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August 1, 2006

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# Acquisition

Procurement Procedures Used for  
Next Generation Small Loader  
Contracts  
(D-2006-100)

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Department of Defense  
Office of Inspector General

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*Quality*

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# Report Documentation Page

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### **Acronyms**

AFB	Air Force Base
AFOTEC	Air Force Operational Test and Evaluation Center
AMC	Air Mobility Command
FAR	Federal Acquisition Regulation
MTBF	Mean Time Between Failure
NGSL	Next Generation Small Loader
ORD	Operational Requirements Document
PEO	Program Executive Officer
QOT&E	Qualification Operational Test and Evaluation
R&M	Reliability and Maintainability
WRALC	Warner Robins Air Logistics Center



INSPECTOR GENERAL  
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August 1, 2006

MEMORANDUM FOR AIR FORCE OFFICE OF THE ASSISTANT SECRETARY  
(ACQUISITION)

SUBJECT: Report on Procurement Procedures Used for Next Generation Small Loader  
Contracts (Report No. D-2006-100)

We are providing this report for review and comment. We considered management comments on a draft of this report in preparing the final report. The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) comments to the draft of this report are partially responsive and three recommendations remain unresolved.

DoD Directive 7650.3 requires that all issues be resolved promptly. We request that the Air Force Office of the Assistant Secretary (Acquisition) provide the comments by September 5, 2006. See the Finding section of this report for the specific comments required on recommendation numbers one, two, and three.

If possible, please send management comments in electronic format (Adobe Acrobat file only) to AUDCOLU@dodig.mil. Copies of the management comments must contain the actual signature of the authorizing official. We cannot accept the /Signed/ symbol in place of the actual signature. If you arrange to send classified comments electronically, they must be sent over the SECRET Internet Protocol Router Network (SIPRNET).

We appreciate the courtesies extended to the staff. Questions should be directed to Mr. James L. Kornides or Mr. Curt W. Malthouse at (614) 751-1400. For the report distribution, see Appendix D. The team members are listed inside the back cover.

By Direction of the Deputy Inspector General for Auditing:

A handwritten signature in black ink, reading "Paul J. Granetto".

Paul J. Granetto, CPA  
Assistant Inspector General  
Defense Financial Auditing  
Service

## Department of Defense Office of Inspector General

Report No. D-2006-100

August 1, 2006

(Project No. D2005-D000FJ-0207.000)

### Procurement Procedures Used for Next Generation Small Loader Contracts

#### Executive Summary

**Who Should Read This Report and Why?** DoD program managers and contracting officials responsible for obtaining nondevelopmental systems and equipment should read this report. It discusses the Air Force acquisition of a nondevelopmental (commercially available) cargo loader and its suitability for accomplishing mission requirements.

**Background.** The Next Generation Small Loader (NGSL) is an air transportable, 25,000 pound capacity, self-propelled mobile air cargo transporter/loader designed to support military transport and civil reserve fleet aircraft. In 2000 the Air Force decided to replace two existing vehicles (a cargo loader and a wide-body elevator) with one significantly more reliable vehicle, the NGSL, so that only one vehicle needed to be deployed to meet warfighter requirements. The Air Force acquired the NGSL to augment its fleet of 60K Tunner cargo loaders. The 60K Tunner is a more robust cargo loader specifically developed for the Air Force and acquired under Federal Acquisition Regulation (FAR) Part 15, "Contracting by Negotiation."

In 2000, the then Principal Deputy Assistant Secretary of the Air Force for Acquisition and Management, Darleen Druyun, decided to use an aggressive strategy to procure NGSL loaders as commercial items. During the contract source selection process, the Air Force tested two competing loaders made by FMC Corporation (FMC) and Teledyne Brown Engineering (Teledyne). It selected FMC. Teledyne protested the award but Druyun denied the protest. Between FYs 2000 and 2005 the Air Force procured 345 NGSL vehicles from FMC under a commercial item contract at a cost of \$151.5 million.

**Results.** Air Force test results indicated that neither of the two competing cargo loaders could meet Air Force operational requirements for reliability and a contract should not have been awarded. Operational data from FYs 2004 and 2005 indicate that the NGSL loader that was selected has not met the critical requirement of "40 hours mean time between failure." In addition, the NGSL loader does not have adequate ground clearance to fully perform its mission. As a result of the reliability problems, the Air Force cannot meet a key performance parameter that requires it to deploy one vehicle instead of two vehicles to meet contingency requirements. In addition to the reliability problems, the direct labor hours required to maintain the loaders is twice the planned amount. Although we brought this to the attention of the Air Force in October 2005, on February 10, 2006, the Air Force awarded a \$45.6 million indefinite delivery/indefinite quantity contract to FMC for up to 65 more loaders and concurrently issued a delivery order on that contract for 24 loaders at a total cost of \$14.4 million. Despite the performance problems, the unit price of the additional loaders increased by 36 percent from \$439,109 per unit in the original contract to \$599,112 per unit in the follow-on contract. The Air Force Office of the Assistant Secretary (Acquisition) needs to delay issuing \$31.2 million in further delivery orders until reliability is improved and the vehicle receives an acceptable rating for mission capability; require FMC to remedy the

lack of sufficient ground clearance; consider other options, including use of the 60K Tunner Cargo loader as an alternative to procurement of additional NGSLs; and improve controls to ensure that future commercial acquisitions adequately meet Air Force operational requirements. (See Appendix B for a summary of the potential monetary benefits.)

**Management Comments and Audit Response.** The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) concurred with one recommendation and nonconcurred with three recommendations. He agreed to ensure that future FAR Part 12 acquisitions adequately meet Air Force operational requirements. He disagreed that the NGSL loader failed to meet or exceed Air Mobility Command requirements and key performance parameters. He stated Air Force testing showed it did meet requirements. He did not agree to correct the ground clearance problems with the NGSL because he believed that the \$6 million cost to modify the fleet exceeded the benefit. Additionally, he did not agree to consider other options, including purchasing the 60K Tunner cargo loaders as an alternative to procuring additional NGSLs because the 60K Tunner has a different mission. He stated that the Air Mobility Command established the basing and quantity requirements for the NGSL based on war plans and would address the ground clearance issue by providing more operator training.

We do not agree with the Military Deputy's statement that NGSL performance data meet or exceed Air Mobility Command operational requirements and key performance parameters. This statement is contrary to performance data for FYs 2004 and 2005 provided by the Commander, Warner Robins Air Logistics Center, that show the vehicle's mean time between failure to be 21.7 and 23.9 hours respectively. Both figures are below the 40 hour Air Mobility Command requirement for mean time between failures. In addition, Key Performance Parameter number 1 for the NGSL specifies that the NGSL must be capable of loading all stated aircraft so a second loader will not be required. This parameter also states that this capability will maximize loader availability in contingencies. We do not agree that \$6 million is a prohibitively high cost to improve ground clearance given the Air Force's \$151.5 million investment to field the NGSL and given that the NGSL's mission requires it to operate in remote locations on less than ideal surfaces. The NGSL needs more ground clearance to successfully interface with Air Force transport aircraft, such as the C-130 Hercules and C-17 Globemaster III that can land on unpaved airfields. We believe that the Air Force needs to re-evaluate whether \$6 million is a reasonable cost, considering the NGSL's mission as a deployable asset to support aircraft that can land on remote locations. The Military Deputy also did not provide a sufficient justification for not considering the use of the 60K Tunner cargo loader as an alternative for acquiring more NGSLs. His statement that the 60K Tunner has a different mission does not adequately take into account that, except for transportability on a C-130 Hercules, both vehicles have similar missions and capabilities, are rapidly deployable, and can interface with all Military and commercial cargo aircraft. We request that the Air Force Office of the Assistant Secretary (Acquisition) reconsider its position and provide comments to the final report by September 5, 2006.

See the Finding section of the report for a discussion of management comments and the Management Comments section of the report for the complete text of the comments.

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## Background

The Next Generation Small Loader (NGSL) is an air transportable, 25,000 pound capacity, self-propelled mobile air cargo transporter/loader that can be used to load cargo in military transport and civil reserve fleet aircraft.



The Air Force procured the NGSL to replace the aging fleet of Wide-Body Elevator Lifts and 25K loaders and to augment its fleet of 60K Tunnar cargo loaders. The 60K Tunnar is a more robust cargo loader specifically developed for the Air Force and acquired under Federal Acquisition Regulation (FAR) Part 15, “Contracting by

Negotiation.” The Air Force acquired the NGSL under FAR Part 12 “Acquisition of Commercial Items.” This section of the FAR enables the purchase of nondevelopmental commercial items that meet agency requirements.

Air Force FAR Supplement 5315.3, “Source Selection,” establishes Air Force source selection policy and implements FAR Subpart 15.3, “Source Selection.” Supplement 5315.305, “Proposal Evaluation,” states that a proposal with an unacceptable rating for mission capability is not awardable.

The Air Force acquisition strategy for the NGSL included a two phase source selection process. The initial phase included a competition between cargo loaders manufactured by FMC Corporation (FMC) and Teledyne Brown Engineering (Teledyne). The Air Force awarded Phase I contracts in FY 1999 to FMC and Teledyne. NGSL program goals are described in the acquisition management plan and in the Operational Requirements Document (ORD). The Program Executive Officer (PEO), Airlift and Trainers approved the acquisition management plan on February 11, 2000. The Air Mobility Command approved two separate ORDs during the acquisition process (one during each phase).

The first and second phases included vehicle assessments conducted by the Air Force Operational Test and Evaluation Center (AFOTEC). AFOTEC functions as the Air Force operational test agency and is responsible for independently testing new Air Force systems under operationally realistic conditions.

FMC won the Phase I competition and on June 22, 2000, was awarded an indefinite-delivery/indefinite-quantity contract to provide an estimated 264 NGSLs at an anticipated total cost of \$458 million.

On July 3, 2000, Teledyne filed a protest with the former Principal Deputy Assistant Secretary of the Air Force for Acquisition and Management, Darleen Druyun, claiming that the Air Force did not fairly consider the Teledyne loader. On September 22, 2000, Druyun denied the protest, concluding that the Source Selection Authority made a reasonable and rational award decision and that the

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Air Force considered the FMC loader a better value. The Teledyne bid was \$21.3 million less than the FMC bid.

Between FYs 2000 and 2005 the Air Force procured a total of 345 vehicles from FMC at a cost of \$151.5 million (average unit cost of \$439,109). On February 10, 2006, the Air Force awarded a \$45.6 million indefinite delivery/indefinite quantity contract to FMC for up to 65 more vehicles. On the same day the Air Force issued a delivery order on the contract for 24 vehicles at a total cost of \$14.4 million (average unit cost of \$599,112).

## **Objective**

Our audit objective was to determine whether Air Force contracting officials properly awarded contracts for a Next Generation Small Loader that met Air Force operational requirements. See Appendix A for a discussion of the scope and methodology.

## **Managers' Internal Control Program**

Review of the Managers' Internal Control Program was not an objective of the audit, and we did not review the program.

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## Acquisition of the Next Generation Small Loader

During the source selection process for initial contract award, the Air Force tested two competing loaders, the FMC loader and a loader made by Teledyne Brown Engineering. The Air Force awarded the contract to FMC even though test results indicated that both loaders had serious reliability problems. The procurement files indicated that neither cargo loader should have been selected because the loaders could not meet operational requirements for reliability. Operational data from FYs 2004 and 2005 indicate that the NGSL has not met the critical requirement of functioning for an average of 40 hours without repair. In addition, the NGSL does not have adequate ground clearance to fully perform its mission. The Air Force purchased unreliable loaders because of the aggressive Air Force procurement strategy advocated by the then Principal Deputy Assistant Secretary of the Air Force of Acquisition and Management, Darlene Druyun, to acquire the NGSL as a commercial item under FAR Part 12, "Acquisition of Commercial Items." As a result of the reliability problems, the Air Force cannot meet a key performance parameter and must deploy two vehicles to meet surge scenario requirements instead of deploying one vehicle as originally planned. In addition, the direct labor hours required to maintain the loader are twice the planned amount. The Air Force Office of the Assistant Secretary (Acquisition) needs to delay issuing \$31.2 million in further delivery orders to FMC until reliability is improved and the vehicle receives an acceptable rating for mission capability; require FMC to remedy the lack of sufficient ground clearance; consider other options, including use of the 60K Tunner Cargo loader as an alternative to procurement of additional NGSLs; and improve controls to ensure that future FAR Part 12 acquisitions adequately meet Air Force operational requirements.

### NGSL Acquisition Strategy

**Mission Need.** The Air Force had established the NGSL program in FY 1994 to address the Air Mobility Command (AMC) need for a new 25K cargo loader. The program's goal was to field a significantly more reliable loader to replace the existing 25K loaders that require the use of a special elevator to load wide-body aircraft. This strategy was expected to eliminate the need to send two pieces of materiel handling equipment to a location during a deployment.

Air Force market research in FY 1998 identified three commercial cargo loaders as potential replacements. At that point, the Warner Robins Air Logistics Center (WRALC) program director stated he was concerned about performance of the available commercial loaders and that the commercial loaders would not be reliable enough to meet AMC requirements. However, the Air Force decided to proceed with the procurement of one of the three designs.

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**Program Management Transfer.** Druyun made some decisions about the NGSL program in FY 1998 that affected management of the acquisition. In 1997, WRALC was responsible for managing the Air Force cargo loader fleet. However, Druyun transferred management of the NGSL program in May 1998 from WRALC to the Aeronautical Systems Command, Wright-Patterson AFB. WRALC officials told us that Druyun transferred the NGSL program because she wanted to aggressively pursue the new acquisition despite cost overruns and delays that had already plagued the 60K Tunner cargo loader program and that they believed could occur on the NGSL. In July 1998, Druyun designated the Program Executive Officer (PEO), Airlift and Trainers, as the NGSL source selection authority. The program officials were expected to ensure that the NGSL was reliable enough to meet the user’s operational requirements before awarding contracts to FMC in FY 2000 and FY 2006.

**Development Needed.** The Air Force procured the NGSL in accordance with a Government policy that encouraged DoD to acquire new systems as commercial items. The strategy was outlined in FAR Part 12, “Acquisition of Commercial Items.” In a memorandum dated September 30, 1997, the WRALC program director told Druyun’s office that proposed NGSL reliability parameters were potential “show stoppers” to the use of a FAR Part 12 contract because they were based on the 60K Tunner cargo loader—a developmental system procured under FAR Part 15, “Contracting by Negotiation.” He said that to achieve a “400 hour mean time between critical failure” the NGSL program would also need to be a developmental system. Druyun did not accept the WRALC recommendation to develop the NGSL under FAR Part 15 and instead proceeded with a FAR Part 12 contract.

**NGSL Acquisition Plan.** On February 11, 2000, the PEO approved an aggressive acquisition plan advocated by Druyun that called for procuring the NGSL as quickly as possible as a nondevelopmental commercial item in accordance with FAR Part 12. Additionally, the acquisition plan stated that, based on preliminary testing, a full developmental program was not necessary for the NGSL. However, this assertion is not supported by the Phase I competition test results (see Table 1) and is contrary to the previous recommendation by the WRALC program director. In addition, the acquisition plan included a key performance parameter that required the NGSL to be capable of loading all aircraft so that a second loader would not be required for contingencies.

## NGSL Selection Process

The NGSL selection process consisted of two phases. Phase I included a competition between two loaders (produced in the United States under license by Teledyne and FMC) identified during the market research. Phase II included additional testing of the FMC loader, winner of the Phase I competition.

The Phase I competition included concurrent tests of both loaders. AFOTEC conducted the tests. The tests were an assessment of the loaders’ ability to meet AMC’s requirements as defined in the NGSL ORD dated February 15, 1998.

**Operational Requirements.** A 60-day surge capability was built into the ORD’s requirements to ensure readiness. Specifically, the ORD stated that the loader, with one operator and one mechanic, is expected to function in deployed locations without base-level support for up to 60 days, and is expected to be mission ready 24 hours a day. The ORD specified that readiness would be measured using a formula called “mission success completion probability.” “Mean time between critical failure” is a component of this formula. A critical failure is any failure that prevents the system from performing its specified mission.

**Phase I Test.** The preliminary Phase I competition test results for reliability were very poor. AFOTEC determined that because of frequent failures the FMC loader had a 29% probability to successfully complete mission requirements. As a result, AFOTEC concluded that a deployed location would require more than one loader to ensure all assigned missions were accomplished. Results for the Teledyne loader were unacceptable as well.

<b>Table 1. Phase I Test Results</b>				
<b>AFOTEC Operational Assessment, March 2000</b>				
<b>Is the reliability sufficient to support mission requirements?</b>				
<u>Measure</u>	<u>FMC Cargo Loader</u>		<u>Teledyne Cargo Loader</u>	
MTBCF <sup>1</sup> /Rating	49.0 hours	Not Acceptable	44.1 hours	Not Acceptable
MCSP <sup>2</sup> /Rating	29%	Not Acceptable	26%	Not Acceptable

<sup>1</sup> Mean Time Between Critical Failure  
<sup>2</sup> Mission Completion Success Probability

AFOTEC stated in its Phase I reports that neither vehicle was suitable for Military operations and either would encumber Air Force resources if deployed. In addition to the reliability problems as shown in Table 1, AFOTEC concluded that the Teledyne loader, “as currently configured, may impose undesirable burdens on the Air Force to deploy, employ, and sustain mobility operations worldwide.”

AFOTEC reported that the FMC loader exceeded the weight requirements specified in the ORD and was not reliable enough to complete all mission requirements during a 60-day deployment. The FMC loader’s reliability numbers were so low that AFOTEC concluded that one vehicle would be incapable of even completing a 1-week surge scenario.

However, AFOTEC stated that the FMC loader would not cause any undesirable burdens if the system program office corrected the deficiencies prior to fielding. Overall, AFOTEC rated the FMC loader higher than the Teledyne loader in 16 out of 20 operational categories.

**Source Selection Team.** A source selection evaluation team, composed of various Air Force officials and chaired by the NGS� program director, reviewed the outcome of the Phase I test results and the proposals submitted by FMC and

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Teledyne. The team rated the FMC loader superior in four out of seven risk categories. The PEO then reviewed the team ratings and selected the FMC loader. According to the source selection document, the PEO judged the FMC loader to be the best value to the Government even though the FMC bid to produce the loader was \$21.3 million higher than the offer from Teledyne.

The PEO considered FMC's proposed estimate of 60 hours between failures to be a realistic and acceptable estimate despite AFOTEC's finding that the vehicle's reliability was insufficient to meet mission requirements.

Notwithstanding the unacceptable test results for both vehicles, the Air Force awarded FMC a \$458 million (maximum) indefinite-delivery/indefinite quantity contract on June 22, 2000.

**Award Protest.** On July 3, 2000, Teledyne filed a protest with Druyun's office claiming that the Air Force did not fairly consider the Teledyne loader. On September 22, 2000, Druyun denied the protest, concluding that the Source Selection Authority (the PEO) made a reasonable and rational award decision and that the Air Force considered the FMC loader to be a better value. Druyun's review was inadequate because she did not address red-flagged reliability problems that should have precluded the procurement of either vehicle. Druyun should have intervened and directed the development of a more suitable loader rather than awarding the contract to FMC under FAR Part 12.

## NGSL Qualification Tests

Phase II of the NGSL qualification test included two more tests of the FMC loader reliability, maintainability, and availability. AFOTEC conducted the first test, called the Qualification Operational Test and Evaluation (QOT&E), in FY 2001. The purpose of the QOT&E is to evaluate the operational effectiveness and suitability of the NGSL in its intended environment and to conduct an operational impact assessment. Procurement officials were to use the outcome of the tests to support a Milestone III (full rate) production decision.

The QOT&E lasted nearly 3 weeks and was conducted at Dover Air Force Base. Overall, AFOTEC concluded that the FMC loader, as configured, was unsuitable for its intended mission and that the system's reliability did not meet AMC's operational requirements. In addition, AFOTEC stated that the low reliability of the FMC loader directly affected the maintenance man-hours required to keep the loader operational. AFOTEC again recommended that the program office focus on improving the reliability of the system. Specific critical operational issues red-flagged by AFOTEC are shown in Table 2.

**Table 2.**  
**Qualification Operational Test and Evaluation Results**  
**FMC Loader - July, 2001**

	<u>Measure</u>	<u>Results</u>	<u>Rating</u>
Reliability	MTBF <sup>1</sup>	4.0 hours	Did Not Meet
	MTBCF <sup>2</sup>	11.1 hours	Did Not Meet
Maintainability	Maintenance Ratio <sup>3</sup>	0.51	Did Not Meet
Availability	Ao <sup>4</sup>	69.3%	Did Not Meet
	VIC <sup>5</sup>	69.3%	Did Not Meet

<sup>1</sup> Mean Time Between Failure

<sup>2</sup> Mean Time Between Critical Failure

<sup>3</sup> Mean Maintenance Man Hour per Operating Hour

<sup>4</sup> Operational Availability

<sup>5</sup> Vehicle In Commission

**Readiness Scenario.** AFOTEC did not fully perform the 60-day surge requirement during the QOT&E. AFOTEC states in its report that the test team was limited to a 5-day simulated surge scenario. The former chief engineer told us that the test was limited because of inadequate funding. During the 5-day simulated surge scenario the FMC loader averaged 8.3 hours per day availability, well below the required 12-hour duty cycle.

AFOTEC determined that the low reliability demonstrated during the test would deplete available resources during a deployment. Specifically, AFOTEC concluded that more than one loader would be required to complete all necessary missions at a deployed location thus requiring additional maintenance resources and an additional aircraft sortie if transported by a C-130. Although larger aircraft can transport two loaders, AFOTEC concluded that doing so would require moving cargo to another aircraft and would increase the required sorties to move all cargo to deployed locations. The outcome of this scenario contradicts the goal of the NGSL program, which was to replace existing loaders and wide-body elevators with one vehicle.

**Reliability and Maintainability Test.** The second Phase II test was the Reliability and Maintainability (R&M) test of the FMC loader. The stated objective of the R&M test was to more completely assess the reliability and maintainability of the FMC loader and to gather data to estimate future reliability growth. The R&M test began on July 6, 2001, and ended September 1, 2001.

The R&M test did not adequately assess the readiness issues previously identified by AFOTEC. Specifically, there is no mention of a simulated surge scenario in the report. The former chief engineer told us that the R&M test measured the vehicle's failure rate but did not simulate the surge scenario. Testers did not evaluate the 60-day readiness requirement during the R&M test, and AFOTEC did not officially review the test results. In addition, red-flagged items identified by AFOTEC in the previous test were not resolved.

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During the R&M test, AMC revised the ORD and deleted the 1,500 hour mean time between critical failure requirement and replaced it with mean time between failure (MTBF). A failure occurs when an item, or part of an item, does not perform as specified. AMC approved a 40-hour MTBF at the start of production and a 60-hour MTBF at the end of production. The former chief engineer told us that FMC established the MTBF.

The R&M results were better than the AFOTEC test. The MTBF was 43.4 hours. However, engineering personnel told us they did not count all the loader failures when calculating the MTBF, and that they used a different methodology for classifying failures than did AFOTEC. Including all the failures would have reduced the MTBF below the 40-hour threshold. The then chief engineer told us that meeting the 40-hour threshold was crucial for proceeding to full rate production.

**PEO Briefing.** According to the former NGSL program director, the R&M test was the tipping point for proceeding to full rate production. The program office presented the test results to the PEO for formal approval. The official briefing charts that summarized the R&M test results did not disclose the unresolved red-flagged items identified by AFOTEC. The PEO authorized full rate production in a memorandum, dated October 26, 2001. In the memorandum, the PEO directed the program director to improve reliability and achieve 60 hours MTBF by the end of FY 2002. Operational data showed that reliability has not improved and did not meet ORD requirements in either FY 2004 or FY 2005.

## Reliability of Fielded Loaders

Since FY 2000, the Air Force has fielded 345 of the NGSL cargo loaders, yet reliability continues to be problematic. FY 2005 operational data show:

- MTBF of 23.9 hours in FY 2005 (below ORD threshold of 40 hours).
- Maintenance ratio<sup>1</sup> is 0.64 (ORD threshold requires not more than 0.3).
- In July of 2005 more than one third of the entire fleet (120 vehicles out of 328 loaders fielded at that time) reported 0 operating hours.
- Operational availability is below 15 percent.

We concluded that program officials have not improved the reliability of the NGSL as directed by the PEO in FY 2002. Program officials told us that the reliability figures are misleading because the customer, AMC, is satisfied with the vehicle. However, NGSL operators do not completely agree with this assessment. We visited three Air Force activities that use the NGSL and found that vehicle

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<sup>1</sup> Maintenance ratio equals mean maintenance man hour per operating hour (lower is better). The program office provided FY 2005 data through August 2005 (11 months).

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operators are not satisfied with the NGSL because it has insufficient ground clearance, is fragile, and is in constant need of repair.

**Ground Clearance.** The lack of adequate ground clearance has resulted in extensive damage to at least six vehicles. Maintainers at the three Air Force activities that we visited told us of six different instances of damage caused by a lack of ground clearance, including two at Al Udiid, Qatar. At Charleston AFB we observed an NGSL extensively damaged (see picture) by contact with a man-hole cover on the flight line. Operators told us the vehicle cannot operate normally on all areas of the flight line and that they must avoid areas with slight indentations and imperfections. This is a serious limitation for a deployable vehicle that is also expected to operate in austere locations on less than ideal surfaces.



Accordingly, in FY 2004, the former contracting officer requested that FMC submit a proposal to remedy the lack of vehicle ground clearance. Specifically, the memorandum states, “The increased clearance should prevent components, such as oil pans, from sustaining damage during normal operations.” The former chief engineer told us that FMC’s solution was too costly to implement. Program officials also told us that they did not know the frequency or extent of the damage to vehicles caused by the lack of ground clearance.

The ORD specifies that the NGSL be able to traverse semi-prepared surfaces, such as gravel, perforated steel planking, and rapid runway repair slabs, which are typically found at austere locations overseas. However, the Air Force did not test the NGSL capabilities in such an environment before the contract award. AFOTEC conducted the pre-award tests primarily on the improved surfaces at Travis and Dover Air Force Bases. Testers likely did not identify this design flaw during pre-award testing because they did not fully perform the 60-day readiness scenario and did not simulate conditions found at austere locations.

We believe the aggressive acquisition strategy adopted by Druyun and implemented by NGSL program officials resulted in rapidly fielding the NGSL without completely testing the vehicle in its intended environment.

**Operator Preference.** The operators also told us that other parts of the vehicle, such as the guide rails and the omni rollers, are easily damaged during routine operations. Additionally, they said that because of the limited ground clearance and recurrent failures they would rather use any vehicle other than the NGSL to move cargo. Operators told us that they would rather have more 60K Tunnar cargo loaders than additional NGSLs that they won’t use. We verified that NGSLs are infrequently used at large aerial ports. For example, in FY 2005, NGSLs assigned to Dover AFB and Charleston AFB operated an average of only 4 hours per week. Operators that we interviewed told us that they preferred the 60K Tunnar cargo loader and, therefore, are less inclined to use the NGSL.

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Unlike the NGSL, the 60K Tunner cargo loader was specifically developed to meet AMC requirements. The operators told us that they prefer the 60K Tunner because it is more efficient (can handle up to 60,000 pounds of cargo) and is considerably more reliable than the NGSL. FY 2005 data provided by the program office show that the 60K Tunner is more than twice as reliable as the NGSL.

**Parts Support.** Maintainers told us that the NGSL is easy to work on but that parts support is inadequate, sometimes taking up to 5 weeks for delivery. This is apparent in FY 2005 operational data<sup>2</sup> provided by the program office. Specifically, the data shows an average down time (waiting for parts and maintenance) of 7.8 hours for each hour of vehicle operation and a 23.9 hour MTBF. Air Force officials told us that they are planning to establish an interim logistics support contract with FMC to provide better support.

The FY 2005 fleet-wide maintenance ratio of 0.64 is double the ORD requirement of 0.3. The maintenance ratio quantifies the relative labor effort required to maintain the NGSL and is a key requirement that is included in the contract. AMC desired a reliable loader to minimize labor (and, therefore, labor costs) and set the minimum acceptable ratio of 0.3. The 0.3 ratio was based on experiential data for the older 25K loaders being replaced by the NGSL. The observed maintenance ratio of 0.64 equates to 6.4 maintenance man hours for every 10 hours of vehicle operation and is double the maximum allowable amount set by AMC in the ORD.

## **FY 2006/2007 Procurement**

The Air Force initially procured the NGSL even though Air Force procedures precluded selection of the NGSL. According to Air Force FAR Supplement 5315.3, "Source Selection," June 4, 1999, proposals with an unacceptable rating for mission capability are not awardable. The Air Force recently revised its FAR Supplement with Air Force Mandatory Procedure 5315.3, "Source Selection," August 10, 2005. According to Mandatory Procedure 5315.3, proposals with an unacceptable rating for mission capability are not awardable.

Air Force officials continue to aggressively acquire more NGSLs despite the long-standing reliability and ground clearance problems. During the audit, program officials announced that they were planning to award a sole source contract to FMC for another 65 vehicles. On October 6, 2005, we issued a memorandum to the Commander, WRALC, recommending that the Air Force improve reliability rather than buy more of the NGSL loaders (see Appendix C). We provided data and supplemental information showing that the NGSL loader is unreliable and has not met AMC operational requirements.

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<sup>2</sup> The FY 2005 fleet-wide data provided by the program office did not include data for the month of September.

In November 2005, we visited WRALC to discuss the proposed contract with program officials and responsible senior executives. We asked the program director to provide reliability data to demonstrate that the NGS� has met the operational requirements for MTBF and maintenance ratio. He told us that the maintenance ratio of 0.64 is correct but the MTBF data were not available. A senior executive disagreed and tasked the program director to obtain the data. We received that data as part of a memorandum from the PEO dated January 17, 2006 (see Appendix C).

**PEO Memorandum.** The January 17, 2006, memorandum from the PEO was in response to our October 6, 2005, memorandum. The response included a cover memorandum, signed by the PEO, and two attachments, one signed by the Commander, WRALC on January 12, 2006, and a November 1, 2005, memorandum signed by the Vice Commander, AMC.

In the cover memorandum, the PEO told us that the Air Force is proceeding with the procurement because AMC has high confidence in the NGS� and because performance data show “the loader meets or exceeds the requirements as defined” in the ORD. However, the information given to the PEO is incorrect. Three of the four performance measures referenced in the memorandum do not meet the requirements in the ORD as shown in Table 3.

	<u>Reliability Measure</u>	<u>ORD Threshold</u>	<u>Rating</u>
MTBF FY 2004	21.7 hours	40 hours	Did Not Meet
MTBF FY 2005	23.9 hours	40 hours	Did Not Meet
VIC <sup>1</sup> FY 2004	89.8 %	88 %	Met
VIC <sup>1</sup> FY 2005	86.1 %	88 %	Did Not Meet

<sup>1</sup> Vehicle In Commission

Additionally, as discussed earlier, the FY 2005 fleet-wide data provided by the program office show that the maintenance ratio exceeds the allowable maximum of 0.3, as specified in the ORD.

The PEO also provided data for the legacy 25K loaders—19.8 hours MTBF for FY 2004 and 18.5 hours MTBF for FY 2005. This shows that the NGS� is not significantly more reliable than the older legacy loaders it is replacing.

The program director told us that the substantial unit price increase on the FY 2006 contract mostly reflects supplier and vendor price increases. However, the NGS� is a “commercial” type item and shares 80 percent of its electrical and hydraulic parts with other FMC production lines. We asked the program director whether he had analyzed the vendor costs to determine the validity of the proposed price increase. He could not provide an adequate justification for the price increase.

On February 10, 2006, the Air Force awarded FMC a sole-source contract for up to 65 vehicles at a total cost of \$45.6 million. The contracting officer issued the

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first delivery order on the same day for 24 vehicles at a cost of \$14.4 million. The PEO approved the justification and approval for a sole source award on December 5, 2005. We reviewed the justification and approval document and believe that the Air Force did not consider whether the award complied with Air Force Mandatory Procedure 5315.3, "Source Selection," August 10, 2005.

**Compliance.** According to Air Force Mandatory Procedure 5315.3, "Source Selection," August 10, 2005, proposals with an unacceptable rating for mission capability are not awardable. The NGSL has not received an acceptable rating for mission capability. Accordingly, the Air Force Office of the Assistant Secretary (Acquisition) needs to delay procurement until reliability is improved and the vehicle receives an acceptable rating for mission capability. Doing so will avoid \$31.2 million (contract amount of \$45.6 million less delivery order of \$14.4 million) in additional procurement costs for unreliable loaders.

## Summary

Air Force officials procured the NGSL in accordance with an aggressive Air Force procurement strategy to obtain commercial-type vehicles as quickly as possible. However, NGSL program officials did not ensure that the vehicle met AMC operational requirements before awarding the contract. In addition, pre-award testing did not completely assess the FMC loader's ability to meet the 60-day readiness requirement and, as a result, did not identify the loader's inadequate ground clearance.

FY 2004 and FY 2005 operational data show that NGSL officials have not remedied vehicle reliability issues identified during the pre-award testing. Vehicle reliability is so low that the Air Force cannot meet a key performance parameter and must deploy two vehicles to meet surge scenario requirements instead of one as originally planned. In addition, labor hours required to maintain the loader are twice the planned amount.

The Air Force needs to delay plans to procure additional NGSL vehicles, taking into consideration the vehicle's unreliability and inadequate ground clearance, the superior performance of the 60K Tunner cargo loader and its possible use, and Air Force mandatory contracting procedures. In addition the Air Force Office of the Assistant Secretary (Acquisition) needs to improve controls to ensure compliance with Air Force policy and to ensure that systems purchased under FAR Part 12 meet Air Force operational requirements.

## Management Comments on the Finding and Audit Response

**Management Comments.** The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) provided 33 comments to the Finding (see the Management Comments section for the entire text).

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The Military Deputy provided 24 comments (numbered 1, 2, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 26, 29, 30, 31, 32, and 33 in the schedule attached to his memorandum) that disagreed with information in the Finding related to NGSL key performance parameters and operational requirements. He stated that reliability, deployment, and maintenance ratios were not KPPs and that the NGSL had three KPPs: 1) load types, 2) aircraft interface, and 3) air transportability. His comments also stated that the NGSL met MTBF requirements throughout the procurement phases for the NGSL. He stated that the number of NGSLs fielded as of July 2005 was 328 instead of 345, and that the entire 345 NGSLs were not fielded until December 2005.

The Military Deputy provided four comments (numbered 3, 23, 24, and 25) that stated that the ground clearance issue for the NGSL was not as severe as reported. He stated that the solution to the problem was better training and better awareness.

The Military Deputy provided five other comments on the Finding. Comment 7 stated that FAR Part 12 was used for the NGSL as a cost savings initiative. Comment 9 stated that mission success completion probability was included in ORD I and removed in ORD III. Comment 10 stated that FMC reduced the overall weight to meet the requirement in ORD III. Comment 27 stated that a poll of users indicated that the NGSL was “great” and the users wanted more. Comment 28 stated that the NGSL was not used frequently at five locations because the loaders at those locations were assigned to support mobility/urgent deployment taskings.

**Audit Response.** We partially agree with three of the Military Deputy’s comments (numbers 20, 21, and 31) that discuss the maintenance ratio and the number of fielded systems. We agree that the maintenance ratio is not a key performance parameter (numbers 20 and 31) and we changed page 10 of the report to state that the maintenance ratio was a key requirement. We also changed the number of NGSLs fielded as of July 2005 from 345 to 328 on page 8 of the report to address number 21. Information provided to us early in the audit showed a higher number of fielded systems.

We disagree with the remaining 30 comments.

We disagree with comments 1, 4, 5, and 33 which indicated that, although the NGSL replaced two pieces of equipment, meeting a surge scenario was not a key performance requirement for the NGSL. The Air Force Single Acquisition Management Plan for the NGSL identified two key performance parameters: 1) Aircraft Interface/Travel Operations/Transportability and 2) Cargo Operations. Key Performance Parameter number 1 specified that the NGSL must be capable of loading all stated aircraft so a second loader will not be required. This parameter includes verbiage related to deployment that stated: “This maximizes loader availability in contingencies.” At its current performance level, contingencies cannot be met with one NGSL.

We disagree with comments 2, 8, 16, 17, 18, 19, 22, 29, and 32 which discussed ground clearance and reliability. The Commander, WRALC provided Mean Time Between Failure and Vehicle In Commission data for FYs 2004 and 2005 (see

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Table 3) that showed three of the four reliability measures are below the thresholds specified in the final ORD dated July 2, 2001.

We disagree with comment 15 which discussed what should be the achievable mean time between equipment failure. The Military Deputy's comment provided additional background but did not dispute that AMC approved the 40-hour MTBF threshold and 60-hour MTBF objective and that FMC was involved in the process.

We disagree with comments 6, 11, 12, 13, and 14 which discussed availability of the NGSL during deployment and the deficiencies that could be resolved. AFOTEC concluded that the NGSL was unreliable and that more than one loader would be needed to accomplish mission requirements. The NGSL's performance in the field indicated the program office did not resolve the deficiencies.

We disagree with comment 26. The Military Deputy stated that although the problem with the NGSL guide rails and rollers was not significant enough for making a change, the Air Force was considering modifications to the rollers. Also, he also stated the training plan for operators was in the process of being changed. We witnessed the damaged guide rails and omni rollers and were told by the operators that they were frequently broken during normal operations. We commend the ongoing efforts to modify the omni rollers and improve training for the operators.

We disagree with comment 7. The comment implied the Air Force adequately considered the costs of developing a new system and that management decided to use a commercial item to avoid potential cost overruns. Information we obtained indicated potential developmental costs cited by the Military Deputy were not supported by cost analyses or other studies contained in the procurement files for the NGSL.

We disagree with the relevance of comment 9 which discussed the components of a formula for measuring readiness. The Military Deputy's statement that the formula was removed is accurate and is already documented in subsequent sections of the report.

We disagree with comment 10 which provided information on the improvements made to reduce the NGSL weight. The comment provided additional background but did not dispute that AFOTEC reported the FMC loader was still overweight or that the loader was unreliable and unable to complete all assigned missions.

We disagree that comment 30 provided new or additional information requiring clarification. Although it discussed the lack of parts support and interim contract support, the comment did not dispute that parts support is inadequate and an interim logistics support contract is still in the planning stages.

We disagree with comments 3, 23, 24, and 25. The Military Deputy's comments indicated ground clearance is an issue but not a severe problem and that increased training can reduce damage. Increased operator training is commendable but the vehicle's ground clearance will remain problematic, especially at locations with less than ideal surfaces. Also, restricting the vehicle to areas without flight line

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elevation changes may reduce potential damage, but it will also diminish the vehicle's operational effectiveness.

We disagree with comments 27 and 28. The Military Deputy indicated that users of the NSGL were polled and that they were satisfied with the NGSL. He also stated that certain locations contained additional NGSLs that were stationed for rapid deployment and thus saw limited use. Operators that we spoke to told us they do not frequently use the NGSL because it is unreliable and has insufficient ground clearance. The Military Deputy's comments provided additional background on deployment scenarios but did not dispute that at two of the largest Air Force airlift locations, Dover AFB and Charleston AFB, NGSLs operated an average of 4 hours per week in FY 2005.

## **Recommendations, Management Comments and Audit Response**

We recommend that the Air Force Office of the Assistant Secretary (Acquisition):

**1. Delay any further procurement of NGSL vehicles until reliability issues have been resolved and the vehicle receives a certified acceptable rating for mission capability.**

**Management Comments.** The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) nonconcurred and stated that although reliability can be improved, performance data show the NGSL meets or exceeds AMC requirements and key performance parameters. He also stated that Air Force testing indicates that the NGSL meets MTBF requirements and that strong customer support emphasizes the need to acquire more NGSLs.

**Audit Response.** The Military Deputy's comments were nonresponsive and contrary to performance data given to us by the PEO, the Commander, WRALC, and the program office. The performance data clearly show that the reliability of fielded loaders is below AMC operational requirements (see Table 3). The Military Deputy states that reliability can be improved, but he does not offer a solution or plan of action. His statement regarding key performance parameters is contrary to the acquisition management plan and AFOTEC test results and is not supported by the performance data. During pre-award testing, AFOTEC independently concluded that more than one NGSL would be required to complete all necessary missions at a deployed location. As a result, the NGSL could not meet the key performance parameter that it be capable of loading all stated aircraft so a second loader will not be required. The Military Deputy did not provide a response to our recommendation that the vehicle receive a certified acceptable rating for mission capability. The NGSL has not received an acceptable rating for mission capability and the Military Deputy did not include corrective actions to obtain it. According to Air Force Mandatory Procedure 5315.3, "Source Selection," August 10, 2005, a proposal with an unacceptable rating for mission capability is not awardable. In addition, we found that NGSL operators do not strongly support acquiring additional vehicles. We

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request that the Air Force Office of the Assistant Secretary (Acquisition) reconsider its position and provide additional comments to the report.

**2. Require FMC to remedy the lack of adequate ground clearance to ensure the vehicle is sufficiently capable of traversing prepared and semi-prepared surfaces as required in the Operational Requirements Document.**

**Management Comments.** The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) nonconcurrent and stated the Air Force agrees the loader has low ground clearance, but that \$6 million is too much to expend for the required modification. He also stated only two loaders have sustained significant undercarriage damage and that 23 oil pans have been damaged. He further stated that AMC is addressing the ground clearance issue by increasing and improving operator training.

**Audit Response.** The Military Deputy's comments were partially responsive but did not address our concern regarding the vehicle's capability for traversing semi-prepared surfaces typically found at austere locations. According to the ORD, the NGSL is required to have the capability to operate at both established airfields and austere or semi-prepared, compacted landing areas at forward operating locations. NGSL operators told us that the lack of ground clearance limits the vehicle's utility. The NGSL needs more ground clearance to successfully interface with Air Force transport aircraft, such as the C-130 Hercules and C-17 Globemaster III, which can land on unpaved airfields. We do not agree that \$6 million is a prohibitively high cost to improve ground clearance given the Air Force's \$151.5 million investment to field the NGSL, and given that the NGSL's mission requires it to operate in remote locations on less than ideal surfaces. We believe that the Air Force needs to reevaluate whether \$6 million is a reasonable cost, considering the NGSL's mission as a deployable asset to support aircraft that can land on remote locations. Without improvements the NGSL cannot effectively interface with aircraft even on improved surfaces. We commend the efforts to improve training but remain convinced that the ground clearance must be remedied to improve the usefulness of the vehicle on all types of surfaces. We request that the Air Force Office of the Assistant Secretary (Acquisition) reconsider its position and provide additional comments to the recommendation.

**3. Consider other options, including use of the 60K Tunner Cargo loader as an alternative to procurement of additional NGSLs.**

**Management Comments.** The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) nonconcurrent and stated that the 60K Tunner has a different mission and that the NGSL has the unique requirement to be transportable on a C-130 for deployment to austere locations. He also stated that AMC is responsible for NGSL basing levels.

**Audit Response.** The Military Deputy's comments were nonresponsive and contrary to AMC fact sheets for both vehicles. According to AMC, the missions for the 60K Tunner and NGSL are quite similar: both are mobile loaders that are rapidly deployable and are used to load and unload cargo from all Military and civilian transport aircraft. Fielding data provided by the program office show that 71.6 percent of the NGSL fleet is collocated with a 60K Tunner. Most of the 98

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NGSLs that are not collocated are assigned to National Guard units and Air Force Bases in the United States, not overseas. While we agree that the NGSL is uniquely capable of C-130 transport, we concluded that the cargo loaders do not perform divergent missions and that the Air Force needs to consider other options as an alternative to procuring additional NGSLs that cannot meet operational requirements for reliability. We request that the Air Force Office of the Assistant Secretary (Acquisition) reconsider its position and provide additional comments to the report.

**4. Improve controls to ensure that future FAR Part 12 acquisitions adequately meet Air Force operational requirements. The oversight should ensure that program officials comply with Air Force Mandatory Procedure 5315.3, "Source Selection," August 10, 2005, and that contract proposals with red-flagged reliability problems are not awarded.**

**Management Comments.** The Military Deputy, Office of the Assistant Secretary of the Air Force (Acquisition) concurred and agreed to ensure that future Federal Acquisition Regulation Part 12 acquisitions adequately meet Air Force operational requirements.

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## Appendix A. Scope and Methodology

We assessed whether Air Force officials complied with procurement procedures as implemented by Federal Acquisition Regulation Part 12 “Acquisition of Commercial Items.” Specifically, we determined whether Air Force contracting officials properly awarded contracts for a Next Generation Small Loader that met Air Force operational requirements.

We obtained procurement documents and reports from Air Force officials. Specifically, we analyzed copies of acquisition strategies and plans, system performance requirement documents, operational requirements documents, requests for proposals, memorandums, briefing charts, e-mail, NGSL operational test reports, and other miscellaneous documents to determine whether the Air Force had an appropriate method and rationale for procuring the NGSL, whether the NGSL met operational requirements, and whether the procurement was unduly influenced by Darlene Druyun during her tenure as the Principal Deputy Assistant Secretary of the Air Force (Acquisition and Management).

We also obtained FY 2005 reliability data from the NGSL program office that we verified with data we obtained at Dover and Charleston Air Force Bases. Specifically, we analyzed data extracted from the On Line Vehicle Information Management System to determine maintenance ratio, average vehicle downtime, operational availability, average operating hours, and failure rates for NGSL vehicles assigned to Dover and Charleston Air Force Bases. We compared our results to fleet-wide data provided by the program office. The FY 2005 fleet-wide data provided by the program office did not include data for the month of September.

We interviewed personnel at Warner Robins Air Logistics Center, Wright Patterson Air Force Base, Dover Air Force Base, Charleston Air Force Base, and Nellis Air Force Base. Specifically, we interviewed current and former program officials, contracting officials, current and former engineers, and NGSL maintainers and operators.

Most of the documents we obtained, except for the FY 2005 reliability data, were created between FY 1997 and FY 2002. We performed this audit from June 2005 through March 2006 in accordance with generally accepted government auditing standards.

We did not review the managers’ internal control program. We did review compliance with laws and regulations related to the acquisition of DoD materiel handling equipment.

**Use of Computer-Processed Data.** We did not use computer-processed data to perform this audit.

**Government Accountability Office High-Risk Area.** The Government Accountability Office has identified several high-risk areas in DoD. This report provides coverage of the DoD Contract Management high-risk area.

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## **Prior Coverage**

No prior coverage has been conducted on the NGSL during the last 5 years.

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## Appendix B. Summary of Potential Monetary Benefits

<u>Recommendation Reference</u>	<u>Type of Benefit</u>	<u>Amount of Benefit</u>	<u>Account(s)</u>
1	FY 2006/2007 Acquisition Funds Put to Better Use.  Additional Delivery Orders will not be issued on Contract Number FA8519-06-D-0001	\$31.2 million	Air Force Procurement

# Appendix C. Memorandums on the FY 2006/2007 Procurement



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202-4704

October 6, 2005

## MEMORANDUM FOR COMMANDER WARNER ROBINS AIR LOGISTICS CENTER

SUBJECT: Presolicitation Notice for Procurement of the Halvorsen Aircraft Cargo  
Loaders (Solicitation Number FA8533-05-R-78002)

As part of the "Audit of Procurement Procedures Used for Next Generation Small Loader Contracts," (Project No. D2005-D000FJ-0207 000), we are reviewing the rationale and methodology used to justify the purchase of the FMC "Halvorsen" as the next generation small loader rather than the lower cost small loader manufactured by Teledyne Brown Engineering (TBE). We are also reviewing the logistics support contract for the Halvorsen and follow-on procurements for the Halvorsen. We have concluded that neither the FMC nor the TBE cargo loaders were sufficiently capable of meeting the Air Force requirements for reliability, maintainability, and availability. Any additional procurement, including the subject presolicitation notice for the purchase of 65 Halvorsen cargo loaders (at an estimated total cost of \$43.1 million), should be postponed until a suitable cargo loader is developed.

Prior to the award of the full rate production contract for the Halvorsen cargo loader, Air Force testers concluded that the FMC Halvorsen's system reliability and vehicle in-commission rates were below Air Mobility Command requirements and that the loader was therefore not suitable to meet Air Force operational requirements. Specifically the testers found:

- Mean time between failure rate of 4.0 hours (requirement of 60 hours)
- Mean time between critical failure of 11.1 hours (requirement of 1,500 hours)
- Maintenance man hour per operating hour of 0.51 (deemed unacceptable)
- Vehicle in commission rate of 69.3% (requirement of 88%)
- Mission completion success probability of 29% (rated unacceptable)

The testers also found that the TBE cargo loader was unreliable with a mean time between maintenance actions of 12 hours, mean time between critical failure of 44 hours, and a mission completion success probability of only 26%.

The Air Force awarded the contract to FMC in 2000 despite the inadequate reliability of the FMC cargo loader. In addition, the Program Executive Officer (Airlift and Trainers) waived the reliability performance measure in October 2001 and proceeded with full rate production.

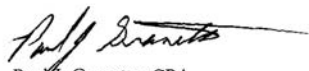
Since 2001 the Air Force has fielded over 300 of the FMC Halvorsen cargo loaders. Reliability continues to be problematic. FY 2005 operational data show the following:

- In February of 2005 about one third of the entire fleet (over 100 vehicles) reported zero operating hours
- Frequent malfunctions result in an average down time of eight hours for every hour the vehicle is operated.
- Maintenance man hour per operating hour is about 0.6 - worse than was observed by the testers.
- Operational availability is below 15 percent.

We visited one activity that uses the Halvorsen loader. Halvorsen operators and maintainers told us that the Halvorsen cargo loader is fragile, prone to overheating, has insufficient ground clearance, and is in constant need of repair. The vehicle operators told us that because of these problems they would rather use any other vehicle to move cargo, including a forklift, than the Halvorsen loader.

In 2000 the Air Force justified selecting the higher priced FMC Halvorsen loader (over the TBE loader) in part because it represented a better value. We have concluded that the continuing maintenance issues contradict this determination and that the FMC Halvorsen loader is unsuitable for the rigors of Military use. It is also our understanding that the proposed procurement (identified in the subject presolicitation notice) includes a \$177,000 per unit price increase over the initial production cost. This represents a cost increase of 43 percent per vehicle. We have found no justification for this price increase. Accordingly, pending the completion of our review, we recommend that the Warner Robins Air Logistics Center delay the pending procurement of FMC Halvorsen cargo loaders.

If you have any questions about the content of this memorandum, call Mr. Curt W. Malthouse at (614) 751-1400 ext. 230. Your assistance in this matter is appreciated.



Paul J. Granetto, CPA  
Assistant Inspector General  
Defense Financial Auditing  
Service



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AERONAUTICAL SYSTEMS CENTER (AFMC)  
WRIGHT-PATTERSON AIR FORCE BASE OHIO

17 Jan 2006

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL  
DEFENSE FINANCIAL AUDITING SERVICE  
ATTENTION: MR. PAUL GRANETTO

FROM: ASC/CC  
1865 Fourth Street  
Wright-Patterson AFB OH 45433-7126

SUBJECT: Audit Project D2005-D000FJ-0207 (your memo, 6 Oct 05)

1. The subject memorandum originally went to the Warner Robins ALC Commander and he has provided a response to me (Atch 1). However, I am writing you since the Halvorsen program is under my purview as the Program Executive Officer. I want to thank you for the time and effort your team invested in examining the initial acquisition of the Halvorsen loader and the subsequent protest. I also understand your audit included an evaluation of the performance and suitability of the loader for its mission, which has generated your concerns.
2. During your review, the Tunner/Halvorsen Systems Squadron provided detailed information in response to questions regarding the Halvorsen's operational performance. Although there are areas in which the Halvorsen can be improved, performance data shows the loader meets or exceeds the requirements as defined by the AFROCC approved Operational Requirement Document, dated 16 Aug 01. The customer, Air Mobility Command (AMC), concurs with that sentiment and expresses high confidence in the Halvorsen as evidenced by the attached memorandum (Atch 2).
3. Therefore, after carefully reviewing the concerns outlined in your letter and considering AMC's support for the system and the needs of the warfighter, I decided that it is in the best interest of the Air Force to proceed with the FY06/07 procurement contract. Any further delay in this procurement will negatively impact the Air Force's global mobility mission and result in a costly production line break. I am confident that we can resolve any remaining concerns while continuing the delivery of this critical asset to operational units.
4. The Tunner/Halvorsen Systems Squadron is ready to assist your audit team to ensure all concerns are addressed when the draft report is formally published.

*John L. Hudson*  
JOHN L. HUDSON  
Lieutenant General, USAF  
Commander

2 Attachments:

1. WR-ALC/CC letter, dtd 12 Jan 06
2. AMC/CV letter, dtd 1 Nov 05



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS WARNER ROBINS AIR LOGISTICS CENTER (AFMC)

12 January 2006

MEMORANDUM FOR ASC/CC *for Lt Janob*

FROM: WR-ALC/CC  
215 Page Road, Suite 269  
Robins AFB GA 31098-1662

SUBJECT: Audit Project D2005-D000FJ-0207 (DoD/IG Memo, 6 Oct 05)

1. I understand you plan to respond to referenced DoD/IG memorandum. The Halvorsen program, under your purview as the Program Executive Officer, was moved to the Warner Robins Air Logistics Center in 2004. Since that time, we have provided contractual oversight support to the program, and I have been briefed on the DoD/IG initial audit results.

2. I support the decision to proceed with the FY06/07 Halvorsen procurement because of the vital support it provides the USAF airlift system. As noted by Lieutenant General Nathan Bedford Forrest, "Get there first with the most men." This piece of equipment is critical to our airlift mission and ultimately makes us a more effective fighting force. More importantly, this equipment is replacing legacy loading systems, the 25K and 40K loader. As can be noted in the following table, the Halvorsen is providing improved performance over the legacy systems in Mean Time Between Failure (MTBF) time and Vehicle In Commission (VIC) rates. The following data was reported by the Consolidated Automated Reporting System.

	MTBF FY04	MTBF FY05	VIC FY04 %	VIC FY05 %
Legacy 25K	19.8	18.5	81.5	80.9
Legacy 40K	18.4	10.6	81.4	85.0
Halvorsen	21.7	23.9	89.8	86.1

Additionally, the legacy systems are experiencing the same challenges with parts obsolescence and diminishing manufacturers for spare parts as older equipment throughout the Air Force. This will continue to impact and reduce MTBF and VIC rates.

3. I am confident that any concerns can be resolved while continuing delivery of this critical asset to operational units.

*v/r*  
*Michael A. Collings*  
MICHAEL A. COLLINGS  
Major General, USAF  
Commander

cc:  
HQ AFMC/A4



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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR MOBILITY COMMAND

NOV 01 2005

MEMORANDUM FOR ASC/CC

1856 4th Street  
Wright Patterson AFB OH 45433-7126

FROM: AMC/CV  
402 Scott Drive, Unit 3EC  
Scott AFB IL 62225-5310

SUBJECT: Presolicitation Notice for Procurement of the Halvorsen Aircraft Cargo  
Loaders (Solicitation Number FA8533-05-R-78002)

1. We appreciate that your team is actively working a response to the Reliability and Maintainability claims addressed in the above referenced memo. Bottom-line: 337 Halvorsen loaders are performing well and are in high demand, especially in the AOR.
2. The DOD IG memorandum comes as a complete surprise and, quite frankly, a total shock to AMC. The IG memo does not reflect the reality of our observations of the Halvorsen's performance in the field. The fact is the Halvorsen exceeds our ORD requirements and has proven itself throughout numerous "real world" situations.
3. As AMC and ASC work together with the IG to resolve this issue, it behooves us to keep FMC informed and partnered during this unforeseen situation. ASC must be prepared to move swiftly with necessary contracting actions once this issue is resolved to preclude an FY06 production line shut-down. We do not want that to happen! As a team, we are confident we will get through this and want to thank you for your team's continued support to the MAF warfighters.
4. Should your staff have any questions, please have them contact Mr. Mark Atkins at DSN 779-2213, E-mail: [mark.atkins.ctr@scott.af.mil](mailto:mark.atkins.ctr@scott.af.mil).

CHRISTOPHER A. KELLY  
Lieutenant General, USAF  
Vice Commander

Attachment:  
DOD IG Memo, 6 Oct 05

AMC--GLOBAL REACH FOR AMERICA



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## **Appendix D. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition, Technology, and Logistics  
Director, Acquisition Resources and Analysis  
Under Secretary of Defense (Comptroller)/Chief Financial Officer  
Deputy Chief Financial Officer  
Deputy Comptroller (Program/Budget)  
Director, Program Analysis and Evaluation  
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### **Joint Staff**

Chairman, Joint Chiefs of Staff

### **Combatant Command**

Inspector General, U.S. Joint Forces Command

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## **Congressional Committees and Subcommittees, Chairman and Ranking Minority Member**

Senate Committee on Appropriations

Senate Subcommittee on Defense, Committee on Appropriations

Senate Committee on Armed Services

Senate Committee on Homeland Security and Governmental Affairs

House Committee on Appropriations

House Subcommittee on Defense, Committee on Appropriations

House Committee on Armed Services

House Committee on Government Reform

House Subcommittee on Government Efficiency and Financial Management, Committee on Government Reform

House Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform

House Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census, Committee on Government Reform



# Office of the Assistant Secretary of the Air Force (Acquisition) Comments



OFFICE OF THE ASSISTANT SECRETARY

DEPARTMENT OF THE AIR FORCE  
WASHINGTON DC

9 JUN 2006

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL  
ATTN: MR. JAMES KORNIDES

FROM: SAF/AQ

SUBJECT: Draft Audit Report, Dated 20 Apr 06, Project No. D2005-D000F J-0207.000  
Procurement Procedures Used for Next Generation Small Loader (NGSL) Contracts

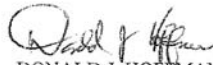
Thank you for the time and effort your team invested in examining the procurement procedures used for Next Generation Small Loader (now the Halvorsen loader) contracts. I also appreciate the opportunity for the Air Force to review the draft audit report.

The Air Force has thoroughly reviewed and partially concurs with the DoD IG's overall assessment of the Halvorsen loader program and recommendations. Air Force comments are summarized below:

- a. Recommendation 1 – Non-concur. The Air Force non-concurs with the recommendation to delay any further procurement of NGSL vehicles. Although Halvorsen reliability can be improved, performance data shows the Halvorsen loader meets or exceeds Air Mobility Command requirements and key performance parameters. Air Force testing indicates the loader meets mean time between failure (MTBF) requirements and the loader has proven itself in day-to-day operations around the world. Strong customer support emphasizes the need for continued procurement of Halvorsen loaders to meet mobility warfighter needs.
- b. Recommendation 2 – Non-concur. The Air Force non-concurs with the recommendation concerning ground clearance. While the Air Force agrees the loader has a low ground clearance, the high cost (\$6M to modify the fleet) and low benefit, make it impractical to modify over 350 loaders to improve ground clearance. Over the 5 years since initial fielding, only two loaders have had significant undercarriage damage and 23 oil pans have required replacement (\$18,700 spent to date). AMC is addressing the ground clearance issue by increasing and improving operator training.
- c. Recommendation 3 – Non-concur. The Air Force non-concurs with the recommendation to consider other options, including the 60K Tunnar Cargo loader, as an alternative to procuring additional Halvorsen loaders. The 60K Tunnar has a different mission and is designed to function best at strategic aerial ports. The Halvorsen loader has the unique requirement to be C-130 transportable for deployment to austere locations. Basing and quantities for the Halvorsen loader are driven by AMC war plans.
- d. Recommendation 4 – Concur. The Air Force concurs with the recommendation to ensure that future FAR Part 12 acquisitions adequately meet Air Force operational requirements. Prior to entering full-rate production, the PEO took the necessary steps to ensure the loader met AMC requirements. Additionally, the Air Force is working towards FAR Part 15 compliance for follow-on Halvorsen loader long-term sustainment.

The attached comment matrix provides additional comments on the draft report. The Halvorsen loader continues to meet AMC operational requirements and key performance parameters of cargo load type, aircraft interface, and air transportability. The Air Force acquisition community plans to continue acquiring Halvorsens as long as the warfighter funds the procurement.

The SAF/AQ staff stands ready to assist in any way to ensure all concerns are addressed prior to the final report publication. My points of contact are Major Rob Schlegel at (703) 588-7745 and Ms. Lisa Robinson at (703) 588-7747.



DONALD J. HOFFMAN, Lt Gen, USAF  
Military Deputy, Office of the Assistant Secretary  
of the Air Force (Acquisition)

Attachment:  
Comment Matrix

**Halvorsen Loader Draft DoD IG Report -Comments Matrix**

Item	Page	Para	Line	DoD Inspector General Draft Report Statement	Air Force Comments
1	3	2	5-6	This strategy was expected to eliminate the need to send two pieces of material handling equipment to a deployed location.	The goal of the NGSIL acquisition was to acquire and replace the WBEL and legacy 25K loader. Although reliability is very important, it was never a Key Performance Parameter (KPP). The three KPPs for the program are: 1) load types, 2) aircraft interface, and 3) air transportability.
2	3	1	7-9	Operational data from FYs 04 and 05 indicate that the NGSIL still has not met the critical requirement of functioning for an average of 40 hours without repair.	NGSIL met MTBF requirement during follow-on R&M testing with a measured MTBF of 43.6 hours. FY 04 & 05 operational data extracted from the CARS database does not distinguish between inherent or induced failures; therefore, the resulting MTBF measurement inaccurately portrays the reliability of the fleet. The only way the CARS data could be used to do valid an independent test on the loaders and conduct a JRMET to score the specific failures/occurrences of maintenance activities.
3	3	1	9-11	In addition, the NGSIL does not have adequate ground clearance to fully perform its mission.	Ground clearance is not optimal, but this can be mitigated through focused training and operator awareness. However, since surfacing as a problem, the program has only had two significant accidents at one location (Charleston AFB). The OEM provided two estimates for increasing ground clearance. One approach involved adding spacers to lift the chassis (\$5.6M to modify the feet). The other approach involved modifying the suspension (\$18.7M to modify the entire feet).
4	3	1	14-17	As a result of the reliability problems, the Air Force cannot meet a key performance parameter (KPP) and must deploy two vehicles to meet surge scenario requirements instead of one.	Although loading cargo aircraft is a KPP, the Halvorsen loader has capability to replace two Legacy loaders. The loader can service wide body aircraft like the WBEL and can service military aircraft like a Legacy 25K. Deployment as the IG indicates (two loaders to support surge scenario) is not a KPP.
5	4	3	8-10	In addition, the acquisition plan included a KPP that required the NGSIL to be capable of loading all aircraft so that a second loader would not be required for contingencies.	The KPP was for the NGSIL's ability to interface with all aircraft and a factor of its design (i.e. perform load, unload, and transport without the aid of additional MHE). This capability eliminated the two previous specialized loaders, which were both limited by their design and were required to work in conjunction with one another to perform the same task as a single Halvorsen performs today. The interface requirement was not a driver for reliability.
6	5	2	4-5	AFOTEC concluded that a deployed location would require more than one loader to ensure all assigned missions were accomplished.	AFOTEC OOT&E report later restated that if the discrepancies reports (DRs) were corrected, the loader would meet AMC requirements. The IG failed to take into account recent deployment requirements and history, which demonstrates a standard tasking for NGSIL loaders and requires only one loader be deployed.
7	4	1	6-9	WR-ALC officials told us that Druyun transferred the NGSIL program because she wanted to aggressively pursue the new acquisition despite cost overruns and delays that had already plagued the 60K Turner cargo loader program and that they believed could occur on the NGSIL.	Acquisition of non-developmental items was a cost savings initiative over a developmental program and avoided development cost overruns as experienced on the 60K (Turner) program.
8	4	1	11-13	The program officials were expected to ensure that the NGSIL was reliable enough to meet the user's operational reqmts before awarding contracts to FMC in FY00 & FY06.	The FMC loader met and continues to meet operational requirements prior to full rate production decision and subsequent contract award.
9	5	1	5-7	The ORD specified that readiness would be measured using a formula called "mission success completion probability." "Mean time between critical failure" is a component of this formula.	This was identified in ORD I, dated 15 Feb 98, and removed in ORD III, dated 02 Jul 01.
10	5	4	1-3	AFOTEC reported that the FMC loader exceeded the weight requirements specified in the ORD and was not reliable enough to complete all mission requirements during a 60-day deployment.	Prior to milestone III decision, improvements made by FMC reduced the overall weight to meet the stated requirement in ORD III. Changes included deck materials made of aluminum vice steel, elimination of stabilizer struts, and changing out the engine with a lighter one.

**Halvorsen Loader Draft DoD IG Report -Comments Matrix**

Item	Page	Para	Line	DoD Inspector General Draft Report Statement	Air Force Comments
11	5	2	4-6	As a result, AFOTEC concluded that a deployed location would require more than one loader to ensure all assigned missions were accomplished.	AFOTEC QOT&E report also stated, "Improvements in the tech manuals along with the implemented and proposed design changes by the contractor will provide AMC not only with an effective loader but also a loader suitable to meet mission requirements."
12	7	2	1-5	AFOTEC determined that the low reliability demonstrated during the test would deplete available resources during a deployment. Specifically, AFOTEC concluded that more than one loader would be required to complete all necessary missions at a deployed location thus requiring additional maintenance resources and an additional aircraft sortie if transported by a C-130.	AFOTEC QOT&E report, page 11 & 13 -- "With the changes implemented and proposed by the contractor, AFOTEC recommends fielding the NGSJ after fixing verification of the DRs."
13	6	6	2-4	Overall, AFOTEC concluded that the FMC loader, as configured, was unsuitable for its intended mission and that the system's reliability did not meet AMC's operational requirements.	AFOTEC QOT&E report included comments from the AFOTEC Commander, "with the changes already implemented and the proposed corrections to the DRs, AFOTEC anticipates the NGSJ to be not only an effective loader, but also suitable to meet AMC's mission requirements." AFOTEC OA Final Report (dated Mar 00) stated, "Based on the results of this assessment and observations by the test team, the FMC loader demonstrated adequate progress toward meeting the user's requirements. Assuming the system program office resolves open deficiencies prior to system fielding, the loader should not impose any undesirable burdens on the Air Force to deploy, employ, and sustain mobility operations worldwide."
14	7	4	6-7	Red-flagged items identified by AFOTEC in the previous test were not resolved.	All DRs noted in both the QOT&E and R&M test were monitored by the program office and discrepancies were resolved.
15	8	1	3-6	A failure occurs when an item, or part of an item, does not perform as specified. AMC approved a 40-hour MTBF (threshold) at the start of production and a 60-hour MTBF (objective) at the end of the production. The former chief engineer told us that FMC established the MTBF.	FMC provided engineering expertise and insight into what would be an achievable MTBF threshold and objective. TBE and FMC were both asked to provide a plausible MTBF. TBE proposed 100 hours based on eliminating tailed items. FMC proposed a 40/60-hour program based on reliability growth.
16	8	2	1-7	The R&M results were better than the AFOTEC test. The MTBF was 43.4 hours. However, engineering personnel told us, they did not count all the loader failures when calculating the MTBF, and that they used a different methodology for classifying failures than did AFOTEC. Including all the failures would have reduced the MTBF below the 40-hour threshold. The chief engineer told us that meeting the 40-hour threshold was crucial for proceeding to full rate production.	The R&M tests used the same JRMET standards set by AFOTEC. Furthermore, while AFOTEC personnel were not physically present for the test, the Chief Engineer consulted AFOTEC by phone throughout the test. A final copy of the R&M report was forwarded to AFOTEC for comment and none were received.
17	8	3	6-8	In the memorandum, the PEO directed the program director to improve reliability and achieve 60 hours MTBF by the end of FY02	AFPEO/AT letter, dated 26 Oct 01, "I direct the program office to continue to assess and improve loader reliability during the planned yearly health surveys and I challenge you to achieve the 60-hour mean time between failure by the end of FY02." Although the MTBF was not at 60 hours by FY02, it did surpass the 60 hours during the Jan 04 End-of-Production testing, where it achieved a JRMET score of 96.13 hours MTBF.
18	8	3	8-9	Operational data that we obtained showed reliability has not improved and did not meet ORD requirements in either FY 2004 or FY 2005.	MTBF figures provided in the WR-ALC/CC letter are based on data from the OL VIMS system.

**Halvorsen Loader Draft DoD IG Report -Comments Matrix**

Item	Page	Para	Line	DoD Inspector General Draft Report Statement	Air Force Comments
19	8	4	3	...MTBF of 23.9 hours in FY 2005 (below ORD threshold of 40 hours).	MTBF cannot be calculated from the field data alone, but is established using the JRMET process. This is the same procedure used by AFOTEC. At the start of operational testing, the MTBF of the NGS, expressed as a function of engine operating hours, shall be 40 hours. At the end of production and after reliability growth, the MTBF should be at least 60 hours when measured in a controlled 90-day test conducted in a similar manner to that used in the OT/RM test of the first 4 LRIP loaders.
20	8	4	4-5	Maintenance ratio is 0.64 (ORD threshold requires not more than 0.3)	This metric does not represent the true system reliability. The maintenance ratio was not included as a KPP. KPPs are referenced in #1 above. The maintenance data system captures every action when the vehicle comes into the shop, i.e., opening a work order, initial/final inspections, wrench turning time/repair, delayed maintenance, accident and abuse repairs, parts research, and shop clean-up.
21	8	4	6-7	In July of 2005 more than one third of the entire fleet (120 vehicles out of 345 total) reported 0 operating hours	This reference is incorrect since the AF did not accept the 345 <sup>th</sup> loader until Dec 05. At the end of Jul 05, there were approximately 328 loaders in-place or in the delivery pipeline. The explanation for zero operating hours is the vehicle was either filling a mobility requirement and received only minimum hours or more likely, there were no maintenance/fuel actions. Operating hours are captured only during maintenance actions or when a vehicle is fueled.
22	8	5	1-2	We concluded that program officials have not improved the reliability of the NGS as directed by the PEO in FY 2002	AFPEO/IAT letter dated 26 Oct 01 (BGen Chedister) stated, "...I challenge you to achieve the 60-hour mean time between failure by the end of FY02." The SPO, FMC, and AMC conduct bi-monthly engineering meetings to discuss issues with the loader. The meeting results in changes, improvements to the loader, and enhanced reliability. For example, SNAS, positive pressure on the brake system, auto-lube/cab cooling, and starter. FMC made changes to include an alternator, transmission, e-pump. End of production testing performed by the OEM and monitored on-site by the AF Chief Engineer showed steady improvement to more than 96 hours MTBF.
23	8	6	4-7	NGSL operators do not completely agree with this assessment. We visited three Air Force activities that use the NGS and found that vehicle Operators are not satisfied with the NGS because it has insufficient ground clearance, is fragile, and is in constant need of repair.	The AF agrees that ground clearance is an issue. However, when ground clearance issues were first identified, the SPO and AMC requested FMC look into modifying the loader to gain additional clearance. Since the only parts replaced at that point were oil pans, the decision was to forgo performing any type of modification. As of this report, FMC has issued 23 oil pans with only two significant accidents are a result of the low ground clearance. AMC plans to take a more aggressive approach to training and operator awareness. The IG interviewed operators and maintainers at three locations (Dover, Charleston, and Nellis AFB). AMC polled over 30 locations shortly after the IG investigation started and although there were comments relating to ground clearance, it was not as severe of a problem as the IG alludes to in their report. To date, two significant accidents have occurred (Charleston AFB). Bottom line, this is an awareness/training issue. See #3 above.
24	9	2	4-7	The former chief engineer told us that FMC's solution was too costly to implement. Program officials also told us that they did not know the frequency or extent of the damage to vehicles caused by the lack of ground clearance.	
25	9	4	1-3	The ORD specifies that the NGS be able to traverse semi-prepared surfaces, such as gravel, perforates steel planking, and rapid runway repair slabs, which are typically found at austere locations overseas.	ORD reads: Should have traverse capability to perform loading on semi-prepared surfaces (gravel, PSP, RRR slab) and in snow, sleet, sand, standing water, and mud on an improved surface. ORD III reads: Shall be capable of traversing semi-prepared surfaces and negotiating snow, sleet, sand, standing water, and mud on an improved surface at reduced speeds (threshold).

**Halvorsen Loader Draft DoD IG Report -Comments Matrix**

Item	Page	Para	Line	DoD Inspector General Draft Report Statement	Air Force Comments
26	9	6	1-3	The operators also told us that other parts of the vehicle, such as guide rails and the omni rollers, are easily damaged during routine operations.	Essentially, ORD III was modified and consequently, operations on taxiways, runways, and aerial port parking areas were sufficient. Note – Training will be reviewed to ensure locations with unique parking locations with flight line elevation changes are adequately addressed for both active duty and ARC personnel. Guide rails and omni roller problems are not new to the program. These items have been on the engineering priority list or changes or modifications that get reviewed monthly for possible actions. Although rails are not currently being addressed (activity not significant enough to warrant a change) the rollers are part of an AF form 1067 action and are being considered for modification. Additionally, AMC/AATE already started making changes to their training plan to add single pallet loading procedures to eliminate damage to the rollers.
27	9	6	5-6	Operators told us that they would rather have more 60K Turner cargo loaders than additional NGSLs that they won't use.	This was a subjective assessment and when AMC/ASQL polled the field (see comment #23 above), the response was the NGSL was great and they wanted more. In fact, one ARC unit responded with "give them to us if they do not want them."
28	9	6	6-9	We verified that NGSLs are infrequently used at large aerial ports. For example, in FY 2005, NGSLs assigned to Dover AFB and Charleston AFB operated an average of only 4 hours per week.	A specific number of loaders at Dover, McGuire, Charleston, Travis and McChord AFBs are assigned to support a mobility/urgent deployment taskings and consequently see little use. The primary mission of these loaders is to be available for rapid deployment to other theaters during contingencies such as the Indonesian earthquake support in May 06.
29	10	1	4-6	FY 2005 data provided by the program office show that the 60K Turner is more than twice as reliable as the NGSL.	Again, the CARS MTBF data does not provide an accurate assessment of the reliability of the fleet.
30	10	2	1-7	Parts Support. Maintainers told us that the NGSL is easy to work on but that parts support is inadequate, sometimes taking up to 5 weeks for delivery...Air Force official told us that they are planning to establish an interim logistics support contract with FMC to provide better support.	AMC and the SFO are well aware of the parts support issue and are actively working an Interim Contract Support (ICS)/Contractor Logistics (CLS) Support structure for the fleet.
31	10	3	1-4	The FY 2005 fleet-wide maintenance ration of 0.64 is double the ORD requirement of 0.3. The maintenance ration quantifies the relative labor effort required to maintain the NGSL and is a key performance parameter that is included in the contract.	This metric does not represent the true system reliability. The maintenance ratio was not included as a KPP. KPPs are referenced in #1 above. The maintenance data system captures every action when the vehicle comes into the shop, i.e., opening work order, initial/final inspection, wrench turning time/repair, delayed maintenance, accident and abuse repairs, parts research, and shop clean-up. Therefore, this is not a true representation of failure repair time only.
32	10	5	1-2	Air Force officials continue to aggressively acquire more NGSLs despite the long-standing reliability and ground clearance problems.	The VIC for the NGSL fleet is consistently in excess of 88% over the past 2 years. The Air Force does not consider low ground clearance enough to warrant terminating acquisition (see #3 above). The ORD III called for the loader to maintain an 88% VIC and it does.
33	11	3	1-4	In the cover memorandum, the PEO told us that the Air Force is proceeding with the procurement because AMC has high confidence in the NGSL and because performance data show "the loader meets or exceeds the requirements as defined" in the ORD. However, the information given to the PEO is incorrect. Three of the four performance measures referenced in the memorandum do not meet the requirements in the ORD.	As mentioned in #1 above, the NGSL met all of the 3 KPPs and none of them referred to R&M requirements.

## **Team Members**

The Office of the Department of Defense Office of the Deputy Inspector General for Auditing, Defense Financial Auditing Service, prepared this report. Personnel of the Department of Defense Office of Inspector General who contributed to the report are listed below.

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