U.S. Air Force

The U.S. Air Force (USAF) provides military dominance in the domains of air and space, enabling the Joint Force to project power quickly anywhere in the world at any time. The Air Force maintains that it must be able to respond rapidly to contingencies across the world to “guarantee the global freedom of movement and access that Americans have come to expect” and to project our nation’s power, influence, and reach.163

To support and defend America’s global interests along with the Joint Force, the Air Force focuses on five main missions:

- Air and space superiority;
- Intelligence, surveillance, and reconnaissance (ISR);
- Mobility and lift;
- Global strike; and
- Command and control (C2).

The Air Force has used the 2012 Defense Strategic Guidance (DSG) as its framework for determining investment priorities and posture. As a result of the DSG and fiscal constraints, the Air Force has “traded size for quality” by aiming to be a “smaller, but superb, force that maintains the agility, flexibility, and readiness to engage a full range of contingencies and threats,”164 a goal reiterated in the President’s fiscal year (FY) 2016 budget request.165 But while the Air Force’s fleet has been cut intentionally to maintain capability, the FY 2016 Air Force Posture Statement acknowledges that continued cuts in capacity will result in a loss of capability: “[W]e have reached a point where the two are inextricable; lose any more capacity, and the capability will cease to exist.”166

Capacity

Due to the constrained fiscal environment of the past few years, the Air Force continues to prioritize capability over capacity. The force also has made clear that near-term reductions will be made in lift, command and control, and fighter aircraft to ensure that its top three modernization programs—the F-35A, Long-Range Strike Bomber (LRS-B), and KC-46A—are preserved.167 The USAF is now the oldest and smallest in its history, and the problem is growing as the demand for air power continues to grow.168 For FY 2015, the Air Force was granted an authorized end strength of 312,980 active airmen, 67,100 reservists, and 105,000 guardsmen.169 Between the active and reserve components, it fields 5,433 aircraft in the total active inventory (TAI),170 including 54 total fighter squadrons.171 In the active component, the Air Force retained 40 combat coded squadrons during FY 2015.172

The Air Force’s capacity in terms of number of aircraft has been on a constant downward slope since 1952.173 Unlike some of the other services, the
Air Force did not grow during the post-9/11 build-up. Rather, it got smaller as older aircraft were retired and replacement programs, such as the F-35, experienced successive delays in bringing new aircraft into the fleet. This reduction in capacity is expected to continue in the future because of ongoing budgetary pressure. Under BCA-mandated spending caps, the Air Force would shrink to 26 tactical aircraft (TACAIR) squadrons, a far cry from the 133 active fighter squadrons during Operation Desert Storm.

The foregoing figures illustrate the difficulty of assessing the Air Force’s capacity, as the service uses a variety of inventory categorizations. “Tactical aircraft” refers to air superiority fighters (specializing in air-to-air engagements); strike fighters (dual-role aircraft); and attack planes (those that are tasked primarily with attacking ground targets and providing close air support). “Combat-coded aircraft” refers to “aircraft assigned to meet the primary aircraft authorization to a unit for the performance of its wartime mission” and can include both tactical aircraft and strategic aircraft such as the B-2 and B-52 strategic bombers.

The total count of 5,433 aircraft includes all manned and unmanned aircraft in the Air Force’s inventory. This Index assesses the Air Force’s fleet of tactical aircraft, which, as noted in the introduction and described below, requires 1,200 planes to execute a two-MRC strategy. Additionally, four years ago, the Air Force assessed that a fighter force structure of 1,200 primary mission aircraft was necessary. More recently, the service determined that the requirement could be reduced by 100, although the Air Force would take on more risk as a result. Divestments in FY 2015 placed additional risk on the Air Force and left the fighter force structure significantly below this requirement. The continuation of constrained funding levels will only deepen the shortage of fighters, degrading “vital air operations” and “test and training expertise.”

**Capability**

Per the 2012 DSG and budget constraints, the Air Force is offsetting cuts in future capacity to preserve present capability, arguing that it prefers to have fewer aircraft that can win against the advanced fighters and anti-aircraft missiles being developed by top-tier potential adversaries like China and Russia rather than greater numbers of its current fleet of aircraft, which it states are becoming obsolete.

This strategy is associated with another chief concern: maintaining the service and support required for sustaining ongoing operations in Afghanistan, Iraq, and Syria while preparing for traditional contingencies, such as state-vs.-state conflict. Essentially, the Air Force is seeking to maintain the balance required for full-spectrum operations, from relatively simple operations in uncontested airspace to complex, multi-layered operations in anti-access/area denial (A2/AD) environments.

The state of aircraft capability includes not only the incorporation of advanced technologies, but also the overall state of the inventory, with age being a large determinant. According to the USAF, the average age of its aircraft is 27 years, and some fleets, such as the B-52 bomber fleet, are much older. Most aircraft have an original life span of 20 to 30 years, determined largely by estimated flying hours—more flying equals more stress on an aircraft—and dependent on the severity of the flying environment. Thus, without modification, much of the Air Force’s capability is nearing the end of its expected life cycle. Although service life extension programs can lengthen the useful life of some aircraft, the Air Force cannot keep an old aircraft going forever. While the Air Force has stated that it is prioritizing capability over capacity, it still has had to reduce investment in modernization, an element critical to ensuring future capability.

On average, the Air Force’s main combat platforms (fighter aircraft, bombers, mobility aircraft, and lift) are nearing the end of their service lives. Air superiority is overwhelmingly being supported by the F-15, which makes up 71 percent of the air superiority platforms but has consumed over 90 percent of its estimated 30-year service life (the average age of the F-15C/D is just over 29 years). With the eventual retirement of the 438 F-15s, 177 F-22s will make up the main arm of air superiority with eventual support from the F-35. The F-16, the most numerous platform (comprising 50 percent of the fighter fleet at 913 aircraft) has consumed nearly 80 percent of its expected life span and has an average age of approximately 23 years. The KC-135 comprises 87 percent of the Air Force’s tankers and is over 50 years old on average. The aircraft’s reliability is at risk due to problems linked to its age and high usage rate.

The Air Force’s ISR and lift capabilities do not face the same problem. The bulk (362 of 457) of the Air Force’s ISR aircraft are now unmanned aerial vehicles (UAVs), which are relatively young...
(though they have shorter life spans than manned aircraft and less expensive to procure, operate, and maintain. Maintaining the service’s shift to predominately unmanned ISR aircraft will depend on fielding enhanced sensors on the RQ-4 Global Hawk platform to make it as capable as legacy manned U-2 aircraft.\textsuperscript{187} The Air Force stated in February 2015 that the Global Hawk was able to reduce costs such that it is now cheaper per flying hour to operate.\textsuperscript{188}

A service’s investment in modernization ensures that future capability remains healthy. Investment programs aim not only to procure enough to fill current capacity requirements, but also to advance current capabilities with new technology. Going into FY 2016, the Air Force has structured its budget to preserve funding for its top acquisition priorities: the F-35A Joint Strike Fighter, the KC-46A Pegasus aerial refueling and strategic military transport aircraft, and the Long Range Strike-Bomber (LRS-B).\textsuperscript{189}

The Air Force’s number one priority remains the F-35A. It is the next-generation fighter scheduled to replace all legacy A-10, F-15, and F-16 aircraft. Interestingly, if the Air Force is able to fund its full program of 1,763 aircraft,\textsuperscript{190} it will procure more aircraft than the current inventory of F-16s, F-15s, and A-10s combined (1,610).\textsuperscript{191} The Air Force has not explicitly stated the rationale behind its F-35A procurement plan (beyond reporting a one-to-one replacement of all F-16, A-10, and F-117 aircraft in service as of 2001),\textsuperscript{192} and this has led to speculation that the F-35A could also replace the F-15.\textsuperscript{193}

The service states officially that the F-35A will complement the F-22,\textsuperscript{194} much as the F-16 ground attack aircraft complements the F-15 air combat aircraft. However, the Air Force did not procure enough F-22s to replace the F-15s. The Active Air Force currently has 438 F-15s to its 159 F-22s, and there are concerns about what will fill this gap when the F-15 is eventually retired. Fulfilling the operational need for fighters could be further strained in the near term, as the F-22 retrofit—a mix of structural alterations to 162 aircraft needed for the airframe to reach its promised service life—has been forecasted to run through 2021, a year later than previously predicted.\textsuperscript{195} As a result of the retrofit, only 62 percent of the mission fleet is available.\textsuperscript{196}

The F-35A was not designed primarily for air-to-air combat; rather, like the F-16s and A-10s that it is replacing, the plane is suited for attack missions against ground targets, with the F-22 shouldering the air-superiority mission. Like the F-35B and F-35C (the Marine Corps and Navy variants, respectively), the F-35A has experienced a host of problems (including technological delays, cost growth, production delays, and quantity reductions caused by budget cuts) that have slowed development. As a result, the initial operating capability (IOC) date was pushed from 2013 to 2016. In addition, the test program suffered further delays in 2014 due to an engine problem.\textsuperscript{197} With regard to software, flight testing for Block 2B is nearly completed, and Block 3i is still undergoing tests as well. Current projections assess that Block 3F—full warfighting capability—will be completed about half a year later than planned.\textsuperscript{198} Given the age of the aircraft that the F-35A will be replacing, there is little room for further slippage in the F-35 program.

A second top priority for the USAF is the KC-46A air refueling tanker aircraft, a replacement for the legacy KC-135. Both the Air Force and U.S. Transportation Command have stated that replacing the KC-135 is “their highest priority.”\textsuperscript{199} The KC-46A is still in development and is also experiencing delays, which is troublesome given the advanced age (averaging 52 years) and condition of the current KC-135 inventory. In addition, the KC-46A program of record is for 179 aircraft (with current program plans for delivery of 70 aircraft by FY 2020\textsuperscript{200}), indicating that this system will replace less than half of the current tanker inventory of 391 aircraft (though a one-to-one replacement of legacy platforms is not inherently necessary for weapons systems).

The third and final priority for the USAF from an acquisition perspective is the Long-Range Strike Bomber (LRS-B),\textsuperscript{201} the service’s next-generation deep-strike platform intended to replace the B-52 Stratofortress and the B-1B Lancer by the mid-2020s (B-2s are to be replaced later).\textsuperscript{202} The LRS-B is still in the development phase, and continued funding must be maintained so that the Air Force has a bomber with deep-strike capabilities that can penetrate “highly contested environments.”\textsuperscript{203} The USAF expects to announce the contract award for the LRS-B in September 2015, and current plans include the acquisition of 80–100 new bombers at a cost of approximately $550 million per plane.\textsuperscript{204}

**Readiness**

The Air Force’s readiness is affected by several inputs: training (such as flying hours); weapon system sustainment; facilities; and installations.\textsuperscript{205} While all are critical, weapon systems sustainment
is becoming an area of particularly heightened concern because, as a result of the ongoing air campaigns in the Middle East, munitions are being used faster than they can be replaced. Air-to-Surface weapons such as Stand-Off, Direct Attack, and Penetrators are short of current inventory objectives, and the concurrent shortage of Air-to-Air weapons could lead to an increase in the time needed to gain and maintain air superiority in future environments, particularly highly contested ones.

The decision to reduce the size of the Air Force to minimum COCOM requirements now requires that the entire force must be ready at all times, which means there will be no strategic reserve capacity for the service to respond to unanticipated requirements. Maintaining a very high state of readiness is necessary if the Air Force is going to continue to be the world’s dominant air superiority force. By the Air Force’s own assessment, without unequivocal air superiority, American influence is at risk of being diminished, and the U.S. military will be forced to radically change the way it goes to war.

According to the Air Force, readiness has been declining since 2003. This trend was further aggravated in FY 2013 by the implementation of cuts under the Budget Control Act of 2011. In FY 2013, flying hours were reduced by 18 percent, and 17 combat-coded squadrons of 40 (43 percent) were temporarily stood down. In FY 2014, the Air Force prioritized funding for readiness, but not at a rate to make up completely for cuts in FY 2013, and the shortfalls in readiness have persisted into FY 2015. This situation illustrates how difficult it is to regain lost readiness even after short-term divestments. According to Air Force Vice Chief of Staff General Larry Spencer, less than 50 percent of the service’s combat air forces meet full-spectrum readiness requirements.

The Air Force claims that it does not have the excess capacity to make cuts without also reducing capability. If requirements continue to increase, the Air Force “will have to make difficult decisions on mission priorities and dilute coverage across the board.” Furthermore, as legacy aircraft continue flying, maintenance costs rise, and the demand for weapons system sustainment increases. As a result, reduced funding for aircraft modernization and sustainment degrades capabilities and lowers readiness levels. The Air Force’s FY 2016 budget submission seeks to strike a balance among capability, capacity, and readiness with the goal of achieving full-spectrum readiness by 2023.

In addition to funding, making up readiness losses takes significant time. For example, standing down a unit for 60 days results in a degraded (unfit for combat) unit. To return the unit to desired levels of proficiency takes six months to a year. Similarly, because of depot delays, “it can take two-to-three years to recover full restoration of depot workforce productivity and proficiency.”

A key aspect of building unit readiness is sufficient training. In order to reach full-spectrum readiness, the Air Force must execute its flying hour program successfully and dedicate enough time and resources to training. The Air Force’s “high operations tempo” and worsening deployment to dwell ratios negatively affect “reconstitution and training cycles” and compromise its efforts to recover lost readiness.

Scoring the U.S. Air Force

Capacity Score: Very Strong

The preponderant element of combat power in the U.S. Air Force is its fleet of fighter aircraft. The Air Force has deployed an average of 28 squadrons to major combat engagements since World War II.

Based on an average of 18 aircraft per fighter squadron, around 500 fighter aircraft are necessary in the active component to execute one MRC. Based on the government force-sizing documents that counted fighter aircraft, squadrons, or wings, an average of 55 squadrons, or 990 aircraft, is required to field a two-MRC–capable force. By doubling the historical combat average, one arrives at a force of 1,000 fighter aircraft. This Index looks for 1,200 active fighter aircraft to account for the 20 percent reserve necessary when considering availability for deployment and the risk of employing 100 percent of fighters at any one time.

- **Two-MRC Level:** 1,200 fighter aircraft.
- **Actual 2015 Level:** 1,113 fighter aircraft.
Based on the above figure, the Air Force is operating at 93 percent of the benchmark requirement of 1,200, and its capacity is therefore scored as “very strong.” The 113 aircraft over the 1,000 necessary to fight two major conflicts (based on historical averages) serves to reduce operational risk and provide a strategic buffer or reserve capacity but is still short of the 200 additional aircraft needed to reach the benchmark.

This increase in capacity score over the 2015 Index is due to an additional 15 F-35As becoming operational, the rejection of USAF plans to retire A-10 aircraft, and the decision to stretch the service lives of other fighter aircraft. Since the F-35A was to replace many of these legacy platforms, the decision not to retire them (e.g., the A-10) has resulted in a net increase in the Air Force’s fighter and attack capacity.

**Capability Score: Marginal**

The Air Force’s capability score is “marginal,” a result of being scored “strong” in “Size of Modernization Program,” “marginal” for “Age of Equipment” and “Health of Modernization Programs,” but “weak” for “Capability of Equipment.” These scores have not changed from the 2015 Index’s assessment. However, continued concerns about the F-35 program’s progress toward replacing legacy aircraft effectively could cause the USAF’s capability score to decline in the near future.

**Readiness Score: Marginal**

The Air Force scores “marginal” in readiness in the 2016 Index, a reduction from the previous Index’s score of “strong.” This is based primarily on the Air Force’s reporting that less than half of its combat air forces met full-spectrum readiness requirements in 2015. While it should be prepared to respond quickly to an emergent crisis and retain full readiness of its combat airpower, the Air Force has been suffering from degraded readiness since 2003, and the implementation of BCA-imposed budget cuts in FY 2013 has continued to exacerbate this problem into 2015. While the USAF’s response ability appears to have been insulated from budget cuts, maintaining full readiness has proved challenging. Similar to the other services, the USAF was able to make up some of its readiness shortfalls under the FY 2015 budget, but given the Air Force’s poor readiness assessment, significant further improvement is needed.

With so little information in the public domain about the current state of readiness in FY 2015, statements such as the foregoing must be heavily weighted. This Index assumes that today’s readiness levels are better than those in FY 2013 when 13 combat-coded squadrons were grounded due to funding shortfalls, but that they are still suboptimal.

**Overall U.S. Air Force Score: Marginal**

The Air Force is scored as “marginal” overall. This is an unweighted average of its capacity score of “very strong,” capability score of “marginal,” and readiness score of “marginal” and is a decline from the 2015 Index score of “strong,” driven primarily by degradation in capability and readiness.

### U.S. Military Power: Air Force

<table>
<thead>
<tr>
<th></th>
<th>VERY WEAK</th>
<th>WEAK</th>
<th>MARGINAL</th>
<th>STRONG</th>
<th>VERY STRONG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capability</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Readiness</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OVERALL</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>