[redacted]

MODEL C'

[redacted]

15 Pages
(Including cover sheet)

FLIGHT INSTRUMENT DATA BOOK

INSTRUMENT NO. 25

VEHICLE NO. 1118

MISSION NO. 9028

Prepared by: [redacted]

Checked by: [redacted]

Approved by: [redacted]
(Engineering Manager)

Approved by: [redacted]
(Project Manager)

[redacted]

TOP SECRET

[redacted]

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[redacted]

[redacted]

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GENERAL FLIGHT DATA:

Discoverer No. XXXV

Booster No. 326

Fairing No. 404-3

Recovery Capsule No. 523B

Cassette No. 46

Launch Time 21 22 45.61 GMT Date 11-15-61

Recovery Time 0 45 GMT Date 11-16-61

Recovery Revolution No. 18

Orbital Parameters (Rev. 10)

Period 89.83 MIN Eccentricity 0.0044

Perigee 134.8 NM Perigee Latitude 55.44 Deg. N

Apogee 166.3 NM Inclination Angle 81.57 Deg.

REMARKS:

None

[redacted]

[redacted]

[redacted]

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PRE-LAUNCH SETTINGS:

V/h Ramp Setting 4 At Launch

Main Optics Slit Width 0.125 Inches

Horizon Camera Exposure Time:

Port (Take-Up) 1/200 Seconds

Starboard (Supply) 1/200 Seconds

Film:

Type J-22

Length 7600 FT.

Weight 38.7 LBS.

Supply Spool No. 249

No. of Splices 2

Emulsion Mfg. Data 6-2-8-1

Box Serial No. 1007

[redacted]

[redacted]

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[redacted]

PERFORMANCE ESTIMATE

OP NO.	RAMP NO.	DIST. ON SEC UP RAMP	LATITUDE ON	LATITUDE OFF	APPROX ON TIME (GMT) DAY HR MIN	DURATION OF OPERATION SEC	DURATION OF OPERATION FRAMES	DURATION OF OPERATION FEET	EXPOSURE TIME MILLISECONDS ON	EXPOSURE TIME MILLISECONDS OFF
PL										
1DE	4	-60	54	50	15 22 52	60	51	143		
2D	4	395	69	62	16 00 18	112	17	44	2.64	2.64
5D1	5	354	71	68	16 04 47	49	37	98	2.44	2.15
5D2	5	667	51	25	16 04 52	236	16	43	2.20	2.15
6D	5	578	60	20	16 06 20	593	94	25	1.90	1.73
7D1	5	427	70	65	16 07 47	78	241	639	1.98	1.73
7D2	5	582	60	42	16 07 50	270	27	71	2.12	2.17
8D	5	477	67	36	16 09 18	467	105	279	1.97	1.76
9AE	5	-47	36	39	16 10 29	47	181	479	2.07	1.73
9D	5	558	62	44	16 10 49	271	12	33	2.67	2.67
10D	5	682	54	48	16 12 21	90	104	275	2.00	1.78
15D	5	834	45	39	16 19 52	89	35	94	1.89	1.82
17D	5	461	70	64	16 22 45	93	34	99	1.78	1.73
18D	5	464	70	62	17 00 15	124	33	88	2.09	2.00
							44	118	2.09	1.97

[redacted]

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CYCLE PERIOD (PRE-FLIGHT MEASUREMENTS)

V/h Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
		Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Seconds Exposure
4 start	3.63	0.022	0.521	1.975	47.421	0.00264
4 end	2.58	0.031	0.732	2.779	66.721	0.00187
5 start	3.67	0.021	0.515	1.954	46.904	0.00267
5 end	2.38	0.033	0.794	3.013	72.327	0.00173

CYCLE PERIOD (IN-FLIGHT VERIFICATION)

Rev. No.	V/h Ramp	Cycle Period Seconds	FMC Rate		Scan Rate		
			Rad. Per Second	In. Per Second	Rad. Per Second	In. Per Second	Seconds Exposure
9	5	3.67	0.022	0.521	1.975	47.421	0.00264
No other cycle period data available at this time (11-17-61)							

[redacted]

DATE

CHECKED BY

LOCKHEED AIRCRAFT CORPORATION
MISSILES SYSTEMS DIVISION

MODEL

REPORT NO.

CYCLE RATE (CPS)

VEHICLE NO. 1118
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[redacted]

LENS DATA SUMMARY (Main Camera)

Lens Serial No. 24

Filter Type Wratten 21

Equivalent Operational Focal Length 23.983 In.

Resolution: 82.7 lines/MM (Reported in Operational Message No. Bird 3019 Dated 11-14-61

Static:

	Lines/MM	Film Type	Target Contrast
Bench Test	113.4	SO 1213	High

Dynamic:

	Lines/MM	Film Type	Target Contrast
ITEK Pre-Vibration	102.5	0-17	High
ITEK Post-Vibration	106.1	0-17	High
L/H Pre-HATS	88.5	0-17	High
L/H Post-HATS	82.7	0-17	High
Other			

Distortion - Positive (pincushion) in MM

Angle off Axis	3°	2 1/2	No other distortion information available						
Distortion	+.005	+.003							

Note: Distortion and resolution data other then that performed at L/H are taken from ITEK Acceptance test procedure Test Data Sheets.

[redacted]

TOP

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LENS DATA SUMMARY: (HORIZON CAMERAS)

	Port (Take-Up)	Starboard (Supply)
Serial No.	803315	803313
Filter Type	Wratten 25	Wratten 25
Equivalent Operational Focal Length	89.0 MM	89.05 MM

Radial Distortion:

10° off Axis	0.003 MM	0.004 MM
20° off Axis	0.035 MM	0.038 MM
Tangential Distortion (Max Vector)	0.002 MM	0.008 MM

Resolution:

Angle off Axis	0	7 1/2	15	22 1/2			0	7 1/2	15	22 1/2	
Resolution	56	39	34	27			51	44	34	25	

NOTE:

1. Distortion and resolution as measured at equivalent operational focal length.
2. Resolution is in lines per MM on Super XX film and 1000:1 contrast target.

[redacted]

DEFINITIONS OF FORMAT CALIBRATIONS

1. Measurements are made with respect to collimator targets fixed with respect to the mechanical interface between the total payload assembly and the Agena vehicle.

2. Three targets are aligned to be coplanar within ± 5" arc; the plane is set with the plane normal at 1.500° ± 5" to the Z axis (longitudinal vehicle axis) of the interface.

   2.1 One target, Target 1, is in the ZY plane (Nadir), imaging on the terrain format.

   2.2 The second and third targets are at 75° ± 5" from Target 1, imaged in horizon formats.

3. The indicated principal points of the two horizon cameras are the points of intersection of lines joining opposite fiducials.

4. The indicated center of format of the main, panoramic, camera is given by the intersection of a line through the center of mass of the central shrinkage marker drawn normal to the nearest edge of format and a line which is the best fit through the four horizon fiducials defining the X axes of the two horizon cameras.

5. X_{vo} and Y_{vo} are the offsets of Target 1, (i.e., in-flight "vertical") from the indicated center of format as defined in 4.

6. X_s, Y_s, and X_p, Y_p are offsets of the 75° targets from the indicated principal points of the two horizon cameras.

[redacted]

7. The principal line of the panoramic camera is controlled by the IMC cam. ΔS and ΔP are the magnitude of the Y displacement of the principal line with respect to the x-axis (fiducial) as defined in 4, measured at the ends of format. The control equation at offset of the principal line is:

$$\Delta y = .3223 \sin 0.0016 X$$ 0.0016 X is in radians

where

Δy is the offset

x is the distance along x axis (fiducial line) from the indicated center of format, in millimeters.

It is assumed that the principal line passes through the indicated center of format. No measurement is made of these quantities.

8. Flight direction indicated is the direction of camera travel. The forward portion of the main format is on the side opposite to the shrinkage markers.

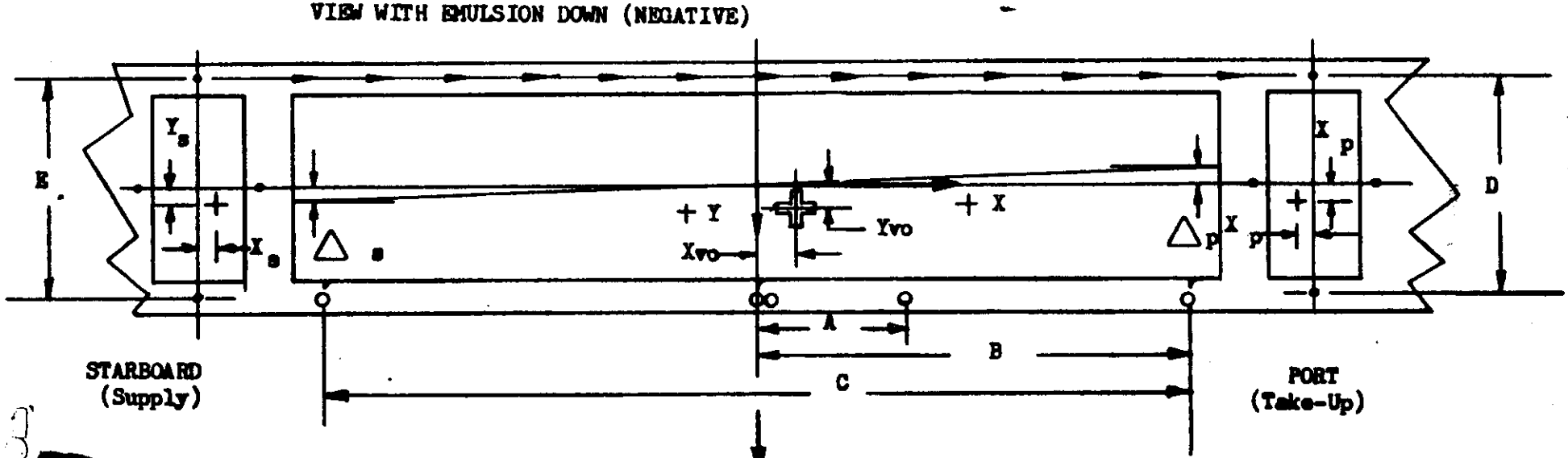
9. Dimensions A, B, and C are the spacings of the shrinkage markers. Techniques for exact measurement of these distances have not been developed. The figures quoted are measurements made on film without control of shrinkage.

10. The format dimensions are measured to the best estimate of format edge.

11. Measurement of the angle between the indicated axis on the horison cameras and the line of intersection of the plane defined in para. 2 on the format is not currently available. It is assumed to be "0" but is uncontrolled.

12. Similarly, the angle between the plane and the indicated x axis on the main format is uncontrolled and assumed to be "0". [redacted]

VIEW WITH EMULSION DOWN (NEGATIVE)



A 76.362 MM D 56.491 MM

B 355.639 MM Flight Direction

C 711.279 MM E 56.492 MM

Note: All X Fiducials may not be in a single line.

[redacted]

FORMAT DIMENSIONS

Tabulation in Millimeters

Horison Readings

X_p + 0.115 Y_p + 0.345

X_s + 1.191 Y_s - 2.607

Vertical Offset

Xvo + 0.651 Yvo - 0.588

Format Dimensions in Millimeters

	Starboard (Supply)	Main Format	Port (Take-Up)
Height	53.6	53.5	53.6
Width	22.9	743.5	22.9

$\triangle p = .155 \pm .015$

$\triangle s = .155 \pm .015$

Note: These data controlled by IMC cam. Nominals are shown.

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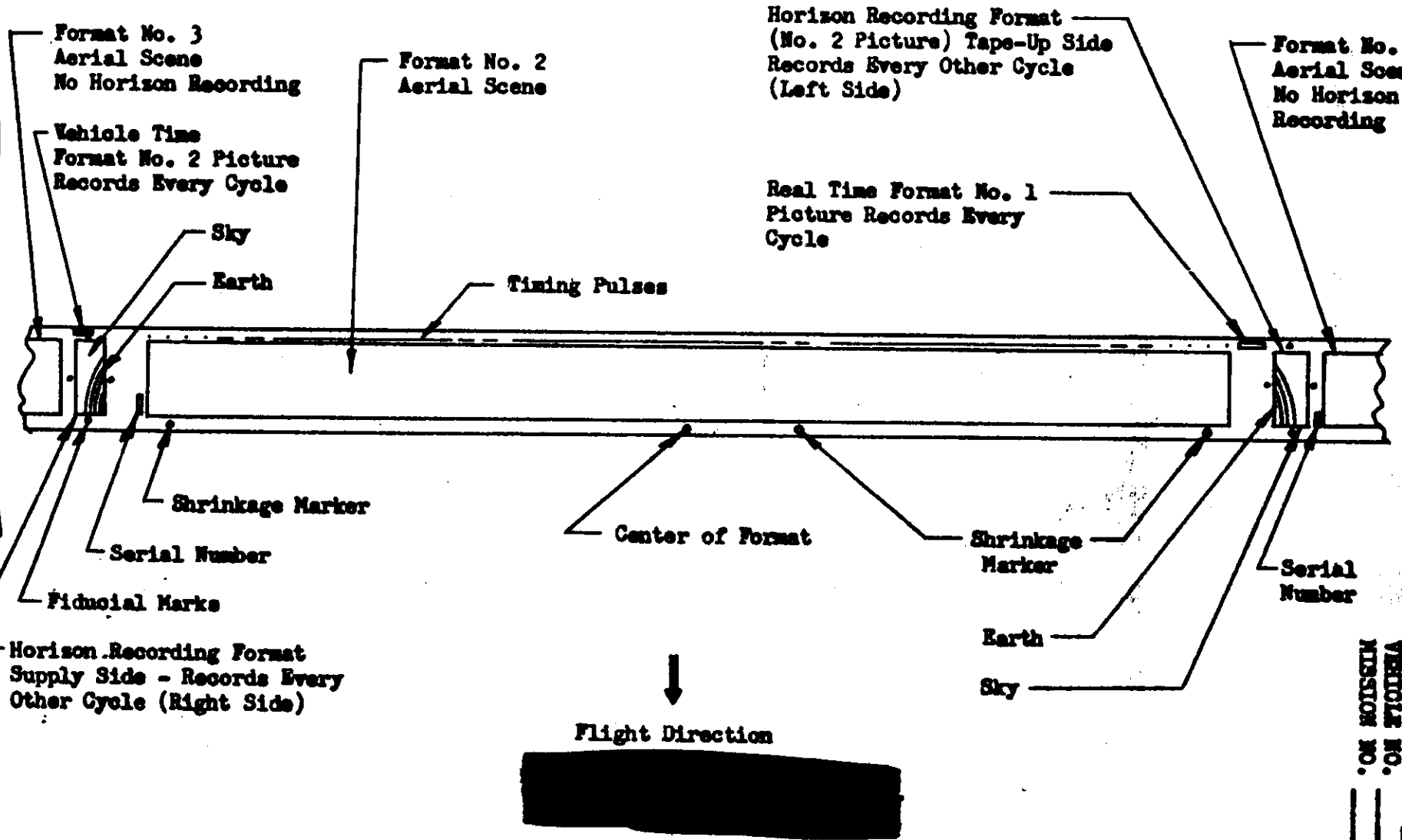
Note: X dimension in scan direction verified for this instrument.



FORMAT LAYOUT

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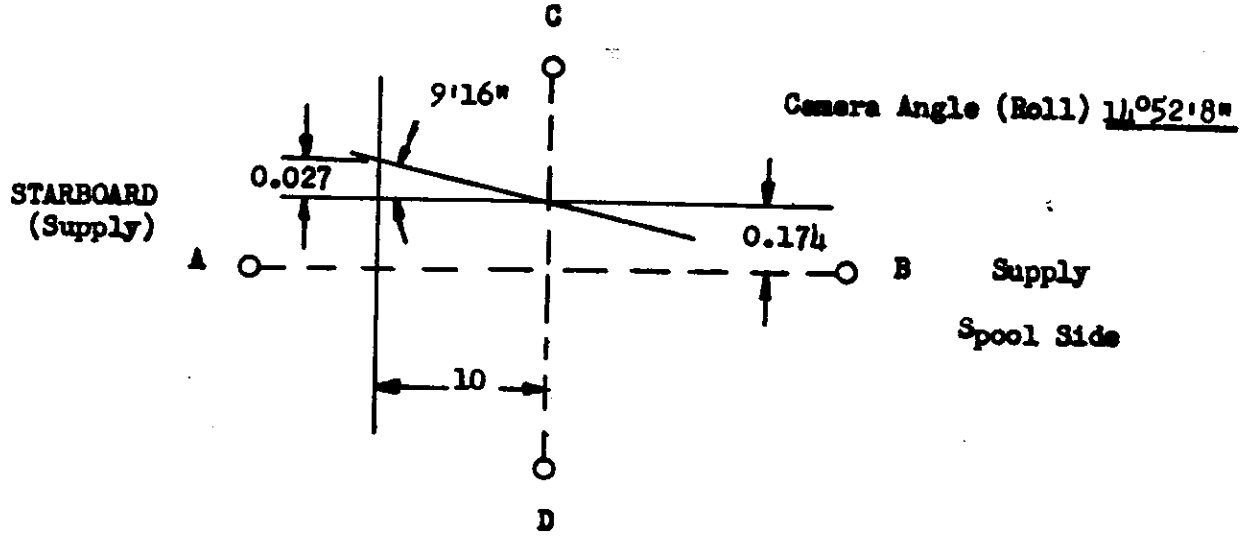
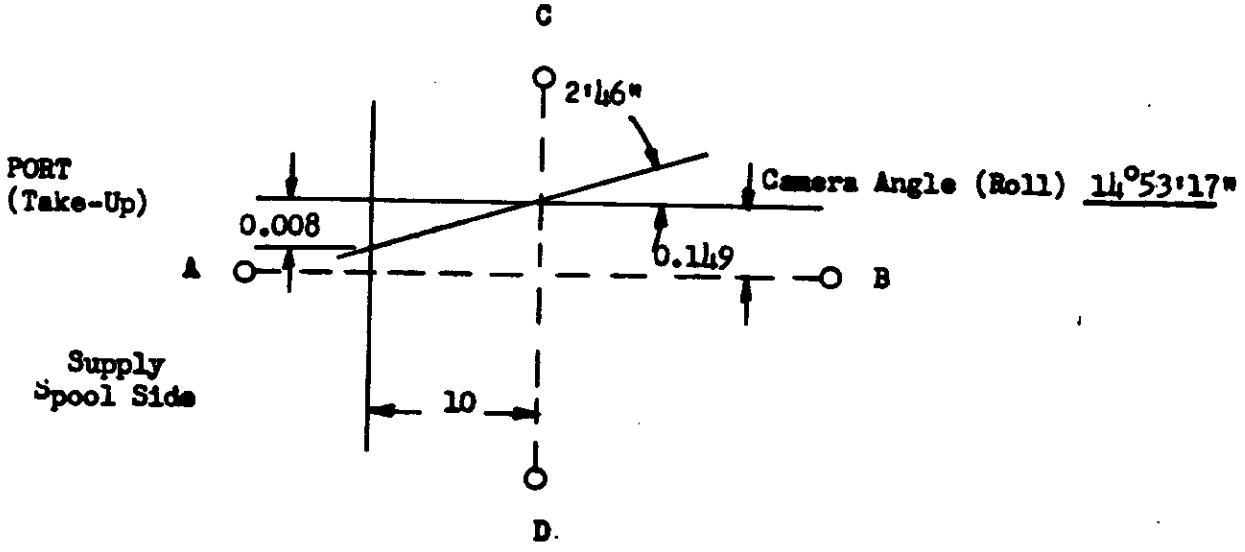
HORIZON ALIGNMENT

(Emulsion Up)

Note: Dimensions in MM



Top of Camera



Top of Camera

[redacted]

To: [redacted]

November 17, 1961

From: [redacted]

Subject: DOSIMETER READINGS, FTV 1118

1. Following are accumulated dosage readings above background of nuclear dosimeters aboard FTV 1118:

Pack	1A	-	15 millirods
	1B	-	15 "
Pack	2A	-	15 "
	2B	-	15 "

2. Request inclusion in PIC Data Book.

[redacted]
SETD Manager

[redacted]

[redacted]