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AIR FORCE TANKERS FOR THE CARRIER BATTLE GROUP:

CONSIDERATIONS FOR THE OPERATIONAL COMMANDER

by

Donn M. Lewis

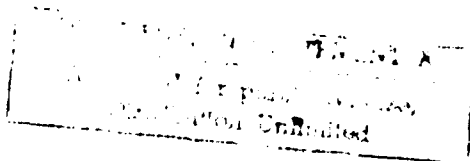
Lieutenant Colonel, United States Air Force

18 May 1992

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This paper presents the operational commander tasked with planning a maritime air campaign a means of dramatically improving the Carrier Battle Group's (CVBG) combat power. Current US military strategy requires the Navy to get the most out of its CVBG for its primary mission of power projection. This paper proposes the regular use of US Air Force (USAF) land-based tankers (LBTs). Today's USAF/Navy air refueling force, operations, and use in past maritime air campaigns is discussed. A proposed maritime strategy employing three possible CVBG offensive strike options with USAF LBTs is recommended. A concept for the Joint Force Commander tasked with planning a maritime air campaign is presented for a peacetime regional scenario. Within the process presented here, an operational commander will have the means to understand the limitations and capabilities of LBTs, their CVBG employment benefits, and Navy operational concerns.

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## CHAPTER I

### INTRODUCTION

Air power represents the ability to project military force in the third dimension, above the surface of the earth. It encompasses the sum total of a nation's aviation. The extension of the perceptive horizon, speed of air travel, and freedom from surface barriers are the very basics of air power; however, all these elements are limited by range. Traditionally, a US Navy (USN) Carrier Battle Group (CVBG) covers about 500 miles per day, thereby limiting its capability to respond rapidly to a distant area of conflict. Through air refueling (providing fuel from a tanker aircraft to a receiver aircraft while airborne) the range of the CVBG's combat aircraft is increased. In order to make maximum use of its carrier-based aircraft, the CVBG must depend on air refueling (A/R) for multiplying its air power's effectiveness.

The United States needs to maintain a resilient military force for a flexible response in a dynamic world, while the USN must get the most out of its CVBG for its primary mission of power projection. With decreasing force structure and a new focus on regional vital interests, both the Navy and US Air Force (USAF) are likely to be tasked in an increasing number of contingency operations (both fewer land and sea-based aircraft, but presumably a still-dangerous world). A future reduction in air bases overseas would result in additional reliance on the CVBG which, if their numbers were also reduced, could have a much farther distance to go. This condition is exacerbated by the sad state of naval aviation procurement (no A-12, A-X a long way off, A-6 aging, and F-18E/F production in doubt - recent questions over range, cost, and

technological risk). A reduction in foreign bases and CVBGs makes A/R a critical planning factor in rapidly responding to resolve regional conflicts. To this end, today's operational commander must know his A/R capabilities and how to remedy current USN carrier-based A/R tanker range and fuel offload limitations while planning a regional maritime air campaign.

This paper provides a thought process an operational commander can use to dramatically increase the range and effectiveness of all carrier-based aircraft to achieve his strategic objectives. The answer lies in regular use of USAF land-based tankers (LBTs). The concept of using LBTs in support of naval operations is not new, but their use as essential linchpins in overall Navy/Marine Corps' air campaign planning has been almost non-existent.

LBTs could allow naval air power to strike while steaming to or from a crisis area, or position carrier out of range from a known threat, while still covering designated target areas. Unfortunately, use of these JCS-controlled tanker assets has been limited due to lack of understanding, training, joint exercises, fears over fuel compatibility, and SIOP (Single Integrated Operational Plan) tanker requirements. Also, most joint actions have occurred during crisis situations and have been planned on an ad hoc basis. The Joint Force Commander (JFC) must examine the LBT's potential capabilities and synergistic CVBG benefits prior to planning his next maritime air campaign.

Chapter II of this paper reviews in detail today's air refueling force (USAF KC-135/KC-10 and USN KA-6D), status, characteristics, offload capability, and future modifications.

In Chapter III, a discussion of USAF/USN air refueling operations, joint memorandums, and DOD tanker management system is presented along with how JCS becomes involved during a crisis.

Chapters IV and V lay out the methodology for planning a maritime air campaign for a regional scenario. The benefit of employing USAF LBTs will be shown using brief examples of Eldorado Canyon, Praying Mantis, and Desert Storm. This will be followed by a more detailed comparison with the 1982 Falklands War and how LBTs could be used with the CVBG to accomplish three offensive strike missions in a future scenario.

Finally, in Chapter VI, conclusions and observations are provided to draw everything together for the JFC so that his overall approach to planning a maritime air campaign will be successful.



## CHAPTER II

### TODAY'S AIR REFUELING FORCE

The development and testing of military air refueling (A/R) equipment and procedures began in 1918 when a Navy Reserve pilot used a grappling hook to snare five-gallon cans of gasoline sitting on floats. In this test, Lt Godfrey L. Cabot was investigating the possibility of snatching fuel cans off ships to make transatlantic flights possible.<sup>1</sup> From this historic beginning by a Navy pilot, came today's USAF and Navy air refueling force.

A/R provides the receiver aircraft with increased range, time on station and allowable payload. The added flexibility and responsiveness this simple mission gives our air power is awesome. Let's examine the current USAF and Navy primary tanker aircraft. The USAF has the KC-135 and KC-10, while the Navy uses the KA-6D.

KC-135. Basically a Boeing 707 airframe with structural improvements and added fuel space. The workhorse of the tanker force for thirty years, it has had numerous modifications to keep it current. The basic KC-135 airframe has been used for numerous special platforms and has a two-way range of 1200 miles with a 120,000 pound offload at 6000 pounds per minute. The latest version, the KC-135R, has completely new engines with a much improved range and offload capability. Compared to the KC-135A, 65% more fuel can be transferred at a 1500 mile radius (20% more than a KC-135E). Through FY 1991, 370 KC-135R upgrades had been contracted for; the 200th was delivered on 25 April 1990 and 290 were completed by 30 April 1992. However, only about 40 KC-135s are air refuelable. About 580 aircraft are in the inventory, with 200

(KC-135E/Rs) operated by the Reserve and Air National Guard. The KC-135 must employ a "Drogue adapter" kit in order to refuel probe-equipped fighters (USN A/R method) from its single boom.<sup>2</sup>

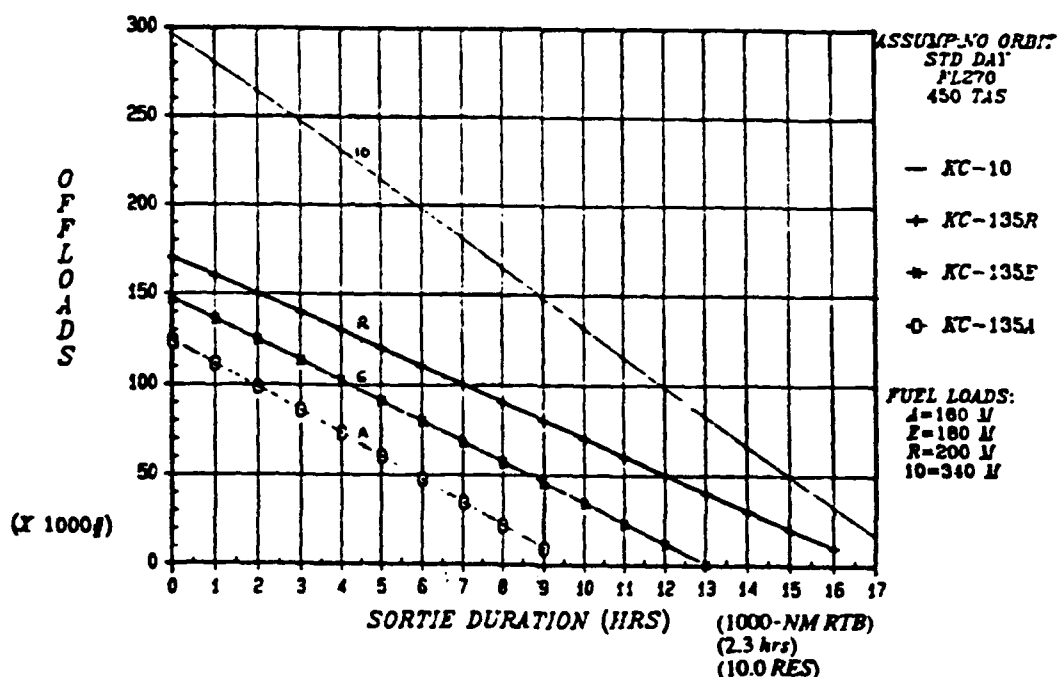
KC-10. Tanker modification of the Douglas DC-10 commercial airliner. Primarily procured for fighter deployment, it can transport much of the equipment and personnel required to support a fighter unit while deploying the aircraft. It has almost twice the deliverable fuel load of a KC-135, and A/R for USN/USMC aircraft can be selected in-flight (either "boom" or "probe-and-drogue" capability). The KC-10 can perform airlift missions for passengers and general cargo and is also air refuelable. It has a two-way range of 2000 miles with a 200,000 pound fuel offload. There are currently 59 KC-10s in the inventory. The KC-10 is being modified to incorporate two additional "probe and drogue" systems (one in each wing tip) to allow simultaneous refueling of three aircraft.<sup>3</sup>

KA-6A. Tanker modification of an A-6 Intruder attack aircraft. It has avionics deleted from the after fuselage to provide space for a reel and drogue. It can offload 21,000 pounds of fuel immediately after takeoff or 16,000 pounds at a distance of 260 nautical miles from the ship. Each carrier air wing usually has four KA-6A tankers but all A-6 aircraft aboard a carrier can be equipped with a "buddy" store, enabling them to act as tankers. A total of 13 to 20 buddy tankers could be made available from each aircraft carrier.<sup>4</sup>

The KC-135 and KC-10 can offer substantial improvement to the CVBG's organic aerial tanking assets which translates into increased flexibility in loiter time and range for the air wings. Where the organic KA-6 offers a nominal 10-12,000 pounds of fuel to receiver

aircraft, the KC-135 offers about 120,000 pounds (an average figure highly dependent of operation area and tanker time on station) and the KC-10 over 200,000 pounds for offload. (See Figure 1.)

Future Modifications. All KC-10s and 150 KC-135Rs are programmed over the next ten years to be modified with three drogues to give them more joint interoperability, especially for operations like Desert Storm which involved refueling for USN/USMC, British, and Saudi aircraft.<sup>5</sup> Upon completion of the drogue modification, all the programmed tankers will have wing tip and body drogues for simultaneous drogue refueling of three probe equipped aircraft, or the tankers can still use "boom-to-recepticle" air refueling for USAF aircraft.



Source: Headquarters SAC, Air Vehicle Division (XRHV), February 1987.

Figure 1. USAF Tanker Offload Comparison.

## CHAPTER III

### AIR FORCE/NAVY AIR REFUELING OPERATIONS

The concept of using USAF land-based tankers (LBTS) in support of naval operations is not new. However, its regular use has been limited by a lack of mutual understanding between Air Force and Navy planners. Formal joint A/R operations between both services began to evolve during the early 1970s. Each service had developed its own independent tanker fleet based on different requirements. While the USAF developed the KC-135 for in-flight refueling of the strategic bomber force, the USN created KA-6D tankers to "buddy" A/R their fighters from carriers.

JOINT MEMORANDUMS. In July 1976, a joint Air Force/Navy Memorandum of Agreement (MOA) was signed that provided for USAF tanker support for aircrew training and transoceanic movement of naval aircraft. On 10 July 1981, the USAF and USN signed a new memorandum of understanding (MOU) that provided mutually agreed parameters in the pursuit of improving Air Force/Navy interoperability and compatibility. On 9 September 1982, an additional MOU was signed which was geared to accelerate joint efforts to enhance the effectiveness of maritime operations specifically in defense of sea line of communications (SLOC). On 19 September 1983, the USAF and USN signed another MOU that built on and expanded the previous agreements. The basic intent was to streamline Navy A/R training and requirements into the normal USAF tanker scheduling and joint exercise activity. It also named the Joint Chiefs of Staff (JCS) as the prioritization/allocation authority for USAF LBT aircraft.<sup>6</sup>

A significant problem surfaced in 1984, when the Navy tried to

procure its own small fleet of LBT aircraft and put the proposal in its budget for FY 1987. On 18 March 1986, the Senate Armed Services Committee denied the request but the Defense Resources Board (DRB) directed the USAF to modify all its KC-10s to a three-drogue configuration and procure 40 sets of wing-mounted refueling pods.<sup>7</sup>

The current MOU, signed on 16 November 1988, increases the training aspect and calls for development of tactics for both offensive and defensive LBT maritime support. It also states that the USAF "will provide timely support for naval operational and training requirements" consistent with budgeted constraints. The current 1988 MOU includes a new attachment, entitled "Operational Concepts," which states that "operational concepts and procedures shall be developed jointly to satisfy the operational requirements of Air Force and Navy forces."<sup>8</sup> This statement provides DOD and senior decision makers employment alternatives previously unavailable.

SINGLE MANAGER CONCEPT. The current tanker management system evolved from the Strategic Air Command (SAC) single manager concept and is both JCS and user driven.<sup>9</sup> On 1 June 1992, SAC will be deactivated and the new USAF Air Mobility Command (AMC) will become the DOD single tanker manager (USAF reorganization). All requests for tanker support will be directed to AMC's Tanker Airlift Control Center.<sup>10</sup>

JCS INVOLVEMENT. The JCS becomes involved in tanker refueling matters in time of crisis, contingency, or war. The JCS determines the allocation of tanker assets during the time A/R requirements exceed tanker airframe availability in accordance with the Joint Strategic Capabilities Plan and in coordination with the DOD single tanker manager. This allocation process ensures the single management system

is responsive to the needs of competing receiver requirements as set by the JCS.<sup>11</sup> For this reason any request for non-scheduled tankers is made through the JCS to Headquarters AMC, which will then task a specific tanker unit depending on force status and location. The JCS will normally assign A/R assets to the Joint Force Commander (JFC) who controls these assets through his air component commander.<sup>12</sup>

## CHAPTER IV

### AIR REFUELING IN MARITIME CAMPAIGNS

As mentioned earlier, today's operational commander can no longer rely on overseas bases. Quite possible, future air strikes will have to originate from American soil or from international waters. Any bases remaining overseas are liable to be encumbered with restraints imposed by the host countries. During crises, our combat aircraft must be able to reach targets or destinations anywhere in the world in a matter of hours, without having to rely on forward bases. Air refueling plays a critical role in fulfilling this requirement.

History shows that air refueling allows flexibility in planning air campaigns. As an example, in April 1986 it was A/R that made possible F-111 fighter participation in Operation El Dorado Canyon, an anti-terrorism raid against Libya. Twenty-eight tankers supported the movement of eighteen F-111 fighters and four EF-111 electronic-warfare planes from their bases in England to targets in Libya and back again. Because both France and Spain refused overflight of their countries for the mission aircraft, the route of flight went around the Iberian peninsula and through the Straits of Gibraltar. The ability to A/R the strike aircraft allowed the participation of the F-111s, avoiding a diplomatic constraint to US operations.<sup>13</sup>

But how about USAF land-based tankers (LBTs) supporting the US Navy? During Operation Praying Mantis, the 1988 Persian Gulf incident, the carrier USS Enterprise was forced to remain outside land-based missile ranges. As a result, the carrier required USAF tanker support be made available - its own organic tankers limited to shuttling fuel to

strike counterparts. This real-world crisis control response was directed by a Navy Joint Task Force and included SAC tankers. During 18-22 April 1988 SAC KC-10s offloaded about three million pounds of jet fuel to 256 receiver aircraft composed of Navy A-4s, A-6s, A-7s, KA-7s, and EA-6Bs. All USN aircraft received their required fuel with no coordination or OPCON problems.<sup>14</sup> This demonstrates that USAF tanker support can be reliable when it is properly coordinated.

USAF LBTs were also critical to the success in the recent Gulf War. Crews flew around-the-clock missions throughout the buildup and conflict, offloading millions of gallons of fuel while transporting critically needed equipment, personnel, and supplies. During Desert Shield, USAF tankers flew more than 17,400 sorties, conducted nearly 34,000 A/Rs and offloaded nearly 444 million pounds of fuel. When Desert Storm started, USAF tanker crews surged with the attacking aircraft flying nearly 16,000 sorties, connecting 45,000 times to offload more than 638 million pounds of fuel. The total effort: more than a billion pounds - 176 million gallons - delivered by USAF LBTs.<sup>15</sup>

It also demonstrated, perhaps more than any other conflict, how A/R was critically important to the success of combat operations. This was due to several reasons. First, nearly every US combat aircraft required pre-strike refueling to reach their targets and most also required post-strike refueling.<sup>16</sup> Second, our strike aircraft are now typically based far from targets they must strike due to the combination of scarce basing options and the increased number and capabilities of enemy threats. This factor significantly multiplies the requirement for A/R.<sup>17</sup> Third, A/R increased the loiter time of combat air patrol (CAP)



and ground attack aircraft over the battle field. Our CAP aircraft were able to completely deny enemy use of the skies for combat purposes and impeded the enemy's escape flights to Iran. Increased loiter time was also a major contributing factor in decimating Iraq's artillery, tanks, and ground forces.<sup>18</sup>

In addition, tankers provided A/Rs to B-52 sorties originating in the US and flying halfway around the world to strike targets in Iraq. Our immense USAF tanker presence and capability also permitted other bombers to daily strike targets deep in the heart of Iraq, even though many were stationed more than a thousand miles away.<sup>19</sup>

Finally, at no time in the past has air power been so decisive in totally destroying an enemy's ability and desire to wage war. The massive destruction done by coalition air forces in the 39 days of the air war paved the way for a swift ground victory. Once the ground war began, the fact that Kuwait was liberated and the Iraqi army defeated in a 100 hour knockout punch is further proof of how effective air power had been. Air Force Secretary Donald B. Rice sees the Gulf War as "a snapshot of global reach and global power and proof that airpower - from all the services - has emerged as a dominant form of military might."<sup>20</sup> And President Bush declared that "Lesson number one from the Gulf War is the value of airpower."<sup>21</sup> It was A/R as a force multiplier that made this achievement possible and this is the primary contribution of LBTs to a operational commander's maritime campaign.

## CHAPTER V

### AIR CAMPAIGN PLANNING

Designing an air campaign is a formidable undertaking. The number of uses to which combat aircraft can be put is virtually unlimited. Naval forces offer freedom of movement on the high seas, which makes them a likely force of choice if basing or access rights are restricted or impossible. The US National Military Strategy states that power projection "becomes an even more critical part of our military strategy since overseas presence will be reduced and our regional focus has been enhanced."<sup>22</sup> In the joint world likely to surround a future US regional crisis response, the significant naval role as an "enabling" force for follow-on deployments of land and air forces merits serious consideration of using land-based tankers (LBTs).

MARITIME STRATEGY. Basically, the operational commander planning a maritime air campaign needs to know what advantages the LBT offers over the CVBG's organic tanker (KA-6D) capability. All tankers provide the receiver with the capability of increased range, greater payload, and increased loiter time. If enough fuel is available, the operational commander has the options of using the offensive, element of surprise, and a more economic use of force. The use of Air Force LBTs can make that fuel available and expand these options.

In 1982 when Argentina invaded the Falklands (Malvinas), the British employed A/R on a new plateau.<sup>23</sup> The Argentine "phony peace" ended on 1 May with an attack on Stanley airfield's runway by a British Vulcan bomber from Ascension Island that had been refueled enroute by Victor tankers on its nearly 7,600 mile round trip. Only one Vulcan at

a time could be used due to the number of Victor A/R aircraft available and Ascension Island's limited ramp space. (See Figure 2.)

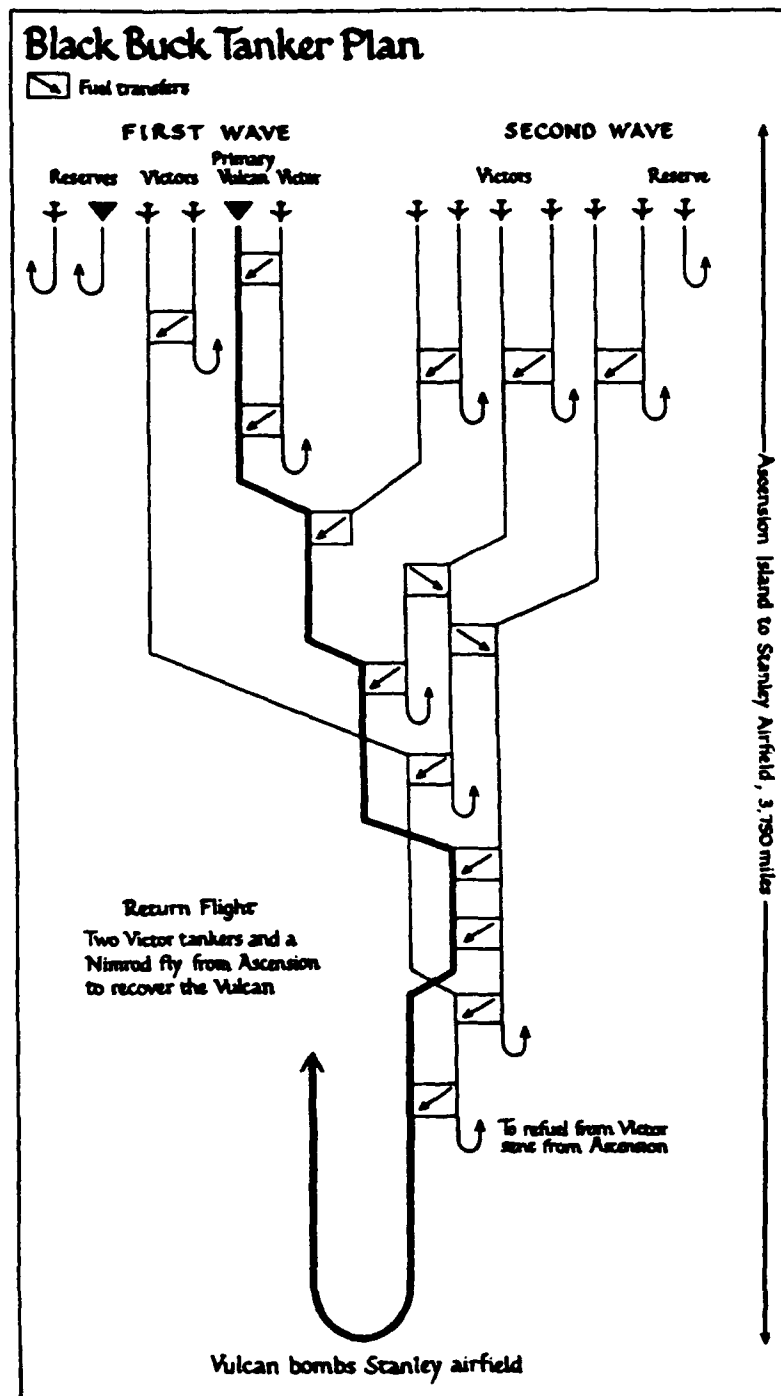


Figure 2. Black Buck Tanker Plan.

Source: Middlebrook, Martin. Task Force: The Falklands War, 1982. New York: Penguin Group, 1987 (Revised Edition), p.119.

Each Black Buck (Vulcan/Victor) mission was dependent on numerous tankers. Eleven Victor tankers would take off in two waves with two flying as "Reserves." The remainder refueled the Vulcan and each other in diminishing numbers until the Vulcan was finally just north of the Falklands with full tanks. A Nimrod and two additional Victors were launched to A/R the Vulcan on its return trip. It took a dozen experienced tanker crewmembers two days at Ascension Island to complete the tanking plan on this complicated operation. The main problem was the uncertain fuel consumption of the Vulcan bomber.

Even though the Royal Air Force had never attempted to fly this far before, the Vulcan's bombs were dropped at 0340 local time, well inside the scheduled two-hour block. This first of several Black Buck missions took a total of eighteen sorties flown by fifteen Victors, two Vulcans and a Nimrod. The Nimrod was used to guide the returning Vulcan and Victor to a critical A/R rendezvous. Just over two million pounds of fuel was required with seventeen separate fuel transfers.<sup>24</sup> This superb demonstration of British air power was certainly testimony to the airmanship and ingenuity of the flight crews involved, but it also highlighted the value of A/R tankers.

This same type of scenario and A/R problem could come again. How could today's operational commander best employ the CVBG in its role of power projection and in achieving his strategic objectives? The Joint Force Commander (JFC) has been tasked to plan a maritime air campaign and develop possible offensive strike options for the CVBG. We will assume that they are being considered during a low intensity conflict or in response to a crisis situation similar to the Falklands War. Ramp space at Ascension Island is limited but there is enough room for about

twenty USAF LBTs. It is a single theater, conventional war with a regional power that most likely has unconventional weapons. US policy is to control escalation and delay enemy use of unconventional means. The current military objective is to use the CVBG to stabilize the situation in theater and neutralize the offensive war-making capability of the enemy. The use of USAF LBTs could provide three offensive strike options for the CVBG. Each option is obviously scenario dependent but illustrates several possibilities.

1. DEEP STRIKE. USAF tankers provide the capability for the CVBG's combat aircraft to strike land or sea targets otherwise geographically out of range. This substantially improved range results from the increased fuel offload capability of the KC-10/KC-135. This mission would require the LBTs to rendezvous with the strike aircraft and either offload the required fuel or escort them to a predesignated point and A/R. The LBTs could then either return to base or loiter for a poststrike A/R before escorting the receivers back to the CVBG or an air base. (See Figure 3.)

2. STANDOFF. This is similar to Deep Strike but the LBTs provide the capability to allow the CVBG to remain at a safe distance and still strike targets with its combat aircraft. This could reduce combat air patrol (CAP) and quick-launch requirements due to the CVBG being positioned outside the range of unrefueled land-based enemy strike aircraft or surface threats. The Pentagon's final report (April 10, 1992) on the operation of the Desert Storm Campaign reflected an additional advantage. The Iraqi mine threat "affected naval air strike operations because it forced the carrier battle groups in the Persian Gulf to operate at greater ranges from targets in Iraq."<sup>25</sup> (See Figure 4.)

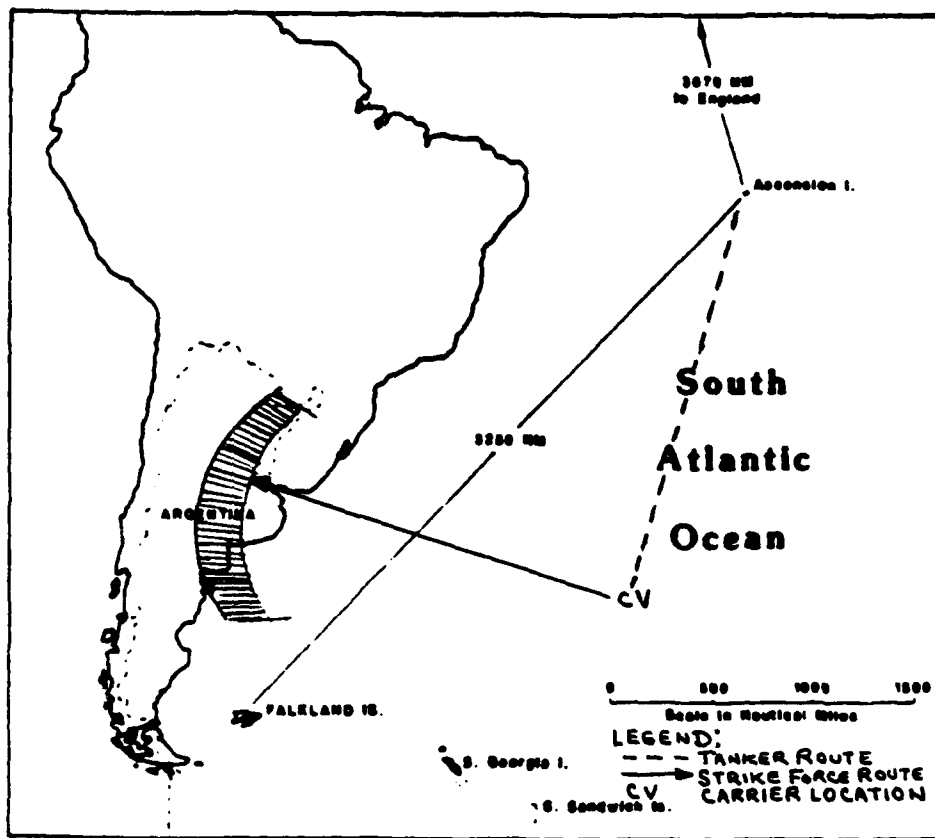


Figure 3. Deep Strike Mission

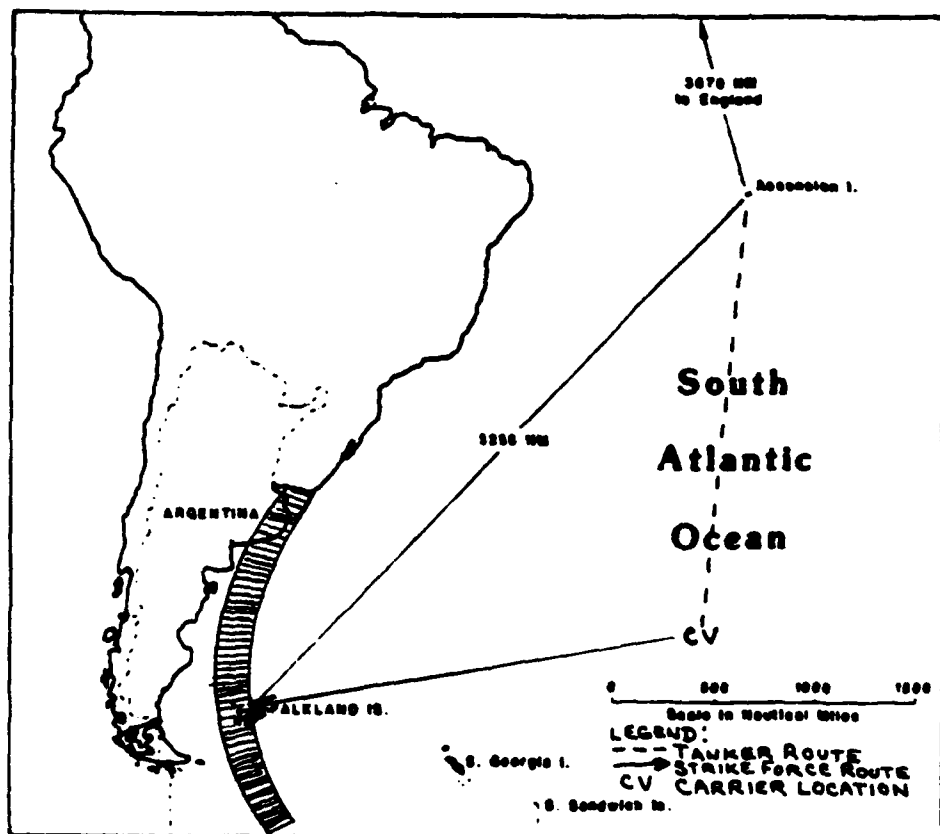


Figure 4. Standoff Mission

3. STRIKE WHILE STEAMING. USAF tankers rendezvous with the CVBG's strike aircraft, escort them to the A/R area, and loiter for a poststrike A/R before escorting the receivers back to the CVBG. This mission allows a strike capability while the CVBG is moving to, or away from, a specific crisis area. Since a CVBG covers about 500 miles per day, its capability to respond rapidly to a distant area of conflict is limited. A carrier strike force capable of moving at 500 miles per hour could range targets that are geographically out of CVBG range for days. This could provide a faster deterrence response and create the element of surprise while keeping the CVBG in an undetected, nontargetable, and nonthreat environment. (See Figure 5.)

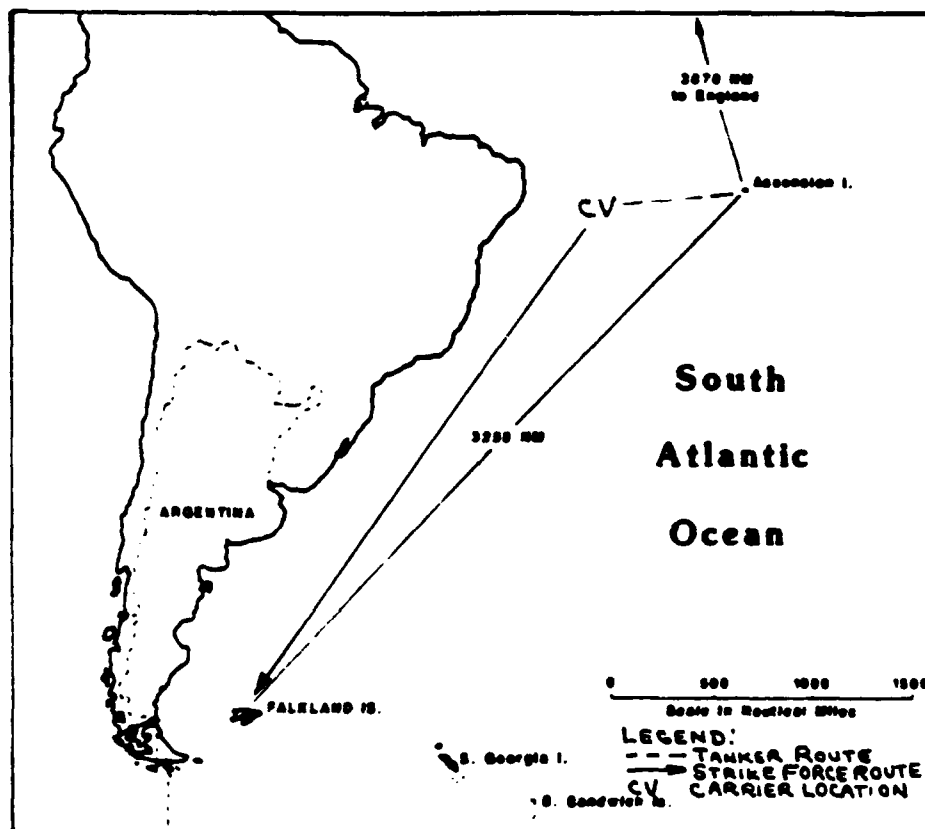


Figure 5. Strike While Steaming Mission.

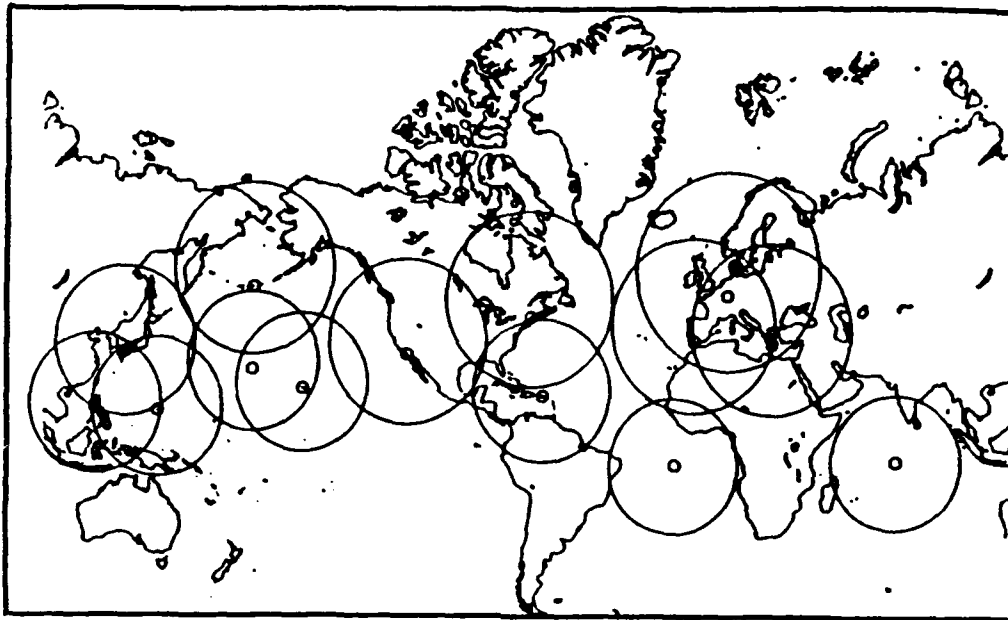
The scenarios in these options are most productive when utilized in the mid-to-low spectrum of war. It was just such a scenario that haunted US military leaders as they watched the Iraqi Army invade Kuwait in August 1990 and move on to the Saudi Arabian border. Having fought the Iranians to a standstill in an eight-year war, the Iraqi military boasted battle-tested veterans led by Saddam Hussein, a brutal dictator who repeatedly demonstrated his willingness to use chemical weapons. Uncertainty abounded. Would Iraq invade Saudi Arabia? Would America's friends in the Persian Gulf and Red Sea areas support military intervention to protect Saudi Arabia or save Kuwait? How would the international community respond? It is in this situational context that these three offensive strike options must be considered by the JFC.

Now that the operational commander is considering the use of USAF tankers, we need to quickly look at the major capabilities and limitations that may affect the overall air campaign plan.

CAPABILITIES: In general, the land-based tanker (LBT) can:

1. Refuel at night and in weather, provide navigation assistance to receiver aircraft and transfer fuel at about 6000 pounds per minute.
2. Deploy to forward bases in minimum time with minimal support needed for short periods. They are truly self-deployable (especially KC-10), fairly simple to support logistically, and a "non-hostile" aircraft (no bombs) meaning relatively more nations would accept them. (For example: our try at a military signal to deter Saddam Hussein in July 1990, was an A/R exercise with U.A.E. (United Arab Emirates), announced on 24 July 1990. April Glaspie attributed this move to Saddam's summons for the fateful 25 July session). Figure 6 represents the KC-10 tanker worldwide capability in response to a crisis.





Note: KC-10 tanker with wing-tip pods, 190,000-lb minimum off-load, and JP-5 availability.  
Source: Douglas Aircraft Company Briefing Material.

Figure 6. KC-10 Tanker Worldwide Capability.

3. Provide airborne pathfinder, command and control, and multi-communications capability for voice relay to surface forces.
4. Enhance the margins of safety for foul-weather deck closures or other deck emergencies.
5. Provide fuel for CAP fighters, thus, increasing range, endurance, and engagement windows resulting in greater CVBG defense.
6. "Top-off" the KA-6Ds prior to A/R and provide more tankers and drogues for refueling the strike force (when used in conjunction with carrier-launched tankers). This, in turn, allows faster cycle time for each strike package and provides added hose or drogue redundancy.

#### LIMITATIONS:

1. The KC-135 can refuel USN/USMC and many allied aircraft with the "probe-and-drogue" system, but must be configured for this on the ground. This isn't a limitation with the KC-10.

2. Weather in the A/R area is a factor since the tanker must be visually acquired prior to A/R.
3. Aircraft conducting A/R are extremely vulnerable to enemy air defenses and aircraft. Thus, local air superiority or protection is needed for A/R operations.
4. USAF tankers normally carry JP-4 fuel (with a flashpoint of -4 degrees F) while the Navy needs JP-5 (flashpoint 140 degrees F). This flashpoint (lowest temperature at which fuel will vaporize enough to form a combustible vapor) is the paramount consideration for the Navy in the selection of a fuel. A high flashpoint is essential for safe below-deck, shipboard handling of jet fuel.<sup>26</sup>
5. During short-notice contingency operations in the past, USAF tankers have been unavailable and the Navy has had to rely on its own A/R capability. This can force last minute mission changes.
6. To be more effective for naval operations, both the KC-135 and KC-10 need to be modified with at least two hose and drogue pods.

JOINT OPERATIONS. The operational commander must definitely consider past maritime campaigns and joint operations when employing his forces. The US is still euphoric over the performance of its armed forces in Operation Desert Storm and the air war seemed a triumph of interservice cooperation. But after-action reports reflect some of the un-learned lessons from earlier joint operations in Panama and Grenada. Air tasking by the Central Command Air Force (CENTAF) in Riyadh was a major source of difficulty both for USAF planners and for Navy battle group and air wing commanders.<sup>27</sup> Because the USN does not have the same tactical air command and control communication system the USAF uses, the air-tasking messages had to be picked up daily in Riyadh, and either

passed via secure voice communication or flown out to the carriers so the next day's Navy air plan and flight schedules could be written.<sup>28</sup> Lack of communications interoperability can lead to errors, delays, and misunderstanding. Thus, it's logical and crucial that the Joint Force Commander (JFC) for a maritime air campaign, similar to the Falkands, be located on a ship in the CVBG. In fact, a new Navy/Air Force Joint Forces Air Component Commander (JFACC) concept of operations was signed in February 1992, which will resolve most of these problems.<sup>29</sup>

During Desert Storm, the Joint Forces Air Component Commander (JFACC) was the Commander, Air Force Forces, Central Command (USCENTAF), the Air Force component commander for the Central Command (USCENTCOM). CENTCOM followed current joint doctrine (JCS Publication 3-01.1) in establishing a single authority for controlling all air operations in the theater. However, even during Desert Storm, command and control of the USAF tankers were still retained by CINCSAC. This is in accordance with the current (1988) MOU, discussed earlier.

If LBTs are used by the JFC to support the CVBG, the MOU's attachment 8 specifically states that CINCSAC retains operational control (OPCON), while tactical control (TACON) is to be exected by the carrier battle group commander. This allows SAC (AMC now) to provide the proper number, mix, and logistical support of LBTs while the USN determines tactical timing, rendezvous location, amount of fuel, and loiter time. Once a USN request has been received and approved by JCS for LBTs that fall into short-notice contingency operations (AFR 55-47, category C area), SAC (AMC now) releases the proper number and type of tankers for a specific period of time. The USN can then utilize the USAF tanker force as necessary to meet its operational requirements. As

a protective measure to SAC and the Navy, SAC can recall the force only upon going to a higher alert status (DEFCON 3) when directed or coordinated by the JCS.<sup>30</sup> This action complies with the intent of the current MOU (Attachment 8) and guarantees USAF tanker support for naval use during low-intensity conflict situations.

NAVY OPERATIONAL CONCERNS. The USN has voiced several reasons why LBT's should not be used. However, most Navy concerns are based on misunderstanding or false information. For example, the standard jet aviation fuel for naval operations is JP-5 while the standard USAF jet fuel is JP-4. The main difference is the flashpoint. The USN problem is that after receiving JP-4 from a USAF tanker, regulations require that USN aircraft tanks must be flushed of any remaining JP-4 to prevent a fire hazard below deck. Since this procedure wastes carrier deck time, the Navy wants the USAF to provide carrier aircraft with JP-5. Not all bases from which USAF tankers operate have JP-5 fuel, but the current MOU (Attachment 1) states JP-5 fuel should be provided for Navy operations when feasible. If not feasible, does lack of JP-5 render LBT's unsuitable? During the Gulf war, Navy battle group and air wing commanders routinely resolved the JP-4 fuel operational problems by either purging the aircraft's tanks or subsequent JP-5 refuelings. Since Desert Storm, the USN and USAF "have established a flag-level board to address many issues involved with joint operations, such as in-flight refueling and fuel compatibility." 31

The Navy is also uneasy about the LBT risking the CVBG's security by leading an enemy to it. It is true that once revealed, an enemy could possibly target the CVBG. However, this can be avoided by providing the USAF tanker with Latitude/Longitude coordinates and

rendezvous time - far away from the CVBG. The CVBG could then be positioned in any direction and direct the strike force/LBTs to A/R on any heading. This combination of moves should enhance deception and allow the CVBG safety from land-based air threats and (if employing one of the proposed strike options) the element of surprise.

One roadblock to regular Navy use of LBTs is that the USN recalls instances in the past when USAF tankers were not readily available. Since SAC's bombers and tankers are no longer on regular SIOP alert, there are twice as many tankers available for day-to-day operations. The recent USAF reorganization of its aircraft has resulted in assignment of tanker assets to theater commanders and a few to each of it's Air Combat Command's composite wings. However, the bulk of KC-135's and all 59 KC-10s are assigned to the new Air Mobility Command (June 1, 1992).<sup>32</sup> This enhances USAF tanker availability and coordination and support should also improve with AMC as the new DOD single tanker manager.

#### "PROBLEMS" USING LBTs

In analyzing the problems with using LBTs the JFC must decide if their use can decisively benefit the overall air campaign. But first we must decide if the "problems" are insurmountable.

1. By requesting KC-10 or KC-135R tankers with a three drogue configuration, the compatibility problem with probe-equipped fighters (USN A/R method) is solved.<sup>33</sup>
2. Weather is a factor for A/R but the A/R's location or CVBG's position can be located in the best possible weather areas.
3. Local air superiority or protection can be provided for A/R.
4. Request JP-5 with the USAF tankers and if unfeasible, plan carrier-deck operations accordingly.

5. All KC-10s and 150 KC-135Rs are being modified through 2002 with three drogues to be more suitable for Navy operations. This is the most serious problem because only funding and time will produce results.
6. Lack of communications interoperability can hamper the JFACC operation and use of the ATO (Air Tasking Order). However, the JFC should be located on a ship in the CVBG when conducting a maritime air campaign similar to the Falklands. This allows clear, decisive, and timely taskings for all aircraft and echelons of command since Navy air plan and flight schedules are directed from the fleet. Coordination would only need to be accomplished with a limited number of off-ship support assets like LBTs.
7. Command and control procedures are covered by attachment 8 of the current (1988) MOU, and should cause no problem for either the USN or USAF during low intensity conflict situations. The Navy won't have complete control over USAF tankers but won't be hindered once JCS allocates their use for a specific period of time.
8. LBTs don't risk the CVBG's security if A/R is conducted outside the CVBG's location.
9. In some past Naval operations, USAF tankers have been unavailable. With no current SIOP alert, LBT's should be ready for JCS tasking.<sup>34</sup>

The bottom line is that there are no insurmountable roadblocks for using USAF tankers. As long as the JFC understands the limitations and capabilities of LBTs, their employment should be based on the scenario and need for additional A/R support.

## CHAPTER VI

### CONCLUSIONS AND OBSERVATIONS

In this paper, I have presented the operational commander tasked with planning a maritime air campaign a means of dramatically improving the CVBG's combat power. The concept of using land-based tankers (LBTs) to support maritime campaigns is not new. It was used with outstanding results during the Falklands wars and past operations (El Dorado Canyon, Praying Mantis, and Desert Storm). It allows the CVBG to project its combined air power against threats that are geographically out of carrier strike force range for days. The combined synergistic benefits of USAF LBTs and the CVBG are vital to the Nation's ability to quickly project air power in response to a regional crisis overseas.

In the exercise of power projection, the CVBG can be positioned when and where needed, operate its combat aircraft, and withdraw or relocate when operational requirements dictate. Its advantages in maneuver, mobility, flexibility and inherent defensive capabilities make it a highly survivable weapons delivery platform.<sup>35</sup> USAF LBTs, on the other hand, can augment the CVBG's organic tankers to provide numerous benefits for today's operational commander.<sup>36</sup>

It is absolutely essential for the operational commander to consider the regular use of LBTs in campaign planning. By thoroughly optimizing the USAF tanker's capabilities and providing for its limitations, the operational commander can develop a maritime air campaign plan that offers mass, economy of force, maneuver, security, surprise, and simplicity. Mass of forces is achieved by using LBTs in place of the CVBG's limited "buddy" tankers freeing them for strike

missions or A/R elsewhere. Economy of force is fulfilled by making the fullest use of all force available. Maneuver is achieved by being able to either execute one of the three proposed offensive strike options or conduct A/R at a great distance from the CVBG. Security is attained by being able to A/R and positioning the CVBG outside enemy air or surface range. Surprise is acquired by striking while geographically out of range. Simplicity is obtained by applying an unlimited quantity of jet fuel to a time and distance problem (when distance and the fuel situation forbid a maritime strike or quick reaction).

The operational commander in his campaign planning needs to plan "a series of military operations aimed to accomplish a common objective, normally within a given time and space."<sup>37</sup> In applying air power to a maritime situation, he would have to incorporate a series of joint actions for employing LBT A/R to attain a strategic objective in a theater of war. This means that the joint force commander (JFC) needs to understand the intent of the current (1988) MOU regarding the naval use of USAF tankers during low-intensity conflict situations.

The operational commander also has to consider the benefits of each available platform. Obviously, the KC-10 should be the tanker of choice due to its 2000 mile two-way range and fuel offload of 200,000 pounds. The three-drogue modification will make it even more suited for naval operations. If the US is responding to a peacetime situation similar to the Falklands or a US vital interest, the operational commander should not have a problem obtaining KC-10s with the current MOU. It states that during times of crisis, USAF tankers for Navy requirements "will be requested by the Unified CINCs through the Joint Chief of Staffs (JCS) for prioritization and allocation of resources."<sup>38</sup>



During the Persian Gulf war, we employed our A/R force to a maximum extent in support of an aggressive air, naval, and land campaign. But, it is unwise to plan our next air campaign based entirely on Desert Storm. Every conflict is situationally specific. What worked in the Gulf war may not work, for example, in Yellow Sea operations against North Korea. The next enemy may have better air combat capability than Iraq and air superiority may not be gained for some time. However, the constant force multiplier effect of A/R will always provide additional air combat capability for the operational commander.

Desert Storm proved that prior planning and theater experience can be critical. It allowed, for the first time in recent US history, six months of dedicated planning and A/R training for both Air Force and Navy aviators prior to combat. All combat aircraft and USAF tankers had the luxury of months to train, communicate, and correct procedures prior to combat. The next conflict is unlikely to allow such a luxury. The USAF and USN need to increase their joint exercise activity and train to the limit of the assets available.<sup>39</sup> Both should reflect this in the form of training requirements (e.g. USAF making A/R of USN/USMC receivers a required semi-annual training requirement). JCS should regularly exercise the use of LBTs with the CVBG prior to being tasked by the National Command Authority (NCA). Whenever the CVBG is near one of the LBT's overseas bases, it should plan and periodically practice a joint rendezvous and refueling exercise. This improves confidence, common language, exercises the system, and ensures that training prepares all participants for possible NCA taskings.

Despite the success of Operation Desert Storm, there does not now exist, in one publication, a guide to the intricate employment of LBTs

for a maritime air campaign. The current (1988) MOU is overdue for an overhaul. With the new USAF reorganization (1 June 1992) which redistributes SAC's tankers and the removal of SIOP tanker alert requirements, more USAF tankers should be available for naval operations. It is time to produce a baseline joint manual to codify the complex joint A/R strategy for USAF LBTs and USN tankers, modeled on the procedures which were impressively demonstrated during the Gulf war. The Navy and Air Force flag level board that has been established to address the many issues involved with joint operations, (such as in-flight refueling and fuel compatibility), is a good start.<sup>40</sup>

For many more reasons than in this paper, today's operational commander clearly needs to regularly employ USAF LBTs for naval operations. The adage "You fight like you train" has never been more true. To this end, the Navy must reassess its goals and priorities in determining its future CVBG operational deployment strategy. For example, if tasked with a "second" contingency, the operational commander may be able to use LBTs to support USN/USMC combat air forces as a "holding action" for the second contingency (since there are likely to be few forces available to deploy anyway). In this situation, the operational commander must mass sufficient combat power to put the second conflict on "hold."

The operational commander's air operations are designed, sequenced, and executed in support of the JFC's campaign plan. Power projection and global mobility dictate that the Navy and Air Force train together in peace as they will together in war. The complexity and speed of power projection require that both train for force projection, enhanced deployability, and mission flexibility.

The next conflict might not find the US blessed with the same situation it had during the Gulf War with excellent airfields located next to the battlefield. If it is forced to operate from bases far removed from the theater of action, the CVBG may be the first or only means to respond. But can it steam there in time? The USAF land-based tanker combined with the CVBG's strike force aircraft could provide today's operational commander with the means.

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