30.193	1.058
35	778.35	0.022	58.630	65.014	1.029
36	1337.55	0.038	15.377	34.525	1.048
37	1948.58	0.056	11.823	31.587	1.058
38	1692.91	0.048	13.399	40.236	1.049
39	2031.80	0.058	16.323	40.993	1.057
40	1404.60	0.040	18.438	46.572	1.035
41	1555.56	0.044	32.643	36.225	1.052
42	499.23	0.014	102.459	99.101	1.017
43	1551.53	0.044	19.952	34.510	1.058
44	1082.57	0.039	13.038	41.722	1.041
45	1219.73	0.035	18.485	32.062	1.043
46	788.31	0.022	21.003	17.062	1.014
47	959.39	0.027	52.847	51.624	1.034
48	1862.84	0.053	27.493	11.651	1.059
49	624.90	0.018	74.464	81.541	1.023
50	1366.09	0.039	34.378	16.937	1.049

AVERAGE  
 NO. NO./AREA MFPV MFPH L/A AFETA  
 1423.18 0.040 55555555 55555555 1.036 555555555555  
 SD 1678.08 0.048 55555555 55555555 1.035 555555555555  
 SE 237.32 0.007 55555555 55555555 1.005 555555555555

DATE 1/20/79  
 MOBIL TYCO SAMPLE # 56 JPL # 144-30 75-743 SPEC B  
 TWINS ONLY  
 QTM OUTPUT DIVIDED BY 100  
 31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 28.44 % 100

MAG-830.0 UNITS/MM CAL FACTOR= 11.700375 UNITS/PP  
 FRAME AREA= 0.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	18.40	1119.4519	20.833	1.464	1.232
2	25.86	1368.058	18.450	2.883	0.589
3	72.64	1033.161	18.929	1.952	1.899
4	24.40	147.054	17.520	1.859	0.189
5	36.53	512.581	20.833	1.295	1.525
6	30.70	436.568	14.423	1.524	1.693
7	14.66	208.533	23.438	1.584	1.424
8	99.30	1412.221	11.150	1.972	1.120
9	100.39	1427.723	18.152	1.159	1.337
10	73.31	1342.663	12.570	1.258	0.837
11	119.34	1697.265	13.523	1.090	1.327
12	83.26	1184.185	11.429	1.793	0.824
13	78.41	1115.174	11.719	1.165	1.891
14	89.82	566.788	14.423	1.219	1.843
15	21.36	299.547	18.393	1.476	0.723
16	4.58	66.510	26.786	1.868	1.107
17	9.08	3.339	555555555	555555555	0.003
18	75.18	1169.167	11.7045	1.180	1.485
19	118.33	1548.741	12.8170	1.512	0.707
20	176.40	1513.231	11.175	1.741	1.245
21	111.68	1872.793	11.129	1.976	1.248
22	64.56	913.143	11.719	1.044	1.459
23	111.46	1585.248	19.868	1.133	0.907
24	55.33	782.622	12.500	1.589	0.635
25	22.68	722.530	12.500	2.679	0.413

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
60.32	1857.994	555555555	555555555	2.687	555555555
39.57	561.722	555555555	555555555	1.343	555555555
SE	7.90	112.344	555555555	1.769	555555555

26	17.23	245.538	20.833	1.674	1.619
27	13.33	189.530	13.438	1.563	0.379
28	23.49	334.052	14.423	1.913	0.549
29	186.59	1230.122	12.162	0.876	1.179
30	24.93	354.555	26.786	1.472	0.328
31	115.58	1643.757	13.523	1.136	1.955
32	18.99	270.042	20.833	2.155	0.461
33	53.22	1754.118	11.719	1.339	1.827
34	72.86	1336.162	11.129	1.379	1.752
35	27.64	393.061	18.929	2.131	1.496
36	19.34	275.043	14.423	1.167	0.248
37	6.05	86.013	26.500	14.423	1.383
38	17.32	1099.572	11.048	1.157	0.931
39	57.59	819.126	11.029	1.500	1.683
40	74.75	1063.166	9.868	1.856	1.638
41	9.18	130.520	15.625	1.460	1.261
42	64.38	7915.643	5.682	1.242	0.872
43	16.28	231.536	18.750	1.989	1.280
44	52.41	1314.235	9.868	1.769	1.616
45	43.04	612.096	11.719	2.183	1.517
46	132.83	1434.724	11.929	1.322	1.848
47	78.41	1115.174	11.375	1.199	1.792
48	144.55	2055.831	9.375	1.674	0.712
49	129.47	1841.289	10.417	1.550	1.709
50	88.36	1256.696	14.500	1.829	1.629

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
59.27	443.432	555555555	555555555	1.659	555555555
39.57	561.749	555555555	555555555	1.374	555555555
SE	5.59	79.443	555555555	1.343	555555555

DATE 1/29/79  
 MOBIL TYCO SAMPLE # 56 JPL 144-33 # 5-743 SPEC 3  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 5.16<sup>2</sup>P

MAG-830.0 UNITS-MICRONS CAL. FACTOR- 1.375334 UNITS/PP  
 FRAME AREA- 7.515625000 24

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	4605.34	7.714	21.167	24.206	1.383	1.693897
2	503.22	7.714	135.131	111.874	1.317	1.421924
3	981.40	7.328	78.518	57.339	1.021	2.933556
4	1275.58	7.036	48.775	41.571	1.339	1.924311
5	69.19	7.032	689.338	756.348	1.002	1.255778
6	1194.38	7.034	45.775	47.444	1.937	1.674948
7	3873.54	7.110	16.944	18.542	1.399	2.323746
8	0.07	7.328	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.333	\$\$\$\$\$\$\$\$
9	138.37	7.734	428.382	385.892	1.334	1.498671
10	55.27	7.070	721.154	884.434	1.332	1.354688
11	29.26	1.071	2929.688	2757.353	1.331	1.633413
12	989.53	1.328	53.517	54.953	1.332	1.453569
13	93.32	3.333	937.503	956.433	1.332	2.312517
14	736.98	3.323	76.844	73.994	1.323	1.392749
15	2588.57	2.374	34.434	33.881	1.354	2.779332
16	4146.12	2.118	14.857	16.447	1.111	2.229718
17	2342.44	7.358	33.482	32.787	1.349	2.734434
18	3.33	7.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
19	2273.35	7.065	34.173	37.955	1.347	2.484799
20	4.46	1.000	8522.727	18759.077	1.000	1.078125
21	73.54	7.042	1302.043	517.956	1.332	2.531257
22	765.31	7.022	114.639	84.383	1.323	1.895318
23	58.91	7.032	1038.065	986.842	1.332	2.795714
24	7873.93	1.224	13.583	14.488	1.119	5.423879
25	1912.21	7.054	35.351	32.194	1.453	2.302322
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
30	1369.67	1.339	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.333	\$\$\$\$\$\$\$\$
31	1789.67	1.751	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.336	\$\$\$\$\$\$\$\$
32	357.93	3.310	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.337	\$\$\$\$\$\$\$\$
26	9638.53	1.273	14.372	14.361	1.118	2.773347
27	1684.69	1.048	47.229	37.443	1.343	2.569179
28	263.95	1.338	274.927	189.777	1.339	2.588263
29	618.99	3.018	132.794	99.318	1.317	2.566637
30	78.19	1.002	734.887	732.422	1.333	1.491365
31	1348.06	1.038	46.163	45.554	1.337	2.368357
32	23.93	1.331	2929.688	2634.167	1.331	1.265625
33	174.61	3.205	791.149	293.489	1.337	1.131279
34	186.63	3.235	325.779	338.448	1.334	2.667751
35	8351.55	7.238	9.494	9.727	1.183	3.368599
36	1482.36	1.042	32.172	34.054	1.352	1.373654
37	2142.35	3.061	43.747	25.748	1.152	2.867764
38	595.74	3.017	178.912	114.951	1.317	2.263253
39	1261.43	3.336	53.107	46.411	1.336	1.591875
40	3158.33	1.393	19.766	21.195	1.385	2.095319
41	1887.21	7.054	45.665	28.989	1.353	2.637474
42	542.25	7.015	197.637	130.482	1.315	2.493153
43	1137.36	1.331	94.389	39.371	1.335	2.932596
44	1151.55	1.333	48.475	46.251	1.337	1.564782
45	711.35	1.323	92.965	98.374	1.321	2.233563
46	633.14	7.018	107.759	101.351	1.317	2.053991
47	624.61	1.018	264.831	98.589	1.214	6.383583
48	1052.71	1.330	49.525	54.379	1.333	1.575339
49	263.66	1.007	261.142	169.837	1.309	2.199317
50	73.74	1.332	997.340	593.354	1.302	1.974159
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	1465.18	1.342	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.334	\$\$\$\$\$\$\$\$
SE	2371.13	3.359	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.338	\$\$\$\$\$\$\$\$
3E	292.93	1.332	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.335	\$\$\$\$\$\$\$\$

DATE 1/23/79  
 MOBIL TYCO SAMPLE # ST JPL # 144-30 #5-743 SPEC 0  
 TWINS ONLY  
 BTM OUTPUT DIVIDED BY 100  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 29.22 Y 100

MAG-800.0 SNIPS-MM CAL. FACTOR = 0.000375 UNITS/PP  
 FRAME AREA = 0.07313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	103.41	466.519	11.719	1.705	1.611	1.000025
2	37.51	533.455	12.500	2.500	1.459	1.000013
3	31.03	441.463	14.423	2.206	1.483	1.000010
4	85.46	1215.362	12.417	1.43	1.917	1.000015
5	47.19	371.199	13.393	1.689	1.621	1.000011
6	52.49	745.182	13.393	1.603	1.672	1.000013
7	34.91	295.464	12.523	1.500	1.752	1.000017
8	61.23	370.758	11.029	1.389	1.760	1.000013
9	57.56	318.678	13.393	1.705	1.635	1.000014
10	39.84	566.553	10.417	1.873	1.673	1.000019
11	46.61	662.925	9.858	2.232	1.493	1.000014
12	28.41	403.985	12.507	1.431	1.723	1.000016
13	54.97	769.032	11.029	2.193	1.515	1.000017
14	44.63	634.695	8.523	1.292	1.765	1.000019
15	34.79	493.543	9.868	2.717	1.435	1.000013
16	80.99	1153.627	8.152	2.534	1.489	1.000042
17	124.50	1770.721	12.500	1.202	1.859	1.000022
18	118.04	1678.728	10.417	1.410	1.787	1.000024
19	108.32	1540.497	8.929	1.210	1.859	1.000022
20	110.61	1573.102	7.500	1.218	1.891	1.000031
21	68.97	958.104	8.152	1.423	1.685	1.000023
22	39.29	558.755	13.393	1.913	1.552	1.000039
23	23.27	330.976	18.758	1.167	1.259	1.000019
24	10.55	149.426	37.500	1.500	1.136	1.000011
25	57.15	812.837	12.500	1.234	1.437	1.000023
26	24.44	347.525	15.625	1.820	1.576	1.000017

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	58.61	833.505	12.477	2.074	1.613	1.000017
SE	31.37	446.120	5.615	1.265	1.187	1.000035
SE	6.15	87.491	1.101	1.248	1.937	1.000042

27	43.25	572.393	12.500	1.476	1.763	1.000012
28	21.49	335.666	13.393	2.259	1.489	1.000016
29	3.15	44.779	11.503	1.875	1.733	1.000034
30	62.22	884.873	11.152	1.674	1.677	1.000015
31	45.62	648.810	8.929	1.349	1.808	1.000039
32	32.72	465.313	13.393	2.976	1.371	1.000039
33	6.74	95.886	23.438	6.748	1.179	1.000036
34	39.53	562.172	11.500	2.467	1.464	1.000012
35	46.71	664.885	9.868	1.563	1.659	1.000012
36	14.31	273.452	23.438	2.885	1.490	1.000035
37	8.25	117.332	37.500	4.523	1.125	1.000036
38	29.35	417.614	15.625	2.885	1.376	1.000013
39	16.43	233.630	10.417	2.500	1.491	1.000035
40	8.76	124.633	16.875	11.029	1.115	1.000018
41	26.99	382.569	17.045	1.125	1.363	1.000014
42	0.99	14.115	93.750	31.250	1.337	1.000004
43	16.80	238.984	20.833	4.934	1.227	1.000012
44	0.00	0.000	0.000	0.000	1.000	0.000000
45	1.47	20.929	62.500	23.438	1.253	1.000012
46	0.30	0.000	0.000	0.000	1.000	0.000000
47	2.43	34.558	42.500	17.145	1.369	1.000015
48	2.46	15.044	37.500	14.423	1.385	1.000033
49	1.64	23.353	46.875	16.875	1.737	1.000033
50	50.99	725.226	12.500	2.841	1.421	1.000019

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	40.76	569.736	0.000	0.000	1.464	0.000000
SE	32.45	461.530	0.000	0.000	1.268	0.000000
SE	4.59	65.279	0.000	0.000	1.338	0.000000

DATE 1/29/79  
 MOBIL TYCO SAMPLE # 57 JPL 144-3C 45-743 SPEC C  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE P.I.T. AREA = 5.17 PP

MAG-800 X UNITS-MICRONS CAL. FACTOR = 1.375000 UNITS/PP  
 FRAME AREA = 3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	109.28	0.003	1488.095	0.003	7.945313
2	2527.65	0.072	126.986	0.068	2.238524
3	1910.99	0.054	205.244	0.052	2.793491
4	0.90	0.000	\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$
5	53.19	0.002	123.553	0.002	1.333513
6	500.39	0.014	150.240	0.011	3.432046
7	1271.57	0.036	70.755	0.026	3.243753
8	65.76	0.002	1050.371	0.001	1.770833
9	1048.94	0.030	64.744	0.033	1.864571
10	3347.78	0.095	22.237	0.077	3.194144
11	2174.66	0.062	34.851	0.054	3.728834
12	375.44	0.011	181.686	0.012	1.931977
13	1138.30	0.032	83.516	0.033	2.344414
14	279.39	0.008	400.641	0.007	3.831368
15	1278.34	0.036	47.396	0.040	1.689801
16	1311.03	0.029	55.425	0.035	1.481949
17	192.37	0.005	575.153	0.006	2.585938
18	0.00	0.000	\$\$\$\$\$\$\$\$	0.000	\$\$\$\$\$\$\$\$
19	12.19	0.000	2608.167	0.000	1.885938
20	72.73	0.002	629.195	0.003	3.951364
21	540.43	0.015	151.699	0.015	2.471108
22	159.38	0.005	220.348	0.006	1.147277
23	1224.95	0.035	45.854	0.035	1.972945
24	3905.80	0.111	18.716	0.090	3.063258
25	35.59	0.001	1838.235	0.001	2.587599
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	929.48	0.026	\$\$\$\$\$\$\$\$	0.024	\$\$\$\$\$\$\$\$
SE	1070.68	0.030	\$\$\$\$\$\$\$\$	0.026	\$\$\$\$\$\$\$\$
SE	214.14	0.006	\$\$\$\$\$\$\$\$	0.005	\$\$\$\$\$\$\$\$
26	1153.58	0.033	32.161	0.029	1.039266
27	948.94	0.027	76.158	0.026	1.937939
28	872.53	0.025	62.667	0.028	2.410913
29	5546.23	0.158	13.046	0.126	3.089871
30	910.83	0.026	59.562	0.032	1.445858
31	1591.68	0.045	40.357	0.045	1.887770
32	996.32	0.028	53.176	0.032	1.417533
33	1819.54	0.052	19.837	0.059	1.198553
34	3475.24	0.099	18.232	0.096	2.086393
35	1686.65	0.046	38.724	0.045	2.335714
36	589.75	0.017	71.674	0.024	0.906481
37	2464.60	0.070	27.364	0.062	2.447874
38	1949.33	0.055	33.711	0.059	1.938079
39	1575.53	0.045	34.128	0.049	1.513251
40	1430.56	0.041	34.748	0.062	1.507337
41	564.41	0.016	94.411	0.019	0.856668
42	1298.43	0.037	44.335	0.049	1.154953
43	2380.27	0.068	35.394	0.071	1.751559
44	1078.53	0.031	51.767	0.037	2.952764
45	2454.93	0.070	24.478	0.069	1.824962
46	1577.76	0.045	32.305	0.054	1.392785
47	1533.27	0.044	38.900	0.045	1.168485
48	3200.06	0.091	23.582	0.082	2.978840
49	1946.62	0.055	39.730	0.041	1.715455
50	2556.97	0.073	28.731	0.059	2.882049
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1376.75	0.039	\$\$\$\$\$\$\$\$	0.039	\$\$\$\$\$\$\$\$
SE	1156.27	0.033	\$\$\$\$\$\$\$\$	0.029	\$\$\$\$\$\$\$\$
SE	169.52	0.006	\$\$\$\$\$\$\$\$	0.004	\$\$\$\$\$\$\$\$

DATE 1/24/79  
 MOBIL TYCO SAMPLE # 58 JPL#144-3C #5-743 SPEC D  
 TWINS ONLY  
 QTM OUTPUT DIVIDED BY 100  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 29.85 X 100

MAG-800.0 UNITS-MM.CAL. FACTOR- 3.100375 UNITS/PP  
 FRAME AREA- 0.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	27.70	193.897	5.050	2.841	3.435	1.000000
2	14.33	203.855	31.253	3.208	1.238	1.000017
3	33.99	483.441	26.785	4.167	3.256	1.000018
4	27.46	390.563	17.045	2.137	1.517	1.000009
5	25.92	411.520	17.025	2.315	0.461	1.000009
6	28.30	402.471	15.625	6.466	0.195	0.000034
7	36.57	520.116	14.423	2.232	1.483	1.000012
8	35.60	506.333	18.750	2.500	1.432	1.000012
9	6.66	94.783	37.500	8.152	3.144	1.000009
10	58.54	832.567	14.423	3.348	1.298	1.000035
11	102.44	1456.992	11.029	1.003	1.611	1.000029
12	112.26	1596.547	9.375	3.992	1.775	1.000019
13	71.57	1117.846	9.868	1.311	1.847	1.000014
14	59.87	723.495	9.375	2.679	1.341	1.000019
15	37.84	538.215	15.625	3.316	1.523	1.000012
16	129.57	1842.792	12.500	1.953	1.557	1.000009
17	43.98	867.336	9.868	1.376	1.637	1.000014
18	59.22	984.505	9.929	1.742	1.000	1.000012
19	55.79	793.512	11.719	1.500	1.709	1.000011
20	92.20	1311.245	9.375	2.083	1.509	1.000028
21	91.76	1305.050	11.719	1.995	1.536	1.000037
22	136.64	1943.291	14.423	4.261	0.296	1.000043
23	68.12	968.788	9.868	1.349	0.768	0.000014
24	46.38	659.671	14.423	2.467	0.485	0.000018
25	37.88	536.692	14.423	3.289	1.379	1.000016

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	58.46	831.500	14.465	2.814	1.539	1.000023
SE	34.72	489.441	7.412	1.730	1.234	1.000024
SE	6.88	97.892	1.402	3.345	1.747	1.000005

26	37.88	0.000	14.423	3.989	1.100	1.000000
LAST FIELD DELETED						
26	72.00	1.000	7.813	1.720	0.000	0.000000
27	78.27	1.000	9.375	1.689	1.000	1.000015
28	49.70	0.000	12.500	1.769	1.000	1.000013
29	54.49	0.000	13.393	2.074	1.000	0.000000
30	88.48	1.000	11.729	1.875	1.000	1.000029
31	44.31	1.000	11.029	1.913	1.000	1.000013
32	36.27	1.000	14.423	3.753	1.000	1.000019
33	47.15	1.000	15.617	1.820	0.000	1.000012
34	82.25	1.000	9.929	1.234	0.000	1.000016
35	73.19	1.000	8.523	1.157	1.000	1.000011
36	38.95	0.000	8.929	1.856	1.000	1.000017
37	42.33	1.000	6.944	2.799	0.000	1.000016
38	9.44	1.000	15.625	6.250	1.000	1.000022
39	31.88	0.000	9.868	2.679	1.000	1.000011
40	63.62	1.000	6.944	1.311	1.000	1.000013
41	32.95	0.000	12.500	2.534	1.000	1.000011
42	95.71	0.000	11.719	1.735	1.000	1.000024
43	93.64	1.000	7.500	1.330	1.000	1.000021
44	63.46	1.000	7.813	1.324	1.000	1.000018
45	61.45	1.000	7.813	1.800	1.000	1.000018
46	142.77	1.000	13.393	2.799	0.000	1.000017
47	113.75	1.000	11.719	2.259	1.000	1.000042
48	125.49	1.000	11.029	2.641	1.000	1.000025
49	39.58	0.000	13.117	2.155	1.000	1.000017
50	47.19	0.000	11.719	2.296	1.000	1.000014

AVERAGE

NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	61.62	0.000	12.667	2.524	1.000	1.000023
SE	32.89	0.000	7.737	1.000	1.000	1.000022
SE	6.55	0.000	9.011	1.233	1.000	1.000023

DATE 1/27/79  
 MOBILE TYCO SAMPLE # 58 UPL # 144-30 #5-743 SPEC D  
 DISLOCATION PITS ONLY  
 11 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PII AREA = 5.35 PP

MAG 870.0 UNITS-MICRONS CAL. FACTOR 1.37500 UNITS/PP  
 FRAME AREA 3.51562500 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	2968.22	0.084	29.734	0.067	1.425038
2	839.97	0.024	83.631	0.023	1.398901
3	1046.54	0.030	54.116	0.036	1.288641
4	278.69	0.008	150.482	0.019	1.500549
5	350.39	0.010	146.484	0.008	1.423733
6	1390.28	0.040	50.485	0.033	1.197413
7	917.01	0.026	75.260	0.023	1.764466
8	762.43	0.022	66.208	0.026	1.359264
9	2766.73	0.079	23.673	0.062	1.397116
10	2594.02	0.074	30.037	0.055	1.769296
11	200.00	0.006	274.927	0.037	1.433936
12	51.21	0.001	1090.116	0.002	1.926563
13	148.41	0.004	222.297	0.005	1.958882
14	1157.57	0.033	59.230	0.027	1.721533
15	658.88	0.019	75.544	0.022	1.412267
16	6.54	0.000	11713.750	0.000	SSSSSSSSSSSS
17	270.65	0.008	166.223	0.011	1.190789
18	435.38	0.012	112.410	0.015	1.423971
19	1565.61	0.045	319.392	0.022	1.5605978
20	1436.54	0.040	54.761	0.034	1.734375
21	1567.85	0.046	143.349	0.017	1.865584
22	63.18	0.002	624.444	0.002	1.073288
23	159.25	0.005	341.309	0.005	1.641267
24	3497.29	0.099	25.455	0.064	1.698382
25	1247.48	0.055	43.123	0.047	1.547632
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1041.95	0.030	645.890	0.025	SSSSSSSSSSSS
SE	986.16	0.028	2272.748	0.024	SSSSSSSSSSSS
SE	197.23	0.006	454.550	0.004	SSSSSSSSSSSS
26	317.20	0.009	192.525	0.009	1.729229
27	871.08	0.025	130.571	0.022	1.620511
28	581.67	0.017	132.415	0.015	1.392162
29	418.86	0.012	128.456	0.014	1.567211
30	1913.64	0.054	33.736	0.045	1.666146
31	376.82	0.012	102.941	0.003	1.992996
32	1387.10	0.044	33.211	0.054	1.147882
33	1264.86	0.036	40.481	0.048	1.986658
34	562.06	0.016	116.460	0.017	1.922988
35	101.50	0.003	351.124	0.003	1.497243
36	401.68	0.014	127.551	0.013	1.533498
37	2794.86	0.077	27.229	0.067	1.818538
38	10388.60	0.287	12.439	0.148	1.140853
39	3572.71	0.104	21.542	0.102	1.216657
40	1615.73	0.046	38.934	0.045	1.878767
41	2294.95	0.060	54.411	0.045	1.477528
42	1023.56	0.029	97.251	0.024	1.686513
43	650.24	0.016	95.957	0.018	1.726758
44	61.87	0.002	1201.223	0.002	1.449836
45	219.63	0.006	262.605	0.006	1.757813
46	542.87	0.015	92.192	0.019	1.427885
47	2081.12	0.059	29.360	0.059	1.054749
48	155.32	0.004	343.407	0.005	1.517654
49	145.98	0.004	156.464	0.006	1.223313
50	82.62	0.002	558.036	0.003	1.294922
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	1189.56	0.034	434.579	0.028	SSSSSSSSSSSS
SE	1593.98	0.045	1635.144	0.028	SSSSSSSSSSSS
SE	225.42	0.006	231.244	0.004	SSSSSSSSSSSS

DATE 1/27/79  
 MISSILE TYCJ #59 JPL#144-30 #5-743 SPEC E  
 TWINS ONLY ITM OUTPJT DIVIDED BY 133  
 101 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 23.39 X 133

MAG-833.3 UNITS-MM CAL. FACTOR- 1.00375 UNITS/IN  
 FRAME AREA- 1.770313

FIELD NO.	NO.	AREA	MFPV	MFPH	L/A	FETA
1	65.58	932.144	8.929	1.550	1.723	1.777713
2	17.61	250.515	2.833	1.696	1.197	1.777712
3	111.42	1584.571	12.533	1.550	1.693	1.777727
5	67.64	981.931	11.329	1.524	1.699	1.777711
6	93.68	1289.568	9.868	1.423	1.765	1.777714
7	58.82	837.281	14.423	1.823	1.592	1.777713
8	57.76	821.472	8.523	1.293	1.843	1.777719
9	96.11	1366.894	13.417	1.956	1.547	1.777729
10	43.61	629.276	14.423	1.856	1.613	1.777718
11	63.92	909.333	8.929	1.723	1.635	1.777713
12	91.71	1374.261	7.012	1.576	1.727	1.777717
13	13.98	198.931	14.423	1.357	1.245	1.777710
14	165.71	3356.791	9.375	1.689	1.715	1.777742
15	117.49	1673.913	12.533	2.757	1.389	1.777748
16	112.16	1597.948	11.329	1.258	1.787	1.777718
17	139.28	1554.168	10.417	1.488	1.755	1.777727
18	85.74	1213.662	13.393	2.985	1.389	1.777729
19	97.73	1389.996	10.417	1.342	1.911	1.777715
20	129.15	1797.396	8.523	1.719	1.396	1.777714
21	88.29	1255.417	8.523	1.423	1.763	1.777715
22	82.17	1168.667	13.393	2.287	1.461	1.777721
23	132.79	1888.594	8.929	1.258	1.845	1.777724
24	19.24	273.621	12.533	2.206	1.515	1.777714
25	99.53	1415.534	11.329	1.399	1.773	1.777717

	NO.	AREA	MFPV	MFPH	L/A	FETA
AVERAGE						
SD	39.33	558.870	2.817	1.372	1.198	1.777711
SE	7.86	111.774	1.563	1.354	1.343	1.777722

26	5.79	72.158	37.503	12.533	1.399	1.777716
27	41.64	592.238	8.929	3.324	1.387	1.777711
28	97.35	1384.523	8.868	1.123	1.949	1.777714
29	63.15	898.865	11.719	7.533	1.192	1.777719
30	48.96	582.599	5.148	1.289	1.403	1.777712
31	93.55	1287.844	10.417	3.472	1.277	1.777743
32	36.17	314.408	12.533	1.769	1.597	1.777717
33	19.54	277.878	13.417	4.261	1.283	1.777716
34	25.27	359.356	14.423	4.164	1.269	1.777719
35	25.87	367.269	8.523	1.295	1.589	1.777715
36	35.87	513.152	9.375	1.736	1.621	1.777726
37	12.91	173.861	20.233	4.573	1.292	1.777717
38	3.07	3.333	SSSSSSSSSS	SSSSSSSSSS	1.333	SSSSSSSSSSSS
39	3.93	3.333	SSSSSSSSSS	SSSSSSSSSS	1.333	SSSSSSSSSSSS
40	7.99	113.785	37.503	17.345	1.283	1.777714
41	3.46	49.252	31.253	18.753	1.383	1.777711
42	12.23	173.901	16.275	5.152	1.144	1.777717
43	9.93	3.333	SSSSSSSSSS	SSSSSSSSSS	1.333	SSSSSSSSSSSS
44	2.39	34.151	31.253	26.786	1.159	1.777713
45	5.17	77.333	46.875	5.122	1.189	1.777714
46	38.69	559.223	18.750	3.776	1.283	1.777716
47	4.19	59.589	42.533	11.329	1.137	1.777713
48	3.82	43.131	37.503	18.753	1.367	1.777711
49	13.71	284.566	15.625	2.259	1.364	1.777714
50	44.46	632.369	9.868	1.723	1.619	1.777715

	NO.	AREA	MFPV	MFPH	L/A	FETA
AVERAGE						
SD	5.53	647.197	SSSSSSSSSS	SSSSSSSSSS	1.299	SSSSSSSSSSSS
SE	6.4	91.84	SSSSSSSSSS	SSSSSSSSSS	1.141	SSSSSSSSSSSS



DATE 1/23/79  
 MOBIL TYCO #59 JPL#144-30 W5-743 SPEC 5  
 DISLOCATIONS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT ARE = 4.78PP

MAG-800X UNITS-MICRONS CAL FACTOR 1.375200 UNITS/PP  
 FRAME AREA 3.51562500974

FIELD NO.	NO / AREA	MFPV	MFPH	L/A	AFETA	
1	2382.89	0.165	34.099	30.195	1.342	5.974662
2	2631.38	0.103	22.477	23.063	1.076	3.211891
3	558.58	0.019	114.399	47.880	0.014	2.108038
4	6.49	0.000	SSSSSSSSSS	SSSSSSSSSS	1.000	SSSSSSSSSSSS
5	424.90	0.012	31.48.574	142.477	0.012	1.527323
6	115.06	0.001	2840.979	3024.194	1.001	3.843750
7	192.35	0.005	310.330	344.569	0.006	1.613672
8	437.87	0.012	200.321	220.070	1.008	2.452734
9	54.39	0.002	844.595	860.592	1.002	1.891768
10	32.62.75	0.003	28.714	29.602	1.059	3.613152
11	1193.51	0.034	77.302	49.429	1.031	2.116796
12	347.49	0.010	179.942	174.581	1.039	1.769531
13	6471.97	0.184	13.294	13.007	1.126	3.613268
14	79.71	0.002	715.649	726.744	1.093	1.190625
15	2961.22	0.084	46.702	32.707	1.048	6.652752
16	149.58	0.004	384.220	369.094	1.045	1.155711
17	165.69	0.026	430.046	316.723	1.004	1.749234
18	731.59	0.021	21.306	20.197	1.022	1.485697
19	163.18	0.005	2847.939	464.139	1.003	10.968750
20	12.87	0.000	4687.500	5208.333	1.000	1.245536
21	2429.58	0.069	49.264	38.344	1.045	1.925662
22	2303.35	0.066	11.89.043	130.971	1.056	2.180678
23	121.55	0.003	684.307	420.404	1.003	2.475852
24	13.81	0.000	3232.159	3750.000	1.000	1.928125
25	1592.68	0.045	32.828	31.737	1.044	1.823711

AVERAGE

NO.	NO / AREA	MFPV	MFPH	L/A	AFETA	
SD	1188.96	0.124	SSSSSSSSSS	SSSSSSSSSS	1.025	SSSSSSSSSSSS
SE	1564.88	0.045	SSSSSSSSSS	SSSSSSSSSS	1.031	SSSSSSSSSSSS
SE	312.97	0.009	SSSSSSSSSS	SSSSSSSSSS	1.006	SSSSSSSSSSSS

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26	67.78	0.002	660.214	584.307	1.003	1.893382
27	1397.70	0.040	36.141	17.757	0.049	1.139584
28	1294.81	0.034	65.977	55.837	0.028	2.142485
29	143.93	0.004	382.653	42.249	1.019	1.151786
30	1651.46	0.047	36.295	42.965	1.048	1.163925
31	2652.51	0.075	37.158	22.821	0.062	1.409148
32	1631.38	0.046	38.596	41.482	1.046	1.743392
33	51.62.34	0.147	19.568	15.214	1.107	3.645924
34	699.58	0.020	114.197	165.852	0.019	1.767857
35	2048.51	0.058	49.368	50.187	1.035	1.583841
36	2175.36	0.062	31.105	26.042	0.062	1.861224
37	2159.52	0.051	31.747	28.784	1.056	2.021827
38	2977.53	0.083	24.119	22.722	0.083	2.048644
39	3178.87	0.090	20.109	23.746	0.079	2.115640
40	3174.06	0.093	19.300	21.365	0.087	1.777969
41	1375.10	0.039	47.134	42.594	0.039	1.702262
42	2518.27	0.072	42.245	39.979	1.041	3.236525
43	985.36	0.028	65.240	64.845	1.027	1.894751
44	1827.45	0.054	31.023	36.535	1.052	1.754798
45	1234.10	0.035	52.335	71.729	1.026	2.223986
46	415.69	0.012	179.598	136.662	1.014	1.169129
47	693.35	0.017	127.333	119.275	1.014	2.048295
48	1351.05	0.038	55.441	46.411	0.035	1.928145
49	4412.13	0.126	18.095	19.039	0.024	3.351165
50	1843.51	0.052	34.416	35.646	0.051	1.750777

AVERAGE

NO.	NO / AREA	MFPV	MFPH	L/A	AFETA	
SD	1532.43	0.044	SSSSSSSSSS	SSSSSSSSSS	1.036	SSSSSSSSSSSS
SE	1441.70	0.041	SSSSSSSSSS	SSSSSSSSSS	1.038	SSSSSSSSSSSS
SE	293.89	1.036	SSSSSSSSSS	SSSSSSSSSS	1.034	SSSSSSSSSSSS

DATE 1/23/79  
 MOBIL TYCO # 63 JPL #144-35 45-743 SPEC F  
 TWIN ONLY  
 JTM OUTPUT DIVIDED BY 100  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 33.25 X 100

MAG-800.1 UNITS-MM CAL. FACTOR= 1.388375 UNITS/PP  
 FRAME AREA= 3.070313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	31.52 448.267	0.179	3.177	2.797	1.000000
LAST FIELD DELETED					
2	32.78 456.232	14.423	1.589	7.669	1.000000
3	31.25 444.418	14.423	1.465	7.717	1.000000
4	34.29 1343.952	9.375	1.563	7.739	1.000000
5	65.12 4924.765	11.929	1.442	3.747	1.000000
6	36.78 523.121	7.813	1.512	8.776	1.000000
7	79.79 1134.784	7.212	1.371	1.303	1.000000
8	44.18 628.344	8.523	1.131	9.557	1.000000
9	50.32 715.692	15.625	1.933	1.539	1.000000
10	13.26 145.258	17.345	2.976	7.368	1.000000
11	18.35 260.919	11.719	4.253	1.227	1.000000
12	4.73 3.099	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.333	\$\$\$\$\$\$\$\$
13	2.68 38.269	62.537	12.537	7.769	1.000000
14	57.59 919.114	14.423	1.408	7.744	1.000000
15	74.32 1352.658	17.417	1.378	1.913	1.000000
16	103.77 1465.851	8.152	1.333	1.927	1.000000
17	57.32 912.967	8.929	1.396	9.965	1.000000
18	48.11 257.497	20.833	2.976	1.363	1.000000
19	27.41 247.859	11.329	2.155	7.515	1.000000
20	14.29 233.175	15.625	3.976	1.285	1.000000
21	26.74 279.833	13.393	3.573	7.264	1.000000
22	51.19 726.733	17.345	2.885	7.437	1.000000
23	127.17 1877.512	13.393	2.716	7.555	1.000000
24	22.77 323.796	17.345	2.155	7.477	1.000000
25	2.83 48.207	37.593	11.929	7.177	1.000000
26	61.02 967.876	14.423	1.563	7.712	1.000000
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
32.72	625.142	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	7.551	\$\$\$\$\$\$\$\$
32.72	465.372	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	7.291	\$\$\$\$\$\$\$\$
SE	6.54	93.074	\$\$\$\$\$\$\$\$	7.158	\$\$\$\$\$\$\$\$
26	17.86 254.075	23.438	2.757	7.438	1.000000
27	60.69 863.171	13.393	1.133	7.944	1.000000
28	37.83 538.392	14.423	1.933	3.547	1.000000
29	13.53 192.481	26.786	2.885	7.376	1.000000
30	32.75 465.835	17.345	2.287	1.459	1.000000
31	38.77 551.352	15.625	2.155	7.571	1.000000
32	18.38 261.347	26.796	3.989	7.275	1.000000
33	1.59 21.387	187.537	31.250	7.737	1.000000
34	15.78 72.287	37.500	6.466	7.173	1.000000
35	13.95 198.477	13.393	3.374	7.369	1.000000
36	60.33 858.338	11.929	1.913	7.557	1.000000
37	109.95 1563.833	9.375	7.716	7.552	1.000000
38	94.71 1346.941	8.523	1.875	7.635	1.000000
39	14.77 210.018	23.438	2.679	7.395	1.000000
40	24.79 342.617	15.625	5.357	7.235	1.000000
41	29.71 422.693	14.423	3.479	7.331	1.000000
42	20.63 292.999	23.833	7.124	7.367	1.000000
43	13.79 197.614	18.757	2.750	7.296	1.000000
44	134.96 1492.799	11.719	1.574	7.547	1.000000
45	61.17 579.113	13.393	1.523	7.597	1.000000
46	91.13 1296.340	8.523	2.131	7.529	1.000000
47	38.35 541.386	8.152	1.645	7.697	1.000000
48	25.72 366.778	7.537	1.234	7.869	1.000000
49	87.73 1247.278	9.868	1.213	7.547	1.000000
50	42.39 612.593	11.719	1.537	7.583	1.000000
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
33	43.17 513.55	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	7.512	\$\$\$\$\$\$\$\$
33	32.34 459.644	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	7.354	\$\$\$\$\$\$\$\$
33	4.57 5.349	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	7.336	\$\$\$\$\$\$\$\$

DATE 1/23/79  
 MOBIL FY0J 462 JPL #144-35 75-743 JPEC F  
 DISLOCATIONS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 5.35  $\mu^2$

MAG=330.3 UNITS-MICRONS CAL. FACTOR= 3.475333 UNITS/ $\mu^2$   
 FRAME AREA= 3.515625000  $\mu^2$

FIELD NO.	NO./AREA	VFPV	VFPH	LVA	AETA	
1	1711.03	0.349	35.211	36.822	3.753	1.167147
2	851.78	3.324	72.227	58.158	3.323	1.775147
3	859.25	3.324	88.194	94.127	3.323	2.938423
4	471.26	3.313	109.778	125.532	3.015	1.636688
5	995.79	1.328	57.165	59.486	1.331	1.713295
6	293.88	3.308	57.035	84.347	1.311	1.533333
7	1546.54	3.344	44.355	48.975	3.342	2.537617
8	2395.70	0.368	26.963	28.784	1.262	2.455573
9	3277.38	0.393	19.783	20.954	3.386	2.396228
10	4166.36	3.119	23.663	22.252	1.383	1.999252
11	5499.44	1.156	19.605	20.311	1.383	2.724435
12	5755.98	3.154	11.555	12.334	1.143	1.955724
13	6375.26	2.181	13.585	11.843	1.155	1.217930
14	331.27	3.339	425.333	156.511	1.333	5.161577
15	32.15	1.391	1442.308	552.273	1.391	1.863577
16	22.99	3.331	2038.343	660.211	1.391	1.473932
17	633.38	3.315	86.645	92.730	1.323	1.731363
18	4454.58	0.127	17.986	19.845	1.391	1.994487
19	2668.97	1.076	24.769	27.253	3.067	2.634393
20	2223.37	0.363	24.597	25.482	1.371	1.745543
21	4253.47	3.121	15.217	15.825	1.113	1.591429
22	1275.33	3.336	109.939	41.322	1.343	1.482233
23	1.00	3.333	SSSSSSSS	SSSSSSSS	1.333	SSSSSSSSSS
24	2222.88	3.363	32.529	33.657	1.359	1.368715
25	4532.26	3.128	19.831	16.424	3.108	1.899712
AVERAGE						
NO.	NO./AREA	VFPV	VFPH	LVA	AETA	
SD	1942.52	3.355	SSSSSSSS	SSSSSSSS	1.355	SSSSSSSSSS
SE	388.53	1.311	SSSSSSSS	SSSSSSSS	1.311	SSSSSSSSSS
26	113.64	3.303	452.899	483.769	1.304	1.379732
27	1916.07	3.055	36.380	34.851	1.053	2.232535
28	328.04	3.011	436.847	133.535	1.311	7.123427
29	1323.74	3.029	55.638	59.293	1.331	1.833137
30	1440.93	3.341	45.665	43.645	1.339	1.85541
31	1806.73	1.351	31.513	34.179	1.353	1.928759
32	736.82	3.021	92.822	62.375	1.323	1.737755
33	2431.21	3.069	24.248	26.566	1.367	1.159515
34	6221.31	1.177	14.546	17.311	3.196	1.513333
35	4644.67	1.132	16.340	17.297	1.133	1.477133
36	613.27	1.317	159.162	97.150	1.317	1.762312
37	262.93	1.307	185.277	191.718	1.309	1.344693
38	758.53	3.322	137.665	81.239	1.318	4.565257
39	424.11	3.012	138.571	109.482	1.314	1.627957
40	1345.98	3.038	49.932	53.513	1.334	2.333273
41	5193.46	3.148	14.134	14.635	3.122	3.137822
42	716.97	3.323	79.449	58.777	1.326	1.766342
43	1956.64	0.356	48.725	41.759	1.344	1.391849
44	2156.45	3.361	33.229	31.734	1.355	1.389322
45	14.95	1.333	1734.545	1694.167	1.331	1.122727
46	486.54	1.314	158.312	137.511	1.315	2.178857
47	597.57	3.317	148.339	64.522	1.323	1.845431
48	468.73	1.313	134.515	133.122	1.317	1.199139
49	1432.71	1.341	51.843	31.312	1.343	1.192459
50	314.39	1.339	157.828	152.936	1.312	1.343928
AVERAGE						
NO.	NO./AREA	VFPV	VFPH	LVA	AETA	
SD	1814.18	1.352	SSSSSSSS	SSSSSSSS	1.346	SSSSSSSSSS
SE	256.06	1.337	SSSSSSSS	SSSSSSSS	1.336	SSSSSSSSSS

DATE 1/27/79  
MOBIL TCC #61 JPL #144-30 #5-743 SPEC G  
TWIN ONLY  
JTM JJTPT DIVIDED BY 133  
.31 MM STEP SIZE  
MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
AVERAGE TWIN AREA = 28.33 X 133

MAG-833.0 UNITS-MM CAL. FACTOR 7.777775 UNITS/PP  
FRAME AREA 7.370313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	VFETA	
1	19.86	282.413	3.753	6.859	3.293	1.333314
2	189.93	1563.429	15.325	1.786	1.592	1.333327
3	74.18	1054.984	18.753	3.125	2.344	1.333332
4	52.93	752.762	29.833	2.534	2.498	1.333319
5	60.32	857.905	14.423	1.524	3.704	1.333313
6	48.96	696.381	11.329	1.589	3.469	1.333317
7	44.75	636.444	18.753	1.376	3.728	1.333337
8	75.43	1072.762	18.753	3.533	3.464	1.333325
9	79.71	1133.714	9.868	1.373	1.691	1.333318
10	54.07	913.222	12.503	1.769	1.584	1.333316
11	85.11	1217.413	2.152	1.431	1.735	1.333315
12	21.36	333.746	13.393	2.799	2.498	1.333337
13	56.93	839.651	14.423	1.284	1.787	1.333311
14	16.58	237.216	18.753	3.374	1.349	1.333337
15	138.89	1833.143	9.829	2.131	1.525	1.333342
16	124.82	1775.238	2.152	1.293	3.873	1.333327
17	56.71	835.633	9.868	1.465	2.744	1.333312
18	55.14	784.254	11.329	1.913	1.963	1.333314
19	3.86	54.857	32.533	17.345	3.769	1.333338
20	42.32	631.905	31.253	3.934	1.216	1.333328
21	125.64	1786.321	12.503	2.933	1.389	1.333342
22	179.61	1558.857	17.045	2.124	1.368	1.333354
23	46.61	662.857	15.625	1.769	1.563	1.333312
24	37.33	526.222	16.786	2.757	1.387	1.333313
25	5.39	75.692	46.875	5.682	1.189	1.333344
AVERAGE						
SD	51.85	879.383	18.982	3.394	1.499	1.333323
SE	35.89	513.293	12.156	3.118	1.203	1.333314
SE	7.18	132.359	2.431	3.424	1.341	1.333333
26	36.32	516.571	9.868	1.689	3.672	1.333338
27	38.43	546.543	11.329	1.735	1.571	1.333339
28	73.96	1351.537	4.944	1.442	1.739	1.333324
29	35.96	1222.633	13.393	3.155	1.356	1.333326
30	63.36	901.379	9.868	1.356	3.363	1.333317
31	26.32	374.349	11.329	3.479	1.336	1.333313
32	41.54	593.733	12.503	3.336	2.285	1.333327
33	143.34	2034.286	2.152	2.373	1.517	1.333356
34	66.79	949.841	5.315	1.113	3.247	1.333315
35	107.14	1523.813	9.868	1.674	1.744	1.333325
36	25.79	366.733	12.503	2.289	1.341	1.333311
37	27.54	292.363	13.417	1.639	1.349	1.333339
38	53.57	719.238	5.523	1.376	1.712	1.333317
39	11.19	311.365	15.625	2.168	1.243	1.333317
AVERAGE						
SD	63.23	856.173	15.636	2.778	1.539	1.333323
SE	35.48	534.541	10.613	2.596	1.192	1.333314
SE	5.68	83.791	1.699	3.416	1.332	1.333332
40	32.14	457.143	9.868	2.368	1.443	1.333316
41	11.43	162.543	13.438	1.233	1.341	1.333335
42	29.37	413.463	17.345	1.59	1.69	1.333339
43	56.77	797.463	5.152	1.488	1.725	1.333311
44	133.11	1893.379	13.417	1.576	1.771	1.333331
45	139.96	1563.937	5.523	1.357	1.967	1.333321
46	77.64	1174.254	11.417	1.597	1.715	1.333319
47	64.39	915.113	12.503	1.633	1.635	1.333315
48	83.53	1144.859	6.696	1.533	1.723	1.333316
49	19.14	272.254	15.425	2.717	1.389	1.333337
50	31.79	452.163	9.929	1.838	1.555	1.333337
AVERAGE						
SD	59.66	351.352	14.828	2.677	1.525	1.333318
SE	35.95	539.811	9.746	2.341	1.194	1.333318
SE	5.37	72.198	1.377	1.331	1.727	1.333332

DATE 1/23/79  
 MOBIL TYCO SAMPLE #61 JPL #144-3C #5-743 SPEC 6  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE DISLOCATION PIT AREA = 5.45  $\mu^2$

MAG-833.0 UNITS-MICRONS CAL. FACTOR- 1.375733 UNITS/PP  
 FRAME AREA- 3.515625000  $\mu^2$

FIELD NO.	NO./AREA	MFPV	MFRH	L/A	AFETA	
1	4891.47	3.137	29.292	22.547	1.379	1.876683
2	29.72	1.001	1399.254	976.563	1.001	1.949219
3	2471.93	1.073	28.212	30.448	1.057	1.147717
4	19.36	1.031	1129.515	1143.293	1.331	1.171946
5	1058.17	1.338	93.753	52.936	1.025	1.754557
6	359.82	1.313	144.676	164.474	1.312	1.641462
7	423.85	0.712	339.674	131.133	1.312	1.111946
8	296.79	1.138	177.221	187.875	1.311	1.977313
9	717.83	1.323	139.778	79.517	1.321	1.537560
10	171.56	1.395	139.674	264.031	1.199	1.530000
11	789.26	1.322	57.273	66.321	1.125	1.514109
12	3473.21	1.399	21.314	31.337	1.392	1.994102
13	199.32	1.336	252.264	216.314	1.037	1.237460
14	1644.95	0.347	39.128	39.275	1.347	1.275537
15	0.30	1.370	SSSSSSSSSS	SSSSSSSSSS	1.137	SSSSSSSSSS
16	301.47	1.009	1250.105	781.250	1.332	1.447433
17	534.77	0.314	148.574	167.411	0.712	1.373379
18	213.76	0.006	266.335	284.091	1.397	1.127632
19	5333.09	1.152	16.750	17.494	1.399	1.788990
20	3599.82	0.102	19.293	20.235	1.088	1.905352
21	32.09	1.301	297.340	1157.437	1.331	1.823661
22	1399.45	1.340	50.251	63.439	0.728	1.564029
23	3115.63	1.389	26.023	27.064	1.369	1.307445
24	1117.28	1.332	61.922	66.489	1.026	1.818514
25	2485.14	1.268	24.357	25.524	1.071	1.963359

AVERAGE

NO.	NO./AREA	MFPV	MFRH	L/A	AFETA	
SD	1327.15	1.139	SSSSSSSSSS	SSSSSSSSSS	1.132	SSSSSSSSSS
SE	1542.71	1.344	SSSSSSSSSS	SSSSSSSSSS	1.031	SSSSSSSSSS
SE	378.54	1.302	SSSSSSSSSS	SSSSSSSSSS	1.026	SSSSSSSSSS

26	1234.31	1.335	53.297	57.273	1.134	1.297519
27	1136.82	0.332	62.281	111.477	1.324	1.697465
28	744.59	0.021	65.789	55.973	1.033	1.204594
29	414.31	1.312	186.382	102.796	1.315	1.984577
30	1337.25	0.738	51.681	38.756	1.343	1.166755
31	4473.09	0.127	16.762	17.685	0.398	1.627314
32	3131.47	0.088	22.158	23.211	0.778	1.641794
33	1264.59	0.335	54.322	49.788	1.333	1.692188
34	2434.43	1.268	35.674	19.816	1.766	1.848145
35	838.72	0.924	173.455	62.251	1.027	1.624746
36	1674.31	0.348	29.228	29.677	1.362	1.572553
37	1541.65	0.347	36.453	47.479	1.344	1.189125
38	993.83	0.328	52.383	53.146	0.334	1.524849
39	2936.97	0.183	23.261	22.661	1.331	1.123253
40	963.35	1.307	53.694	35.750	1.334	1.412291
41	1465.32	1.342	91.642	13.829	1.039	1.925576
42	113.21	1.326	118.671	59.793	1.325	1.913333
43	2789.72	1.050	47.423	25.615	1.153	1.477613
44	2857.43	1.381	71.627	33.579	1.373	1.912172
45	3331.19	1.386	33.423	17.533	1.392	1.262757
46	1443.12	0.341	67.692	14.371	0.732	1.797725
47	934.68	1.327	35.313	42.573	1.333	1.574924
48	95.63	1.323	435.147	24.236	1.374	1.877436
49	158.62	1.335	152.975	27.394	1.377	1.225176
50	259.63	1.337	116.723	135.592	1.313	1.233711

AVERAGE

NO.	NO./AREA	MFPV	MFRH	L/A	AFETA	
SD	1452.14	1.341	SSSSSSSSSS	SSSSSSSSSS	1.037	SSSSSSSSSS
SE	1322.72	1.333	SSSSSSSSSS	SSSSSSSSSS	1.129	SSSSSSSSSS
SE	187.36	0.335	SSSSSSSSSS	SSSSSSSSSS	1.334	SSSSSSSSSS

DATE 1/23/78  
 MOBILE TCO SAMPLE #62 JPL #144-3C #5-743 SPEC

TWINS ONLY  
 3TM OUTPUT DIVIDED BY 139  
 0.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 30.67 X 139

MAG 830.0 UNITS-MM CAL. FACTOR 1.930375 UNITS<sup>2</sup>  
 FRAME AREA 1.270313

FIELD NO.	NO./AREA	MFPV	MFPH	L7A	AFETA	
1	44.86	638.076	13.393	2.500	1.429	3.000016
2	22.29	1708.014	8.152	1.630	1.723	1.000041
3	40.43	575.015	12.500	2.232	1.547	3.000016
4	28.27	402.043	7.858	1.785	1.629	1.000017
5	53.15	755.850	8.775	1.394	1.941	1.000009
6	37.22	1240.445	11.417	1.997	1.959	1.000014
7	53.38	757.715	11.719	2.435	1.448	1.000019
8	11.67	166.711	5.625	8.929	1.144	1.000013
9	5.12	72.804	8.750	9.868	1.131	1.000007
10	0.00	0.000	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.000	\$\$\$\$\$\$\$\$
11	64.92	928.262	6.944	1.179	1.989	1.000013
12	14.04	1424.825	23.438	9.868	1.128	1.000014
13	18.94	269.420	18.750	3.472	1.329	1.000017
14	88.95	1194.173	8.152	1.928	1.144	1.000012
15	70.69	1905.347	9.868	0.987	1.043	1.000011
16	14.31	203.572	5.625	2.467	1.419	1.000015
17	108.05	1536.760	13.393	2.315	1.491	1.000018
18	62.15	887.846	17.500	1.076	1.965	1.000011
19	27.78	395.087	10.417	1.152	0.912	1.000015
20	26.83	381.640	11.029	1.786	1.624	1.000016
21	3.62	61.473	37.500	11.719	1.101	1.000015
22	19.39	560.171	10.417	1.389	1.739	1.000019
23	71.83	1021.572	11.029	1.576	1.672	1.000019
24	73.98	1052.175	9.929	1.353	1.752	1.000025
25	6.91	98.308	23.438	8.929	1.131	1.000007

NO.	NO./AREA	MFPV	MFPH	L7A	AFETA	
345	18	642.604	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.579	\$\$\$\$\$\$\$\$
SD	33.45	475.723	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.341	\$\$\$\$\$\$\$\$
SE	6.69	95.145	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.968	\$\$\$\$\$\$\$\$

NO.	NO./AREA	MFPV	MFPH	L7A	AFETA	
26	86.50	1230.243	11.719	2.435	1.501	1.000041
27	73.55	1051.321	8.152	0.928	1.136	1.000017
28	18.58	254.219	18.750	3.476	1.283	1.000019
29	5.25	74.659	29.178	4.465	1.179	1.000015
30	4.70	66.775	26.785	3.868	0.129	1.000017
31	24.39	346.861	15.625	1.827	1.285	1.000018
32	15.03	218.774	18.750	3.472	0.312	1.000018
33	3.39	0.090	15.625	4.688	0.231	1.000017
34	71.14	1911.832	8.152	1.908	1.179	1.000017
35	31.18	1537.739	11.623	1.744	1.429	1.000013
36	38.17	827.272	9.868	11.294	1.619	1.000014
37	47.32	668.581	10.417	1.374	1.379	1.000025
38	12.36	175.749	23.833	3.348	1.125	1.000016
39	7.51	54.255	62.593	19.417	1.137	1.000015
40	29.12	414.130	11.329	1.399	1.789	1.000015
41	43.34	812.137	9.375	1.105	1.645	1.000012
42	77.47	1131.793	7.813	1.915	1.137	1.000012
43	101.79	1477.727	11.029	1.419	1.752	1.000016
44	76.62	1089.737	13.417	1.659	1.653	1.000013
45	45.56	562.189	6.696	1.109	1.952	1.000017
46	25.53	363.391	13.393	2.989	1.293	1.000016
47	27.36	384.886	9.375	1.274	0.557	1.000017
48	41.21	586.139	10.417	1.276	1.765	1.000015
49	29.51	419.665	9.375	2.155	1.539	1.000013
50	54.19	773.699	8.523	1.438	0.712	1.000013

NO.	NO./AREA	MFPV	MFPH	L7A	AFETA	
SD	13.57	621.122	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.591	\$\$\$\$\$\$\$\$
SE	31.37	446.139	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.148	\$\$\$\$\$\$\$\$
SE	4.44	63.189	\$\$\$\$\$\$\$\$	\$\$\$\$\$\$\$\$	1.349	\$\$\$\$\$\$\$\$

DATE 1/23/79  
 MOBIL TYCO SAMPLE # 62-JPL #144-30 #5-743, SPEC H  
 DISLOCATION PITS ONLY  
 3-31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE DISLOCATION PIT AREA = 5.22  $\mu^2$

MAG-800.0 UNITS-MICRONS CAL FACTOR 1.75930 UNITS/PP  
 FRAME AREA = 8.315625000 34

FIELD NO.	NO. AREA	MFPV	MFPH	L/A	AFETA	
1	184.51	0.001	1802.855	1704.545	1.002	1.163352
2	4447.79	0.027	23.228	120.243	2.079	3.552535
3	1613.98	0.045	38.104	25.893	1.052	1.569226
4	11424.29	0.042	55.048	26.869	0.025	4.375753
5	12.94	0.001	9375.001	8522.127	0.001	1.453125
6	2477.29	0.010	24.942	27.925	0.046	1.133280
7	7177.59	0.024	13.414	14.138	0.126	5.415302
8	8975.19	0.255	41.995	13.287	0.139	6.971726
9	4197.51	0.230	19.514	13.928	0.122	7.547977
10	626.82	0.018	78.185	73.185	1.023	1.246951
11	3389.85	1.096	29.137	30.795	0.136	1.549549
12	3979.31	0.113	16.353	17.679	1.103	3.598819
13	412.46	0.012	738.189	130.328	0.004	1.435345
14	239.38	0.037	219.555	191.613	0.339	1.379731
15	2335.63	0.166	32.439	29.715	0.058	2.891231
16	126.44	0.004	197.246	504.332	0.034	1.751179
17	1263.33	0.036	57.835	63.219	0.131	2.176386
18	785.06	0.022	86.645	49.708	0.322	2.352168
19	2253.17	0.064	26.356	26.521	0.069	1.873336
20	5263.98	1.164	13.385	14.140	0.126	3.242241
21	1775.86	1.051	37.466	36.493	0.051	1.883896
22	1374.73	0.031	59.374	65.538	0.333	1.629397
23	1061.11	0.030	55.512	56.306	0.030	2.039763
24	3672.61	0.119	23.282	21.966	0.051	1.424981
25	1429.23	0.040	31.824	53.188	0.023	1.051438

AVERAGE						
NO.	NO. AREA	MFPV	MFPH	L/A	AFETA	
SD	2591.29	0.074	7531.748	471.405	0.354	2.339476
SE	2517.73	0.072	1842.598	1677.283	1.343	2.254772
	503.55	0.014	368.520	335.457	0.039	1.453940

26	164.94	0.005	264.085	783.203	0.007	3.938597
27	1692.83	0.048	32.631	35.525	0.052	1.714304
28	659.96	0.133	15.268	17.135	0.100	3.615965
29	3650.38	0.132	21.204	11.292	0.083	3.195435
30	3731.53	0.085	27.912	32.744	0.283	1.266782
31	2479.29	0.071	30.428	38.542	0.354	3.144025
32	1725.86	0.105	31.286	30.402	0.081	3.690979
33	255.56	0.027	181.335	191.327	0.010	1.038569
34	332.76	0.009	382.559	173.485	0.008	3.440361
35	161.32	0.005	248.674	248.506	0.007	3.822266
36	2194.36	0.062	19.297	30.135	0.060	1.153952
37	1431.99	0.041	33.057	72.139	0.056	1.022566
38	2357.28	0.057	23.295	25.671	0.070	1.751408
39	1798.08	0.051	18.724	18.303	0.047	2.603365
40	2892.34	0.082	25.573	24.947	0.069	2.896537
41	292.91	0.048	194.502	142.477	0.012	1.264798
42	386.59	0.011	125.000	138.274	0.014	1.266621
43	536.70	0.014	171.377	125.924	0.014	2.296377
44	459.00	0.013	109.012	112.680	0.016	1.380891
45	4090.23	0.116	29.843	18.767	1.088	3.767233
46	2114.75	0.050	32.339	36.337	0.058	2.034547
47	1812.26	0.052	32.439	33.494	0.053	1.824846
48	569.73	0.016	88.524	96.949	0.019	1.226448
49	343.13	0.010	140.135	147.538	0.013	1.295069
50	3441.38	0.095	26.219	28.375	0.062	4.267299

AVERAGE						
NO.	NO. AREA	MFPV	MFPH	L/A	AFETA	
SD	2197.93	0.062	311.772	282.236	0.353	3.752018
SE	2071.52	0.059	1322.981	1203.282	0.037	1.837329
	293.31	0.035	137.098	177.177	0.025	1.252936

ORIG. OF POOR QUALITY

DATE 11/21/79  
 MODEL TYPD SAMPLE #63 WPL # 5-647 MRR #1 spec. B.  
 TWINS ONLY  
 DTM. JEP IT DATA DIVIDED BY 100  
 31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 29.13x100

MAG-833.0 UNITS-MM CAL FACTOR 3.233375 UNITS/PA  
 FRAME AREA 1.979313

FIELD NO.	NO.	AREA	MFPV	MFPH	L/A	AFETA
1	1.40	50.735	187.577	31.250	1.287	1.000715
2	3.78	42.183	111.929	11.431	0.725	1.000377
3	5.28	46.874	45.875	17.417	0.112	1.000905
4	7.33	42.259	46.875	11.431	0.783	1.000795
5	12.91	283.176	23.738	1.518	0.334	1.000799
6	25.44	351.781	23.822	2.932	0.371	1.000712
7	31.29	442.024	19.513	1.616	1.559	1.000777
8	38.58	112.938	21.833	1.357	1.379	1.000714
9	27.44	34.645	46.875	16.786	1.451	1.000715
10	18.64	255.143	11.929	4.573	1.296	1.000715
11	3.33	1.704	SSSSSSSS	SSSSSSSS	0.111	SSSSSSSSSS
12	3.33	1.704	SSSSSSSS	SSSSSSSS	4.199	SSSSSSSSSS
13	3.33	1.704	SSSSSSSS	SSSSSSSS	4.771	SSSSSSSSSS
14	3.33	1.704	SSSSSSSS	SSSSSSSS	4.771	SSSSSSSSSS
15	9.82	139.635	26.786	5.250	1.189	1.000778
16	26.72	383.822	17.745	1.833	0.579	1.000777
17	56.47	832.167	10.417	1.719	1.927	1.000779
18	26.98	333.751	23.483	3.676	1.298	1.000714
19	83.49	1187.382	7.213	1.423	1.335	1.000717
20	11.03	157.211	37.593	5.357	1.195	1.000939
21	3.33	1.704	SSSSSSSS	SSSSSSSS	1.000	SSSSSSSSSS
22	21.25	302.216	18.752	2.674	1.438	1.000938
23	3.47	49.312	37.593	14.423	0.380	1.000777
24	12.47	148.911	37.593	1.442	0.123	1.000714
25	75.87	1076.995	9.848	1.725	1.335	1.000712
26	89.59	1272.823	8.152	1.318	1.335	1.000715
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
30	25.87	367.938	SSSSSSSS	SSSSSSSS	1.338	SSSSSSSSSS
32	5.07	72.159	SSSSSSSS	SSSSSSSS	0.166	SSSSSSSSSS
27	118.98	1692.215	12.500	1.420	1.731	1.000726
28	66.56	946.683	11.719	1.476	0.709	1.000714
29	41.23	586.368	13.393	1.736	1.611	1.000717
30	38.83	552.191	14.423	1.995	0.533	1.000711
31	78.58	1117.565	7.520	1.873	1.333	1.000711
32	29.11	414.211	15.625	1.885	0.381	1.000712
33	41.13	584.993	11.719	1.488	0.688	1.000799
34	16.99	241.575	31.250	1.824	1.344	1.000787
35	47.58	678.491	12.500	1.974	1.549	1.000714
36	37.66	1198.876	45.875	3.466	1.163	1.000706
37	25.95	369.174	9.375	2.160	0.527	1.000798
38	5.98	72.258	93.750	8.929	0.139	1.000777
39	1.82	25.875	187.577	18.752	1.756	1.000777
40	12.38	204.570	23.833	1.261	0.267	1.000717
41	5.42	77.141	37.593	8.929	0.125	1.000777
42	7.21	132.529	23.483	7.813	0.163	1.000707
43	126.49	1514.498	11.719	8.016	0.512	1.000736
44	110.68	1574.263	8.152	1.242	1.872	1.000722
45	62.72	782.331	5.696	1.399	1.784	1.000713
46	2.71	38.573	62.500	17.745	0.359	1.000716
47	3.33	1.704	SSSSSSSS	SSSSSSSS	1.777	SSSSSSSSSS
48	1.99	28.318	187.577	31.250	1.735	1.000714
49	14.86	211.435	26.786	1.167	1.259	1.000710
50	3.47	49.312	93.750	8.833	0.456	1.000717
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
30	28.22	421.415	SSSSSSSS	SSSSSSSS	0.363	SSSSSSSSSS
30	32.12	456.827	SSSSSSSS	SSSSSSSS	1.323	SSSSSSSSSS
32	4.54	64.575	SSSSSSSS	SSSSSSSS	0.745	SSSSSSSSSS



DATE 1/21/79  
 MOBIL TYCO SAMPLE # 531 JPL # 5-647 MR#1 SPEC 3  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.76 PP

MAG-87000 UNITS-MICRONS CAL. FACTOR- 1.75000 UNITS/PP  
 FRAME AREA- 3.51665334 74

FIELD NO.	N1 AREA	MP2U	MPFH	L/A	AREA	
1	581.28	7.017	50.788	491.651	1.027	1.999539
2	453.35	7.017	98.376	94.261	1.027	1.988567
3	393.58	7.017	478.147	87.128	1.027	1.403377
4	548.96	7.017	787.715	82.381	1.027	1.137228
5	760.94	7.022	50.214	451.487	1.033	1.771929
6	233.23	7.027	837.254	309.263	1.032	1.435304
7	10.49	7.033	4876.987	3824.194	1.037	1.075357
8	132.28	7.033	837.254	345.941	1.034	1.431985
9	1174.17	7.037	41.774	45.911	1.047	1.585771
10	1544.79	7.044	30.488	35.927	1.055	1.581898
11	2022.35	7.058	23.138	26.832	1.073	1.594354
12	1413.89	7.340	35.878	41.797	1.047	1.972430
13	2612.33	7.374	18.493	23.953	1.103	1.744232
14	1998.39	7.357	25.876	28.136	1.064	1.987071
15	1311.63	7.229	52.287	55.141	1.034	1.871926
16	79.34	7.032	492.361	493.421	1.034	1.988772
17	3.37	7.033	55555555	55555555	1.033	55555555
18	313.76	7.036	169.538	194.976	1.017	1.975536
19	871.52	7.032	582.623	607.962	1.033	1.389736
20	587.67	7.017	73.185	83.556	1.023	1.352317
21	1777.63	7.351	25.119	28.962	1.063	1.573185
22	261.11	7.397	161.363	188.253	1.011	1.149457
23	1768.75	7.057	27.696	33.657	1.061	1.626276
24	13267.53	1.292	13.457	41.112	1.156	7.845946
25	7.77	7.037	55555555	55555555	1.037	55555555
26	7.77	7.033	55555555	55555555	1.033	55555555
27	5.38	7.033	4687.533	4464.286	1.033	1.432758
28	191.84	7.035	387.397	328.112	1.035	1.718763
AVERAGE						
N1	N1/AREA	MP2U	MPFH	L/A	AREA	
SD	1972.22	7.033	55555555	55555555	1.033	55555555
SE	1919.84	7.035	55555555	55555555	1.035	55555555
SE	362.82	7.017	55555555	55555555	1.017	55555555
29	415.63	7.012	126.689	116.171	1.015	1.503331
30	162.85	7.035	374.495	235.341	1.037	1.939798
31	147.43	7.034	454.189	177.221	1.038	1.781953
32	774.65	7.032	354.258	56.482	1.034	1.148471
33	558.85	7.016	75.128	89.818	1.024	1.372482
34	337.69	7.039	137.565	152.687	1.012	1.159821
35	998.44	7.028	65.195	58.357	1.029	1.898607
36	932.12	7.027	32.383	31.568	1.035	1.447378
37	744.44	7.021	89.527	68.172	1.026	2.292776
38	57.91	7.032	341.938	571.446	1.033	1.880857
39	245.83	7.037	159.168	171.793	1.012	1.952751
40	464.93	7.018	86.779	92.365	1.023	1.763927
41	468.42	7.018	85.395	72.227	1.022	1.963663
42	1218.23	7.035	46.228	53.785	1.036	2.222445
43	9.38	7.037	3635.769	3635.769	1.037	1.265625
44	111.28	7.033	393.978	34.395	1.034	1.126758
45	425.35	7.012	132.415	146.256	1.013	1.327914
46	1155.33	7.033	43.736	47.613	1.030	1.823739
47	1233.16	7.035	45.337	47.823	1.037	1.924585
48	1925.69	7.055	31.116	33.951	1.054	2.569739
49	215.63	7.036	243.516	241.272	1.037	1.792337
50	428.99	7.012	79.843	113.235	1.017	1.232214
AVERAGE						
N1	N1/AREA	MP2U	MPFH	L/A	AREA	
SD	863.36	7.024	55555555	55555555	1.026	55555555
SE	1489.89	7.042	55555555	55555555	1.028	55555555
SE	213.79	7.036	55555555	55555555	1.034	55555555

DATE 1/21/79  
 MOBIL TYCO. SAMPLE # 64 JPL # 7-6400 MRR #1 SPEC C  
 TWINS ONLY  
 QTM: OUTPJT DATA DIVIDED BY 1000  
 .91 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 29.88X100

MAG-800.0 UNITS-MM CAL. FACTOR 1.003375 UNITS/PP  
 FRAME AREA 8.377311

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	BETA
1	1.06	26.152	62.500	0.139	1.000006
2	21.65	307.858	15.625	0.277	1.000017
3	54.69	777.778	8.929	0.459	1.000021
4	19.10	129.465	62.500	0.131	1.000019
5	1.57	23.371	93.750	0.051	1.000003
6	2.61	37.126	93.750	0.072	1.000005
7	19.85	267.255	18.417	0.205	1.000017
8	17.47	248.461	15.625	0.283	1.000019
9	101.61	1445.069	5.208	0.824	1.000022
17	64.66	919.589	8.929	0.819	1.000013
11	48.53	690.158	11.719	0.696	1.000011
12	65.26	928.157	11.7045	0.627	1.000017
13	30.10	470.742	23.438	0.365	1.000014
14	1.14	16.183	SSSSSSSSSS	0.032	1.000003
15	15.26	217.046	47.500	0.237	1.000011
16	19.81	281.779	45.875	0.216	1.000017
17	11.28	168.475	30.833	0.251	1.000018
18	0.20	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
19	0.11	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
20	6.36	97.436	93.750	0.155	1.000013
21	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
22	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
23	2.11	29.987	93.750	0.072	1.000004
24	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
25	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
AVERAGE					
SD	24.17	286.840	SSSSSSSSSS	0.235	SSSSSSSSSSSS
SE	26.18	372.342	SSSSSSSSSS	0.254	SSSSSSSSSSSS
SE	5.24	74.488	SSSSSSSSSS	0.151	SSSSSSSSSSSS
26	1.89	3.398	SSSSSSSSSS	0.000	SSSSSSSSSSSS
27	0.00	0.000	SSSSSSSSSS	0.000	SSSSSSSSSSSS
28	10.71	152.313	26.786	0.027	1.000016
29	8.07	113.759	18.786	0.117	1.000018
30	55.96	795.895	6.456	0.699	1.000015
31	32.56	453.127	32.500	0.163	1.000014
32	57.80	822.314	6.944	0.728	1.000013
33	51.54	733.134	8.929	0.895	1.000013
34	13.98	156.121	23.438	0.411	1.000014
35	4.93	212.286	31.557	0.336	1.000017
36	24.40	346.988	17.345	0.384	1.000019
37	15.40	219.426	26.786	0.319	1.000017
38	83.93	1193.753	8.523	0.971	1.000015
39	18.47	262.743	18.750	0.555	1.000015
40	28.11	399.822	14.423	0.276	1.000014
41	48.83	694.452	9.375	0.651	1.000014
42	10.54	1149.983	23.438	0.427	1.000013
43	8.97	127.562	45.875	0.173	1.000016
44	56.06	797.263	9.375	0.737	1.000016
45	57.73	811.356	9.368	0.829	1.000013
46	120.72	1716.853	12.537	0.483	1.000016
47	19.14	272.259	18.750	0.240	1.000013
48	6.36	86.152	62.500	0.112	1.000018
49	3.92	55.689	62.500	0.377	1.000018
50	3.67	9.520	93.750	0.237	1.000013
AVERAGE					
SD	24.98	355.267	SSSSSSSSSS	0.338	SSSSSSSSSSSS
SE	22.21	431.232	SSSSSSSSSS	0.342	SSSSSSSSSSSS
SE	3.99	56.739	SSSSSSSSSS	0.348	SSSSSSSSSSSS

DATE 1/21/79  
 MOBILE TYPED SAMPLE # 64 UPL # 5-640 MOR #1 SPEC # C  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 4.93  $\mu^2$

MAG 800 X UNITS-MICRONS CAL. FACTOR 27.3750 UNITS/INCH  
 FRAME AREA 3.51562500  $\mu^2$

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	749.22	0.021	40.277	57.301	1.026	1.739551
2	783.26	0.022	85.733	32.891	1.022	1.813665
3	1216.58	0.005	49.788	59.295	1.037	1.925149
4	2008.16	0.015	88.433	36.127	1.051	2.213463
5	1561.83	0.014	42.344	37.479	1.047	1.716208
6	1540.82	0.014	16.099	47.406	1.066	1.866629
7	1543.47	0.014	41.722	49.052	1.036	1.635733
8	500.09	0.014	133.547	31.019	1.016	1.656493
9	121.22	0.015	137.230	257.824	1.036	1.469118
10	183.57	0.015	315.657	246.711	1.026	1.495257
11	796.73	0.020	83.112	37.140	1.022	1.498413
12	811.43	0.023	69.986	39.731	1.025	1.577775
13	283.47	0.018	89.352	387.383	1.036	1.896393
14	753.29	0.021	33.646	54.164	1.026	1.766773
15	334.59	0.017	144.079	145.801	1.011	1.187789
16	255.71	0.007	233.209	213.354	0.979	1.129537
17	456.78	0.013	165.353	161.917	1.011	1.975781
18	983.47	0.028	51.373	60.251	1.032	1.429688
19	569.83	0.016	78.649	74.111	0.921	1.374156
20	891.29	0.025	67.697	74.523	1.025	1.615737
LAST FIELD DELETED						
21	1675.71	0.017	38.317	46.069	1.038	1.637542
22	288.37	0.013	182.339	95.720	1.017	1.397597
23	392.45	0.011	118.521	128.955	1.015	1.275575
24	1334.99	0.029	42.517	46.735	1.035	1.348694
25	665.31	0.019	59.904	58.814	1.026	1.922392
25	1617.14	0.045	37.026	35.094	1.048	1.322522
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	1531.99	0.044	110.736	107.195	1.027	2.997779
SE	3196.01	0.031	91.414	66.523	1.021	1.297971
SE	639.28	0.018	18.283	17.304	1.004	1.457594
26	613.27	0.017	87.453	91.198	1.021	1.281392
27	1685.31	0.014	27.827	30.987	1.054	1.617873
28	746.33	0.021	84.459	87.535	1.020	1.849876
29	963.13	0.027	57.906	72.338	1.024	2.269678
30	175.71	0.005	306.373	239.779	1.008	1.345313
31	802.04	0.023	71.784	95.178	0.921	2.125671
32	446.73	0.013	123.518	101.792	0.915	1.637384
33	499.59	0.013	125.670	125.334	0.915	1.283571
34	230.82	0.008	178.232	171.793	1.012	1.786585
35	623.47	0.018	83.631	95.178	1.021	1.148688
36	594.69	0.017	125.167	121.753	1.015	2.239242
37	954.90	0.027	66.774	69.995	1.033	1.807649
38	831.84	0.024	68.924	59.942	1.024	1.482676
39	278.98	0.008	46.711	119.816	1.011	1.434535
40	15.31	0.003	1994.681	2343.750	1.001	0.743125
41	441.84	0.013	75.301	81.878	1.015	1.335321
42	179.18	0.005	238.550	251.340	1.007	1.921499
43	1473.02	0.042	36.521	36.723	1.051	1.381885
44	1357.76	0.039	51.681	45.312	1.041	1.977966
45	461.63	0.013	201.613	174.051	1.011	2.586128
46	873.27	0.008	274.927	236.744	1.017	1.656344
47	374.93	0.011	134.892	156.773	1.014	1.337462
48	600.17	0.017	92.632	99.206	1.019	1.264335
49	1421.32	0.040	43.163	51.286	1.039	1.771979
50	2285.51	0.065	26.687	29.724	1.064	1.677352
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
SD	1136.95	0.032	151.871	151.332	1.025	2.268748
SE	2326.88	0.046	276.646	321.821	1.019	1.213975
SE	329.37	0.019	39.124	45.512	1.003	1.737367

DATE 1/21/79  
 MOBIL TYCO SAMPLE # 65 JPL 3-640 YRR # 1 SPEC 0  
 TWINS ONLY  
 OTM OUTPUT DATA DIVIDED BY 133  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 31.42X10<sup>3</sup>

MAG-800.0 UNITS-MM DAL FACTOR- 0.000375 UNITS/PP  
 FRAME AREA- 13.078313

FIELD NO.	NO. AREA	MEPV	MFPH	L/A	AFETA
1	4.46	63.374	62.500	20.830	1.000000
2	3.34	47.528	48.750	15.438	1.000000
3	43.92	611.528	18.750	8.360	1.000000
4	16.86	232.654	23.438	4.573	1.000000
5	12.20	74.722	31.250	3.68	1.000000
6	15.18	115.913	26.750	4.588	1.000000
7	4.58	165.181	37.500	7.868	1.000000
8	27.82	396.520	27.833	3.333	1.000000
9	58.56	832.874	8.868	1.953	1.000000
10	21.20	301.464	31.250	3.466	1.000000
11	1.75	14.896	62.500	15.625	1.000000
12	5.86	53.267	62.533	5.523	1.000000
13	9.48	134.389	23.433	5.944	1.000000
14	0.77	1.307	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
15	20.62	223.316	20.833	3.476	1.000000
16	31.41	746.764	18.750	1.838	1.000000
17	25.24	358.950	23.438	2.799	1.000000
18	16.17	229.740	18.750	1.178	1.000000
19	20.24	237.885	31.250	5.048	1.000000
20	4.55	64.729	62.500	19.217	1.000000
21	17.59	248.957	18.750	2.538	1.000000
22	0.89	12.674	93.150	28.875	1.000000
24	1.65	23.538	62.500	16.875	1.000000
25	66.58	946.941	8.999	1.713	1.000000
AVERAGE					
NO.	NO. AREA	MEPV	MFPH	L/A	AFETA
SD	17.92	154.982	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
SE	16.92	240.651	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
	3.38	48.132	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
26	54.77	1779.002	14.423	1.435	1.000000
27	10.28	1146.205	16.875	1.868	1.000000
28	5.38	76.498	62.500	7.212	1.000000
29	16.38	86.456	62.500	7.500	1.000000
30	3.76	53.413	93.753	9.375	1.000000
31	58.94	838.305	8.868	1.953	1.000000
32	1.83	260.724	11.719	2.568	1.000000
33	5.70	611.024	31.250	8.868	1.000000
34	1.39	428.658	11.719	2.679	1.000000
35	42.27	601.117	10.729	1.750	1.000000
36	42.49	604.286	12.500	1.359	1.000000
37	51.56	733.291	8.929	1.997	1.000000
38	92.97	1322.187	8.152	1.172	1.000000
39	40.48	575.769	9.868	1.838	1.000000
40	0.27	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
41	29.89	425.037	15.625	2.1259	1.000000
42	57.03	811.146	11.719	1.165	1.000000
43	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
44	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
45	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
46	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
47	0.00	0.000	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
48	72.57	1932.039	8.152	1.142	1.000000
49	118.34	1683.401	8.152	1.339	1.000000
50	39.34	559.474	23.833	3.568	1.000000
AVERAGE					
NO.	NO. AREA	MEPV	MFPH	L/A	AFETA
SD	24.57	349.427	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS
SE	3.71	52.793	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSS

DATE 1/21/79  
 MOBIL TYPE SAMPLE #65: JPL 5-647 MRB # 1 SPEC D  
 DISLOCATION-PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.74  $\mu^2$

MAG 800X INITS-MICRONS CAL. FACTOR 1.375000 INITS/PP  
 FRAME GREAT 3.515625000 94

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA	
1	763.38	0.022	66.782	65.236	0.025	1.652241
2	2563.40	0.073	128.125	24.769	0.071	2.139453
3	2058.49	0.059	218.221	31.576	0.060	1.917773
4	3626.79	0.173	16.216	20.148	0.093	2.554999
5	1412.24	0.090	37.833	13.220	0.044	1.592473
6	1924.72	0.075	28.749	19.334	0.054	1.9023294
7	1993.02	0.057	26.955	21.439	0.062	1.672772
8	1153.21	0.033	48.003	48.565	0.033	1.754082
9	342.83	0.110	107.665	132.042	0.114	1.187882
10	1529.01	0.044	39.828	54.389	0.048	2.188469
11	771.19	0.022	62.251	69.733	0.027	1.231627
12	2960.94	0.034	29.654	23.223	0.033	2.182817
13	4416.42	0.126	15.801	16.137	0.107	2.789499
14	561.73	0.115	82.165	86.436	0.121	1.781759
15	1330.38	0.037	48.854	51.997	0.035	2.134774
16	1526.14	0.043	33.116	38.329	0.049	1.657762
17	57.55	0.032	63.392	101.667	0.032	1.383569
18	452.45	0.013	112.275	76.096	0.014	1.376403
19	334.91	0.010	136.367	155.215	0.012	1.194303
20	231.78	0.007	196.954	203.332	0.009	1.359433
21	584.58	0.015	108.007	26.485	0.018	1.724635
22	1409.25	0.040	35.920	42.750	0.046	1.553749
23	1273.96	0.038	40.768	49.394	0.038	1.815488
24	1430.94	0.041	41.281	48.626	0.039	2.208475
25	6.53	0.004	351.476	6696.429	0.004	2.984775
AVERAGE						
SD	1386.13	0.039	111.731	166.209	0.040	1.713925
SE	1786.24	0.031	107.643	1307.339	0.027	1.461440
SE	217.25	0.036	114.928	241.408	0.035	1.392289
26	779.06	0.022	59.828	60.445	0.023	1.243342
27	323.32	0.009	159.168	160.531	0.012	1.267471
28	1128.87	0.032	39.524	70.755	0.027	1.505664
29	913.21	0.026	52.817	54.569	0.033	1.281783
30	616.60	0.018	88.963	71.023	0.022	1.335938
31	772.08	0.022	33.357	69.971	0.017	1.232795
32	4006.72	0.129	163.381	60.058	0.027	2.79452
33	794.15	0.023	72.394	40.155	0.027	1.539925
34	280.38	0.008	206.344	185.644	0.019	1.627452
35	211.91	0.006	302.419	324.094	0.005	2.399625
36	275.22	0.008	256.148	251.540	0.009	2.159734
37	213.21	0.006	1030.220	256.849	0.006	4.294764
38	168.67	0.005	418.927	430.046	0.004	2.374735
39	86.60	0.002	794.492	659.559	0.002	1.382157
40	863.40	0.025	49.735	50.326	0.034	1.056651
41	489.06	0.014	89.734	103.022	0.018	1.274476
42	62.45	0.002	669.643	382.298	0.003	1.993359
43	193.02	0.005	200.321	280.773	0.006	1.866623
44	1243.43	0.035	44.878	56.976	0.037	1.975946
45	3595.65	0.102	16.873	19.250	0.095	2.471462
46	2993.96	0.085	16.612	21.139	0.090	1.814177
47	1578.67	0.045	31.253	37.545	0.051	1.699761
48	98.68	0.003	32.673	593.354	0.004	1.634375
49	84.72	0.002	790.303	801.282	0.002	2.525625
50	147.74	0.004	345.941	361.969	0.005	1.183972
AVERAGE						
SD	1072.13	0.033	284.598	291.240	0.031	1.814937
SE	1327.92	0.029	785.418	938.978	0.027	2.674175
SE	145.38	0.034	111.375	132.792	0.034	1.395343

DATE 1/21/79  
 MOBIL PYCO SAMPLE # 55 UPL #5-643 MRR#1 SPEC 5  
 TWINS ONLY  
 STM OUTPUT DATA DIVIDED BY 133  
 3P MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 26.784133

MAG 800 8 UNITS MM GAL FACTOR 3.13375 UNITS APP  
 FRAME AREA 1.270313

FIELD NO.	NO./AREA	MPH	MPH	L/A	AFETA
1	1.55	249.546	31.250	2.479	0.000006
2	5.29	74.33	187.500	2.248	0.000020
3	24.30	385.217	31.250	5.585	0.000021
4	18.78	267.191	18.750	2.989	0.000019
5	45.67	249.593	31.250	2.441	0.000018
6	72.86	1037.728	22.029	1.674	0.000020
7	149.46	1847.041	17.910	1.165	0.000027
8	67.85	978.140	14.123	1.488	0.000013
9	42.87	609.376	15.625	1.974	0.000012
10	34.69	491.070	23.438	1.689	0.000022
11	1.45	20.712	187.500	3.125	0.000015
12	31.40	445.635	18.750	3.125	0.000015
13	4.18	59.481	93.750	1.5625	0.000012
14	13.59	193.312	31.250	3.576	0.000037
15	3.98	12.746	187.500	3.125	0.000011
16	22.22	315.990	20.833	3.409	0.000013
17	140.40	574.625	17.045	2.467	0.000013
18	11.17	158.792	28.108	3.074	0.000014
19	15.27	18.257	93.750	3.125	0.000015
20	4.22	63.012	93.750	1.5625	0.000015
21	1.88	28.147	187.500	1.8750	0.000014
22	3.03	1.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
23	5.09	71.154	23.438	3.393	0.000016
24	1.35	14.870	187.500	1.250	0.000014
25	17.21	244.826	28.786	1.376	0.000019
AVERAGE					
NO.	NO./AREA	MPH	MPH	L/A	AFETA
26	24.58	349.524	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
27	29.23	416.196	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
SE	3.85	63.339	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
26	33.35	474.251	15.750	2.404	0.000013
27	30.88	439.203	17.045	2.378	0.000018
28	13.78	148.371	20.833	2.466	0.000016
29	15.51	178.599	20.408	3.393	0.000019
33	28.12	399.970	33.500	1.696	0.000015
31	24.31	345.731	17.045	3.125	0.000012
32	26.98	342.115	20.833	2.254	0.000016
33	1.91	1.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
34	0.00	0.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
35	0.00	0.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
36	30.92	439.731	18.750	2.388	0.000017
37	44.35	630.919	18.152	2.877	0.000014
38	33.76	480.493	18.750	2.261	0.000018
39	70.35	1000.548	13.393	1.676	0.000014
43	56.83	828.298	13.393	1.634	0.000018
41	67.93	950.282	13.393	1.659	0.000015
42	51.87	737.965	14.123	2.500	0.000016
43	27.07	383.966	23.438	2.344	0.000019
44	1.72	24.433	93.750	3.125	0.000016
45	4.56	64.791	31.250	1.423	0.000016
46	5.90	71.154	62.500	1.7417	0.000016
47	3.00	0.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
48	2.28	32.396	62.500	1.8750	0.000014
49	1.16	15.463	187.500	1.500	0.000014
50	14.34	108.933	15.625	1.906	0.000018
AVERAGE					
NO.	NO./AREA	MPH	MPH	L/A	AFETA
30	23.74	337.584	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
30	25.25	365.332	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
SE	3.64	54.827	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS

DATE 1/21/79  
 MOBIL TYCO SAMPLE # 66 JPL 5-648 MRR # 1-SPEC E  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PITS AREA = 5.22 PP

MAG-830 UNITS-MICRONS CAL FACTOR 3.375003 UNITS/PP  
 FRAME AREA - 3.51525982 14

FIELD NO.	NO./AREA	MFPV	MFPH	LXA	AFETA
1	1299.04	43.924	74.159	3.738	1.799204
2	1823.75	33.162	34.687	4.052	1.4931818
3	980.27	54.501	56.581	3.732	1.336352
4	522.82	70.116	73.384	3.023	1.229392
5	786.59	59.651	73.299	2.725	1.621928
6	1287.38	51.426	75.739	4.037	3.349592
7	747.51	70.876	78.799	1.700	1.245534
8	665.52	73.649	78.344	1.023	1.391827
9	508.57	121.571	138.131	1.318	1.336193
10	984.87	72.282	81.393	3.722	1.973426
11	3342.91	25.531	13.773	1.073	1.927131
12	7936.77	13.752	11.122	1.153	4.265179
13	656.75	64.924	70.172	1.126	1.741349
14	2583.14	26.366	29.677	1.762	1.643977
15	1875.36	33.494	36.838	1.353	1.573348
16	1353.26	51.393	54.285	1.733	1.631131
17	733.14	78.921	83.855	1.722	1.799936
18	1124.14	46.031	51.713	1.735	1.634035
19	1935.56	29.169	31.198	1.158	1.747175
20	2852.49	23.949	26.740	1.969	2.575533
21	483.33	104.167	110.616	1.215	1.354187
22	1932.57	59.765	63.771	1.733	1.432833
23	7383.14	23.886	11.842	1.154	1.461597
24	2554.94	28.170	27.119	1.764	1.483942
25	249.62	185.524	209.263	1.039	1.225489
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	LXA	AFETA
SD	1878.89	24.217	25.295	1.345	1.940132
SE	375.76	23.213	24.483	1.337	1.777353
26	323.02	159.482	167.713	1.211	1.146973
27	1444.06	27.955	40.409	1.345	1.615991
28	1278.93	40.364	47.348	1.341	1.593949
29	4193.68	15.778	16.526	1.187	2.484602
30	1491.76	39.474	42.536	1.343	1.891273
31	2380.65	29.705	32.643	1.157	2.951944
32	781.99	58.777	67.312	1.728	1.231827
33	3537.47	18.859	20.363	1.399	2.413939
34	3086.24	19.247	21.218	1.081	2.399346
35	1330.57	12.654	11.901	1.147	1.818843
36	13724.92	19.884	11.182	1.165	7.592266
37	14727.97	51.581	46.434	1.332	1.66326923
38	2334.10	127.205	69.323	1.026	2.0397321
39	142.34	130.481	1361.969	1.705	1.187322
40	381.23	140.735	151.454	1.012	1.599107
41	324.71	80.757	85.553	1.075	6.272615
42	84.87	589.643	499.627	1.033	1.527356
43	438.24	122.709	127.899	1.717	1.349873
44	696.74	74.582	75.727	1.223	1.432642
45	2145.40	26.431	30.977	1.362	1.925256
46	2389.77	22.334	30.577	1.459	2.457999
47	331.73	158.094	171.377	1.311	1.265625
48	727.52	67.495	71.401	1.225	1.373731
49	2044.64	26.403	28.617	1.365	1.414398
50	2445.43	21.954	23.455	1.376	1.615732
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	LXA	AFETA
SD	2427.54	102.538	124.732	1.047	5.899643
SE	3521.71	174.438	189.484	1.749	23.121572
SE	498.35	74.669	36.797	1.706	3.249874

DATE 1/21/79  
 MOBIL TYCO SAMPLE # 57 JPL 5640 WRT # 1 SPEC F  
 TWINS ONLY  
 QIM OUTPUT DATA DIVIDED BY 100  
 1/8 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN'S AREA 122.57173

MAG 800 X UNITS/CM CAL FAC 0.090375 UNITS/P  
 FRAME AREA 4.070313

FIELD NO	NO./AREA	MFPV	YFPH	L/A	FETA
1	43.553	31.250	7.333	3.323	0.000014
2	46.22	62.573	7.527	3.141	0.000006
3	49.35	27.838	7.344	3.451	0.000012
4	58	46.875	15.625	3.080	0.000017
5	18.464	17.500	11.250	1.335	0.000005
6	122.261	16.275	14.250	1.184	0.000007
7	117.207	14.423	11.576	1.661	0.000025
8	140.793	13.408	11.866	3.119	0.000005
9	45.669	18.750	5.625	4.192	0.000011
10	42.713	20.800	7.717	1.388	0.000011
11	147.712	16.675	13.393	1.393	0.000021
12	120.265	26.726	7.500	7.149	0.000008
13	91.482	37.500	5.696	1.163	0.000005
14	78.957	8.152	8.94	1.595	0.000014
15	91.798	13.393	1.785	1.637	0.000009
16	129.579	13.197	1.720	1.621	0.000005
17	64.214	11.719	1.431	1.736	0.000013
18	113.659	9.868	0.919	1.128	0.000011
19	35.807	26.726	2.435	0.432	0.000009
20	125.088	18.750	5.72	1.443	0.000003
21	181.825	7.813	1.217	0.247	0.000025
22	125.567	15.625	11.223	1.749	0.000017
23	25.459	19.750	1.750	1.261	0.000004
24	116.273	13.750	10.833	1.253	0.000003
25	130.659	18.750	1.838	1.504	0.000012
26	163.476	12.500	1.352	1.760	0.000019

AVERAGE

NO.	NO./AREA	MFPV	YFPH	L/A	FETA
27	171.144	10.417	1.203	3.627	0.000005
28	104.462	7.813	1.389	3.781	0.000015
29	187.635	12.368	1.645	3.659	0.000003
30	118.817	6.250	1.035	1.921	0.000012
31	1125.902	12.500	1.476	7.707	0.000017
32	11575.922	11.729	1.193	9.949	0.000016
33	1193.365	7.268	1.928	1.193	0.000011
34	121.710	9.868	1.059	1.319	0.000001
35	92.148	15.393	1.769	3.698	0.000018
36	148.513	17.500	1.500	3.152	0.000014
37	783.969	11.417	1.645	3.645	0.000012
38	219.591	20.833	0.676	1.275	0.000007
39	577.371	18.750	4.167	3.264	0.000003
40	787.462	11.729	1.399	3.741	0.000011
41	731.072	8.868	2.131	3.531	0.000015
42	153.704	16.875	7.515	1.192	0.000007
43	123.647	7.813	1.936	1.124	0.000015
44	541.857	3.936	1.933	1.075	0.000002
45	384.257	18.750	4.376	3.291	0.000018
46	531.462	11.719	2.338	3.531	0.000012
47	202.433	15.425	1.749	3.527	0.000015
48	667.710	9.868	2.717	3.424	0.000012
49	146.713	23.408	3.429	3.337	0.000006
50	299.415	31.250	5.582	7.230	0.000021

AVERAGE

NO.	NO./AREA	MFPV	YFPH	L/A	FETA
SD	48.55	693.422	26.766	4.475	0.000015
SE	35.39	503.347	13.323	5.821	0.000008
SE	5.01	71.134	4.246	1.823	0.000001

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DATE 1/21/76  
 MOBIL TYCO SAMPLE # 67 JPL 5-642 MRR # 1 SPEC F  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.27 99

MAG 1000 UNITS MICRONS CAL FACTOR 375000 UNITS/PP  
 FRAME AREA 3.515625000 24

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	548.58	0.016	93.492	92.865	1.315686
2	211.76	0.008	311.725	253.289	1.097465
3	286.02	0.008	239.344	215.517	2.417714
4	439.16	0.022	15.224	16.892	2.560142
5	388.85	0.010	113.225	123.844	1.19340
6	323.92	0.006	296.577	286.697	1.511719
7	332.83	0.031	2286.585	3024.194	3.941016
8	889.27	0.025	51.370	57.763	1.299521
9	889.87	0.051	31.136	34.853	1.778889
10	759.20	0.022	178.468	18.848	1.558561
11	3442.13	0.098	16.956	18.477	1.933994
12	3247.63	0.092	29.460	20.873	2.621723
13	2312.71	0.066	23.928	23.898	1.689331
14	419.92	0.012	213.574	172.335	3.382643
15	59.77	0.132	655.594	744.748	1.197213
16	241.75	0.037	293.887	372.024	3.143992
17	343.25	0.010	359.195	166.223	4.193975
18	28.65	0.001	1512.997	1129.518	3.033492
19	381.21	0.011	1024.502	129.955	1.153125
20	42.31	0.021	295.533	201.923	1.161458
21	0.00	0.000	555555555	555555555	555555555
22	0.00	0.000	555555555	555555555	555555555
23	3188.27	0.092	18.133	20.227	1.882488
24	3032.07	0.166	16.699	18.437	1.535917
25	1759.59	0.053	20.577	32.184	1.643394
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	117.04	0.031	555555555	555555555	555555555
SE	1315.11	0.037	555555555	555555555	555555555
SD	163.02	0.027	555555555	555555555	555555555
25	1.80	0.000	555555555	555555555	555555555
27	35.67	0.001	164.879	1939.236	1.391975
28	70.97	0.002	82.746	92.368	1.753125
29	2.29	0.001	16759.999	31259.100	1.687537
30	1.29	0.001	3696.429	6375.339	1.468757
31	23.91	0.001	1332.252	1116.371	1.72753
32	16.51	0.001	2694.167	2533.784	1.941136
33	12.52	0.002	2648.909	3848.214	0.842759
34	10.24	0.002	4975.087	5514.706	1.289763
35	291.46	0.025	158.261	174.257	1.223339
36	2874.57	0.082	21.115	24.529	1.891262
37	397.02	0.009	201.167	155.980	1.697994
38	3338.14	0.099	21.286	22.767	2.764176
39	252.84	0.007	174.637	197.368	1.136980
40	839.85	0.010	167.411	169.687	1.937383
41	1094.50	0.031	49.735	153.541	1.744355
42	675.99	0.019	83.631	79.517	1.447705
43	448.82	0.013	119.732	132.415	1.437844
44	131.52	0.004	389.653	317.797	1.174134
45	1454.27	0.041	37.321	41.136	1.729936
46	398.16	0.011	103.109	114.749	1.216435
47	231.50	0.007	251.789	143.253	1.63388
48	1440.33	0.030	51.232	59.445	1.474038
49	1140.42	0.032	43.635	48.525	1.354417
50	1205.88	0.034	43.695	50.457	1.721911
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	266.34	0.025	555555555	555555555	555555555
SE	1137.58	0.032	555555555	555555555	555555555
SD	160.88	0.003	555555555	555555555	555555555

DATE 1/21/79  
 MOBILE TYCO SAMPLE # 65 JPL # 5-644 MRR 3 #1 SPEC G  
 TWINS ONLY  
 QTM QUIT DATA DIVIDED BY 100  
 .31 MM SIZE SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE IS TWIN AREA = 27.35X100

MAG 800.3 INITS-MM CAL FACTOR 0.009375 UNITS/PP  
 FRAME AREA 2.070313

FIELD NO.	NO./AREA	MPV	MPPH	L/A	AFETA
1	12.38	41.582	31.250	5.228	1.0000007
2	15.54	221.703	22.786	0.876	1.0000005
3	5.36	90.481	187.500	10.417	1.0000008
4	4.35	61.881	187.500	17.045	1.0000008
5	13.16	272.484	16.785	5.625	1.0000007
6	9.62	118.762	18.750	5.859	1.0000007
7	41.28	587.789	23.438	5.088	1.0000004
8	4.53	64.481	93.750	7.813	1.0000004
9	39.34	559.529	12.500	23.206	1.0000013
10	23.40	755.127	8.929	1.114	1.0000018
11	32.16	1168.458	14.423	11.829	1.0000027
12	43.04	983.291	15.625	1.329	1.0000012
13	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
14	3.95	13.520	187.500	31.250	1.000 1.0000004
15	13.60	193.443	31.250	6.466	1.000 1.0000010
16	4.72	57.081	16.875	15.625	1.000 1.0000009
17	2.12	39.169	12.500	17.345	1.000 1.0000004
18	2.71	38.481	93.750	17.945	1.000 1.0000005
19	10.38	147.662	22.786	5.357	1.000 1.0000007
20	1.99	77.043	187.500	11.250	1.000 1.0000007
21	2.52	35.681	187.500	31.250	1.000 1.0000017
22	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
23	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
24	13.15	258.204	12.500	14.261	1.000 1.0000008
25	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS

AVERAGE

NO.	NO./AREA	MPV	MPPH	L/A	AFETA
SD	18.47	282.667	SSSSSSSS	SSSSSSSS	1.205 SSSSSSSSSSS
SD	28.09	428.193	SSSSSSSS	SSSSSSSS	1.243 SSSSSSSSSSS
SE	5.74	781.620	SSSSSSSS	SSSSSSSS	1.749 SSSSSSSSSSS
26	1.36	15.380	187.500	31.250	1.000 1.0000004
27	21.00	390.165	22.786	5.228	1.000 1.0000006
28	1.23	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
29	1.50	21.320	93.750	17.345	1.000 1.0000003
30	1.68	193.920	31.250	31.250	1.000 1.0000009
31	4.31	61.361	22.786	14.423	1.000 1.0000008
32	16.49	234.324	22.786	2.841	1.000 1.0000006
33	43.99	625.570	11.219	11.588	1.000 1.0000009
34	16.97	241.284	31.250	6.466	1.000 1.0000013
35	6.33	85.831	93.750	12.500	1.000 1.0000012
36	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
37	54.86	777.412	29.868	1.339	1.000 1.0000019
38	18.68	268.723	23.438	5.125	1.000 1.0000008
39	11.79	258.480	SSSSSSSS	31.250	1.000 1.0000007
40	4.94	73.221	187.500	31.250	1.000 1.0000019
41	04.05	197.128	14.423	5.344	1.000 1.0000010
42	19.45	278.647	23.438	2.307	1.000 1.0000016
43	5.12	72.831	22.786	13.393	1.000 1.0000018
44	53.62	444.814	10.417	1.194	1.000 1.0000012
45	48.56	769.571	10.719	1.258	1.000 1.0000008
46	86.87	1235.539	7.500	3.891	1.000 1.0000013
47	19.37	274.044	14.423	1.233	1.000 1.0000011
48	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
49	0.30	0.000	SSSSSSSS	SSSSSSSS	1.000 SSSSSSSSSSS
50	1.35	19.340	31.250	7.140	1.000 1.0000005

AVERAGE

NO.	NO./AREA	MPV	MPPH	L/A	AFETA
SD	18.57	265.536	SSSSSSSS	SSSSSSSS	1.256 SSSSSSSSSSS
SD	26.07	373.731	SSSSSSSS	SSSSSSSS	1.307 SSSSSSSSSSS
SE	3.69	52.429	SSSSSSSS	SSSSSSSS	1.343 SSSSSSSSSSS

DATE 1/21/79  
 W931L TUC9-SAMPLE # 68 JPL 5-640 JARRI SPEC G  
 DISLOCATION FITS ONLY  
 31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION DTE AREA = 5.76 PF

MAG 200X UNITS MICRONS CAL. FACTOR 1.000 375000 UNITS/PP  
 FRAME AREA 73.515695000 04

FIELD NO.	NO	AREA	MFPV	MFPH	L/A	AFETA
1	530.73	0.915	50.610	92.183	1.020	1.341650
2	1133.51	1.932	138.565	243.898	1.048	1.452754
3	2101.42	3.006	251.412	418.023	1.027	1.432248
4	29.67	0.014	81.239	141.732	1.021	1.161079
5	1406.06	1.410	131.092	206.295	1.051	1.455163
6	981.67	1.028	103.828	178.150	1.038	1.274189
7	3983.32	3.113	307.448	500.218	1.041	1.524467
8	1918.92	1.855	180.448	295.822	1.051	1.457622
9	733.17	0.721	71.556	111.784	1.028	1.332923
10	1925.32	1.752	174.116	285.139	1.042	1.458873
11	2471.88	2.411	229.468	365.375	1.039	1.521094
12	339.56	0.309	30.655	46.043	1.012	1.321307
13	273.44	0.208	20.889	33.773	1.012	1.375167
14	2518.40	2.078	199.913	323.356	1.031	1.495964
15	862.67	0.825	81.191	132.375	1.031	1.453749
16	824.31	0.823	82.542	134.701	1.027	1.429733
17	1843.58	1.752	173.552	285.154	1.035	1.492888
18	2069.34	1.859	183.095	296.778	1.037	1.478245
19	2081.74	1.859	183.162	295.723	1.074	1.555696
20	2032.12	1.86	183.807	296.95	1.023	1.44555
21	2457.99	2.359	233.912	376.056	1.070	1.582865
22	2291.49	2.065	203.860	335.413	1.071	1.515490
23	1741.128	1.719	172.226	277.313	1.070	1.541535
24	521.35	0.515	51.520	82.155	1.021	1.392836
25	6932.13	6.197	597.634	971.399	1.083	1.791398

AVERAGE

NO.	NO	AREA	MFPV	MFPH	L/A	AFETA
SD	1866.11	1.853	171.148	277.718	1.047	1.457903
SE	11874.81	11.53	1125.719	1871.391	1.028	1.25765
SE	374.96	0.311	31.222	47.178	1.035	1.459953
26	786.01	0.722	71.575	116.281	1.027	1.448438
27	2787.33	2.779	271.139	438.919	1.039	1.4723461
28	1331.16	1.024	99.149	162.947	1.026	1.398549
29	1651.98	1.647	159.169	252.513	1.064	1.461675
30	1364.24	1.339	131.153	216.892	1.053	1.435894
31	2463.19	2.070	203.56	323.85	1.021	1.480502
32	2292.28	2.165	213.582	337.444	1.068	1.467282
33	992.10	0.928	91.097	146.488	1.034	1.463957
34	640.83	0.618	60.969	97.737	1.022	1.340198
35	1089.86	1.031	101.574	167.134	1.038	1.460981
36	561.28	0.516	51.850	83.863	1.022	1.277089
37	1046.18	0.990	97.574	151.890	1.038	1.414782
38	1030.06	0.980	95.297	152.751	1.031	1.324974
39	1521.97	1.403	136.661	226.757	1.034	1.418798
40	1131.77	1.024	101.262	162.447	1.006	1.419263
41	1283.16	1.009	97.581	157.814	1.008	1.456237
42	374.41	0.309	30.739	49.522	1.010	1.39314
43	478.33	0.411	40.535	60.902	1.020	1.248748
44	2218.06	2.063	202.493	323.008	1.037	1.459944
45	401.74	0.311	30.344	43.176	1.015	1.2933789
46	44.27	0.041	4.434	6.755	1.003	1.288692
47	506.25	0.414	40.444	63.705	1.011	1.342935
48	1684.00	1.648	161.274	253.800	1.056	1.462680
49	1222.57	1.035	101.774	163.314	1.047	1.427221
50	192.71	0.021	2.088	3.928	1.029	1.479479

AVERAGE

NO.	NO	AREA	MFPV	MFPH	L/A	AFETA
SD	1433.89	1.401	135.890	210.548	1.041	1.415549
SE	1498.89	1.431	141.811	215.936	1.028	1.475942
SE	211.98	0.066	6.553	115.391	1.034	1.248611

DATE 1/21/79  
 MOBIL TYCO. SAMPLE # 69  
 JPL 5-649 MRR # 1 SPEC H  
 THIN ONLY  
 STM OUTPJT DATA DIVIDED BY 100  
 31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE THIN AREA = 30.07X100

MAG-802.0 UNITS MM-CAL. FACTOR 0.000375 UNITS/PP  
 FRAME AREA 7.070313

FIELD NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
1	5.36	76.889	16.875	1.417	7.000005
2	46.25	558.263	115.625	1.651	7.000011
3	25.36	356.385	73.375	1.509	7.000008
4	3.20	46.491	9.750	1.194	7.000005
5	1.73	24.341	5.750	1.154	7.000004
6	27.05	192.433	39.438	1.501	7.000013
7	1.70	24.170	4.875	1.125	7.000004
8	1.70	24.170	4.875	1.125	7.000007
9	1.30	18.483	3.750	1.037	7.000005
10	7.03	111.792	21.250	1.212	7.000008
11	6.43	91.766	18.250	1.120	7.000009
12	16.29	231.745	46.750	1.264	7.000010
13	38.09	541.686	107.417	1.727	7.000011
14	23.26	388.141	76.726	1.757	7.000012
15	17.91	283.646	56.329	1.302	7.000012
16	10.14	197.593	39.713	1.547	7.000021
17	45.92	953.155	191.117	1.476	7.000039
18	59.88	1185.372	237.129	1.189	7.000010
19	58.35	1145.477	228.393	1.429	7.000015
20	54.17	1072.247	213.750	1.191	7.000016
21	94.80	1848.291	369.417	1.752	7.000023
22	19.06	371.389	73.393	1.301	7.000013
23	8.99	175.595	35.875	1.077	7.000019
24	25.09	503.297	100.745	1.257	7.000015
25	78.37	1599.555	319.213	1.293	7.000013

AVERAGE

NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
SD	28.72	578.615	115.689	1.338	7.000035
SE	5.74	111.703	22.350	1.198	7.000001

26	102.13	2052.553	410.152	1.587	7.000025
27	119.13	2384.250	476.866	1.420	7.000026
28	56.95	1139.923	227.923	1.431	7.000013
29	68.54	1374.845	274.813	1.098	7.000011
30	105.80	2104.684	420.900	1.149	7.000017
31	97.90	1952.843	391.823	1.047	7.000016
32	94.57	1892.974	378.393	1.410	7.000020
33	85.70	1718.912	343.521	1.302	7.000017
34	73.90	1435.495	287.375	1.143	7.000023
35	81.54	1633.935	327.174	1.250	7.000022
36	81.17	1624.450	324.825	1.890	7.000049
37	51.52	1032.574	206.526	1.576	7.000027
38	65.11	1296.800	259.152	1.556	7.000020
39	54.78	1092.148	218.625	1.995	7.000017
40	38.22	750.738	150.145	1.995	7.000011
41	57.55	1148.453	229.719	1.603	7.000017
42	12.08	237.138	47.438	1.641	7.000035
43	18.38	363.654	72.725	1.409	7.000011
44	79.64	1582.659	316.417	1.453	7.000021
45	23.29	461.267	92.250	1.573	7.000015
46	27.56	549.929	109.750	1.641	7.000011
47	17.20	342.355	68.250	1.582	7.000006
48	35.85	709.934	141.923	1.360	7.000033
49	89.10	1767.252	353.429	1.563	7.000029
50	13.16	263.544	52.756	1.277	7.000026

AVERAGE

NO.	NO./AREA	MFPV	MFRH	L/A	AFETA
SD	45.92	953.385	191.265	1.513	7.000014
SE	4.99	99.561	19.914	1.126	7.000009

DATE 1/21/79  
 MOBIL TYCO SAMPLE #169 JPL 5-640 WRR | SPEC H  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE DISLOCATION PIT AREA = 5.34  $\mu^2$

MAG-800 X UNITS-MICRONS CALY FACTOR- 3.37500 UNITS/PP  
 FRAME AREA 3.515625000 34

FIELD NO.	NO./AREA	MFPV	MFPH	LVA	AREA
1	94.19	181.250	115.217	1.902	1.768359
2	913.11	51.772	52.339	0.002	1.341854
3	1893.37	0.451	26.319	1.062	1.409177
4	1823.74	1.452	26.204	1.259	1.676933
5	535.53	0.017	28.481	0.858	1.574221
6	3546.25	1.01	17.339	0.097	1.70347
7	2040.82	1.358	29.242	0.057	1.003694
8	1679.96	2.048	116.030	1.348	2.021710
9	1662.73	1.747	28.935	1.759	1.496892
10	7384.83	10.212	17.543	1.052	4.143997
11	3995.59	0.111	14.228	0.119	1.887488
12	3050.37	0.337	18.970	0.300	1.183642
13	4421.72	0.126	14.159	1.114	2.654227
14	289.89	0.008	178.316	1.005	1.177311
15	1.49	1.330	9375.300	13392.757	1.333
16	52.25	1.081	62.273	1341.667	1.332
17	81.45	1.002	228.212	148.674	1.037
18	234.27	0.324	52.946	57.126	1.332
19	344.94	1.112	136.255	0.47.406	1.212
20	316.73	0.033	280.979	3751.799	1.331
21	2906.74	1.033	119.099	22.412	1.314
22	1275.09	1.511	8.255	89.687	1.340
23	3026.22	0.195	1.400	1.153	1.332
24	57.49	0.02	104.883	176.162	1.072
25	329.97	0.13	133.398	179.351	1.334
26	27.04	0.021	258.125	1488.005	1.331

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	LVA	AREA
SD	1655.51	0.747	720.731	284.932	1.747
SE	1719.33	0.500	1852.333	2617.925	1.743
SE	347.23	0.11	163.202	513.431	1.308

27	1302.73	0.037	52.985	42.003	0.736
28	238.19	1.072	169.334	186.382	1.113
29	537.10	0.002	1650.021	919.118	1.352
30	112.04	0.000	2199.689	4075.387	1.001
31	48.35	0.001	3906.257	1024.194	1.001
32	49.83	1.71	228.218	1041.667	1.022
33	99.44	1.433	604.839	804.839	1.103
34	407.33	1.012	112.337	189.375	1.116
35	268.31	0.078	159.989	184.347	1.111
36	294.16	1.07	184.185	186.382	1.109
37	1688.39	0.43	12.947	37.955	1.051
38	182.92	1.035	52.356	108.567	1.106
39	219.48	0.316	209.263	234.982	1.002
40	914.98	1.025	458.557	116.923	1.028
41	495.99	1.012	117.424	126.178	1.015
42	2108.29	0.63	29.391	26.786	1.169
43	220.60	1.036	231.622	274.227	1.007
44	269.29	1.002	149.246	173.511	1.011
45	614.42	1.017	146.531	37.291	1.121
46	13011.82	0.066	18.057	18.404	1.096
47	2885.96	1.182	70.727	22.242	0.083
48	167.98	0.015	234.375	235.353	1.109
49	913.30	0.126	46.101	81.300	1.137
50	2986.52	1.385	20.492	22.427	1.082

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	LVA	AREA
SD	1245.87	0.235	589.211	730.964	1.337
SD	1514.94	1.843	1457.175	3312.498	1.033
SE	212.83	0.106	207.493	284.613	1.135

DATE 1/22/79

MOBIL TYCJ SAMPLE # 73 JPL 5-642 MRR #2 5988 1A

TWINS ONLY

DTM JUNE JT DATA DIVIDED BY 127

.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

AVERAGE THIN AREA = 31.43X179

MAG=830.0 UNITS-MM CAL. FACTOR 1.000175 UNITS/PP

FRAME AREA 1.373310

FIELD NO.	NO./AREA	MPH	MPH	L/A	AFETA
1	0.00	0.000	0.000	0.000	0.000
2	0.00	0.000	0.000	0.000	0.000
3	0.00	0.000	0.000	0.000	0.000
4	0.00	0.000	0.000	0.000	0.000
5	0.00	0.000	0.000	0.000	0.000
6	27.39	389.537	18.750	0.209	1.00024
7	36.15	513.440	17.745	0.211	1.00032
8	69.41	991.438	7.503	0.379	1.00034
9	0.00	0.000	0.000	0.000	0.000
10	0.00	0.000	0.000	0.000	0.000
11	18.49	262.935	9.868	0.282	1.00017
12	8.69	123.534	37.300	0.163	1.00016
13	7.57	107.696	46.075	0.188	1.00011
14	0.00	0.000	0.000	0.000	0.000
15	1.05	14.933	187.500	0.037	1.00015
16	0.00	0.000	0.000	0.000	0.000
17	0.00	0.000	0.000	0.000	0.000
18	0.00	0.000	0.000	0.000	0.000
19	0.00	0.000	0.000	0.000	0.000
20	30.95	33.440	93.750	0.069	1.00007
21	42.39	598.654	18.152	0.379	1.00027
22	19.47	148.874	93.750	0.096	1.00015
23	27.01	384.176	23.438	0.299	1.00013
24	4.07	57.921	46.875	0.075	1.00019
25	1.50	21.258	0.000	0.005	1.00017

NO.	NO./AREA	MPH	MPH	L/A	AFETA
SD	10.29	146.304	0.000	0.394	0.00000
SE	17.18	244.375	0.000	0.125	0.00000
SE	3.44	48.875	0.000	0.125	0.00000

26	90.39	1285.566	17.745	0.397	1.00036
27	23.74	337.568	37.500	0.163	1.00026
28	49.41	792.740	14.423	0.240	1.00027
29	33.53	476.940	9.868	0.375	1.00029
30	59.47	845.731	6.048	0.773	1.00019
31	40.93	886.546	10.417	0.440	1.00027
32	30.89	439.382	13.793	0.485	1.00014
33	18.90	268.788	14.423	0.331	1.00012
34	11.88	167.879	37.500	0.075	1.00026
35	39.45	561.106	13.793	0.216	1.00035
36	36.14	514.745	18.750	0.627	1.00039
37	76.49	1087.821	11.022	0.930	1.00042
38	25.92	362.909	11.022	0.003	1.00012
39	3.25	45.155	93.750	0.134	1.00025
40	1.08	15.985	0.000	0.035	1.00035
41	15.62	222.190	31.250	0.399	1.00035
42	4.45	63.351	37.500	0.149	1.00025
43	40.66	578.331	18.750	0.253	1.00032
44	48.41	684.187	9.875	0.525	1.00015
45	5.70	80.998	46.875	0.171	1.00025
46	7.73	139.959	93.750	0.104	1.00011
47	0.00	0.000	0.000	0.000	0.00000
48	2.83	43.273	62.500	0.134	1.00034
49	4.97	59.586	187.500	0.037	1.00022
51	62.33	186.457	9.523	0.875	1.00023

NO.	NO./AREA	MPH	MPH	L/A	AFETA
SD	20.21	287.431	0.000	0.193	0.00000
SE	23.76	337.883	0.000	0.202	0.00000
SE	3.36	47.784	0.000	0.129	0.00000

ORIGINAL PAGE IS OF POOR QUALITY

DATE: 1/22/79  
 MODEL: TYCO SAMPLE # 74 JPL 5-647 MAR 7 2 SPEC A  
 DISLOCATION PITS ONLY  
 31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY

MAG: 600.0 UNITS-MICRONS CAL. FACTOR: 375493 UNITS/PO  
 FRAME AREA: 3.515625000 14

MAG: 600.0 UNITS-MICRONS CAL. FACTOR: 375493 UNITS/PO  
 FRAME AREA: 3.515625000 14

FIELD NO.	NO./AREA	MPPV	MPPH	L/A	AFETA	
1	158.24	0.015	84.755	108.007	1.010	1.24279755
LAST FIELD DELETED						
1	129.22	0.019	1183.382	159.439	0.010	1.7629113
2	121.59	0.012	135.219	168.312	0.013	1.697642
3	152.45	0.015	128.987	127.451	0.015	1.1932393
4	173.98	0.019	99.522	113.947	0.013	1.215947
5	253.53	0.007	787.815	200.749	0.013	1.264915
6	425.88	0.012	135.777	113.388	0.016	1.345319
7	632.05	0.017	91.553	89.971	0.020	1.494836
8	563.73	0.013	97.352	174.983	0.016	1.691519
9	347.26	0.010	147.195	186.012	0.011	1.415566
10	1387.45	0.031	49.446	51.997	0.039	1.452339
11	874.71	0.023	74.883	73.185	0.024	1.356014
12	370.98	0.019	179.254	196.541	0.017	1.521136
13	812.55	0.023	58.999	65.149	0.029	1.377663
14	651.96	0.019	97.750	115.456	0.017	1.216313
15	639.10	0.017	95.081	103.821	0.019	1.327122
16	1851.96	0.024	71.003	87.047	0.022	1.622385
17	1538.88	0.024	40.407	49.413	0.035	1.91939
18	2026.67	0.058	33.711	42.517	0.041	1.295918
19	1448.82	0.033	61.086	78.249	0.025	1.921739
20	821.76	0.023	80.931	112.452	0.016	1.464844
21	184.43	0.011	2285.785	2533.784	0.011	1.316027
22	1319.41	0.029	58.814	75.566	0.025	1.738237
23	1353.53	0.029	43.725	44.422	0.036	1.195372
24	1266.67	0.029	73.357	82.165	0.022	1.191071
25	1199.1	0.028	3558.553	3558.553	0.073	3558.553
26	174.51	0.025	299.524	258.264	0.036	1.177784
27	649.41	0.019	134.120	148.811	0.015	1.279928
28	516.86	0.018	158.794	64.700	0.018	1.193753
AVERAGE						
NO.	NO./AREA	MPPV	MPPH	L/A	AFETA	
SD	457.25	0.013	378.553	378.553	0.011	378.553
SE	86.55	0.002	3558.553	3558.553	0.073	3558.553
29	352.94	0.014	162.186	184.547	0.011	1.655293
30	226.47	0.001	1516.879	1870.895	0.011	1.186528
31	389.41	0.011	127.551	135.771	0.014	1.275257
32	57.84	0.022	85.273	684.187	0.033	1.163732
33	2644.51	0.075	127.041	12.516	0.069	1.996223
34	133.33	0.024	968.495	414.823	0.033	1.768251
35	133.23	0.021	1266.892	1442.388	0.031	1.896394
36	40.29	0.011	1041.667	1284.247	0.002	1.998922
37	315.49	0.009	146.484	161.917	0.011	1.378950
38	737.76	0.021	77.167	82.381	0.022	1.162154
39	497.63	0.014	128.382	125.532	0.014	1.152095
40	1263.53	0.036	47.492	55.194	0.034	1.928359
41	9792.94	0.276	14.752	17.520	0.174	1.312792
42	1487.25	0.020	52.331	62.111	0.022	1.397771
43	631.96	0.017	132.633	133.916	0.013	1.721713
44	551.37	0.016	113.422	117.334	0.016	1.922293
45	1377.25	0.039	42.398	49.682	0.038	1.967529
46	1981.37	0.056	29.923	35.126	0.054	1.176066
47	4756.86	0.136	17.612	23.796	0.088	1.376286
48	1364.12	0.039	34.323	44.495	0.041	1.794434
49	435.49	0.012	167.713	204.834	0.014	1.154147
50	325.47	0.019	158.111	135.219	0.013	1.460972
AVERAGE						
NO.	NO./AREA	MPPV	MPPH	L/A	AFETA	
SD	976.88	0.022	3558.553	3558.553	0.022	3558.553
SE	1481.73	0.042	3558.553	3558.553	0.020	3558.553
SE	239.43	0.036	3558.553	3558.553	0.033	3558.553

DATE 1/22/79  
 MOBIL TYCO SAMPLE # 71 JPL 5-648 MRR # 2 SPEC B  
 THINS ONLY  
 QTM ONTPT DATA DIVIDED BY 100  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE ONLY  
 AVERAGE TWIN AREA = 33.75X143

MAG-800 UNITS-MM CAL. FACTOR = 1.707175 UNITS/PP  
 FRAME AREA = 3.213313

FILED NO.	NO. / AREA	NO. / AREA	MFPV	MFPH	L/A	AFETA
1	42.22	600.494	18.750	2.976	1.219	1.300000
2	0.30	0.300	0.000	0.000	0.000	0.000000
3	1.05	43.494	17.500	20.833	1.005	1.000014
4	53.421	159.783	1.375	1.417	0.270	0.300014
5	19.86	282.159	17.845	2.641	1.405	1.000000
6	21.96	312.257	18.750	2.976	1.357	1.000010
7	55.08	783.381	8.929	1.856	1.597	1.000026
8	18.76	246.746	17.483	2.757	1.403	1.000007
9	34.25	487.137	13.393	1.233	1.357	1.000029
10	84.65	1203.937	8.152	1.813	1.669	0.999927
11	56.36	831.591	8.152	1.524	1.723	1.000015
12	79.82	1135.249	12.533	1.752	1.619	1.000022
13	89.42	1271.783	9.869	2.759	1.312	1.000005
14	32.98	469.317	11.719	2.500	1.411	1.000017
15	9.33	132.319	12.500	7.212	1.163	1.000016
16	59.82	854.805	8.152	2.641	1.445	1.000022
17	77.39	1108.695	7.212	11.094	1.611	1.000031
18	12.59	179.395	12.500	10.417	1.177	1.000027
19	43.41	574.768	11.719	2.500	1.451	1.000019
20	27.08	385.359	10.393	5.008	1.235	1.000021
21	31.52	449.212	8.385	1.989	1.399	1.000025
22	23.73	337.544	12.438	6.018	1.192	1.000028
23	34.58	491.713	15.425	3.472	1.325	1.000023
24	88.95	1265.349	10.417	3.224	0.379	1.000047
25	7.59	107.878	16.875	19.393	1.393	1.000018

AVERAGE  
 NO. / AREA MFPV MFPH L/A AFETA  
 40.20 571.674 8.500 1.374 0.000000  
 SD 27.12 385.771 8.500 1.273 0.000000  
 SE 5.42 77.154 8.500 1.041 0.000000

26	83.11	1182.025	8.929	2.839	1.565	1.000028
27	84.74	1225.282	8.929	1.431	1.704	1.000025
28	71.23	1012.622	8.244	1.376	1.856	1.000019
29	37.99	543.284	7.212	1.683	0.693	1.000010
30	46.84	656.232	13.393	5.615	1.127	1.000044
31	0.00	0.000	0.000	0.000	0.000	0.000000
32	0.00	0.000	0.000	0.000	0.000	0.000000
33	49.35	712.953	13.625	1.131	1.597	1.000018
34	73.51	1045.491	13.393	1.953	1.544	1.000023
35	97.13	1321.747	11.729	2.722	1.483	1.000051
36	12.27	153.793	11.417	0.342	1.353	1.000037
37	37.84	538.777	23.438	5.357	1.218	1.000037
38	89.39	1271.561	8.929	1.641	1.445	1.000042
39	79.32	1129.872	15.859	5.428	1.789	1.000025
40	15.10	215.430	12.500	31.250	1.748	1.000025
41	1.00	1.000	0.000	0.000	0.000	0.000000
42	0.00	0.000	0.000	0.000	0.000	0.000000
43	0.00	0.000	0.000	0.000	0.000	0.000000
44	1.72	24.441	19.750	31.250	0.837	1.000037
45	10.93	155.496	12.500	4.924	1.243	1.000039
46	4.68	66.581	17.533	1.257	0.843	1.000022
47	13.84	196.793	16.875	8.523	0.136	1.000015
48	29.07	413.393	14.423	3.174	1.363	1.000017
49	64.77	921.179	8.523	2.467	0.461	1.000028
50	3.89	52.642	187.500	37.500	1.237	1.000022

AVERAGE  
 NO. / AREA MFPV MFPH L/A AFETA  
 39.75 565.332 8.500 1.147 0.000000  
 SD 12.33 459.383 8.500 1.243 0.000000  
 SE 4.57 64.766 8.500 1.134 0.000000



DATE 1/22/79  
 MOBILE TYPQ SAMPLE # 71 JPL 5-640 MRR72 SPEED 3  
 DISLOCATION PITS ONLY  
 .31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE DISLOCATION PIT AREA = 5.69 PP  
 MAG-800.0 UNITS-MICRONS CAL. FACTOR- 3.375230 UNITS/PP  
 FRAME AREA-13.515625000 14

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	ETA	
1	161.96	0.005	225.823	251.740	1.037	4.314916
2	1424.82	0.041	158.333	16.852	1.334	3.777936
3	276.25	0.008	155.993	175.891	1.011	1.188731
4	1864.64	0.025	127.511	279.719	1.119	4.863616
5	428.57	0.012	115.031	133.738	1.314	1.695933
6	367.66	0.010	144.399	182.478	1.012	1.868952
7	282.71	0.005	275.142	309.321	1.329	2.385495
8	921.25	0.026	171.315	192.919	1.028	3.015234
9	877.68	0.008	174.103	172.973	1.012	1.133915
10	687.32	0.020	82.454	51.878	1.122	1.253649
11	204.82	0.006	1338.448	1198.312	1.135	1.967335
12	148.34	0.004	325.555	349.213	1.135	1.355551
13	233.94	0.014	239.553	185.923	1.137	1.796324
14	134.11	0.003	389.034	473.485	1.114	1.331339
15	548.39	0.016	24.411	198.732	1.121	1.829913
16	1079.64	0.031	58.158	63.719	1.128	2.834763
17	266.37	0.008	229.779	332.447	1.076	3.325293
18	356.79	0.010	133.208	132.415	1.112	1.448293
19	913.73	0.024	65.094	74.405	1.126	2.523327
20	282.14	0.008	142.876	273.954	1.138	2.441621
21	1523.93	0.043	85.337	102.382	1.145	3.123767
22	234.64	0.007	118.657	114.423	1.134	2.887297
23	865.54	0.025	49.109	57.234	1.132	1.349722
24	854.14	0.024	145.149	155.697	1.126	1.952969
25	104.45	0.003	381.198	482.281	1.074	1.255497
26	1139.11	0.032	59.758	68.925	1.031	2.167390
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	ETA	
SD	557.15	1.116	1168.285	182.096	1.117	2.389434
SE	413.94	1.113	1111.567	133.112	1.111	1.957596
SE	89.9	1.032	21.880	24.105	1.112	1.157188
27	51.48	0.001	997.349	1065.341	1.132	1.357799
28	35.78	0.001	1053.071	1065.341	1.132	1.992922
29	224.22	0.006	6178.71	19.142	1.139	1.134916
30	2117.14	0.160	31.044	36.183	1.153	1.825847
31	243.57	0.007	180.288	204.694	1.077	2.711525
32	809.64	0.023	57.060	65.149	1.129	1.257184
33	277.18	0.008	179.598	205.954	1.110	1.297351
34	33.34	0.001	1259.300	1512.097	1.091	1.369243
35	77.53	0.002	1201.923	1488.195	1.101	4.359375
36	77.86	0.002	585.938	548.736	1.103	1.857955
37	165.36	0.002	781.250	837.354	1.002	1.715625
38	461.07	0.013	110.821	113.224	1.016	1.642959
39	23.75	0.001	2189.233	2938.043	1.100	1.870313
40	63.75	0.002	1102.941	860.092	1.032	2.953125
41	373.57	0.011	155.473	168.011	1.017	2.316437
42	655.00	0.019	84.709	94.932	1.023	1.863657
43	2585.71	0.174	125.437	24.446	1.071	2.406915
44	1233.75	0.035	44.622	50.512	1.135	2.015722
45	1066.47	0.030	47.759	53.817	1.135	1.774906
46	555.18	0.016	128.631	74.889	1.117	2.649716
47	1186.86	0.034	22.517	48.126	1.139	1.653228
48	126.25	0.004	638.766	734.887	1.113	2.616365
49	1371.96	0.039	34.154	38.281	1.149	1.594697
50	638.04	0.012	384.221	272.992	1.116	2.516155
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	ETA	
SD	578.89	1.016	316.340	329.437	1.117	2.183194
SE	553.71	1.016	418.981	431.517	1.115	1.239591
SE	78.31	1.012	59.253	61.126	1.112	1.171052

Date: 1/22/77  
 MOSIL TYCO SAMPLE # 72 JPL 6-640 ARR#2 SPEC 2  
 TWINS ONLY  
 QTMJITPUT DIVIDED BY 100  
 3.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 31.83 % L20

MAG 830.0 UNITS MICAL FACTOR 1.000000 INITSYPP  
 FRAME AREA = 1.000000

FIELD NO.	NO. / AREA	MFOV	MFOH	L/A	AFETA
1	39.483	18.575	5.525	3.173	1.000000
2	30.790	21.458	8.520	3.149	1.000000
3	47.635	12.500	5.38	3.049	1.000016
4	234.881	20.533	3.88	3.235	1.000012
5	183.499	18.750	2.944	3.163	1.000010
6	228.470	12.500	4.573	3.264	0.000013
7	1.000	5.55555555	5.55555555	1.000	5.55555555
8	467.363	20.839	3.929	3.285	1.000018
9	399.336	17.045	1.404	3.445	1.000022
10	461.104	26.786	3.233	3.331	1.000016
11	63.955	46.875	3.929	3.141	1.000017
12	521.534	17.745	3.239	3.336	1.000020
13	134.764	187.500	11.250	3.335	1.000034
14	773.147	13.393	4.472	3.341	1.000039
15	94.815	23.750	17.345	3.359	1.000015
16	119.860	18.750	11.729	3.128	1.000013
17	226.387	187.500	11.250	3.337	1.000030
18	1.468	93.750	17.500	3.035	1.000037
19	1.000	5.55555555	5.55555555	1.000	5.55555555
20	1.000	5.55555555	5.55555555	1.000	5.55555555
21	1.603	187.500	11.250	3.335	1.000032
22	110.287	187.500	11.250	3.335	1.000033
23	582.753	18.868	3.259	3.485	1.000014
24	33.993	93.750	18.750	3.761	1.000025
25	312.521	12.500	7.513	3.139	1.000025
26	324.936	26.786	3.688	3.219	1.000017

NO.	NO. / AREA	MFOV	MFOH	L/A	AFETA
SD	15.57	221.534	5.55555555	3.169	5.55555555
SE	1.650	234.721	5.55555555	3.147	5.55555555
SE	3.24	46.332	5.55555555	3.128	5.55555555

27	2.58	36.674	12.500	3.175	1.000036
28	1.45	135.996	18.750	3.123	1.000008
29	26.48	376.576	23.438	3.203	1.000030
30	26.98	382.837	26.786	3.213	1.000022
31	9.53	135.514	37.500	3.172	1.000021
32	20.88	296.967	23.438	3.582	1.000013
33	31.29	1156.115	6.048	3.123	1.000013
34	18.74	266.555	18.750	3.172	1.000017
35	43.62	1620.321	18.750	3.133	1.000014
36	10.97	113.864	187.500	31.250	1.000034
37	1.000	1.000	5.55555555	5.55555555	5.55555555
38	8.77	124.789	26.786	3.500	1.000017
39	51.26	737.498	11.029	3.512	1.000023
40	27.31	4388.204	15.625	3.409	1.000014
41	37.04	526.848	14.513	3.379	1.000017
42	34.53	491.069	26.786	3.373	1.000031
43	7.70	139.574	46.875	11.029	1.000017
44	42.00	598.407	6.250	1.311	1.000039
45	51.10	726.765	10.417	1.786	1.000015
46	42.54	708.875	11.719	1.377	1.000015
47	104.65	1488.414	11.029	1.576	1.000031
48	50.47	717.820	10.417	2.180	1.000021
49	78.08	1110.496	8.523	1.738	1.000023
50	17.14	243.746	15.625	13.750	1.000019

NO.	NO. / AREA	MFOV	MFOH	L/A	AFETA
SD	24.78	342.469	5.55555555	3.258	5.55555555
SE	23.73	337.557	5.55555555	3.226	5.55555555
SE	3.36	47.738	5.55555555	1.132	5.55555555

ORIGINAL PAGE IS  
 OF POOR QUALITY

DATE: 1/22/79  
 MOBIL TYCO SAMPLE # 70 JPL S-640 RR70 SPEC C  
 DISLOCATION PITS ONLY  
 3.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE DISLOCATION PIT AREA = 5.69 PP

MAG-800.0 UNITS-MICRONS CALIFACTOR = 1.375023 UNITS/PP  
 FRAME AREA = 3.515625000 14

FIELD NO.	NO./AREA	MPV	MFPH	L/A	AFETA
1	166.08	20.588	282.881	1.007	1.186528
2	6132.92	3.000	16.678	1.145	1.777941
3	198.59	1.005	284.991	1.007	1.746223
4	153.23	1.104	51.142	1.004	1.612035
5	258.63	1.007	126.172	1.007	1.940897
6	1677.86	1.048	52.521	1.034	1.7556486
7	729.35	1.021	54.134	1.027	1.492567
8	333.74	1.019	122.173	1.014	1.112695
9	60.63	1.002	169.627	1.000	1.386161
10	73.98	1.001	1358.596	1.001	1.593753
11	93.32	1.003	520.833	1.004	1.265625
12	665.20	1.019	67.349	1.024	1.302539
13	1356.06	1.000	45.665	1.008	1.307546
14	384.53	1.011	195.113	1.016	1.156727
15	188.93	1.035	457.317	1.034	1.779297
16	437.58	1.012	94.032	1.017	1.167933
17	940.77	1.027	52.583	1.027	1.476277
18	796.20	1.023	79.114	1.022	1.603843
19	1207.73	1.034	56.374	1.118	1.503562
20	812.54	1.020	58.411	1.029	1.463726
21	549.23	1.016	95.359	1.016	1.307568
22	1048.33	1.033	39.674	1.040	1.302528
23	1498.42	1.045	34.501	1.045	1.187899
24	1312.48	1.037	43.153	1.043	1.121591
25	484.53	1.014	25.154	1.016	1.137456

AVERAGE

NO.	NO./AREA	MPV	MFPH	L/A	AFETA
Σ	854.77	1.024	224.321	1.021	1.492254
SE	1294.27	1.034	301.285	1.034	1.587559
	241.85	1.007	67.257	1.007	1.717512

26	92.39	1.000	418.327	1.004	1.898623
27	446.75	1.013	110.174	1.015	1.842622
28	277.65	1.008	293.804	1.008	1.343042
29	624.92	1.017	67.759	1.023	1.352043
30	55.34	1.002	844.595	1.002	1.234375
31	506.68	1.014	78.703	1.022	1.326384
32	1077.47	1.030	47.832	1.034	1.780763
33	112.65	1.009	132.790	1.011	1.462993
34	215.47	1.006	132.139	1.009	1.112282
35	191.23	1.003	614.898	1.003	1.833721
36	879.26	1.025	32.417	1.025	1.240595
37	621.39	1.018	84.459	1.019	1.112312
38	1489.28	1.042	38.119	1.042	1.475925
39	1235.95	1.004	2.492	1.040	1.721539
40	724.15	1.021	79.999	1.023	1.399684
41	412.83	1.012	115.172	1.014	1.514993
42	352.37	1.013	139.274	1.013	1.547727
43	2185.94	1.052	33.104	1.047	1.174399
44	532.81	1.014	91.732	1.018	1.509313
45	49.38	1.001	1879.348	1.002	1.129318
46	49.91	1.001	1882.885	1.004	1.662507
47	43.26	1.001	1965.341	1.001	1.435547
48	19.32	1.000	2929.688	1.001	1.391953
49	183.83	1.005	25.368	1.007	1.149177
50	506.15	1.014	153.723	1.014	1.368182

AVERAGE

NO.	NO./AREA	MPV	MFPH	L/A	AFETA
Σ	685.26	1.019	315.636	1.018	1.224993
SD	943.57	1.027	518.695	1.014	1.616163
SE	133.32	1.004	73.355	1.002	1.369981

DATE 1/22/79  
 MOBIL TYCO SAMPLE #73 JPL 56643 MRR#2 BRSC 0  
 TWINS ONLY  
 GEN OUTP-JT DIVIDED BY 100  
 0.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TWIN AREA = 39.25 X100

MAG-800.4 UNITS MM CAL FACTOR 0.000375 UNITS/PP  
 FRAME AREA 0.074313

FILE NO.	NO./AREA	MFPV	MFPH	L/A	AREA
1	7.77	117.450	20.833	1.144	1.0000766
2	5.49	152.257	18.750	1.145	1.0000775
3	5.45	177.550	18.750	1.25000	1.0000702
4	3.14	177.479	17.500	1.078	1.0000957
5	26.58	93.530	18.750	1.109	1.0000999
6	10.00	117.000	SSSSSSSS	1.000	SSSSSSSSSS
7	111.57	1134.500	26.786	1.197	1.0000778
8	43.36	686.641	14.203	1.469	1.0000714
9	21.41	304.567	11.250	1.743	1.0000715
10	35.05	86.010	26.786	1.500	1.0000776
11	113.17	215.730	23.438	1.464	1.0000778
12	13.38	199.350	11.250	1.696	1.0000714
13	1.72	24.440	93.750	1.257	1.0000777
14	12.46	177.190	11.719	1.259	1.0000777
15	12.04	324.771	11.029	1.937	1.0000712
16	1.32	14.570	187.500	1.024	1.0000772
17	1.22	17.390	190.750	1.043	1.0000773
18	3.93	55.930	21.250	1.775	1.0000778
19	1.69	231.970	187.500	1.250	1.0000777
20	1.69	231.970	187.500	1.250	1.0000777
21	64.34	91.501	21.017	1.964	1.0000719
22	1.00	1.000	SSSSSSSS	1.000	SSSSSSSSSS
23	1.00	1.000	SSSSSSSS	1.000	SSSSSSSSSS
24	45.60	648.641	11.029	1.245	1.0000749
25	7.90	112.320	12.750	1.161	1.0000776

NO.	NO./AREA	MFPV	MFPH	L/A	AREA
26	14.67	228.680	11.029	1.696	1.0000712
27	17.22	117.620	17.500	1.675	1.0000716
28	28.94	49.421	62.500	1.625	1.0000773
29	15.81	521.581	11.029	1.878	1.0000771
30	1.00	1.000	SSSSSSSS	1.000	SSSSSSSSSS
31	1.00	1.000	SSSSSSSS	1.000	SSSSSSSSSS
32	12.76	1181.220	18.750	1.237	1.0000778
33	1.00	1.000	SSSSSSSS	1.000	SSSSSSSSSS
34	14.63	208.210	23.000	1.922	1.0000712
35	5.29	75.000	17.250	1.100	1.0000778
37	3.00	1.000	SSSSSSSS	1.000	SSSSSSSSSS
38	16.10	256.150	17.045	1.357	1.0000715
39	88.47	1258.192	6.696	1.383	1.0000729
40	84.34	1199.442	17.017	1.173	1.0000767
41	117.88	1676.493	11.150	1.259	1.0000739
42	75.05	1067.370	17.500	1.287	1.0000732
43	17.28	533.161	8.529	1.180	1.0000711
44	15.97	656.771	8.523	1.063	1.0000722
45	16.77	366.350	11.250	1.924	1.0000737
46	14.07	484.571	9.375	1.131	1.0000714
47	32.86	552.721	14.423	1.338	1.0000718
48	60.91	866.211	12.500	1.679	1.0000726
49	63.28	993.751	6.696	1.752	1.0000718
50	2.33	602.371	15.525	1.346	1.0000723

NO.	NO./AREA	MFPV	MFPH	L/A	AREA
50	22.14	314.947	SSSSSSSS	1.192	SSSSSSSSSS
50	27.59	392.383	SSSSSSSS	1.174	SSSSSSSSSS
50	3.97	55.491	SSSSSSSS	1.125	SSSSSSSSSS

DATE 1/22/79  
 MOBIL ENCO SAMPLE #73 JRL5-643 M-772 SPEC  
 DISLOCATION PITS ONLY  
 0.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 5.87 PP

MAG-833.0 UNITS-MICRONS CAL. FACTOR 1.27500 UNITS/PP  
 FRAME AREA-3351562500 U<sup>2</sup>

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	BETA	
1	431.22	0.312	187.776	123.193	0.311	1.952347
2	594.89	0.317	22.756	91.823	0.319	1.735164
3	529.95	0.323	64.24	75.549	0.325	1.425194
4	1465.26	0.342	44.358	55.473	0.332	1.477121
5	112.35	0.332	53.694	52.153	0.331	2.161335
6	2239.15	0.364	26.461	72.745	0.365	2.231449
7	220.29	0.336	242.248	186.697	0.337	1.936298
8	315.58	0.333	154.959	131.153	0.333	1.765188
9	488.89	0.314	123.521	121.512	0.316	1.694337
10	272.66	0.308	176.232	137.671	0.309	1.552932
11	337.76	0.339	142.261	165.277	0.311	1.635932
12	911.64	0.325	53.653	57.657	0.333	1.583197
13	594.18	0.317	23.556	69.496	0.319	1.611443
14	185.19	0.335	585.938	446.422	0.335	1.684659
15	463.39	0.313	124.283	136.265	0.315	1.622329
16	736.88	0.321	79.991	75.544	0.322	2.152483
17	248.35	0.337	187.500	151.699	0.317	1.511453
18	13.95	0.338	296.250	232.759	0.331	1.486637
19	295.24	0.338	136.550	116.014	0.339	2.159693
20	189.31	0.335	257.333	207.619	0.335	1.467391
21	3428.40	0.348	71.394	71.234	0.353	1.215311
22	2558.55	0.373	24.338	26.755	0.373	1.687745
23	2335.63	0.365	32.228	35.288	0.352	1.912358
24	755.78	0.321	56.355	52.131	0.324	1.297651
25	759.28	0.322	201.772	78.715	0.324	1.531333
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	BETA	
862.83	0.325	82.289	53.499	0.324	1.177753	
SD	857.62	0.324	748.666	516.366	0.321	1.744963
SE	171.38	0.335	149.733	123.273	0.334	1.148973
26	659.23	0.319	45.314	72.674	0.326	1.225911
27	273.93	0.338	237.944	205.142	0.338	1.119866
28	7.25	0.330	721.136	136.114	0.331	1.875977
29	322.05	0.339	428.282	342.996	0.334	1.0271253
30	1348.32	0.338	51.090	52.609	0.331	1.595579
31	1248.74	0.333	47.372	52.521	0.334	2.238229
32	1616.93	0.346	46.385	52.936	0.334	1.942661
33	852.26	0.324	53.050	26.948	0.328	1.704291
34	3588.12	0.311	21.596	24.822	0.314	1.437492
35	488.25	0.313	66.815	171.077	0.311	2.894259
36	774.43	0.322	69.393	76.718	0.324	1.671459
37	2727.69	0.317	24.281	28.600	0.325	1.3924934
38	71.60	0.333	424.839	629.195	0.333	1.197957
39	417.99	0.312	157.563	137.665	0.312	2.373177
40	154.61	0.332	919.118	1237.553	0.331	2.821289
41	262.26	0.337	339.398	317.797	0.336	2.987277
42	693.47	0.320	106.293	69.188	0.323	2.536411
43	393.88	0.309	205.142	187.539	0.309	1.188117
44	317.64	0.309	205.592	152.439	0.311	1.677256
45	285.36	0.308	205.142	192.575	0.311	1.528195
46	179.37	0.335	564.759	222.156	0.336	1.206342
47	1951.53	0.333	57.095	39.411	0.333	1.129957
48	159.26	0.335	255.450	391.147	0.337	1.239375
49	2449.43	0.373	27.164	38.487	0.363	1.139419
50	263.49	0.324	73.071	59.981	0.325	2.242188
AVERAGE						
NO.	NO./AREA	MFPV	MFPH	L/A	BETA	
353.34	0.324	383.437	257.427	0.323	1.519536	
SD	879.17	0.325	1123.785	516.776	0.321	1.382879
SE	123.86	0.334	158.333	73.883	0.333	1.195569

DATE 1/22/79

MOBIL TYCO #74 JPL5-640 MRR#2 SPEC E

TWINN ONLY

QTM OUTPUT DIVIDED BY 130

0.31 MM STEP SIZE

MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE

AVERAGE TWIN AREA = 31.33 X 130

MAG-600.9 UNITS-MM GAL FACTOR 1.000375 UNITS/PP  
FRAME AREA 0.079313

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	FETA
1	71.18	1212.352	5.752	1.233	1.000022
2	75.75	1077.345	7.507	1.750	1.000024
3	78.47	1115.559	6.250	1.286	1.000031
4	35.68	821.631	11.719	1.167	1.000023
5	1.37	1.377	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
6	3.00	1.303	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
7	13.12	148.129	26.786	1.533	1.000023
8	24.54	1348.967	19.868	5.859	1.000022
9	35.61	652.950	12.417	1.596	1.000017
10	88.43	1257.181	11.719	2.287	1.000032
11	107.25	1525.357	8.523	1.533	1.000043
12	22.84	1323.443	7.533	2.435	1.000041
13	116.71	1559.855	13.117	1.679	1.000057
14	111.17	1587.154	8.523	1.934	1.000023
15	91.34	1299.784	1.944	1.799	1.000037
16	119.15	1663.212	7.533	1.736	1.000065
17	111.14	1584.892	6.944	2.197	1.000072
18	98.13	1367.143	6.466	1.172	1.000033
19	116.65	1658.856	11.500	1.717	1.000086
20	121.31	1725.296	11.229	1.259	1.000059
21	101.38	1443.898	13.375	1.467	1.000051
22	75.43	1072.345	11.515	1.203	1.000024
23	37.57	1245.457	17.813	1.453	1.000032
24	64.56	1323.763	6.96	1.131	1.000022
25	103.16	1494.191	8.452	1.152	1.000037
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	FETA
77.79	1176.353	SSSSSSSS	SSSSSSSS	1.476	SSSSSSSSSSSS
30	36.95	1525.510	SSSSSSSS	1.226	SSSSSSSSSSSS
32	7.39	1051.132	SSSSSSSS	1.745	SSSSSSSSSSSS
26	107.38	1527.185	13.393	2.717	1.000068
27	65.81	936.231	11.229	1.464	1.000072
28	31.73	1451.203	11.029	1.989	1.000023
29	19.62	278.992	37.599	11.719	1.000043
30	35.97	511.683	16.875	6.048	1.000072
31	36.68	1521.633	14.423	4.261	1.000023
32	3.23	45.893	46.575	1.719	1.000032
33	0.00	1.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
34	7.16	1131.782	11.750	1.132	1.000011
35	61.15	865.635	37.500	13.393	1.000032
36	43.35	1616.599	17.500	1.775	1.000064
37	3.93	55.189	62.500	1.833	1.000019
38	21.52	135.896	187.500	15.625	1.000044
39	5.33	15.428	16.875	12.500	1.000039
40	27.66	1296.713	27.833	3.837	1.000014
41	0.72	0.727	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
42	1.15	16.358	33.750	46.875	1.000035
43	41.57	591.154	18.750	3.676	1.000023
44	19.49	277.174	37.500	4.573	1.000014
45	2.72	38.623	46.875	12.500	1.000014
46	0.00	0.000	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
47	0.39	0.397	SSSSSSSS	SSSSSSSS	SSSSSSSSSSSS
48	15.24	216.741	17.045	4.464	1.000013
49	33.19	439.756	15.625	2.548	1.000013
51	6.68	94.966	62.500	7.129	1.000037
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	FETA
57.11	712.771	SSSSSSSS	SSSSSSSS	1.317	SSSSSSSSSSSS
50	42.21	571.191	SSSSSSSS	1.242	SSSSSSSSSSSS
52	5.97	81.272	SSSSSSSS	1.134	SSSSSSSSSSSS

ORIGINAL PAGE IS OF POOR QUALITY

DATE: 12/22/79  
 MOBIL TYCO #74 JPL5-643 WRR72 SPEC E  
 DISLOCATION PITS ONLY  
 0.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 0.25 μ²

MAG: 800.0 UNITS-MICRONS CAL. FACTOR: 0.37571 UNITS/PP  
 FRAME AREA: 0.515625 μ²

FIELD NO.	NO./AREA	MFPV	FPM	L/A	AREA
1	264.08	0.008	261.879	0.008	2.243534
2	1756.09	0.050	1741.759	0.045	12.764226
3	2055.04	0.081	2041.444	0.066	2.826882
4	1175.43	0.033	1169.761	0.032	2.116578
5	2073.29	0.059	2063.747	0.046	3.491678
6	1652.76	0.047	1646.267	0.045	1.259639
7	262.86	0.007	261.294	0.009	1.865986
8	389.29	0.009	386.511	0.010	1.425087
9	86.95	0.001	86.341	0.001	1.247757
10	575.21	0.016	571.027	0.014	2.911778
11	17.52	0.000	17.481	0.001	0.995192
12	198.67	0.006	196.343	0.007	1.767131
13	2.13	0.000	2.125	0.000	1.546875
14	552.19	0.016	547.776	0.013	0.111999
15	32.37	0.001	32.495	0.002	1.717534
16	183.57	0.005	182.746	0.005	1.127474
17	19.35	0.001	19.361	0.001	0.733125
18	0.00	0.000	0.000	0.000	0.000000
19	76.76	0.002	76.211	0.003	1.777996
20	111.81	0.003	110.429	0.005	1.528646
21	39.35	0.001	39.374	0.002	0.823661
22	213.29	0.006	212.793	0.006	1.538479
23	136.57	0.004	136.973	0.004	1.150079
24	71.24	0.002	70.338	0.002	1.195313
25	669.32	0.019	668.355	0.015	1.773259

NO.	NO./AREA	MFPV	FPM	L/A	AREA
SD	591.72	0.015	588.558	0.014	0.33333333
SE	749.27	0.021	745.555	0.018	0.33333333
SE	129.27	0.004	128.555	0.004	0.33333333

26	92.95	0.003	92.247	0.003	1.715625
27	391.62	0.011	389.213	0.016	1.366822
28	352.48	0.013	347.638	0.011	1.748311
29	406.27	0.012	402.725	0.012	1.976455
30	1397.71	0.040	1387.041	0.046	1.432624
31	1279.21	0.036	1271.328	0.029	0.934346
32	167.86	0.005	166.449	0.006	1.347579
33	0.00	0.000	0.000	0.000	0.33333333
34	969.14	0.028	967.787	0.023	0.315987
35	153.25	0.004	152.577	0.014	1.761161
36	162.48	0.005	161.506	0.004	1.966445
37	67.92	0.002	67.679	0.003	0.263722
38	498.67	0.014	497.111	0.019	1.363542
39	1615.81	0.046	1612.292	0.025	0.148245
40	673.14	0.019	671.650	0.023	1.350459
41	193.61	0.005	192.342	0.007	1.665211
42	0.00	0.001	0.253	0.000	0.876838
43	116.13	0.003	115.397	0.005	0.955221
44	112.95	0.003	112.457	0.001	0.847456
45	673.36	0.019	671.135	0.016	0.933252
46	472.78	0.013	471.433	0.011	0.935354
47	256.02	0.007	255.288	0.009	1.332967
48	3132.00	0.036	3127.75	0.029	1.492727
49	431.67	0.014	430.223	0.010	1.731550
50	678.26	0.019	676.463	0.021	1.305281

NO.	NO./AREA	MFPV	FPM	L/A	AREA
SD	621.43	0.019	618.000	0.017	0.33333333
SE	121.23	0.003	120.000	0.003	0.33333333

DATE 1/22/79  
 MOBIL TYCO #75 JPL 5-648 WRR#2 SPEC F  
 THINS ONLY  
 QTM OUTPUT DIVIDED BY 100  
 0:31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE TRIN. AREA = 31.37 X 100

AG-800 T UNITS-MM CAL. FACTOR= 1.000375 UNITS/PP  
 FRAME AREA = 0.773313

FIELD	NO.	NO./AREA	MPV	MPH	LVA	WETA
1	50.75	121.765	20.833	6.466	1.92	1.000045
2	41.1	9.819	62.593	14.423	0.353	1.000011
3	31.88	25.749	62.593	14.423	0.369	1.000033
4	15.11	15.804	31.250	3.152	0.144	1.000013
5	72.14	125.977	17.745	3.641	1.381	1.000129
6	83.07	1881.483	13.393	3.131	1.512	1.000028
7	13.70	1248.092	13.417	3.679	1.389	1.000033
8	27.82	396.699	26.786	7.593	1.157	1.000041
9	51.48	732.193	13.393	3.131	1.517	1.000019
10	84.14	1200.524	9.868	3.424	1.375	1.000047
11	36.63	520.469	13.393	3.131	1.374	1.000037
12	25.14	371.764	13.393	3.233	1.344	1.000039
13	22.16	313.732	9.375	3.233	1.327	1.000019
14	34.36	488.733	9.375	3.472	1.365	1.000014
15	131.25	1863.305	10.417	2.614	1.456	1.000064
16	26.59	378.111	26.786	1.289	1.377	1.000015
17	49.41	732.724	11.719	3.717	1.405	1.000027
18	36.59	521.829	12.929	2.679	1.437	1.000016
19	17.25	242.553	17.745	1.635	1.240	1.000038
20	33.25	472.665	16.048	2.614	1.427	1.000017
21	19.25	273.336	15.625	3.496	1.192	1.000017
22	3.86	54.858	37.519	15.625	1.777	1.000036
23	43.33	573.513	14.423	7.472	1.321	1.000018
24	56.26	832.241	13.417	1.736	1.641	1.000016
25	79.74	1336.028	3.523	1.551	1.752	1.000023
AVERAGE						
	NO.	NO./AREA	MPV	MPH	LVA	WETA
SD	42.55	639.475	12.238	3.387	1.336	1.000021
SE	29.81	423.929	14.815	4.291	1.168	1.000014
	3.56	54.765	2.963	1.500	1.334	1.000033
26	120.31	1762.276	11.719	3.248	1.363	1.000079
27	125.57	1785.825	10.417	2.717	1.482	1.000069
28	130.83	1808.439	9.375	15.625	1.099	1.000068
29	66.75	949.357	11.719	3.229	1.357	1.000042
30	1.82	25.842	31.250	26.786	0.353	1.000032
31	0.19	0.389	SSSSSSSS	SSSSSSSS	1.390	SSSSSSSSSS
32	0.09	0.190	SSSSSSSS	SSSSSSSS	1.390	SSSSSSSSSS
33	1.75	24.335	12.500	31.250	1.143	1.000034
34	7.78	113.622	20.833	13.393	1.399	1.000034
35	5.76	96.114	26.786	7.813	1.147	1.000036
36	17.24	192.915	18.750	13.393	1.139	1.000036
37	24.75	267.552	26.786	13.417	1.117	1.000034
38	4.46	63.472	31.250	11.729	1.131	1.000035
39	1.18	18.775	33.750	46.875	0.129	1.000035
40	13.92	146.252	31.250	3.729	1.133	1.000037
41	15.43	219.431	11.719	5.515	0.921	1.000011
42	6.25	97.475	31.250	7.813	1.141	1.000036
43	2.20	32.643	33.750	17.345	0.369	1.000033
44	14.13	199.483	17.345	7.212	0.171	1.000039
45	0.30	0.339	SSSSSSSS	SSSSSSSS	1.390	SSSSSSSSSS
46	0.30	0.339	SSSSSSSS	SSSSSSSS	1.390	SSSSSSSSSS
47	0.51	7.254	SSSSSSSS	36.875	1.324	1.000042
48	5.16	86.143	17.345	17.345	1.193	1.000013
49	7.19	113.113	SSSSSSSS	SSSSSSSS	1.193	SSSSSSSSSS
50	1.63	23.122	37.33	7.345	1.375	1.000032
AVERAGE						
	NO.	NO./AREA	MPV	MPH	LVA	WETA
SD	30.11	429.695	SSSSSSSS	SSSSSSSS	1.226	SSSSSSSSSS
SE	34.55	491.352	SSSSSSSS	SSSSSSSS	1.183	SSSSSSSSSS
	0.89	69.488	SSSSSSSS	SSSSSSSS	1.25	SSSSSSSSSS



DATE 1/22/79  
 MOBIL TYCO. 775 JPL 5-649 WRR#2 SPEC F  
 DISLOCATION PITS ONLY  
 0.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 5.39 PP

MAG-830.0 UNITS-MICRONS CAL. FACTOR-1.375358 UNITS/PP  
 FRAME AREA-3.515625000 04

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	WETA
1	648.79	115.317	58.391	0.318	1.525456
2	663.38	117.776	118.182	0.316	1.882470
3	2235.69	117.894	117.389	1.348	1.732448
4	213.73	119.6	119.534	0.315	1.361345
5	236.22	119.7	119.592	0.319	1.613359
6	654.36	119	119.382	0.321	1.722168
7	392.71	119	119.192	0.313	1.373716
8	133.77	119.4	119.838	0.315	1.913731
9	4178.12	111.7	113.026	0.125	1.937715
10	314.66	119.9	116.773	0.311	1.394737
11	482.89	114	116.749	0.317	1.493752
12	450.28	0.313	111.474	0.315	1.416173
13	275.70	119.9	117.788	0.319	1.451172
14	469.76	0.313	119.479	0.314	1.914315
15	655.47	0.312	117.894	0.316	1.334417
16	59.43	1.312	115.649	0.312	1.496253
17	2334.14	1.365	115.331	0.365	1.381162
18	12254.94	0.335	114.286	0.317	1.289452
19	7.12	0.312	SSSSSSSS	0.312	SSSSSSSSSSSS
20	682.75	0.319	119.656	0.314	1.691176
21	731.91	0.321	119.697	0.323	1.117426
22	991.65	0.328	114.281	0.333	1.257179
23	1148.82	0.333	119.978	0.334	1.112783
24	438.03	0.312	116.471	0.314	1.198779
25	228.94	0.327	114.313	0.317	1.754454
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	WETA
SD	790.61	0.322	SSSSSSSS	0.323	SSSSSSSSSSSS
SE	884.33	0.325	SSSSSSSS	0.325	SSSSSSSSSSSS
SE	176.87	0.305	SSSSSSSS	0.305	SSSSSSSSSSSS
26	15.77	0.309	115.297	0.311	1.773125
27	16.79	0.309	112.143	0.301	1.973554
28	18.55	0.301	118.499	0.309	1.757813
29	182.56	0.305	119.559	0.303	1.769853
30	295.94	0.306	112.156	0.308	1.322828
31	2439.83	0.309	114.299	0.304	1.512143
32	974.40	0.328	117.719	0.333	1.597273
33	3128.20	0.389	117.110	0.376	1.826776
34	14165.31	0.318	119.983	0.318	1.842288
35	402.97	0.318	115.638	0.312	1.463276
36	1766.23	0.322	119.183	0.310	1.676411
37	430.33	0.311	117.776	0.311	1.296875
38	574.81	0.316	113.738	0.316	1.231971
39	1159.93	0.305	116.948	0.302	1.379934
40	1.39	0.309	SSSSSSSS	0.309	SSSSSSSSSSSS
41	387.57	0.311	118.344	0.312	1.657769
42	868.19	0.325	119.492	0.329	1.653163
43	471.36	0.313	114.283	0.317	1.298352
44	1173.47	0.333	115.578	0.331	1.222656
45	685.99	0.323	113.499	0.319	1.625717
46	1281.26	0.336	116.399	0.344	1.445173
47	1459.18	0.342	118.344	0.343	1.928166
48	1633.53	0.346	113.758	0.348	1.776933
49	137.85	0.314	117.549	0.315	1.845702
50	934.32	0.324	115.195	0.314	1.791475
AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	WETA
SD	842.35	0.324	SSSSSSSS	0.323	SSSSSSSSSSSS
SE	949.91	0.327	SSSSSSSS	0.324	SSSSSSSSSSSS
SE	134.32	0.314	SSSSSSSS	0.313	SSSSSSSSSSSS

DATE 1/23/79  
 M331L TYCO # 76 JPL 5-640 MRR#2 3P20 3  
 TWINS ONLY  
 JTM DUP IF DIVIDED BY 100  
 1.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE EWIN AREA = 33.5 / 100

MAG-530.3 UNITS-1MM-CAL. FACTOR- 33375 UNITS/PP  
 FRAME AREA- 1.37343

FIELD NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
1	31.32	41.122	11.253	1.136	1.777033
2	0.15	14.765	62.33	1.137	1.777175
3	1.77	37.978	3333333333	1.1335	1.777038
4	3.73	1.033	555555555	1.133	5555555555
5	7.06	91.862	17.845	1.139	1.777179
6	78.92	411.279	93.753	1.148	1.777124
7	111.74	1529.158	9.375	1.146	1.777143
8	133.90	1477.713	8.929	1.145	1.777157
9	139.93	1563.112	8.929	1.147	1.777121
13	59.51	846.339	15.925	1.141	1.777143
11	71.18	1013.344	11.719	1.141	1.777132
12	77.77	1136.169	8.152	1.133	1.777122
13	76.75	791.114	6.466	1.134	1.777114
14	136.82	1517.658	7.152	1.139	1.777177
15	35.16	947.993	7.212	1.116	1.777111
16	93.92	1293.56	8.152	1.138	1.777118
17	6.49	303.339	9.944	1.135	1.777117
18	59.4	846.835	9.958	1.127	1.777121
19	55.87	936.871	9.348	1.176	1.777122
20	63.17	107.424	1.152	1.117	1.777114
21	133.19	1433.413	8.523	1.117	1.777127
22	121.57	1729.349	8.929	1.117	1.777125
23	73.08	1339.388	7.152	1.112	1.777126
24	71.99	1322.831	7.152	1.124	1.777119
25	72.85	1336.124	12.572	1.124	1.777122

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	65.38	929.844	555555555	1.126	5555555555
SE	35.41	533.589	555555555	1.133	5555555555
TE	7.08	133.716	555555555	1.161	5555555555

ORIGINAL PAGE  
 OF POOR QUALITY

26	81.41	1157.829	8.152	1.136	1.777127
27	53.25	74.588	26.786	1.144	1.777174
28	7.72	7.533	555555555	1.177	5555555555
29	42.39	692.929	31.253	1.192	1.777136
30	26.75	383.573	23.138	1.144	1.777114
31	17.33	145.426	37.573	1.139	1.777115
32	16.69	337.348	46.875	1.127	1.777119
33	39.11	556.799	7.593	1.135	1.777115
34	7.41	175.384	12.753	1.155	1.777136
35	1.03	1.133	555555555	1.133	5555555555
36	42.98	611.332	26.786	1.129	1.777126
37	97.73	1389.581	9.662	1.129	1.777139
38	7.67	139.115	23.138	1.144	1.777178
39	6.20	92.131	31.253	1.176	1.777177
40	13.18	187.454	14.423	1.195	1.777111
41	0.16	7.927	187.471	1.129	1.777132
42	2.95	41.967	93.753	1.161	1.777174
43	11.37	165.104	37.573	1.139	1.777117
44	39.57	552.827	14.423	1.137	1.777117
45	17.13	148.284	26.875	1.297	1.777137
46	7.34	134.452	93.753	1.145	1.777114
47	3.77	3.377	555555555	1.177	5555555555
48	3.18	43.632	46.875	1.139	1.777177
49	1.21	17.253	93.753	1.137	1.777175
50	2.52	35.975	46.875	1.143	1.777111

AVERAGE					
NO.	NO./AREA	MFPV	MFPH	L/A	AFETA
SD	42.22	73.411	555555555	1.155	5555555555
SE	35.42	545.755	555555555	1.128	5555555555
TE	5.13	77.166	555555555	1.142	5555555555

DATE 1/22/79  
 MODEL TYCO #76 JPL 5-647 MRR#2 SPEC G  
 DISLOCATION - IIS ONLY  
 3.31 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT AREA = 4.5 PP

MAG-800X UNITS-MICRONS GAIN FACTOR 1.375000 UNITS/PP  
 FRAME AREA 3.156250E-04

FIELD NO.	NO.	AREA	MEPV	L/A	PETA
1	1792.00	0.951	15.181	0.187	0.475983
2	1710.00	0.949	14.454	0.148	1.564961
3	8219.00	0.992	12.493	0.286	2.472291
4	11288.00	0.934	15.222	0.631	1.965135
5	592.22	0.917	13.565	0.521	0.296767
6	139.78	0.970	12.935	0.367	1.543759
7	604.00	0.914	11.134	0.464	1.745291
8	152.22	0.997	14.224	0.450	1.499856
9	241.56	0.976	10.954	0.248	1.222975
10	139.78	0.983	14.198	0.338	1.417733
11	3.90	0.903	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
12	12.90	0.900	2530.784	7211.318	1.265525
13	1.90	0.909	SSSSSSSSSS	SSSSSSSSSS	SSSSSSSSSSSSSS
14	78.33	0.902	732.422	352.273	1.233807
15	67.33	0.902	956.333	386.742	1.579125
16	88.89	0.933	1022.758	664.894	1.734545
17	196.44	0.911	1277.582	76.354	1.966352
18	57.33	0.912	814.124	1399.254	1.179363
19	33.56	0.911	1287.423	1543.533	1.732297
20	575.33	0.916	1116.316	137.759	1.328752
21	328.33	0.901	1122.318	1562.503	1.414522
22	749.33	0.923	347.517	132.313	1.733135
23	7.33	0.933	372.024	173.485	1.947595
24	176.44	0.935	42.576	139.152	1.962554
25	171.00	0.935	190.625	393.232	1.691295
AVERAGE					
ND	NO./AREA	MEPV	FPK	L/A	PETA
SD	744.97	0.914	SSSSSSSSSS	SSSSSSSSSS	1.2
SE	148.99	0.914	SSSSSSSSSS	SSSSSSSSSS	1.023
26	400.29	0.911	144.576	268.912	1.483553
27	1052.00	0.953	101.184	137.586	1.432725
28	1454.00	0.910	123.274	173.933	1.852389
29	3631.66	0.910	119.042	741.093	2.556257
30	823.67	0.923	75.182	79.114	1.659195
31	1166.00	0.923	86.483	84.688	2.279167
32	317.78	0.939	139.717	176.574	1.196387
33	2149.33	0.958	185.112	12.473	2.371635
34	851.33	0.924	66.442	83.128	1.539241
35	138.22	0.908	393.918	145.429	1.787177
36	186.00	0.905	293.887	49.929	1.279332
37	2993.89	0.923	21.766	124.186	1.4812129
38	1937.13	0.955	74.253	157.158	2.0114224
39	2527.11	0.937	11.641	22.795	1.394353
40	665.33	0.919	79.824	133.368	1.547922
41	1289.78	0.931	59.411	85.773	2.452455
42	211.00	0.905	272.190	92.747	1.599449
43	111.48	0.900	286.565	365.769	1.573171
44	114.44	0.933	951.198	58.899	1.988924
45	4357.16	0.938	19.477	12.583	1.794965
46	1494.28	0.943	87.863	14.118	1.443677
47	2421.56	0.959	32.473	14.179	1.946532
48	4916.98	0.943	16.128	73.294	1.422379
49	3172.89	0.990	29.187	13.462	1.547427
50	1713.78	0.949	70.479	50.485	1.745573
AVERAGE					
ND	NO./AREA	MEPV	FPK	L/A	PETA
SD	1238.59	0.922	SSSSSSSSSS	SSSSSSSSSS	0.926
SE	175.18	0.935	SSSSSSSSSS	SSSSSSSSSS	0.934

DATE: 1/22/79  
 MOBIL TYCO # 77 JPL 5-540 MRR 22 SPEC H  
 TWINS ONLY  
 ATM OUTPUT DIVIDED BY 100  
 0.21 MM STEP SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE THINNESS = 32.5 X 100 Å

MAG: 3000 UNITS/MICRAL FACTOR: 0.000075 UNITS/Å  
 FRAME AREA: 170.10

FILED NO.	NO. OF	AREA	FPV	MFR	L/A	PETA
1	18.12	258.83	1.250	518	1.095	1.000012
2	18.12	258.83	1.250	518	1.095	1.000012
3	18.12	258.83	1.250	518	1.095	1.000012
4	18.12	258.83	1.250	518	1.095	1.000012
5	18.12	258.83	1.250	518	1.095	1.000012
6	18.12	258.83	1.250	518	1.095	1.000012
7	18.12	258.83	1.250	518	1.095	1.000012
8	18.12	258.83	1.250	518	1.095	1.000012
9	18.12	258.83	1.250	518	1.095	1.000012
10	18.12	258.83	1.250	518	1.095	1.000012
11	18.12	258.83	1.250	518	1.095	1.000012
12	18.12	258.83	1.250	518	1.095	1.000012
13	18.12	258.83	1.250	518	1.095	1.000012
14	18.12	258.83	1.250	518	1.095	1.000012
15	18.12	258.83	1.250	518	1.095	1.000012
16	18.12	258.83	1.250	518	1.095	1.000012
17	18.12	258.83	1.250	518	1.095	1.000012
18	18.12	258.83	1.250	518	1.095	1.000012
19	18.12	258.83	1.250	518	1.095	1.000012
20	18.12	258.83	1.250	518	1.095	1.000012
21	18.12	258.83	1.250	518	1.095	1.000012
22	18.12	258.83	1.250	518	1.095	1.000012
23	18.12	258.83	1.250	518	1.095	1.000012
24	18.12	258.83	1.250	518	1.095	1.000012
25	18.12	258.83	1.250	518	1.095	1.000012
26	18.12	258.83	1.250	518	1.095	1.000012
27	18.12	258.83	1.250	518	1.095	1.000012
28	18.12	258.83	1.250	518	1.095	1.000012
29	18.12	258.83	1.250	518	1.095	1.000012
30	18.12	258.83	1.250	518	1.095	1.000012
31	18.12	258.83	1.250	518	1.095	1.000012
32	18.12	258.83	1.250	518	1.095	1.000012
33	18.12	258.83	1.250	518	1.095	1.000012
34	18.12	258.83	1.250	518	1.095	1.000012
35	18.12	258.83	1.250	518	1.095	1.000012
36	18.12	258.83	1.250	518	1.095	1.000012
37	18.12	258.83	1.250	518	1.095	1.000012
38	18.12	258.83	1.250	518	1.095	1.000012
39	18.12	258.83	1.250	518	1.095	1.000012
40	18.12	258.83	1.250	518	1.095	1.000012
41	18.12	258.83	1.250	518	1.095	1.000012
42	18.12	258.83	1.250	518	1.095	1.000012
43	18.12	258.83	1.250	518	1.095	1.000012
44	18.12	258.83	1.250	518	1.095	1.000012
45	18.12	258.83	1.250	518	1.095	1.000012
46	18.12	258.83	1.250	518	1.095	1.000012
47	18.12	258.83	1.250	518	1.095	1.000012
48	18.12	258.83	1.250	518	1.095	1.000012
49	18.12	258.83	1.250	518	1.095	1.000012
50	18.12	258.83	1.250	518	1.095	1.000012
SD	3.7	530.312	1.250	518	1.188	1.000012
SE	5.27	74.955	1.250	518	1.134	1.000012

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DATE 1/22/79  
 MODEL TPC # 77 PL 5-640 AREA 3-20 H  
 DISLOCATION PITS ONLY  
 MASTER SIZE  
 MEASUREMENT ALONG THE CENTER LINE OF THE SAMPLE  
 AVERAGE PIT SIZE = 4.5

MAG 300 UNITS MICRONS GAL. FACTOR 375000 UNITS/PP  
 FRAME AREA = 3.515625000004

NO.	AREA	MFPV	MFPH	L/A	FETA
1	393.56	0.011	125.037	0.009	2.184622
2	1066.07	0.015	218.023	0.015	3.59043
3	715.33	0.027	84.320	0.019	1.539793
4	702.671	0.008	482.298	0.009	1.624219
5	578.70	0.015	97.453	0.014	1.415771
6	2562.44	0.016	113.154	0.016	1.595762
7	596.44	0.011	128.591	0.014	1.976113
8	257.76	0.007	282.127	0.008	1.695832
9	444.17	0.014	139.925	0.013	1.443855
10	436.72	0.012	192.991	0.011	1.333343
11	377.22	0.011	129.779	0.009	1.492354
12	448.67	0.013	163.328	0.011	1.971693
13	412.44	0.012	191.27	0.017	2.533931
14	983.17	0.028	58.231	0.025	1.837614
15	233.78	0.007	109.989	0.007	1.572468
16	55.76	0.002	768.443	0.002	1.171875
17	273.22	0.008	222.568	0.007	1.568877
18	2375.00	0.059	30.340	0.053	1.895598
19	289.11	0.008	201.180	0.008	1.648226
20	587.11	0.014	114.197	0.014	1.335277
21	7.10	0.001	55555555	0.001	55555555
22	4.22	0.002	6696429	0.002	3.671875
23	516.89	0.015	137.365	0.012	1.996755
24	135.76	0.004	651.742	0.003	1.177083
25	611.56	0.017	154.474	0.014	1.931818

AVERAGE  
 NO. AREA MFPV MFPH L/A FETA  
 SD 459.09 0.013 55555555 55555555 0.010 5555555555  
 SE 87.97 0.002 55555555 55555555 0.002 5555555555

26	495.35	0.020	101.902	0.016	2.091399
27	38.67	0.001	1320.423	0.001	1.287829
28	72.67	0.002	479.348	0.002	1.916316
29	186.22	0.005	324.394	0.005	1.354526
30	742.22	0.021	96.549	0.016	1.280776
31	444.67	0.013	162.478	0.009	1.764627
32	1934.44	0.055	35.879	0.041	2.569964
33	413.56	0.012	196.137	0.013	2.643456
34	1022.70	0.029	59.798	0.025	2.134437
35	215.33	0.006	223.078	0.005	1.724381
36	117.78	0.003	428.484	0.003	1.593892
37	748.90	0.021	1171.715	0.021	2.761764
38	113.67	0.003	5514.086	0.003	1.964286
39	687.33	0.020	96.154	0.018	1.543536
40	1278.00	0.036	147.348	0.036	1.681369
41	4257.33	0.121	17.402	0.093	2.504924
42	316.67	0.009	167.411	0.007	1.593772
43	831.78	0.024	76.344	0.018	1.567677
44	385.33	0.011	196.541	0.009	1.732731
45	2282.00	0.065	33.697	0.059	1.214844
46	244.00	0.007	327.377	0.006	1.705276
47	554.89	0.013	122.389	0.012	1.946229
48	2530.67	0.072	31.891	0.054	1.895939
49	873.22	0.025	78.452	0.021	1.247774
50	892.00	0.025	67.331	0.021	1.839755

AVERAGE  
 NO. AREA MFPV MFPH L/A FETA  
 SD 650.94 0.019 55555555 55555555 0.015 5555555555  
 SE 137.92 0.003 55555555 55555555 0.002 5555555555

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