

I was working for RCA in Florida. One day I saw an AC Spark Plug station wagon in the parking lot. The following April I was re-employed by AC-Milwaukee to work on the flight testing of their THOR inertial guidance system at Cape Canaveral. My job was to do analysis of pre- and in-flight test data as obtained via hardwire or telemetry and displayed on long strip chart recorders.

In 1959 I was transferred to a Sled Test Program at Holloman AFB in New Mexico. We were testing new designs for inertial instruments to be used in the TITAN ballistic missile. The rocket-driven sled generated a hi-g acceleration environment to simulate the boost phase of a missile flight. In January 1961, I was transferred back to the AC AMR test group to work on the TITAN I missile flight test program. A year later I was promoted to Head of the AC AMR Test Group (Site manager). In that position I exercised Guidance HOLD-SCRUB-LAUNCH authority on over 30 TITAN II test flights. I continued as Site Manager during the Site Activation phase and the launch of 3 TITAN III Space Boosters.

In 1964 I was transferred back to the home office in Milwaukee, promoted to Head of the Flight Readiness Verification Section and invited to enjoy the Executive Dining Room. The TITAN III was to be a booster for the Air Force's Manned Orbital Lab. As such, a great effort was made to insure "Zero Defects" in the flight test of the TITAN III system. My job was to consider all guidance field failures to understand the failure analysis and corrective actions or to identify the reason why "Zero Defect" objectives were unrealizable. My findings were reported to the Plant Manager, who was contractually obliged to travel to AMR for a pre-flight review of field failures chaired by an AF Colonel from the Ballistic Missile Office in San Bernardino, CA. The purpose was to convince the Air Force that all reasonable effort had been expended to minimize the flight risk. Needless to say, the entire AC organization spared no effort to keep the Plant Manager out of hot water. We had no flight failures. In my opinion, the "Zero Defects" objective can be approached (nothing is

perfect) only if management is actively involved in the effort.

After a cold Milwaukee winter of '64-'65 I remembered why I left Buffalo. I contacted associates at AMR and was employed by TRW Systems Group as Manager of the Data Analysis and Range Instrumentation Group, Minuteman Project Office. TRW was acting as the AF System Engineer providing technical direction to AF contractors. In



Bill Javert
Circa 1962

early 1968 Minuteman III guidance systems were exhibiting an unacceptable failure rate. A Minuteman Recovery Program was initiated by the Air Force. Numerous TRW engineers descended upon Autonetics (the guidance contractor). I was assigned as TRW Resident Engineer at Autonetics in Anaheim, California. I worked with the so-called Reliability Control Office. One group function was to do diagnostic tests and failure analysis on systems that exhibited the intermittent "Glitch" type failure, which defied normal factory test and analysis processes. The Tiger Team finished its work in about six months and I returned to TRW-Atlantic Missile Range.

Off and on over the years at AMR my hobby was to instruct evening graduate school classes on "Servomechanisms" and "Inertial Guidance." In April of '68 I received a cer-

tificate for having "served with distinction as a member of the Faculty of Florida Institute of Technology."

In December 1969 the Minuteman test program at AMR ended. On January 1, 1970, I and most of the Minuteman Project Office personnel were terminated. The aerospace industry was in a depression and engineers were a dime a dozen. I set myself up as a programmer and consultant on application of my digital computer to small business.

In April 1972 Honeywell management invited me to become an employee. A year later I was transferred to the Honeywell Aerospace Department. In January 1974, an associate at TRW's Minuteman III Program Office offered me a job in his (inertial) Guidance & Control System Engineering Department at Norton AFB, California. My first major task at TRW-Norton was to serve on a source selection board to evaluate three different proposals for production of the AIRS inertial measurement unit (IMU) designed by the Charles Stark Draper Labs at MIT. Prior to my arrival at TRW-Norton my professional concerns were with failure detection and analysis in the factory and field testing of inertial guidance systems. At Norton I became involved in the effort to use the test data to develop the error model -error budget- accuracy estimate for the Minuteman III and / MX/ guidance systems. As production expanded I found myself in the business of updating accuracy estimates as the factory test data bases became more statistically significant.

In February 1985 I was transferred to TRW's Advanced Ballistic Reentry Program. The objective of the program was to develop a maneuverable aerodynamic reentry vehicle (MARV) that could take evasive action during reentry in the target region. My task was to define an error budget. After release from the booster the MARV was spun about its roll axis to maintain that axis fixed in inertial space during the free fall (ballistic) phase of flight. On reentry the spinning stopped. MARV attitude rates were to be sensed by a set of three nominally

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