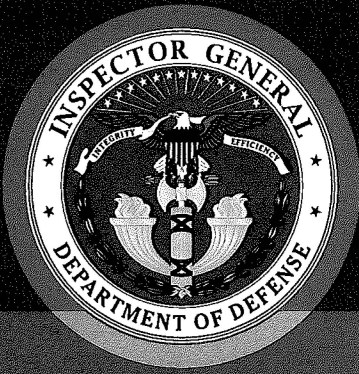


SECRET



INSPECTOR GENERAL

U.S. Department of Defense

AUGUST 13, 2018



(U) Air Force C-5 Squadrons' Capability to Meet U.S. Transportation Command Mission Requirements

Classified By: DoD OIG (b) (6)

and Global Operations

Derived From: Multiple Sources

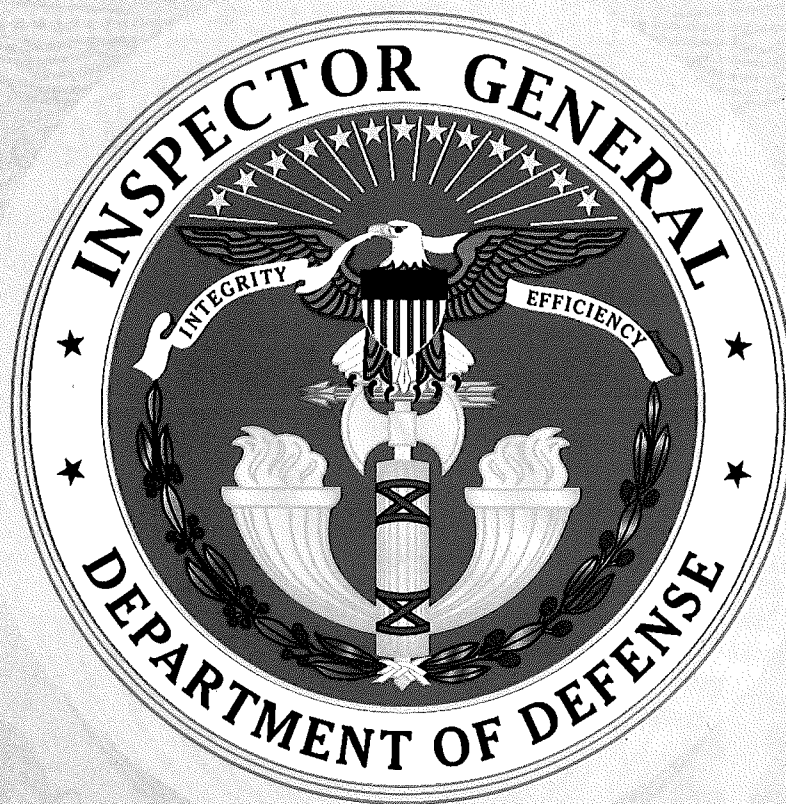
Declassify On: 20430813

Readiness

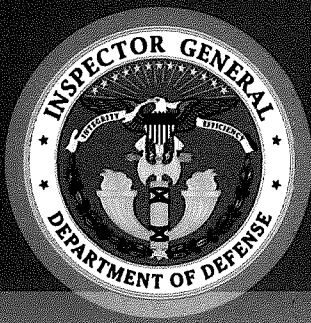
INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

SECRET

~~SECRET~~



SECRET



(U) Results in Brief

(U) Air Force C-5 Squadrons' Capability to Meet U.S. Transportation Command Mission Requirements

(U) August 13, 2018

(U) Objective

(S) We determined whether Air Force C-5 squadrons have adequate mission capable aircraft and training to support U.S. Transportation Command (USTRANSCOM) readiness mission requirements. We focused our audit on operational plan (OPLAN) ^{PER USTRANSCOM (b) (1), 1.4(a)} [REDACTED]

(U) Background

(U) The Air Force provides strategic airlift capabilities through its C-5 and C-17 squadrons. The C-5 is the largest airframe available to USTRANSCOM for strategic airlift with a cargo capacity of 141 tons. C-5s are required for specific oversized and outsized cargo that cannot fit on other aircraft, such as the CH-47 Chinook helicopter. In addition, using C-5s allows the military units to airlift cargo with minimal disassembly, allowing the units to use the equipment more rapidly once it reaches its destination. As of September 30, 2017, there were 52 C-5s in the Air Force inventory, of which 40 were funded and available for use. While the Air Force has possession of the 12 unfunded C-5s, it does not have funding for aircrew or maintenance personnel to operate the aircraft.

(U) The C-5 has been through two major upgrades. The most recent C-5 upgrades converted the C-5 Galaxy to the Super Galaxy. The Super Galaxy includes modernized avionics and new, more powerful and efficient engines.²

(U) Background (cont'd)

(U) The goals of the C-5 upgrades were to enhance aircraft reliability, maintainability, operational capability, and reduce overall cost of ownership.

(U) USTRANSCOM uses C-5s to support combatant command strategic airlift mission requirements. Combatant commands are responsible for anticipating and planning for military crisis and contingencies within their assigned area of responsibility. Combatant command officials develop OPLANs to identify contingency-specific scenarios and assumptions, and identify the resources needed to address those anticipated contingencies. OPLANs include commanders' requirements and identify when and where resources are needed.

(U) USTRANSCOM planners are responsible for forecasting and delivering resources identified in combatant commands OPLANs. According to a USTRANSCOM official, USTRANSCOM determines modes of transportation based on the priority, size, weight, and lead-time requirements to move the equipment. When USTRANSCOM is unable to meet the commander's delivery requirements, combatant command and USTRANSCOM planners meet to review and reprioritize the requirements.

(S) ^{PER USTRANSCOM (b) (1), 1.4(a); PER USINOPACOM (b) (1), 1.4(a), 1.4(g)} [REDACTED]

^{PER USTRANSCOM (b) (1), 1.4(a)} [REDACTED]

¹ (S) Updates to OPLANs are reflected in the plan identification number based on the fiscal year of the update. For this audit, we reviewed OPLAN ^{PER USTRANSCOM (b) (1), 1.4(a)} [REDACTED]. Throughout the report, we will refer to OPLAN ^{PER USTRANSCOM (b) (1), 1.4(a)} [REDACTED] as "OPLAN ^{PER USTRANSCOM (b) (1), 1.4(a)} [REDACTED]".

² (U) C-5 upgrades consisted of communication system enhancements, upgraded navigation systems, modernized surveillance and air traffic management systems, and new engines.

*(U) Air Force C-5 Squadrons' Capability to Meet
U.S. Transportation Command Mission Requirements*

(S) PER USTRANSCOM: (b) (1), 1-4(a); PER USINDOPACOM: (b) (1), 1-4(a), 1-4(c).

PER USTRANSCOM: (b) (1), 1-4(a). PER USINDOPACOM: (b) (1), 1-4(a), 1-4(g)

PER USTRANSCOM. (b) (1), 1-4(a). PER USINDOPACOM. (b) (1), 1-4(a), 1-4(g)

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

(S) As a result, the Air Force PER USTRANSCOM (b) (1), 1-4(a), PER

[REDACTED]

[REDACTED]

[REDACTED]

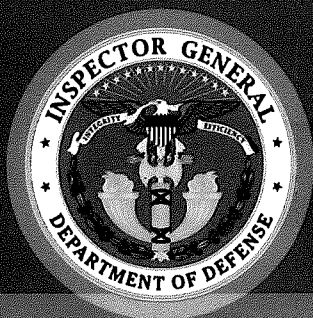
[REDACTED]

PER USTRANSCOM (b) (1), 1-4(a). PER USINDOPACOM, (b) (1), 1-4(a), 1-4(c)

1000

(U) The misalignment of maintenance personnel to the maintenance demands of the upgraded C-5 occurred because the Air Force based personnel authorization levels for C-5 maintenance career fields on outdated ratios identified in a 2002 logistics composite model.

SECRET



(U) Results in Brief

(U) Air Force C-5 Squadrons' Capability to Meet U.S. Transportation Command Mission Requirements

Findings (cont'd)

(S) As a result, Air Force C-5 aircraft maintenance squadrons

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(U) Recommendations

(S) We recommend that the AMC Commander determine

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(U) We recommend that the AMC Commander determine an accurate, supportable C-5 MC rate to be used in calculating airlift capabilities for OPLAN requirements. These supportable rates should be published in Air Force Pamphlet 10-1403.

(U) We recommend that the USTRANSCOM Commander use the supportable MC rates in the updated Air Force Pamphlet 10-1403 to recalculate the airlift requirements for the supported OPLANs.

(U) We recommend that the AMC Commander request the Air Force Manpower Analysis Agency to create a C-5 logistics composite model to identify aircraft maintenance authorization ratios that better align with current C-5 maintenance needs for use in determining future authorization levels.

(U) Management Comments and Our Response

(U) The USTRANSCOM Chief of Staff, responding for the AMC Commander, agreed with all of the recommendations.

(S) The Chief of Staff stated that USTRANSCOM and

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(U) The Chief of Staff also stated that AMC continues to monitor and will formulate a 6-month study to address an accurate, supportable C-5 mission capable rate.

(S) The Chief of Staff further stated that USTRANSCOM

will PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(U) The Chief of Staff also stated that the AMC will request the Air Force Manpower Analysis Agency to complete a review that focuses on proper future maintenance authorization ratios by January 18, 2019.

(U) Therefore, the recommendations are resolved, but will remain open until we can verify that the agreed upon actions have been implemented.

SECRET

~~SECRET~~

(U) Recommendations Table

Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
(U) Commander, U.S. Transportation Command	None	A.3	None
(U) Commander, Air Mobility Command	None	A.1, A.2, and B.1	None

~~SECRET~~

~~SECRET~~



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

(U) August 13, 2018

(U) MEMORANDUM FOR COMMANDER, U.S. TRANSPORTATION COMMAND
COMMANDER, AIR MOBILITY COMMAND

(U) SUBJECT: Air Force C-5 Squadrons' Capability To Meet U.S. Transportation Command Mission
Requirements (Report No. DODIG-2018-145)

(U) We are providing this report for your information and use. We conducted this audit in accordance with generally accepted government auditing standards. We considered management comments from the Chief of Staff, U.S. Transportation Command, when preparing the final report. Comments from the Chief of Staff conformed to the requirements of the DoD Instruction 7650.03. Therefore, we do not require additional comments.

(U) We appreciate the cooperation and assistance received during the audit. Please direct questions to me at DoD OIG (b) (6)

A handwritten signature in cursive script, reading "Michael J. Roark", is positioned above the printed name.

Michael J. Roark
Assistance Inspector General
Readiness and Global Operations

~~SECRET~~

(U) Contents

(U) Introduction.....	1
(U) Objective.....	1
(U) Background	1
(U) Review of Internal Controls.....	5
(U) Finding A.....	6
(S) Air Force C-5 Squadrons <small>PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)</small>	6
(S) Air Force C-5 Squadrons <small>PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)</small>	7
(U) Unfunded Aircraft and Inaccurate Forecasting Prevent Air Force Squadrons From Supporting C-5 Strategic Airlift Requirements	10
(S) The Air Force <small>PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)</small>	12
(U) Recommendations, Management Comments, and Our Response	13
(U) Finding B.....	15
(U) Air Force C-5 Squadron Personnel Allocations Not Aligned With Maintenance Demands.....	15
(U) C-5 Maintenance Personnel Levels Do Not Align With Aircraft Maintenance Demands.....	16
(U) Maintenance Career Field Personnel Authorizations Based On Outdated Manpower Study.....	17
(U) Air Force C-5 Squadrons Unable to Maximize C-5 Strategic Airlift Capabilities	18
(U) Recommendation, Management Comments, and Our Response	18
(U) Appendix	19
(U) Scope and Methodology	19
(U) Use of Computer-Processed Data.....	22
(U) Prior Coverage	22
(U) List of Classified Sources.....	24
(U) Management Comments	25
(U) U.S. Transportation Command.....	25
(U) Acronyms and Abbreviations.....	28

(U) Introduction

(U) Objective

(S) We determined whether Air Force C-5 squadrons have adequate mission capable (MC) aircraft and training to support U.S. Transportation Command (USTRANSCOM) readiness mission requirements. We focused our audit on the ability of the Air Force and USTRANSCOM to support operational plan (OPLAN) [REDACTED] PER USTRANSCOM (b)(1), 1.4(a), PER USINDOPACOM [REDACTED]

See Appendix A for our scope, methodology, and prior coverage.

(U) Background

(U) USTRANSCOM is a functional combatant command that provides the DoD with global transportation options by land, air, and sea. USTRANSCOM's mission is to transport military personnel and distribute military supplies throughout the world. USTRANSCOM uses both military and commercially contracted transportation services to support six global combatant commands.

(U) The Air Mobility Command (AMC) is the air component of USTRANSCOM that provides the DoD with aircraft globally for troop, equipment, and supply movement. The AMC is responsible for scheduling, coordinating, planning, and executing air mobility actions using the strategic airlift for crisis and contingency situations.

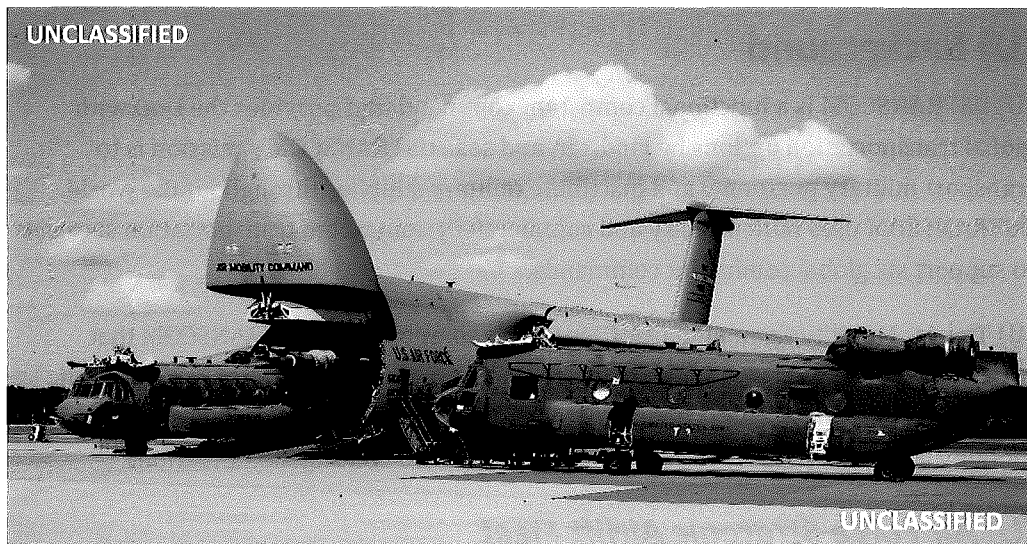
(U) Air Force Strategic Airlift Fleet

(U) The Air Force provides strategic airlift capabilities through its C-5 and C-17 fleet. The C-5 is the largest airframe available to USTRANSCOM for strategic airlift with a cargo capacity of 141 tons. C-5s are required for specific oversized and outsized cargo that cannot fit on other aircraft, such as the CH-47 Chinook helicopter. In addition, using C-5s allows the military units to ship cargo with minimal disassembly, allowing the units to use the equipment more rapidly once it reaches its destination.

³ (S) Updates to OPLANs are reflected in the plan identification number based on the fiscal year of the update. For this audit, we reviewed OPLAN [REDACTED]. Throughout the report, we will refer to OPLAN [REDACTED] as "OPLAN [REDACTED]."

(U) As of September 30, 2017, there were 52 C-5s in the Air Force inventory, of which 40 were funded and available for use. While the Air Force has possession of the 12 unfunded C-5s, it does not have aircrew or maintenance personnel to operate the aircraft and does not have funding to pay for flight hours. The C-5 has been through two major upgrades. The most recent C-5 upgrades converted the C-5 Galaxy to the Super Galaxy. The Super Galaxy includes modernized avionics and new, more powerful and efficient, engines.⁴ The goals of the C-5 upgrades were to enhance aircraft reliability, maintainability, operational capability, and reduce overall cost of ownership. Historic maintenance data shows the C-5 has been unreliable, and even after the upgrades, it struggles to sustain the MC rate of 75 percent established by AMC.⁵

(U) Figure 1. C-5 Galaxy



(U) Source: U.S. Air Force.

(U) With a cargo capacity of 85 tons, the C-17 is a smaller, newer, and a more reliable source of strategic airlift. As of September 30, 2017, there were 223 C-17s in the Air Force inventory, of which 188 were funded and available for use. Table 1 on the next page provides a summary of the strategic airlift fleet as of September 30, 2017.

⁴ (U) C-5 upgrades consisted of communication system enhancements, upgraded navigation systems, modernized surveillance and air traffic management systems, and new engines.

⁵ (U) An aircraft is mission capable when it has the ability to perform at least one of its assigned peacetime or wartime missions. MC rates show a trend, in percentage, of aircraft that are mission capable at any given time and are available to the AMC and USTRANSCOM for use to meet mission requirements.

(U) Although the C-5 and the C-17 both provide strategic airlift to the Air Force, we focused our review on the C-5 because of known maintenance challenges and recent airframe upgrades.

(U) Table 1. Air Force Strategic Airlift Fleet

UNCLASSIFIED Airframe	Funded	Not Funded	Total Inventory
C-5	40	12	52
C-17	188	35	223
			UNCLASSIFIED

(U) Source: The DoD OIG.

(U) OPLANs and USTRANSCOM

(U) Combatant commands are responsible for anticipating and planning for military crises and contingencies within their assigned area of responsibility. Combatant command officials develop OPLANs to identify contingency-specific scenarios and assumptions, and identify the resources needed to address anticipated contingencies. OPLANs include time-phased force deployment data (TPFDD).⁶ The TPFDD identifies when and where the commander's requirements are needed.

(U) USTRANSCOM planners are responsible for forecasting the delivery of resources identified within an OPLAN. USTRANSCOM planners use the Joint Flow and Analysis System for Transportation (JFAST) to forecast deliveries and determine transportation feasibility. According to a USTRANSCOM official, USTRANSCOM determines modes of transportation based on the priority, size, weight, and lead-time requirements to move equipment. USTRANSCOM uses JFAST to plan strategic airlift cargo movements in support of the TPFDD. Using the resources assigned to deployment operations, USTRANSCOM planners create a schedule and identify any forecasted delivery delays and anticipated backlogs. When USTRANSCOM's planner forecasts are unable to meet the commander's delivery requirements, combatant command and USTRANSCOM planners meet to review and reprioritize the TPFDD.

⁶ (U) The TPFDD is the database portion of an OPLAN that contains time-phased force data, cargo and personnel data, and movement data for an OPLAN.

(S) OPLAN ^{PER USTRANSCOM}

(S) U.S. Indo-Pacific Command (USINDOPACOM) officials developed OPLAN ^{PER USTRANSCOM (b) (1), 1.4(a)}

[REDACTED]

- **(S)** ^{PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)} [REDACTED]
- **(S)** ^{PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)} [REDACTED]
- **(S)** ^{PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)} [REDACTED]
- **(S)** ^{PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)} [REDACTED]

(S) ^{PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)} [REDACTED]

(U) Air Force Guidance for Air Mobility Planning

(U) The AMC's Air Force Pamphlet 10-1403 establishes air mobility planning factors for peacetime and wartime operations.⁷ USTRANSCOM uses the planning factors to determine what airlift capabilities can be used for OPLAN missions. The Air Force Pamphlet establishes a utilization rate for each type of aircraft, which is based on the amount of hours the aircraft can fly in a day. Factors that contribute to the utilization rate are flight distance, aircraft speed, ground time, and MC rate.

⁷ (U) Air Force Pamphlet 10-1403, "Air Mobility Planning Factors," December 12, 2011.

(U) Air Force Squadron Personnel and Training

(U) Air Force C-5 squadrons consists of operations and maintenance personnel. C-5-operations squadrons consist of pilot, engineer, and loadmaster career fields. C-5 maintenance squadrons include communication and navigation; guidance and control; electro-environmental, hydraulic, and jet engine career fields.

(U) The Air Force Manpower Analysis Agency conducts logistics composite models to identify the most efficient ratios for C-5 operations and maintenance personnel. Headquarters Air Force can use the ratios identified by the Air Force Manpower Analysis Agency when determining personnel authorizations. Maintenance personnel obtain specific career field training to meet the C-5's maintenance needs. Having appropriate personnel authorizations for maintenance career fields is critical to maintaining optimal C-5 MC rates.

(U) Review of Internal Controls

(U) DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls. We identified internal control weaknesses related to the ability of Air Force C-5 squadrons to meet USTRANSCOM readiness mission requirements. Specifically, USTRANSCOM planners used an inflated MC rate when forecasting C-5 airlift capabilities and Air Force C-5 squadrons did not have personnel trained in the correct maintenance career fields. We will provide a copy of the report to the senior official responsible for internal controls at USTRANSCOM and AMC.

(U) Finding A

(S) Air Force C-5 Squadrons

PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(S) Air Force C-5 squadrons

PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

PER USTRANSCOM (b) (1), 1.4(a)

(U) These conditions occurred because:

- (S) PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)
- (U) the AMC established an unsupported wartime MC rate of 75 percent for C-5s in Air Force mission planning guidance.

(S) As a result, the Air Force

PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

PER USTRANSCOM (b) (1), 1.4(a)

PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

⁸ (U) We calculated the historic MC rate using the four-year annual average MC rate for the upgraded C-5 from 2014 through 2017.

(S) Air Force C-5 Squadrons PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(S) Air Force C-5 squadrons PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

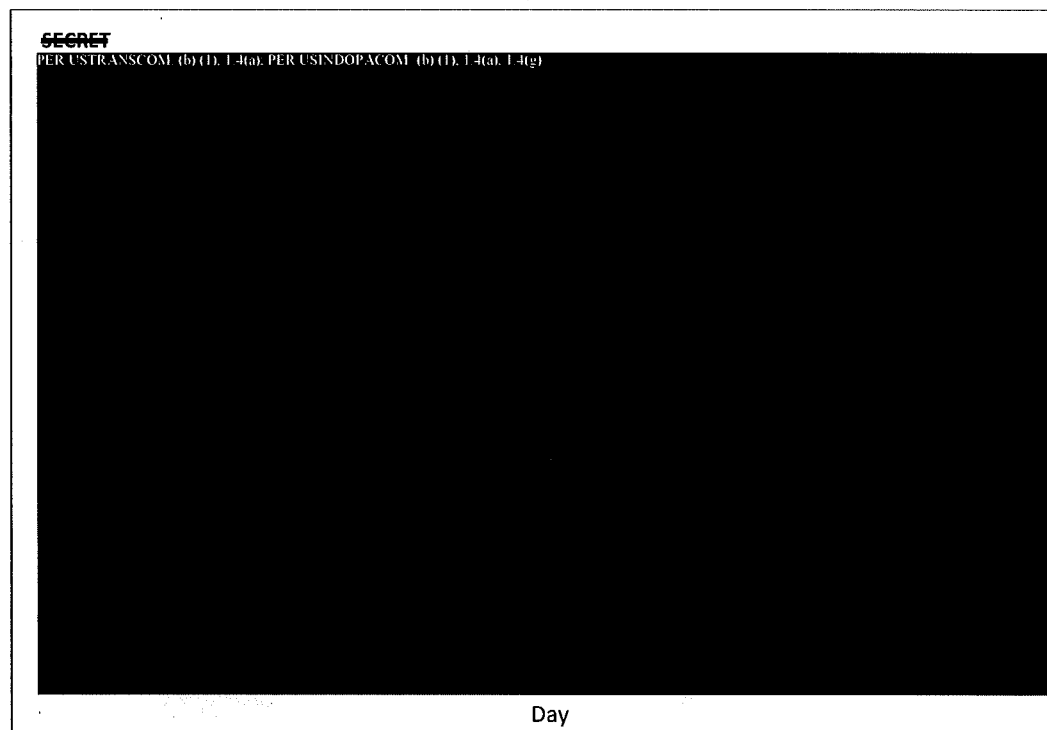
(S) OPLAN PER USTRANSCOM (b) (1), 1.4(a) Strategic Airlift Requirements

(S) OPLAN PER USTRANSCOM (b) (1), 1.4(a) included a requirement to PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

[REDACTED] Figure 2 depicts the daily delivery requirement PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

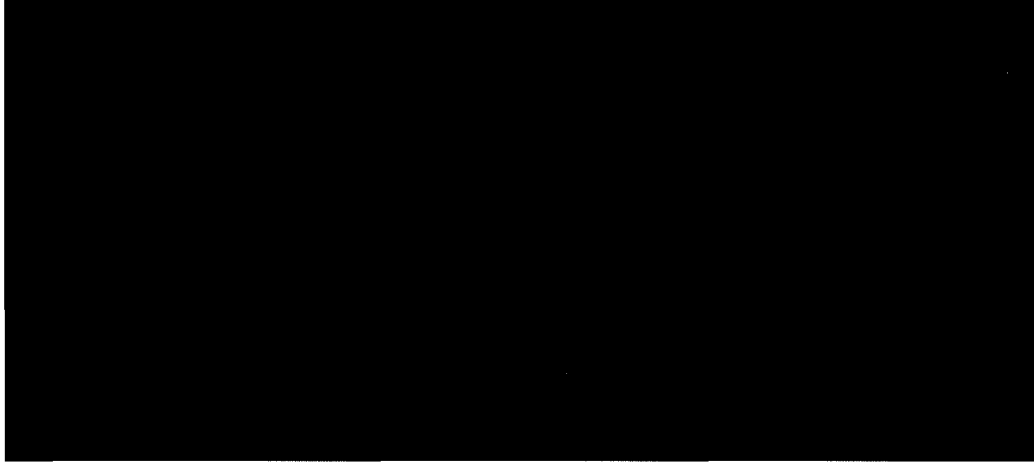
(S) Figure 2. OPLAN PER USTRANSCOM (b) (1), 1.4(a) Daily Strategic Airlift Delivery Requirements (in tons)



(U) Source: The DoD OIG.

(U) USTRANSCOM Forecasted Strategic Airlift Capabilities

~~(S)~~ USTRANSCOM planners forecasted that PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)



~~(S)~~ Figure 3. PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[Redacted]



(U) Source: The DoD OIG.

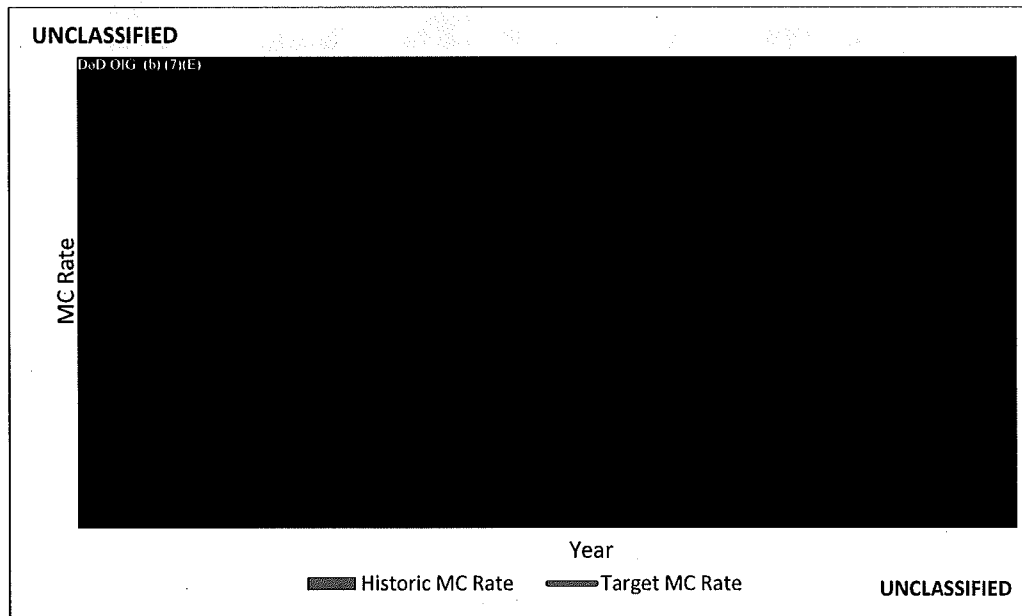
(S) Based on the aircraft assigned to OPLAN [REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) Inaccurate MC Rate Included in Strategic Airlift Capabilities

(S) USTRANSCOM planners also used [REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]. To determine the historic MC rate, we obtained MC rate data from the AMC and averaged the rates for the last 4 years to only include data for the time period after the majority of the C-5 fleet had been through upgrades. Figure 4 shows annual average MC rates since the first upgraded C-5 entered in service [REDACTED] DoD OIG (b) (7)(F)

(U) Figure 4. Annual Average Mission Capable Rate for Upgraded C-5s



(U) Source: The DoD OIG.

(S) [REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) Unfunded Aircraft and Inaccurate Forecasting Prevent Air Force Squadrons From Supporting C-5 Strategic Airlift Requirements

(S) Air Force C-5 squadrons ~~PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)~~

- (S) ~~PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)~~

- (U) the AMC established an unsupported wartime MC rate of 75 percent for C-5s in Air Force planning guidance.

(S) ~~PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)~~

(S) ~~PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)~~

(S) ~~PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)~~

(S) Figure 5. PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)



(U) Source: The DoD OIG.

(S) USTRANSCOM planners forecast that PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[Redacted text block]

(S) PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[Redacted text block]

(S) PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

The Commander, AMC, should determine

PER USTRANSCOM (b) (1), 1.4(a),

PER USINDOPACOM (b) (1), 1.4(a),

1.4(g)

(U) The AMC Established an Inflated C-5 Utilization Rate for Contingency Planning

(U) The AMC established an unsupported wartime MC rate of 75 percent for C-5s. The most recent update to Air Force Pamphlet 10-1403, published in 2011, establishes a wartime C-5 utilization rate of 11.5 hours per day, which included an MC rate of 75 percent. According to an AMC representative, the AMC established a C-5 MC rate of 75 percent within its utilization rate because it anticipates higher MC rates in wartime scenarios. When asked during the audit, AMC personnel were not able to provide documentation supporting the ability of the C-5 to meet a wartime MC rate of 75 percent.

(S) The utilization rate is the estimated number of hours the aircraft can fly in a day. To determine how the historic MC rate would affect the estimated utilization rate, we entered the historic MC rate into the formula used to calculate the utilization rate.

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

. AMC officials should determine an accurate, supportable C-5 MC rate to be used in calculating airlift capabilities for OPLAN requirements; these supportable rates should be published in Air Force Pamphlet 10-1403. Finally, USTRANSCOM officials should use the published MC rates to recalculate the airlift requirements for the supported OPLANs.

(S) The Air Force

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(S) PER USTRANSCOM (b) (1), 1.4(a),
PER USINDOPACOM (b) (1), 1.4(a),
1.4(g)

(S)

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

PER USTRANSCOM (b) (1), 1.4(a)

(S) [REDACTED] PER USTRANSCOM (b) (1), 1.4(a)

[REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(e)

(U) Recommendations, Management Comments, and Our Response

(U) Recommendation A.1

(S) We recommend that the Commander, Air Mobility Command, determine the [REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) USTRANSCOM Comments

(S) The USTRANSCOM Chief of Staff, responding for the AMC Commander, agreed with the recommendation, stating that USTRANSCOM and [REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) Our Response

(S) Comments from the Chief of Staff addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once we verify that [REDACTED] PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) Recommendation A.2

(U) We recommend that the Commander, Air Mobility Command, determine an accurate, supportable C-5 mission capable rate to be used in calculating airlift capabilities for operational plan requirements. These supportable rates should be published in Air Force Pamphlet 10-1403.

(U) USTRANSCOM Comments

(U) The USTRANSCOM Chief of Staff, responding for the AMC Commander agreed with the recommendation, stating that the AMC staff continues to monitor and will formulate a 6-month study with an estimated completion date of January 18, 2019.

(U) Our Response

(U) Comments from the Chief of Staff addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once we verify that the study identifies an accurate, supportable C-5 mission capable rate.

(U) Recommendation A.3

(U) We recommend that the Commander, U.S. Transportation Command, use the supportable mission capable rates in the updated Air Force Pamphlet 10-1403 to recalculate the airlift requirements for the supported operational plans.

(U) USTRANSCOM Comments

~~(S)~~ The USTRANSCOM Chief of Staff agreed with the recommendation, stating that USTRANSCOM PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) Our Response

~~(S)~~ Comments from the Chief of Staff addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once we verify PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

(U) Finding B

(U) Air Force C-5 Squadron Personnel Allocations Not Aligned With Maintenance Demands

(U) Air Force C-5 squadrons did not have personnel trained in the correct maintenance career fields to support USTRANSCOM readiness mission requirements. Specifically, authorized C-5 maintenance personnel ratios did not align with the maintenance demands of the upgraded C-5. For example, after modifications to the C-5 began in 2006, the average maintenance tasks for jet engines declined from 25 percent to 20 percent. This 5 percent decline represents a 20 percent reduction of maintenance tasks specific to upgraded jet engines; however, the ratios used for authorizing personnel to specific maintenance career fields did not change.

(U) The misalignment of maintenance personnel to the maintenance demands of the upgraded C-5 occurred because the Air Force based personnel authorization levels for C-5 maintenance career fields on outdated ratios identified in a 2002 logistics composite model.

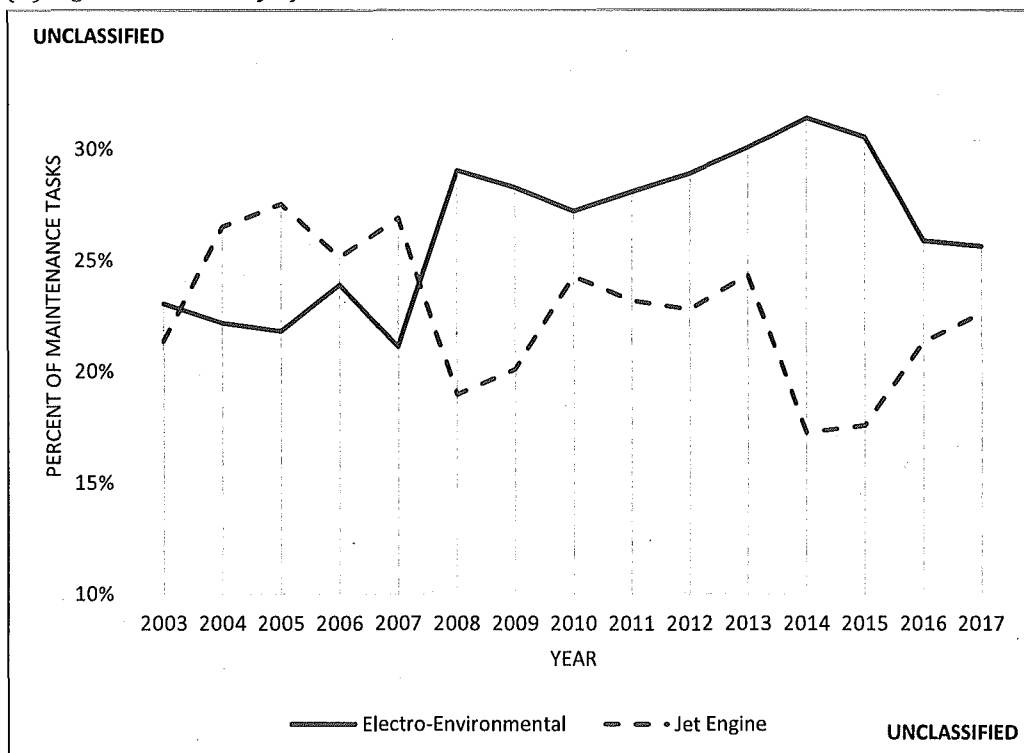
(S) As a result, Air Force C-5 aircraft maintenance squadrons

PER USTRANSCOM
(b) (1), 1.4(a), PER
USINDOPACOM (b)
(1), 1.4(a), 1.4(c)

(U) C-5 Maintenance Personnel Levels Do Not Align With Aircraft Maintenance Demands

(U) Air Force C-5 squadrons did not have personnel trained in the correct maintenance career fields to support USTRANSCOM readiness mission requirements. Specifically, authorized C-5 maintenance personnel ratios did not align with the maintenance demands of the upgraded C-5. In 2008, the first upgraded C-5 entered service with modernized avionics and new engines. The goals of the upgrades were to enhance aircraft reliability, maintainability, operational capability, and reduce the overall cost of ownership. By FY 2018, the Air Force had upgraded all 52 C-5s in its inventory to Super Galaxies. These modifications changed the maintenance needs for the respective systems. For example, since the C-5 upgrades the percentage of maintenance work for the jet engine career field has decline while the percentage of work for the electro-environmental career field has increased. Figure 6 provides an annual summary of jet engine and electro-environmental maintenance tasks, from 2003 through 2017.

(U) Figure 6. Summary of Annual C-5 Maintenance Tasks



(U) Source: The DoD OIG.

(U) According to AMC personnel, new engines on the upgraded C-5 require less jet engine maintenance while electro-environmental discrepancies increased. However, maintenance personnel allocations were not adjusted to address the upgraded C-5 maintenance requirements.

(U) Maintenance Career Field Personnel Authorizations Based On Outdated Manpower Study

(U) The Air Force based personnel authorization levels for C-5 maintenance career fields on outdated ratios identified in a 2002 logistics composite model. In 2003, Headquarters Air Force used the maintenance personnel ratios established in the 2002 logistics composite model to implement C-5 maintenance personnel authorizations. Aircraft maintenance career field authorizations were based on the number of C-5 squadrons, monthly flying hours, the number of funded aircraft, and the manpower study ratio. Figure 7 lists the 2002 logistics composite model that Headquarters Air Force used for determining maintenance authorizations since FY 2003.

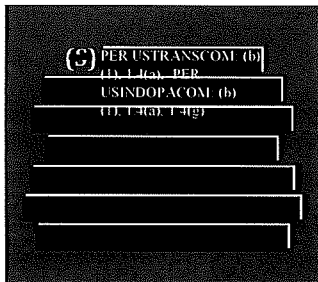
(U) Figure 7. Aircraft Maintenance Authorization Ratio by Career Field Established in 2002 Logistics Composite Model

UNCLASSIFIED Career Fields	Aircraft Maintenance Authorization Ratio
Crew Chief	38 percent
Communication and Navigation	9 percent
Guidance & Control	14 percent
Electro-Environmental	14 percent
Hydraulics	12 percent
Jet Engine	13 percent
Total	100 percent
	UNCLASSIFIED

(U) Source: The DoD OIG.

(U) According to AMC personnel, the Air Force does not have plans to develop a logistics composite model to optimize maintenance manpower to reflect maintenance needs of the upgraded C-5. As a result, the AMC does not have an updated logistics composite model to identify proper maintenance personnel ratios. The AMC should request the Air Force Manpower Analysis Agency to create a C-5 logistics composite model to identify aircraft maintenance authorization ratios that better align with current C-5 maintenance needs for use in determining future authorization levels.

(U) Air Force C-5 Squadrons Unable to Maximize C-5 Strategic Airlift Capabilities



(S) The Air Force C-5 aircraft maintenance squadrons are

PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

[REDACTED]

(U) Recommendation, Management Comments, and Our Response

(U) Recommendation B.1

(U) We recommend that the Commander, Air Mobility Command, request the Air Force Manpower Analysis Agency to create a C-5 logistics composite model to identify aircraft maintenance authorization ratios that better align with current C-5 maintenance needs for use in determining future authorization levels.

(U) USTRANSCOM Comments

(U) The USTRANSCOM Chief of Staff responding for the AMC Commander, agreed with the recommendation, stating that the AMC will request the Air Force Manpower Analysis Agency to complete a review that focuses on proper future maintenance authorization ratios by January 18, 2019.

(U) Our Response

(U) Comments from the Chief of Staff addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once we verify that the Air Force Manpower Analysis Agency has completed their review and AMC has implemented the recommendations from the review.

(U) Appendix

(U) Scope and Methodology

(U) We conducted this performance audit from September 2017 through June 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

(U) Interviews and Site Visits

(U) We interviewed Air Force active duty and reserve operations support and maintenance personnel to identify factors that have contributed to C-5 mission cancellations and delays. We also visited Scott AFB to identify roles and responsibilities of AMC and USTRANSCOM in readiness reporting and strategic airlift planning and forecasting. During the audit, we interviewed personnel from the following organizations:

(U) Air Force

- (U) 436th Airlift Wing
- (U) 436th Operations Group
- (U) 436th Maintenance Group
- (U) 436th Aircraft Maintenance Squadron
- (U) 436th Maintenance Squadron
- (U) 512th Maintenance Group
- (U) 512th Aircraft Maintenance Squadron
- (U) 709th Airlift Squadron
- (U) 9th Airlift Squadron
- (U) Air Force Manpower Analysis Agency

(U) AMC

- (U) Manpower, Personnel and Services (A1)
- (U) Air, Space and Information Operations Directorate (A3)
- (U) Directorate of Logistics, Engineering, and force Protection (A4)
- (U) Directorate of Analysis, Assessment, and Lessons Learned (A9)

(U) USTRANSCOM

- (U) Operations and Plans (TCJ3)
- (U) Strategic Plans, Policy, Programs & Logistics (TCJ5/4)

(S) OPLAN PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(S) PER USTRANSCOM (b) (1), 1.4(a). PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)

[REDACTED]

(U) C-5 MC Rate Review

(U) We obtained and summarized C-5 MC rates from 2009 through 2017. The audit team compared the historic MC rates for 2014 through 2017 to the contingency planning rates established by AMC in Air Force Pamphlet 10-1403, to determine the feasibility of achieving the desired MC rate.

(U) C-5 Squadron Authorizations and Maintenance Demands

(U) We obtained annual maintenance personnel levels from FYs 2003 through 2017 for the active duty and reserve career fields at Dover AFB and Travis AFB to determine the annual authorizations and to identify trends in personnel levels. We compared authorization levels to the 2002 logistics composite model and verified that annual maintenance personnel authorization levels followed the maintenance personnel ratios

(U) identified within the 2002 logistics composite model. We also obtained a list of all maintenance tasks by career field from FYs 2003 through 2017. We reviewed annual changes to maintenance tasks to determine if C-5 modifications impacted overall maintenance requirements.

(U) Policies

(U) We reviewed the following Air Force and Chairman of the Joint Chiefs of Staff guidance to determine C-5 squadron readiness mission requirements:

- (U) Air Force Manual 38 – 208, Volume 3, “Manpower and Organization – Air Force Management Engineering Program (MEP)—Logistics Composite Model (LCOM),” March 31, 1995.
- (U) Air Force Instruction 10 – 401, “Operations – Air Force Operations Planning and Execution,” December 7, 2006.
- (U) Air Force Pamphlet 10-1403, “Operations - Air Mobility Planning Factors,” December 12, 2011.
- (U) Air Force Policy Directive 10-2, “Operations – Readiness,” November 6, 2012.
- (U) Air Force Instruction 21-103, “Maintenance – Equipment Inventory, Status and Utilization Reporting,” December 16, 2016.
- (U) Chairman of the Joint Chiefs of Staff Manual 3122.01A, “Joint Operation Planning and Execution System Volume I, Planning Policies and Procedures,” September 29, 2006.
- (U) Chairman of the Joint Chiefs of Staff Manual 3122.02D, “Joint Operation Planning and Execution System (JOPES) Volume III Time Phased Force and Deployment Data Deployment and Deployment Execution,” May 21, 2015.

(U) Use of Computer-Processed Data

(U) We used computer-processed data to perform this audit. Specifically, we used data from the following systems:

- (S) FAST. PER USTRANSCOM (b) (1), 1.4(a)



- (U) G081. The G081 is a maintenance information system used by the Air Force to track completed aircraft maintenance. We obtained historic MC rate and maintenance data from the G081. To verify the accuracy of the data, we compared the aircraft status in the G081 to the actual aircraft forms for all C-5s located at Dover AFB. We verified that the aircraft status (used for determining MC rates) reported in the G081 matched the aircraft status indicated by the aircraft forms in all instances over a three-day period. We also obtained an understanding of the maintenance reporting process and the data integrity process used by Air Force squadrons to verify the accuracy of G081 maintenance data. We determined the data obtained from the G081 was sufficiently reliable for the purposes of the audit.

(U) Prior Coverage

(U) During the last 5 years, the DoD Office of Inspector General has issued one report related to the C-5 aircraft mission capability. Unrestricted DoD OIG reports can be accessed at <http://www.dodig.mil/reports.html/>.

(U) DoD OIG

(U) Report No. DODIG-2015-039, "C-5 Reliability Enhancement and Re-engining Program Hotline Evaluation," November 18, 2014

(U) The DoD OIG evaluated the C-5 Reliability Enhancement and Re-engining Program to determine the legitimacy of the allegations made in the Department of Defense Office of Inspector General Hotline complaint. The DoD OIG found that the Government: failed to discourage repeated tender of nonconforming components; delegated inherently Government functions to Lockheed Martin; accepted non-conformances that were corrected at an additional cost to the Government; and failed to ensure that Lockheed Martin used Air Force service guidance. In addition, the Defense Contract Management Agency failed to comply with Defense Contract Management Agency instructions for the corrective action process.

(U) List of Classified Sources

Source 1: ~~(S)~~ USPACOM OPLAN ~~PER USTRANSCOM (b) (1), 1.4(a), PER USINDOPACOM (b) (1), 1.4(a), 1.4(g)~~
[REDACTED] August 9, 2016. (Document
classified Secret//NOFORN)

Source 2: (U) ~~DoD OIG (b) (1), 1.7(e), (b) (7)(E)~~
[REDACTED] July 15, 2016. (Document classified Secret)

Source 3: (U) Force Apportionment Tables for Second Quarter of Fiscal Year 2018.
Declassify On: 1 January 2043 (Document classified Secret//NOFORN)

~~SECRET~~

(U) Management Comments

(U) Management Comments

(U) U.S. Transportation Command



~~SECRET~~
UNITED STATES TRANSPORTATION COMMAND
508 SCOTT DRIVE
SCOTT AIR FORCE BASE, ILLINOIS 62225-5357

26 July 2018


MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL

FROM: TCCS

SUBJECT: (U) Draft Report, "Air Force C-5 Squadrons' Capability To Meet
U.S. Transportation Command Mission Requirements", dated June 19, 2018,
(Project No. D2017-D000RE-0199,000)

(U) 1. The United States Transportation Command staff has reviewed the subject report and provides comments to the recommendations.

(U) 2. For additional information or assistance, please contact [REDACTED], TCIG, at
[REDACTED] or email: [REDACTED] or
[REDACTED]


JOHN C. FLOURNOY, JR.
Major General, USAF
Chief of Staff

Attachment:
(U) USTRANSCOM response

cc:
TCAC
TCJ5/4
AMC

Classified By: [REDACTED] Program Director, Readiness and Global Operations
Derived from: Multiple Sources
Declassify On: 20430101

~~SECRET~~

~~SECRET~~

(U) U.S. Transportation Command (cont'd)

CLASSIFICATION: ~~SECRET~~

***(U) Air Force C-5 Squadrons' Capability To Meet U.S.
Transportation Command Mission Requirements
(Project No. D2017-D000RE-0199.000)***

FINDINGS A.

(S) Recommendation 1: We recommend that the Commander, AMC, determine ^{PER USTRANSCOM (b) (1), 1-4(a)} ~~PER USINDOPACOM (b) (1), 1-4(a), 1-4(g)~~

(S) USTRANSCOM Response: Concur

(S) Action Taken or planned: ^{PER USTRANSCOM (b) (1), 1-4(a), PER USINDOPACOM (b) (1), 1-4(a), 1-4(g)}

(U) Recommendation 2: We recommend that the Commander, AMC, determine an accurate, supportable C-5 MC rate to be used in calculating airlift capabilities for OPLAN requirements. These supportable rates should be published in Air Force Pamphlet 10-1403.

(U) USTRANSCOM Response: Concur

(U) Action Taken or planned: AMC/A4 staff continues to monitor and will formulate a 6 month study to address this recommendation. ECD: 18 January 2019

(U) Recommendation 3: We recommend that the Commander, USTRANSCOM, use the supportable MC rates in the updated Air Force Pamphlet 10-1403 to recalculate the airlift requirements for the supported OPLANS.

(U) USTRANSCOM Response: Concur

(U) Action Taken or planned: When the updated Air Force Pamphlet 10-1403 is published, USTRANSCOM will use the new MC rates.

CLASSIFICATION: ~~SECRET~~

(U) U.S. Transportation Command (cont'd)

CLASSIFICATION: ~~SECRET~~

FINDINGS B.

(U) Recommendation 1: (U) We recommend that the Commander, AMC, request the Air Force Manpower Analysis Agency to create a C-5 logistics composite model to identify aircraft maintenance authorization ratios that better align with current C-5 maintenance needs for use in determining future authorization levels.

(U) USTRANSCOM RESPONSE: Concur

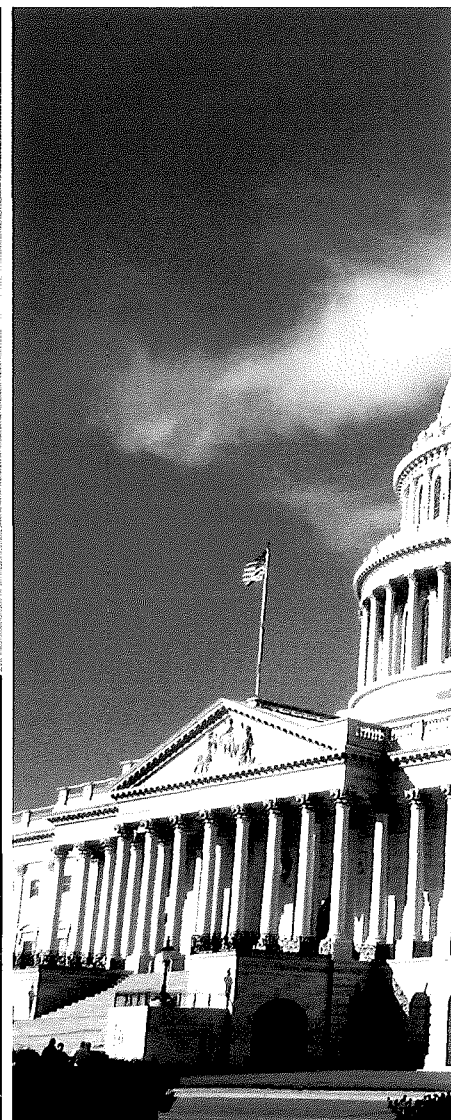
(U) Action Taken or planned: AMC will request a review by the Air Force Manpower Analysis Agency focused on proper future maintenance authorization ratios.
ECD: 18 January 2019

CLASSIFICATION: ~~SECRET~~

(U) Acronyms and Abbreviations

JFAST	Joint Flow and Analysis System for Transportation
MC	Mission Capable
OPLAN	Operational Plan
TPFDD	Time-Phased Force Deployment Data
USINDOPACOM	U.S. Indo-Pacific Command
USTRANSCOM	U.S. Transportation Command

SECRET



DEPARTMENT OF DEFENSE | OFFICE OF INSPECTOR GENERAL
4800 Mark Center Drive
Alexandria, Virginia 22350-1500
www.dodig.mil
Defense Hotline 1.800.424.9098

SECRET