



Mitigation of Supplier Issues

- **Problem: Quality issues at payload supplier and subtier suppliers resulted in late deliveries**
 - No formal certification program for assemblers and inspectors
- **Solution: Identify training, maintenance and surveillance plan to restore quality**
 - Provided on-site training, testing and certification at supplier
 - Assisted them in establishing their own certification process
 - Established resident manager and quality engineer at supplier's facility
 - Assessed, recommended and implemented process improvements at supplier
 - Photos, wiring guides, inspection templates, etc.
 - Included supplier's facilities in quality audit business rhythm Verification & Assessment Planning and Reporting (V&A audits)
 - Included supplier in our monthly Corrective Action Boards (CABs)
 - Assisted supplier in establishing their own CABs
 - Established weekly "Lessons Learned" meeting with all production personnel
 - Shared metrics, photos, etc. of recent escapements
 - Provided significant engineering resources for parts engineering, failure analysis, etc.

Supplier has successfully delivered all payloads with no subsequent escapements or failures



Mitigation of Supplier Issues

- **Problem: Late delivery from payload supplier (ITT) preventing LM from meeting the space vehicle delivery commitments**
- **Solution: Build a pathfinder payload and space vehicle**
 - Utilize engineering models and qualification units
 - Integrate pathfinder payload on a flight space vehicle
- **Benefits**
 - Provided software integration test bed for ITT
 - Early risk reduction for LM factory integration & test (I&T)
 - Early design integration validation
 - Test script and equipment validation
 - Early risk reduction for launch processing
 - Allowed early end-to-end testing at CCAFS for the Government

First space vehicle delivered 18 weeks after receipt of payload (vs. 26 weeks proposed)

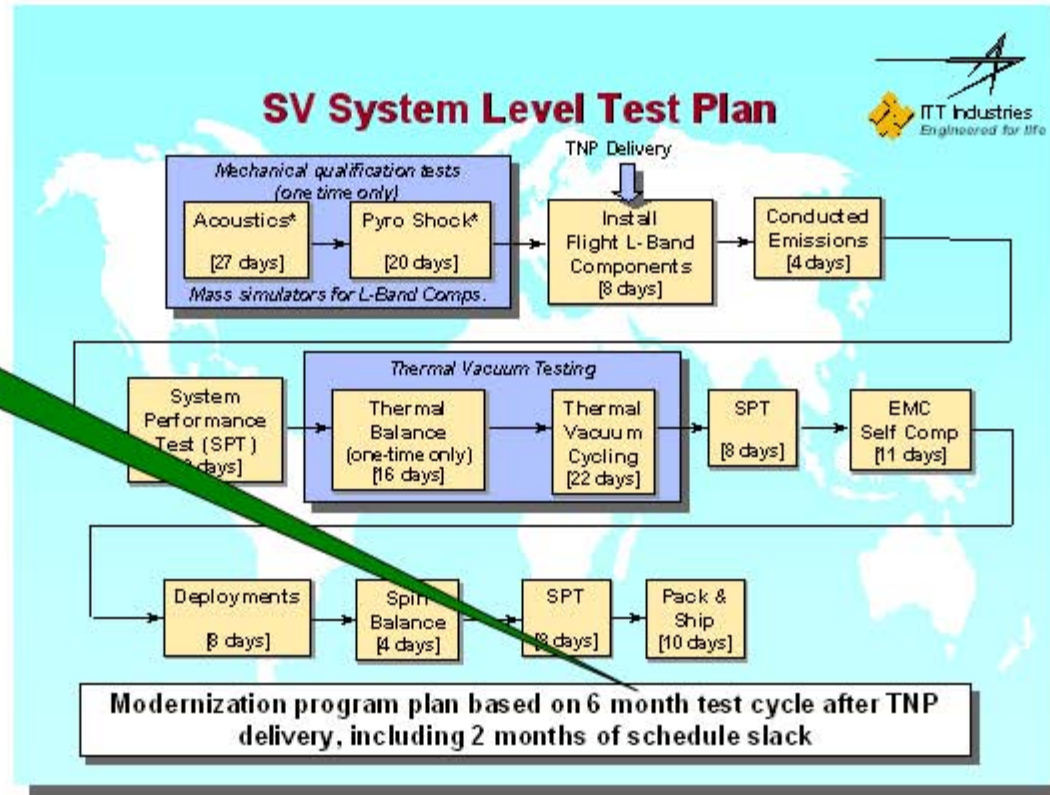


Backup Viewgraphs



1st GPS IIR-M Space Vehicle Test Flow

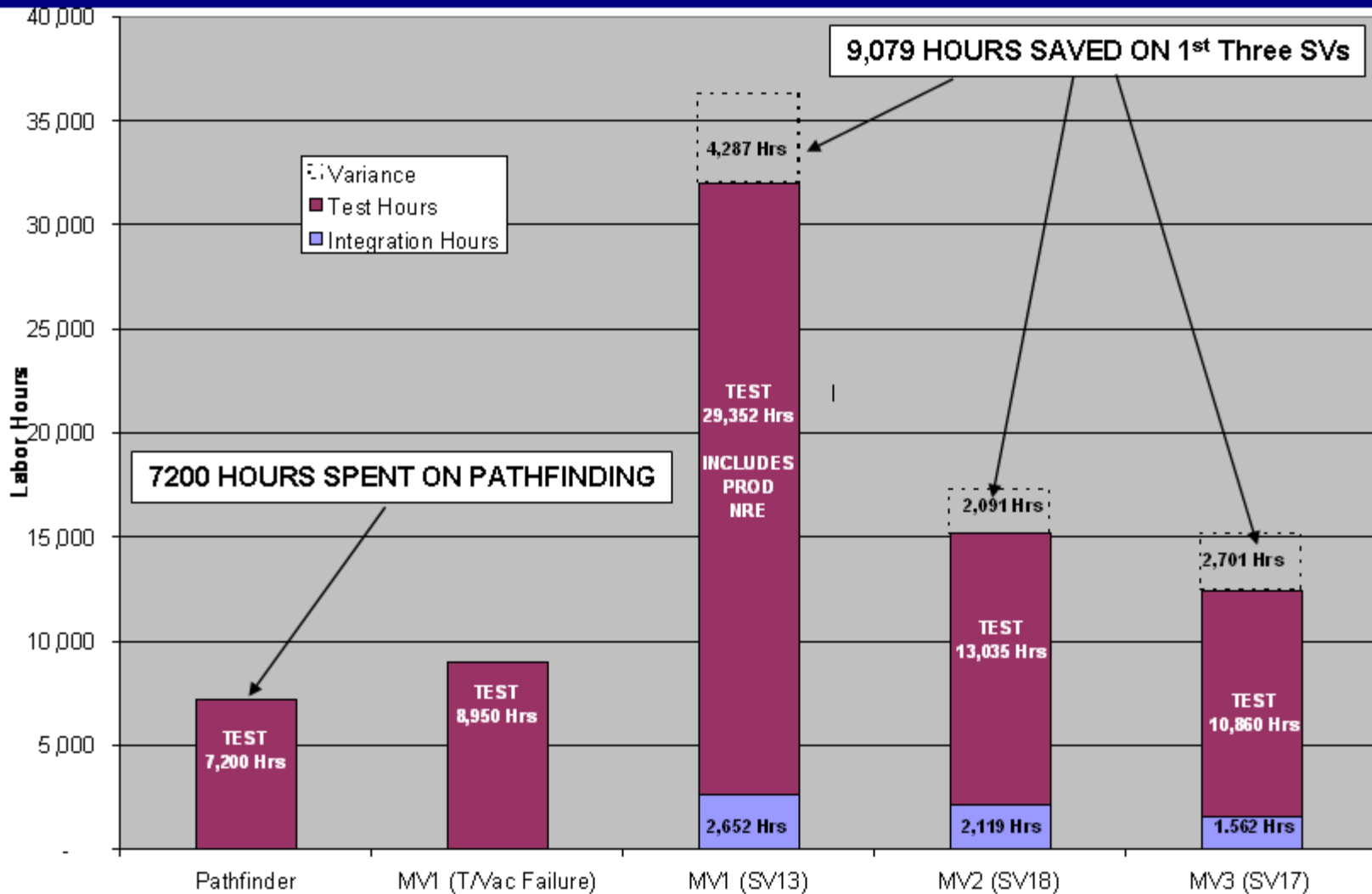
1st SV completed System-Level Test in 4 months, 1 week



The 1st IIR-M Space Vehicle Beat the Test Cycle Promised in 1999



Pathfinder Benefit for GPS IIR-M



Pathfinder activities yielded big dividends for AI&T