**ABSTRACT (MAXIMUM 200 WORDS)**

As the United States Air Force (USAF) considers its future Irregular Warfare (IW) concept, an introspective look at its past would shed light on multirole airpower ideas that are still applicable today and in the future. The USAF is struggling to build an IW and partner nation capability almost from scratch in the midst of two counterinsurgency conflicts. To the founders of the 6th Special Operations Squadron (6 SOS), the Air Force’s only Foreign Internal Defense (FID) squadron, this sudden problem is not new but has gone virtually unnoticed for many years. Now it has the attention of the highest level of the Air Force and the Defense Department. The crux of the problem is that the technologically-minded USAF has minimal IW-trained forces and equipment to build partner nation capability. The Air Force needs a robust IW standing force capable of fighting and training others in this endeavor. This essay will discuss how the USAF got here and how it can recover in the future.
MASTER OF OPERATIONAL STUDIES

TITLE:
Developing an Irregular Warfare Air Capability: Rugged Utility Aircraft and Personnel

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Executive Summary

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Thesis: As the United States Air Force (USAF) considers its future Irregular Warfare (IW) concept, an introspective look at its past would shed light on multirole airpower ideas that are still applicable today and in the future.

Discussion: The USAF is struggling to build an IW and partner nation capability almost from scratch in the midst of two counterinsurgency conflicts. To the founders of the 6th Special Operations Squadron (6 SOS), the Air Force’s only Foreign Internal Defense (FID) squadron, this sudden problem is not new but has gone virtually unnoticed for many years. Now it has the attention of the highest level of the Air Force and the Defense Department. The crux of the problem is that the technological-minded USAF has minimal IW-trained forces and equipment to build partner nation capability. The Air Force needs a robust IW standing force capable of fighting and training others in this endeavor. This essay will discuss how the USAF got here and how it can recover in the future.

Conclusion: The Air Force needs to bring its force structure more into balance between conventional and unconventional warfare with a robust standing IW capability. For too long the USAF has ignored the continuing need to maintain a force capable of operating in the IW environment with equipment relevant to partner nations. The creation of a specifically trained IW force equipped with rugged utility aircraft in types such as the Pilatus PC-6 and Basler BT-67 is long overdue. These aircraft represent inexpensive, versatile, durable, and, most importantly, proven aircraft that can perform IW missions for the USAF and partner nations. The way ahead for the Air Force does not always require new technology, but may be fulfilled with existing off-the-shelf technology, focused training, and a paradigm shift.
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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>ii</td>
</tr>
<tr>
<td>DISCLAIMER</td>
<td>iii</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>iv</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>2</td>
</tr>
<tr>
<td>PROBLEM DISCUSSION</td>
<td>5</td>
</tr>
<tr>
<td>PROPOSED SOLUTIONS</td>
<td>7</td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>14</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>16</td>
</tr>
<tr>
<td>NOTES</td>
<td>18</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>20</td>
</tr>
</tbody>
</table>
Introduction

The United States Air Force (USAF) has never truly been interested in maintaining a fleet of inexpensive multirole low-technology aircraft for counterinsurgency (COIN) and building partner capability. Since the days of Billy Mitchell, American airpower has emphasized technology that is inherently offensive, manifestly strategic, thereby justifying an independent military branch. This ingrained service culture has persisted despite consistent evidence that an Irregular Warfare (IW) capability is also required. Now the USAF is struggling to balance the requirement for IW as well as maintain its decisive advantage in conventional war. The Air Force did not plan for and was slow to recognize the IW demands in both current conflicts in Iraq and Afghanistan. Recently, a sense of urgency to establish a more capable force has arisen. Except for the modest 6th Special Operations Squadron (6 SOS), there is no USAF capability to perform IW while building partner capability (BPC). Unfortunately, the 6 SOS has consistently faced opposition and is still not staffed nor equipped as its founders envisioned.

However, with the current Chief of Staff of the Air Force (CSAF), General Norton “Norty” Schwartz, new IW concepts are getting off the ground. The idea at the heart of the new IW concept is to evaluate small vertical and fixed-wing lift and light attack aircraft that can be operated by both the USAF and partner nations. The major obstacles to this new concept are a very limited budget and restrictions on additional personnel end strength. That said, the real challenge for the USAF is overcoming the historical paradigm of developing an expensive technological material solution. The key is to build expanded capability by using experienced Air Force personnel to cross-train as air advisors to operate and maintain IW aircraft with partner nations. The IW effort needs multirole aircraft that are cheap, durable, versatile, and short
takeoff and landing (STOL) capable. The creators of the 6 SOS suggested some timeless aircraft in the 1990s that are still excellent platforms today.

The Pilatus PC-6 Turbo Porter and the Basler BT-67 (a reengineered DC-3) meet the aforementioned requirements and are proven airframes available virtually off-the-shelf. The USAF should develop and maintain a standing force fielding a family of aircraft such as the PC-6 and BT-67. These aircraft have the capability to perform functions such as airdrop/airland and then quickly refit to support those same troops with Intelligence, Surveillance, Reconnaissance (ISR), and light attack. Their versatility allows them to operate in remote areas with minimal support. Rugged and reliable, they are ideal aircraft for the IW mission. A robust standing IW force with proper COIN education as well as appropriate language training, operating a family of inexpensive aircraft designed to meet a variety of COIN requirements, is the way ahead. In this manner, the USAF could recover from the lack of foresight in Iraq and Afghanistan while standing prepared to pro-actively intervene in future IW conflicts. As the Air Force considers its future IW concept, an introspective look at its past would shed light on multirole airpower ideas that are still applicable today and in the future.

**Background**

Even though the U.S. Army recorded the first use of aircraft in an irregular campaign in the 1916 Mexican Punitive Expedition, it was the United States Marine Corps (USMC) which foresaw the utility of airpower as a niche capability for themselves. Army aviators such as Billy Mitchell and Benjamin Foulois entered World War I with the idea that airpower could make a decisive difference in conventional warfare and left for France with a vision for the future. These men wanted the maximum number of air striking forces under command of an air officer to obtain operational and even strategic level effects. Their ideas envisioned an Army Air
Service capable of more than merely support of ground troops. Thus, the vision of a separate Air Force began and left behind was any desire to employ airpower in IW. If it was not strategic, airmen preferred not to participate. Unlike the Army Air Service, however, Marine Corps officers regarded aviation as fulfilling a supporting role within the Corps and emphasized IW to justify the continued existence of the Corps.

Between the world wars, the U.S. Army Air Corps was envious of the British Royal Air Force, which had gained its independence in March 1918. By way of observation, Brigadier General Billy Mitchell realized that he would have to prove that American airpower was equally offensive in nature, strategic in purpose, and thus required institutional independence. In his typical flamboyant and caustic way, Mitchell set out to prove his thesis to the US Army and the Navy with such displays as the sinking of the former German battleship Ostfriesland. Mitchell often went too far in his criticism, antagonizing the Navy with accusations of irrelevance and chastising the Army for an inability to lead airmen. Upon entering World War II, the US Army Air Force (USAAF) intended to use unescorted strategic bombing to strike enemy vital centers. After appalling losses to the Luftwaffe, USAAF leaders successfully altered the bombing strategy to include long-range fighter escort with better effect. However, the Pacific theater proved to be the largest stage for the decisiveness of airpower with the strategic bombing of Japan culminating in the B-29 delivery of two atomic bombs concluding the war. Ultimately, strategic bombing was considered decisive in World War II, enough to warrant creation of an independent separate service in 1947.

Thus, the strategic bombing paradigm for the USAF was set, and doctrine and policy was generated to support this perception to the detriment of anything considered unconventional or irregular. However, even in such a vast conventional effort as World War II, there was still a
need for IW and the USAAF was not prepared initially. In the Pacific theater, the First Air Commando Group, led by John Alison and Phil Cochran, was organized to perform a daring glider operation behind Japanese lines in Burma. The mission, performed in conjunction with British special forces dubbed the Chindits was a resounding success, but the First Air Commando Group was still disbanded at the end of the war. There was little room in an Air Force built around state of the art strategic bombing for obsolete aircraft to conduct IW. The prevailing thought was that an Air Force prepared for large scale conventional or nuclear war could certainly handle any small war or irregular conflict. However, in Korea the USAF realized a need for three wings dedicated to unconventional operations only to deactivate them after the war in 1957. This cycle of creating unconventional squadrons for conflicts only to dismantle them afterwards was repeated again in Vietnam.

In 1974, special warfare squadrons had dropped from 19 flying squadrons possessing 550 aircraft and five thousand personnel to less than 40 aircraft total. The takeaway for the Air Force from Vietnam should have been that airpower is undoubtedly critical in future small wars but is only one variable in a complex joint environment. If the variables of the nature and type of war, enemy, combat environment, military controls, and political objectives are not assessed correctly, then airpower can be misapplied. Once again, Air Force leadership believed that in all cases conventional airpower was the decisive factor in warfare, when unrestrained by its political masters.

The lack of focus on unconventional airpower was once again displayed in April 1980 by the disaster at Desert One, the Iran hostage rescue effort known as Operation Eagle Claw. During the attempt, a Marine Corps helicopter crashed into a USAF MC-130, killing eight Americans. A review of the mission subsequently laid the foundation for the creation of Air
Force Special Operations Command (AFSOC). The formal investigation by the Department of Defense (DoD), known as the Holloway Commission, recommended a standing joint counterterrorism task force. Shortly afterwards, Congress decided to reform the military in general by reorganizing the DoD, complete with the Goldwater-Nichols Defense Reorganization Act.¹³ In addition to other measures, the result was the creation of the joint United States Special Operations Command (USSOCOM) in 1987 and three years later, AFSOC was created.

Within the first few years of its existence, AFSOC established the 6 SOS, dedicated to Foreign Internal Defense (FID). But concurrent with the creation of the 6 SOS, decision-makers in USSOCOM neglected the FID mission throughout the 1990s.¹⁴ The squadron faced difficulty obtaining resources from AFSOC, USSOCOM, and the USAF. Nevertheless, over time the squadron acquired over one hundred personnel and leased various aircraft prevalent in air forces worldwide. The concept was to acquire experienced instructor pilots, maintenance personnel, and other USAF specialties, and train them in the sustainment and employment of aircraft that were common in partner nations. This cadre of personnel received extensive language, culture, and COIN training before deploying to a partner nation to train its air force to better perform its function of internal security. The founders of the 6 SOS envisioned a family of aircraft, including the versatile Pilatus PC-6 (Appendix A) and the Basler BT-67 (Appendix B), among others. Although politically unsustainable at the time, these types of aircraft supported solid concepts of IW. Unfortunately, the 6 SOS did not procure these aircraft and, until recently, the squadron did not grow. The squadron has doubled in recent years, yet is required to cover FID for the entire world. In that regard, the squadron is nowhere near the size needed for the mission required of it, as evidenced in Iraq and Afghanistan.

**Problem Discussion**
At present, the USAF has no other dedicated FID capability beyond the 6 SOS. And yet the demand for this type of capability continues to grow as the US remains embroiled in two irregular conflicts in Iraq and Afghanistan and other potential small wars seem imminent. Although BPC efforts are growing in importance, USAF efforts are ad-hoc and late to the game. In both Iraq and Afghanistan, there was no comprehensive airpower strategy that anticipated the need for IW or BPC upon the completion of major combat operations. Dedicated progress with regard to indigenous air forces in Iraq and Afghanistan was only begun recently, an effort undermined by the lack of focus on IW and BPC in the USAF before 2001.

Iraq and Afghanistan are both suffering from a lack of airpower expertise, infrastructure, training, and the economic sustainment necessary to rebuild an air force. Yet both countries need immediate air support for their daily COIN operations. Therefore, the USAF has been providing the lion’s share of air support for COIN functions of both US and partner nations. Unfortunately, modern air forces are expensive, complex, and require intensive training programs to perform effectively. Time is also required; however, time is a commodity neither country has in abundance. Both need personnel and aircraft capable of providing important COIN functions: “small vertical and fixed wing lift and light attack.” More importantly, a requirement now exists termed “armed overwatch,” which provides persistent ISR capability and the ability to attack, all in one platform. The personnel operating these aircraft must understand COIN theory lest they do more harm than good. Proven COIN airpower concepts such as flexibility, the ability to maintain initiative by surprise, and minimizing collateral damage must be instilled in these airmen. And the aircraft these airmen operate must reflect these concepts: affordability, versatility, durability, ruggedness, and availability.
In Iraq and Afghanistan (as well as elsewhere), the aircraft will operate with minimal maintenance support, often in areas that are remote, without any infrastructure or even a runway. In addition, neither government can afford the high costs associated with operating jets. These fledgling air forces should therefore rely on simpler propeller-driven utility aircraft to accomplish a variety of missions. That is not to say that they should never possess jet aircraft but rather that they should prove they are capable of operating and maintaining simpler multirole models for their internal security before establishing a more robust capability. The irregular air battle is not one based on high-technology aircraft that are used to decisively strike enemies on a theater or global level. Rather, what is required are relatively low-technology aviation solutions to support ground troops fighting numerous isolated small battles. But this type of conflict does not fit the conventional offensive, strategic, and independent paradigm that the USAF has subscribed to for over 60 years. It is closer to the Marine Corps emphasis on air to support ground troops. That said, two aspects of the Air Force paradigm still must be observed to ensure success: centralized control of the air assets and leadership provided by an air-minded officer. Without these airpower will fail to fulfill its potential.

Thus, it becomes clear why the USAF was unprepared to fight or train others to fight irregularly. Although, the USAF is a clear world leader in technological airpower, it must embrace alternative and even low-technology for the IW and BPC arena. In addition, the USAF must emphasize ideas and training as well as proven aircraft based on the needs of partner nations. The USAF must also reevaluate its decades-old paradigm regarding conventional offensive airpower in the context of counterinsurgency.

**Proposed Solutions**
Before the US Air Force can begin to meet the challenge of IW, it must accept that this type of warfare is here to stay. Implicit in this acknowledgement is the fact that USAF must be constantly prepared for irregular conflicts and building partner capacity. As alluded to earlier, the USAF has a history of creating ad-hoc units for unconventional operations only to dissolve them after the need is no longer acute. In order to break this cycle, an institutional paradigm shift must occur which allows for a more balanced conventional and unconventional force.

Historically, there has never been a parity between the two types of forces required because USAF leaders have not recognized unconventional forces as strategically important. On a more positive note, current USAF leaders have acknowledged IW as a strategically important challenge and are developing doctrine on the subject. The effort began with the writing of Air Force Doctrine Document 2-3, *Irregular Warfare*, dated 1 August 2007. According to the manual: “Irregular warfare is sufficiently different from traditional conflict to warrant a separate keystone document [and] we intend this doctrine document to be broad, enduring and forward looking.”

As the USAF attempts to remain relevant to current and future conflicts, but at the same time maintain its conventional power, current CSAF General Norton Schwartz states that “the Air Force must balance the requirements levied upon airpower in IW with the concurrent need to maintain decisive advantage in conventional warfare.”

The doctrine is general in nature but lays a solid framework of key airpower functions such as FID, BPC, Foreign Military Sales (FMS) Security Assistance (SA) and Internal Defense and Development (IDAD). With that in mind, there is an obvious need for the USAF to build an organization with the ideas and equipment capable of prosecuting the envisioned doctrine. It is, however, encouraging that the CSAF has given credence to the possibility of a paradigm shift in the USAF.
This paradigm shift does not claim that conventional airpower is no longer important to national defense. Rather, it suggests that there must be a more balanced force, one that can focus on both conventional and unconventional operations. The envisioned irregular force is still conceptual but certainly within the realm of possibility for the world’s most powerful air force. Before the IW force is created, however, the USAF must overcome its institutional predilection for “technology, individualism, and dogmatic theories.” Some think that two Air Forces must be created, one dedicated to deterring peer competitors based on cutting edge airpower, and the other based on proven technologies and concepts for irregular warfare. In truth, an irregular force can be realized relatively inexpensively from existing combat expertise within the Air Force. The current CSAF believes, with the “right kind of training and language skills,” that general purpose forces can be used in a versatile manner to prosecute irregular missions, including BPC. That said, the traditional outlook will be difficult to overcome. “Without the emergence of bureaucratic acceptance by senior military leaders, including adequate funding for new enterprises and viable career paths to attract bright officers, it is difficult, if not impossible, for new ways of fighting to take root within existing military institutions.” While the CSAF is interested in changing the paradigm, he must start small, with a modest funding outlay of only $694 million over the next seven years. The question thus becomes: how can the USAF build an IW force on such a small sum of money?

The answer lies in using the proven method of the 6 SOS but on a larger scale. As noted before, the IW aircraft needed are relatively inexpensive when compared to existing platforms. The personnel would come from within the existing USAF end strength. Personnel with maintenance, civil engineering, security forces, and advanced aircraft pilot skills would be the primary group and would be provided counterinsurgency training as well as culture and language
skills. With appropriate training, experienced aircrew personnel can quickly learn to fly much less complex aircraft to operate in a variety of environments. But first, leadership must be developed with a clear concept of airpower in a counterinsurgency role.

Selected leaders must possess a solid understanding of the challenges inherent to building an irregular force in the US and in partner nations. Personnel selected for this duty should be top officers and non-commissioned officers (NCO) who have been schooled in the tenets of airpower as well as COIN. The tenets of airpower are that airpower 1) should be centrally controlled and de-centrally executed; 2) is flexible and versatile; 3) produces synergistic effects; 4) offers a unique form of persistence; 5) must achieve concentration of purpose; 6) must be prioritized; and 7) must be balanced. Although this sounds rather simplistic, the Afghan National Army Air Corps (ANAAC) does not adhere to these tenets according to USAF air advisors. Currently, the tiny ANAAC persistently violates the tenet of central control by dispersing its forces to several regional ground commanders. This violation of one of the basic tenets of airpower is but one example of the lack of priority placed on ideas central to building an air force. It is shocking to realize how the USAF has allowed the ANAAC to be marginalized by this egregious violation of an important airpower truth. How does the Air Force stop this disturbing trend?

First, a comprehensive strategy is critical to success in establishing an IW air force capable of ensuring the security of the state. The USAF has devoted vast amounts of brainpower to developing its own comprehensive strategy for the purpose of establishing a superior independent conventional force, yet it seems unwilling to do the same for partner air forces. In military terms, strategy is the use of resources to achieve a political goal. The political goal of establishing a credible partner nation air force continues to elude the USAF in IW endeavors despite attempts to provide military resources. Perhaps the answer lies in a
significant investment in people armed with the knowledge of historical airpower and
counterinsurgency lessons, combined with the tenets of airpower. Some of the important
characteristics required of airpower in small wars is virtually absent in the current approach to
building an IW/BPC force include aircraft performing such mundane roles as airlift, ISR,
communications as well as agricultural support, pest control, and support to the democratic
process.32

Currently, USAF IW efforts tend to have a “warheads on foreheads” mindset
emphasizing the high-technology aspects of remotely piloted vehicles providing intelligence
gathering and surgical kinetic strikes. While these missions are certainly consistent with the
USAF’s extant technology and outlook, there is little relation to partner nations and their ability
to perform these missions after the USAF has departed. Since most partner nations cannot afford
specialized satellite controlled ISR or expensive fighters and bombers, it is logical to acquire
affordable, durable, and rugged multi-role aircraft. In general, the most important role of
airpower in IW is one of support; thus, relevant airframes should be able to deliver troops
(airdrop or airland) and quickly refit to support them with ISR, Command and Control (C2), and
kinetic strike. These aircraft must be easily maintained, easy to fly, and low cost. They must
also have a STOL capability. In order to mentor air forces with such aircraft, the USAF IW
force should operate a fleet of the same types, and USAF aircrew must master the tactics,
techniques, and procedures relevant to these aircraft. In this regard, the founders of the 6 SOS
favored the Pilatus PC-6 Turbo Porter and the Basler BT-67.

*Pilatus PC-6 Turbo Porter*

Pilatus Aircraft Limited is a Swiss corporation founded in 1939 and currently claims to
be the world market leader in the manufacture and sale of single-engine turboprop aircraft.33
The USAF already maintains a relationship with Pilatus as a consequence of acquiring their PC-12 aircraft, converted for military use, in the AFSOC inventory. The Porter, as the PC-6 is known around the world, is renowned for its unique STOL capability, reliability, versatility, and reputation as a rugged utility aircraft. The Porter is a light-lift, high wing, single-engine turbo propeller, fixed landing gear, tail dragger-type aircraft that boasts the ability to operate in all weather conditions and in all environments.\(^{34}\) The aircraft is capable of landing in 417 feet (1,033 feet over a 50 foot obstacle) on a variety of surfaces including sand, dirt, snow, and water, thus allowing access to areas normally only served by helicopters.\(^{35}\) Despite its relatively small fifty-two foot wingspan, its maximum payload is 2,646 pounds up to a maximum altitude of 25,000 feet and with a maximum 1,010 foot per minute rate of climb.\(^{36}\) The aircraft’s endurance is over four hours and up to seven and a half hours with underwing tanks.

Even more impressive is the versatility of the cargo compartment, which is equipped with large sliding doors on both sides and a removable floor hatch. The doors facilitate paradrops or easy cargo and passenger loading while the floor hatch can be modified to accommodate an ISR sensor. The cabin layout supports 11 personnel in seats or more on the floor for paradrops. The aircraft can rapidly refit for other types of missions, including search and rescue, medical evacuation, or ferrying of equipment. The aircraft can be used as a gunship by simply replacing the floor hatch with a trainable gun, and/or hanging standoff weapons under the wings. The potential for this aircraft in an IW role is almost limitless.

But perhaps the greatest benefit to the USAF and partner nations is the legendary durability of the Porter. It has a proven reliable engine, the Pratt and Whitney PT6A, which is common to many other turbo-propeller aircraft, including the Basler BT-67. The Porter is designed for operation in adverse conditions by only one pilot and is so rugged as to not “get
“stuck” in remote areas. The aircraft is easy to maintain with a relatively simple modular design and requires minimal logistical support. The cost for this type of off-the-shelf aircraft with some minor modifications would be far less than purchasing multiple specialized military models. The Porter, with minimal modification and cost, ideally meets the specifications as an IW aircraft.

*Basler BT-67*

Basler Turbo Conversions is an American company based in Oshkosh, Wisconsin, and was formed in 1957. The BT-67 is a medium-lift, low wing, twin-engine turbo propeller, retractable landing gear, tail-dragger type aircraft designed to operate in the same environments as the Porter (except for water). Much like the Porter, the Basler BT-67 is a proven aircraft design based on a reengineered DC-3. Basler remanufactures the DC-3 airframe, improves its engines and avionics package, and tailors the cargo compartment to requirement. The aircraft possesses remarkable STOL characteristics with a cargo capacity of 13,000 pounds. The landing distance for the BT-67 is approximately double what the Porter advertises, but is still quite impressive for its size. The climb rates are similar to the Porter and the endurance is over five hours and up to ten and a half hours with extended range tanks.

The cargo compartment of the BT-67 is very versatile, with an optional oversize cargo door and multiple hatch openings for ISR. The aircraft can hold up to 40 personnel with seats, or more on the floor for paradrops. The BT-67 can also accommodate search and rescue, medical evacuation, and equipment ferrying. Perhaps the most prominent dual use for the BT-67 is as a gunship. The modified DC-3 airframe, known in a previous variant as the AC-47 Gunship, was the forerunner of the AC-130 now in use with the USAF. The AC-47 Gunship was retired from the USAF inventory and is no longer in production. However, Basler offers to reproduce this
capability in addition to other variants. The BT-67 can carry standoff weapons and an ISR package yet it can quickly convert back to an airlift or other role.

The BT-67 employs a version of the same reliable Pratt and Whitney PT6A as its power plant. This simplifies logistics considerations for maintainers of both the Porter and BT-67, with many common parts. The durability of the DC-3 and AC-47 are well known and Basler boasts that the BT-67 improves on their impressive record. The BT-67 is a rugged multi-role aircraft requiring minimal support while providing unparalleled flexibility, and versatility, at an affordable price. This aircraft combined with the Pilatus Porter could provide the inexpensive core of a family of IW aircraft for the USAF and would be easily exportable to partner nations to meet their IW airpower needs.

**Conclusion**

These two aircraft meet the USAF need for a family of IW aircraft for operations such as FID and IDAD and would be ideal for developing partner nations in the future. At present there is a gap between the stated IW doctrine of the USAF and capability in this realm. Arguably, the aircraft described above eliminate the need for expensive and difficult to maintain rotary wing aircraft in developing nations because of their rugged STOL capability. Additionally, smaller faster, attack aircraft would not be needed, because PC-6 and BT-67 aircraft can provide the same kinetic capability and with similar vulnerability. An IW family of aircraft centered on these two types would allow the US to be strategically postured to help partner nations anywhere in the world.

As the USAF comes to terms with its commitment to developing an IW force capable of BPC, it needs to look at the problem from a different perspective than its traditional conventional offensive, strategic, and independent mindset. Refusing to pursue airpower ideas
outside of its decades-old paradigm is what failed the Air Force in the IW context in earlier conflicts. There is now an opportunity to strike a balance between maintaining overwhelming conventional airpower and building an IW force capable of BPC in developing nations with the appropriate resources and training to do the job right. Sound USAF IW doctrine now exists, but it is up to Air Force leadership to resource an IW organization capable of executing the mission. The USAF possesses a wealth of combat-tested personnel capable of mastering the skills required. Finally, the USAF must resist the inclination to solve the IW problem by pursuing a purely technological and kinetic solution, which is unsustainable for developing partner nations. The goal should be a standing IW force equipped and trained to provide credible and appropriate support to partner air forces on a significant scale, consistent with US policy. The USAF can remedy the situation with a more robust IW force, but a long-term commitment from leadership is required to ensure its viability.
PC-6 TURBO PORTER
ANYWHERE, ANYTIME, IN ANY ENVIRONMENT

The Pilatus PC-6 Turbo Porter has become a legendary aircraft, known around the world simply as "the Porter". Its unique short take-off and landing (STOL) capabilities, reliability and versatility in all weather and terrain conditions have established the reputation of the PC-6 as a rugged utility aircraft.

The Porter is fully capable of operating from different types of unprepared, rough and short airstrips, in remote areas, at high altitudes and in all climates.

A simple but solid construction, proven systems and features, combined with precision workmanship, result in the highest reliability and lowest maintenance possible. No matter whether high and hot or low and snow - anywhere, anytime you can rely on the Porter as a high quality, life-long investment.

PERFORMANCE

The PC-6 has the following performance under international standard atmospheric (ISA) conditions:

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<thead>
<tr>
<th>Performance</th>
<th>Value</th>
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<tbody>
<tr>
<td>Take-off distance over 50 ft. (15 m) obstacle (STOL)</td>
<td>1,444 ft. (440 m)</td>
</tr>
<tr>
<td>Landing distance over 50 ft. (15 m) obstacle (SIOL)</td>
<td>1,033 ft. (315 m)</td>
</tr>
<tr>
<td>Rate of climb (MTOW)</td>
<td>1,010 ft/min (5.13 m/sec)</td>
</tr>
<tr>
<td>Max. cruise speed</td>
<td>125 KIAS (235 km/h)</td>
</tr>
<tr>
<td>Max. range at 10,000 ft</td>
<td>500 NM (920 km)</td>
</tr>
<tr>
<td>- with auxiliary tanks</td>
<td>870 NM (1,611 km)</td>
</tr>
<tr>
<td>Max. operating altitude</td>
<td>25,000 ft (7,620 m)</td>
</tr>
<tr>
<td>Stall speed (MTOW)</td>
<td>- Flaps up (Vf) 56 KIAS (107 km/h)</td>
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<tr>
<td>- Full flaps set (Vlf) 52 KIAS (96 km/h)</td>
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FEATURES

- Signature dual piston engines (GTS160A rated for 220 hp each)
- Taildragger or tricycle landing gear
- Flying controls with auxiliary controls (e.g. spoilers)
- Large sliding doors (left and right side)
- Power and rear stowage in the rear part of the fuselage.
TRANSPORTATION SOLUTIONS/Basler BT-67

THE BASICS

If it ain’t broke, don’t fix it. The Douglas DC-3 wasn’t broken; in fact, it is generally regarded as the most reliable airframe in aviation history. Basler Turbo Conversions fixed it—fixed it up, that is—raising the bar for aircraft in its class. The BT-67 is versatile, reliable and tough. It can deliver smoke jumpers into the heart of a fire, and it can comfortably ferry an expeditionary force to the most forbidding and frigid areas on earth. And it can be called on for virtually any aviation purpose in between. Thousands of hours of carefully thought-out design principles ensure that each BT-67 component, assembly and system is either new or the equivalent of. All workmanship and materials meet the highest standards of the Federal Aviation Administration. Basler is committed to exceeding industry standards by adhering to an uncompromising approach that leads to the highest quality results.

POWER PLANT

- Two 1424 HP Pratt and Whitney PT6A-67R Turbine engines
- 5 blade Hartzell aluminum reversing propellers
- Ratable, clean, efficient and quiet

SYSTEMS UPGRADES

- Anti-ice and de-ice equipment for propellers, inlets, windshields (Now certified for flight into known ice)
- Electrical system replaced by complete new system designed for FAR Part 25
- Hydraulic system upgraded for improved gear retraction time
- Brakes, B.f. Goodrich H2-445, expander tube brake assembly installed
- Anti-ice and de-ice equipment for propellers, inlets, windshields
- New bleed-air heating system (muffled)
- Low Infrared signature due to an augmented exhaust system, which disperses over the upper wing surface
- Fuel system engineered to FAR Part 25

KEY IMPROVEMENTS

- 35 percent more interior volume
- 43 percent more cargo load
- 24 percent increase in speed
- Up to double fuel capacity
- Lower stall speed
- Lower approach speed
- Fuel mileage equal at equal speeds
- All-metal control surfaces (optional)
- Center and outer wings reinforced in 250 places to reduce loads on lower wing attachment angles and to support the increased maximum gross weight

MISSION VERSATILITY

- Oil spill cleanup
- Medical evacuation
- Insect control
- Maritime patrol
- Drug interdiction
- Geophysical surveys
- Parachute operations
- Cloud seeding
- Fuel ferry
- Smoke jumper delivery
- Remote area delivery/support
- Environmental research

AVIONICS PACKAGE

- Full Instrument Flight Rules
- Multi-function display
- GPS (single or dual)
- Weather radar
- High Frequency radio
- EFIS Flight Deck option

PERFORMANCE SPECIFICATIONS

- Maximum cruising speed (12,500 ft.): 215 kts
- Standard cruising speed (12,500 ft.): 205 kts
- Max fuel (standard): 772 gal. (5,172 pounds)
- Long-range tanks: 1,542 gal. (10,312 pounds)
- Range (standard): 950 NM; Long range: 2,140
- Maximum takeoff (pounds): 28,750/30,000 military
- Cargo basic operating wgt (pounds): 15,750
- Cargo basic max useful load (pounds): 13,000
- Volume: 1,225 cubic feet

SEATING OPTIONS

Comes with a combination of seating configurations that include:
- Smoke jumpers/troop
- Seats forward, seats facing or a combination
- Forward facing fold-ups
- Executive (includes partitioned work area with desk)

Amenities in passenger variation includes:
- Cabin and cockpit AC
- Chemical toilet with external service port
- Cabin insulation
- Cockpit voice recorder
- Terrain Awareness System (TAWS)
Notes

1 Classroom notes, Dr. Wray R. Johnson, School of Advanced Warfighting, 2009.
2 According to Air Force Doctrine Document 2-3, 1 August 2007, Irregular Warfare is defined as a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations. Irregular Warfare favors indirect and asymmetric approaches, though it may employ the full range of military and other capabilities in order to erode an adversary’s power, influence, and will.
4 General Norton “Norty” Schwartz is the first Chief of Staff of the Air Force (CSAF) without a fighter or bomber pilot background. He is also the first pilot with a special operations background to reach this post. General Schwartz was originally a C-130 Hercules pilot before becoming a special operations MC-130E Combat Talon I pilot. He commanded special operations forces at multiple levels including the 1st Special Operations Group, 16th Special Operations Wing, and Special Operations Command, Pacific. He has commanded non-special operations and joint forces including the 36th Tactical Airlift Squadron, Alaskan Command, and 11th Air Force. He was also Director of the Joint Staff, and Commander, United States Transportation Command. His breadth of experience in the special operations and joint arenas make him a unique paradigm-changing choice for the CSAF.
10 Corum and Johnson, 237.
11 Corum and Johnson, 273.
15 Tirpak, 23.
16 Tirpak, 23.
17 Corum and Johnson, 195.
18 Carl H. Builder, The Masks of War: American Military Styles in Strategy and


21 Magruder, 7.


24 Magruder, 7.


26 Tirpak, 23.


28 Tirpak, 24.


30 Colonel Todd R. Lancaster, interview, September 2009.

31 Corum and Johnson, 425.

32 Corum and Johnson, 425-37.


34 Pilatus Aircraft Limited.

35 Pilatus Aircraft Limited.

36 Pilatus Aircraft Limited.


38 Basler Turbo Conversions, LLC.

39 Pilatus Aircraft Limited.

40 Basler Turbo Conversions, LLC (marketing document created by L & Q International)
Bibliography


Murray, Williamson, and Barry Watts. “Innovation in Peacetime,” in Murray and Millett,


