

## FLIGHT SUMMARY REPORT

**Flight #:** 91-101  
**Date:** 5 June 1991  
**Sensor Package:** Wild-Heerbrug RC-10  
Thematic Mapper Simulator (TMS)  
**Area(s) Covered:** Michigan and Wisconsin

**Investigator(s):** Peterson, NASA-ARC  
**Flight Request:** 91B203C

**Aircraft #:** 706  
**Julian Date:** 156

### SENSOR DATA

<b>Accession #:</b>	04228	-----
<b>Sensor ID #:</b>	026	101
<b>Sensor Type:</b>	RC-10	TMS
<b>Focal Length:</b>	12" 304.97 mm	-----
<b>Film Type:</b>	Aerial Color SO242	-----
<b>Filtration:</b>	None	-----
<b>Spectral Band:</b>	400-700 nm	-----
<b>f Stop:</b>	4	-----
<b>Shutter Speed:</b>	1/200	-----
<b># of Frames:</b>	77	-----
<b>% Overlap:</b>	60	-----
<b>Quality:</b>	Excellent	Good
<b>Remarks:</b>		Erroneous housekeeping data

## Airborne Science and Applications Program

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and *in situ* data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments. The following provides a description of the digital multispectral sensor used for data collection during this flight.

### Thematic Mapper Simulator

The Daedalus Thematic Mapper Simulator (TMS) is a multispectral scanner flown aboard the ER-2 aircraft which simulates spatial and spectral characteristics of the seven Landsat-D Thematic Mapper bands. The specific bands are as follows:

<u>Daedalus Channel</u>	<u>TM Band</u>	<u>Wavelength, <math>\mu\text{m}</math></u>
1	A	0.42 - 0.45
2	1	0.45 - 0.52
3	2	0.52 - 0.60
4	B	0.60 - 0.62
5	3	0.63 - 0.69
6	C	0.69 - 0.75
7	4	0.76 - 0.90
8	D	0.91 - 1.05
9	5	1.55 - 1.75
10	7	2.08 - 2.35
11	6	8.5 - 14.0 low gain
12	6	8.5 - 14.0 high gain

Sensor/aircraft parameters are as follows:

IFOV:	1.25 mrad
Ground Resolution:	81 feet (25 meters) at 65,000 feet
Total Scan Angle:	43°
Swath Width:	8.4 nmi (15.6 km) at 65,000 feet
Pixels/Scan Line:	716
Scan Rate:	12.5 scans/second
Ground Speed:	400 kts (206 m/second)

**NOTE:** Information on data tape format, logical record format, and scanner calibration data may be obtained from the NASA-Ames Aircraft Data Facility at (415) 604-6252 or FTS 464-6252.

**CAMERA FLIGHT LINE DATA  
FLIGHT NO. 91-101**

Accession # 04228

Sensor # 026

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	3627-3634	13:23:20	13:26:33	65000/19800	Clear
C - D	3635-3645	13:30:46	13:35:01	"	Clear; emulsion flaw (frame 3641)
E - F	3646-3652	13:40:08	13:42:31	"	Clear
G - H	3653-3663	13:46:09	13:50:24	"	Clear
I - J	3664-3667	14:22:21	14:23:21	"	Clear
K - L	3668-3673	14:27:13	14:29:08	"	Clear
M - N	3674-3681	14:35:03	14:37:53	"	Clear
O - P	3682-3688	14:42:59	14:45:21	"	Clear
Q - R	3689-3695	14:50:03	14:52:26	"	Clear
S - T	3696-3703	14:56:49	14:59:39	"	Clear; stepwedge overprinted (frames 3701 and 3703)

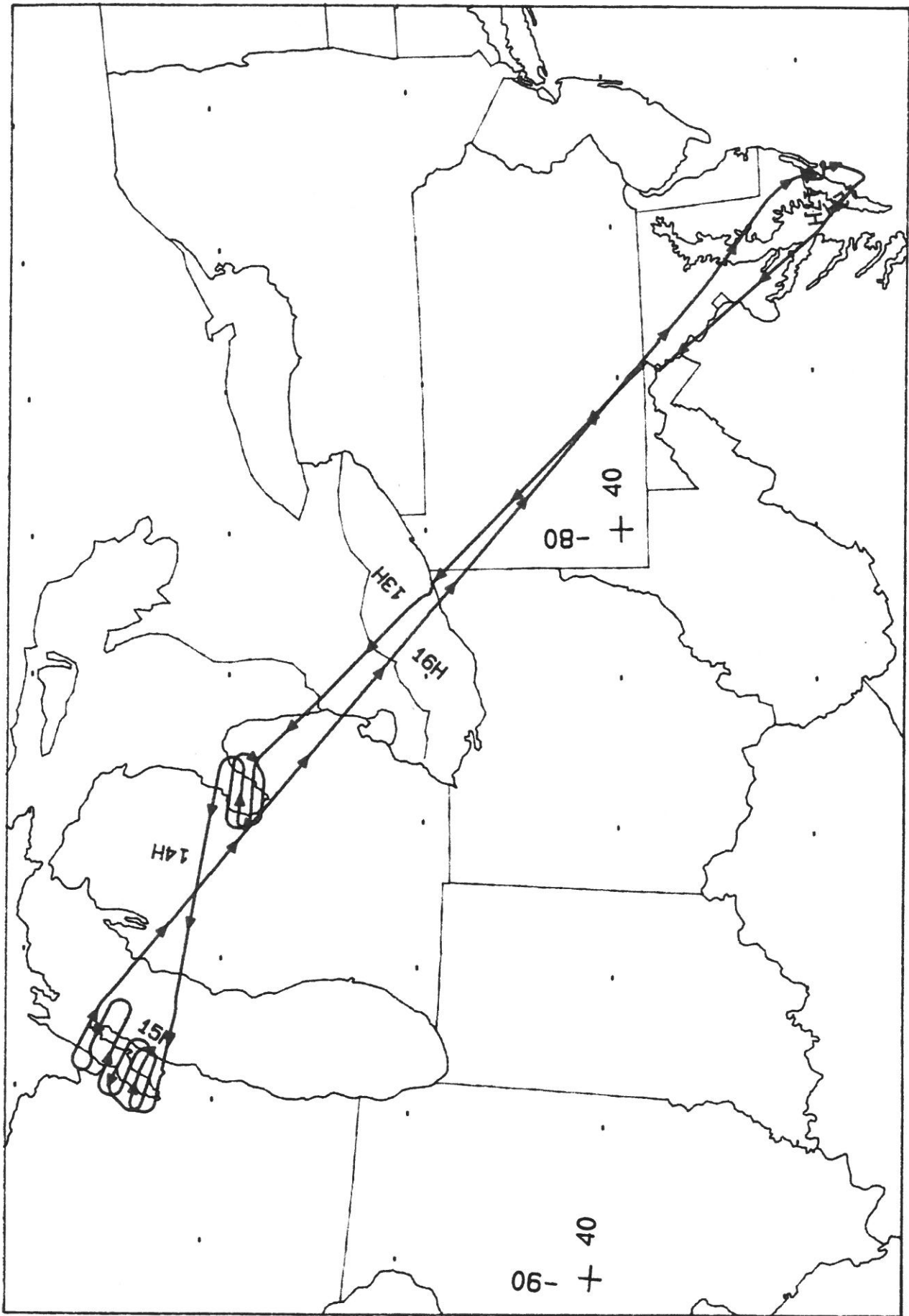
# SCANNER FLIGHT LINE DATA

## FLIGHT NO. 91-101

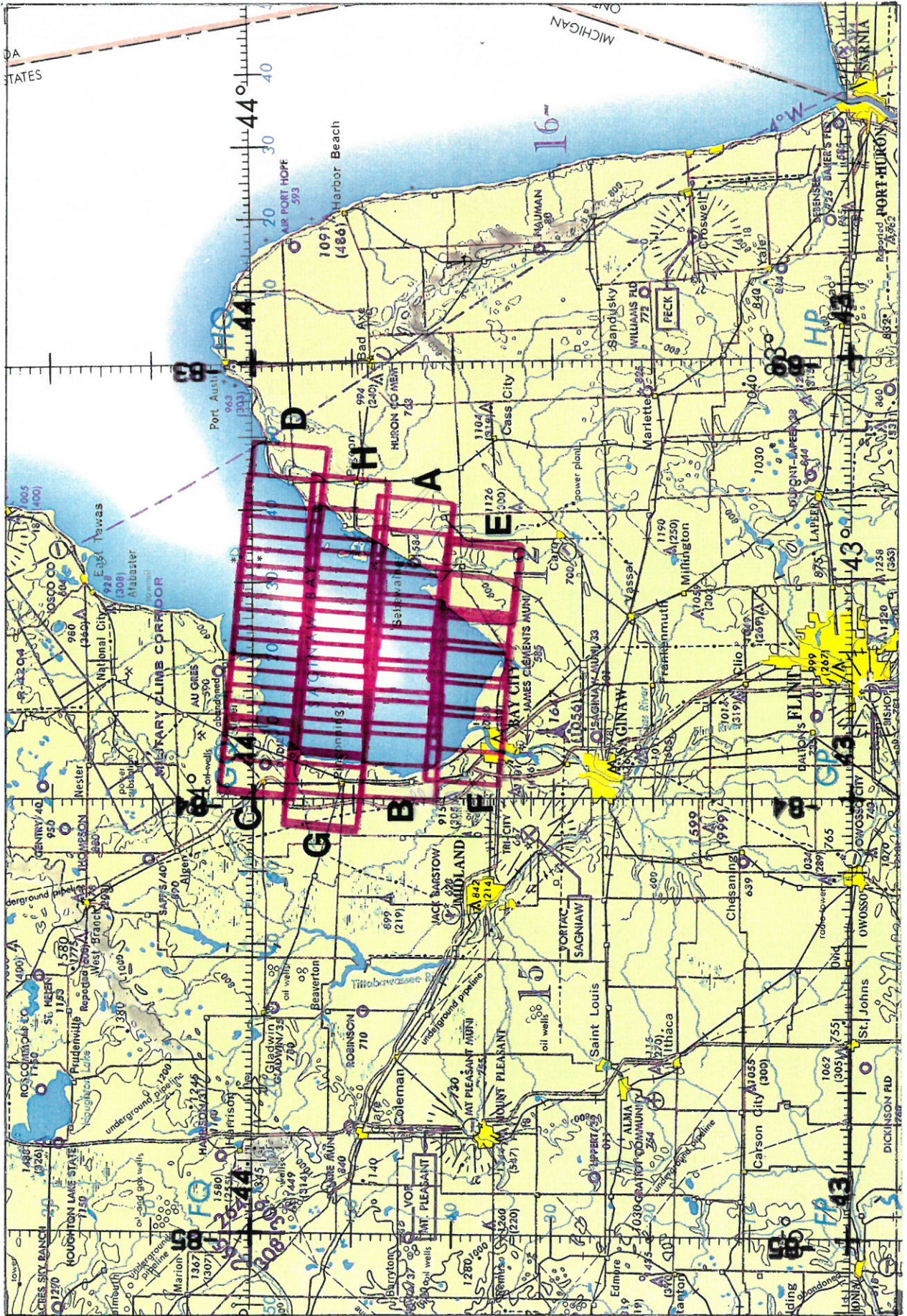
DAEDALUS FLIGHT DATA  
FLIGHT NUMBER: 91-101

Check Points	A c t u a l t i m e b e g i n	(GMT) e n d	A c t u a l s c a n l i n e b e g i n	e n d	A l t i t u d e f e e t / m e t e r	S c a n S p e e d (r p s)	t o t a l G o o d s c a n l i n e s	t o t a l I n t e r p o l a t e d s c a n l i n e s	t o t a l R e p e a t e d s c a n l i n e s
1-2	12:58:59.0	13:19:32.0	61422	76838	65000/19812	12.50	15401	0	16
A-B	13:21:40.0	13:25:08.0	78440	81044	65000/19812	12.50	2601	0	4
C-D	13:29:01.0	13:33:33.0	83958	87360	65000/19812	12.50	3401	0	2
E-F	13:36:05.0	13:41:01.0	89260	92964	65000/19812	12.50	3701	0	4
G-H	13:44:22.0	13:48:46.0	95466	98766	65000/19812	12.50	3301	0	0
3-J	13:52:30.0	14:21:40.0	101573	123457	65000/19812	12.50	21801	0	84
K-L	14:25:25.0	14:29:41.0	126261	129461	65000/19812	12.50	3201	0	0
M-N	14:33:25.0	14:36:05.0	132261	134261	65000/19812	12.50	2001	0	0
O-P	14:41:17.0	14:44:46.0	138170	140778	65000/19812	12.50	2601	0	8
Q-R	14:47:59.0	14:50:47.0	143190	145296	65000/19812	12.50	2101	0	6
S-T	14:54:39.0	15:00:56.0	148196	152902	65000/19812	12.50	4701	0	6
4-5	15:04:32.0	15:07:36.0	155604	157906	65000/19812	12.50	2301	0	2
6-7	15:13:04.0	15:42:13.0	162008	183872	65000/19812	12.50	21815	0	50

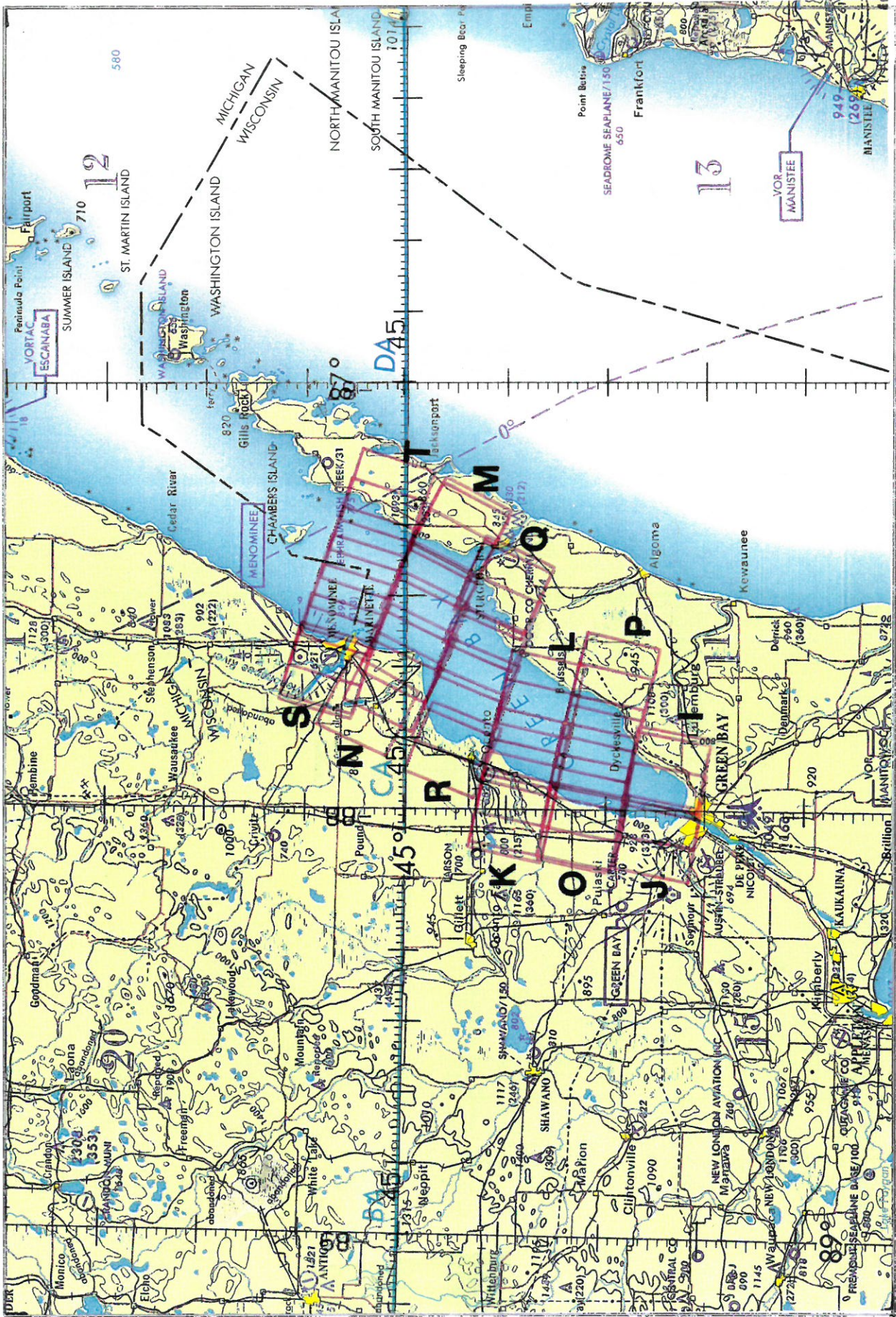
HOUSEKEEPING THUMBWHEELS INCORRECTLY SET FOR 91100151 SHOULD BE 91101156



FLIGHT 91-101 5 June 1991 A/C 706 TMS / RC-10 Michigan / Wisconsin



FLINT 91-101 5 JUN 1993 A/C 706 TMS / MC-10 ACCESSION # 04228 GNS F-10



FLIGHT 91-101      5 June 1991      A/C 706      TMS / RC-10      Accession # 04228      ONC F-18

