

12-701

ROUGH DRAFT

The 989 Program has been performing invaluable and unique SIGINT collection since system inception more than 15 years ago, Optimally designed to utilize excess space and weight on low altitude photographic satellites and thereby attain a "free" ride into space, the 989 system has used its relatively small collection platform in a creative and cost effective manner as is indicated by the following systems characteristics:

- o Gyroscopic "spin" stabilization
- o Use of earth magnetic field to control spacecraft attitude and spin rate
- o Most compact, space qualified, 1 MHz tape recorder in existence

In over 30 separate missions, the payloads have progressed from simple limited purpose devices to sophisticated receivers covering up to 16<sup>G</sup> MHz of radio frequency spectrum. The multiple missions have included ELINT, COMINT, and telemetry, as well as several unclassified systems which did mapping of the Van Allen radiation belt. Some system improvements over the program history are:

	<u>Initial</u>	<u>Present</u>
MMD	3 months	<del>24</del> <sup>30</sup> months
Location accuracy	<input type="text"/>	<input type="text"/>
Data timeliness	Days or weeks	2 hrs

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All of these improvements have been accomplished while remaining with the constraint of the initial basic spacecraft structure.

Some significant intelligence contributions during the years have been:

detection and analysis of numerous soviet ABM radars, unique coverage

of the higher soviet radar <sup>fire control</sup> frequency bands, geolocation

discovery of several satellite uplink command signals, contributions to SAC

EOB, and analysis of lobing structure of complex soviet radars.

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## 989 SYSTEMS

<u>MISSION</u>	<u>LAUNCH</u>	<u>PROGRAMMED LIFE</u>	<u>STATUS*</u>
Mabeli	20 Jan 72	12 Mo.	10% operational
Ursala I	7 Jul 72	15 Mo.	Failed Jan 76
Ursala II	10 Nov 73	15 Mo.	Marginal use since Feb 76
Tophat II	10 Apr 74	24 Mo.	Marginal use--only 1 tape recorder left.
Raquel I	29 Oct 74	24 Mo.	Fair operational status
Ursala III	8 Jul 76	26 Mo.	Good shape

\*989 systems tend to gradually degrade rather than totally fail

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ELINT Systems History

WORKING COPY

SYSTEM	MISSION Number	IRON Number	SDC Number	Launch Date	Decay Date	Inclination	Appogee	Perigee
URSALA I	7338	7803	6096	7 Jul 72	6 May 78			
URSALA II	7342	7705	6931	10 Nov 73	Jun 80	96.3	247 NM	229 NM
URSALA III	7343	5366	9008	9 Jul 76		96.4	354 NM	337 NM
URSALA IV	7344	5282		Mar 79				
RAQUEL I	7341	6239	7498	29 Oct 74		96.0	288 NM	275 NM
RAQUEL IA	7345	7858	10734	16 Mar 78		95.8	364 NM	344 NM
MABELI	7339	7719	5772	20 Jan 72	Feb 79	96.5	267 NM	231 NM
TOP HAT I	7334	6829	4722	18 Nov 70	13 Aug 74			
TOP HAT II	7340	6935	7247	10 Apr 74	Feb 81	93.98	279 NM	267 NM
						96.0	288 NM	275 NM
						95.8	364 NM	344 NM
						96.5	267 NM	231 NM
						93.98	279 NM	267 NM

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\* NEVER ACHIEVED ORBIT

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BYEMAN  
Control System Only