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THE SOVIET BACKFIRE BOMBER: CAPABILITIES AND SALT COMPLICATIONS

THE ISSUE

Among the most vexing issues confronting the current round of Strategic Arms Limitation Talks (SALT II) is the disposition of the Soviet Union's controversial supersonic bomber whose NATO code-name is Backfire.* The protracted dispute relates to uncertainties about the aircraft's purported technical properties and capabilities, production rate and deployment posture, and even the propriety of its classification as an intercontinental strategic delivery system subject to negotiated restrictions.

The Soviet Union has consistently maintained that range and design constraints consign the Backfire to "medium" (i.e. non-strategic) bomber status, and that the aircraft should accordingly be excluded from the limitation guidelines established at Vladivostok in November 1974 for a follow-on SALT agreement. The United States, initially reluctant to accept the Soviet interpretation of the Backfire's nature (and hence negotiability), claimed that, in addition to executing peripheral attack missions in Europe and Asia, the plane could fly high-altitude, unrefueled sorties at subsonic speeds from forward staging areas, strike selected targets in the continental United States, and recover in third countries. As the negotiations have proceeded, a confluence of factors has apparently induced the United States to modify its assessment and attempt to resolve the quandary outside the formal treaty framework.

Despite definitional ambiguities and tactical stalemates, however, the available evidence strongly suggests that the introduction of the Backfire into the U.S.S.R.'s operational inventory

*NATO code-names will hereinafter accompany the formal design bureau titles of Soviet Weapons Systems.

has augmented that country's heretofore relatively limited capacity for a variety of multiple-range aerial missions. As such, the Backfire represents a major advance in deployed Soviet military capability whose strategic implications exceed the determination of a mutually satisfactory SALT II pact.

Whether American policymakers fully appreciate this reality is arguable. Indeed, concern over the Carter Administration's approach to the problem posed by the Backfire has been compounded by certain developments in our own weapons programs, including cancellation of B-1 bomber procurement and the concessions reportedly made at Geneva on air-launched cruise missiles (the ostensible replacement for an American manned penetrating bomber). Critics fear that the Backfire's emergence as a factor in the overall military equation risks being downplayed in the hasty pursuit of an arms control accord or subordinated to immediate political considerations whose long-term effects might prove inimical to United States and allied security interests.

This paper will examine the Backfire issue within the context of the arms limitation process as well as from the perspective of the aircraft's potential threat in applied war-fighting roles.

STRATEGIC BOMBERS AND SALT

Strategic, or "heavy" bombers are commonly understood as those which have an unrefueled range of approximately 6,000 kilometers (3,500 nautical miles). This definition is somewhat deceptive, however, since range is a function of several related elements, including the payload carried and point of launch, and thus distinctions between strategic and tactical nuclear delivery vehicles are not always clearly drawn. (Those weapons which fall within this category are aptly referred to as "gray-area" systems). Furthermore, bombers whose normal unrefueled range is less than that designated for strategic aircraft can rapidly acquire an intercontinental capability through the application of modern in-flight refueling techniques.[1]

At the inception of the SALT negotiations in 1969, the Soviet Union characterized as strategic any weapon that could deliver ordnance on the homeland of the other country, irrespective of the geographical point of launch. The Soviets, therefore, argued in favor of restrictions on the "forward-based systems" (FBS) maintained by the United States in central Europe, including the land and carrier-based fighter-bombers (e.g. FB-111's) that could reach Soviet territory armed with nuclear warheads. The United States countered that such systems were necessary to balance the Warsaw Pact's quantitative

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1. For a concise overview of the problems associated with definitions of strategic weapons systems, particularly in an arms control context, see the chapter on "Strategic Forces" in Francis P. Hoeber, David B. Kassing, and William Schneider (eds.), Arms, Men, and Military Budgets: Issues for Fiscal Year 1979, National Strategy Information Center, Inc. (Crane, Russak and Company, Inc; New York, 1978).

superiority in theater general purpose forces, and that their inclusion in the bilateral SALT framework, without compensatory cuts in Soviet and Pact theater units, would be militarily destabilizing and would trigger serious repercussions within NATO.

Manned strategic bombers were exempted from the 1972 SALT I Interim Agreement on Offensive Strategic Systems, which placed limits on the numbers and permissible conversion options of fixed, land-based intercontinental ballistic missile launchers (ICBM's) and submarine-launched ballistic missiles (SLBM's). The United State's inventory of long-range bombers was then comprised of some 400 Boeing B-52's (G/H class) and dual-capable General Dynamics FB-111A's, while the accepted Soviet complement of heavy aircraft configured for strategic purposes totaled approximately 140 Tupolev-95 Bears and Myasischev-4 Bisons.

TABLE I

The SALT I Agreement on Strategic Offensive Weapons

	Soviet Union	United States
ICBM Silos	1,618[a]	1,054
SLBM's	740 (950)[b]	656 (710)[b]
Submarines	62	44[c]

a. The figures for Soviet systems were based on United States estimates. The limits included launchers deployed or under construction as of July 1, 1972.

b. These figures were provided in an accompanying Protocol. The numbers in parentheses refer to conversion options, i.e. the higher ceilings permitted if equivalent numbers of older, pre-1964 generation missiles were dismantled.

c. The Soviets issued a unilateral interpretation according to which British and French ballistic-missile submarines must be included in the aggregate specified for similar United States submarines.

The contentious bomber issue was deferred for subsequent negotiations. The Soviets were not expected to deploy any new long-range bombers during the five-year life-span of the accord, despite

intelligence confirmation of existing prototypes as early as July 1970.[2] Moreover, American policymakers were averse to introducing objections which they felt might jeopardize the then-pervasive atmosphere of detente; it was likewise stressed that, among other things, the United States' sizable numerical lead in bombers offset impending Soviet advantages in other relevant military categories (including those disparities sanctioned by the Interim Agreement).

The skepticism generated by SALT I increased in proportion to the accumulating revelations of new Soviet weapons deployment and/or alleged violations of various stipulations of the accords. The Ford-Brezhnev summit at Vladivostok sought to ameliorate misgivings and avoid procedural deadlocks by announcing guidelines for a ten-year SALT pact to extend from 1975 to 1985. The most significant aspects of the Vladivostok guidelines were that they expanded potential treaty coverage to include bombers and set an equal aggregate ceiling for each side of 2,400 strategic nuclear delivery vehicles (with allowance for a mix of weapons systems within the designated total). A sub-limit of 1,320 was placed on the number of weapons that could be armed with multiple, independently-targetable re-entry vehicles (MIRV's).

A caveat is necessary here in order to place into perspective the Vladivostok formula as it relates to the accountability of "gray-area" systems such as the Backfire. The measures of strategic capability which should ideally comprise an aggregate ceiling on offensive force levels are those which most accurately reflect the military balance over time.[3] It is frequently argued that the criteria selected must satisfy the requirement of guaranteeing a situation of "essential strategic equivalence" (to cite the rubric currently in vogue in describing the balance), or at least the political appearance of "equivalence" as a function of various indicators of offensive strategic power. The inherent difficulty in delineating precisely those weapons systems to be aggregated is compounded by the existent asymmetries in the compositions of the respective United States and Soviet strategic nuclear arsenals. Historical, technological, bureaucratic and other factors have impelled the superpowers to proceed at varying levels of force modernization and to place differing degrees of emphasis on various components of their force structures. Several indicators can be elaborated, including those which characterize the non-quantifiable attributes of diverse force postures, such as conceptual disparities regarding the utility of nuclear weapons, targeting doctrines, geopolitical influences, etc.[4] Yet a comprehensive definition of "equivalence" as expressed in

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2. Janes's All the World's Aircraft, 1977-78, p. 462.

3. See Richard Burt, "Salt and Offensive Force Levels," Orbis Summer 1974, pp. 465-481. The author offers a detailed examination of the complexities of constructing equitable arms limitation proposals involving an aggregate ceiling, especially when dealing with asymmetrical force structures.

4. Ibid., p. 469.

aggregate ceilings or negotiable quotas for the deployment of certain systems may prove so complex or vague that prospects for meaningful agreements are reduced. Indeed, the sole effect of such an exercise might be to create the politically palatable (though dubious) appearance of progress toward limiting armaments as a means of deflecting criticism from opponents of a particular arms control package, or in the hope of mitigating the potential of either party to exploit perceptions of strategic power for patently political objectives.

As such, questionable compromises are often produced by the lack of specificity in defining what is accountable. Moreover, since the Soviets are not forthcoming in providing hard data regarding their weapons development programs, the United States is forced to rely on intelligence estimates in constructing what is perceived to be an equitable, and therefore negotiable, proposal.

The simultaneous introduction of the Backfire into the Soviet Long-Range and Naval Aviation forces in late 1974 seems representative of the dilemma confronting American negotiators under such circumstances. The Ford Administration's tentative decision in 1975 (later adopted and sharpened by the Carter Administration) to exempt the Backfire from the aggregate ceiling pending clarification of its capabilities is widely interpreted to have been occasioned by the need "to persuade the Soviet Union to abandon its demand that the FB-111 and other American nuclear-armed tactical combat systems be counted among the strategic weapons."[5] The trade-off apparently contradicts the recommendation of the Joint Chiefs of Staff to include the Backfire in the aggregate, "since it has characteristics and capabilities similar or superior to those aircraft which both sides agree are heavy bombers."[6] An assessment of the feasibility of this proposal demands a closer look at the Backfire system.

THE BACKFIRE BOMBER: A PROFILE

By way of introduction, the following two graphics are provided to facilitate a general understanding of the nature of the Backfire bomber and its technical characteristics. (See Page 6)

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5. Georg Panyalev, "Backfire -- Soviet Counter to the American B-1," International Defense Review, May 1975, p. 639.

6. General George S. Brown, USAF, Chairman of the Joint Chiefs of Staff, United States Military Posture for FY 1979, p. 31.

Figure I

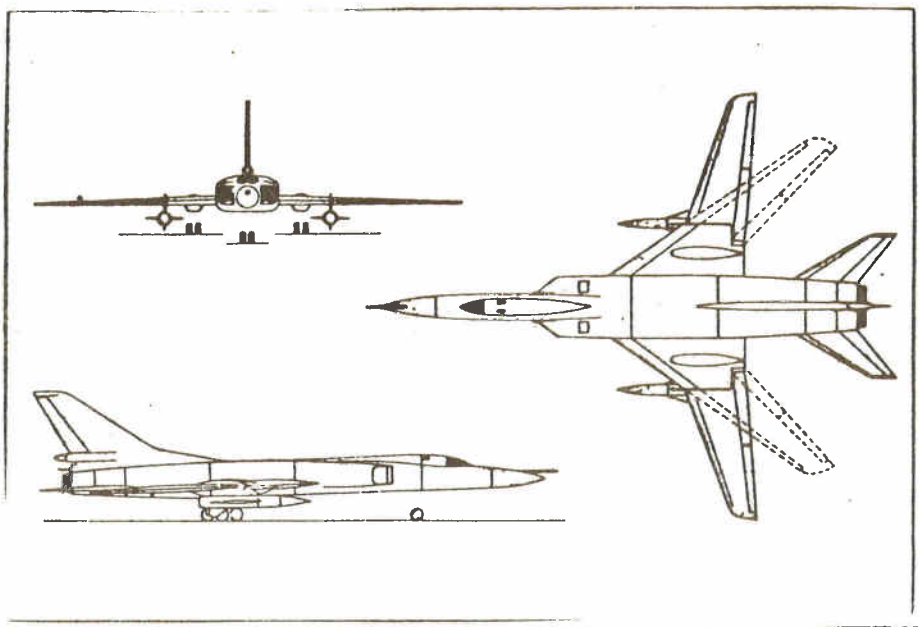

TABLE II

Technical data on Backfire B*

*Under the NATO coding system, prototype aircraft are designated with the letter A and production models with the letter B.

Crew	3
Dimensions	
Overall length	42.5 m
Height above ground	8.8 m
Wing span (maximum/minimum)	34.5/27.5 m
Wing sweep (minimum/maximum)	20/55°
Wing area at 20°/55°	134.5/168 m²
Aspect ratio at 20°/55°	4.5/8.8
Weights	
Empty weight	52,000 kg
Fuel	68,000 kg
Maximum payload	10,000 kg
Maximum take-off weight	130,000
Powerplant	
Number and designation of engines	2 × NK144 modified
Engine type	Two-spool turbofan
Length/Diameter	5.2/1.5 m
Weight	2,850 kg
By-pass ratio	1:1
Mass air flow	250 kg/sec
Pressure ratio	15:1
Turbine inlet temperature	1150°C
Static thrust without/with reheat	15,000/21,000 kp
SFC without/with reheat	0.64/2.1 kg/kph
Avionics	
Radar	
Terrain following radar	unknown type
Bombing/navigation radar	Down Beat
Fire control radar for 37-mm tail-mounted cannon	Fan Tail
IFF	SRZO-2
Radar warning device	Sirena 3
Navigation	
Radio compass	2 × ARK-11
Radio altimeter	RU-UM/RV-17M
Beacon receiver	MRP-56P
ATC/SIF	SOD-57M
ILS	SP-50
Doppler radar-navigation computer	NJ-50BN
Short-range navigation system	RSBN-2S
Long-range navigation system	Inertial, possibly with satellite assistance
Communications	
HF	RSB-70/RPS
VHF	2 × RSIU-5
Data link	ARL-S
UHF	R-831
Intercom	SPU-10
Armament	
Tail-mounted cannon	1×37 mm
External stores	2× AS-6 or
In bomb-bay	15×500 kg bombs
Specific values	
Wing loading (at 130 tonnes TOW)	775 kg/m²
Thrust/weight ratio (at 130 tonnes TOW)	0.323
Performance	
Take-off run at 130 tonnes TOW	1,400 m
Take-off distance to 15 m at 130 tonnes TOW	2,400 m
Rate of climb at sea level, 130 tonnes TOW wing sweep 20°, without reheat	21 m/sec
Rate of climb at sea level, 70 tonnes TOW wing sweep 55°, with reheat	140 m/sec
Time to climb to 11,000 m (36,000 ft)	22 min
Service ceiling	18,000 m
Maximum speed at sea level	M 0.9
Maximum speed at high altitude	M 2.0
Cruising speed at sea level	M 0.65
Cruising speed at optimum altitude	M 0.82
Combat radius - hi-hi-hi (with inflight refuelling)	6,000 (8,700) km
Combat radius - hi-lo-hi	4,250 km
Combat radius - lo-lo-lo	2,500 km

Source: George Panyalev, "Backfire -- Soviet Counter to the American B-1," International Defense Review, May 1975, p. 640

The Backfire, or more properly the Tupolev-26 V/G, is a variable-geometry ("swing-wing") multi-purpose aircraft "capable of performing nuclear strike, conventional attack, anti-ship, reconnaissance and electronic warfare missions."[7] The "B"(production) model of the plane is about two and one-half times as large as the American FB-111 and can carry a payload similar to the Soviet Mya-4 Bison -- a bomber of recognized strategic dimensions.[8] In many respects, the Backfire resembles the cancelled American B-1, though only two-thirds its size and possessing roughly one fourth of its payload capacity.[9] The following chart is useful as a referent in analyzing the Backfire's presumed strategic capabilities on a comparative basis:

TABLE III

Comparison of Backfire With Other Contemporary American and Soviet Aircraft

Nation	Aircraft	Range (statute miles)	Payload (pounds)	Weight (pounds)
USSR	Backfire	7,140	20,000	272,000
	Tu-95	7,800	40,000	340,000
	Mya-4	6,050	20,000	352,750
	Tu-16 *	4,000	20,000	175,000
US	B1	6,100	115,000	389,800
	B52 G/H	12,500	75,000	488,000
	FB111A *	3,800	37,500	91,500 *

* *The Military Balance, 1975-1976*, The International Institute for Strategic Studies, London, Eng., 1976, p 72; and *Jane's All the World's Aircraft, 1975-1976*. Edited by John W. R. Taylor, Franklin Watts, Inc., NY, 1976.

Appeared in Gerard K. Burke, "Backfire: Strategic Implications," Military Review, September 1976, Current News, September, 29, 1976, p. 5-F

*For several reasons, some disagreement persists over the classification of these aircraft as heavy bombers negotiable in SALT.

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7. Ibid., p. 32.

8. Aviation Week and Space Technology, April 18, 1977, p. 19.

9. Hoeber, et. al., op. cit., p. 29.

ARMAMENTS

Besides an assumed capacity to carry the full complement of Soviet free-fall (gravity) weapons, the Backfire can be fitted with either of a pair of advanced air-to-surface missile systems, the AS-4 Kitchen and the AS-6 Kingfish. Both systems are believed capable of attaining Mach 2.5-3.5 speeds (Mach equals the speed of sound at sea level), with an operational range of 150 nautical miles, although absolute maximum ranges are purportedly substantially greater.[10] Launched from external pylons mounted under the aircraft's wings, these Soviet variations of air-borne cruise missiles provide the Backfire with a significant stand-off capability which would appear to be especially formidable for anti-shipping strikes or against weakly-defended peripheral land targets. The Backfire is also said to have a single gun (37 mm cannon) in a radar-directed tail mounting.[11]

The AS-6 in particular seems effectively deployed for a variety of combat missions. Though some confusion exists as to whether the propulsion system is solid or liquid-fueled, intelligence analysts contend that the weapon, a sophisticated successor to the AS-4, possesses inertial mid-course guidance and an active radar terminal homing system; that is, it can fly in level to the target area and then attack in a dive.[12] This combination of qualitative properties permits exceptional accuracy with conventional or nuclear warheads against priority targets. (The threat implied by deployment of the missiles in a MIRV'ed mode is more ominous still.) Furthermore, United States intelligence has drawn attention to the presumed Soviet development of decoy missiles and associated defense suppression techniques, including active and passive electronic countermeasure devices, which would enhance penetration of advanced air defense systems.[13]

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10. Cited in William D. O'Neil, "Backfire: Long Shadow on the Sea-Lanes," U.S. Naval Institute Proceedings, March 1977, p. 30.

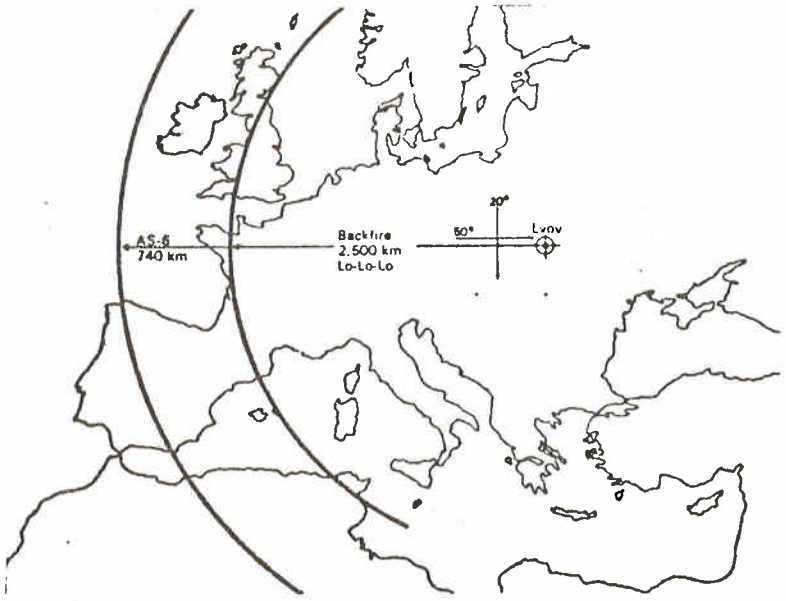
11. Jane's, p. 463.

12. Ibid., p. 463.

13. Ibid., p. 463.

Figure II

Operating from a base located at Lvov in the Western part of the Soviet Union, the Backfire armed with two AS-6 stand-off missiles can undertake low-level missions against virtually all of Western Europe.



Source: Panyalev, op. cit., p. 641

Despite original underestimates of its production rate, about 100 Backfires are believed to have been phased into service at present. The current estimated production rate is 2-5 aircraft per month. Senator Jake Garn (R-Utah), a member of the Armed Services Committee, observes that by the mid-1980's, "a total of 350 Backfires are expected in the long-range aircraft division of the Soviet Air Force and an additional 100 are slated for use by the Soviet Navy."[14]

THE RANGE FACTOR AND THE INTERCONTINENTAL THREAT

The discrepancies surrounding range estimates of the Backfire are reflective of the larger question concerning its capabilities and potential uses. It is possible that the apparent inconsistencies are due to varying assumptions about flight conditions, with operations

14. Defense/Space Business Daily, February 8, 1978, p. 207.

in low or radar-elusive altitudes having an adverse effect on combat radius (defined as one-half of range).[15] However, the configuration of the Backfire "B" to accommodate aerial tankers (e.g., published photographs have shown a refueling probe located above the nose cone), in addition to an extension of the wings for adequate roll movement and a scaling-down of the landing pods to reduce drag, suggest a priority interest in expanded range.[16]

A number of recent studies by intelligence agencies, as well as by private aerospace firms supplied with all sources of intelligence available to the United States, have generally concurred in their estimates of the Backfire's range at between 3,500-6,000 miles, with the latter figure increasingly corroborated by new evidence. These studies apparently contradict earlier, more sanguine interpretations of the Backfire's capabilities, interpretations which either lacked sufficient intelligence sources or whose conclusions may have been influenced by political motivations. In a commentary on a classified report sponsored by the Defense Intelligence Agency and conducted by the Air Force's Foreign Technology Division at Wright-Patterson Air Base, columnists Rowland Evans and Robert Novak concluded that

> ...thanks to important aerodynamic modifications, the Backfire "B" model -- now in serial production -- has substantially lengthened its range. If refueled in mid-air, the Backfire's range is 8% greater than the most advanced B-52's and 17% greater than the shelved B-1. The DIA study is unmistakable: the Backfire is an intercontinental weapon.[17]

Speculation regarding the Backfire's potential for strategic missions has been reinforced by revelations of new concepts in Soviet aerial refueling. In addition to possible expansion of the fleet of 45-50 Bison aircraft already converted for in-flight refueling operations, the Soviet Union is reportedly developing a new tanker based on the IL-76 Candid jet transport.[18] The IL-76, larger than the American KC-135 tankers which refuel B-52 bombers and believed capable of carrying one-third more payload than the Bison, is a 345,000 pound gross weight cargo aircraft with a speed of 528 miles per hour and an extended range of 3,500 miles.[19] Approximately 80 of the transport version of the plane have been manufactured at the Tashkent plant,

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15. See O'Neil, op. cit., p. 29.

16. William D. Beecher, "Backfire Boggles SALT II," Astronautics and Aeronautics, July 1976, p. 22.

17. Rowland Evans and Robert Novak, "The Backfire of SALT," Inside Report, October 10, 1977, p. 3.

18. See Charles W. Corddry, "Soviets Believed Developing Tanker to Refuel Backfire," The Baltimore Sun, February 7, 1978, p. 1.

19. Defense/Space Business Daily, January 30, 1978, p. 148.

and an initial stepped-up production of at least 200 (not necessarily all tankers) is anticipated.[20]

Deployment of substantial numbers of the IL-76 Candid in an aerial tanker mode would insure that the Backfire retained an intercontinental capability, and would make academic any disputes about the bomber's range. Moreover, the Soviets would be provided with the option of augmenting their strategic bomber inventory through reconfiguration of those Bison aircraft presently serving as tankers.

In theory, it would be strategically counterproductive to concentrate a substantial number of aircraft in, for example, extreme eastern Siberia to undertake optimal strike missions in proximity to the continental American homeland. Though much would obviously depend on the values assigned to the targets and the nature of the objectives envisioned, increasing the flexibility of the mission profile would demand that a sizable portion of the attacking aircraft commence operations from interior staging areas.[21] Yet, given the necessity of possible in-depth staging to avoid excessive congestion in the forward bases or for various tactical reasons, the Backfire's threat to American military installations, industrial facilities and urban population centers is nonetheless pronounced. According to former Secretary of Defense Donald Rumsfeld:

> Even without aerial refueling or staging from bases in the Arctic, Backfire bombers could cover virtually all of the United States on one-way missions, with recovery in third countries. Using Arctic staging and refueling, they could achieve a similar target coverage, and still return to their staging bases in the Soviet Union.[22]

The prospects for successful Backfire missions against high-priority United States targets along or beyond clearly delineated strategic bombing arcs would naturally have to be calibrated against certain fundamental criteria, including

a. the size of the attacking fleet and assumptions about optimum systems reliability and performance accuracy,

b. the initial basing location of the aircraft,

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20. Corddry, op. cit., p. 1

21. For a detailed analysis of this point, see Gerard K. Burke, "Backfire: Strategic Implications," Military Review, September 1976, cited in Current News, January 29, 1976, p. 4-F.

22. Cited in Jane's, p. 463.

c. the possible need for, and execution of, in-flight refueling operations for continued supersonic maneuvers,

d. an alternative necessity for mid-course staging and/or terminal recovery (for example, in Cuba),

e. the inclusion in the force package of a variable-range, stand-off missile capability (e.g. the AS-6),

f. the suppression and penetration of the United States' marginal air defenses, the prospects for upgrading of which cannot be considered promising,

g. the possible interior location of targets which might precipitate a fuel-conserving, high-altitude approach more vulnerable to interception.

While it is beyond the scope of the present study to outline various bombing scenarios against United States continental targets or the basing areas from which they might be most effectively launched, the following chart is revealing in terms of anticipated levels of civilian exposure to Backfire strategic attacks:

TABLE IV

Urban Population Exposed to Backfire Strikes

Leading 138 Urban Centers	Number		Total Population
Number and population at hazard	102		113,337,000
Number and population within radius	71		72,103,000
Number and population requiring refuel	31		41,234,000
Leading 50 Urban Centers	**Number**	**Base Population**	**Total Population**
Number and population at hazard	39	34,847,205	79,008,000
Number and population within radius	33	22,315,916	52,563,000
Number and population requiring refuel	6	12,531,289	25,445,000 *

* *Information Please Almanac, 1976*, Edited by Dan Golenpaul, Dan Golenpaul Associates, NY, 1976, pp 649-58 and 698-706. The reference "Base Population" refers to the central population of the area under consideration; "Total Population" includes suburbs and basic environs.

Source: Burke, op. cit., in Current News, September 9, 1976, p. 6-F

THE BACKFIRE DEPLOYMENT POSTURE AND MULTIPLE MISSION CAPABILITIES

Differences within and between the arms control and intelligence communities concerning the Backfire's capabilities and mission designations have been sharpened in part by confirmation of the aircraft's deployment to bases utilized by its medium-range predecessor, the Tupolev-22 Blinder. As such, some advocates of withholding the Backfire from formal treaty limitations seem prone to disregard the bomber's incremental versatility for strategic purposes on the assumption that its staging area is a sufficient tactical indication of the probable scope of its missions -- namely, peripheral strikes on the Eurasian rimland and naval interdiction.

Notwithstanding those factors which collectively ascribe intercontinental status to the Backfire, such a simplistic evaluation belies its credibility when one considers the incontrovertible strategic values associated with United States and allied retention of open sea-lines of communication. Maritime supply routes vital to the security and economic welfare of the industrialized West and Japan have become progressively more susceptible to interdiction by the enhanced Soviet flotilla of general purpose surface combatants and hunter/killer submarines. The Backfire, with acknowledged anti-ship capabilities, represents a third dimension of the potent Soviet capability for sea-denial (itself a collateral mission of Long-Range Aviation).

If deployed for interdiction strikes, the Backfire could seriously impede Allied convoys moving to Europe or Asia during a protracted conflict, or it might require the commitment of ships and planes vital to operations elsewhere in order to safeguard the convoys.

As a surveillance aircraft, the Backfire's extended operational radius would permit the collection and assimilation of intelligence data concerning the disposition of Allied naval forces. Such information would be crucial to Soviet planning for effective force deployments in maritime contingencies, particularly in providing targeting and mid-course guidance for missiles launched from other platforms. As Admiral James L. Holloway III, Chief of Naval Operations, has noted:

> ...our deployed fleets must have the defensive strength to defend themselves against attacks of land-based air, because we are seeing more and more the development of long-range aircraft with anti-ship missiles as a threat which can develop rapidly and can extend to almost any spot on the globe.[23]

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23. Quoted in O'Neil, op. cit., p. 27.

A Pentagon summary of a National Security Council analysis conducted two years ago of the Soviet naval aviation threat reinforces the Admiral's view with an equally grim assessment:

> The Soviet naval aviation force already possesses a large number of long-range anti-ship, missile-launching bombers. However, the introduction of the Backfire bomber and its anti-ship missiles gives the Soviets the capability to threaten a much greater area of the oceans than ever before.[24]

Similarly, Air Chief Marshall Sir Andrew Humphrey, former Chief of Staff of the Royal Air Force, commented in December 1975:

> Russian fast, wide-ranging and high-performance aircraft like Backfire, armed with stand-off missiles, may soon become an even greater threat to allied shipping than the relatively slow-moving Russian submarines.[25]

For purposes of comprehending the magnitude of this expanded potential target coverage, the following two charts are instructive. Assuming an unrefueled range of 2,650 nautical miles for the Backfire, the charts track the feasible geographical scope for maritime reconnaissance and sea control operations in the critical North Atlantic and North Pacific theaters.

With in-flight refueling or the application of other measures cited previously, the Backfire's intercontinental capability, in addition to the selected peripheral strikes which could be undertaken, is self-evident.

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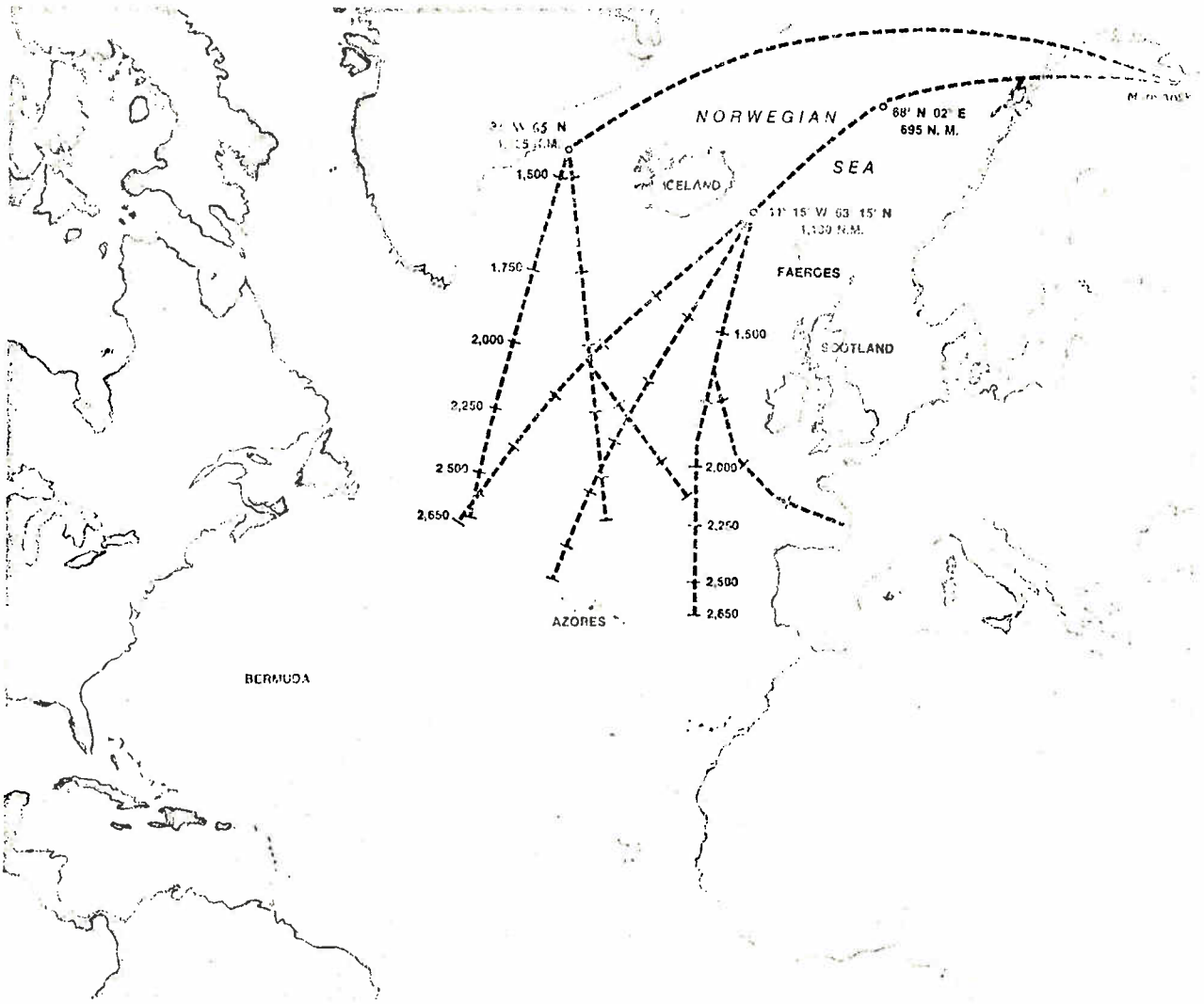
24. Cited in L. Edgar Prina, "Backfire Problems and the Aegis Mix," Sea Power Magazine, September 1976, in Current News, January 29, 1976, p. 3-F.

25. Quoted in Jane's, op. cit., p. 463.

Figure III

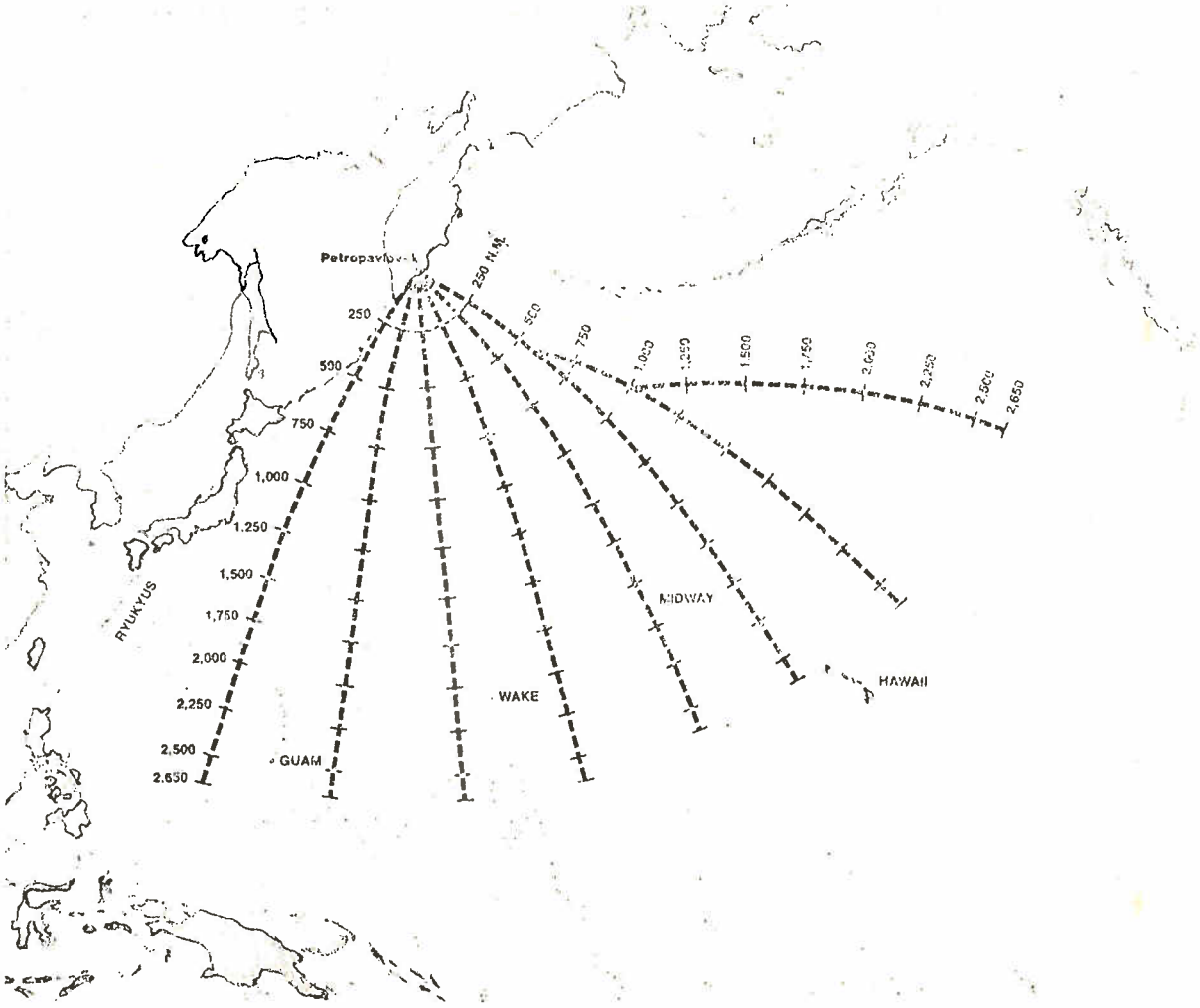
(The staging area is Murmansk on the Kola Peninsula, the main Soviet naval base for access to the North Atlantic).



Source: William D. O'Neil, "Backfire: Long Shadow on the Sea-Lanes," U.S. Naval Institute Proceedings, March 1977, p. 30

Figure IV

(The staging area is Petropavlovsk, which commands access to vital naval routes in the greater North Pacific region).



Source: O'Neil, op. cit., p. 31

Regarding American naval defense capabilities against the augmented Soviet aerial threat to allied sea-control options, the aforementioned Pentagon report concludes:

> The time from detection until target engagement is excessive and coordination among missile batteries on different ships in the U.S. task force is poor. These difficulties are compounded by system vulnerability to electronic countermeasures....

> This is especially the case in a high-density attack -- the type of attack in which the Soviets would deploy their Backfire bombers.[26]

Such findings cannot realistically induce complacency. Yet indecision regarding the nature and deployment of aircraft carriers, for example, against such concentrated Soviet tactical air power in a future conflict may compromise the incorporation into our active forces of those systems designed to most effectively counter the Backfire threat. Indeed, the FY 1979 defense budget deletes appropriations for procurement of carrier escorts armed with the highly-sophisticated Aegis anti-aircraft system as well as for the nuclear-powered Aegis missile cruiser.

SALT II AND THE BACKFIRE "B"

The emerging SALT II outline conforms structurally to the three-tier framework established at Geneva in May 1977 by Secretary of State Cyrus Vance and Soviet Foreign Minister Andrei Gromyko. This arrangement, which underwent subsequent elaboration in September, encompasses an eight-year treaty placing an equal numerical ceiling on the counterpoised inventories of land and sea-based ballistic missiles and long-range bombers, as well as a separate ceiling on weapons with multiple warheads. In an accompanying protocol of three year's duration, the United States and the Soviet Union would attempt to negotiate limits on the deployment and/or modernization of advanced systems, such as the variable-mode American cruise missile and Soviet heavy ballistic missiles (e.g. SS-18's). Additionally, both parties plan to authorize a statement of principles regulating future negotiations, including a reciprocal commitment to seek substantial force reductions by the early 1980's.

Among the most disputatious aspects of the projected accords is the Carter Administration's reported decision to exempt the Backfire "B," despite its acknowledged potential for strategic uses, from the formal treaty framework. The United States had agreed during the September negotiations not to include the bomber under the tentative aggregate ceiling, but it was hoped that its deployment would be restricted in a separate accord. (This position was similar to the proposal presented by the Carter Administration in March 1977 as an alternative to the comprehensive formula rejected by Moscow. The Soviets had upbraided the United States in subsequent parleys for attempting to renegotiate the SALT II "parameters" defined at Vladivostok). Instead, the United States is now apparently prepared to request a unilateral executive pledge from Soviet leader Leonid Brezhnev, as contained in a non-binding letter, not to increase production of the bomber beyond a certain limit or deploy it in a manner potentially threatening to this country.

26. Quoted in Prina, op. cit., p. 3-F.

While the precise nature of the restrictions on the Backfire has not been spelled out, the bomber's deployment at Arctic bases, from which its strategic threat to the United States would be maximized, would presumably be proscribed. Some elements within the national security community are likewise believed pressing for limitations to include a prohibition on refueling, with a ceiling on tanker aircraft; an undertaking to retire older Russian bombers as Backfires enter service and a promise by the U.S.S.R. not to exercise the aircraft on extended-range flight patterns simulating strikes against the United States.[27] (Since the U.S.S.R. has adamantly maintained that the Backfire's unrefueled range limitations nullify its consideration as a strategic bomber accountable in SALT, it is worth noting that Soviet negotiators have been aware for some time that American B-52 strategic missions are planned to recover at overseas bases, such as in Turkey or Iran, instead of returning to the United States).

This tentative arrangement has predictably engendered a prickly debate between advocates and opponents of the projected SALT II package, a debate whose growing intensity has been stoked by reported concessions on the testing and deployment ranges of air-launched cruise missiles as well as continued disagreement over the types of aircraft that may carry them. Some officials, notably in the Arms Control and Disarmament Agency, maintain that the Brezhnev letter would be tantamount to a formal agreement and that Moscow would deem it prudent to abide by whatever assurances were offered, lest the arms pact itself be jeopardized. Others, primarily in the Defense Department, aver that such critical assurances covering a major weapons system should be incorporated into a mutually binding framework, since informal written promises do not retain the legal standing of international treaties and hence are meaningless as substitutes.[28] They furthermore feel that a tacit agreement of this nature actually provides an incentive for incremental Soviet abrogation, since the United States would retain little effective recourse for alleging that infractions have been committed which jeopardize and/or vitiate a formal pact.

An assessment of the Backfire's disposition in SALT II as it relates to our national security interests must transcend a limited focus on arcane legalisms, however. Resolution of the Backfire issue cannot be conditioned primarily by what is politically expedient or conducive to momentary posturing for the sake of achieving an arms control accord. Moreover, since a definitive arrangement is hardly assured, the question virtually begs itself as to what, if anything, would be palatable to the Soviets, who continue to oppose restrictions on the Backfire.

Yet it is within the larger strategic context surrounding specific initiatives that the issue must be addressed. As such, the following points merit serious consideration:

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27. See Beecher, op. cit., p. 23.

28. See Richard Burt, "U.S. May Ask Brezhnev Pledge to Limit Use of Disputed Bomber," The New York Times, January 10, 1978, p. 5.

1. Assuming that some mutually satisfactory settlement of the Backfire problem is achieved, what credible guarantees would be provided to insure that the bomber be restricted to "tactical" deployment or application in a war-fighting contingency?

2. In lieu of on-site inspection, which the Soviets adamantly reject, a substantive Backfire proposal must be measured against its independent verifiability by United States national technical means. As a reusable, easily dispersable launch platform, the Backfire could potentially complicate non-intrusive monitoring of Soviet compliance with provisions regulating the weapon's disposition.

3. Such collateral restrictions as may be negotiated on production rate limits or range ceilings are dependent on United States estimates, not Soviet hard information. The impediment to adequate verification procedures, particularly if the Soviets were to exercise conversion options or otherwise enhance their inventory of bombers with actual or potential strategic capabilities is obvious.

The notions of stable deterrence and strategic stability imply a relative equilibrium in the aggregate functional capabilities of the United States and Soviet nuclear arsenals. Furthermore, unless strategic deterrence is firm, conventional force deterrence retains little credibility. Despite the innate difficulty in devising arms limitation proposals which satisfy the relevant criteria, maintenance of a "balance" in an operational sense requires that negotiations be based on the principle of reciprocal advantage (or restraint) in recognized categories of applicable military power.

The theory, of course, rests on the assumption that both parties subscribe equally to the more altruistic conceptions of the utility of arms control. The Soviet Union's position on the dual-capable Backfire bomber, among other notable examples would seem to discredit such assumptions. Nor can the Soviets be said to adhere to the bargaining-chip approach to strategic arms control, according to which the development and threatened deployment of certain weapons systems may be exploited for leverage in extracting concessions from an opponent, instead of a primary commitment to introduction of the system for patently military uses. As such, the credibility of arms control as a vehicle for reducing superpower tensions as well as levels of sophisticated military hardware risks being undermined.

Though the Soviet Union concentrates far less of its total deliverable payload in manned strategic bombers than does the United States, American concessions on the Backfire which granted the Soviets a net advantage in bombers with intercontinental capabilities could prove counterproductive to the pursuit of allied security objectives. Moreover, the Soviet Union appears to be placing more emphasis on the aerial component of its strategic forces than previously, a development occasioned by the greater latitude for a variety of missions which the introduction of advanced systems confers, and by the

perception of a corresponding de-emphasis on strategic air power on the part of the United States.

The United States has consequently been unable to induce a comparable quid pro quo which redeems, or at least temporarily justifies, America's decisions to scrap the B-1 or accept limits on air-launched cruise missiles.

CONCLUSION

As this study has demonstrated, the Backfire's technological sophistication and enhanced mission performance capabilities preclude a classification which restricts it to medium bomber status. A thorough analysis of the aircraft's capacity to undertake multiple-range operations, many with indisputable strategic ramifications, has apparently been subordinated to fruitless diplomatic posturing. There has likewise been evident an unfortunate fixation with semantics and secondary aspects of the issue as they relate to the composition of arms control proposals seemingly designed to progressively minimize offense to Soviet sensibilities.

Given the Backfire's manifold capabilities, the manner in which the Carter Administration attempts to resolve the impasse will likewise affect prospects for Senate ratification of an eventual SALT II package. There is a lingering skepticism on Capitol Hill as to whether an equitable arms agreement is indeed attainable, in light of both Soviet intransigence in certain key facets of SALT and what critics cite as the Administration's proclivity to offer "pre-emptive" concessions on systems of obvious strategic value.

The Backfire's accountability in SALT, as well as the magnitude of its potential threat under diverse circumstances, must be measured realistically, taking into consideration:

1. the bomber's acknowledged performance attributes for strategic and tactical missions,

2. its capabilities relative to those of similar Soviet and American bombers designated as strategic aircraft and subject to formal limitations,

3. the ongoing momentum of the Soviet Union's weapons development and deployment programs, especially with respect to the incremental strengthening of its overall war-fighting capability, and

4. comparative United States defense-related and/or diplomatic initiatives designed to brake the Soviet momentum or otherwise improve our military posture across the spectrum of capabilities.

The available evidence suggests that, notwithstanding mutual professions of good faith on the contentious bomber issue, the United States should re-think its negotiating strategy and press for inclusion of the Backfire within the formal SALT II guidelines. At the very least, an arrangement should be deferred pending a more forthcoming Soviet attitude in providing verifiable information on the aircraft's operational capabilities as well as adequate safeguards for compliance with any potential settlement.

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