

J107(A85)

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Proposal Abstract J107(A85)

1. Arms Control Problem:

Nuclear weapons - cruise missiles  
- manned aircraft

2. Verification Type:

(a) Remote sensors - satellite  
(b) On-site inspection - obligatory  
- challenge

3. Source:

Wilkening, Dean A. "Monitoring Bombers and Cruise Missiles". In Verification and Arms Control, pp. 107-123. Edited by William C. Potter. Lexington, Mass.: D.C. Heath and Co., 1985.

4. Summary:

This article evaluates the extent to which bomber and cruise missile characteristics and activities can be monitored by national technical means (NTM). The author uses an evaluation classification of high, medium or low monitoring confidence, depending on the ease of obtaining information by national technical means. He states that "high confidence reflects an optimistic assessment of monitoring capability, while low confidence implies that NTMs alone probably cannot provide sufficient data to assess treaty compliance reliably" (p. 108).

Monitoring confidence with regard to bombers is examined in four areas. First, identifying and counting aircraft using functionally related observable differences (FRODs) and externally observable differences (EODs) can be accomplished with high confidence. A significant problem, however occurs in determining which aircraft types can perform bombing missions. Soviet use of bomber airframes for non-strike aircraft complicates monitoring. Consequently, identification of designated bombers can be accomplished with high confidence, but confidence is moderate to low for determining that non-strike aircraft cannot perform bombing missions.

Second, NTMs can measure a bomber's unrefueled cruising range with moderate confidence and identify an in-flight refueling capability as long as external refueling probes are visible. A covertly-deployed refueling capability would be hard to detect, but this may be inconsequential since aircraft can be given an in-flight refueling capability or converted to use as tankers within several weeks. Knowing the range of aircraft can allow distinctions between heavy bombers, medium bombers and fighter bombers.

Third, although bomber payload is hard to determine by NTMs because it is a function of aircraft range, nominal range-payload values can probably be calculated with moderate confidence if estimates are made of the plane's structural and aerodynamic characteristics. However, this may not provide adequate verification since there may be different assumptions about mission characteristics.