

Joint Strike Fighter – Lightning II Monthly Assessment Report

Prepared for the Joint Strike Fighter Program Office
Prepared by DCMA Lockheed Martin Fort Worth



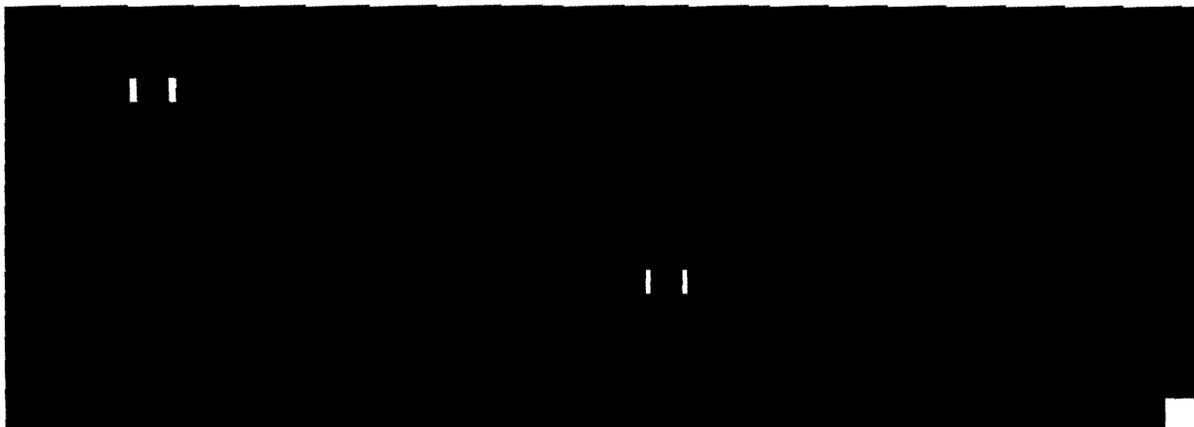
18 December 2008

Table of Contents

JSF Executive Summary	3
Report Scope.....	5
Maintain LRIP Aircraft Delivery Rate	6
Improve Supplier Delivery Rate	7
Improve Supplier Quality Rate	9
Maintain Cost and Schedule	10
Reduce Schedule Variation.....	13
Non-Conformance Reduction.....	19
Safety of Flight (SoF)	20
Improve Software Productivity.....	20
Improve Minor Variance	22
Improve FCA/PCA	23
Improve Minor Change.....	24
Maintain Assist Audit Request Timing	24
Maintain FAR Requests for Contract Closeout	25
Reduce Cancelling Funds	25
Earned Value.....	26
Appendix A – EV Assessment Criteria	26

JSF Executive Summary

As of 12 Dec 08, aircraft testing has been impacted as a result of engine and ejection seat anomalies. Seat anomalies were observed in the ejection sequence during an escape system sled test on 20 Nov 08, with two successive failures occurring during subsequent qualification testing. An investigation revealed that the ejection seat sequencer failed to function properly and the ejection seat operated in back-up mode. Data indicates a communications fault during sequencer power up – bench testing has shown that the sequencer is fully functional following the communications fault. Testing of a new software version is expected Jan-Feb 2009. Flight clearance reinstatement is yet to be determined by Tier 1 – the risk of flying AA-1 and BF-1 prior to the software change has been assigned of Hazard Risk Index (HRI) of 4 (high).



During a borescope inspection of FTE-10 (planned for AF-1 installation) on 22 Nov 08, foreign object damage was discovered that revealed nicks on the fan and compressor blades. Preliminary analysis indicates this damage can be blended and repaired.

SDD/LRIP Production Status (As of 7 Dec 08)	
Forward Fuselage	11 – Assembly 9 – Mate/Sub-Systems/Final
Center Fuselage	12 – Assembly/On-Dock 9 – Mate/Sub-Systems/Final
Aft Fuselage	6 – Assembly/On-Dock 8 – Mate/Sub-Systems/Final
Wing	11 – Assembly 8 – Mate/Sub-Systems/Final
Fuselage Structure Mate (EMAS)	4 – (AJ-1, AF-3, CG-1 & CF-1)
Final Assembly/Sub-Systems/Systems Test/Labs	5 – (BG-1, BF-4, AF-1, AF-2 & AG-1)
Field Ops/ITF	3 – (BF-2, BF-1 & AA-1)

Monthly SDD start and finish activities supporting the execution of MS6.1 continues a negative performance trend. An initial performance improvement was noted in May 2008, after MS6.1 was incorporated; however, degradation of performance continues over the last six months. As of 8 Dec 08, the average negative float to first flight for the remaining eleven flight articles is ~1.6 months, and the remaining six static article completion dates average ~1.0 month behind. Current issues will affect LRIP; presently DCMA estimates a 2.2 month slip to LRIP program schedule.

Unfavorable cost and schedule variances in the Forward, Wing, Aft/Empennage and Mate build operations are directly contributing to Production Operation's downward cost and schedule performance trends since the incorporation of the program replan in July 08.

The Wing has gradually reduced their "out-of-station" tasks traveled to Mate but will still overlap with Mate for sometime. CV Wing models have the potential to negatively impact these favorable trends. Aircraft BF-3 moved to the Calibration Lab in November, is currently is running 46% behind its planned schedule. Wing's reduced "out-of-station" work traveling to Mate has not stopped Mate from traveling more of its own work to the flight line. According to Format 5 CPR (Oct 08), one major root cause of Mate's current schedule variances for AF-2, AF-3 and CF-1 is mainly due to late Wing component delivery to Mate. In order to have a positive impact on overall throughput (rollout), LM Aero must find a way to simultaneously continue to reduce "out-of-station" tasks and improve their ability to start and finish on plan.

█ - █ continues to meet their major delivery commitments to LM Aero, although schedule performance remains under pressure. DCMA █ was notified that █ stretcher has suffered another crack failure and will be down until 1 Jan 09. █ 30 million pound metal stretcher is used in the production of 7050-T7451 plate material. Due to cracks in the machine heads, the capability has been reduced to below 20 million pounds. DCMA █ expects this to be a major program impact starting with ship AF-9 for six critical parts. Team is currently assessing impacts. Issue will potentially cause a major schedule setback requiring extensive re-engineering of the part configuration and/or the material and either hand forged billet or die forgings if the press cannot be restored to the needed operating pressure. LRIP 1 schedule continues to degrade due to late loads. Workaround plans to mitigate part shortages are on-going. Advanced Composite Center (ACC) manufacturing is tracking to recovery plan. LRIP 2 center fuselages AF-8, AF-9, AF-10 & AF-11 are in major assembly. LRIP 2 contract negotiations with LM are on-going - █ does not expect to load the LRIP 2 PMB until Mar 09 with the IBR to follow shortly thereafter.

█ - LM Aero █ agreed to a revised recovery plan to expedite deliveries of the Aft Fuselages while extending the Empennage deliveries (a 2-3 month slip from current schedule deliveries). Planned ship dates for Aft Fuselages: CG-1 20 Dec 08; CF-2 9 Jan 09; CF-3 26 Jan 09 and BF-5 16 Feb 09, Horizontal Tails: CF-1 13 Dec 08; CG-1 16 Jan 09 and CF-2 13 Feb 09 and Vertical Tails: CF-1 6 Dec 08 and CG-1 9 Jan 09. █ cure time and dimension critical production operations were suspended for approximately 5 days in early Dec 08 due to a frozen thermostat, which caused the factory ambient temperature to rise from 25 to 33 degrees Celsius. Although both Aft Fuselage and Empennage lines were initially impacted, DCMA NE reports that the horizontal tail and Aft Fuselage delays have been caught up and the Vertical Tail schedule for CF-1 is impacted by one week.

█ requirements issues, including false requirements and missing estimated completion dates, have obscured true JSF work-in-process material status and schedule performance. Due to the positive results obtained with █ LM Aero and █ teams have engaged a similar █ requirements scrub in November and LM Aero has started an examination of requirements issues on LM Aero █ delivery commitments to █ LM Aero has initiated a continuous improvement lean activity of "JSF Furnished Equipment". The study is initially expected to focus on the F-35 █ management process and includes representation from LM Aero, █ DCMA LMFW and others. A "JSF Furnished Equipment Kickoff Meeting" occurred on 10 Dec 08.

Report Scope

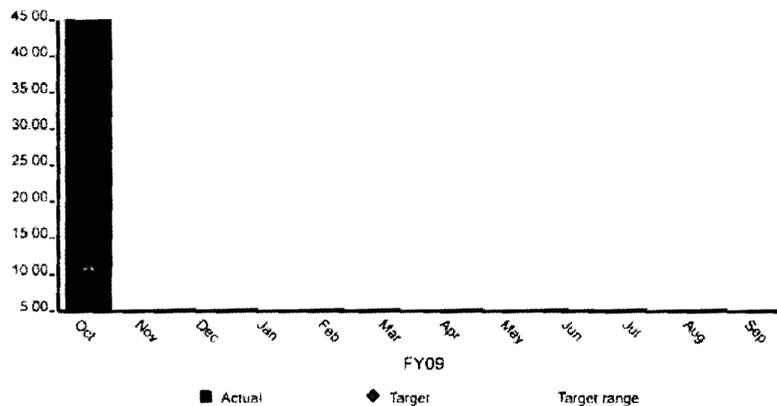
The Joint Strike Fighter – Lighting II Monthly Assessment Report (MAR) is focused on reporting the status of Customer Outcomes and associated Performance Commitments identified in the Memorandum of Agreement with the JSF Program Office. Interdisciplinary teaming between DCMA personnel is used to ensure customer outcomes are ascertained; risks to outcomes are identified and assessed.

Title	Performance Commitment	Metric Rating Criteria	Rating
Maintain LRIP Aircraft Delivery Rate	Maintain LRIP aircraft delivery to within 10 M-days of contract delivery date	Green: ≤10 M-day variance to delivery date Yellow: 11 – 21 M-day variance Red: >21 M-day variance to contract delivery date	
Improve Supplier Delivery Rate	JSF Key Suppliers have an average delivery rating of greater than or equal to 96%	Green: 100.0 to 96.0% Yellow: 95.9 to 87.0% Red: ≤86.9%	
Improve Supplier Quality Rate	Each delegated supplier has quality ratings >96%	Green: ≥ 96% Yellow: 87%-95% Red: <87%	Y
Maintain Cost and Schedule	Resource requirements are aligned in support of funding and budget allocations. IEAC data and projections match actual performance within + / - 10% of contractors budget at completion	Green: 1.0 to 0.95 variance (5%) Yellow: 0.95 to 0.90 variance (5% to 10%) Red: 0.90 or greater variance (>10%)	Y
Reduce Schedule Variation	Reduce the average Wing touch labor variance "at move to mate" to within 10% by SDD completion	Green: < -10% Yellow: -10% to -15% Red: > -15%	Y
Non-Conformance Reduction	10% reduction in MRB discrepancies per year	Green: < the goal of 21 Yellow: within 10% of the goal Red: >10% above the goal of 21	G
Safety of Flight (SoF)	Number of SOF inspections passed on first attempt to the number of SOF inspections conducted	Green: >85% Yellow: 80%-84% Red: <79%	G
Improve Software Productivity	Defect phase containment (DPC) will be improved at least 10% over the Block 0.5 value (73.2% DPC) when progress is 98% complete for Block 1.0	Green = Block 1.0 DPC ≥83% Yellow = Block 1.0 DPC at least 73% but less than 83% Red = Block 1.0 DPC <73%	G
Improve Minor Variance	Maintain at least a 95% correct classification rate of variances	Green: % of properly classified minor variances is ≥95% Yellow: 90% up to but not including 95% Red: <90%	G
Improve FCA/PCA	Ensure that at least 95% of systems reviewed in interim FCA/PCAs meet the design requirements	Green: % of parts meeting design requirements is ≥ 95% Yellow: 90-94% Red: <90%	G
Improve Minor Change	Ensure that 95% of minor changes are correctly classified	Green: >95% Yellow: ≥90% to ≤95% Red: <90%	G
Maintain Assist Audit Request Timing	Process contractor/PCO requests for domestic/international Assist Audits within 2 business days 85% of the time	Green: >84% Yellow: 75%-84% Red: <75%	G
Maintain FAR Requests for Contract Closeout	Maintain 94% contract closeout actions within the Federal Acquisition Regulation (FAR) mandated timeframes	Green: >93% Yellow: 85%-93% Red: <85%	G
Reduce Cancelling Funds	90% of canceling funds will be billed and/or de-obligated before the end of the fiscal year	Green: >89% Yellow: 80%-89% Red: <80%	G

Maintain LRIP Aircraft Delivery Rate

PC – NSF198AJ17: Description: Maintain LRIP aircraft delivery to within 10 M-days of contract delivery date. The Maintain LRIP Delivery Rate is an Integrated Master Schedule (IMS) based metric of the monthly average (+/-) float manufacturing days (M-days) of all reported LRIP aircraft to their contract delivery schedule (DD-250). Goal is to maintain delivery of LRIP aircraft to within 10 M-days of contract delivery date. **Note: Float M-days are entered as positive values, but represent behind schedule status.** Monthly IMS LRIP CDRL data is directly used as data source. Data shall be updated NLT the 20th of each month. Total Float of all reported aircraft in flow will be averaged monthly for metric. Green: ≤10 M-day variance to delivery date, Yellow: 11 – 21 M-day variance, Red: >21 M-day variance to contract delivery date.

YS-AJH DCMA LMFW F-35 NSF198AJ17 Maintain LRIP Acft Delivery



Data as of: October 2008

Metric Status: Red

Trend: Improving

Summary of Metric Status: Metric is currently -45 Mdays (~2.2 months) for month end October.

Root Causes: There are a total of 23 LRIP 1 past due finish items this month, the majority of which are in the Forward Fuselage. There are 5 LRIP 2 past due finish items this month. All Forward Fuselage late items are driven by late part deliveries.

While late parts are continuing to impact AF-6 and AF-7 build, the Critical Path driver for both AF-6 and AF-7 continues to be the projected late delivery of the Aft Fuselages. [REDACTED] LRIP schedule performance continues to degrade due to late loads. The baseline delivery date for AF-6 center fuselage was 27 Mar 09 and the current projected date is 22 Apr 09. However this date is already impacted by a ripple effect in the production line of delayed jig loads caused by the late keel delivery for CJ-1.

Contractor Actions: LM Aero [REDACTED] agreed to a revised recovery plan to expedite deliveries of the Aft Fuselages while extending the Empennage deliveries. For LRIP 1, as parts arrive, it is expected that the Forward Fuselage Build team will recover schedule and that this component will move to Mate without impact to scheduled DD-250.

DCMA Actions: DCMA P/SI, PA Production and PA D&I Team members are in the process of adding two JSF specific L M A ero/DCMA Joint Process Review to the 2 009 list as part of our strategy to influence LRIP aircraft deliveries. In addition to joining the PI group during their BOM audit in early 2009, the two JSF specific Joint Process Reviews will be JSF Product Discipline and JSF Production Control/LDD. In September, DCMA discussed new processes and metrics being developed by LM Aero Production Control. For this reason, the intention is to perform a JPR during the latter part of 2009 after these processes and metrics have been put in place.

Estimate when PC will achieve goal: TBD – Part deliveries to various SWBSs continue to impact build activities.

Data files have been created to support SCOP reporting of AF-6 and AF-7 (LRIP-1) and will be used to populate the following table. This table includes the total SCOPs planned per A/C, the number of SCOPs completed as of the reporting period, the percentage of SCOPs completed relating to the total planned for the specific test article and the percentage of testing completed prior to test article rollout from the factory to the flight line (Rollout).

SCOP testing starts once the aircraft build enters SWBS 240. The current IMS baseline finish dates are 19 Jan 09 and 9 Feb 09 for AF-6 and AF-7 respectively. We can expect data collection to commence during that timeframe.

SCOP Completions per Test Article / Aircraft (A/C)

Test Article	Total SCOPs Planned	SCOP Completed	% Complete (Total A/C)	% Complete prior to Rollout
AF-6	73	-	-	Est. Oct 09
AF-7	73	-	-	Est. Nov 09

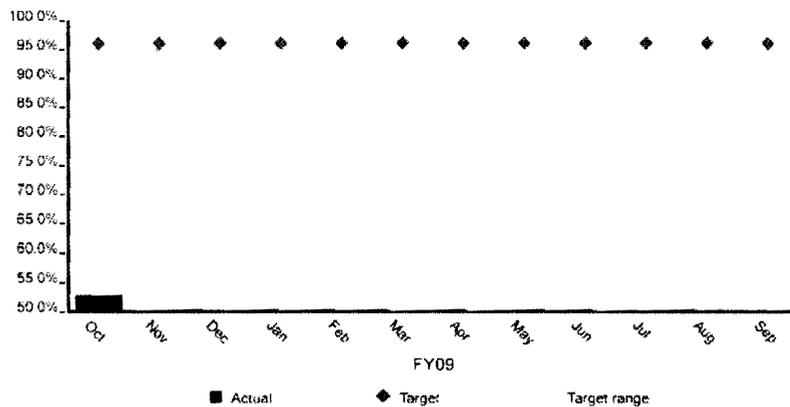
Currently 73 SCOPs and 7 AEI's (Aerospace Equipment Instructions) are formally released against AF-6 and AF-7. These numbers are certain to increase as the LRIP-1 builds mature over the next year.

█ – Risk to schedule is currently driven by SDD/CV units experiencing schedule impacts. █ is working to an internal schedule that reflects AF-6 delivery of 22 Apr 09 and AF-7 delivery of 13 May 09, however, these dates are already affected by CJ-1's keel late delivery that caused a ripple effect of delayed jig loads in the production line. █ has low confidence for AF-9 through AF-12 deliveries due to compressed cycle time (~3 weeks) and late parts history. AF-12's ducts have experienced machine, fit and hole patch issues – delaying their deliveries to PMC. █ anticipates parts availability for LRIP 3 will be worse than currently experiencing with SDD / LRIP 1. Schedule is being stressed since LM Aero had not released LRIP 3 budget for long-lead parts procurement.

Improve Supplier Delivery Rate

PC – NSF198AJ21: Description: JSF Key Suppliers have an average delivery rating of greater than or equal to 96 percent. JSF Key Suppliers are determined by analyzing category 3 and 4 shortages to jig load. JSF Key Suppliers may be adjusted on a quarterly basis as new issues emerge. This metric is a monthly average percent of lots delivered on-time for JSF Key Suppliers. The goal is to achieve an average of 96 percent or greater on-time lot delivery rate. Supplier delivery data is obtained from LM Aero's Supplier Quality Management and Procurement Quality Network databases. These databases are updated on approximately the 15th of each month. The monthly data from each database is reflective of the previous month's performance. This metric will be updated within one week of the LM database updates. Green: 100.0 to 96.0%, Yellow: 95.9 to 87.0%, Red: ≤86.9%.

YS-AJH DCMA LMFW F-35 NSF198AJ21 Imp Supplier Delivery Rate

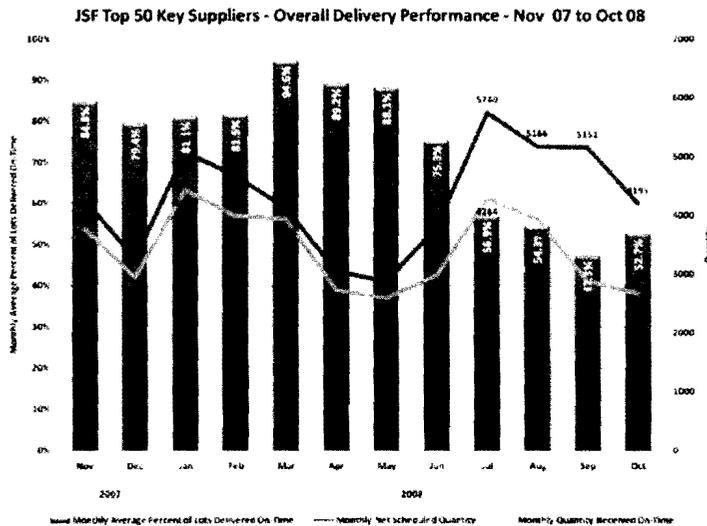


Data as of: October 2008

Metric Status: Red

Summary of Metric Status: Performance commitment for the month of October is rated Red, however, the delivery rate went up 5.4% to a monthly average of 52.7% and showed improvement following a six month decline from a high of 94.6% in May 2008.

The chart below shows the overall delivery performance over the past 12 months for the top 50 DCMA JSF Key Suppliers. The blue vertical bars represent the monthly average percent of lots delivered on-time. The upper red line represents the monthly net scheduled quantity of parts which were to be delivered by these 50 suppliers, and the lower green line represents the monthly quantity of parts received on-time from these 50 suppliers.



Root Causes: Poor delivery performance continues to be attributed to late requirements to suppliers, rapidly changing requirements due to engineering changes, schedule pressures, and material availability (see the focus concern below on forgings).

Contractor Actions: To correct the negative delivery performance, LM Aero has deployed 20+ Supply Chain Managers to focus suppliers. Additionally, they began a Tier 2 initiative called "Deliver the Parts." In this program 25 suppliers have been identified for expanded oversight and assistance, with corporate resources solicited.

DCMA Actions: DCMA is initiating Letters of Delegation to monitor and report on JSF Key Suppliers with significant negative impact on the delivery rate. For example, [REDACTED] had a lot delivery rate of 29.2% for the month of October with 2482 parts scheduled for delivery and 575 actually delivered.

There's an emerging issue with material availability from [REDACTED] and it can be easily confused with the previously known issue at [REDACTED]

[REDACTED] has a 30 million pound metal stretcher which is used in the production of 7050-T7451 plate material. Due to cracks in the machine heads, the capability has been reduced to below 20 million pounds. This impacts six critical parts for the JSF (one of which is a Center Fuselage "fuel floor").

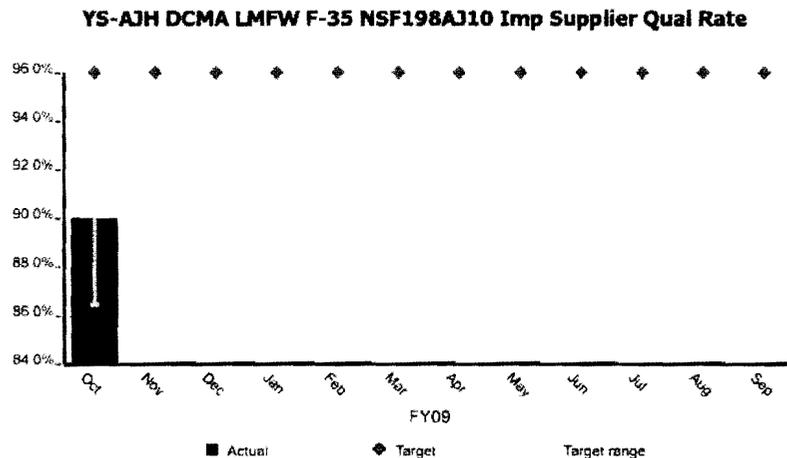
The new emerging issue is with [REDACTED] 50,000 ton press which produces a forging for a different JSF Center Fuselage "fuel floor." Due to a crack in the main base, the press is off-line for approximately six months.

[REDACTED] LM Aero, and the respective suppliers have developed options and made short and long term recommendations for both issues.

Estimate when PC will achieve goal: Improvement is not expected until LRIP 3.

Improve Supplier Quality Rate

PC – NSF198AJ10: Description: Each delegated supplier has quality ratings greater than 96 percent. The total LM Quality rating for key suppliers (areas of consideration are: cost, issues, technical, criticality). The top suppliers are summed and divided by quantity which gives an average QA rating per month. The goal is to achieve an average of greater than 96%. Supplier quality data is obtained from LM Aero's Procurement Quality Assurance database and metric updated no later than the 20th of each month. Green: ≥96%, Yellow: 87 to 95%, Red: <87%.



Date as of: October 2008

Metric Status: Yellow

Trend: For this reporting period there will be no trend – the number of key suppliers has changed for FY09. There are now approximately 23 key suppliers – some airframe suppliers have been added to the list based on the highest number of quality escapes from the supplier during FY08. [REDACTED] have been added as well. These two suppliers are major partners with LMFW and are providing the Aft and Center Fuselages, respectively.

Root Cause: The suppliers that were Red for this month are: [REDACTED] (Center Fuselage), [REDACTED] (Aft Fuselage), [REDACTED] (raw material), [REDACTED] (Flight Opening Door Up-lock System), [REDACTED] (Aircraft Memory System), and [REDACTED] (Electrical Power Generation System). [REDACTED] had numerous anomalies, i.e. inlet door rollers too tight, flex cable improperly installed, undersized hole, fouling conditions, etc. [REDACTED] also had several anomalies identified such as improper bolts installed, a tube assembly was primed and not top coated, shim missing, etc.

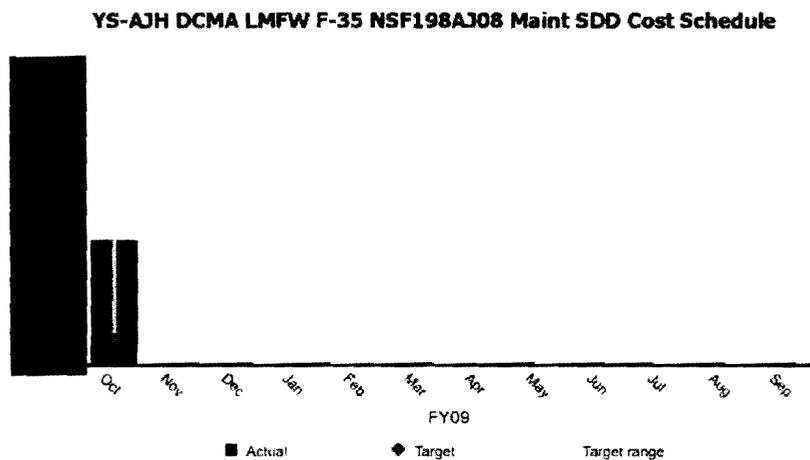
Contractor Actions: Quality Assurance Reports have been issued documenting these anomalies and corrective actions are being tracked.

DCMA Actions: We are investigating the need for a Letter of Delegation (LOD) to DCMA at [REDACTED]. If the trend continues, an LOD will be issued to provide insight into these supplier issues. LODs are in place at [REDACTED] – monitoring of these suppliers for trends and corrective actions continues.

Estimate When PC Will Achieve Goal: Approximately 6 months – after an assessment of supplier trends.

Maintain Cost and Schedule

PC – NSF198AJ08: Description: Resource requirements are aligned in support of funding and budget allocations. IEAC data and projections match actual performance within + / - 10% of contractor's budget at completion. DCMA Independent EAC is measured against the prime contractor's BAC. DCMA includes risk, pressures, cost and schedule variances as compared to LM Aero BAC. The source of EV data comes from the monthly JSF SDD Cost Performance Report which lags by 1 month. Metric is updated in Metrics Manager as soon as data is received from contractor (approximately 45-60 days after end-of-month). This is represented as the contractor's BAC as the Numerator divided by DCMA's IEAC as the Denominator - with a 10 percent tolerance band. Green: 1.0 to 0.95 variance (5%), Yellow: 0.95 to 0.90 variance (5% to 10%), Red: 0.90 or greater variance (>10%).



Lockheed Martin is now reporting to an Over Target Baseline of [REDACTED] reported in the Cost Performance Report (CPR).

The DCMA IEAC is based upon October 08 CPR report. LM Aero has expended about [REDACTED] Million dollars a month on average for the period of May 08 to Oct 08 (last 6 months). Assuming a continuation of this expenditure rate (based upon program performance and expenditures to date) DCMA projects that the existing contract budget with OTB will be depleted in FY2011, approximately three years prior to contract close (BAC of [REDACTED] – ACWP of [REDACTED] remaining). LM AERO EAC 6 and EAC 7 project a significant decrease in SDD staffing by the end of 2009. Even with an immediate 50% reduction in the burn rate the program will have a daunting task of meeting the funding shortfall. The DCMA IEAC considers the additional one year of performance in the new OTS. Another factor was the cost growth of Cost-Plus Suppliers – for example, the Mission and Vehicle System Supplier EAC has grown by [REDACTED] million from June 07 to August 08. Furthermore, unforeseen issues, such as an estimated [REDACTED] overpayment to [REDACTED] – is currently under review.

The October 2008 SDD cost summary and program status is as follows:

	BAC	LM EAC CPR	DCMA IEAC
Performance Measurement Baseline (PMB)			
Management Reserve (MR)			
Total:			

Budget Baseline and EAC Summaries

Contract Data	KT 1	KT 2	KT 3	KT 4
Contract #	N00019-02-C-3002	N00019-06-C-0291	N00019-07-C-0097	N00019-08-C-0028
Name	JSF SDD	LRIP 1	LRIP 2	LRIP 3
Contract Type	Cost Plus Award Fee			
Obligated Amount				
ULO				
Performance Start/End	Oct 2001/Apr 2012	May 2007/Feb 2010	Apr 2010/Feb 2011	Mar 2011/Dec 2011

Primary Trip Wires				Secondary Trip Wires				
System Indicator	Baseline Indicator	Cum BEI	SPI	Cum CPLI	CPI	CPI/TCPI 10%	Contract Mods 10%	Baseline Revs 5%
		0.98	0.987	1.02	0.974	4.6%		N/A

Primary Trip Wires –

- (a) System Indicator: Please see EV section of report.
- (b) Baseline Indicators: A baseline assessment shows the contractors BAC and EAC to be optimistic. To complete the contract within the CBB, the contractor needs to be about 4.6 percent more efficient. The BAC has increased by 40% since the start up in Oct of 2001. The cost growth is likely to increase due to inherent engineering risks in the first versions of STOVL and CV aircraft. The contractors DCROM database for the corresponding month shows a net cost growth of threats and pressures exceeding [REDACTED]

Secondary Trip Wires –

- Baseline Execution Index (BEI): Cumulative tasks from October 2001 thru November 2008: Cum BEI = 133,497 Completed Tasks/136, 014 Planned Tasks = 0.98
- Monthly (November 2008) Tasks: 775 Completed Tasks vs. 1679 Baselined Tasks
- SPI= BCWP/BCWS= [REDACTED] =0.987
- CPLI= (1467 + 30)/1467 = 1.02 (Time Now = 30 Nov 08)
- CPI= BCWP/ACWP= [REDACTED] =0.974
- CPI/TCPI= 0.974/1.021=.958
- Contracts Mods – (BAC now)/original BAC 10/01= [REDACTED] =1.401

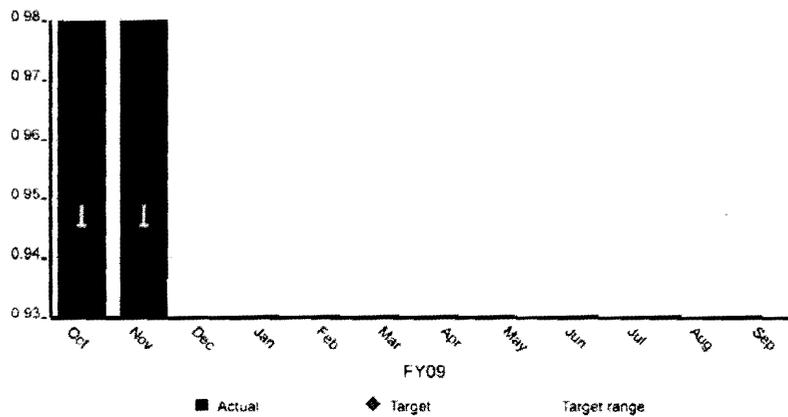
The DCMA Risk Rating for EVMS at the total program level is rated Green using the agreed to parameter of VAC (-4.91%). Compare this to the LM Aero's EAC and one can see a difference of about 5%. Similarly, the TCPI_{EAC} is different when using the DCMA IEAC versus the contractor's EAC:

$$\begin{aligned} \text{TCPI}_{\text{DCMA IEAC}} &= 0.891 \\ \text{TCPI}_{\text{LM EAC}} &= 1.021 \end{aligned}$$

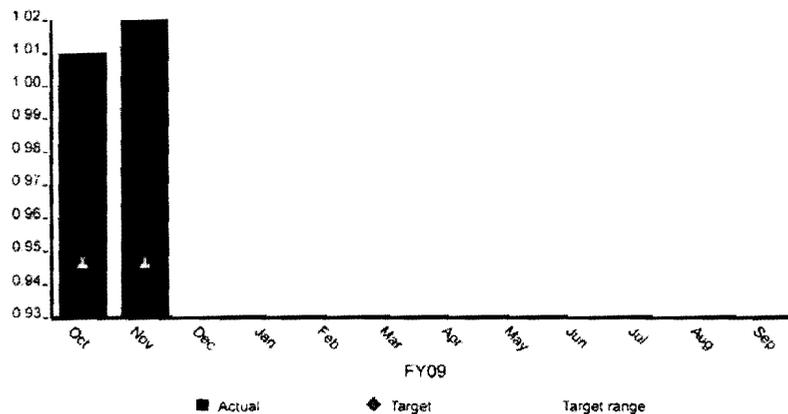
NSF198AJ08 Sub-Metrics: Description: The SDD Baseline Execution Index (BEI) metric is an Integrated Master Schedule (IMS) based metric that calculates the efficiency with which actual work has been accomplished when measured against the baseline. The BEI provides insight into the realism of program cost, resource, and schedule estimates. For BEI, an index of <.95 is used as a warning indication of schedule execution under performance. Goal is to achieve BEI values .95. Cumulative BEI equals actual tasks/activities completed divided by the baseline total tasks/activities.

The SDD Critical Path Length Index (CPLI) indicates whether or not the program schedule can be completed on time. This is an Integrated Master Schedule (IMS) based metric that utilizes the critical path methodology definition being: the longest, continuous sequence of tasks through the network schedule with the least amount of float, from contract start to contract completion. After contract start, the critical path is always measured from "time now" until contract completion. For CPLI, an index of <.95 is used as a warning indication that the program will not complete on time. Goal is to maintain CPLI values .95. Critical Path Length Index (CPLI) equals the Critical Path Length (CPL) plus or minus the Total Float (TF) divided by the Critical Path Length (CPL). The target efficiency ratio for both metrics is 1.00. An index greater than 1.00 is favorable, and an index less than 1.00 is unfavorable. .95 = Green .90 to <.95 = Yellow <.90 = Red

YS-AJH DCMA LMFW F-35 SDD IMS BEI

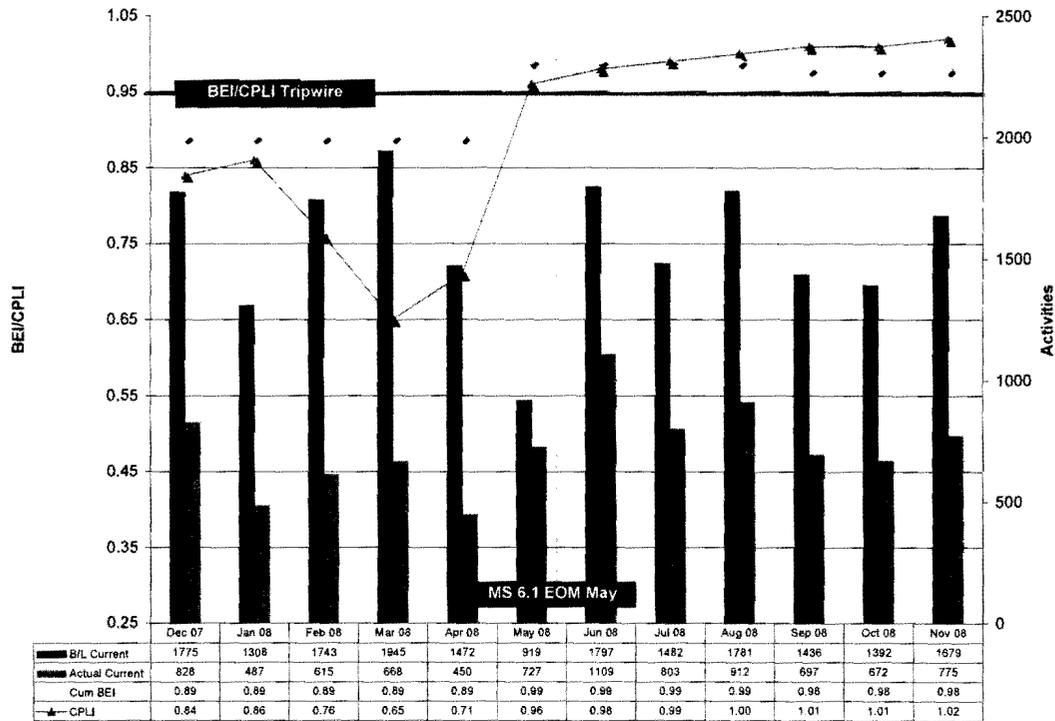


YS-AJH DCMA LMFW F-35 SDD IMS CPLI



Cumulative SDD Program BEI and CPLI sub-metrics are rated Green for this period, with the Cum BEI at .98, and CPLI at 1.02 for month end November.

**Baseline Current vs. Actual Current Finishes/Month
Program Cum BEI / CPLI Trend**

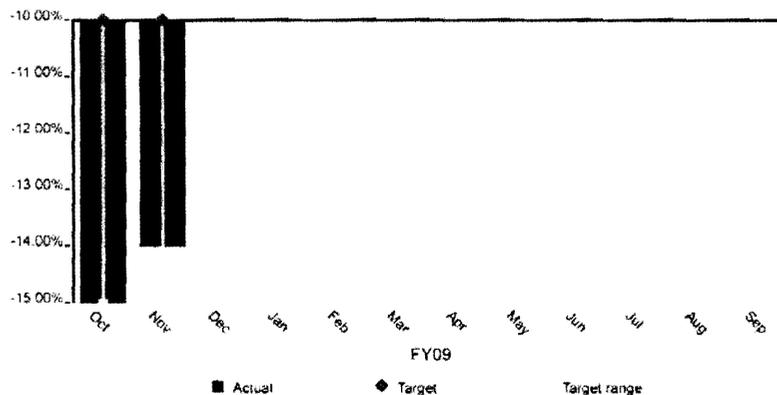


MS-6.1 baseline re-plan dates were incorporated into the IMS month-end May 2008. A decrease in planned monthly performance to baseline task completions continues.

Reduce Schedule Variation

PC – NSF198AJ05: Description: Reduce the average Wing touch labor variance "at move to Mate" to within 10% by SDD completion. In addition to monthly performance indicators, linear trend lines are used to project out subsequent Wing builds that have not moved to mate yet – projection is used to access current and predict future Wing variance performance. Metric will be updated NLT the 20th of the following month. Green: <-10% variance, Yellow: -10% and -15% variance, Red: >-15% variance.

YS-AJH DCMA LMFV F-35 NSF198AJ05 Reduce Schedule Variation



Data as of: November 2008

Metric Status: Yellow

Performance Commitment is rated Yellow this period with a current overall Wing average touch labor variance to schedule holding steady at -14%.

Trend: Improving

Summary of Metric Status: Chart 1 (below) is a breakout of the Wings which build up the -14% variation average. The Wing has gradually reduced their out of station tasks travelled to Mate. This is noteworthy since history has shown that Mate and Final Assembly performance has been significantly affected by the condition (maturity) of the Wing at delivery. The CF-1 Wing moved to Mate just before Thanksgiving on 17 Nov 08 – missing its baseline move date of 19 Sep 08 primarily due to part shortages, Wing skin misalignment and landing gear boring issues.

The CJ-1 Wing is experiencing delays in its outer wing boxes due to late planning and late lower Wing skins. The inner Wing for CJ-1 is delayed due to late planning and part shortages of critical trapped parts. TFE shortages are also impacting critical sequence operations for CJ-1. For the AF-4 Wing, schedule impacts are currently driven by late primary load parts of fuel floors and shear webs along with late planning cards in the inner wing. The AF-4 Outer Wing was not loaded due to tool constraints, part shortages and late planning. For the AF-3 Wing, some schedule impacts include unplanned rework related to NVI duct and fairing rework which required extensive metrology, engineering changes requiring aluminum radius blocks to be replaced with Titanium and the final acceptance process for out Wing skin closures exceeding the standard. Some data adapted from Format 5 CPR (Oct 08) report.

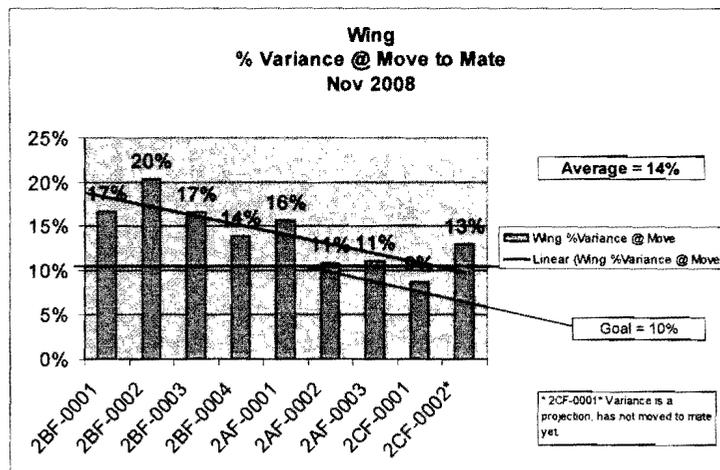


Chart 1

Chart 2 (sub-metric) below is a breakout of some of the aircraft that have either gone through or are in Mate and Final Assembly along with their associated % variance to schedule. BF-3 left Mate and Final Assembly temporarily for the test lab with a 46% variance to schedule. It will return to complete build activities as soon as possible. BF-3's original "rollout" date was 29 Sep 08. No change in the average variance % at move of 33%.

Mate thru Delivery build performances continue to be under pressure to meet schedule requirements. AF-2, AF-3 and CF-1 are behind schedule primarily due to late Wing component delivery to Mate which was driven by part shortages and upper Wing skin miss-alignment issues (CF-1). Other issues include engineering changes, SSOR changes, seam validation discrepancies and work stoppages due to instrumentation.

Mate/System Checkout [REDACTED] is also experiencing delays caused by instrumentation for CF-2 and CF-3 where planning was not released to begin its fabrication activities. For Flight Line Operations [REDACTED] primary issues are centered on coordinating/integrating work with traveled work from the factory, and BF-3's projected late receipt/start at [REDACTED] which has moved to February 2009. Some data adapted from Format 5 CPR (Oct 08) report.

Both charts use SPI data for variance projections on Wings/Aircraft that have not moved to Mate/Flightline yet. Per LM Aero, "The data used in the charts is from shop floor systems and is not auditable data or official EV data. It is for status purposes only."

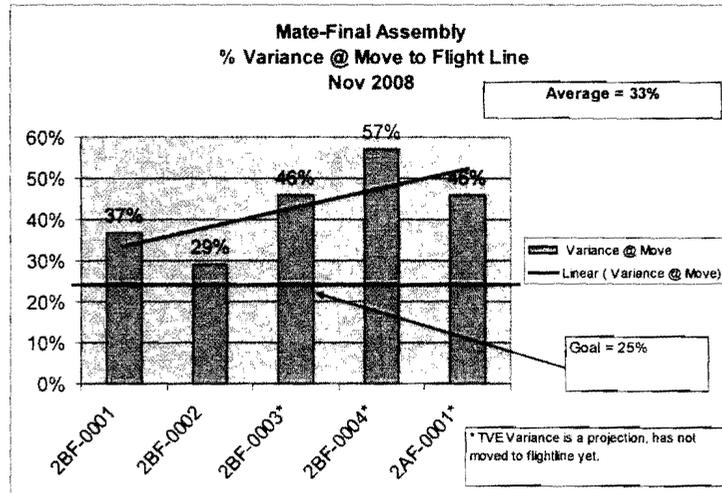


Chart 2

Root Causes: Performance continues to be hindered by: Critical parts shortages, high change traffic, difficult/inefficient work (Out of Station/Out of Sequence/Work-Around Plans, metrology, etc.), integration of flight test instrumentation, etc.), late and/or constant rework of planning and tooling issues/availability.

Contractor Actions: LM Aero continues to put emphasis on Value Stream recovery initiatives: Shortage Resolution Process with consulting company ([REDACTED]), on-site subcontract management support to top suppliers, advanced workable set up teams to review job packages prior to major assembly start, design and tooling updates to reduce metrology work (available for CF-1, AF-3 and starting to show progress), WAM (Wing at Mate) Teams to mitigate planned out of station work impacting Mate (show progress), process improvement initiatives (such as Bracket locating/bulkhead marking and portable/perishable tools) and increased manpower and outsourcing to reduce planning backlog [REDACTED]

DCMA Actions: We regularly interface with LM project teams to assess progress on initiatives, look for process review opportunities, update metrics, reporting progress in monthly report to customer and monitoring impact on Mate.

A Joint Process Review (JSF Wing Special Tooling) was completed September 11-18, 2008 in order to determine the suitability, adequacy and effectiveness of LM Aero's JSF Wing special tooling storage and control processes/procedures.

A total of 18 Findings were documented during the review and each requires LM-Aero corrective action. In addition to the Findings, there were 4 Favorable Observations and 6 Unfavorable Observations where no additional LM-Aero actions are required. Responses to the findings have been received and reviewed.

Six Responses have gone back to the Contractor for further information. The six responses which were returned to the contractor have now been received back and accepted by the JPR team. We will begin the verification process on the shop floor. Once this is complete, the JPR team will close the review.

Estimate when PC will achieve goal: Every first new Variant disrupts the overall PC performance with each subsequent aircraft showing improvement. Goal may not be reached until the end of SDD (2014).

The following table depicts the SCOP completions per test article/aircraft. The table includes the total SCOPs planned per A/C, the number of SCOPs completed as of this reporting period (4 Dec 08), the percentage of SCOPs completed relating to the total planned for the specific test article and the percentage of testing completed prior to test article rollout from the factory to the flight line. This table is provided to better align the data to the new PCs as well as a major milestone (Rollout) for LMFW.

SCOP Completions per Test Article / Aircraft (A/C)

Test Article	Total SCOPs Planned	SCOP Completed	%Complete (Total A/C)	% Complete prior to Rollout
BF-1	123	119	96.7%	27.0% (18 Dec 07)
BF-2	120	107	89.1%	51.7% (16 Aug 08)
BF-3	123	31	25.2%	25.2% (1 Nov 08)
BF-4	128	23	17.9%	
AF-1	101	27	26.7%	
AF-2	95	11	11.6%	1/15/09
AF-3	95	10	10.5%	2/19/09
CF-1	80	5	6.3%	4/10/09

was added 7 Nov 08.

This table is provided to track Wing specific SCOP testing prior to move to mate and percent of testing completed prior to factory rollout.

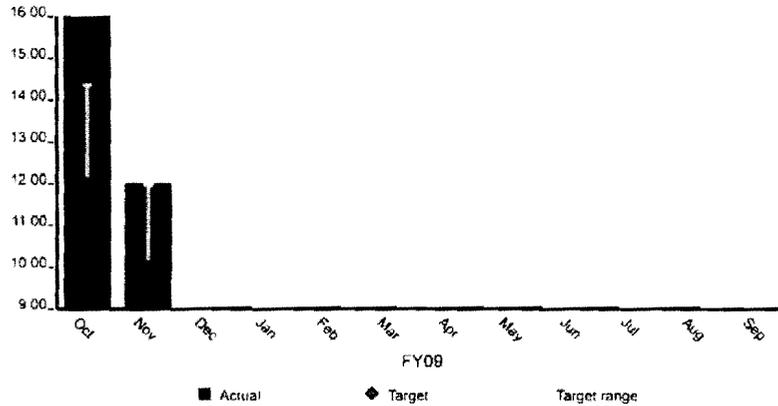
SCOP Completions on Wing Assemblies

Test Article	Total SCOPs Planned to Date	%Complete (No. SCOPs Completed)	% Complete prior to Move to Mate (Assy Move Date)	% Complete prior to Rollout	Max Calendar Day Behind MS 6.1
BF-1	15	100% (15)	0%(5/30/07)	40% (6)	-168
BF-2	18	100%(18)	0%(9/11/07)	83.3% (15)	-216
BF-3	18	44.4%(8)	0%(12/16/07)	44.4% (8)	-175 ¹
BF-4	19	26.3%(5)	0%(3/3/08)	-	-110 ¹
AF-1	15	26.7%(4)	0%(3/27/08)	-	-132 ¹
AF-2	14	7.1%(1)	0%(6/13/08)	-	-98 ¹
AF-3	15	9.7%(1)	0%(8/1/08)	-	-105 ¹
CF-1	10	0%(0)	0%(11/17/08)	-	+5 ¹

¹ Wing testing is still in-work. Travel work from [redacted] will be in effect until LRIP 2. Value is not final until all testing is completed.

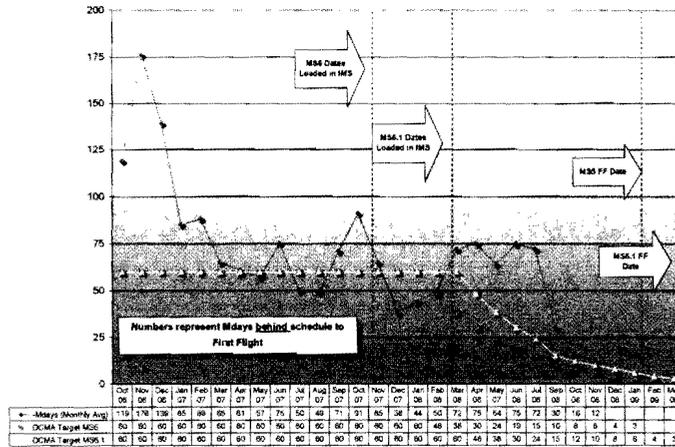
NSF198AJ05 Sub-Metric: Description: Reduce monthly average of negative float manufacturing days (Mdays) of key variant First Flight dates over baseline aircraft's (AA-1) delayed (~80Mdays) First Flight date. BF-4 (STOVL - Mission Systems Article) targets a 50% reduction in negative float over baseline, incorporating a 20% reduction each month in negative float Mdays, AF-1 (CTOL - Optimized vs. AA-1) targets a 50% reduction in negative float over baseline, incorporating a 15% reduction each month in negative float Mdays, 12 months out from Master Schedule First Flight date. (Note: Mdays are displayed as positive values, but represent behind schedule status).

YS-AJH DCMA LMFW F-35 BF-4 First Flight Date

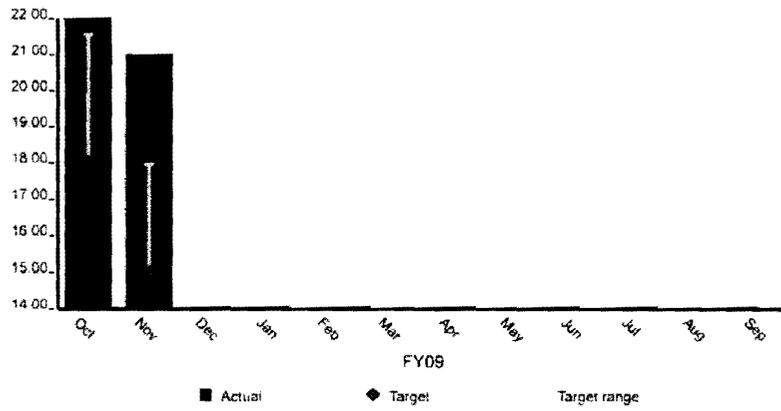


BF-4 sub-metric is rated Red, with a November average of 12 Mdays late to first flight date of 24 Mar 09.

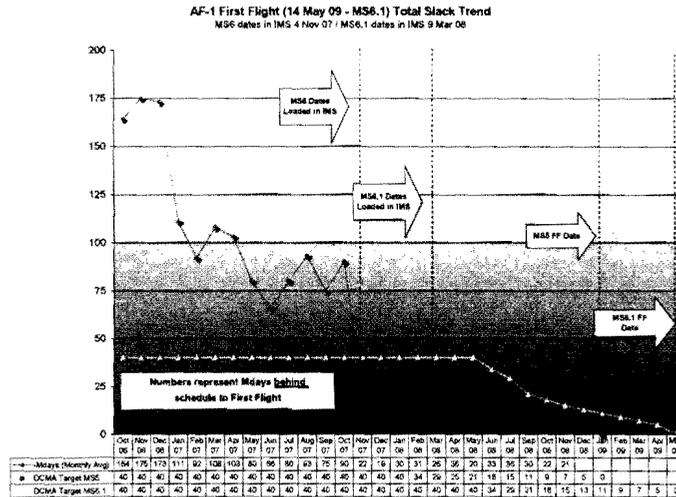
BF-4 First Flight (24 March 09 - MS6.1) Total Slack Trend
MS6 dates in IMS 4 Nov 07 / MS6.1 dates in IMS 9 Mar 06



YS-AJH DCMA LMFW F-35 AF-1 First Flight Date

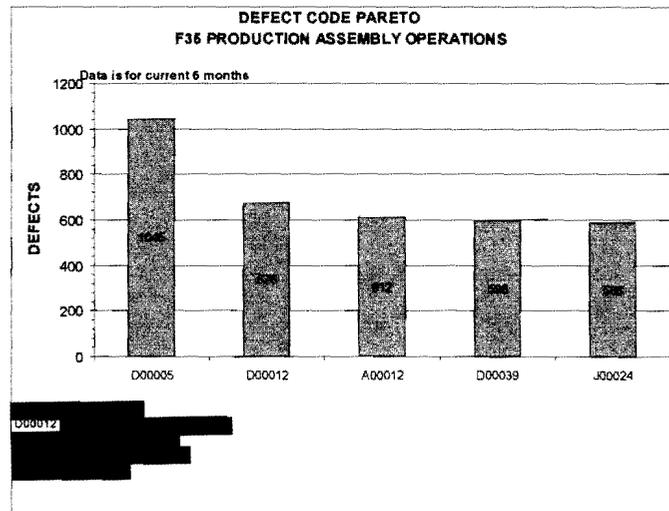
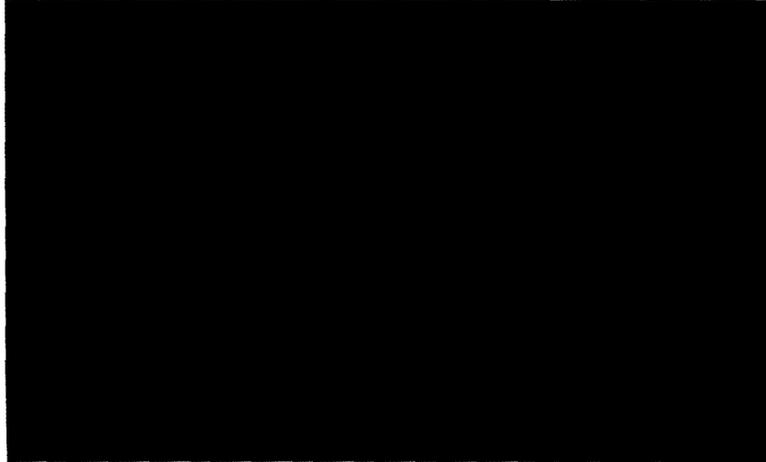


AF-1 sub-metric is rated Red, with a November average of 21 Mdays late to first flight date of 14 May 09.



Non-Conformance Reduction

PC – NSF198AJ06: Description: 10% reduction in MRB discrepancies per year. Metric shows the average number of MR defects per 1000 actual manufacturing hours. The goal is to reduce MR defects per 1000 actual manufacturing hours by 10% per year. Metric is based on contractor provided data that is collected updated in metrics manager NLT the 20th of each month and averaged against all prior months to illustrate normalized trend. Green: <goal of 21, Yellow: within 10% of the goal, Red: >10% above the goal of 21.



Data as of: October 2008 – Lower metric shows top five defect drivers overall.

Metric Status: Green

Trend: Improving

Summary of Metric Status: Metric illustrates improving trend that has been maintained for the last 12 months.

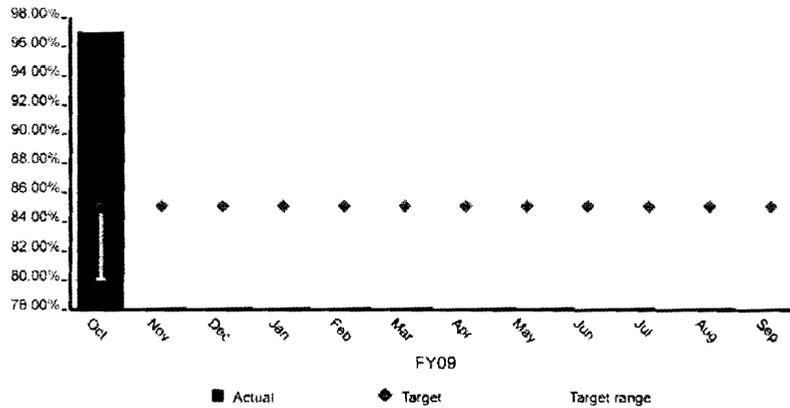
DCMA Actions: Reducing the goal to reflect an effort to further reduce the amount of MRB actions for this year.

Estimate when PC will achieve goal: PC has achieved goal as set last year.

Safety of Flight (SoF)

PC – NSF198AJ01: Description: Measures contractor performance in passing Safety of Flight inspections on the first attempt. It is a measure of quality where the target is 85%. Normally, SoF metrics measure the number of SoF escapes to the customer. The F-35 program is not yet delivering to the customer; therefore, we are measuring the contractor's learning curve in presenting to DCMA defect free products in SoF designated areas. Formal SoF implementation was June 2007 – a traditional SoF metric based on customer reported escapes will be adopted once delivery of aircraft begins. Data is updated in Metrics Manager NLT the 20th of the following month. Performance data obtained from local DCMA quality data base as a result of DCMA inspections. Green: >85%, Yellow: 80%-84%, Red: <79%.

YS-AJH DCMA LMFW F-35 NSF198AJ01 Main SoF Insp 1st time pass



Data as of: October 2008

Metric Status: Green

Trend: No Change

Improve Software Productivity

PC – NSF198AJ07:

[Redacted content]

YS-AJH DCMA LMFW F-35 NSF198AJ07 SW DPC Blk 1.0

[Redacted content]

Data as of: November 2008

Metric Status: Green

Trend: Improving

Summary of Metric Status: Current performance is exceeding our target of 83%. The value this month is 89.46% which is an improvement over last months value of 88.59%.

Root Causes: DCMA LMFV performed a risk assessment for this revised PC. Process areas of focus include Software Product Evaluation (SPE) and Interface Work Package (IWP) processes. Another focus area is improved communication through consistent use of developmental software configuration management practices.

Contractor Actions: The contractor's process includes process improvement activities (Kaizens, Tiger Team Efforts, Value Stream Mapping, Lean Events, etc).

- System Build Process
- Reducing the amount of effort spent working SPAR RWP's

DCMA Actions: DCMA-LMFV Report and Executive Summary-September 08 – DCMA provided a report with SPE Process Review findings and recommendations on 4 Dec 08. DCMA plans to wrap-up this process review by conducting a follow-up meeting with LM to review the findings and determine what corrective actions are required. Our focus will start shifting toward a joint review of Interface Work Package (IWP) process primarily as it is being executed by Mission Systems. We are starting to develop an IWP process review checklist as this is one of the initial steps according to the Joint Process Review Standard Operating Procedures.

DCMA [REDACTED] Palmdale – [REDACTED] – Some potential process related issues are listed below:

- Block 0.1 rework time/ Software Problem Anomaly Report's and sustainment are significant concerns
- [REDACTED] inefficiencies persist due to the difficulty of running file models (related to test station modifications and configuration changes)
- Block 0.5 and 1.0 requirements complexity/ creep

DCMA [REDACTED] Palmdale – [REDACTED] - Fire Control NAV & Stores] (Responsibility for NAV functionality relocated to [REDACTED] from Own Ship Sensor [REDACTED]) – DCMA has long been concerned with the maturity and compatibility/ interoperability of certain LM critical software tools and services upon which [REDACTED] software development is considerably dependent. As a result, DCMA has been conducting a study of these key software tools and services (often called [REDACTED] which are fundamental to the F-35 software development/ integration environment. These tools include (but are not limited to) [REDACTED] and others.

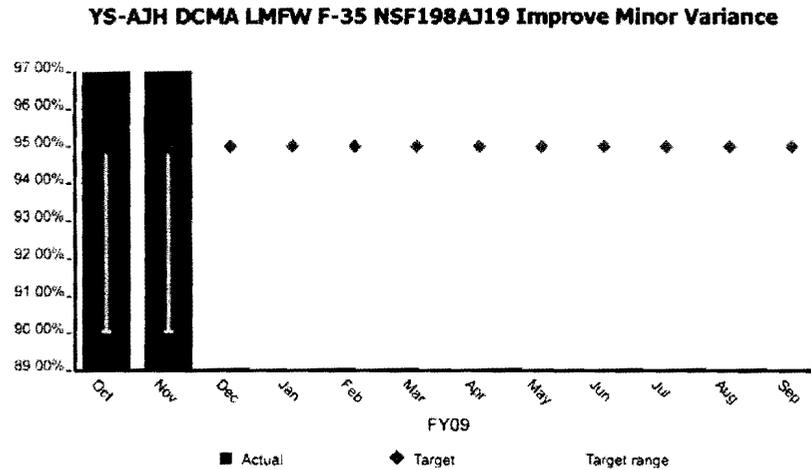
DCMA Lockheed [REDACTED] – [REDACTED] – Integrated Core Processor (ICP)] – Some process related status is listed below:

- DCMA and LM are working together on monthly Process audits. Due to the high volume of Peer Reviews being performed on this program, an audit on the Peer Review Process and Procedure was performed by DCMA. This audit has been completed. There were only a few concerns and all were addressed satisfactorily.
- There was a CAR written regarding the Software Release Procedure – the procedure did not address inclusion of CPSW software in the software build process. A CAP has been developed to address the issue.

Estimate when PC will achieve goal: Current performance exceeds target and the trend is improving.

Improve Minor Variance

PC – NSF198AJ19: Description: Maintain at least a 95% correct classification rate of variances. Cumulative number of minor variances classified correctly divided by the cumulative number of minor variances reviewed. Metric should be updated at the end of each month but no later than the twentieth of the following month. Green: % of properly classified minor variances is ≥95%, Yellow: 90% up to but not including 95%, Red: <90%.



Data as of: November 2008

Metric Status: Green

Trend: No Change

Summary of Metric Status: The contractor had a correct classification rate of 97% this month – goal is to maintain at or above 95%.

Root Causes: No root causes identified at this time.

Contractor Actions: No contractor actions required at this time until root causes can be identified.

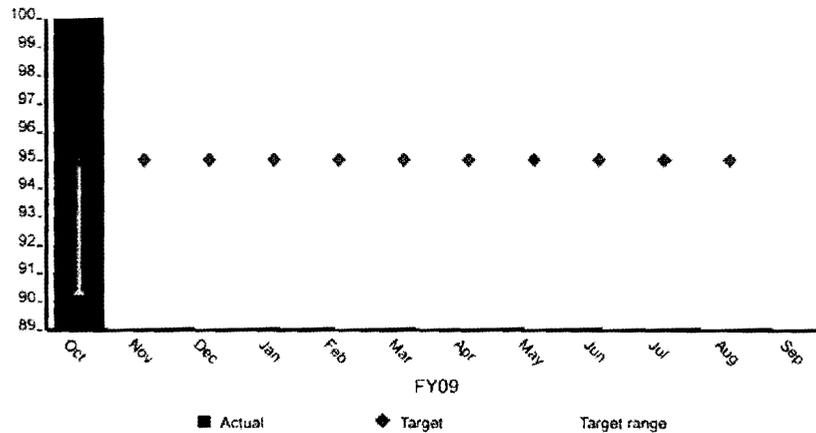
DCMA Actions: Continue to review Minor Variances for correct classification and to work with the contractor to determine root causes of incorrect classifications. Ensure the contractor takes the necessary corrective actions to preclude any incorrect classifications in the future.

Estimate when PC will achieve goal: The PC has currently achieved its goal by being at or above 95% correct classification rate.

Improve FCA/PCA

PC – NSF198AJ20: Description: Ensure that at least 95% of systems reviewed in interim FCA/PCAs meet the design requirements. Technical Description: Verification of the F-35's physical configuration to the design requirements by performing PCAs (physical configuration audits). Percentage of part and assembly numbers reviewed in interim audits in accordance with engineering drawings divided by total population of parts and assemblies assessed. The data used to assess this comes from interim audits from suppliers. Green: % of parts meeting design requirements is $\geq 95\%$, Yellow: 90-94%, Red: $< 90\%$.

YS-AJH DCMA LMFW F-35 NSF198AJ20 Improve FCA/PCA



Data as of: October 2008

Metric Status: Green

Trend: N/A

Summary of Metric Status: Requirements analysis/definition.

Root Causes: N/A

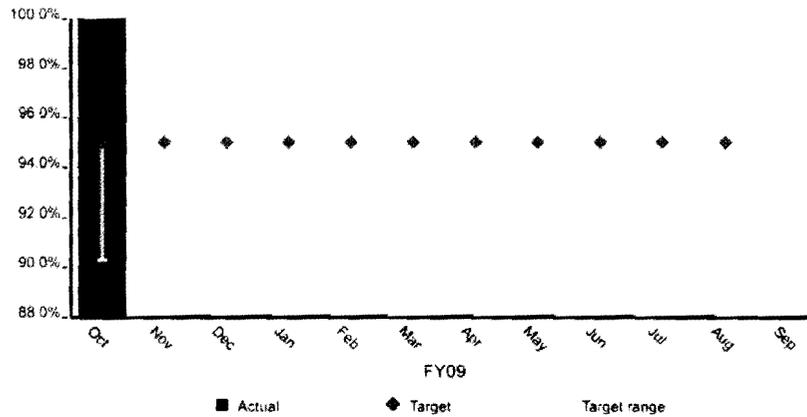
Contractor Actions: Meetings with DCMA personnel.

DCMA Actions: DCMA LMFW is identifying where in the process it should be inserted for LM support. Meetings yielded a result of: Contract Specification Closure Board and Air System Test Readiness Review (ASTRR). LM CM Training requirements were identified as well as Contractor tools to which DCMA needs access. Also, schedules of important events, JDL (JSF Data Library) resources, and documents for FCA/PCA were identified.

Improve Minor Change

PC – NSF198AJ18: Description: Ensure that 95% of minor changes are correctly classified. A Minor Change is defined as a change to an item which remains interchangeable with the same item in which the change has not been incorporated (form/fit/function interchangeable), has little or no impact to any downstream functions and has no effect on any criteria governing Major A and/or Major B type changes. Criteria for classification of changes are presented in PD-44. Data Source(s): PDM, JDL and weekly CIB meetings participation. Metric is calculated by the number of minor changes correctly classified + by the total number of minor changes reviewed during the month. Data is updated in Metrics Manager NLT the 20th of the following month. Green: >95%, Yellow: ≥90% to ≤95%, Red: <90%.

YS-AJH DCMA LMFW F-35 NSF198AJ18 Improve Minor Change



Data as of: October 2008

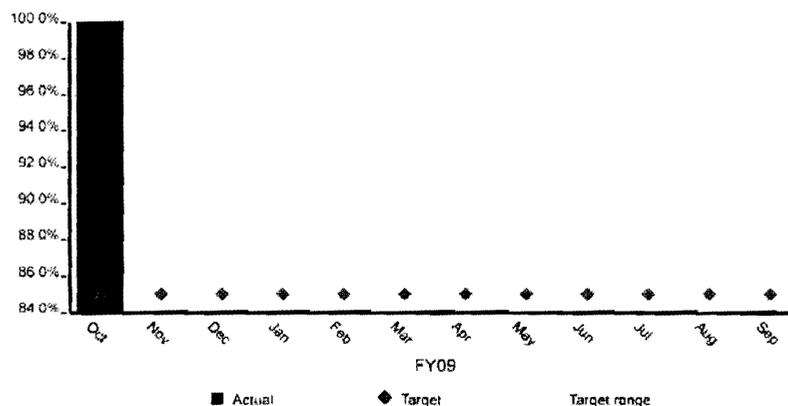
Metric Status: Green

Trend: No Change

Maintain Assist Audit Request Timing

PC – NSF198AJ13: Description: Process contractor/PCO requests for domestic/international Assist Audits within 2 business days 85% of the time. The percentage will be calculated by dividing the number of Assist Audits processed within 2 business days by the total number of Assist Audits requested. Source data will be obtained prior to the 15th of the following month and updated in Metrics Manager NLT the 20th of the following month. Green: >84%, Yellow: 75-84%, Red: <75%.

YS-AJH DCMA LMFW F-35 NSF198AJ13 Maint Asst Audit Req Timing

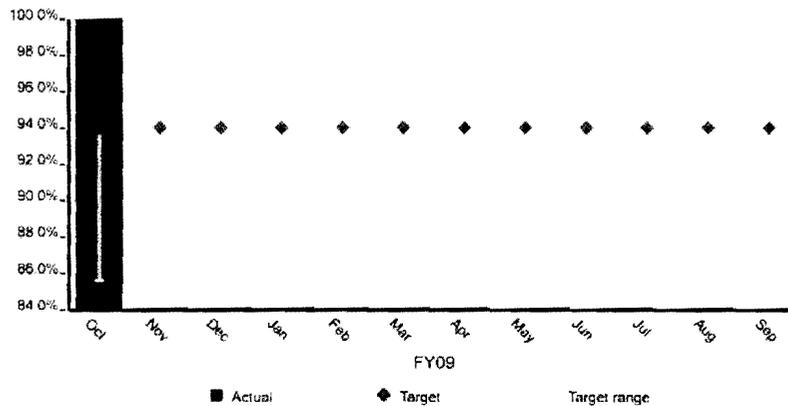


The performance commitment is rated Green for this period.

Maintain FAR Requests for Contract Closeout

PC – CDDAGYOC02: Description: Maintain 94% contract closeout actions within the Federal Acquisition Regulation (FAR) mandated timeframes. The percentage will be calculated by dividing the number of on time contracts closed by the total number of contracts closed. Source data will be obtained prior to the 15th of the following month, and updated in Metrics Manager NLT 20th of the following month. Green: >93%, Yellow: 85-93%, Red: <85%.

YS-AJH DCMA LMFW F-35 CDDAGYOC02 Main FAR Req for K Closeout

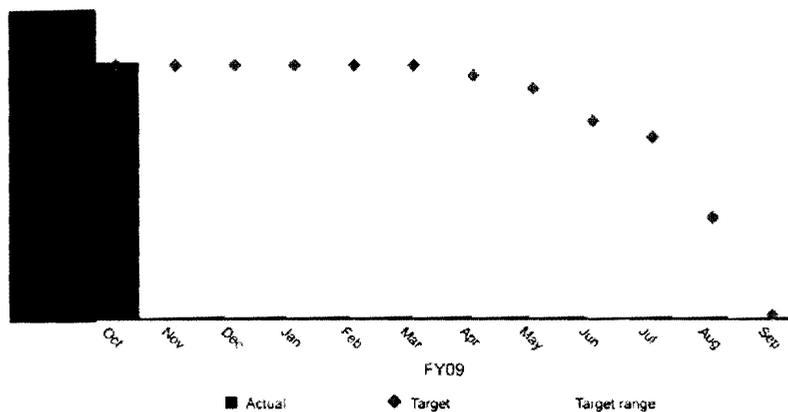


The performance commitment is rated Green for this period.

Reduce Cancelling Funds

PC – CDDAGYOC01: Description: 90% of canceling funds will be billed and/or de-obligated before the end of the fiscal year. Attainment of the goal will be calculated by dividing the total dollar amount of canceling funds billed and/or de-obligated by the total amount of canceling funds identified. Source data will be obtained prior to the 15th of the following month, and updated in Metrics Manager NLT the 20th of the following month. Green: >89%, Yellow: 80-89%, Red: <80% of the funds identified to cancel at year end.

YS-AJH DCMA LMFW F-35 CDDAGYOC01 Reduce Cancelling Funds



The performance commitment is rated Green for this period.

Earned Value

The complete EV report is attached:

Appendix A – EV Assessment Criteria

Rating Criteria is based on the DCMA VAC% and when possible should include MR in the DCMA IEAC

- Green - $VAC\% > -5\%$
- Yellow - $-10\% < VAC\% < -5\%$
-  - $VAC\% < -10\%$
- N/R - Not Rated or Not Reported