Nuclear-capable B-52H Stratofortress bombers: a visual guide to identification

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Nautilus Institute for Security and Sustainability
Special Report

25 August 2024

Summary

The primary aim of this Nautilus Special Report is to provide robust, authoritative and transparent information for use by governments and their publics in countries that host the B-52H Stratofortress bomber, as to which of the 76 B-52H aircraft in the current (as of mid-2024) US Air Force active fleet are capable of delivering nuclear weapons, and which can deliver only conventional, non-nuclear weapons.

For the governments and citizens of B-52 host countries, obtaining authoritative and accessible information concerning the introduction of both nuclear-capable delivery platforms and nuclear weapons themselves is essential for responsible decision-making and democratic accountability. To date, there is no systematic, robust and transparent information on either of these matters in the public domain.

The presence of nuclear-capable delivery platforms is a necessary, though obviously not sufficient, requirement for the introduction of long-range strategic nuclear weapons into any given country. If there are no declared policy or legal impediments to introducing nuclear weapons into a given country, hosting nuclear-capable delivery platforms from an allied state amounts to a near proxy for nuclear weapons deployment, and creates the possibility of participation in nuclear-armed operations.

B-52 and B-2 bombers are the only elements of the US nuclear triad regularly and frequently deployed for shorter or longer periods to the territories of allied host countries outside of the United States. While all B-2 Spirit bombers are capable of being armed with both nuclear and conventional weapons, the US Air Force B-52H active fleet consists of a mix of 46 dual-capable and 30 conventional-only aircraft, rendering the strategic implications of their deployment more ambiguous.

Due to the long-standing US policy of neither confirming nor denying the presence of nuclear weapons on board US ships, submarines or aircraft, US-allied governments and their publics are denied the knowledge of whether they are hosting B-52 bombers strictly limited to conventional strategic operations, or hosting dual-capable aircraft that could potentially implicate their country in US nuclear missions.

The challenges of democratic transparency and accountability faced by countries hosting US B-52 strategic bombers is illustrated by contemporary developments in the case of Australia, where plans are underway for the US Air Force to forward-base up to six B-52H aircraft at Tindal Air Force Base in the far north of the country.

Although B-52 bombers, and other US aircraft, already regularly visit Australia, the planned deployment at Tindal AFB will be accompanied by an unprecedented infrastructure expansion project signifying a shift from existing air cooperation arrangements centred on joint training exercises and enhancing interoperability to a focus on strategic operations and potential air combat missions launched from Australian territory, including conceivably nuclear missions.

Although the Australian government declares a ‘fundamental right to know what activities foreign governments conduct in, through or from Australian territory or national assets’, this assertion of national sovereignty is difficult to reconcile with the apparent willed ignorance that flows from Australia’s ‘understanding of and respect for’ the US doctrine of

neither confirming nor denying the presence of nuclear weapons on board US aircraft, including whether the upcoming deployment of B-52 bombers to Tindal AFB will be nuclear-capable or conventional-only.

The Australian case of willed ignorance points to the fact that this study could have been, and should have been, carried out by government agencies of any of the host countries that permit B-52 deployments. Like the Australian government, these governments deny themselves and their citizenry even a minimum degree of transparency regarding the armament capability of US Air Force B-52 bombers that enter into and operate from their national territories, leaving them to rely on what is, finally, an implausible deniability.

Note: Historical and contemporary policy aspects of this study are developed at greater length in two forthcoming Nautilus Special Reports by Vince Scappatura and Richard Tanter:

- *B-52s in Australia in the 1980s – US strategic drivers, CINCPAC histories, and the nuclear heterodoxy of Malcolm Fraser*
- *Undermining Rarotonga: Australia's new nuclear posture.*

Note: the complete Special Report is available in PDF (11.3 MB). This file and related materials in the *Nuclear-capable B-52H Stratofortress bombers project* are available here.

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Recommended Citation: Vince Scappatura and Richard Tanter, 'Nuclear-capable B-52H Stratofortress strategic bombers: a visual guide to identification', Nautilus Institute Special Report, 25 August 2024, at https://nautilus.org/napsnet/napsnet-special-reports/nuclear-capable-b-52h-stratofortress-bombers-a-visual-guide-to-identification/.

Cover image: Dave Parer, '61-0019 – Townsville,', *Jet Photos.net*, photo date 15 August 2015, uploaded 6 September 2015, at https://www.jetphotos.com/photo/8089329. B-52H Stratofortress 61-0019 was in 2015, and remains in 2024, a nuclear-capable bomber.

Acknowledgements

Our thanks to Peter Hayes, executive director of the Nautilus Institute for his support for this project and for a close reading of earlier drafts; to Pavel Podvig of UNIDIR for advice and help in gaining a better understanding of arms control issues; and to Hans Kristensen of the Federation of American Scientists for his original insight on the core issue of this study. Jon Lake, co-editor of *Boeing B-52H Stratofortress Bookazine 2022*, was generous and collaborative with his expert assistance. Duncan Campbell and Jo Vallentine were helpful in tracking down small mysteries. David Lee and Philip Dorling guided us to cabinet archival sources. We also benefited greatly from the remarkable work of the late Dr Joe Baugher on USAF aircraft historical data. We thank the staff of the University of Melbourne Library for their help in providing timely access to materials for this project.

We are grateful to Dave Parer for his kind permission to use his photograph of B-52H 61-0019 over the Australian city of Townsville in August 2015 on the cover of this study.

Many of the photographs reproduced in this work appeared originally on United States Department of Defense and armed services websites. The appearance of U.S. Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.

We are grateful for the work and generosity of professional and specialist photographers on whose excellent work we have relied, and for their permission to reproduce their work: Ian Abbott, Steve Barnes, Kevin Bell, Jack Cook, Kyle Cortis, Charles Dover, Jason Grant, Lieuwe Hofstra, Andrew Lawrence, Eric Page Lu, Jay Dee Kay, Owen O'Rourke, Dave Parer, Mark Piacentini, Eric Salard, Andrei Schmatko, Reed Skyllingstad, Bruce Smith, Adrian Stürmer, Michiel Van Herten, Matt Varley, Markus Willmann, Chris Wood, Hao Wu, MRC Aviation, N94504, RedRipper24.

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Introduction

An urgent necessity: identifying nuclear-capable B-52 bombers entering host countries

The primary aim of this Nautilus Special Report is to provide robust, authoritative and transparent information for use by governments, and their publics, that host the Boeing B-52H Stratofortress heavy bomber, as to which in the current (as of mid-2024) US Air Force (USAF) inventory are capable of delivering nuclear weapons, and which can deliver only conventional, non-nuclear weapons.[1]

To date, there is no systematic, robust and transparent information on this matter in the public domain.

This study could have been, and should have been, carried out by government agencies of any of the countries that permit deployment of B-52H aircraft.

Transparency and accountability should be at the foundation of government policies of reliance on nuclear defence given the immense destructive power of nuclear weapons and the risks inherent in managing both the strategic and human security and safety consequences of such policies.

When nuclear weapons from a foreign state are introduced into one's national territory, it is a matter of profound strategic significance for the government and the people of that country, for that country's neighbours, and for possible adversary states. Once made, the strategic consequences of nuclear weapons hosting remain significant, even if abandoned over time.

Even hosting non-nuclear armed but nuclear-capable weapons platforms – the means of delivery of a nuclear weapon to its intended target – entails strategically significant consequences. If there are no declared policy or legal impediments to introducing nuclear weapons into a given country, hosting nuclear-capable delivery platforms from an allied state amounts to a near proxy for nuclear weapons deployment, and creates the possibility of participation in nuclear-armed operations.

Together with intercontinental ballistic missiles and submarine launched ballistic missiles, USAF B-52 and B-2 strategic bombers are a key element in the US strategic nuclear force,

[1] Between 1952 and 1962, the Boeing Company built 744 B-52 bombers and eight different models, designated A through H, including 102 B-52H models. After 1994, the B-52H was the only model remaining in service. B-52Hs will reportedly be redesignated B-52Js after receiving a scheduled Rolls Royce engine upgrade. John A. Tirpak, 'It's Official: The Re-Engined B-52 Will be the B-52J', *Air and Space Forces Magazine,* 5 April 2023, at https://www.airandspaceforces.com/re-engined-b-52-b-52j/.

which overall is capable of delivering over 3,500 nuclear strategic warheads.[2] In this nuclear triad, B-52 and B-2 bombers are the only elements regularly and frequently deployed for shorter or longer periods to allied host countries outside the United States. At present these countries include Australia, Spain, the United Arab Emirates, and the United Kingdom, in addition to the disputed territories of Diego Garcia and Guahan (Guam).

Of the two nuclear-capable strategic bomber fleets operated by the USAF, only the B-52H consists of a mix of dual-capable and conventional-only aircraft.[3] Since March 2017, the USAF inventory of B-52H Stratofortress bombers has consisted of 46 dual-capable aircraft able to deliver both nuclear weapons and non-nuclear weapons and some 30 denuclearised aircraft converted to deliver only conventional, non-nuclear weapons.[4]

For the governments and citizens of B-52 host countries, obtaining authoritative and accessible information concerning the introduction of both nuclear-capable delivery platforms and nuclear weapons themselves is essential for responsible decision-making and democratic accountability.

The question of distinguishing between nuclear-capable and conventional-only B-52H bombers only became a relevant issue over the past decade. Prior to 2015, all B-52H aircraft in the USAF inventory were nuclear-capable. Thereafter, the Obama administration initiated a process to convert a portion of the B-52H force so that they were only capable of carrying conventional weapons. This program was undertaken in anticipation of treaty limits between the United States and the Russian Federation coming into effect on 5 February 2018 on the number of offensive strategic arms in both countries (New START).

The USAF inventory of B-52H aircraft is currently made up of 76 aircraft in the active fleet, an additional five non-flyable inactive aircraft used for ground instruction and training (GITA) or research and testing, and eleven aircraft in long-term storage, one of which has been dismantled (Table 1). According to US declaratory policy, 46 of the 76 aircraft in the active fleet are nuclear-capable, leaving 30 as conventional-only. Another ten of the 11 aircraft in storage are declared to have been converted to conventional-only armament, and can be returned to the active fleet after a period of restoration (Table 2).[5]

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[2] Hans M. Kristensen and Matt Korda, 'United States nuclear weapons, 2023', *Bulletin of the Atomic Scientists,* Volume 79, No. 1, Table 1, p. 29, at https://www.tandfonline.com/doi/full/10.1080/00963402.2022.2156686. A further 200 B61 nuclear warheads classified as 'non-strategic' are available for delivery by F-15E, F-16D and F-35A strike aircraft belonging to the US Air Force and the air forces of five European allied countries.

[3] All B-2 Spirit bombers are dual-capable – meaning all are able to deliver both nuclear weapons and non-nuclear weapons.

[4] US policy is to maintain 46 nuclear-capable and 30 conventional-only B-52s. However, due to aviation incidents, there were 29 conventional-only B-52 aircraft in the active fleet from 2017 to 2020. Since March 2021, the active fleet has operated at a full strength of 46 nuclear-capable and 30 conventional-only B-52 aircraft (Table 10).

[5] 13 B-52H bombers were originally retired into long-term storage over 2008 and 2009, and two have since returned to active service after a lengthy restoration process to replace aircraft in the active fleet that were

Listing all extant B-52H aircraft in the USAF inventory by Air Force Serial Number, Table 3 summarises the findings of this Special Report for each aircraft concerning the status of the aircraft (active, storage-restorable, storage-dismantled, inactive/GITA), and its armament classification, the confidence level of that armament classification, its main operating base, and unit designation.

Table 1. USAF B-52H Stratofortress inventory (2024)

Status	*Number*
Active:	
Active duty	58
Air reserve	18
Total	76
Inactive:	
Ground Instructional Training Aircraft	4
Integration Model	1
Total	5
Storage:	
Restorable	10
Dismantled	1
Total	11
Written-off:	
Destroyed	10
Total	10
B-52H inventory (2024):	
Total	102

Table 2. USAF declared active and storage B-52H Stratofortress inventory armament classification (2024)

Status	*Nuclear-capable*	*Conventional-only*	*Total Number*
Active	46	30	76
Storage (restorable)		(10)	10
B-52H active and restorable storage aircraft	46	30 (+10)	86

damaged or destroyed in aviation incidents. Appendices 2, 3, and 4 provide technical information on historical developments in the makeup and armaments of the B-52H fleet from 2007-2024.

Table 3. B-52H extant aircraft, active/storage aircraft armament classification, confidence level, main operating base, and unit (2024) [*]

	Air Force Serial Number	*Status*	*Armament Classification*	*Confidence Level*	*Main Operating Base*	*Unit*
1.	60-0001	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
2.	60-0002	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	2nd Bomb Wing (2 BW flagship)
3.	60-0003	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
4.	60-0004	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
5.	60-0005	Active	Nuclear-capable	High	Minot AFB, North Dakota	5th Bomb Wing (5 BW flagship)
6.	60-0007	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
7.	60-0008	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	8th Air Force (8th Air Force flagship)
8.	60-0009	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing (69 BS flagship)
9.	60-0010	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
10.	60-0011	Active	Conventional-only	High	Barksdale AFB, Louisiana	11th Bomb Squadron, 2nd Bomb Wing (11 BS flagship)
11.	60-0012	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
12.	60-0013	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
13.	60-0014	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
14.	60-0015	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing

[*] Notes a. Confidence levels apply only to the armament classification assigned to active aircraft. b. AMARG - Aerospace Maintenance and Regeneration Group; GITA - ground instructional training aircraft; OG – Operating Group. c. Although best efforts have been made to ensure the accuracy of unit designations as of mid-2024, difficulties arising from changes in some unit designations over time may have resulted in some errors.

15.	60-0016	Inactive - GITA	N/A	N/A	Barksdale AFB, Louisiana	-
16.	60-0017	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
17.	60-0018	Active	Nuclear-capable	Low	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
18.	60-0019	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
19.	60-0020	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
20.	60-0021	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
21.	60-0022	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
22.	60-0023	Active	Conventional-only	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing (23 BS flagship)
23.	60-0024	Active	Conventional-only	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
24.	60-0025	Active	Conventional-only	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
25.	60-0026	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
26.	60-0028	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
27.	60-0029	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
28.	60-0030	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
29.	60-0031	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	49th Test and Evaluation Squadron, 53rd Wing
30.	60-0032	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
31.	60-0033	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
32.	60-0034	Active	Conventional-only	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
33.	60-0035	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
34.	60-0036	Active	Nuclear-capable	High	Edwards AFB, California	419th Flight Test Squadron, 412th Test Wing

35.	60-0037	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
36.	60-0038	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
37.	60-0041	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
38.	60-0042	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
39.	60-0043	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
40.	60-0044	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
41.	60-0045	Active	Conventional-only	High	Barksdale AFB, Louisiana	307th Bomb Wing (307 OG flagship)
42.	60-0046	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
43.	60-0048	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
44.	60-0049	Storage - dismantled	N/A	N/A	Davis-Monthan AFB, Arizona	309th AMARG
45.	60-0050	Active	Nuclear-capable	High	Edwards AFB, California	419th Flight Test Squadron, 412th Test Wing
46.	60-0051	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
47.	60-0052	Active	Conventional-only	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
48.	60-0054	Active	Conventional-only	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
49.	60-0055	Active	Nuclear-capable	High	Minot AFB, North Dakota	5th Bomb Wing (5 OG flagship)
50.	60-0056	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
51.	60-0057	Active	Conventional-only	High	Barksdale AFB, Louisiana	340th Weapons Squadron, USAF Weapons School, 57th Wing (340 WS flagship)
52.	60-0058	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
53.	60-0059	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing (96 BS flagship)

54.	60-0060	Active	Conventional-only	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
55.	60-0061	Active	Conventional-only	High	Barksdale AFB, Louisiana	307th Bomb Wing (307 BW flagship)
56.	60-0062	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
57.	61-0001	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
58.	61-0002	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	2nd Bomb Wing (2nd OG flagship)
59.	61-0003	Active	Conventional-only	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
60.	61-0004	Active	Conventional-only	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
61.	61-0005	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
62.	61-0006	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
63.	61-0007	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
64.	61-0008	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
65.	61-0009	Inactive - integration model	N/A	N/A	Boeing Oklahoma City facility, Tinker AFB, Oklahoma	Bombers Directorate, Air Force Lifecycle Management Center
66.	61-0010	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	343rd Bomb Squadron, 307th Bomb Wing (343 BS flagship)
67.	61-0011	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
68.	61-0012	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
69.	61-0013	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
70.	61-0014	Active	Conventional-only	High	Barksdale AFB, Louisiana	49th Test and Evaluation Squadron, 53rd Wing
71.	61-0015	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
72.	61-0016	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing
73	61-0017	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing

74.	61-0018	Active	Conventional-only	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
75.	61-0019	Active	Nuclear-capable	High	Edwards AFB, California	419th Flight Test Squadron, 412th Test Wing
76.	61-0020	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	20th Bomb Squadron, 2nd Bomb Wing (20 BS flagship)
77.	61-0021	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
78.	61-0022	Inactive - GITA	N/A	N/A	Sheppard AFB, Texas	82nd Training Wing
79.	61-0023	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
80.	61-0024	Storage- restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
81.	61-0025	Inactive - GITA	N/A	N/A	Sheppard AFB, Texas	82nd Training Wing
82.	61-0027	Storage - restorable	Conventional-only	N/A	Davis-Monthan AFB, Arizona	309th AMARG
83.	61-0028	Active	Nuclear-capable	High	Barksdale AFB, Louisiana	49th Test and Evaluation Squadron, 53rd Wing
84.	61-0029	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing (93 BS flagship)
85.	61-0031	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
86.	61-0032	Inactive - GITA	N/A	N/A	Minot AFB, North Dakota	-
87.	61-0034	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
88.	61-0035	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing
89.	61-0036	Active	Conventional-only	High	Barksdale AFB, Louisiana	96th Bomb Squadron, 2nd Bomb Wing
90.	61-0038	Active	Conventional-only	High	Barksdale AFB, Louisiana	93rd Bomb Squadron, 307th Bomb Wing
91.	61-0039	Active	Nuclear-capable	High	Minot AFB, North Dakota	69th Bomb Squadron, 5th Bomb Wing
92.	61-0040	Active	Nuclear-capable	High	Minot AFB, North Dakota	23rd Bomb Squadron, 5th Bomb Wing

Part 1. Identifying nuclear-capable B-52 aircraft – method and results

The work in this Special Report is set out in four separate parts.

Part 1 focusses on the armament capability of the active B-52H fleet and the methods involved in distinguishing nuclear-capable aircraft from those that are conventionally-armed only, the procedures and evidence used in this study to classify the armament status of active fleet aircraft, and the summary results of those classification procedures.

The key evidence utilised in this study for distinguishing nuclear-capable and conventional-only B-52H aircraft lies in treaty-mandated external observable and verifiable features the United States implemented when converting a certain number of previously nuclear-capable B-52H aircraft to conventional-only status, rendering them incapable of using nuclear weapons.

After discussion of the New START treaty, its verification requirements, and its protocol on inspection, Part 1 continues with a discussion of the limitations of existing sources of data on armaments classification of B-52 aircraft, before moving to an outline of the methods used in this study.

Since the goal of this Special Report is to provide a reliable and transparent source for both host governments and their publics to distinguish between nuclear-capable and conventional-only B-52s, Part 1 provides an extensive outline of the methods used in the report, the confidence criteria developed to assess evidence, and data on the confidence levels attained (Tables 4 and 5). For all but one of the 76 active aircraft, the confidence criteria assigned in the Aircraft List in Part 3 are rated as 'High'.

This section continues with a discussion of the system of unique identifiers for individual aircraft employed by the US Air Force and applied under the New START treaty.

The primary results of this study are presented in summary form in Table 7. The detailed evidence for each individual aircraft is presented in Part 3.

Part 2. Distinguishing nuclear-capable B-52s: policy issues

There are a number of key policy questions to which the issue of distinguishing nuclear-capable from conventional-only B-52H aircraft is salient. Part 2 begins with a review of contemporary basing and deployment patterns of B-52H aircraft, both in the United States and abroad, summarising an intensifying pattern of recent selected examples of B-52H deployments of differing frequency, duration and type to these countries and territories (Table 8). This review also includes an important recent announcement of the development of dedicated USAF physical infrastructure at a major air base in northern Australia in preparation for hosting up to six B52H aircraft on 'rotational deployment' (Figures 8, 9 and 10).

A core concern of this part of the Special Report is the United States government doctrine of neither confirming nor denying the presence or absence of nuclear weapons on board US ships, submarines or aircraft. Unchanged for almost seventy years, the neither confirm nor deny doctrine has been applied consistently and worldwide, with a very small number of exceptions.

Policy transparency required for democratic accountability is fundamentally denied by the application of this doctrine of neither confirming nor denying the presence of nuclear weapons on USAF aircraft to the publics, and, also it would appear, to the governments of countries such as Australia, Spain, the United Arab Emirates, and the United Kingdom that frequently host the deployment of USAF B-52H aircraft, as well the United States itself and the United Kingdom in their disputed external territories of Guahan and Diego Garcia.

The application of neither confirm nor deny policy is discussed in three sections, beginning with a general discussion of contemporary USAF policy and the security rationales proffered to justify its necessity. In section two, the small number of known historical exceptions to the policy based on information provided in secret to 'trusted leaders' who would not divulge this information to their publics is discussed, followed by a brief account of one rare exception. Finally, the difficulties of reconciling claims of national sovereignty with adherence to the US doctrine of neither confirm nor deny are illustrated by the contemporary Australian case of apparent willed ignorance with respect to the hosting of up to six B-52H bombers.

Part 2 continues with a discussion of contemporary USAF regulations and procedures for transporting nuclear weapons in 'normal peacetime' conditions on specially equipped C-17 transport aircraft, in addition to regulations that seemingly allow for the transport of nuclear weapons onboard B-52 aircraft for peacetime exercises, as well as in emergency or conflict situations.

Clearly, host government and public knowledge of the 'normal' transport of nuclear weapons for B-52 use on board transport aircraft, and the permitted exceptions to that policy, are essential elements of transparency for democratic accountability.

The policy discussions in Part 2 conclude by firstly returning to the New START treaty as the foundation of the capability for distinguishing nuclear-capable B-52s from their conventional-only counterparts. Matters of trust and verification lie at the heart of all functioning arms control agreements, including the New START treaty. After a brief discussion of the key elements of trust that underpin the denuclearization of heavy bombers, and the subsequent deterioration of that trust, the question of the continued viability of New START and the utility of the data provided by this Special Report is addressed.

As of mid-2024, New START is in suspension, with expiry imminent, further extension technically difficult, and given the state of US-Russia relations due to the Ukraine war, functional replacement of its most important requirements relevant to this Special Report highly unlikely.

Be that as it may, for the time being the critical treaty issues for this Special Report remain unaffected by the unravelling of New START, including its recent suspension. Nevertheless, Part 2 of this report draws attention to the possibility that the United States could decide to inhibit New START treaty-based identification of nuclear-capable B-52 aircraft, either by removing visible external aircraft identification, or more drastically, by altering or eliminating the aircraft serial-number-based unique identifier system. Such developments would indicate that any remaining element of trust in bilateral nuclear management arrangements had dissolved.

Part 2 of this report also identifies the possible, and indeed as of mid-2024, probable, scenario that New START restrictions on nuclear-capable B-52H numbers will be abandoned. In June 2024, both houses of Congress adopted amendments to FY Defense budget bills requiring the restoration of all B-52H conventional-only aircraft to be re-converted back to nuclear capability. The House Armed Services Committee Chairman Mike Rogers, made the new legislative agenda clear: 'We need to be prepared to face a nuclear environment without any treaty limitations.'[6] Should such a scenario eventuate, the primary aim of this study to assist civil societies in distinguishing between nuclear-capable and conventional-only B-52 aircraft will be rendered moot. Nevertheless, for the time being at least, this Special Report hopes to contribute to breaking the presumption of state monopoly on reliable, robust and transparent information on the presence and deployments of nuclear-capable aircraft.

Part 2 ends by returning to the issues of trust and verification that underpin New START, specifically the concern of Russian Federation inspectors with what they have long regarded as a fundamental inability to confirm denuclearization of certain US nuclear platforms. Besides the particulars of this unresolved dispute on a fundamental aspect of the treaty's objectives, the dispute raises issues for future arms control approaches concerning technical verification of electronic systems in a manner consistent with the national security interests of both parties.

Part 3. The Aircraft List

The comprehensive list of all extant aircraft in Part 3 is the empirical heart of this Special Report, made up of individual data pages on each extant B-52H aircraft. Each entry begins

[6] Bryant Harris and Stephen Losey, 'Congress wants to restore nukes on conventional B-52 bombers', *Defense News*, 19 June 2024, at https://www.defensenews.com/air/2024/06/18/congress-wants-to-restore-nukes-on-conventional-b-52-bombers/.

with the aircraft's Air Force Serial Number, followed by headline data on the aircraft's status, armament classification, and the confidence level for that classification. To assist visual identification, the basic identifying data of the Air Force Serial Number and its construction number are supplemented by the two visible numbers painted on the nose and the tail that provide shortened versions of the AF Serial Number.

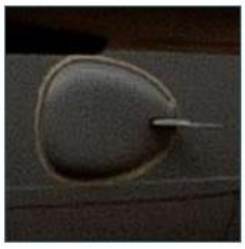
Figure 1. Aircraft List data page for B-52H 60-0005

60-0005

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0005
Tail number	AF 60 005
Fuselage nose number	0005
Construction number	464370

Main operating base	Minot AFB, North Dakota
Unit	5th Bomb Wing (5 BW flagship)



Primary source:
Zade Vadnais, '23rd EBS brings bomber support to Diamond Shield 2019', *U.S. Strategic Command*, 1 April 2019, VIRIN: 190326-F-WV456-0290, photo date 26 March 2019, uploaded 1 April 2019, [accessed 29 February 2024], at https://www.stratcom.mil/Media/News/News-Article-View/Article/1802985/23rd-ebs-brings-bomber-support-to-diamond-shield-2019/. High resolution at https://media.defense.gov/2019/Mar/28/2002107119/-1/-1/0/190326-F-WV456-0290.JPG.

Secondary source:
Marie Chealthia Ortiz, Matthew Plew (photographer) 'Bombers, Marine F-35s join Point Blank 20-4 exercise', *Air Force*, VIRIN: 200910-F-QP712-0085, photo date 10 September 2020, uploaded 11 September 2020, [accessed 18 February 2024], at https://www.af.mil/News/Article-Display/Article/2345203/bombers-marine-f-35s-join-point-blank-20-4-exercise/. High resolution at https://media.defense.gov/2020/Sep/11/2002495900/-1/-1/0/200910-F-QP712-0085.JPG.

Each aircraft entry includes a citation of a primary source and a secondary source which provide the foundation for the aircraft's armament classification, with full publication details and internet link to the original imagery (Figure 1). For active fleet aircraft, a trimmed, low resolution main photograph from the primary source is followed by three cropped extracts from that main photograph showing the presence or absence of a New START fin, the tail number, and/or the nose number to confirm identification. In cases where the legibility of those images is limited by exposure problems, an additional set of enhanced images has been included, and noted as such. In a small number of cases, it has not been possible to reproduce these images for copyright reasons. These entries are marked as such, and readers are encouraged to consult the original online images if they wish to confirm the armaments classification assigned. (Figure 1.)

Since in this Special Report the armament classification protocol has strictly been applied only to those aircraft in the active fleet, images for aircraft in storage, or those in ground maintenance or similar inactive roles, are provided only for improved understanding. There are no claims made in this report concerning the confidence level of the conversion status of aircraft in storage, except in the case of two aircraft that have been returned to service after a period in long-term storage – one converted to conventional-only, and the other returned as nuclear-capable, having never been converted. US declarations of the conventional-only status of all B-52H aircraft in storage have been taken at face value.

Part 4. Technical appendices

Part 4 consists of five appendices dealing largely with technical and historical matters, including tracking of often confusing reports of additions and deletions to different categories of the USAF B-52H inventory, armament capability changes to bring the US into conformity with its obligations under the New START treaty, and a more extended discussion of US neither confirm nor deny policy and its history.

Appendix 1 outlines the command structure for the B-52H active fleet. All frontline B-52H bombers in the USAF are assigned to two major commands that report directly to USAF Headquarters, while a handful of training and testing aircraft are assigned to two other major commands. Major commands are generally organized into one or more numbered air force, wing, group, and squadron. (Box 1. USAF command structure – organization.)

Appendix 2 traces the often confusing changes in status to the total 102 B-52H aircraft that were originally built in 1960 and 1961, including a detailed account of changes in the active, inactive, storage and destroyed status from 2014 to 2024. (Table 9. B-52H fleet structure, 2014-2024.)

Appendix 3 provides a detailed history of the B-52H armament capability changes over the past decade. (Table 10. B-52H New START Treaty-related armament capability changes,

2014-2024.) Between September 2015 and March 2017, a total of 41 B-52H bombers were converted to conventional-only status.

Appendix 4 provides a listing of all ten B-52H aircraft that have been destroyed in aviation incidents since the first such case in 1967 and are obviously therefore not subject to accountability under the New START treaty. (Table 11. B-52H aircraft destroyed in aviation incidents.)

Appendix 5 amplifies several aspects of the discussion of US policy to neither confirm nor deny the presence of nuclear weapons as discussed in the main body of this paper. It includes a schematic exploration of three potential dimensions to any given application of the policy in relation to countries hosting nuclear-capable delivery platforms.

Part 1. Identifying nuclear-capable B-52 aircraft – method and results

The Boeing B-52H Stratofortress strategic bomber

Nuclear-capable B-52H strategic bombers are a critical element in the US triad of nuclear weapons delivery platforms, along with dual-capable B-2A Spirit strategic bombers, Trident II submarine-launched ballistic missiles on Ohio-class submarines, and Minuteman III intercontinental ballistic missiles.[7]

A nuclear-capable B-52H aircraft can be armed with up to 20 AGM-86B Air-Launched Cruise Missiles (ALCMs), with six missiles carried on each of two externally mounted pylons and eight internally on a rotary launcher in the weapons bay. The Boeing AGM-86B air-to-ground cruise missile carries a W80-1 nuclear warhead, with a low to intermediate variable yield of 5 to 150 kilotons (the explosive yield of one kiloton is equivalent of 1,000 tonnes of TNT conventional explosives).[8] Each nuclear-capable B-52 aircraft can carry a nuclear payload with a total potential explosive yield of up to 3,000 kilotons – equivalent to 200 Hiroshimas.

B-52H Stratofortress aircraft are long-range offensive weapons platforms. Unrefuelled B-52s have a range in excess of 14,000 kms.[9] With aerial refuelling, the operational range of B-52H aircraft is limited only by the physical endurance of the crew. Although the B-52H aircraft are equipped with an array of defensive and offensive electronic counter-measures, the B-52H remains vulnerable to modern advanced air defence systems. Consequently, its strategic offensive roles rely on the payload of AGM-86B cruise missiles with a published range of 2,500 kms at high altitude stand-off ranges without needing to penetrate enemy air defence systems.

The New START Treaty and the 'distinguishability' of nuclear-capable B-52H aircraft

The essence of the capability to distinguish reliably between current nuclear-capable and conventional-only B-52 aircraft derives from verification and confidence-building measures

[7] In addition to the nuclear strategic triad, the United States maintains a fleet of F-15E and F-35A dual-capable strike aircraft.

[8] An updated version of the W80-1 warhead, the W80-4, will be employed in the Long Range Stand Off (LRSO) air-launched missile under development for the USA Air Force, including for use with B-52 aircraft. Hans Kristensen, 'W80-1 Warhead Selected For New Nuclear Cruise Missile', *Federation of American Scientists*, 10 October, 2014, at https://fas.org/publication/w80-1_lrso/.

[9] The longest combat mission undertaken by B-52 (or any other aircraft) took place on 16-17 January 1991 when seven conventionally-armed B-52G aircraft armed with conventional ALCMs launched from Barksdale AFB in Louisiana on a 35 hour 26,000 km round trip attack on Iraq during the Desert Storm campaign. Dana J. Johnson, *Roles and Missions for Conventionally Armed Heavy Bombers: An Historical Perspective*, N-3481-AF, Santa Monica, CA: RAND, 1994, p. 85, at https://www.rand.org/content/dam/rand/pubs/notes/2008/N3481.pdf.

developed by the United States and Russia and embedded in the text of the 2011 New START Treaty and its Protocol.[10]

In the treaty and its protocol, elimination or conversion of a nuclear-capable heavy bomber is intended to remove the aircraft from the count of nuclear delivery platforms allowed under the Treaty. Conversion is to be followed by exhibition and inspection of a first example, which will conform with 'distinguishing features' previously notified to the other government. In the Protocol's example case of US B-1 heavy bombers, these processes would provide the basis for the other government to determine for itself and accept

> 'that the designated ... heavy bomber remains incapable of employing nuclear armaments'.[11]

In the Protocol, categories of 'distinguishing features' for each nuclear-capable and converted type of heavy bomber include features that are 'Externally Observable', features of 'Underwing/Fuselage', features of the 'Weapons Bay', and 'Technical Data for Recognition of Heavy Bombers.'[12] In the case of conversion of B-52H aircraft, all three categories of 'distinguishing features' were employed by the United States to form the basis of acceptance by the treaty counterpart that the specified conversion met the requirements of the Treaty.

In April 2014, the US announced its intention to convert 30 of the formerly nuclear-capable B-52H aircraft in the active inventory, along with an additional 12 in storage, with the first bomber conversion completed by Air Force Global Strike Command (AFGSC) by no later than 10 September 2015.[13] The conversion of all selected B-52H aircraft was completed by no

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[10] Office of the Assistant Secretary of Defense, Active Strategic Treaties, *New START Treaty (NST), Treaty Text*, at https://www.acq.osd.mil/asda/ssipm/sdc/tc/nst/NSTtext.html; *Protocol to the Treaty between the United States of America and the Russian Federation On Measures for The Further Reduction And Limitation Of Strategic Offensive Arms [New START Treaty*], p. 149, at https://www.acq.osd.mil/asda/ssipm/sdc/tc/nst/protocol/index.html. The question of external signifiers distinguishing nuclear-capable and conventionally-armed aircraft covered by the treaty does not arise in the case of US B-2 Spirit heavy bombers because all B-2 bombers are declared to be dual-capable.

[11] *Protocol to the New START Treaty*, p. 149, at https://www.acq.osd.mil/asda/ssipm/sdc/tc/nst/protocol/index.html.

[12] *Protocol to the New START Treaty*, p. 77.

[13] Air Force Global Strike Command Public Affairs, Barksdale Air Force Base, La, 'AFGSC completes first New START bomber conversion', *United States Air Force*, 17 September 2015, at https://www.af.mil/News/Article-Display/Article/617628/afgsc-completes-first-new-start-bomber-conversion/. According to the Russian government, the first exhibition of a converted B-52H heavy bomber in accordance with New START was undertaken on 10 September 2015. *Problems related to implementation of The* Treaty *Between The United States Of America And The Russian Federation On Measures For The Further Reduction And Limitation Of Strategic Offensive Arms, 2010*, Government of the Russian Federation, releasable to U.S., December 2018, (unofficial Russian translation), at https://www.wsj.com/public/resources/documents/Russia.pdf

later than 1 March 2017, in time for treaty limits on heavy bombers under the New START Treaty to enter into effect on 5 February 2018.[14]

Only 41 of the intended 42 B-52Hs were ultimately converted, as one bomber was destroyed in an aviation incident during the period that conversions took place.[15]

In the case of B-52H heavy bombers, one 'externally observable' 'distinguishing feature' meeting treaty requirements to distinguish dual- or nuclear-capable aircraft from those converted to conventional-only capability is the presence or absence of what the US analyst Hans Kristensen has dubbed informally as 'New START fins' (Figures 2, 3 and 4).

Figure 2. Starboard side 'New START fin' in place on B-52H 60-0059

Source: Lauren Clevenger, 'Guam Mayors visit Andersen AFB [Image 10 of 11]', *DVIDS*, photo ID: 8114536, VIRIN: 231103-F-NI202-1227, photo date 11 November 2023, uploaded 11 November 2023, [accessed 17 February 2023], at https://www.dvidshub.net/image/8114536/guam-mayors-visit-andersen-afb.

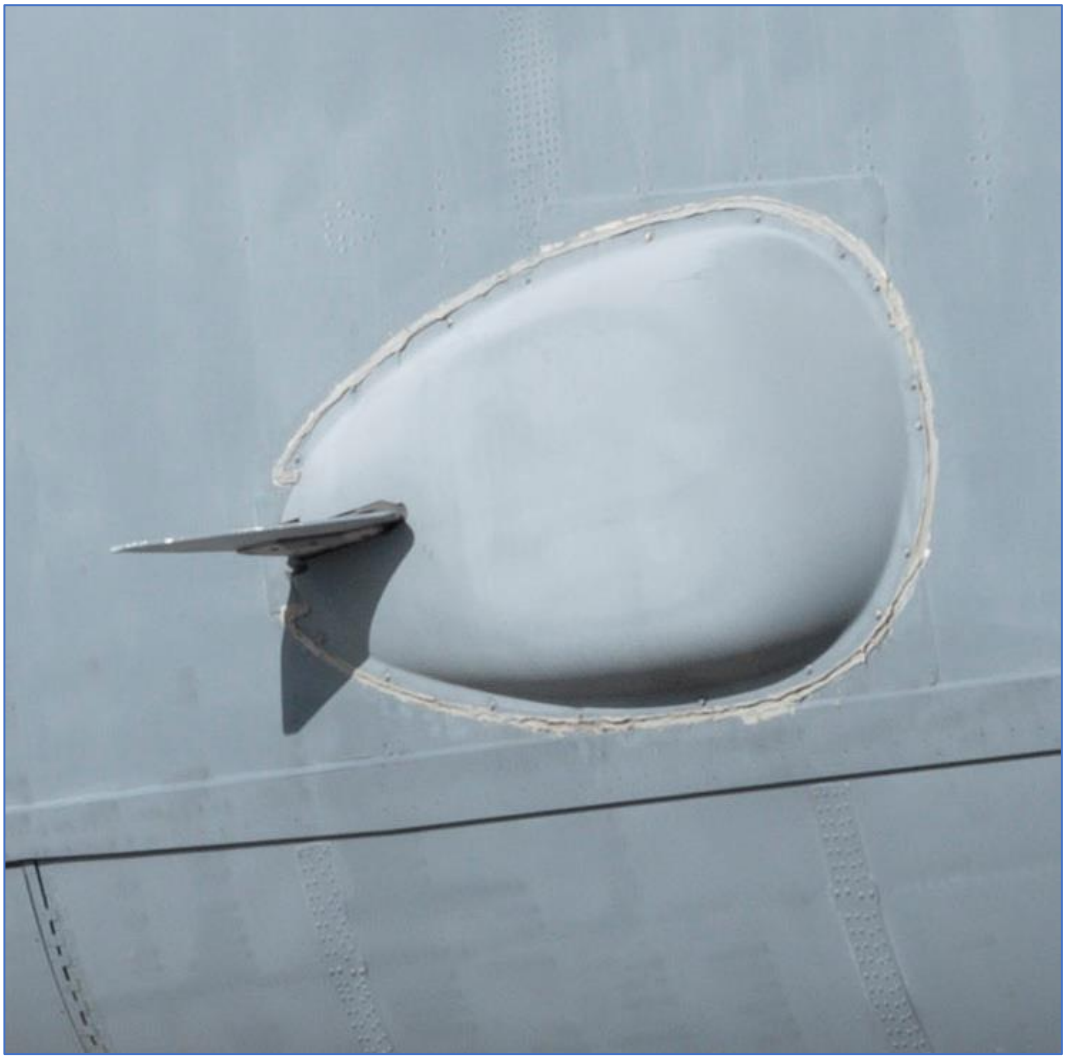
Subject to strict dating requirements, the presence of New START fins on a B-52H aircraft indicates nuclear-capability, and the absence of fins indicates conventional-only capability. The horizontal triangular 'New START fins' are about 30 cm in length, attached to blisters mounted on the middle of the rear section of the port and starboard sides of the fuselage,

[14] 'U.S. Strategic Nuclear Forces: Background, Developments, and Issues', *Congressional Research Service*, updated 14 December 2021, p. 43, at https://sgp.fas.org/crs/nuke/RL33640.pdf

[15] See Appendix 3 for a full account of armament capability changes to the B-52H fleet carried out in accordance with the New START Treaty.

several metres forward of the beginning of the tail structure. The fins are reportedly non-functional antennas for older electronic warfare jamming equipment.

Figure 3. Close-up of starboard side 'New START fin' in place on B-52H 60-0059



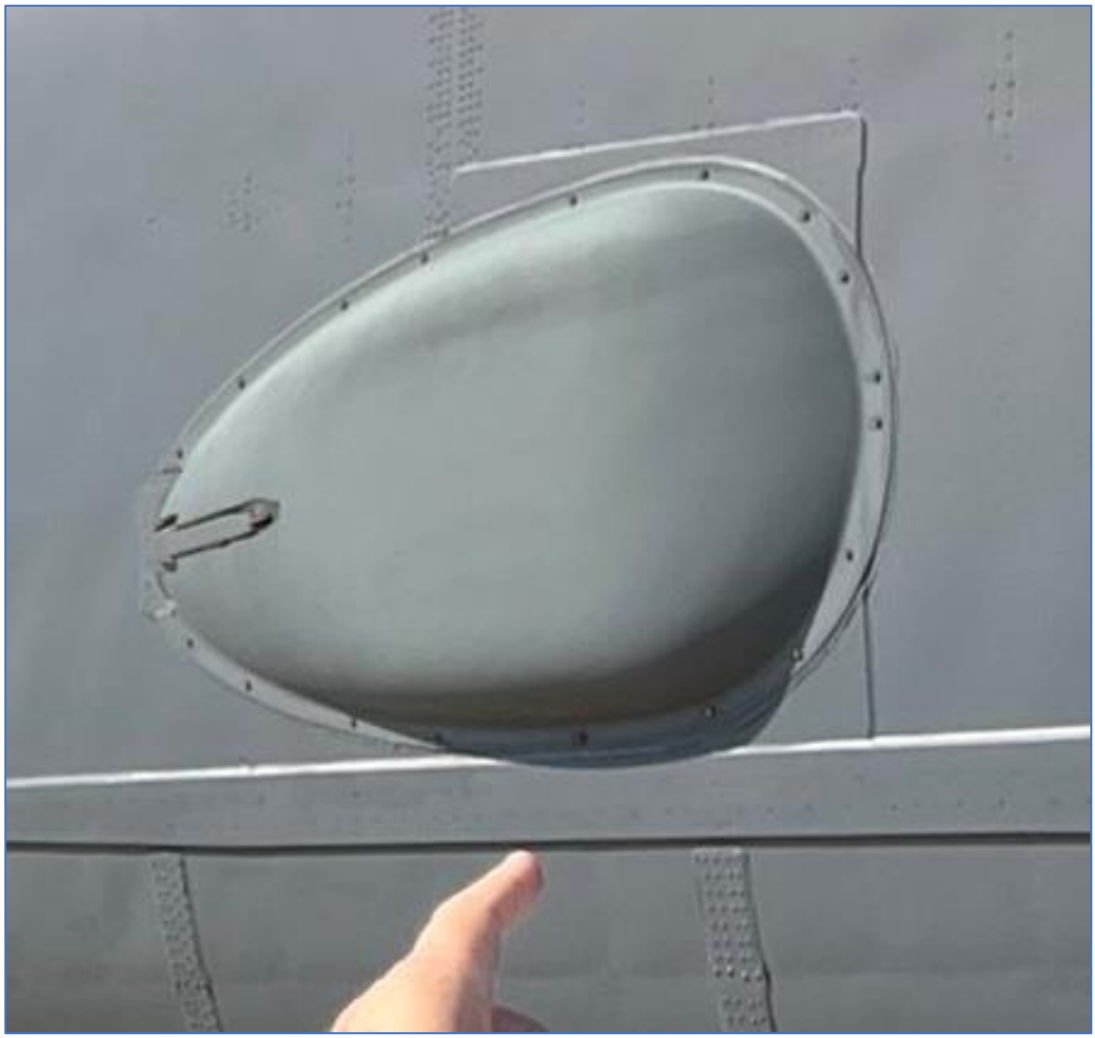
Source: Lauren Clevenger, 'Guam Mayors visit Andersen AFB [Image 10 of 11]', *DVIDS*, photo ID: 8114536, VIRIN: 231103-F-NI202-1227, photo date 11 November 2023, uploaded 11 November 2023, [accessed 17 February 2023], at https://www.dvidshub.net/image/8114536/guam-mayors-visit-andersen-afb.

The absence of fins does not in itself demonstrate that the aircraft has been denuclearized in a verifiable manner. Rather, the absence of fins is intended by the United States as a signifier or indicator to the Russian side that such aircraft have undergone substantive changes in accordance with the Protocol to the treaty, which could be viewed in an exhibition case, and verified by inspection of the exhibition case.

Note that all Russian Federation Tu-160 Blackjack and the Tu-95 MS Bear-H heavy bombers covered by New START requirements are nuclear-capable, and none have been through a conversion process to non-nuclear status comparable to US B-52H aircraft. Accordingly, there was no need for an 'externally observable' 'distinguishing feature' to identify Russian

converted bombers. For New START purposes all Russian Federation bombers counted under the treaty have external aircraft identifying numbers similar to the USAF Aircraft Serial Number that function as New START Unique Identifiers.

Figure 4. Absence of 'New START fin' on B-52H 61-0021 indicating conversion to conventional-only armament



Hans Kristensen@nukestrat, *X*, photo date 19 September 2022, uploaded 19 September 2022, [accessed 3 August 2023], at https://twitter.com/nukestrat/status/1571518011143602176.

Limitations of existing sources of B-52H armament classification

There have been a number of comments in recent years on social media such as *Twitter/X* claiming to identify the armament capability of particular B-52H aircraft. While some have been a matter of well-informed commentary by respected researchers, others have been unreliable.

The original and most reliable source has been the social media commentary by Hans Kristensen of the Federation of American Scientists, one of the world's leading civil society experts on United States nuclear weapons. In a letter to the authors, Kristensen summarised his understanding of the key question:

> ‘After 2018 a B-52 with a fin on both sides of the fuselage indicates it is counted as nuclear-capable under the terms of the New START treaty (note there are also internal indicators on the aircraft including in the bomb bay). When the fins are removed and relocated to the lower part of the fuselage, that means the bomber has been denuclearized under the New START treaty.’ [16]

Kristensen has been active in correcting misunderstandings – and misrepresentations – in mainstream publications and social media about whether particular aircraft are nuclear-capable. For example, on 7 March 2023 Kristensen criticised a claim by Voice of America Seoul correspondent William Gallo that as part of an operation by ‘the US to roll out the big guns in Korea’, a ‘nuclear-capable B-52 did exercises Monday with South Korea over the Yellow Sea’.[17] Kristensen pointed out that in a South Korean Ministry of Defence video cited by Gallo, the B-52 concerned (60-0025) clearly did not have New START fins installed.

Underlining the seriousness of the issue of untested and incorrect claims of this kind, Kristensen noted:

> ‘No, the US did not send a “nuclear-capable” B-52 as a signal to North Korea. It sent the 60-0025, one of the 41 B-52s that have been denuclearized and converted to conventional-only capability. A reminder that extended deterrence and assurance is not just about nukes.’[18]

Given the possibility of significant consequences of misrepresentations of the nuclear status of B-52s, especially those deployed outside the United States, establishing the basis of such claims is particularly important. Pointing to the origin of the New START fins as Externally Observable Distinguishing Features that are intended under the New START treaty to indicate that a bomber is equipped for nuclear armaments, Kristensen confirmed the authors that

> ‘public documents do not, to my knowledge, explicitly say “this fin shows the bomber is nuclear-capable”....
>
> ‘My descriptions of this over the years have been based on what I have been told by Air Force officials on several occasions.’[19]

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[16] Hans Kristensen to Richard Tanter, personal communication, 13 July 2023.
[17] William Gallo@GalloVOA, *Twitter*, 6 March 2023, [including Republic of South Korea Ministry of Defence, footage], at https://twitter.com/GalloVOA/status/1632679013067165698; and Hans Kristensen@nukestrat, *Twitter*, 8 March 2023, at https://twitter.com/nukestrat/status/1633104259079077889.
[18] Hans Kristensen@nukestrat, *Twitter/X*, 8 March 2023, at https://twitter.com/nukestrat/status/1633104259079077889.
[19] Hans Kristensen to Richard Tanter, personal communication, 13 July 2023. Discussions with B-52 researchers and aircraft photographers indicate that anecdotal knowledge of New START fins based on informal communications with USAF personnel has been relatively widespread.

Considerable progress towards rectifying the lack of a comprehensive list of the armament status of active service B-52s came with the publication by the UK company Key Publishing of *Boeing B-52H Stratofortress Bookazine 2022*.[20] Amongst much other detailed information, the bookazine provided a list based on extensive research by Jon Lake of the armaments classification of all B-52H aircraft in the active fleet, in storage, or converted to ground instruction, classified as either 'nuclear' or 'conventional' or in doubt.[21] There were a considerable number of initial differences in armament classification between Lake's published work and those in the Aircraft List of this Special Report. These were subsequently resolved cooperatively through further discussion, affirming the armaments classifications presented in this publication.[22]

And yet, however welcome private agreement amongst well informed sources may be, unless published results derive from robust and transparent methods, government and civil society researchers may lack intellectual and political confidence in such results. Since the primary purpose of this work is to generate reliable, robust and transparent information as to which B-52H aircraft are nuclear-capable, and which are not, the method of assessing armament classification and confidence levels assigned is critical.

Armament classification confidence levels – criteria for assessment

This B-52H aircraft armament identification project uses open source materials of a low-tech crowd-sourced type: photographs produced for purposes unrelated to this study by members of an informal international network of professional and non-professional photographers published on the internet, supplemented by US and other government publicity photographs.

All the cited primary source photographs are visible online in high or very high resolution at the original sources at URLs provided in Part 3. Copies of these source images have been retained for verification purposes in the event published URLs change or disappear, or the interpretation of evidence is subject to question.

The most important sources of evidence in the individual Aircraft List entries in Part 3 are not the photographs of the whole aircraft that we reproduce. Regrettably, for reasons of file size, most reproductions of much fine professional work in the Aircraft List are in low resolution. Readers are in every case referred to the original high quality original versions on the internet.

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[20] Jon Lake and Angie Bee (eds.) *Boeing B-52H Stratofortress Bookazine 2022*, ISBN 978 1 80282 338 7, (Stamford, Lincs, UK: Key Publishing, 2022), at https://shop.keypublishing.com/products/b-52.

[21] 'B-52H Fleet Disposition', in Jon Lake and Angie Bee (eds.) *Boeing B-52H Stratofortress Bookazine 2022*, pp. 82-83.

[22] The authors are deeply grateful to Jon Lake for his generous cooperation and sharing his expertise and rigorous judgement.

For the purposes of the Aircraft List in this Special Report, the most important information conveyed by primary source images are the small and sometimes indistinct reproductions of aircraft unique identifiers (nose and/or tail) and small photographs of cropped sections of the rear fuselage showing the presence or absence of New START fins – in all cases, subject to the primary and process dating criteria outlined below.

In a number of cases, primary source main images and cropped photographs of tail or nose numbers or fin structures, have been digitally enhanced in simple form to improve legibility. In each case, those enhanced versions have been identified in the text.[23] A very large number of potentially relevant images available from diverse sources on the internet were assessed according to the confidence criteria set out below and summarised in Table 4.

In each individual aircraft entry in the Aircraft List in Part 3, one primary and one or more secondary sources are used for classification purposes, with the primary source as the principal foundation for armament classification, and the secondary providing supporting confirmation.

Photographs cited as primary or secondary sources to develop the armaments classification of any given aircraft in the Aircraft List have been assessed according to four sets of criteria:

- The clear presence or absence of New START fins.
- The stated date of the photographic evidence regarding the completion of the process of conversion to conventional-only capability, and the entry into effect of the New START numerical limits.
- The reliability of the stated source of the date concerned – with high confidence attributed to either technical data attached to the photograph or official United States or allied government sources.
- The visibility and legibility of the aircraft unique identifier under the New START treaty.

Primary criteria

Two criteria are primary: the evident presence or absence of New START fins, and the date of the photograph in terms of the completion of the process of conversion (1 March 2017) and the entry into effect of the New START limits (5 February 2018).[24]

[23] There are examples in Part 3 of cropped images reproduced at necessarily poor resolution, where readers may be in some doubt about the judgement of armament classifications. In such cases we suggest readers consult both the secondary source and the original higher resolution primary source images provided by the photographer on the internet through the source data provided. The authors would be grateful to know of possible errors or novel developments.

[24] Distinguishing between these dates for the purpose of assessing confidence levels is based on the conservative assessment that visual confirmation of armament capability from 1 March 2017 rests solely on a US government declaration that conversions had been completed, whereas visual confirmation from 5 February 2018 has the added confidence of being after treaty limits came into effect.

For nuclear-capable aircraft:

- The verifiable presence of New START fins in visual imagery originating between 1 March 2017 and 5 February 2018 is one factor supporting *a moderate degree of confidence that a B-52H aircraft is currently nuclear-capable*.
- The verifiable presence of New START fins in visual imagery after 5 February 2018 is one factor supporting *a high degree of confidence that a B-52H aircraft is currently nuclear-capable.*

For conventional-only aircraft:

- The verifiable absence of New START fins in visual imagery originating between 1 March 2017 and 5 February 2018 is one factor supporting *a moderate degree of confidence that a B-52H aircraft is currently conventional-only*.
- The verifiable absence of New START fins in visual imagery after 5 February 2018 is one factor supporting *a high degree of confidence that a B-52H aircraft is currently conventional-only.*

Process criteria

In some cases where there are uncertainties in the image and its accompanying data about the date of the source photograph or the legibility of the aircraft's unique identifier in the same image, two process criteria are also considered.

Photographs originating from a United States or U.S. allied government source with a clear statement of the date of origin are regarded more highly than unofficial sources. Wherever appropriate, official sources meeting criteria specified for high or moderate armament classification confidence levels have been preferred.

Similarly, non-official source photographs that are provided with technical metadata that demonstrate the date of origin of the photograph (most commonly Exchangeable Image File or EXIF metadata) are regarded more highly than sources without such metadata.[25]

These four criteria combine in the following manner to produce five levels of confidence for the armament classification for B-52H aircraft as High, Moderate, Low, Very Low, and None, as in Table 4.

[25] Some online unofficial sources provide full EXIF data as a matter of course, others on occasion, and others still not at all. Where published EXIF date data is not available, the *Online EXIF Viewer* at https://onlineexifviewer.com was used to retrieve the required metadata from either the original photograph when it was available online, or when the original has been provided by courtesy of the photographers.

This set of confidence criteria was applied to a countless number of source photos until all but one of the 76 active aircraft assigned in the Aircraft List in Part 3 achieved a rating of 'High' confidence (Table 5).

The single exception is 60-0018, rated at 'Low' confidence because of a scarcity of usable source images within acceptable date ranges. The primary source clearly shows a New START fin. However, although dated 15 November 2022, the published photograph lacks verifiable EXIF dating data. A suitable secondary source image was also unlocatable.

Table 4. Armament classification confidence level criteria

	Nuclear-capable	*Conventional-only*
High	a) New START 'fin' is clearly present b) Date of photo is post New START limits c) Photo contains EXIF data or comes from an official source d) UID on the aircraft is visible and legible	a) New START 'fin' is clearly absent b) Date of photo is post New START limits c) Photo contains EXIF data or comes from an official source d) UID on the aircraft is visible and legible
Moderate	a) New START 'fin' is clearly present b) Date of photo is post CoC completion and prior to New START limits c) Photo contains EXIF data or comes from an official source d) UID on the aircraft is visible and legible	a) New START 'fin' is clearly absent b) Date of photo is post CoC completion and prior to New START limits c) Photo contains EXIF data or comes from an official source d) UID on the aircraft is visible and legible
Low	a) New START 'fin' is clearly present b) Date of photo is post CoC completion c) Photo does not contain EXIF data or comes from an unofficial source d) UID on the aircraft is visible and legible	a) New START 'fin' is clearly absent b) Date of photo is post CoC completion c) Photo does not contain EXIF data or comes from an unofficial source d) UID on the aircraft is visible and legible
Very Low	a) New START 'fin' is clearly present b) Date of photo is post CoC completion c) UID on the aircraft is not visible or legible	a) New START 'fin' is clearly absent b) Date of photo is post CoC completion c) UID on the aircraft is not visible or legible
None	a) No source exists, or b) Presence of New START 'fin' is not clearly visible, or c) Date of photo is prior to CoC completion, or d) No date for photo is recorded	e) No source exists, or f) Absence of New START 'fin' is not clearly visible, or g) Date of photo is prior to CoC completion, or h) No date for photo is recorded

Confidence criteria glossary

Date	*Date of source image*
CoC	Conventional-only conversion
CoC completion	Air Force Global Strike Command completion of CoC to selected B-52H bombers, 1 March 2017
EXIF data	Exchangeable Image File metadata

New START	Treaty between The United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, entered into force 5 February 2011
New START 'fin'	Distinctive sharply angled small horizontal fin mounted towards the rear on each side of the fuselage of B-52H bombers signifying nuclear capability
New START limits	New START limits enter into effect, 5 February 2018
UID	B-52H Unique Identifier (Air Force Serial Number, and derivative tail and nose numbers)

Table 5. B-52H armament classification confidence levels – summary of results

	High	*Moderate*	*Low*	*Very Low*	*None*	*Total*
Number	75	-	1	-	-	76
% of total	99%	-	1%	-	-	100%

Unique Identifiers on B-52H aircraft

Reliably identifying individual nuclear-capable aircraft is critical to strategic planning and operations, to implementing and maintaining nuclear arms control agreements, to enforcing nuclear weapon-free zones, and to civil society understanding of the implications of the introduction or deployment of nuclear weapons.

The *Protocol to the New Strategic Arms Reduction Treaty* specifies that 'Each ICBM, each SLBM, and each heavy bomber shall have a unique identifier', defined as 'a nonrepeating alpha-numeric number that has been applied by the inspected Party to an ICBM, SLBM, or heavy bomber.'[26]

In her memoir of the New START treaty negotiations between the United States and the Russian Federation, the lead US negotiator Rose Gottemoeller recalled that the idea of a unique identifier was very attractive to the US negotiating team:

> 'if each launcher and delivery vehicle had a unique identifying number, which would be recorded in the database and tracked through constant notifications, then we would be in an improved position to monitor the Russian ICBM force on a 24/7 basis.'[27]

The protocol to the treaty does not specify the form of the 'nonrepeating alpha-numeric number' applied to a heavy bomber as a unique identifier for treaty purposes. According to Gottemoeller, disagreement about just what could perform the function of 'unique

[26] Protocol to the Treaty between the United States of America and the Russian Federation On Measures for The Further Reduction And Limitation Of Strategic Offensive Arms [New START Treaty], pp. 14, 16.
[27] Rose Gottemoeller, *Negotiating the New START Treaty*, (Amherst, NY: Cambria Press, 2021), p. 53.

identifier' for each category of delivery platform was resolved by the two sides agreeing that

> 'the existing serial numbers that each side used to track and account for their weapon systems would be used for this purpose.'[28]

In this Special Report, each B-52H aircraft in the USAF inventory, whether active duty or air reserve, storage, or ground instruction and testing, (as well those written-off due to accident or destruction), is associated with four different USAF identifiers: Air Force serial number, tail number, fuselage nose number, and construction number, the first three of which are displayed on outside of the aircraft.

The entry for B-52H 61-0035 is used here for explanatory purposes (Table 6 and Figures 5, 6, and 7).

Figure 5. B-52H 61-0035 showing nose number and tail number identification

Source: Joshua Ruppert, 'B-52-61-0035 45 (6)', *Flickr*, photo date 3 August 2018, uploaded 31 October 2020, [accessed 6 September 2023], at https://www.flickr.com/photos/130680687@N02/50552648287/.

Construction Number

The most basic administrative and functional identifier is the manufacturing serial number or construction number (C/N). Each B-52 aircraft manufactured by the Boeing Company between 1952 and 1962 was assigned a six figure manufacturing serial number.[29] Commonly known as the construction number, it is mounted inside the aircraft, and often cited together with other identifiers for confirmation. In the example of B-52H 61-0035 the

[28] Rose Gottemoeller, *Negotiating the New START Treaty*, (Amherst, NY: Cambria Press, 2021), p. 53.
[29] The first production contract for the B-52A (52-001) was signed on 14 February 1951, and delivered from the Boeing factory three years later on 18 March 1954. Joe Baugher, 'USAF Bombers – B-52A Stratofortress', *Joe Baugher.com*, [accessed 10 December 2023], at https://www.joebaugher.com/usaf_bombers/b52_3.html. See also his 'USAF Bombers – B-52 Stratofortress', *Joe Baugher.com*, [accessed 10 December 2023], at https://www.joebaugher.com/usaf_bombers/b52.html.

construction number is 464462. This manufacturer's serial number is quite different from the Air Force Serial Number.

Table 6. B-52H identifiers for aircraft 61-0035

Air Force serial number	61-0035
Tail number	AF 61 035
Fuselage nose number	1035
Construction number	464462

Depending on their particular purpose, the identifiers take different physical forms and locations, discussed below in terms of the construction number, US Air Force Serial Number, the tail number, and the nose number. [30]

Air Force Serial Number

After delivery to the Air Force by the manufacturer, a B-52 aircraft was allocated another six figure number, sometimes described as the aircraft registration number, but formally known as the Air Force Serial Number.[31] This is made up of a two figure prefix denoting the last two digits of the fiscal year during which the aircraft order was placed (for B-52H aircraft, 60 or 61 indicate 1960 or 1961), followed by a four digit number indicating order of Air Force registration of the aircraft in that year – for example 61-0035.

The Air Force Serial Number appears on the outside of the aircraft on a small painted panel known as the Aircraft Data Legend on the forward fuselage below the port side cockpit windows. In lettering about two to five centimeters high, the Aircraft Data Legend indicates the type of the aircraft, the Boeing Production Block of this aircraft, and the Air Force Serial Number, together with a set of smaller print technical data, including the number of crew members, jet fuel type, and external fuel control information (Figure 6).

[30] This discussion of US Air Force aircraft identifiers draws substantially on the remarkable work of the late Dr Joe Baugher in the introduction to his website *USASC-USAAS-USAAC-USAAF-USAF Military Aircraft Serial Numbers--1908 to Present*', *Joe Baugher.com*, at https://www.joebaugher.com/usaf_serials/usafserials.html. See also Richard Serrano, *The Stratofortress Catalog, Book VII: Tail Numbers: 58-0256 to 60-0058*, Second Edition (unabridged), and *The Stratofortress Catalog, Book VIII: Tail Numbers: 60-0059 to 61-0040*, Second Edition (unabridged), (Seattle, WA: Kindle Direct Publishing, Amazon Services LLC, 2018).

[31] In the United States, military aircraft are not usually required to be registered with the Federal Aviation Authority. However, the term 'registration number' applied to FAA-registered civilian aircraft is often used to refer to the Air Force Serial Number.

Figure 6. B-52H 61-0035 Air Force Serial Number on the Aircraft Data Legend

Source: Ian Abbott, 'B-52H 61-0035 at Travis AFB (2)', *Flickr*, photo date 30 March 2019, uploaded 21 April 2019, [accessed 26 October 2023], at https://www.flickr.com/photos/ian_e_abbott/33778686428.

The Air Force Serial Number, located only in small print on the Aircraft Data Legend, is often cited mistakenly as the 'tail number'. In this Special Report, aircraft are primarily identified by their Air Force Serial Number, and for New START Treaty purposes that number is treated here as the 'Unique identifier' or 'UID', although, as shown below, tail and nose numbers reproduce most of the UID information.

Tail number

The most visible external identifier on each aircraft is the tail number painted in large font on the lower portion of both vertical surfaces of the tail structure. While based on the Air Force Serial Number, the tail number is abbreviated from six digits to five, preceded by the letters AF. These two letters and the first two digits of the Air Force Serial Number denoting the year of ordering (60 or 61) are painted in a fairly small font, followed by the last three digits of the serial number in large font designed to be seen from several hundred meters away. In the example of B-52H 61-0035 the tail number is AF 61 035.

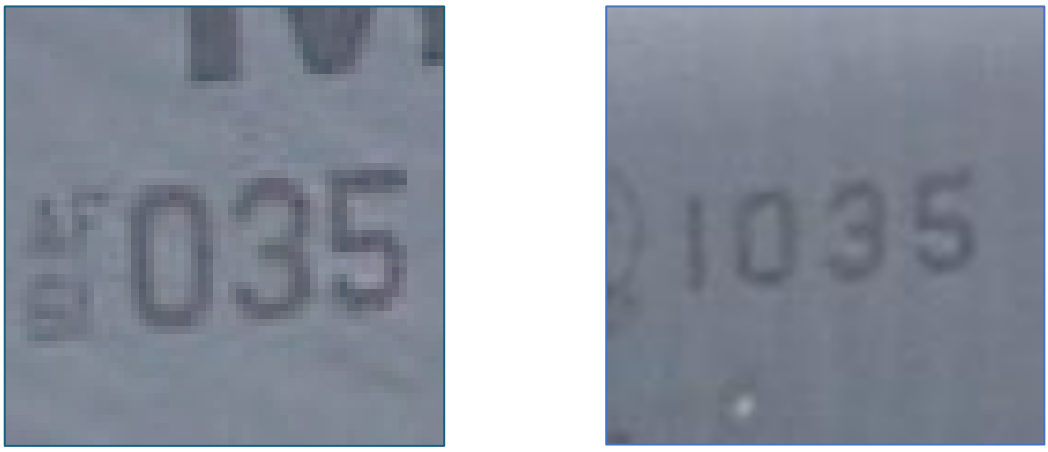
The tail number, together with the very large letters usually present to signify the main operating base of the aircraft, and sometimes unit designation, is often described as the 'tail code'. The most common base identifiers for B-52H aircraft in the current inventory are 'LA' (Barksdale AFB, AFGSC units), 'MT' (Minot AFB, AFGSC units), and 'BD' (Barksdale AFB Air

Force Reserve Command units) (see Appendix 1. B-52H Command Structure). However, base and unit tail codes are not always present. In the case of unit 'flagship aircraft', tail codes also indicate the Numbered Air Force, Operations Group, Bomb Wing or Squadron to which the aircraft is allocated.

Nose number

A four digit number painted in fairly large font on both sides of the fuselage just aft of the cockpit provides another external identifier, replicating most of the essential information of the longer form Air Force Serial number and the tail number. The nose number consists of the last digit of the year of manufacture of the B-52H (0 or 1), followed by a single zero (0), and then followed by the last two digits of the Air Force Serial Number (and of the tail number). Hence, in the case of 61-0025, the four figure identifier on the front section of the fuselage is 1025.

Figure 7. Tail number and fuselage nose number on B-52H 61-0035 (images enhanced)



Source: Joshua Ruppert, 'B-52-61-0035 45 (6)', *Flickr*, photo date 3 August 2018, uploaded 31 October 2020, [accessed 6 September 2023], at https://www.flickr.com/photos/130680687@N02/50552648287/

If the aircraft is known to be a B-52, the nose number presents the same information as the tail number. While apparently redundant, their separated locations at different ends of the aircraft increase the chance that an aircraft will be correctly identified even if some part or all of one identifier is obscured.

For the years 1960 and 1961, a limited number of Air Force Serial Numbers beginning with 60- and 61- were allocated to B-52H aircraft (60-0001 to 60-0062, and 61-0001 to 61-0040 respectively). Other types of aircraft entering the USAF inventory in those years were given Air Force Serial Numbers beginning with 60- or 61-, but with suffix numbers following on from that of the last B-52H aircraft number. Accordingly, if an aircraft was known to be a B-52H, then the tail and nose numbers were sufficient to distinguish the aircraft from both other B-52s and all others.

Aircraft identifier legibility criteria

For the present purpose of reliably identifying individual aircraft in order to classify their armament as nuclear-capable or conventional-only, one criterion of high confidence identification is based on legibility of either the tail number or the nose number, and where possible, both.

The primary results of this study are presented in summary form in Table 7. The detailed evidence for each individual aircraft is presented in Part 3.

Table 7. B-52H active aircraft armament classification and armament classification confidence level (2024)

Note: This table of the active inventory of B-52H aircraft omits aircraft that have been written-off, ground instructional and training aircraft (GITA), and aircraft in storage for which the armament classification criteria in this study do not apply (Tables 1, 3, 10, and 11).

	Air Force Serial Number	*Armament classification*	*Armament classification confidence level*
1.	60-0001	Nuclear-capable	High
2.	60-0002	Nuclear-capable	High
3.	60-0003	Conventional-only	High
4.	60-0004	Nuclear-capable	High
5.	60-0005	Nuclear-capable	High
6.	60-0007	Nuclear-capable	High
7.	60-0008	Nuclear-capable	High
8.	60-0009	Nuclear-capable	High
9.	60-0011	Conventional-only	High
10.	60-0012	Nuclear-capable	High
11.	60-0013	Nuclear-capable	High
12.	60-0015	Conventional-only	High
13	60-0017	Nuclear-capable	High
14.	60-0018	Nuclear-capable	Low
15.	60-0021	Nuclear-capable	High

	Air Force Serial Number	*Armament classification*	*Armament classification confidence level*
16.	60-0022	Nuclear-capable	High
17.	60-0023	Conventional-only	High
18.	60-0024	Conventional-only	High
19.	60-0025	Conventional-only	High
20.	60-0026	Nuclear-capable	High
21.	60-0028	Nuclear-capable	High
22.	60-0029	Nuclear-capable	High
23.	60-0031	Nuclear-capable	High
24.	60-0032	Nuclear-capable	High
25.	60-0033	Nuclear-capable	High
26.	60-0034	Conventional-only	High
27.	60-0035	Conventional-only	High
28.	60-0036	Nuclear-capable	High
29.	60-0037	Nuclear-capable	High
30.	60-0038	Conventional-only	High

	Air Force Serial Number	*Armament classification*	*Armament classification confidence level*
31.	60-0041	Conventional-only	High
32.	60-0042	Conventional-only	High
33.	60-0044	Nuclear-capable	High
34.	60-0045	Conventional-only	High
35.	60-0048	Nuclear-capable	High
36.	60-0050	Nuclear-capable	High
37.	60-0051	Conventional-only	High
38.	60-0052	Conventional-only	High
39.	60-0054	Conventional-only	High
40.	60-0055	Nuclear-capable	High
41.	60-0056	Nuclear-capable	High
42.	60-0057	Conventional-only	High
43.	60-0058	Nuclear-capable	High
44.	60-0059	Nuclear-capable	High
45.	60-0060	Conventional-only	High
46.	60-0061	Conventional-only	High
47.	60-0062	Nuclear-capable	High
48.	61-0001	Nuclear-capable	High
49.	61-0002	Nuclear-capable	High
50.	61-0003	Conventional-only	High
51.	61-0004	Conventional-only	High
52.	61-0005	Nuclear-capable	High
53.	61-0006	Nuclear-capable	High
54.	61-0007	Nuclear-capable	High

	Air Force Serial Number	*Armament classification*	*Armament classification confidence level*
55.	61-0008	Conventional-only	High
56.	61-0010	Nuclear-capable	High
57.	61-0011	Conventional-only	High
58.	61-0012	Nuclear-capable	High
59.	61-0013	Nuclear-capable	High
60.	61-0014	Conventional-only	High
61.	61-0015	Nuclear-capable	High
62.	61-0016	Nuclear-capable	High
63.	61-0017	Conventional-only	High
64.	61-0018	Conventional-only	High
65.	61-0019	Nuclear-capable	High
66.	61-0020	Nuclear-capable	High
67.	61-0021	Conventional-only	High
68.	61-0028	Nuclear-capable	High
69.	61-0029	Conventional-only	High
70.	61-0031	Conventional-only	High
71.	61-0034	Nuclear-capable	High
72.	61-0035	Nuclear-capable	High
73.	61-0036	Conventional-only	High
74.	61-0038	Conventional-only	High
75.	61-0039	Nuclear-capable	High
76.	61-0040	Nuclear-capable	High

Part 2. Identifying nuclear-capable B-52s: policy issues

Contemporary deployment patterns

In recent years the United States has adapted its strategic air capabilities to the growing multipolarity of what it perceives to be threats to US interests. In particular, this suite of policy shifts is addressed to the rise of Chinese capabilities in the Pacific, developments in Europe resulting from the deterioration of US-Russia relations and the war in Ukraine, and ongoing US strategic concerns in the Middle East and Central Asia.

One set of recent US policy shifts has centred on restructuring and renovating longstanding alliance structures. Another has emphasized closer military integration with both formal allies and quasi-allies under the mantra of interoperability. An awareness of the vulnerability of US strategic bomber forces concentrated in forward bases has led to a more distributed force posture and accompanying new operational concepts. This blend of shifting US strategic threat perceptions, strategic vulnerabilities in forward basing arrangements, and resulting new capability requirements has led to a distinctive and somewhat novel pattern of deployments of US B-52H, B-2, and B-1 strategic bombers.

All US strategic bombers, including B-1, B-2, and B-52H bombers, are currently homebased in the continental United States. 76 B-52H aircraft in the active fleet are mainly based at either Minot AFB in North Dakota or Barksdale AFB in Louisiana. None are permanently based outside the continental United States.[32]

However, Air Force Global Strike Command B-52s from both Barksdale and Minot are regularly deployed to bases around the world on what are known today as Bomber Task Force (BTF) missions, and what prior to 2018 were referred to as Bomber Assurance and Deterrence deployments. B-52s also regularly conduct Continental United States (CONUS) to CONUS missions, which involve departing from the US to one of the combatant command areas of responsibility around the world before returning to the US without landing.[33] In the period following the entry into force of New START treaty limits in 2018 until July 2024, B-52H bombers have been deployed for longer or shorter periods on BTF missions, and for

[32] In April 2020 the USAF terminated the Continuous Bomber Presence in Guam involving B-52s, B-2, and B-1 aircraft after a 16 year presence, and introduced Bomber Task Force frequent rotations from CONUS-based units, both nuclear-capable and conventionally armed. Diana Stancy Correll, 'The Air Force has stopped its Continuous Bomber Presence mission in Guam', *Air Force Times*, 22 April 2020, at https://www.airforcetimes.com/news/your-air-force/2020/04/21/the-air-force-has-stopped-its-continuous-bomber-presence-mission-in-guam/.

[33] According to General Charles Q. Brown Jr. of the USAF, 'three times a quarter we will do a bomber task force for anywhere from 1 to 3 weeks at different locations across the Indo-Pacific as well as three to four CONUS-to-CONUS missions internal to INDOPACOM.' Hearing on the National Defense Authorization Act For Fiscal Year 2022, Department of the Air Force Fiscal Year 2022 Budget Request, 117th Congress (2021-2022), June 16 2021, at https://www.congress.gov/event/117th-congress/house-event/112801/text.

'interoperability visits', to bases in at least eight different countries or territories, including Australia, the British Indian Ocean Territories (Diego Garcia), Guahan, Indonesia, the Republic of Korea, Romania, Spain, the United Arab Emirates, and the United Kingdom. Using the armament classification procedures and data from this study, it is clear that both nuclear-capable and conventionally-armed B-52H aircraft have been deployed to these host countries in recent years.

Table 8 presents examples of deployments of differing frequency, duration and type to these countries and territories, in an intensifying pattern. In this century, the UK, Spain and the UAE have frequently hosted Bomber Task Force deployments since the days of the Iraq war, a pattern that intensified following the Russian invasion of Ukraine. Guam has experienced frequent rotations of Bomber Task Forces since the end of the Continuous Bomber Presence in 2020. In Australia, compared with the intense presence at RAAF Base Darwin in the 1980s, B-52 deployments in recent years have been limited in number – though fly-overs and participation in exercises have been frequent and regular. However, since the commencement of the Enhanced Air Cooperation initiative in 2017, and with the planned completion of USAF dedicated infrastructure at RAAF Base Tindal in northern Australia in 2026, B-52H rotational deployments of up to six B-52H aircraft will become a permanent and more frequent occurrence.[34]

Table 8. Selected recent B-52H Bomber Task Force deployments and interoperability visits (2019-2024)

Base	*Country/Territory*	*Dates*	*Aircraft*
Al Udeid AB	United Arab Emirates	12 October 2023 – 'short term deterrence mission' [i]	60-0032 (N) + 1
Andersen AFB	Guam (unincorporated territory of the US)	BTF 23-4: 24 October 2023 – 14 November 2023 [ii]	60-0032 (N) 60-0059 (N)
Cheongju AB	Republic of Korea	17 October 2023 – ? [iii]	60-0021 (N)
Diego Garcia	British Indian Ocean Territories (disputed territory)	6 January 2020 – 31 March 2020 [iv]	6 B-52s
Kualanamu International Airport, Medan	Indonesia	19 June 2023 – ? [v]	60-0034 (C) 60-0007 (N)
Mihail Kogălniceanu AB	Romania	BTF 24-4: 21 July 2024 – 26 July 2024 [vi]	60-0024 (C) 60-0054 (C)
Moron AB	Spain	BTF 23-2: February 2023 – ? [vii]	60-0026 (N) 60-0056 (N)

[34] To date, novel South Korean and Indonesian deployments have been brief, mainly aimed at political impact under the mantra of interoperability. Information on recent deployments to the disputed territory of Diego Garcia is scarce and incomplete.

			+ 2
RAAF Base Darwin	Australia	1 April 2019 – ? [viii]	60-0005 (N) 60-0044 (N)
RAF Fairford	United Kingdom	BTF 22-3: 18 August – 21 September 2022 [ix]	60-0005 (N) 60-0023 (C) 60-0034 (C) 60-0026 (N)

Notes: BTF – Bomber Task Force; (N) – nuclear-capable; (C) – conventional-only

[i] 'Two B-52 Bombers Arrived at Al Udeid Air Base near Persian Gulf, Middle East', *War is Boring,* YouTube, 12 October 2023, at https://www.youtube.com/watch?v=mWoY-Da1ynE.

[ii] Alex Wilson, 'Fresh set of B-52 bombers arrives on Guam for Air Force's ongoing task force mission', *Stars and Stripes*, 24 October 2023, at https://www.stripes.com/theaters/asia_pacific/2023-10-24/b52-bombers-guam-task-force-11811653.html; 'B-52s Leave Andersen AFB After BTF Deployment', DVIDS 11 November 2023, at https://www.dvidshub.net/image/8127412/b-52s-leave-andersen-afb-after-btf-deployment; and Ashish Dangwal, 'US B-52s 'Respond' To Russian Tu-95 Bombers; Hold Joint Drills With Japan After RuAF Muscle-Flexing', *Eurasian Times*, 18 October 2023, https://www.eurasiantimes.com/us-b-52s-responds-to-russian-tu-95-bombers-holds-joint-drills/.

[iii] Junnosuke Kobara, 'U.S. shows off B-52 in South Korea as part of deterrence push', Nikkei Asia, 20 October 2023, at https://asia.nikkei.com/Politics/Defense/U.S.-shows-off-B-52-in-South-Korea-as-part-of-deterrence-push; David Ceniotti, 'U.S. B-52 Strategic Bomber Makes First Landing in South Korea In 35 Years', *The Aviationist*, 17 October 2023, at https://theaviationist.com/2023/10/17/b-52-south-korea-landing/.

[iv] Oriana Pawlyk, 'Air Force Sends B-52 Bombers to Diego Garcia Amid Middle East Buildup: Report', *Military.com*, 6 January 2020, at https://www.military.com/daily-news/2020/01/06/air-force-sends-b-52-bombers-diego-garcia-amid-middle-east-buildup-report.html.

[v] Anton Suhartono, 'Pertama Kali, AS Kerahkan 2 Pesawat Pengebom B-52H Stratofortress ke Indonesia', *iNews.id,* 22 Juni 2023, at https://www.inews.id/news/internasional/pertama-kali-as-kerahkan-2-pesawat-pengebom-b-52h-stratofortress-ke-indonesia; Wilbert Tana, '60-0007', *Jetphotos*, photo date 19 June 2023, uploaded 6 July 2023, [accessed 8 August 2023], at https://www.jetphotos.com/photo/11004559; Oliver Parken, 'B-52 Bombers Arrive In Indonesia For The First Time', *The Drive*, 20 June 2023, at https://www.thedrive.com/the-war-zone/b-52-bombers-arrive-in-indonesia-for-the-first-time; 'AS Kerahkan Bomber Strategis dalam Latgab dengan Indonesia', *TributeAsia,* 22 Juni 2023, at https://tributeasia.com/index.php/2023/06/22/as-kerahkan-bomber-strategis-dalam-latgab-dengan-indonesia/; Nirmala Maulana Achmad dan Icha Rastika, 'Pesawat Pengebom B-52H Stratofortress Milik AS Mendarat di Medan, Akan Latihan Bareng TNI AU', *Kompas*, 19 Juni 2023, at https://nasional.kompas.com/read/2023/06/19/13133531/pesawat-pengebom-b-52h-stratofortress-milik-as-mendarat-di-medan-akan.

[vi] Seth Watson, 'Bomber Task Force 24-4 Wrap Up', Barksdale Air Force Base, 29 July 2024, at https://www.barksdale.af.mil/News/Display/Article/3853172/bomber-task-force-24-4-wrap-up/

[vii] Zachary Wright, 'Bomber Task Force 23-2: 23rd EBS Returns to Morón', *Air Force Global Strike Command*, 3 March 2023, at https://www.afgsc.af.mil/News/Article-Display/Article/3320270/bomber-task-force-23-2-23rd-ebs-returns-to-morn/; and AIRBOYD, 'B-52's Depart Minot Air Force Base • BTF 23-2', *YouTube*, 11 March 2023, at https://www.youtube.com/watch?v=sBGJShP8zTU.

[viii] Zade Vadnais, '23rd EBS brings bomber support to Diamond Shield 2019', *U.S. Strategic Command*, 1 April 2019, at https://www.stratcom.mil/Media/News/News-Article-View/Article/1802985/23rd-ebs-brings-bomber-support-to-diamond-shield-2019.

[ix] 'Bomber Task Force (BTF)– Europe', *RAF Fairford – USAF Base History*, [accessed 24 November 2023], at https://www.raf-fairford.co.uk/btf-europe/; Rachel S. Cohen,'B-52s flying bomber task force missions over Europe', *Air Force Times*, 23 August 2022, at https://www.airforcetimes.com/news/your-air-force/2022/08/22/b-52s-flying-bomber-task-force-missions-over-europe/; Eugene Oliver,'Bomber Task Force concludes strategic mission at RAF Fairford', *501st Combat Support Wing*, 26 September 2023, at https://www.501csw.usafe.af.mil/News/Article-Display/Article/3170075/bomber-task-force-concludes-strategic-mission-at-raf-fairford/

The Australian rotational deployment at Tindal

RAAF Base Tindal is one of the numerous northern Australian defence facilities currently being expanded by the Australian and US governments as part of the Force Posture Initiatives following the signing of the United States-Australian Force Posture Agreement (FPA) in 2014. Under the Force Posture Agreement and its associated Memorandum of Understanding on Agreed Facilities and Areas (MOU) signed in May 2015, United States forces and contractors have access to Tindal and certain other Australian 'collaborative facilities', as the Australian government describes them.[35]

The US-funded expansion of RAAF Base Tindal in the Northern Territory includes construction of a squadron operations facility, fuel farm, maintenance facility, logistics and sustainment capacity, and a 500 metre-long apron to support up to six B-52H aircraft, and/or C-17 transport aircraft (Figures 8, 9, and 10).[36]

The nature of the expansion indicates a shift from existing air cooperation arrangements between Australia and the US, centred on joint training exercises and enhancing interoperability, to a focus on strategic operations and potential combat missions launched from Australian territory. Beyond basing and logistics, Australian assistance to B-52 missions from Tindal will involve Australian F-35 strike aircraft and Airborne Early Warning and Control aircraft protection, and aerial refuelling capacity from up to four Tindal-based aircraft.

The B-52s deployed to Tindal will be home-based in the continental United States, and flown to Australia on 'rotational deployment', likely on present indications for relatively short periods of up to three weeks. On the other hand, not only are large-scale USAF B-52-dedicated permanent facilities under construction, but permanent US staffing at Tindal will include 'up to 75 personnel' for the squadron operations facility alone, in addition to personnel for other infrastructure, including permanent staff for the maintenance facility, hangar and apron activities, fuel farm, and support for visiting aircraft.[37]

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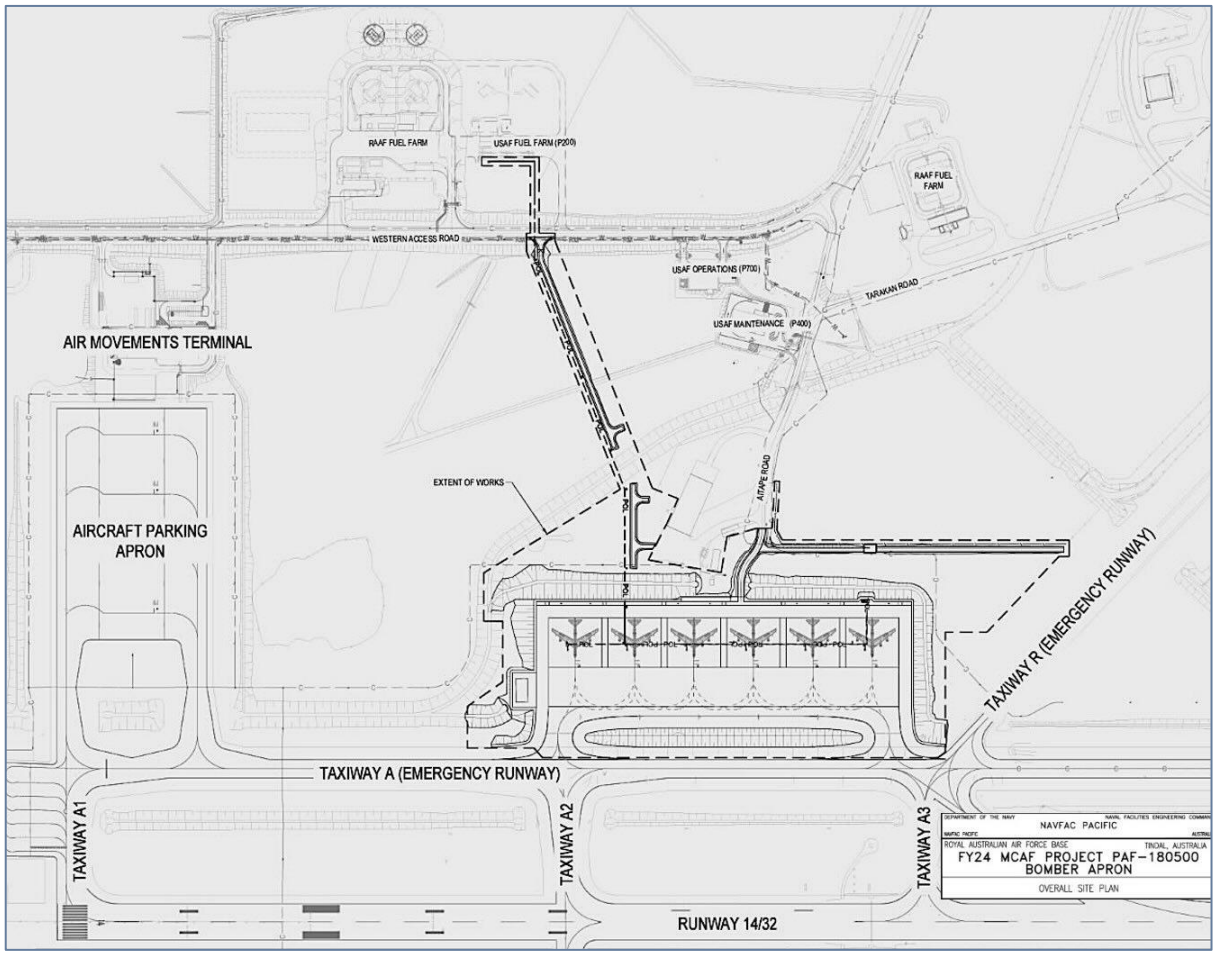
[35] See Richard Tanter, 'Cover up: The Australian Government's secret list of US bases', *Pearls & Irritations*, 25 July 2023, at https://johnmenadue.com/cover-up-the-australian-governments-secret-list-of-us-bases/. 'Collaborative facilities' appear to be distinct from the long standing 'joint' intelligence and communications facilities, such as Pine Gap.

[36] Industry Capability Network, *EST00346 TDL Redev / EST00347 KC-30A Facilities, Work Package: Invitation to Register (ITR) Brief, Project Registration Form, EST00346 RAAF Base Tindal Redevelopment Stage 6 and EST00347, US Force Posture Initiatives (USFPI) RAAF Base Tindal Airfield, Works and Associated Infrastructure*, [accessed 14 May 2023], at https://gateway.icn.org.au/project/4161/est00346-tdl-redev-est00347-kc-30a-facilities.

[37] Naval Facilities Engineering Command (NAVFAC), *Specifications for FY22 MCAF, PAF180700, Squadron Operations Facility at the RAAF Base Tindal, Australia*, submitted 3 March 2023, p. 10, at https://www.tendersontime.com/tenders-details/fy22-mcaf-paf180700-squadron-operations-facility-royal-australian-air-force-base-tindal-australia-508327c/.

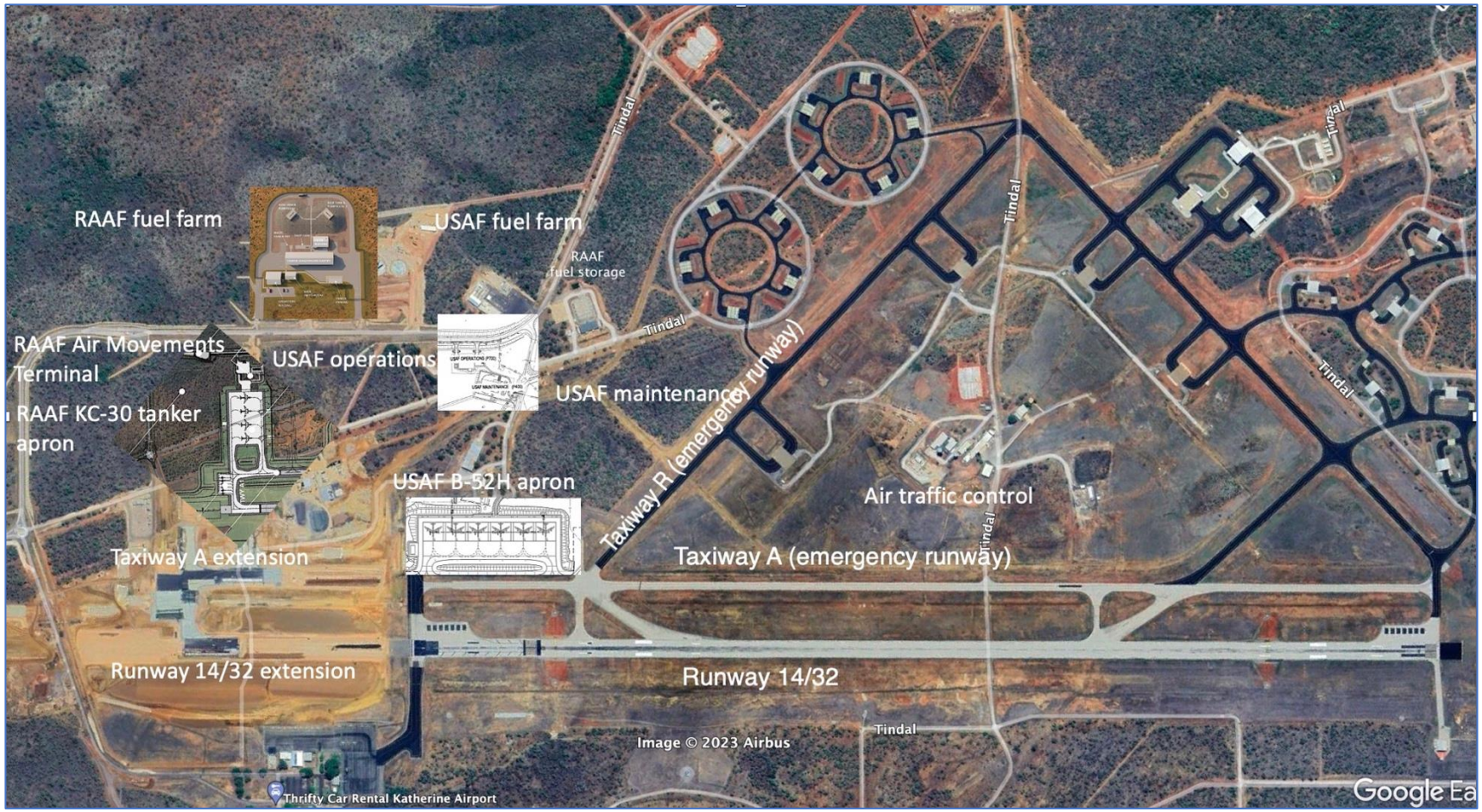
Presuming the nuclear-capable B-52 varient is part of any future deployment, this marks a decisive shift in Australia's nuclear posture. For more than five decades, Australia has provided nuclear command, control, communication and intelligence support to US nuclear planning and operations, principally through the joint US-Australian facilities at the Pine Gap signals intelligence and missile early warning station in central Australia and the submarine communications station North West Cape in Western Australia. By hosting B-52 aircraft, including the nuclear-capable version, and providing extensive direct combat operational mission support, Australia will, for the first time in its long nuclear history, be in a position to support potential nuclear combat missions from Australian soil.

Figure 8. Site plan, USAF dedicated B-52H bomber, KC-30A tanker transport, and C-17A Globemaster III transport facilities construction, RAAF Base Tindal



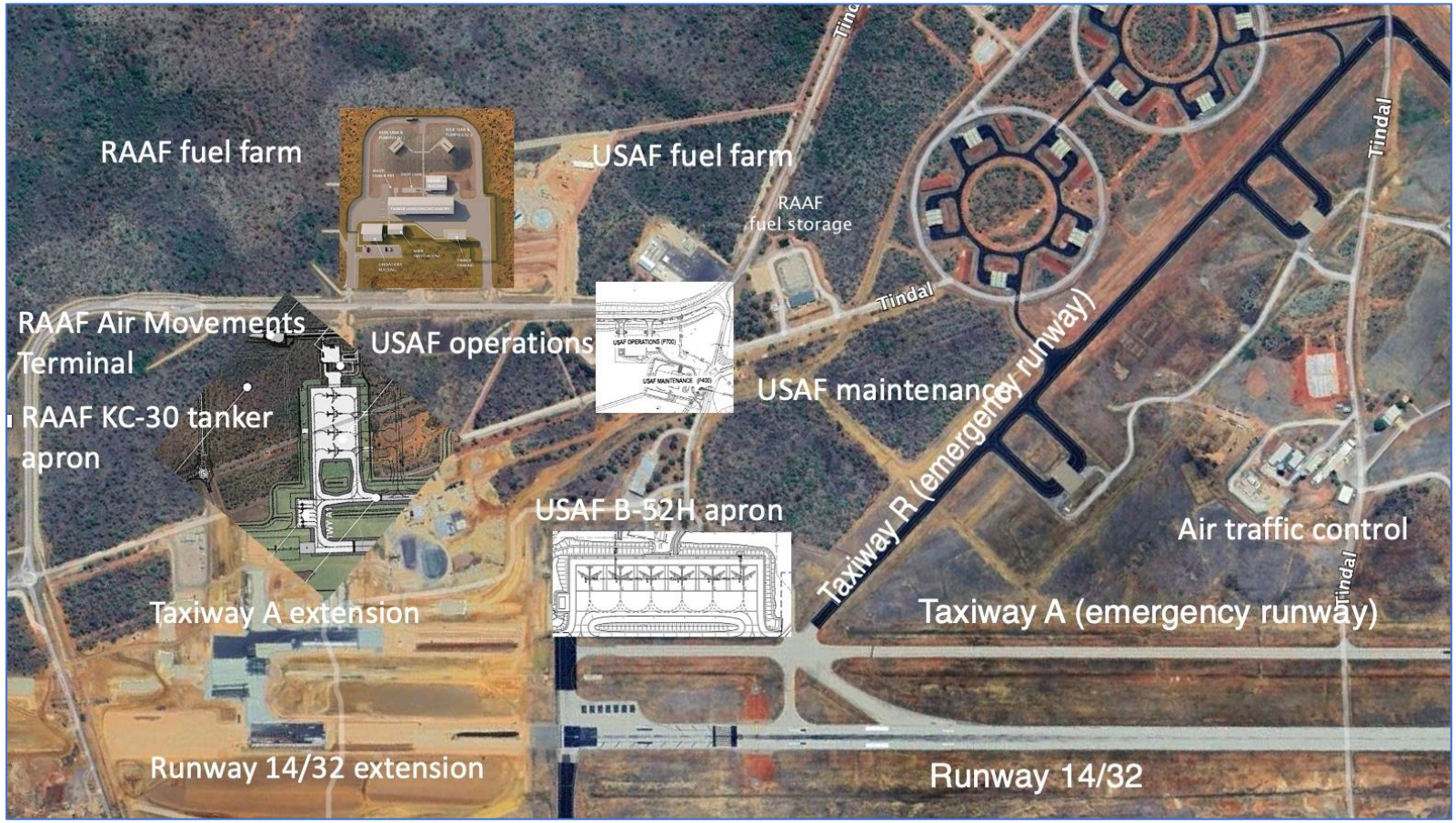
Note: At left - RAAF KC-30A tanker and E-7 airborne early warning and control aircraft facilities.
Source: Overall Site Plan, Naval Facilities Engineering Command (NAVFAC) [DoD - USN], FY24 MCAF Project PAF-180500, Bomber Apron Royal Australian Air Force (RAAF) Base Tindal, Australia, [accessed 27 June 2024], at https://www.highergov.com/document/1-100percent-dbb-design-drawings-pdf-721ea1/.

Figure 9. RAAF Base Tindal – RAAF and USAF extensions and expansion (schematic)



Sources: Google Earth, 5 November 2022; Industry Capability Network, *EST00346 TDL Redev / EST00347 KC-30A Facilities, Work Package: Invitation to Register (ITR) Brief, Project Registration Form, EST00346 RAAF Base Tindal Redevelopment Stage 6 and EST00347, US Force Posture Initiatives (USFPI) RAAF Base Tindal Airfield, Works and Associated Infrastructure*, [accessed 14 May 2023], at https://gateway.icn.org.au/project/4161/est00346-tdl-redev-est00347-kc-30a-facilities.

Figure 10. RAAF Base Tindal – RAAF and USAF extensions and expansion (schematic - detail)



Sources: Google Earth, 5 November 2022; Industry Capability Network, *EST00346 TDL Redev / EST00347 KC-30A Facilities, Work Package: Invitation to Register (ITR) Brief, Project Registration Form, EST00346 RAAF Base Tindal Redevelopment Stage 6 and EST00347, US Force Posture Initiatives (USFPI) RAAF Base Tindal Airfield, Works and Associated Infrastructure*, [accessed 14 May 2023], at https://gateway.icn.org.au/project/4161/est00346-tdl-redev-est00347-kc-30a-facilities

Implausible deniability - US 'neither confirm nor deny' policy concerning host governments and publics

Host governments may find comfort in the fact that 'nuclear-capable' does not mean 'nuclear-armed', but the decision to move from the former to the latter can occur quickly in a crisis, particularly given the flexibility in USAF nuclear weapons movement regulations and in the absence of host government restrictions. Where hosted aircraft are identified as nuclear-capable, governments and civil society have a need, and in the case of governments, a responsibility, to determine whether nuclear-capable aircraft entering a country are in fact nuclear-armed.

The results of this Special Report's assessment of the armament classification of B-52H active duty and reserve aircraft in the USAF inventory essentially reproduces a small part of the data in possession of the US Air Force, though derived from open sources. Under the inspection and data exchange provisions of the New START treaty this same armament classification data is amongst information that has been provided by the United States to the Russian Federation.

This is a key element of transparency required for democratic accountability denied by the US doctrine of neither confirming nor denying the presence of nuclear weapons on USAF aircraft to the publics, and, also it would appear, to the governments of countries such as Australia, Spain, the United Arab Emirates and the United Kingdom that frequently host the deployment of USAF B-52H aircraft.[38]

I. US declaratory NCND policy

The United States government doctrine of neither confirming nor denying the presence or absence of nuclear weapons on board US aircraft has been virtually unchanged in almost seventy years, with a very small number of exceptions.

As will be seen, there are potentially significant distinctions to be made between situations where both host governments and their publics are not informed of the entry of nuclear-armed aircraft, and those where host governments are informed by the United States – either on a formal basis, or in secret, on the basis of 'trusted communications to senior leaders'.

Current official U.S. Department of Defense 'guidance' for managing public concern about nuclear weapon safety clearly states the core doctrine and outlines the Department of Defense's preferred public rationale:

> 'It is DoD policy:

[38] Elements of this section of the report are developed further in Appendix 5. States of Neither Confirm nor Deny – a research note.

a. To respond to public queries about the location of nuclear weapons with the following statement: "It is U.S. policy to neither confirm nor deny the presence or absence of nuclear weapons at any general or specific location." This response must be provided even when such location is thought to be known or obvious.

b. To respond to public queries about information on nuclear-capable units, ships, submarines, and naval aircraft with the following statement: "It is general U.S. policy not to deploy nuclear weapons with ground units, or aboard surface ships, attack submarines, or aircraft. However, we do not discuss the presence or absence of nuclear weapons aboard specific ships, submarines, or aircraft."

c. To respond to public queries about why the United States has a "Neither Confirm Nor Deny" policy with the following statement: "The basis for the security requirement inherent in the U.S. policy of neither confirming nor denying the presence or absence of nuclear weapons is to deny militarily useful information to potential or actual enemies, enhance the effectiveness of nuclear deterrence, and contribute to the security of nuclear weapons, especially against the threats of sabotage and terrorism."'[39]

This US general policy of neither confirming nor denying the presence of nuclear weapons on US aircraft is conventionally justified on the basis of US national security interests. To identify nuclear-armed aircraft would, it is suggested, essentially be to provide a list of priority targets for an adversary. Host governments, the United States has implied, could not be trusted to maintain the confidentiality of secret information that may be provided to them.

And yet, through mutually agreed detailed procedures for the implementation and verification of New START, the US has already provided extensive data on nuclear-capable B-52H aircraft, and other strategic systems, to the Russian Federation, together with detailed information on distinguishing features, internal and external on these aircraft.

Leaving claims of security justifications aside, there are political considerations that likely factor into US and allied governments' mutual adherence to the policy of neither confirm nor deny. Almost half a century ago in testimony to Congress in 1974, former U.S. senior Defense Department official Morton Halperin on balance dismissed the 'deterrence' and 'war-fighting' rationales of the neither confirm nor deny policy, arguing that the policy is

'Certainly not, as is sometimes claimed, to keep the Russians or the Chinese guessing.'

[39] Department of Defense, *Instruction No. 5230.16, Nuclear-Radiological Incident Public Affairs (PA) Guidance*, 6 October 2015, at https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/523016p.pdf.

The policy stemmed, Halperin argued, from a fear in the U.S. Navy and Air Force that

> 'there are some countries where, if they had to deploy nuclear weapons, if they had to admit whether nuclear weapons were there or not, there would be a serious crisis.' [40]

> 'Many governments are prepared to let the United States store nuclear weapons on their soil or to have ships with nuclear weapons call at their ports provided their people do not find out about it. If American officials would answer the question for one country, there would be tremendous pressure on many allied governments to get an answer and to publish it. Now they can, and some do, say that the United States will not even tell them.'[41]

The neither confirm nor deny policy, Halperin wrote,

> 'is aimed at the publics in allied countries ..., [to] enable the American government to consort with foreign governments to fool their own people.' [42]

II. 'They will tell me!' – NCND exceptions for 'trusted leaders'?

It may be argued that the United States secretly, and perhaps informally, notifies at least some host governments that certain USAF aircraft are, in general or in particular cases, carrying nuclear weapons, or are not. These host governments then may not inform their publics of these secret understandings.

In their 1990 discussion of U.S. naval nuclear weapons in Sweden, Kristensen, Arkin and Handler stated that

> 'According to State department sources, the "highest officials" of NATO countries can find out whether ships are carrying nuclear weapons or not, but this is considered privileged information that cannot be acted upon.'

In the case of the 1987 New Zealand prohibition on visits by foreign warships that might be carrying nuclear weapons, Kristensen et al state that

> 'It was [New Zealand] Prime Minister David Lange's use of just such information relating to an upcoming U.S. naval port visit that led to its break with the U.S.

[40] Morton H. Halperin, Testimony, United States Congress, 93(2), Senate Foreign Relations Committee, Hearings on Nuclear Weapons in Europe, 7 March 1974, p. 41.
[41] Morton H. Halperin , 'Why Not Tell Where The Weapons Are?', *Washington Post*, 15 July 1971
[42] Morton H. Halperin, Testimony, p. 236.

> Secretary of States George Schultz felt he could no longer "trust" the New Zealand Prime Minister.'[43]

The suggestion, or tempered assurance, that historically, 'the highest officials can find out', is an intriguing, but ambiguous and somewhat limited possibility.

There is one important example of a leader of an allied country hosting B-52s extracting a public declaration from the United States in contradiction to what the US maintained was its worldwide policy of neither confirming nor denying the presence of nuclear weapons on its aircraft.

In February 1979 the Australian government headed by Prime Minister Malcolm Fraser authorized B-52 low-level terrain avoidance training flights over northern Australia.[44] A year later, in March 1981, the Fraser government further authorized B-52 landings at RAAF Base Darwin for training flights, and B-52 maritime surveillance flights over the Indian Ocean staging through Darwin.[45]

Completely obviating the worldwide US doctrine of neither confirm nor deny, on 11 March 1981, Fraser informed the Australian parliament that B-52s on both missions were unarmed and carried no bombs; that nuclear weapons would not be allowed into Australia without the prior and explicit agreement of the Australian government; and that any modification of the two missions would also require prior explicit approval.

Fraser subsequently incorporated into the parliamentary record a 28 March 1981 statement from the United States embassy in Canberra confirming these elements of the agreement, which left no doubt about the US government's public acceptance of compliance with the Australian 'unarmed and carry no bombs' policy.[46]

Two years later, the Commander in Chief Pacific's Top Secret *1982 Command History* made clear CINCPAC's unhappiness with this contradiction of what it termed

> 'the standard worldwide U.S. practice of neither confirming nor denying the presence of nuclear weapons'.

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[43] Hans M. Kristensen, William Arkin, and Joshua Handler, 'U.S. Naval Nuclear Weapons in Sweden', Greenpeace Nuclear Seas Campaign*, Neptune Papers*, No. 6, September 1990, p. 3, at http://www.nukestrat.com/pubs/nep6.pdf.

[44] The history of the Australian experience with deployment of B-52s in the 1980s is discussed in greater detail in Vince Scappatura and Richard Tanter, *B-52s in Australia 1980-1991 and the nuclear heterodoxy of Malcom Fraser,* Nautilus Institute Special Report, (forthcoming).

[45] Parliament of Australia, Ministerial statement, *Hansard (House of Representatives),* 11 March 1981, pp. 665-686.

[46] Parliament of Australia, Question without Notice: B-52 bombers, *Hansard, (House of Representatives),* 2 April 1981, p. 1234.

Not only, the *1982 Command History* noted, had these conditions been imposed by the Fraser government during protracted negotiations in 1979-80, but that in political and diplomatic terms, there was no question of the Fraser government removing these conditions subsequently.

The *CINCPAC Command History 1982* stated that in July 1982,

> 'The Australian Defence Department also advised that it regarded these new arrangements to be an extension of those originally made for navigation training over Queensland under BUSY BOOMERANG and had agreed to them on the understanding that the B-52 aircraft taking part would be "unarmed and not carry bombs"...
>
> 'This last statement was contrary to the standard worldwide U.S. practice of neither confirming nor denying the presence of nuclear weapons. However, as pointed out by the U.S. Ambassador in Canberra, as a result of the intensive negotiations the two governments had agreed in 1980 that the Australians could use the "unarmed-and-carry-no-bombs" phrase, and Australian approval was conditional on reaching agreement on this issue. Any change would be immediately noticed in Australia and would imply a change in armament. The Secretary of State therefore agreed with the Ambassador that it was inadvisable to seek a change in the language for the time being…
>
> 'CINPAC concurred.'[47]

Fraser took his government's decision to be fully informed about the tactical and strategic objectives of B-52 missions in Australia, including knowledge about the weaponry they carried, to be a matter of national sovereignty. An armed mission launched from Darwin would plainly have serious strategic implications for Australia.

Consequently, Fraser informed Parliament that:

> 'It would be quite wrong, a derogation of Australia's sovereignty and a derogation of responsibility of this Government and this Parliament, if any government were to agree to such a mission if the government did not agree with the objectives of the mission.'[48]

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[47] Commander in Chief Pacific*, CINCPAC Command History 1982, (Vol I),* Command History Division, Office of the Joint Secretary, Headquarters, CINCPAC, SER T71, 16 September 1983, pp. 320-322, at https://nautilus.org/wp-content/uploads/2012/01/c_eightytwo.pdf.

[48] Parliament of Australia, Question without Notice: B-52 bombers, *Hansard, (House of Representatives)*, 12 March 1981, p. 711, at https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22chamber%2Fhansardr%2F1981-03-12%2F0030%22

When questioned about whether the United States would withhold such information from Australia, Fraser, characteristically, replied that 'They will tell *me*'.[49] And clearly the US did so, to its chagrin.

According to the 1982 CINCPAC Command History, statements similar to those extracted by Fraser 'had been made in the past (in the United Kingdom for example)'.[50] And of course, the New Zealand episode suggests the private approach to 'trusted leaders' was employed in that case.

The Australian case between 1980 and 1991 appears unique, insofar as three conditions were successfully required of the Carter administration and the incoming Reagan administration by the Fraser government:

- the US informs the host government;
- the host government informs the host country public; and
- the US confirms the host's stated understanding in public.

But whereas Fraser extracted public acceptance of his nuclear heterodoxy from the US government with the Australian component of the ANZUS alliance untouched, the US view that New Zealand leaders betrayed American trust by declining to keep the secret information secret, led to the US unilaterally suspending New Zealand from the tripartite alliance.[51]

The case of NATO ally Denmark in the 1950s and 1960s provides another instructive case in US NCND policy and practice. Although the official policy of Denmark from 1957 had been a ban on all nuclear weapons in Danish territory 'under present conditions', the US was given an indirect green light in the same year by then Prime Minister and Foreign Minister, H.C.

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[49] Alan Renouf, *Malcolm Fraser and Australian foreign policy*, (Sydney: Australian Professional Publications, 1986), p. 123.

[50] Commander in Chief Pacific*, CINCPAC Command History 1982, (Vol I),* Command History Division, Office of the Joint Secretary, Headquarters, CINCPAC, SER T71, 16 September 1983, pp. 322, at https://nautilus.org/wp-content/uploads/2012/01/c_eightytwo.pdf. This is one two unconfirmed exceptions to the constant application of US NCND policy in the period after its formalisation in the mid- to late-1950s. A second is discussed below in Section 5 of Appendix 5 below.

[51] It is important to note that with the New Zealand *Nuclear Free Zone, Disarmament, and Arms Control Act 1987*, the Lange government sought precisely to avoid direct public contradiction of the US NCND policy. Seeking to correct the US version of events, PM David Lange stated that 'Our answer to this problem [NCND] was simple, although it has been widely, and perhaps deliberately, misrepresented. We decided not to request any information from the visiting captain or government concerned, but to make our own judgement. That is what the law requires. If in our assessment the vessel is non-nuclear, it is welcome to visit. If we conclude that the, vessel is nuclear, its request will be declined. But the basis of our assessment, and the request itself, will not be made public.' Robert E. White, '*The Neither Confirm Nor Deny Policy: Oppressive, Obstructive, and Obsolete,* Working Paper No. 1, Physics Department, Auckland University, May 1990, p. 27, at http://legacy.disarmsecure.org/The%20Neither%20Confirm%20Nor%20Deny%20Policy%20Oppressive,%20Obstructive,%20and%20Obsolete.pdf. For a detailed and comprehensive account of the 1987 New Zealand legislation and the development of the conflict with the US, see Malcolm Templeton, *Standing Upright Here: New Zealand in the Nuclear Age 1945-1990*, (Victoria U.P., 2007), pp. 349-500.

Hansen, to introduce nuclear weapons if it so desired – at least into the Danish territory of Greenland. Great efforts were made to keep this episode secret within the Danish government, such that the precise nature and certainty of the nuclearization of Greenland was unknown to leading government representatives – who admittedly did little to find out – even though most of the politically conscious segment of the Danish population suspected active nuclear operations.[52]

The Danish government effectively adopted a 'don't ask, don't tell' policy regarding the storage and overflight of nuclear weapons in Greenland until the domestic political fallout from a 'Broken Arrow' incident on 21 January 1968, when a US B-52G bomber armed with four 1.1-megaton thermonuclear bombs crashed into the ice in north-west Greenland. Publicity over the accident compelled the Danish government to insist that the US respect its ban on the storage and overflight of nuclear weapons. The US provided such assurances to the Danish government in private, with caveats, but flatly refused to declare so publicly in adherence to the doctrine of neither confirm nor deny.[53]

There is one other important historical case to consider: the secret agreements between the US and Japanese government negotiated by Prime Ministers Kishi and Sato and Ambassadors Douglas MacArthur II and Edwin Reischauer between 1958 and 1960 for the Japanese government to declare Japan free of nuclear weapons, while both governments publicly ignored the fact that Japan had agreed with the United States to continue its nuclear-armed naval and air deployments.[54]

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[52] Hans M. Kristensen, 'U.S. Nuclear Weapons Deployments Disclosed', *Nuclear Policy Project, Nautilus Institute*, 20 October 1999, https://nautilus.org/projects/nuclear-policy/u-s-nuclear-weapons-deployments-disclosed/; 'Nuclear Strategy Project: Denmark FOIA Documents', *Nautilus Institute,* [accessed 24 May 2024], at https://nautilus.org/projects/by-ending-date/nuclear-strategy-project/denmark-foia-documents/, and related documents archived at https://web.archive.org/web/20071101011041/http://www.nautilus.org/archives/library/security/foia/dkindex.html; and Thorsten Borring Olesen, 'Tango for Thule', *Journal for Cold War Studies*, Spring 2011, vol 13, no 2, pp. 116-147.

[53] Thorsten Borring Olesen, 'Tango for Thule', pp. 131-139.

[54] Hans M. Kristensen, *Japan Under the Nuclear Umbrella: U.S. Nuclear Weapons and Nuclear War Planning In Japan During the Cold War*, Nautilus Institute, July 1999, at https://nautilus.org/supporting-documents/japan-under-the-us-nuclear-umbrella/; 'Nuclear Strategy Project: Japan FOIA documents', Nautilus Institute, archived at https://web.archive.org/web/20080725032026/http://www.nautilus.org/archives/library/security/FOIA/japanindex.html; and Robert A. Wampler (ed.), 'Nuclear Noh Drama - Tokyo, Washington and the Case of the Missing Nuclear Agreements', *National Security Archive*, 13 October 2009, at https://nsarchive2.gwu.edu/nukevault/ebb291/, especially Document 3. *Department of State Cable, Tokyo 2335, April 4, 1963*, 'reporting on meeting between Ambassador Reischauer and Foreign Minister Masayoshi Ohira to discuss presence of nuclear weapons on U.S. ships.' Two recent discoveries by Japanese diplomatc historians diplomatic history are reported in Naotaka Fujita, 'Sato guided from outset on signing secret nuclear pact with U.S.', *Asahi Shimbun*, 4 January 2023, at https://www.asahi.com/ajw/articles/14807309, and Naotaka Fujita, 'Documents trace secret 1960 deal on U.S. warships carrying nukes', *Asahi Shimbun,* 19 May 2024, at https://www.asahi.com/ajw/articles/15272348.

Notwithstanding these selected historical examples, there has been little exploration of this critical issue by historians in the decades since, and no prominent cases have come to light in the media, despite widespread deployments of nuclear-capable US heavy bombers in many countries and multiple major conflicts.[55]

The dearth of reliable and detailed historical evidence of NCND past practice apart, there is a fundamental problem for contemporary analysis: if US declaratory policy is to not say, and host governments publicly say nothing to the contrary, on what basis could it be claimed that an informal understanding one way or the other is communicated? How could this be known?[56]

Neither the memoirs of long-retired or dead officials nor the quiet hints of senior US officials to their opposite numbers in host countries that they should have no grounds for concern provide adequate foundation for transparent accountability facing contemporary nuclear threats. Absent such a public and decisive declaration by governments hosting nuclear-capable aircraft, expressions of 'understanding of and respect for' the US policy of neither confirming nor denying the presence of nuclear weapons, which as will be seen is the contemporary Australian position, amounts to at best, implausible deniability ('We do not ask'), if not a deceptively wilful profession of governmental ignorance.

Olesen's study apart, understanding of the application of the still extant US worldwide policy of neither confirming nor denying the presence or absence of nuclear weapons on its aircraft remains as it was summarised a quarter of a century ago by Norris, Arkin and Burr:

> 'Denmark has had one of the more searching and fuller investigations of its nuclear history, but much remains incomplete. In general there is a lot more nuclear history to be discovered, especially in cases where a nation's non-nuclear policies were abrogated or where a blind eye was turned to accommodate its superpower partner.'[57]

III. Willed ignorance - the contemporary Australian case

Should the current Australian government's intentional embracing of national institutional incapacity to know something so fundamental as the presence of nuclear weapons (or even that of nuclear-capable aircraft) landing at or deployed to Tindal turn out to be true, it would profoundly contradict any meaningful interpretation of reiterations of an Australian

[55] Olesen's fascinating account of the Danish history is the obvious, but rather rare, exception to this claim.
[56] Section 3 of Appendix 5 below schematically explores three potential dimensions to any given application of NCND to the presence or absence of US nuclear weapons in relation to countries hosting nuclear-capable delivery platforms: the position and statements of the US government; the position and statements of the host government; and the resulting knowledge of the host country public.
[57] Robert S. Norris, William M. Arkin and William Burr, 'Where they were', *Bulletin of the Atomic Scientists*, Vol. 55, Issue 6, (November 1999), reviewing the classified *History of the Custody and Deployment of Nuclear Weapons: July 1945 through September 1977*, prepared the Office of the Assistant to the Secretary of Defense (Atomic Energy).

policy of 'full and detailed understanding of any capability or activity with a presence on Australian territory or making use of Australian assets.'

In early 2023, in response to questions about the possible presence of either nuclear-capable or nuclear-armed US aircraft entering Australia, the Australian foreign minister, Penny Wong, confirmed the government's commitment to acting in conformity with all of Australia's obligations under international law in relation to nuclear weapons.[58]

In addition to the nuclear Non-Proliferation Treaty, the most salient aspect of international law regarding nuclear weapons for Australia is the South Pacific Nuclear Weapon Free Zone (SPNFZ) created by the Treaty of Rarotonga signed in 1985, entering into force in 1986.[59]

Under the Treaty of Rarotonga, to which Australia is a state party, stationing of nuclear weapons in the territory and waters of state parties is prohibited, but transit and visits of nuclear-armed ships and aircraft are matters of decision for individual state parties.

Australia exercised this permissive nuclear option in legislation implementing the nuclear weapon-free zone treaty. As a result there are neither legal impediments nor explicit Australian policy restrictions on the entry of nuclear-armed aircraft into Australian territory and airspace.[60]

Accordingly, in February 2023, Wong reiterated that, in relation to the possible nuclear-armed B-52 rotational deployments, the Australian government 'respects and understands' the United States policy of neither confirming nor denying the presence of nuclear weapons on any of its ships or aircraft.[61] Furthermore, Wong refused to disclose even whether any of

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[58] Penny Wong, Minister for Foreign Affairs, 'National Press Club Address: Australian interests in a regional balance of power', Canberra, 17 April 2023, at https://www.foreignminister.gov.au/minister/penny-wong/speech/national-press-club-address-australian-interests-regional-balance-power. South Pacific Nuclear Free Zone Treaty (with annexes); Concluded at Rarotonga on 6 August 1985, at https://treaties.un.org/doc/Publication/UNTS/Volume%201445/volume-1445-I-24592-English.pdf.

[59] *South Pacific Nuclear Free Zone Treaty (with annexes); Concluded at Rarotonga on 6 August 1985*, at https://treaties.un.org/doc/Publication/UNTS/Volume%201445/volume-1445-I-24592-English.pdf.

[60] *South Pacific Nuclear Free Zone Treaty Act 1986*, Part II, Section 15, at http://classic.austlii.edu.au/au/legis/cth/consol_act/spnfzta1986375/. It should be noted that that the current Minister for Defence appears to not fully understand the terms of the treaty: in an interview of 9 August 2024, Richard Marles described the Treaty of Rarotonga as 'a treaty which sees that there are not nuclear weapons that operate from Australia' [sic]. To reiterate, the treaty prohibits stationing of nuclear weapons, but permits transits or visits (undefined) by nuclear-armed aircraft, a permissive aspect of the treaty relevant to the rotational deployment of nuclear-capable aircraft. Richard Marles, Minister for Defence, Radio Interview, Subjects: AUKUS cooperation agreement; AUSMIN; US force posture; GWEO enterprise and long-range missile manufacturing; Paul Keating's comments; Maritime Cooperative Activity; Solomon Islands cooperation, ABC RN Breakfast, 9 August 2024, at https://www.minister.defence.gov.au/transcripts/2024-08-09/radio-interview-abc-rn-breakfast.

[61] 'The responsible way of handling this is to recognise that the US has a 'neither confirm nor deny position' which we understand and respect.' Testimony of Penny Wong, Minister for Foreign Affairs, Parliament of Australia, *Budget Supplementary Estimates 2022–23*, Foreign Affairs, Defence and Trade Legislation Committee, Wednesday, 15 February 2023, pp. 24-25 and 34-35, at

the B-52s on rotational deployment to Tindal will be nuclear-capable or conventional-only aircraft.

While neither the Australian nor the US governments have released any details of either the Memorandum of Understanding on Agreed Facilities and Areas mentioned above, or any agreement specifically related to the 'Enhanced Cooperation' involved in the deployment of B-52H strategic bombers, the Force Posture Agreement asserts that activities carried out by US forces and contractors in Agreed Facilities and Areas such as Tindal under the agreement 'are conducted in accordance with Australia's policy of Full Knowledge and Concurrence' (Article II (2)).

According to the most explicit and detailed official account of the purpose and nature of the Australian doctrine of 'full knowledge and concurrence' applied to the activities of US forces at Australian defence facilities:

> 'Full Knowledge and Concurrence is an expression of sovereignty, of Australia's fundamental right to know what activities foreign Governments conduct in, through or from Australian territory or national assets...'
>
> 'Full Knowledge equates to Australia having a full and detailed understanding of any capability or activity with a presence on Australian territory or making use of Australian assets. Concurrence means Australia approves the presence of a capability or function in Australia in support of its mutually agreed goals. Concurrence does not mean that Australia approves every activity or tasking undertaken.' [62]

This 'expression of sovereignty' is difficult to reconcile with the apparent willed ignorance that flows from the Australian government's 'understanding of and respect for' the US doctrine of neither confirming nor denying the presence of nuclear weapons on US aircraft.[63] In the case of B-52H aircraft deployed to Tindal, in the absence of any

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https://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/26530/toc_pdf/Foreign%20Affairs,%20Defence%20and%20Trade%20Legislation%20Committee_2023_02_15.pdf.

[62] Minister for Defence Stephen Smith, *Ministerial Statement on Full Knowledge and Concurrence, Hansard (House of Representatives),* 26 June 2013, pp. 7071-7075. In a media interview following the 2024 Australia-United States Ministerial (AUSMIN) meeting, the current Minister for Defence, Richard Marles, claimed an expanded application of the Full Knowledge and Concurrence doctrine in the context of the implementation of the US-Australia Force Posture Agreement. Answering a journalist's question 'would Australia know if they were armed with nuclear ordnance or not?', Marles replied 'As we have seen an expansion of American force posture, we have in turn expanded those arrangements to cover all of that, to ensure that Australian sovereignty is respected and maintained in this process. And so the short answer to the question is we will know.' Richard Marles, Radio Interview, ABC RN Breakfast, 9 August 2024. For a discussion of non-transparent aspects of the Force Posture Agreement, see Richard Tanter, 'Cover up: The Australian Government's secret list of US bases', *Pearls & Irritations*, 25 July 2023, at https://johnmenadue.com/cover-up-the-australian-governments-secret-list-of-us-bases/.

[63] Parliament of Australia 2023, *Budget Supplementary Estimates 2022–23, Foreign Affairs, Defence and Trade Legislation Committee, Wednesday, 15 February 2023: Official Hansard*, pp. 24-25, and 34-35.

contradictory public statement, it may well be the case that the US will not tell the Australian government whether any nuclear-capable B-52s – in general or in particular – are nuclear-armed, and the Australian government's 'respect' for US doctrine impedes it asking the US government directly, let alone taking unilateral action to determine the matter for itself.

Any claim that significant genuine US security interests are impaired by freely providing such basic information on nuclear-capable aircraft to the governments and publics of host countries is specious and disingenuous.

In contrast to the Fraser government's approach almost half a century ago, no official account of Australian agreements with the United States about the current deployment of B-52s to Tindal have been released. Key details of these twenty-first century agreements, apart from indirect information derived from US infrastructure tender documents, are unknown. However, what is known about the nature of the expansion underway at RAAF Base Tindal indicates a shift from recent prior air cooperation arrangements between Australia and the US centred on joint training exercises and enhancing interoperability, to a focus on strategic operations and potential combat missions launched from Australian territory.[64]

The persistent reluctance of the Albanese government to acknowledge the possibility of nuclear-capable B-52s deploying to Tindal, and its studied avoidance of any discussion of conditions under which Tindal-based aircraft may be nuclear-armed, both suggest that the key elements of the Fraser doctrine have not been applied.

Were this not the case, the Australian government could make a simple declaration that the entry of nuclear weapons into Australia at Tindal is not authorised, and that B-52H aircraft deploying to Tindal will only be armed with conventional weapons.

Movement of nuclear weapons on aircraft: transport and authority

Host government and public knowledge of the circumstances under which B-52 aircraft may be carrying nuclear arms, the authorised 'normal' conditions for the transport of nuclear weapons by other aircraft for potential use by B-52s, and permitted exceptions to that policy, are essential elements of transparency for democratic accountability.

The question of whether in certain circumstances nuclear-capable USAF B-52H aircraft carry nuclear weapons overlaps with Air Force safety regulations about the transport of nuclear weapons. Under US Air Force regulations, active B-52H aircraft under AFGSC command do

[64] For further discussion of the contemporary Australian deployment of nuclear-capable B-52s and the implications of Australia's nuclear posture for the Treaty of Rarotonga, see Vince Scappatura and Richard Tanter, *Undermining Rarotonga: Australia's new nuclear posture*, Nautilus Institute Special Report, (forthcoming).

not themselves normally carry nuclear weapons in peacetime operations, but can do so in times of crisis and other circumstances.[65]

Sole US authority to transport nuclear weapons by air under normal conditions ('logistic transportation' in USAF usage) lies with the transport aircraft of the Prime Nuclear Airlift Force (PNAF), supplemented by the Emergency Nuclear Airlift Force (ENAF).[66] The PNAF is made up of C-17A aircraft of the 4th Airlift Squadron under the 62nd Airlift Wing based at Joint Base Lewis-McChord outside Seattle, WA.

Normal peacetime transport of nuclear weapons, or 'logistical transportation', involves

> 'safe and secure movement of nuclear weapons in DoD custody from secure storage at one location to another secure storage location', including 'movements between operational bases and storage locations.'[67]

If B-52H nuclear-capable aircraft deployed to bases in foreign countries are intended to train, exercise, or operate with nuclear weapons during normal peacetime conditions, USAF doctrine requires the weapons to be transported to those bases on board PNAF C-17A Globemaster III aircraft. This requirement underlies the fact that recently released US tender documents for construction of the B-52 bomber apron at RAAF Base Tindal feature specific capability requirements for C-17A aircraft, alongside B-52H bombers and KC-30A tankers.[68]

However, it must be noted that while nuclear weapons for use on forward deployed B-52 aircraft are normally transported aboard PNAF C-17A transport aircraft, US Air Force

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[65] Shannon Bugos, 'Fact Sheet: U.S. Strategic Nuclear Forces Under New START', *Arms Control Association*, (updated April 2022), [accessed 1 December 2023], at https://www.armscontrol.org/factsheets/USStratNukeForceNewSTART.

[66] William M. Arkin, Robert S. Norris, and Joshua Handler, *Taking Stock: Worldwide Nuclear Deployments 1998*, (Natural Resources Defense Council: 1998), pp. 22-23, 57, at https://www.nrdc.org/sites/default/files/taking-stock-report-1998.pdf; Mike Barber, 'A delicate mission for nuclear bomb squad', *Seattle Post-Intelligencer*, 3 May 2007, at https://www.seattlepi.com/local/article/A-delicate-mission-for-nuclear-bomb-squad-1236340.php; 'PNAF', Team McChord, Joint Base Lewis-McChord, 30 October 2012, at https://www.mcchord.af.mil/News/Photos/igphoto/2000099011/; Under Secretary of the Air Force, *Air Force Instruction 13-526, Volume 1: Prime Nuclear Airlift Force Operations, 14 June 2013*, at http://www.bits.de/NRANEU/others/END-Archive/afi13-526v1%2813%29.pdf; and *Flying Operations: C-17 Airlift Operations—Emergency Nuclear Airlift (ENAF),* Multicommand Instruction (MCI) 11-217, Air Mobility Command (AMC) Volume 16, Air Education and Training Command (AETC) 24 February 1997, at https://nuke.fas.org/guide/usa/doctrine/usaf/217v16.htm.

[67] Department of Defense Instruction (DODI) 4540.05, *DoD Transportation of U.S. Nuclear Weapons*, Number 4540.05 June 23, 2011 Incorporating Change 4, August 31, 2018, pp. 23-25, at https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/454005p.pdf.

[68] Naval Facilities Engineering Command (NAVFAC) *Contract Opportunity Solicitation, FY24 MCAF PAF180500 Bomber Apron, Royal Australian Air Force Base Tindal, Australia. ID: N6274223R1302, P500 Final Design Drawings, Vol. 4*, posted 23 May 2023, pp. 1-5, 12-14.

regulations appear to authorize two circumstances in which this can be varied, and the weapons carried aboard the B-52s.

Under a 2022 Air Force instruction on *Safety Rules For U.S. Air-launched Nuclear Weapons Systems*, the commander of Air Force Global Strike Command, or designated authority, 'may specifically authorize the use of nuclear weapons for exercises'.[69]

Moreover, Combatant Commanders may authorize 'operational transportation', which 'shall be responsive to the assigned mission and the urgency of the operational situation.' Combatant Commanders also have the authority to exercise 'emergency movement authority' when 'the safety, security, or control of nuclear assets is endangered, or when emergency logistic transportation is dictated by a pending regional or world crisis or natural disaster'.[70]

Under crisis or wartime conditions nuclear-capable B-52s carrying nuclear weapons on board could conceivably be deployed to host countries without use of PNAF C-17s. Host governments may or may not be informed under such circumstances. Since in the Australian case of rotational deployments to RAAF Base Tindal, no specific agreement of any kind has been published by either government, it is not known whether the Australian government has placed any requirements for prior notification and explicit agreement comparable to those of the Fraser government's agreements. The same situation applies to deployments to the United Kingdom, Spain, the United Arab Emirates, or to the numerous other countries hosting nuclear-capable B-52 'visits'.

Trust issues and the viability of the New START regime

Perhaps uniquely in the New START treaty regime, the conversion of heavy bombers to denuclearized status involves higher levels of trust between the treaty partners than other nuclear weapons platforms regulated by the treaty.

Firstly, under the treaty, each heavy bomber is counted as one nuclear weapon against the allowable total number of warheads in recognition of the fact that neither side typically flies its bombers armed with nuclear weapons in peacetime. In practice, however, each B-52H, for example, can carry up to 20 long-range air-launched cruise missiles, each of which is armed with one W80-1 warhead. Were that maximum loading to be the basis of B-52H nuclear operations in war, the 46 nuclear-capable aircraft would require 920 nuclear-armed missiles. Kristensen and Korda state that 500 warheads are readily available for the B-52 ALCMs – a number equivalent to 10-11 nuclear weapons presently available for each B-52 in

[69] Secretary of the Air Force, 'Air Force Instruction 91-111: Safety Rules For U.S. Air-launched Nuclear Weapons Systems', 1 August 2022, paragraph 4.5, at https://static.e-publishing.af.mil/production/1/af_se/publication/afi91-111/afi91-111.pdf
[70] Department of Defense Instruction (DODI) 4540.05,pp. 23-25.

secure storage facilities at Minot AFB.[71] As Jessica Rogers and her colleagues have noted, while both the United States and the Russian Federation have a significant upload capability should New START limits fall away, the United States could quickly upload a much larger complement of warheads for its B-52s by accessing warheads in storage.[72]

Secondly, in the New START treaty, the process of denuclearization through conversion of heavy bombers does not require irreversibility.'[73] While the specified conversion processes must be carried out in a manner that satisfies the treaty partner, thus maintaining confidence in the overall viability of the treaty regime, verifiable irreversibility was not an expected outcome for conversion of heavy bombers.

The visible absence of New START fins on denuclearized B-52 bombers is the apparent signifier that the United States maintains to Russia that these processes have been carried out in a manner that can be verified through inspection procedures. The fins are, in the language of arms control agreements, a non- functionally related observable difference (non-FROD), as distinct from the functionally related observable differences (FRODs) in the weapons bay and pylons and launcher assemblies.

Three elements of trust underpin the acceptance of the signifying role of the fins:

- That the specified mechanical and electronic functional changes in the exhibited aircraft indeed have the denuclearizing consequences claimed;

- That the changes in the exhibited example were replicated in the remaining converted aircraft;

[71] Hans M. Kristensen and Matt Korda, 'United States nuclear weapons, 2023', *Bulletin of the Atomic Scientists,* vol. 79. No. 1, p. 29.

[72] Jessica Rogers, Matt Korda and Hans M. Kristensen, 'The long view: Strategic arms control after the New START Treaty', *Bulletin of the Atomic Scientists*, Vol. 78, No. 6, pp. 351-52 and Table 2. See also Matt Korda, 'If Arms Control Collapses, US And Russian Strategic Nuclear Arsenals Could Double In Size', *Federation of American Scientists*, 7 February 2023, at https://fas.org/publication/if-arms-control-collapses-us-and-russian-strategic-nuclear-arsenals-could-double-in-size/.

[73] The treaty protocol specifies that: 'The conversion process for a heavy bomber equipped for nuclear armaments to a heavy bomber equipped for non-nuclear armaments shall be carried out using any of the procedures provided for in this paragraph:
a) All weapons bays and all external attachments for pylons shall be modified so as to render them incapable of employing nuclear armaments;(b) All internal and external launcher assemblies shall be modified so as to render them incapable of employing nuclear armaments; or (c) Other procedures that are developed by the Party carrying out the conversion.' *Protocol To The Treaty Between The United States Of America And The Russian Federation On Measures For The Further Reduction And Limitation Of Strategic Offensive Arms*, p.97, at https://2009-2017.state.gov/documents/organization/140047.pdf. See *Annex A.XX. The disagreement between the Russian Federation and the United States on U.S. compliance with the Protocol to the New START Treaty concerning B-52 conversion procedures*.

- That externally observable features – the absence of the new START fins – could be taken as a reliable indicator of denuclearized status of any given B-52H aircraft on the conversion list.

In reality, while Russia accepted a degree of ambiguity in the treaty regarding accountability for heavy bombers, the treaty always allowed for B-52s to carry more than the nominal one nuclear weapon per aircraft.

However, beyond expected tolerance of such ambiguities, on the day that the treaty's limits on numbers of platforms and warheads entered into force on 5 February 2018, the Russian Federation publicly indicated that for three years it had been seriously dissatisfied with one key aspect of verification procedures to confirm the denuclearization of converted B-52H bombers. At this point, trust had not dissolved, but had been impaired.

The Russian foreign minister stated that

> 'Russia has doubts if the United States adheres to one of the clauses of the treaty - Moscow does not regard conversion and requalification of part of the weapons as real reduction.'

Accordingly, in the Russian view, while

> 'the declared achievement of the START parameters by the United States is a result of not only real reductions of weapons, but conversion of some launchers and heavy bombers B-52H, carried out in a way that leaves no chance for Russia to verify if these strategic weapons have been converted to a condition that rules out the use of submarine-launched ballistic submarines Trident-II and nuclear weapons of heavy bombers...'[74]

In the following years Russia sought a political resolution of the issue through a request for a US cabinet-level declaration on the disputed aspects of B-52H conversion.[75]

Despite worsening relations between the two countries and the disruptions of the Covid-19 pandemic, the latter resulting in mutual suspension of on-site inspections, this unresolved

[74] Russia confirms commitment to New START treaty — Foreign Ministry', *Tass*, 5 February 2018, at https://tass.com/politics/988458. Referring to electronics components of the launcher assemblies, the Russian government formally complained that the Russian inspectors were 'unable to verify that the conversion procedures declared and applied by the United States satisfy the Treaty requirement on rendering a heavy bomber incapable of employing nuclear arguments.' *Problems related to implementation of The Treaty Between The United States Of America And The Russian Federation On Measures For The Further Reduction And Limitation Of Strategic Offensive Arms, 2010*, Government of the Russian Federation, releasable to U.S. December 2018, (unofficial Russian translation), at https://www.wsj.com/public/resources/documents/Russia.pdf. p. 3.

[75] See further discussion of the Russian 2018 complaint in Annex 1. The dispute between the Russian Federation and the United States on U.S. compliance with the Protocol.

dispute did not in itself lead immediately to substantive difficulties in the processes of treaty inspections and data exchanges. However, in the wider context of the Ukraine war, Russia suspended participation in the treaty in February 2023, with both countries restricting elements of the treaty data exchange processes.[76]

In March 2023, the US government stated it would continue to provide notifications of movements of bombers, missiles and submarines and 'their operational status as required by the treaty'. At the same time, the Russian foreign minister said his government would continue to observe treaty limits on the number of warheads.[77]

As of mid 2024, the New START treaty has a little over a year until its expiration on 4 February 2026. The imminent expiry of the New START treaty, most likely without a functional replacement restricting the number of nuclear-capable B-52 bombers, raises another challenge: the possibility of reconversion to nuclear capability.

There is no certainty about how difficult or costly reconversation to nuclear capability would be. One indication is provided by Mark Gunzinger, a former B-52 pilot and director of future concepts and capability assessments at the Mitchell Institute for Aerospace Studies, who argues reconversion to nuclear capability could probably be achieved without much difficulty,

> 'It's doable, and that's the beauty of maintaining bombers that can be re-equipped with the appropriate [nuclear weapons] components.'
>
> 'It's a hedge against future uncertainty, and we are now in a future where it's not one that we expected, even just a few short years ago.'[78]

The likelihood of reconversion should New START collapse or fail to be functionally extended was significantly heightened in June 2024, when both the US House and Senate adopted separate amendments to the FY2025 Defence budget bills requiring the US Air Force in 'to reconvert B-52 bombers that had been modified to carry only conventional weapons' to conform to the New START Treaty.[79] If enacted, the reconversions must take

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[76] Amy Woolf, 'The Past and Future of Bilateral Nuclear Arms Control', Geneva, Switzerland: UNIDIR, 2023, at https://doi.org/10.37559/WMD/23/DDAC/01; Jessica Rogers, Matt Korda and Hans M. Kristensen, 'The long view: Strategic arms control after the New START Treaty', *Bulletin of the Atomic Scientists*, Vol. 78, No. 6; Edward Wong, 'U.S. Says Russia Fails to Comply With Nuclear Arms Control Treaty', *New York Times*, 31 January 2023.

[77] Chris Gordon, 'US, Russia Stop Sharing Nuclear Forces Data in Another Blow for New START', *Air & Space Forces*, 28 March 2023.

[78] Bryant Harris and Stephen Losey, 'Congress wants to restore nukes on conventional B-52 bombers', *Defense News*, 19 June 2024, at https://www.defensenews.com/air/2024/06/18/congress-wants-to-restore-nukes-on-conventional-b-52-bombers/

[79] Fiscal Year (FY) 2025 National Defense Authorization Act (FY2025 NDAA) bill, Amendment to Rules Committee Print 118–36 Offered by Mr. Pfluger Of Texas, House Rules Committee Report 118-551 - and an Accompanying Resolution; and for Other Purposes, House of Representatives, 118th Congress (2023-2024), 2nd Session, at https://www.congress.gov/congressional-report/118th-congress/house-report/551; The Senate

place ‘not later than 30 days after the expiration of the New START Treaty’ and be completed ‘by no later than December 31, 2029.’

There are ten operable B-52H aircraft in storage at Davis-Monthan AFB that were converted from nuclear-capable to conventional-only capability along with the 30 converted aircraft in the active fleet (Tables 3 and 10, and Box 2).

The language employed by US lawmakers is unclear, but suggests reconversion would apply to the 30 B-52H aircraft in the active fleet and the ten aircraft currently in storage. If so, the expectation established by Congress is for 40 reconversions to nuclear capable form be carried out in less than three years. In such an event, the number of nuclear-capable B-52s available to the USAF would jump from 46 to 76 in the active fleet, and an additional 10 aircraft in storage.

The two restorations to the active fleet from Davis-Monthan AFB to date indicate that restoration out of long-term storage is possible – though time-consuming. One aircraft (61-0007) had entered storage in November 2008 in nuclear-capable form, and having never been converted before it was restored, returned to service as nuclear-capable in September 2016 after a 19-month restoration process. 60-0034 returned to service in 2021 having already been converted to conventional-only capability, and returned to service as such after a 22-month restoration process.

The viability of civil society identification of B-52H armament classification

With trust on both sides at an all-time low, it appears highly unlikely as of mid-2024 that New START will be revived and/or a new agreement will come to fruition when the treaty expires in February 2026. Should the latter come to pass, and the restoration of nuclear capabilities across the entire B-52 fleet be enacted as signaled by Congress, the primary aim of this study to assist civil society in identifying which B-52 aircraft are nuclear-capable will eventually be rendered moot.

For the time being, however, the critical treaty issues for this study remain unaffected by the unravelling of New START, including its recent suspension. These critical issues are the treaty requirements for heavy bombers in terms of unique identifiers, external distinguishing characteristics, and denuclearized conversion of aircraft.

If the New START treaty lapses without an immediate functional replacement or commitment to maintain the relevant aspects of the treaty’s data exchanges, it is likely that host government and civil society observers will still be able to identify individual B-52 aircraft entering their country, and to use this study to assess their armament

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‘directs the restoration of nuclear capabilities across the entire B-52 strategic bomber fleet.’ US Senate Committee on Armed Services, Fiscal Year 2025 National Defense Authorization Act, Executive Summary, June 2024, at https://www.armed-services.senate.gov/imo/media/doc/fy25_ndaa_executive_summary.pdf; and Harris and Losey, ‘Congress wants to restore nukes on conventional B-52 bombers’.

characteristics, but only if the anticipated reconversion to nuclear-capable form does not proceed.

Even so, this study's reliance on evidence drawn from open source materials produced for unrelated purposes by civil society and government photographers may still be imperiled in the near future by another issue: military censorship.

It is possible that United States could decide to inhibit New START treaty-based identification of nuclear-capable B-52 aircraft, either by removing visible external aircraft identification, or more drastically, by altering or eliminating the aircraft serial-number-based unique identifier system.

- There have already been some indications that US military aircraft identifiers may be beginning to be removed or reworked in 'subdued' format in the case of USAF Air Mobility Command aircraft, and special forces aircraft.[80]

- In November 2023 reports emerged of Russian Air Force Tu-95MS heavy bombers of a type covered by the New START treaty being shown on Russian media with their tail numbers blurred or with apparently new identification numbers that do not correspondent to known inventory for that class of aircraft.[81]

- A 2023 US special forces procurement request for an aircraft flight profile risk assessment tool specifically identified aircraft 'tail watchers' as a potential risk element.[82]

It is, then, quite possible that the US Air Force could remove unique identifiers from B-52H aircraft in response to Russia suspending its participation in the New START treaty, or should there be a decision to withdraw from the treaty, or both parties fail to functionally extend the treaty beyond its expiry on 4 February 2026.

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[80] Stefano D'Urso, 'U.S. Air Mobility Command Removes Tail Numbers And Unit Markings From Aircraft For OPSEC', *The Aviationist*, 4 March 2023, at https://theaviationist.com/2023/03/04/u-s-air-mobility-command-removes-tail-numbers-and-unit-markings-from-aircraft-for-opsec/a; and Sam Biddle, ' Pentagon joins Elon Musk's war against plane tracking', *The Intercept*, 18 July 2023, at https://theintercept.com/2023/07/18/military-plane-flight-tracking/.

[81] Pavel Podvig, 'The curious case of heavy bombers' Unique IDs', *Russian strategic nuclear forces*, 16 November 2023, at https://russianforces.org/blog/2023/11/the_curious_case_of_heavy_bomb.shtml; and *Pavel Podvig@russianforces*, 17 November 2023, at https://twitter.com/russianforces/status/1725481325296001415?s=61&t=iXowDK3mZysJNjThtyoQkg.

[82] Technical Interest Item #: 619.1 *U) Aircraft Fight Profile/ "Big Data" Analysis & Feedback Tool. Lead Org: 15t SOAC, at* https://s3.documentcloud.org/documents/23879088/2023-us-joint-special-operations-command-procurement-document-on-plane-tracking.pdf; reproduced in Sam Biddle, ' Pentagon joins Elon Musk's war against plane tracking', *The Intercept*, 18 July 2023, at https://theintercept.com/2023/07/18/military-plane-flight-tracking/.

Open source civil society evidence, treaty compliance and hosting nuclear-capable bombers

As already noted, the results of this Special Report's assessment of the armament classification of B-52H active and reserve aircraft in the USAF inventory essentially reproduces a small part of data in the possession of the US Air Force. Under the inspection and data exchange provisions of the New START treaty this same data has been provided by the United States to the Russian Federation.

This same data is the key prerequisite conceivably denied to governments such as Australia that host the deployment of USAF B-52 aircraft by the US doctrine of neither confirming nor denying the presence of nuclear weapons on USAF aircraft.

If a host government such as Australia refuses to insist on such transparency it could still have undertaken a study such as this report for its own purposes in preparation for assessing risks associated with accepting deployment of possibly nuclear-armed aircraft on its territory with the potential for undertaking combat missions. While the results of this study are robust and transparent, the methodology is straightforward, and the task not demanding for a government body, and yet there appears to have been no such approach taken by government in the Australian case.

Civil society researchers, with appropriate concerns for transparent and accountable research methods, can in practice provide both government and citizens with original and robust data on significant questions of arms control and defence policy, breaking any question of a state monopoly on such matters.

As already stated, a simpler method would be for the United States government to supply the data at the request of the host government, and for both governments to publish the data freely. If the US has already provided the data to the Russian Federation, there can be no significant genuine US or Australian security interest impaired by doing so.

In the absence of such a publicly stated commitment to nuclear transparency, it is possible that this work will contribute to breaking the presumption of state monopoly on reliable, robust and transparent information on the presence and deployments of nuclear-capable aircraft. Hopefully, this Special Report will provide a resource for civil society researchers and activists – and governments of countries neighbouring host countries – to overcome the denial of critical information from nuclear-weapons states to host countries, and to provide an alternative to the willed ignorance and intentional national incapacity inherent in host countries' 'understanding of and respect for' the specious security claims of the US doctrine of neither confirming nor denying the presence or absence nuclear weapons on its aircraft. Transparent and reliable open source information improves the possibility of informed democratic will formation, allowing citizens (and the governments of countries that neither possess nor support the hosting of nuclear weapons) to make their own assessment of the

capabilities of aircraft entering their countries. Those countries and their citizens will then be in a position to make informed decisions as to whether such deployments of nuclear-capable aircraft improve or diminish their security.

Beyond New START - The implications of the Russian complaint about U.S. verification compliance

New START represents the last vestige of arms control foundations that were laboriously built up during the Cold War to constrain arms racing and reduce the threat of a full-scale nuclear war. The prospect that the two countries with the world's largest nuclear arsenals might go unconstrained for the first time since 1972 is potentially catastrophic for the prospects of maintaining global security and stability. Leaving aside the very serious and widening political differences between the US and Russia over the war in Ukraine, understanding the key technical issues relating to implementation procedures of New START that have led to a breakdown in mutual trust is critical if there is to be any hope for salvaging a viable arms control foundation beyond the expiry of New START.

One such issue is the unresolved and longstanding Russian dissatisfaction with U.S. compliance with heavy bomber conversion requirements in the Treaty's Protocol which has, for the past five years, undoubtedly undermined confidence in the treaty. Perhaps more importantly in the long run, the particulars of this disagreement point to a more fundamental problem that is likely to recur in future arms control agreements concerning verification of treaty compliance based on at least general level understanding of the operation of certain electronic equipment.

On 5 February 2018, the day New START treaty numerical limits entered into force, Russia formally notified the United States of its persisting dissatisfaction over one aspect of US compliance with the inspection protocol of the treaty.[83] Later the same month the Russian government reiterated its belief that the conversion of heavy bombers (as well as submarine missile launchers) had been

> 'converted in such a way that the Russian Federation cannot confirm that these strategic arms have been rendered incapable of employing SLBMs or nuclear armaments for heavy bombers.'[84]

[83] Ministry of Foreign Affairs of the Russian Federation, *Foreign Ministry Statement 161-05-02-2018*, 2 February 2018, [Заявление иностранных Министерства, 161-05-02-2018, 5.02.18, 1810:51], at https://archive.mid.ru/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/3054864?p_p_id=101_INSTANCE_cKNonkJE02Bw&_101_INSTANCE_cKNonkJE02Bw_languageId=en_GB.

[84] Ministry of Foreign Affairs of the Russian Federation, *Comment by the Information and Press Department on the latest data regarding the aggregate numbers of US strategic offensive arms published by the US Department of State 338-27-02-2018*, [Комментарий Департамента информации и печати МИД России в связи с публикацией Государственным департаментом США данных о суммарных количествах стратегических наступательных вооружений США 338-27-02-2018], 27 February 2018, at

In December of the same year the Russian government indicated ongoing and escalating objections on the conversion of heavy bombers by releasing a more detailed account of its concerns to the United States government, as well as to members of the U.S. Senate Foreign Relations Committee, that according to the *Wall Street Journal*

> 'exposes confidential diplomatic discussions between the U.S. and Russian officials over how to reduce the nuclear arms covered by the accord.'[85]

The central Russian complaint claimed verification procedures permitted by the U.S. side during inspections of exhibited converted B-52H aircraft left Russian inspectors unable to verify the fact of conversion of nuclear-armed B-52H aircraft to non-nuclear-armed.

Under the New START Treaty, conversion of aircraft is intended to remove a nuclear-capable heavy bomber from the count of bombers allowed under the Treaty. Conversion is to be followed by exhibition and inspection of a first example, which will conform with 'distinguishing features' previously notified to the other government.'[86]

The Protocol nowhere mentions B-52 bombers, but the 'First Agreed Statement: Converted B-1B Heavy Bombers' of the Protocol lays out the detailed procedures for exhibition and inspection of the first converted aircraft conversion of U.S. B-1 bombers.[87]

It is presumed that the Protocol's B-1B provisions have been subsequently applied to B-52H conversions. [88]

Categories of distinguishing features for each nuclear-capable and converted type of United States heavy bomber include features that are 'Externally Observable', features of

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https://archive.mid.ru/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/3100658?p_p_id=101_INSTANCE_cKNonkJE02Bw&_101_INSTANCE_cKNonkJE02Bw_languageId=en_GB.

[85] Michael R. Gordon, 'Russia Warns U.S. Moves Threaten 2011 Nuclear Pact; Moscow escalates dispute over New Start arms deal as separate INF treaty is on verge of collapse', *Wall Street Journal*, 15 January 2019; and *Problems related to implementation of The Treaty Between The United States Of America And The Russian Federation On Measures For The Further Reduction And Limitation Of Strategic Offensive Arms, 2010*, Government of the Russian Federation, releasable to U.S., December 2018, (unofficial Russian translation), at https://www.wsj.com/public/resources/documents/Russia.pdf.

[86] New START Treaty, Article IX (4); and *Protocol To The Treaty Between The United States Of America And The Russian Federation On Measures For The Further Reduction And Limitation Of Strategic Offensive Arms*, pp. 75-78, at https://2009-2017.state.gov/documents/organization/140047.pdf.

[87] Office of the Assistant Secretary of Defense, *Active Strategic Treaties, New START Treaty (NST), Protocol to New START Treaty: Part Nine – Agreed Statements – First Agreed Statement: Converted B-1B Heavy Bombers*, pp. 148-151, at https://www.acq.osd.mil/asda/ssipm/sdc/tc/nst/protocol/PartNine.html#:~:text=4.,to%20the%20aforementioned%20verification%20measures.

[88] *Protocol To New START Treaty*, p. 149.

'Underwing/Fuselage', features of the 'Weapons Bay', and 'Technical Data for Recognition of Heavy Bombers.' [89]

The Protocol's section on 'Procedures for Conversion or Elimination of Heavy Bombers' sets out in general terms three procedures to transform a nuclear-capable bomber to a certified non-nuclear-armed bomber:

> '(a) All weapons bays and all external attachments for pylons shall be modified so as to render them incapable of employing nuclear armaments;
>
> '(b) All internal and external launcher assemblies shall be modified so as to render them incapable of employing nuclear armaments; or
>
> '(c) Other procedures that are developed by the Party carrying out the conversion.'[90]

The Protocol's First Agreed Statement concludes:

> 'If either Party decides to convert all heavy bombers of another type that are equipped for nuclear armaments to heavy bombers equipped for non-nuclear armaments, such heavy bombers converted in accordance with Part Three of this Protocol shall also be subject to the aforementioned verification measures.'[91]

According to this provision in the First Agreed Statement, conversion of B-52H bombers would need to meet the same requirements as laid out in detail for conversion of B-1 bombers.

For nuclear-capable B-52H aircraft, the presence of 'New START fins', and their absence in non-nuclear armed aircraft, presumably constitute one 'externally observable distinguishing feature' as stipulated in the protocol, at least after the announcement of completion of B-52H conversion on 1 March 2017.

According to the Russian government's 5 February 2018 *Problems related to implementation of the Treaty* document,

> 'The issue of conversion of B-52H heavy bombers and Trident II SLBM launchers ... arose in 2015. Three years ago, the U.S. side declared its intention to convert B-52H heavy bombers by rendering them incapable of employing nuclear armaments *by removing the nuclear armaments enabling switch and interconnecting box, mounting*

[89] *Protocol To New START Treaty* p. 77.
[90] *Protocol To New START Treaty*, p. 97.
[91] *Protocol to New START Treaty*, pp. 150-151.

a code enabling switch inhibitor and interconnecting box inhibitor plate, removing applicable cable connectors, capping applicable wire bundles.'[92]

Such characteristics of certain electronic and arming structures would constitute features of the 'Weapons Bay', and 'Technical Data for Recognition of Heavy Bombers' in conversion of B-52H aircraft (Figure 11).

Figure 11. The weapon systems officer station in a B-52H Stratofortress

Source: Photograph credit: Stephen Losey, in Bryant Harris and Stephen Losey, 'Congress wants to restore nukes on conventional B-52 bombers', *Defense News*, 19 June 2024, at https://www.defensenews.com/air/2024/06/18/congress-wants-to-restore-nukes-on-conventional-b-52-bombers/.

[92] *Problems related to implementation of The Treaty*, p. 3. Emphasis added.

The first B-52H bomber converted to non-nuclear armed was presented for inspection on 10 September 2015, displaying specified distinguishing features and results of conversion. However, three years later, the December 2018 Russian Federation detailed complaint to the United States stated that at the time of the first exhibition and inspection in September 2015 Russian inspectors were

> 'unable to verify that the conversion procedures declared and applied by the United States satisfy the Treaty requirement on rendering a heavy bomber incapable of employing nuclear arguments.'[93]

Consequently, the Russian complaint concluded,

> 'all B-52H heavy bombers which are converted following the above-mentioned procedures cannot be excluded from the aggregate numbers of strategic offensive arms provided for in Article II of the Treaty.'[94]

In its December 2018 document the Russian government suggested it could consider a United States proposal for 'cabinet level political commitments' as part of a 'comprehensive settlement' of a collection of disagreements about the Treaty.[95] However, according to one informed account, as of May 2019, that offer was 'no longer on the table'.[96]

It is sometimes implied that the treaty's approach to conversion of heavy bombers to conventional-only capability would necessarily amount to irreversible change in the aircrafts' armament capabilities. Yet, it is implausible that the weapons bay electronics alterations outlined above (assuming the Russian account is substantially correct) by themselves resulted in irreversibility. These procedures are quite distinct from large-scale physical alteration of aircraft or missiles by rendering them wholly nonfunctional.

Writing in 2018 about the initial Russian statement in February of the same year, the nuclear specialist Pavel Podvig noted, apropos disagreements about conversion of B-52H aircraft and SLBM launch tubes, that

> 'The argument made by the United States is that New START does not explicitly require the conversion to be irreversible, and that as long as the treaty is in force Russia can always use its inspection provisions to check that the launch tubes remain "rendered incapable" of launching SLBMs.

[93] *Problems related to implementation of The Treaty*, p. 3.
[94] *Problems related to implementation of The Treaty*, p. 4.
[95] *Problems related to implementation of The Treaty*, p. 7.
[96] Pavel Podvig, 'Is New START extension really that easy?', *Russian strategic nuclear forces*, 20 May 2019, at https://russianforces.org/blog/2019/05/is_new_start_extension_really.shtml.

> 'The treaty does require, however, that the procedure is done in a manner "that the other Party can confirm the results of the conversion." If the procedures "are ambiguous or do not achieve the goals" of the conversion, the converting party shall conduct a demonstration, presumably to convince its counterpart that there the goals of the conversion are achieved. But the treaty does not, in fact, require the demonstration to be convincing, so it is entirely possible that the other party will still have issues with the way the conversion is done. Which appears to be exactly what happened.'[97]

On the specifics of the B-52 conversion disagreement, Podvig wrote:

> 'I don't have details of the B-52H conversion, but I would guess that the conversion is done in a reversible manner as well. But bombers has [sic] always been tricky, since their conversion is never truly irreversible. As I understand, it is largely an issue of having a socket that allows the arming mechanism of a nuclear weapon to be connected to the equipment inside of the aircraft. There is the equipment itself, of course, but its absence is more difficult to verify. But with bombers at least there is an understanding of the risks and there are arguably other ways to ascertain that a bomber has been converted to non-nuclear missions.'[98]

Clearly, one source of difficulty in evaluating the Russian claim and the US response is that the only technical details of the B-52H conversion process that have become publicly available are those set out briefly in the Russian Federation document in December 2018, together with Podvig's subsequent understanding. To a certain extent, this simply reflects the reluctance of diplomats to impede ongoing negotiations with premature or tactically inappropriate public revelations. If the Russian description is generally correct, it is difficult to think of a security rationale for the US side to not release further details of the technology involved at a comparably general level. Of course, in the years following the complaint, the invasion of Ukraine all but eliminated the possibility of dealing with the disagreement as a technical matter to be resolved through the treaty's consultative processes and other diplomatic channels.

A second question arises from the Russian December 2018 report concerning the timing of its concerns, when the US was notified of the Russian concerns, and US responses. According to the December 2018 complaint, Russian inspectors stated their concerns about their inability to confirm the functioning of alterations to the weapons bay electronic equipment at the time of the first inspection in September 2015, even though they were not publicly aired for another three years. It is reasonable to assume that the Russian made

[97] Pavel Podvig, 'New START controversies', *Russian strategic nuclear forces*, 15 April 2018, at https://russianforces.org/blog/2018/04/new_start_controversies.shtml.
[98] Pavel Podvig, 'New START controversies'.

mention to their US counterparts of their concerns and their seriousness in bilateral consultative meetings between late 2015 and the entry into force of the treaty limits.

We know little more of any US response over those three years, and in the subsequent years geopolitics has almost buried the matter as a resolvable matter of arms control technicalities. At this point we are left with Podvig's well informed observation in May 2019 that he had come to believe that

> 'the conversion procedures implemented by the United States are in perfect compliance with the letter of the agreement - nowhere in the treaty it is said that the conversion has to be irreversible. So, Russia may not have a good legal argument here...I wouldn't say that Russia's argument is particularly strong, but it has a point.'[99]

We are left, on this particular issue, with an apparent failure of the Trump administration to take the Russian complaint seriously enough to allow it to be addressed adequately either within the treaty dispute framework, or as Russia had invited, diplomatically.

The problem for verification next time

But Podvig's informed conclusion that the conversion processes 'are in perfect compliance with the letter of the agreement' points to a fundamental problem inherent in the treaty and the comprehensive and detailed concerns of the treaty's 90-page Protocol on Inspections.

The basic problem faced by the Russian inspectors appears to be that they were allowed to visually inspect and physically measure certain items in the weapons bay and other parts of the exhibited aircraft for which they were given explanations of function (or removal or variation of function) that were explained as intended to demonstrate loss of capability to use nuclear armaments.

Absent an agreed and treaty specified possibility of examining the electronic operation of what were essentially 'black boxes', it is difficult to see how Russian inspectors could confirm that the devices offered to them for inspection operated in the ways described by the Inspected Party.

The language of the Protocol on Inspection makes clear that physical inspection was expected to involve visual inspection, GPS location measurement, visual image photography, linear measurement, and testing for radioactivity. On the matter of radioactivity testing, inspectors were allowed to use dosimeters to test for the presence of

[99] Pavel Podvig, 'Is New START extension really that easy?'

nuclear weapons – a critical requirement in aspects of treaty compliance verification, but not in the case of heavy bomber conversion.

Other than dosimeters and pocket calculators, the permitted items composing 'Inspection Equipment and Electronic Equipment Necessary for Inspectors' to be provided by the Inspecting Party included measuring tapes, adhesive tape, suitcase, tamper-proof seals, and flashlights and batteries, while the Inspected Party provided cameras and GPS devices.

Despite the ingenuity and good will of some of the solutions to longstanding inspection problems achieved at the New START negotiations, it is difficult to see how inherently reversible denuclearization conversion procedures for heavy bombers based on visual inspection of the external characteristics of electronic equipment could be expected to provide assurance of denuclearization. Little on those lists suggests the protocol negotiators intended any aspect of the electronic functioning of equipment deemed to verifiably demonstrate denuclearization to be on the agenda of inspections.

Of course, it may be that this interpretation of the Russian complaint and of the language of the treaty and its Protocol on Inspections is misplaced or simply uninformed. More than half a decade on from the original Russian complaint, it is not possible to say more on the basis of public documents.

However, to the extent the argument is more or less correct, and in the hope that there will come a time when the Russian Federation and the United States return to the arms control negotiating table, the question of how to make possible adequate levels of verification of treaty compliance based on at least general level understanding of the operation of certain electronic equipment will be a problem that is likely to recur.

In a conclusion even more important in 2024, if more distant from possibility than five years earlier, in 2019 Podvig reiterated his argument that political will to seek trust remains a primary requirement:

> 'Importantly, the readiness to accept the "political commitments" seems to indicate that Russia mostly wants its concerns to be taken seriously. If the United States admits that this is the matter that it is prepared to discuss, Russia would probably be ready to yield some ground. But the United States should make that step first.' [100]

But it would also appear that the search for politically viable arms control measures must also be paired with a technical ambition to balance the national security interests of the Inspected Party in maintaining technological secrets with those of the Inspecting Party in a sufficient general understanding of the operation of electronic equipment offered as demonstration of intent.

[100] Pavel Podvig, 'Is New START extension really that easy?'

Part 3. Aircraft List

60-0001

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0001
Tail number	AF 60 001
Fuselage nose number	0001
Construction number	464366

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing

Primary source:
Luke Hill, 'A B-52H Stratofortress nuclear-capable bomber flies over an undisclosed area', *U.S. Department of Defense*, VIRIN: 190422-F-PQ438-012X, photo date 22 April 2019, uploaded n.d., [accessed 21 February 2024], at https://www.defense.gov/News/News-Stories/Article/Article/2954945/integrated-deterrence-at-center-of-upcoming-national-defense-strategy/. High resolution at https://media.defense.gov/2022/Mar/04/2002949913/-1/-1/0/190422-F-PQ438-012X.JPG.

Secondary source:
Joshua Ruppert, '60-0001', *Jetphotos*, photo date 11 March 2020, uploaded 7 February 2021, [accessed 27 June 2023], at https://www.jetphotos.com/photo/10048441.

60-0002

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0002
Tail number	AF 60 002
Fuselage nose number	0002
Construction number	464367

Home base	Barksdale AFB, Louisiana
Unit	2nd Bomb Wing (2 BW flagship)

Enhanced:


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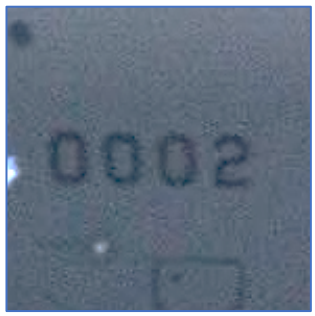


Primary source:
Lillian Miller, 'Photos - 201214-F-NP461-1201', *18th Air Force*, VIRIN: 201214-F-NP461-1201, photo date 14 December 2020, uploaded n.d., [accessed 14 February 2024], at https://www.18af.amc.af.mil/News/Photos/igphoto/2002561157/.

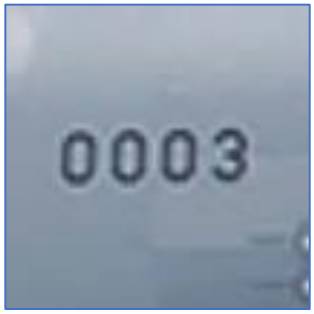
Secondary source:
Rick Ingham, 'Boeing B-52H Stratofortress - 60-0002 – USAF', *Rick Ingham Photography,* photo date 11 June 2017, [accessed 28 June 2023], at http://rickinghamphotography.co.uk/gallery3/Airfields/United-Kingdom/RAF-Fairford/Boeing-B-52H-Stratofortress/IMG_4855.

60-0003

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0003
Tail number	AF 60 003
Fuselage nose number	0003
Construction number	464368

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



Primary source[101]:
Eric Page Lu, '60-0003', *Jetphotos*, 23 August 2021, uploaded 1 September 2021, [accessed 8 August 2023], at https://www.jetphotos.com/photo/10278129.

Secondary source:
Travis Piatek, '60-0003', *Flickr*, photo date 26 May 2019, uploaded 7 December 2019, [accessed 27 June 2023], at https://www.flickr.com/photos/147459361@N04/49180559521/

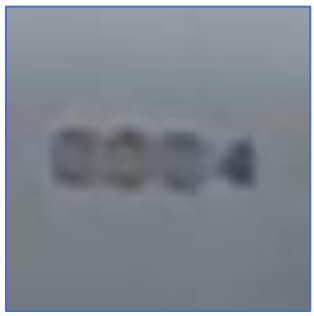
[101] The photographer has confirmed the date of the photograph to the authors.

60-0004

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0004
Tail number	AF 60 004
Fuselage nose number	0004
Construction number	464369

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing



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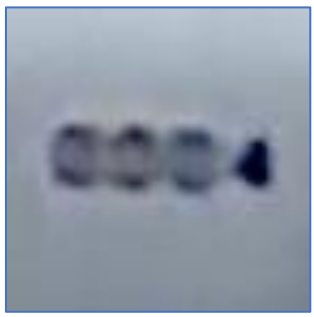


Primary source:
Stephen Collier, 'Bomber Task Force continues strategic deterrence mission', *DVIDS*, video ID: 913736, VIRIN: 240222-F-ZD629-1003, video date 22 February 2024, uploaded 22 February 2024, (video at 00:21 mins.), [accessed 27 February 2024], at https://www.dvidshub.net/video/913736/bomber-task-force-continues-strategic-deterrence-mission.

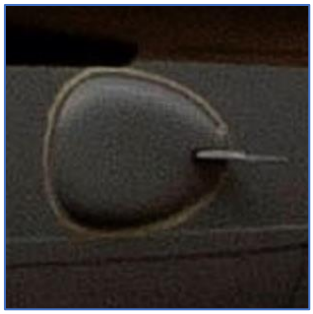
Secondary source:
Florida Metal, '60-0004', *Airport-Data.com*, photo ID: AC1472508, photo date 12 May 2018, uploaded 8 April 2019, [accessed 27 June 2023] at https://www.airport-data.com/aircraft/photo/001472508.html.

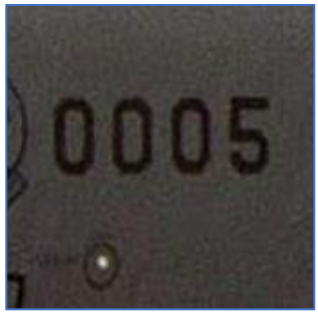
60-0005

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0005
Tail number	AF 60 005
Fuselage nose number	0005
Construction number	464370

Main operating base	Minot AFB, North Dakota
Unit	5th Bomb Wing (5 BW flagship)





Primary source:
Zade Vadnais, '23rd EBS brings bomber support to Diamond Shield 2019', *U.S. Strategic Command*, 1 April 2019, VIRIN: 190326-F-WV456-0290, photo date 26 March 2019, uploaded 1 April 2019, [accessed 29 February 2024], at https://www.stratcom.mil/Media/News/News-Article-View/Article/1802985/23rd-ebs-brings-bomber-support-to-diamond-shield-2019/. High resolution at https://media.defense.gov/2019/Mar/28/2002107119/-1/-1/0/190326-F-WV456-0290.JPG.

Secondary source:
Marie Chealthia Ortiz, Matthew Plew (photographer) 'Bombers, Marine F-35s join Point Blank 20-4 exercise', *Air Force*, VIRIN: 200910-F-QP712-0085, photo date 10 September 2020, uploaded 11 September 2020, [accessed 18 February 2024], at https://www.af.mil/News/Article-Display/Article/2345203/bombers-marine-f-35s-join-point-blank-20-4-exercise/. High resolution at https://media.defense.gov/2020/Sep/11/2002495900/-1/-1/0/200910-F-QP712-0085.JPG.

60-0007

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0007
Tail number	AF 60 007
Fuselage nose number	0007
Construction number	464372

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

Enhanced:


Enhanced:


Primary source:
Jarad A. Denton, Alyssa M. Akers (photographer), '23rd EBS deploys to Pacific', *Air Force Global Strike Command*, (image 5/8), VIRIN: 190114-F-VF865-0175, photo date 14 January 2019, uploaded 30 January 2019, [accessed 14 February 2024], at https://www.afgsc.af.mil/News/Article-Display/Article/1745608/23rd-ebs-deploys-to-pacific/. High resolution at https://media.defense.gov/2019/Jan/30/2002084383/-1/-1/0/190114-F-VF865-0175.JPG.

Secondary source:
Nathen Sieben, 'USAF Boeing B-52 60-007 YMAV', *Flickr*, photo date 4 March 2019, uploaded 24 March 2019, [accessed 5 September 2023], at https://www.flickr.com/photos/nathensieben/33578305138/.

60-0008

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0008
Tail number	AF 60 008
Fuselage nose number	00008
Construction number	464373

Main operating base	Barksdale AFB, Louisiana
Unit	8th Air Force (8th Air Force flagship)

Primary source:
Mark Piacentini, '60-0008 Boeing B52H Stratofortress KLVS 08-02-23', *Flickr*, photo date 8 February 2023, uploaded 19 March 2023, [accessed 28 June 2023], at https://www.flickr.com/photos/markp51/52756840424/.

Secondary source:
Nick Sheeder, '60-0008', *Flickr*, photo date 27 January 2023, uploaded 14 February 2023, [accessed 22 August 2023], at https://www.jetphotos.com/photo/10863631.

60-0009

Status — Active

Armament classification — Nuclear-capable

Confidence level — High

Air Force serial number	60-0009
Tail number	AF 60 009
Fuselage nose number	0009
Construction number	464374

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing (69 BS flagship)

Primary source:
Matt Varley, 'United States Air Force | Boeing B-52H Stratofortress | 60-0009', *Flickr*, photo date 19 September 2019, uploaded 5 October 2019; EXIF data confirmed through *Online EXIF Viewer*, [accessed 21 May 2024], at https://www.flickr.com/photos/55198703@N02/48848161426/.

Secondary source:
J.T. Armstrong, ''Bombers in the UK [Image 5 of 5]', *DVIDS*, VIRIN: 180109-F-CG053-0027, photo date 9 January 2018, uploaded 11 January 2018, [accessed 14 February 2024], at https://www.dvidshub.net/image/4072858/bombers-uk. High resolution at https://media.defense.gov/2018/Jan/14/2001865624/-1/-1/0/180109-F-CG053-0027.JPG.

60-0010

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0010
Tail number	AF 60 010
Fuselage nose number	0010
Construction number	464375

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

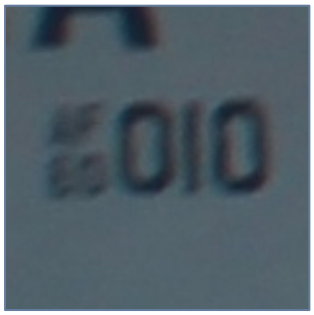
60-0010

Boeing B-52H Stratofortress

PCN	AABC0486
Code	LA
CN	464375
Unit	96th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	28-AUG-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0010', *AMARC Experience Database*, [accessed 23 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
N94504, '60-0010', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 24 March 2016, uploaded 22 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.



Notes:
AMARC records tail data as LA, 96th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

60-0011

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0011
Tail number	AF 60 011
Fuselage nose number	0011
Construction number	464376

Main operating base	Barksdale AFB, Louisiana
Unit	11th Bomb Squadron, 2nd Bomb Wing (11th BS flagship)

Primary source:
Lieuwe Hofstra, '60-0011', *Flickr*, photo date, 18 May 2019, uploaded 30 May 2019, [accessed 20 May 2024], at https://www.flickr.com/photos/lieuwe/47964243221/in/album-72157709453030132/.

Secondary source:
Bruce Leibowitz, '60-0011', *Jetphotos*, photo date 21 April 2018, uploaded 8 May 2018, [accessed 28 June 2023], at https://www.jetphotos.com/photo/8945327.

60-0012

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0012
Tail number	AF 60 012
Fuselage nose number	0012
Construction number	464377

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing

Enhanced: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Primary source:
Evan Lichtenhan, 'B-52s in JBER: Downloading', *Minot Air Force Base*, VIRIN: 230711-F-DA270-1099, photo date 11 July 2023, uploaded date n.d., [accessed 18 February 2024], at https://www.minot.af.mil/Multi-Media/Photos/igphoto/2003259757/. High resolution at https://media.defense.gov/2023/Jul/15/2003259757/-1/-1/0/230711-F-DA270-1099.JPG.

Secondary source:
Alex Crail, '60-0012', *Jetphotos*, photo date 17 March 2020, photo uploaded 13 April 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10126470. .

60-0013

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0013
Tail number	AF 60 013
Fuselage nose number	0013
Construction number	464378

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing

Primary source:
Aileen Lauer, 'B-52s Take off from Moron Air Base to Support Missions Operations [Image 3 of 4]', *DVIDS*, VIRIN: 210521-F-QB377-069, photo date 21 May 2021, uploaded 21 May 2021, [accessed 15 February 2024], at https://www.dvidshub.net/image/6656749/b-52s-take-off-moron-air-base-support-missions-operations.

Secondary source:
Misael Ocasio Epicaviation47, '60-0013', *Jetphotos*, photo date 5 August 2021, uploaded 22 August 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10264209.

60-0014

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0014
Tail number	AF 60 014
Fuselage nose number	0014
Construction number	464379

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

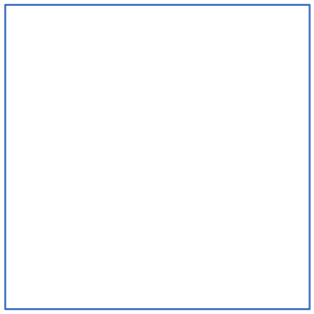
60-0014

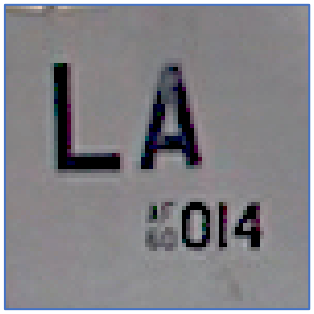
Boeing B-52H Stratofortress

PCN	AABC0488
Code	LA
CN	464379
Unit	20th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	11-DEC-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0014', *AMARC Experience Database*, [accessed 23 August 2023], at http://www.amarcexperience.com/ui/index.php./

Secondary source:
N94504, '60-0014', *Jetphotos*, photo date 24 March 2016, uploaded 9 July 2016, [accessed 23 August 2023], at https://www.jetphotos.com/photo/8317359.





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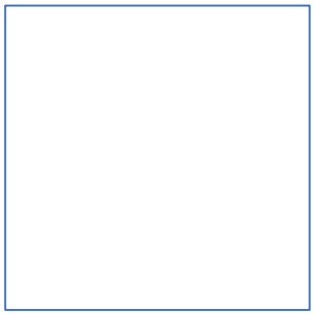
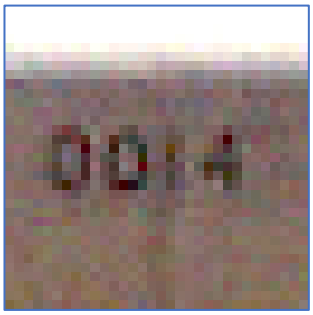




Notes:
AMARC records tail data as LA, 20th Bomb Squadron, 2nd Bomb Wing.

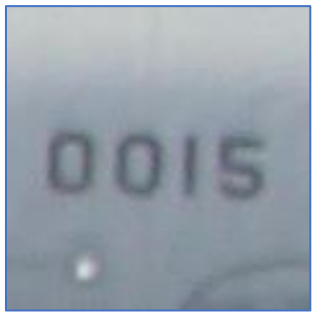
Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

60-0015

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0015
Tail number	AF 60 015
Fuselage nose number	0015
Construction number	464380

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



Primary source:
MRC Aviation, 'IMG_7493, USAF B-52H Stratofortress 60-0015, NAS Fort Worth KNFW 28AUG20', *Flickr*, photo date 28 August 2020, uploaded 29 August 2020, [accessed 22 August 2023], at https://www.flickr.com/photos/189696948@N05/50281463053/

Secondary source:
Positive Rate Photography, '60-0015', *Jetphotos*, photo date 5 October 2020, uploaded 16 January 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10017758.

60-0016

Status — Inactive - GITA

Armament classification — N/A

Confidence level — N/A

Air Force serial number	60-0016
Tail number	AF 60 016
Fuselage nose number	0016
Construction number	464381

Main operating base	Barksdale AFB, Louisiana
Unit	[Not in active service]
Note	Designated GB-52H

Primary source
Owen O'Rourke, 'Boeing B-52H 60-0016', *Flickr*, photo date 1 May 2016, uploaded 28 July 2016, [accessed 21 May 2024], at https://www.flickr.com/photos/planesandstuff/28564350256/.

Secondary source:
Jason McCasland, 'B-52H becomes New START compliant ground trainer', *Barksdale Air Force Base*, 20 September 2013, at https://www.barksdale.af.mil/News/Article/635194/first-b-52h-becomes-new-start-compliant-ground-trainer/.

Notes:
Joe Baugher, 'USAF 1960 Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, https://www.joebaugher.com/usaf_serials/1960.html.

'0016 (MSN 464381) to 2nd BW, 96th BS at Barksdale, AFB.
'Named "The Baroness" with 5th BW in Sep 1988.
'To GB-52H maintenance trainer at Barksdale AFB, LA.
'Tail was demounted and put on 60-0001 due to hangar damage.'

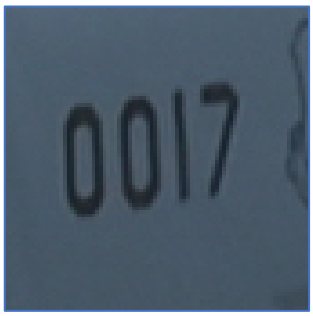
corkspotter / Paul Daly , '60-0016 B-52H USAF', *Flickr*, photo date 25 October 2016, uploaded 27 January 2017, [accessed 21 May 2024], at https://www.flickr.com/photos/corkspotter/32400609182/.

60-0017

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0017
Tail number	AF 60 017
Fuselage nose number	0017
Construction number	464382

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing



Primary source:
Amy Picard, 'BTF takes off from Guam [Image 2 of 10]', *DVIDS*, photo ID: 8222970, VIRIN: 240203-F-EY126-1005, photo date 3 February 2024, uploaded 5 February 2024, [accessed 17 February 2024], at https://www.dvidshub.net/image/8222970/btf-takes-off-guam.

Secondary source:
MIL3010 / USAF, 'B-52H Stratofortress strategic bombers at Andersen Air Force Base, Guam', *YouTube*, video date n.d., uploaded 6 February 2024, (video at 6.33 mins.), [accessed 16 February 2024], at https://www.youtube.com/watch?v=4W8PQjjOG0E.

60-0018

Status	Active
Armament classification	Nuclear-capable
Confidence level	Low

Air Force serial number	60-0018
Tail number	AF 60 018
Fuselage nose number	0018
Construction number	464383

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing

Primary source:
Tyski07, '60-0018', *Flickr*, photo date 15 November 2022, uploaded 17 November 2022, [accessed 28 July 2023], at https://www.flickr.com/photos/150550015@N08/52505456782/.

Secondary source:

Note:
Primary source lacks EXIF date data. There is no suitable secondary source.

60-0019

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0019
Tail number	AF 60 019
Fuselage nose number	0019
Construction number	464384

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

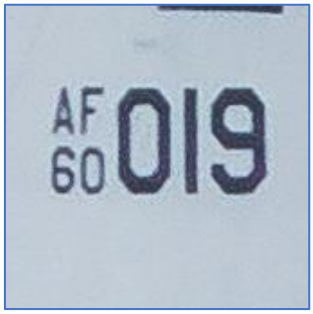
60-0019

Boeing B-52H Stratofortress

PCN	AABC0494
Code	LA
CN	464384
Unit	96th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	07-AUG-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0019', *AMARC Experience Database*, [accessed 23 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
Markuswillmann, '60-0019', *Jetphotos*, photo date 3 June 2014, uploaded 2 December 2014, [accessed 23 August 2023], at https://www.jetphotos.com/photo/7931416



Notes:
AMARC records tail data as LA, 96th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

60-0020

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0020
Tail number	AF 60 020
Fuselage nose number	0020
Construction number	464385

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

60-0020

Boeing B-52H Stratofortress

PCN	AABC0485
Code	LA
CN	464385
Unit	20th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	04-SEP-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0020', *AMARC Experience Database*, [accessed 23 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
Mark Kalfas, 'Aircraft 60-0020 Photo', *Airport-Data.com*, photo ID AC1728175, photo date 15 November 2015, uploaded 28 November 2022, [accessed 23 August 2023], at https://www.airport-data.com/aircraft/photo/001728175.html.

Notes:
AMARC records tail data as LA, 20th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

60-0021

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0021
Tail number	AF 60 021
Fuselage nose number	0021
Construction number	464386

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing

Primary source:
Jacob B. Wrightsman, 'Global Thunder 21 landings', *Air Force Global Strike Command,* VIRIN: 201020-F-LC363-1141, photo date 20 October 2020, uploaded 20 October 2020, [accessed 6 March 2024], at https://www.afgsc.af.mil/News/Photos/igphoto/2002521538/. High resolution at https://media.defense.gov/2020/Oct/21/2002521538/-1/-1/0/201020-F-LC363-1141.JPG.

Secondary source:
Jacob B. Wrightsman, 'Barksdale participates in GLOBAL THUNDER 21', *Barksdale Air Force Base*, (image 4 of 5), VIRIN: 201023-F-DX695-1159, photo date 23 October 2020, uploaded 26 October 2020, [accessed 15 February 2024], at https://www.barksdale.af.mil/News/Article/2394678/barksdale-participates-in-global-thunder-21/. High resolution at https://media.defense.gov/2020/Oct/23/2002522887/-1/-1/0/201023-F-DX695-1159.JPG.

60-0022

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0022
Tail number	AF 60 022
Fuselage nose number	0022
Construction number	464387

Main operating base	Barksdale AFB, Louisiana
Unit	96thBomb Squadron, 2nd Bomb Wing

Primary source:
Zachary Wright, 'PV 22-3', Minot Air Force base, VIRIN: 220916-F-CD213-1054, photo date 16 September 2022, uploaded 16 September 2022, [accessed 5 September 2023], at https://www.minot.af.mil/Multi-Media/Photos/igphoto/2003084465/. High resolution at https://media.defense.gov/2022/Sep/23/2003084465/-1/-1/0/220916-F-CD213-1054.JPG.

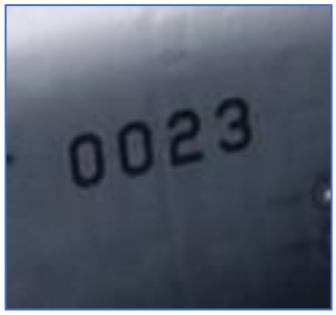
Secondary source:
Lillian Miller, 'U.S. Bombers Operate In CENTCOM', *U.S. Central Command*, VIRIN: 201209-D-D0477-020B.JPG, photo date 9 December 2020, uploaded 10 December 2020, [accessed 15 February 2024], at https://www.centcom.mil/MEDIA/IMAGERY/igphoto/2002549630/. High resolution at https://media.defense.gov/2020/Dec/10/2002549630/-1/-1/0/201209-D-D0477-020B.JPG.

60-0023

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0023
Tail number	AF 60 023
Fuselage nose number	0023
Construction number	464388

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing (23 BS flagship)



Primary source:
Amy Picard, 'Multinational formation at Cope North 24 [Image 3 of 17]', *DVIDS*, photo ID: 8232804, VIRIN: 240206-F-EY126-1017, photo date 6 February 2024, uploaded 8 February 2024, [accessed 17 February 2024], at https://www.dvidshub.net/image/8232804/multinational-formation-cope-north-24.

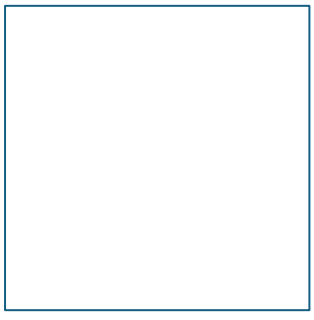
Secondary source:
Andrzej Rejter, '60-0023', *Jetphotos*, photo date 3 September 2022, uploaded 26 September 2022, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10716492.

60-0024

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0024
Tail number	AF 60 024
Fuselage nose number	0024
Construction number	464389

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing



Primary source:
Michiel van Herten, '60-0024', *AirHistory.net*, photo ID 292054, photo date 28 March 2019, uploaded 20 October 2023, [accessed 23 April 2024], at https://www.airhistory.net/photo/292054/60-0024/AF60-024.

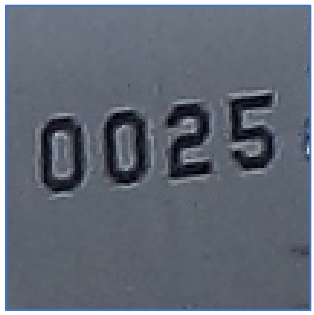
Secondary source:
Chris Lofting, '60-0024', *Jetphotos*, photo date 24 March 2019, uploaded 10 April 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10122006.

60-0025

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0025
Tail number	AF 60 025
Fuselage nose number	0025
Construction number	464390

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing



Primary source:
Michiel Van Herten, '60-0025', *Nuclear-capable B-52H Stratofortress bombers image gallery,* image supplied, photo date 28 March 2019, uploaded 20 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

Secondary source:
Duncan Bevan, 'B-52s over the Baltic Sea [Image 22 of 23]', *DVIDS*, photo ID: 5858261, VIRIN: 191023-F-HF102-0654, photo date 23 October 2019, uploaded 24 October 2019, [accessed 6 March 2024], at https://www.dvidshub.net/image/5858261/b-52s-over-baltic-sea.

60-0026

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0026
Tail number	AF 60 026
Fuselage nose number	0026
Construction number	464391

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

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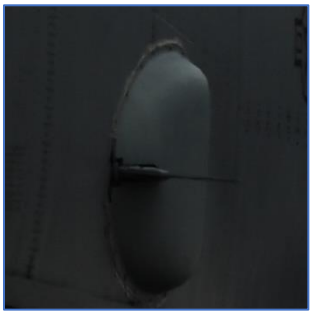

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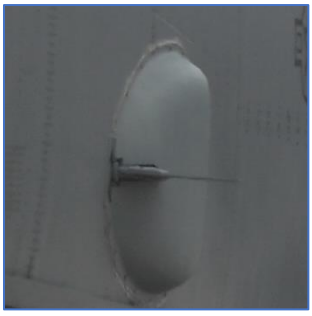


Primary source:
Amy Picard, 'Bomber Task Force departs from Guam [Image 7 of 10]', *DVIDS*, photo ID: 8227024, VIRIN: 240205-F-EY126-1005, photo date 5 February 2024, uploaded 6 February 2024, [accessed 17 February 2024], at https://www.dvidshub.net/image/8227024/bomber-task-force-departs-guam.

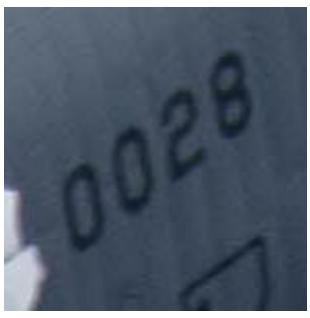
Secondary source:
Alexander Nottingham, 'City of Minot Mayor visits Minot AFB for an orientation flight [Image 8 of 11]', *DVIDS*, photo ID: 8009745, VIRIN: 230906-F-EQ797-2014, photo date 6 September 2023, uploaded 10 September 2023, [accessed 17 February 2024], at https://www.dvidshub.net/image/8009745/city-minot-mayor-visits-minot-afb-orientation-flight.

60-0028

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0028
Tail number	AF 60 028
Fuselage nose number	0028
Construction number	464393

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing



Primary source:
Lawrence Sena, '96th EBS Bomber Task Force [Image 5 of 5]', *DVIDS*, photo ID: 7080650, VIRIN:220224-F-WH061-1290, photo date 24 February 2022, uploaded 7 March 2022, [accessed 15 February 2024], at https://www.dvidshub.net/image/7080650/96th-ebs-bomber-task-force.

Secondary source:
Alex I, '60-0028', *Jetphotos*, photo date 12 September 2020, uploaded 19 October 2020, [accessed 28 June 2023], at https://www.jetphotos.com/photo/9897367.

60-0029

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0029
Tail number	AF 60 029
Fuselage nose number	0029
Construction number	464394

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

Enhanced:


Enhanced:


Primary source:
Zade Vadnais, 'First B-52s take off from Guam in support of Bomber Task Force deployment [Image 4 of 5]', *DVIDS*, photo ID: 7865037, VIRIN: 230615-F-WV456-0170, photo date 15 June 2023, uploaded 15 June 2023, [accessed 15 February 2024], at https://www.dvidshub.net/image/7865037/first-b-52s-take-off-guam-support-bomber-task-force-deployment.

Secondary source:
Charles Cunliffe, '60-0029', *Jetphotos*, photo date 8 September 2020, uploaded 12 October 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10328476.

60-0030

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0030
Tail number	AF 60 030
Fuselage nose number	0030
Construction number	464395

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

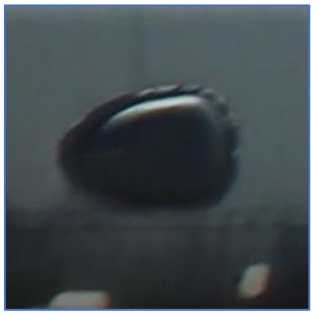
60-0030

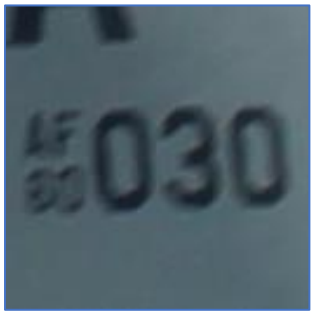
Boeing B-52H Stratofortress

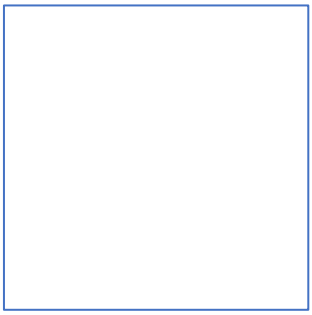
PCN	AABC0484
Code	LA
CN	464395
Unit	20th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	21-AUG-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0030', *AMARC Experience Database,* [accessed 23 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
N94504, '60-0030', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 24 March 2016, uploaded 22 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.







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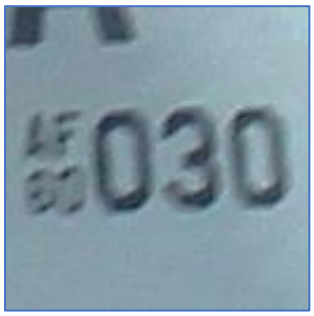
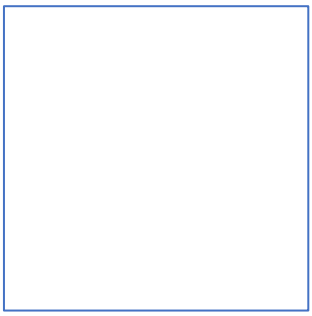




Notes:
AMARC records tail data as LA, 20th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

Matt Ellis, 'The great American boneyard', *Key-Aero*, 24 December 2020, at https://www.key.aero/article/great-american-boneyard.

60-0031

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0031
Tail number	AF 60 031
Fuselage nose number	0031
Construction number	464396

Main operating base	Barksdale AFB, Louisiana
Unit	49th Test and Evaluation Squadron, 53rd Wing

Primary source:
Jack Cook - SoCal.Spotter, 'U.S. Air Force B-52H Stratofortress 60-0031', *Flickr*, 24 April 2023, uploaded 16 May 2023, [accessed 9 October 2023], at https://www.flickr.com/photos/160753404@N05/52901771469/in/photostream/.

Secondary source:
Tyler J, '60-0031', *PlaneSpotters.net*, photo date 21 November 2022, uploaded n.d., [accessed 8 September 2023], at https://www.planespotters.net/photo/1353679/60-0031-united-states-air-force-boeing-b-52h-stratofortress.

60-0032

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0032
Tail number	AF 60 032
Fuselage nose number	0032
Construction number	464397

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing

Primary source:
Nicole Ledbetter, 'Barksdale's B-52s Buff PACAF's Bomber Task Force mission [Image 3 of 3]', *DVIDS*, photo ID: 8103449, VIRIN: 231101-F-KX495-1042, photo date 1 November 2023, uploaded 7 November 2023, [accessed 17 February 2024], at https://www.dvidshub.net/image/8103449/barksdales-b-52s-buff-pacafs-bomber-task-force-mission.

Secondary source:
Nicole Ledbetter, 'B-52 Supports PACAF Bomber Task Force Mission [Image 6 of 7]', *DVIDS*, photo ID: 8093800, VIRIN: 231024-F-KX495-1057, photo date 24 October 2023, uploaded 30 October 2023, [accessed 6 March 2024], at https://www.dvidshub.net/image/8093800/b-52-supports-pacaf-bomber-task-force-mission.

60-0033

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0033
Tail number	AF 60 031
Fuselage nose number	0031
Construction number	464398

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing

Primary source:
RedRipper24, '60-0033 1960 Boeing B-52H', *Flickr*, photo date 15 September 2023, uploaded 17 September 2023, [accessed 21 May 2024], at https://www.flickr.com/photos/redripper24/53194196427/.

Secondary source:
Gabriel Stuart, 'Global Thunder 18', *Barksdale Air Force Base,* 9 November 2017, (image 2 of 14), VIRIN: 171104-F-YF084-1003, photo date 4 November 2017, uploaded 9 November 2017, [accessed 29 February 2024], at https://www.barksdale.af.mil/News/Article/1369397/global-thunder-18/. High resolution at https://media.defense.gov/2017/Nov/09/2001841148/-1/-1/0/171104-F-YF084-1003.JPG.

60-0034

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0034
Tail number	AF 60 034
Fuselage nose number	0034
Construction number	464399

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

Primary source:
Zade Vadnais, 'First-ever US Air Force B-52 flight takes off from Indonesia', *Air Force Global Strike Command*, [image 4 of 8], VIRIN: 230621-F-WV456-2370, photo date 21 June 2023, uploaded 5 July 2023, at

https://www.afgsc.af.mil/News/Article-Display/Article/3449571/first-ever-usaf-b-52-deployment-concludes-in-indonesia/. High resolution at https://media.defense.gov/2023/Jun/30/2003254314/-1/-1/0/230621-F-WV456-2370.JPG.

Secondary source:
'"Wise Guy" Boeing B-52h Stratofortress (serial: 464399) USAF (60-0034) / Base Aérea De Morón (Lemo) España-Spain', *Flickr*, photo date 3 March 2023, uploaded 9 March 2023, [accessed 1 July 2023], at https://www.flickr.com/photos/dagm4/52736136844/.

Notes:
60-0034 was placed in storage at Davis-Monthan AFB in 2008. Returned to service from storage at Davis-Monthan AFB, Tucson, Arizona, on 10 March 2021 as a conventional-only aircraft. Replaced 60-0047 which was destroyed in an aviation incident on 19 May 2016.

'Tinker completes B-52 restoration as "Wise Guy" re-enters arsenal', Wright-Patterson AFB, 25 March 2021, at https://www.wpafb.af.mil/News/Article-Display/Article/2550248/tinker-completes-b-52-restoration-as-wise-guy-re-enters-arsenal/.

309th Aerospace Maintenance and Regeneration Group, '60-0034 - Boeing B-52H Stratofortress', *AMARC Experience Database*, [accessed 10 August 2023], at http://www.amarcexperience.com/ui/index.php?option=com_content&view=article&id=20045&Itemid=220

AMARC Experience Database

60-0034

Boeing B-52H Stratofortress

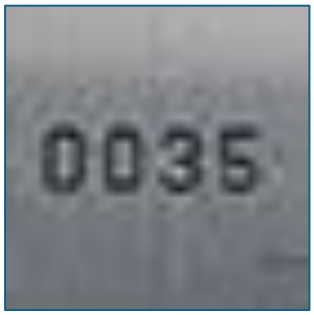
PCN	AABC0482
Code	MT
CN	464399
Unit	23rd Bomb Squadron/5th BW, Minot AFB, ND.
Arrival Date	14-AUG-2008
Notes	
Departure Date	14-MAY-2019
Disposition	Returned to service at Barksdale AFB, LA.

60-0035

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0035
Tail number	AF 60 035
Fuselage nose number	0035
Construction number	464401

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



Primary source:
Kevin Bell, 'B-52H 60-0035 Charleston AFB 1 WM', *Flickr*, photo date 28 April 2018, uploaded, 27 May 2018, [accessed 28 June 2023], at https://www.flickr.com/photos/kevin_bell_photography/40573529170/.

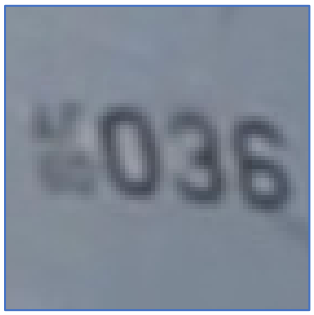
Secondary source:
MRC Aviation, 'IMG_7612, USAF B-52H Stratofortress 60-0035, NAS Fort Worth KNFW 28AUG20', *Flickr*, photo date 28 August 2020, uploaded 29 August 2020, [accessed 22 August 2023], at https://www.flickr.com/photos/189696948@N05/50282862042/.

60-0036

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0036
Tail number	AF 60 036
Fuselage nose number	0036
Construction number	464401

Main operating base	Edwards AFB, California
Unit	419th Flight Test Squadron, 412th Test Wing



Primary source:
Christopher Okula, 'B-52 continues "mothership" role during hypersonic test', *DVIDS*, VIRIN: 190612-F-HP195-2001, video date 12 June 2019, uploaded 12 June 2019, (video at 0:20 mins.), [accessed 15 February 2024, at https://www.dvidshub.net/video/699876/b-52-continues-mothership-role-during-hypersonic-test.

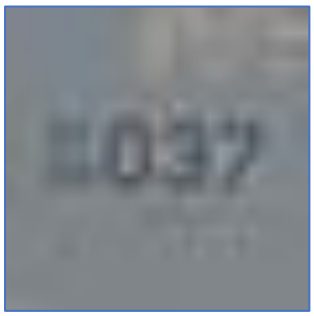
Secondary source:
TF 23 Aviation, 'B-52H 60-0036 with DayGlo orange fairings', *Flickr*, photo date 17 March 2023, uploaded 26 March 2023, at https://www.flickr.com/photos/193204189@N08/52772083707/in/album-72177720306819707/.

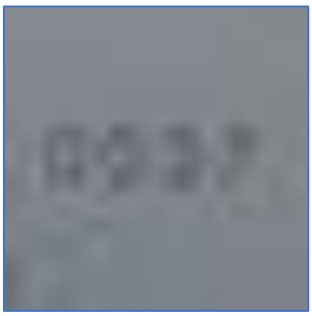
60-0037

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0037
Tail number	AF 60 037
Fuselage nose number	0037
Construction number	464402

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing





Enhanced:



Primary source:
U.S. Central Command@CENTCOM, 'Post, 8 March 2021', *X*, 8 March 2021, [accessed 13 September 2023], at https://twitter.com/CENTCOM/status/1368558389177974799/photo/2. High resolution at https://pbs.twimg.com/media/Ev4YZh7XMAMZblK?format=jpg&name=large.

Secondary source:
U.S. Central Command@CENTCOM, 'Post 8 March 2021', *X*, 8 March 2021, [accessed 13 September 2023], at https://twitter.com/CENTCOM/status/1368558389177974799/photo/3.

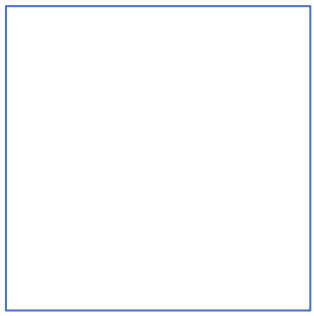
Notes:
Primary and secondary sources are two images from the same CENTCOM 2021 *Twitter/X* thread. See also Josh W. Strickland, 'Bomber Task Force mission to Middle East', *U.S. Central Command*, VIRIN: 210306-F-GB336-227.JPG, photo date 6 March 2021, [accessed 25 August 2023], at https://www.centcom.mil/MEDIA/IMAGERY/igphoto/2002594999/.

60-0038

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0038
Tail number	AF 60 038
Fuselage nose number	0038
Construction number	464403

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



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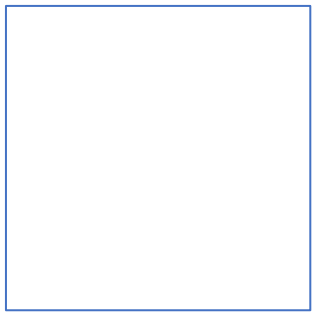


Primary source:
Lillian Miller, '180912-F-NP461-1395', *Barksdale Air Force Base*, photo date 12 September 2018, uploaded n.d., [accessed 5 September 2023], at https://www.barksdale.af.mil/News/Photos/igphoto/2002042019/. High resolution at https://media.defense.gov/2018/Sep/18/2002042019/-1/-1/0/180912-F-NP461-1395.JPG.

Secondary source:
Łukasz Stawiarz, '60-0038', *Jetphotos*, photo date 13 September 2016, uploaded 27 September 2016, [accessed 28 June 2023], at https://www.jetphotos.com/photo/8382892.

60-0041

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0041
Tail number	AF 60 041
Fuselage nose number	0041
Construction number	464406

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing

Primary source:
Adrian Stürmer, '60-0041 B-52H Stratofortress | EBLE | 13.09.2019', *Flickr*, photo date 13 September 2019, uploaded 30 August 2020, [accessed 29 September 2023], at https://www.flickr.com/photos/adraf/50286261942/.

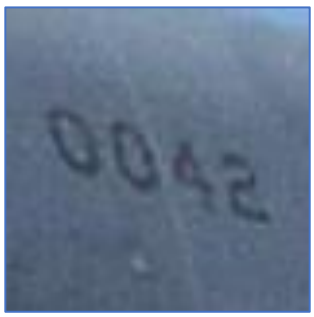
Secondary source:
Roman Sykora, '60-0041', *Jetphotos*, photo date 17 September 2019, uploaded 22 April 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10134895.

60-0042

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0042
Tail number	AF 60 042
Fuselage nose number	0042
Construction number	464407

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



Primary source:
Bruce Smith, '60-0042 BD 2018-06-13', *Flickr*, photo date 13 June 2018, uploaded 14 June 2018, [accessed 28 June 2023], at https://www.flickr.com/photos/eor1/42754657452/in/album-72157632221207310/.

Secondary sources:
Greg L. Davis, 'Air Force Reserve Command B-52H Stratofortress', *Tinker Air Force Base*, VIRIN: 171204-F-VV898-1007, photo date 4 December 2017, [accessed 13 May 2024], at https://www.tinker.af.mil/News/Photos/igphoto/2002171422/. High resolution at https://media.defense.gov/2019/Aug/15/2002171422/-1/-1/0/171204-F-VV898-1007.JPG.

Airailimages, 'B-52H STRATOFORTRESSES - Barksdale AFB, April 2024 - Exercise Bayou Vigilance', *YouTube*, 15 April 2024, [at 0:24 mins.], at https://www.youtube.com/watch?v=d4vhAWeCkhU.

60-0043

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0043
Tail number	AF 60 043
Fuselage nose number	0043
Construction number	464408

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

60-0043

Boeing B-52H Stratofortress

PCN	AABC0483
Code	LA
CN	464408
Unit	20th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	02-OCT-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0043', *AMARC Experience Database*, [accessed 23 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
David Pitt, '60-0043 - Boeing B-52H Stratofortress - US Air Force (AMARG)', *Flickr*, photo date 1 March 2013, uploaded 15 November 2015, [accessed 23 August 2023], at https://www.flickr.com/photos/newsfromtheramp/22423392284/.

Notes:
AMARC records tail data as LA, 20th Bomb Squadron, 2nd Bomb Wing.

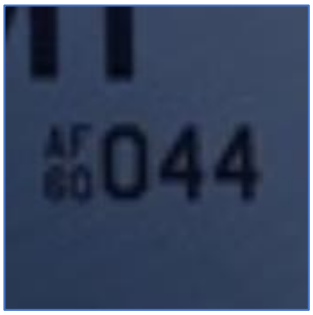
Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

60-0044

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0044
Tail number	AF 60 044
Fuselage nose number	0044
Construction number	464409

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing



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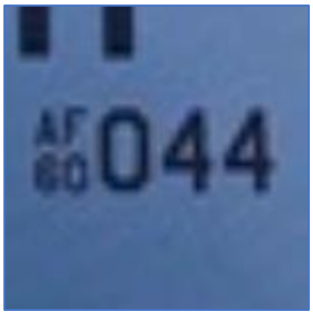
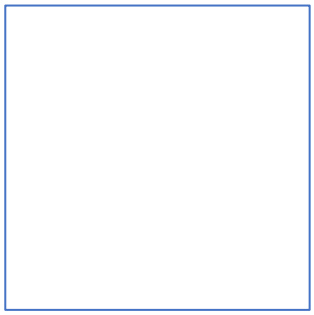




Primary source:
Zachary Wright, '69th EBS: Mediterranean Sea [Image 6 of 13]', *DVIDS*, photo ID 7133282, photo date 5 April 2022, uploaded 8 April 2022, [accessed 11 May 2024, at https://www.dvidshub.net/image/7133282/69th-ebs-mediterranean-sea. High resolution at https://d1ldvf68ux039x.cloudfront.net/thumbs/photos/2204/7133282/1000w_q95.jpg.

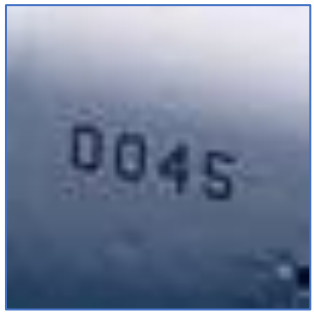
Secondary source:
Kyle Cortis, '60-0044', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 9 March 2022, uploaded 20 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

60-0045

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0045
Tail number	AF 60 045
Fuselage nose number	0045
Construction number	464410

Main operating base	Barksdale AFB, Louisiana
Unit	307th Bomb Wing (307 OG flagship)



Primary source:
hao_Wu, '60-0045', *Jetphotos*, photo date 28 May 2022, uploaded 25 June 2022, [accessed 14 August 2023], at https://www.jetphotos.com/photo/10615998.

Secondary source:
Mike Balserak, '60-0045', *Jetphotos*, photo date 28 May 2022, uploaded 10 July 2022, [accessed 22 August 2023], at https://www.jetphotos.com/photo/10629882.

60-0046

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	60-0046
Tail number	AF 60 046
Fuselage nose number	0046
Construction number	464411

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

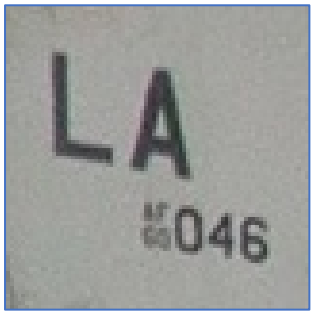
60-0046

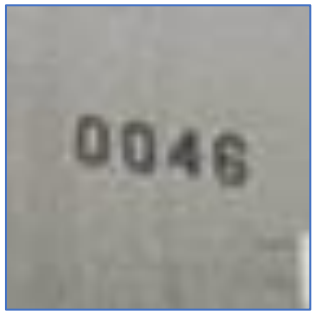
Boeing B-52H Stratofortress

PCN	AABC0490
Code	LA
CN	464411
Unit	20th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	23-OCT-2008
Notes	
Departure Date	
Disposition	

Primary source:
'60-0046', *AMARC Experience Database,* [accessed 24 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
Kevin Bell, 'B-52H 60-0046 309th AMARG Davis Monthan AFB WM', *Flickr*, photo date 4 November 2017, uploaded 3 February 2020, [accessed 24 August 2023], at https://www.flickr.com/photos/kevin_bell_photography/49478588846/in/album-72157664765679407/.





Notes:
AMARC records tail data as LA, 20th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

Matt Ellis (images), 'The great American boneyard', *Key-Aero*, 24 December 2020. photos n.d., at https://www.key.aero/article/great-american-boneyard.

60-0048

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0048
Tail number	AF 60 048
Fuselage nose number	0048
Construction number	464413

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing

Primary source:
Jacksonphreak, '60-0048', *Airport-Data.com*, photo date 22 July 2019, uploaded 5 August 2021, [accessed 28 June 2023], at https://www.airport-data.com/aircraft/photo/001650414.html.

Secondary source:
George Canciani, '60-0048', *Jetphotos*, photo date 19 July 2019, uploaded 5 September 2021, [accessed 28 June 2023], at https://www.jetphotos.com/photo/10282533.

60-0049

Status	Storage – dismantled
Armament classification	N/A
Confidence level	N/A

Air Force serial number	60-0049
Tail number	AF 60 049
Fuselage nose number	0049
Construction number	464414

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

60-0049

Boeing B-52H Stratofortress

PCN	582445
Code	OT
CN	464414
Unit	Barksdale AFB, LA.
Arrival Date	28-JUL-2017
Storage Project	STX7B032
Storage Type	4000
Notes	Instructional fuselage only.
Departure Date	
Disposition	

Primary source:
'60-0046', *AMARC Experience Database,* [accessed 24 August 2023], at
http://www.amarcexperience.com/ui/index.php.

Secondary source:
Stacey Ward, 'Balls 49 deconstruction', *YouTube*, uploaded 23 January 2023,(mins at 4:03 and 3:56), at https://www.youtube.com/watch?v=BwlNG-y2N_U.

Notes:
Grounded beyond repair at Barksdale AFB after a fire in the crew compartment on 28 January 2014.
Subsequently sent to storage at Davis-Monthan AFB on 28 July 2017 and completely dismantled in 2018.

'B-52H Repaired With New Tail After Lightening Strike', *Key.Aero,* 15 March 2018, at https://www.key.aero/article/b-52h-repaired-new-tail-after-lightning-strike.

Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

'ASN Wikibase Occurrence # 174448', *Aviation Safety Network*, [accessed 24 August 2023], at https://aviation-safety.net/wikibase/174448.

60-0050

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0050
Tail number	AF 60 050
Fuselage nose number	0050
Construction number	464419

Main operating base	Edwards AFB, California
Unit	419th Flight Test Squadron, 412th Test Wing

Primary source:
Matt Williams, 'Air Force conducts successful hypersonic weapon test', *Edwards Air Force Base*, VIRIN: 200808-F-GX031-1061.JPG, photo date 8 August 2020, uploaded n.d., [accessed 15 February 2024], at https://www.edwards.af.mil/News/Photos/igphoto/2002473481/. High resolution at https://media.defense.gov/2020/Aug/08/2003003814/-1/-1/0/200808-F-GX031-1061.JPG.

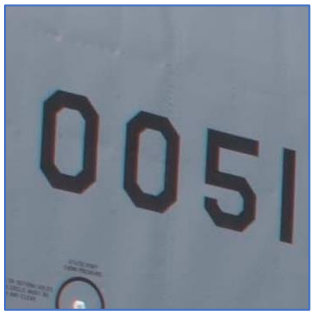
Secondary source:
Dayon W, '60-0050', *Jetphotos*, photo date 22 February 2021, uploaded 3 March 2021, [accessed 3 July 2023], at https://www.jetphotos.com/photo/10079551.

60-0051

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0051
Tail number	AF 60 051
Fuselage nose number	0051
Construction number	464416

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



Primary source:
Ted Daigle, 'Photos: 180303-F-YH293-1002', *307th Bomb Wing*, VIRIN: 180303-F-YH293-1002, photo date 3 March 2018, uploaded n.d., at https://www.307bw.afrc.af.mil/News/Photos/igphoto/2001892803/. High resolution at https://media.defense.gov/2018/Mar/21/2001892803/-1/-1/0/180303-F-YH293-1002.JPG.

Secondary source:
Eric Page Lu, '60-0051', *Jetphotos*, photo date 23 August 2021, uploaded 1 September 2021, [accessed 2 December 2023], at https://www.jetphotos.com/photo/10278266.

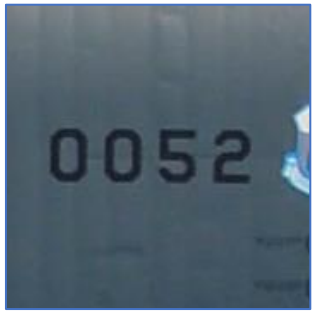
Note:
Joe Baugher, '1960 USAF Serial Numbers', *Joe Baugher.com*, revised 3 October 2023, at https://www.joebaugher.com/usaf_serials/1960.html.

60-0052

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0052
Tail number	AF 60 052
Fuselage nose number	0052
Construction number	464417

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing



Primary source:
Pacific Air Forces, 'USAF B-52H and RAAF F/A-18F at Talisman Sabre 23 [Image 2 of 5]', *DVIDS* , photo ID: 7947571, VIRIN: 230724-F-F3700-1002, photo date 23 July 2023, uploaded n.d., [accessed 28 February 2024], https://www.dvidshub.net/image/7947571/usaf-b-52h-and-raaf-f-18f-talisman-sabre-23.

Secondary source:
Positive Rate Photography, '60-0052', *Jetphotos*, photo date 5 October 2020, uploaded 14 January 2021, [accessed 23 July 2023], at https://www.jetphotos.com/photo/10016224.

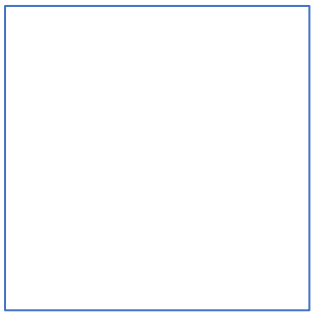
60-0054

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0054
Tail number	AF 60 054
Fuselage nose number	0054
Construction number	464419

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing

Enhanced:



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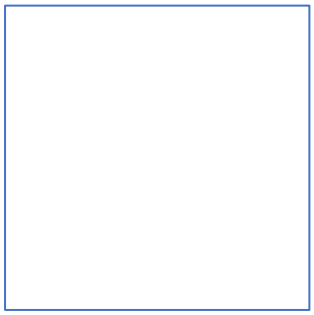


Primary source:
Jan K. Valle, 'Barksdale's Air Force Base 2nd Bomb Wing bombers arrive at Minot Air Force Base [Image 4 of 8]', *Barksdale Air Force Base*, photo ID: 6329532, VIRIN: 200826-F-AV821-1781, photo date 26 August 2020,

uploaded 26 August 2020, [accessed 6 March 2024], at https://www.dvidshub.net/image/6329532/barksdales-air-force-base-2nd-bomb-wing-bombers-arrive-minot-air-force-base.

Secondary source:
thetford 569, '60-0054', *Jetphotos,* photo date 17 January 2023, uploaded 5 September 2023, [accessed 6 May 2024], at https://www.jetphotos.com/photo/11063226.

60-0055

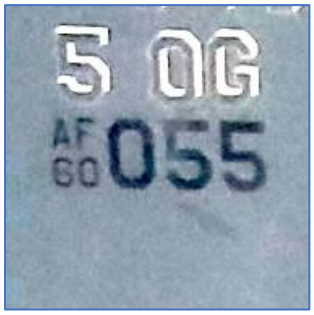
Status	Active
Armament classification	Nuclear-capable
Confidence level	High

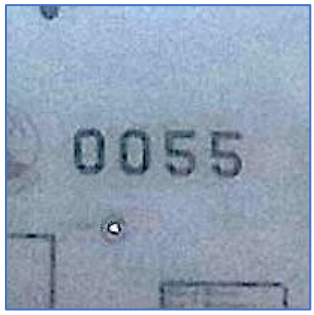
Air Force serial number	60-0055
Tail number	AF 60 051
Fuselage nose number	0051
Construction number	464420

Main operating base	Minot AFB, North Dakota
Unit	5th Bomb Wing (5 OG flagship)

Enhanced:


Enhanced:



Primary source:
Chris Wood, '60-0055/MT/5OG/ "War Eagle" B-52H 23rd Bomb Squadron Nellis AFB 2nd February 2022', *Flickr*, (image supplied; EXIF verified), photo date 3 February 2022, uploaded 8 February 2022, [accessed 28 May 2024], at https://www.flickr.com/photos/68498610@N03/51870086321/.

Secondary source:
JC-AM, '60-0055', *Jetphotos*, photo date 15 February 2020, uploaded 25 February 2020, [accessed 1 July 2023], at https://www.jetphotos.com/photo/9622129.

60-0056

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0056
Tail number	AF 60 056
Fuselage nose number	0056
Construction number	464421

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

Primary source:
Nick Collins, 'Boeing B-52H 60-0056', *Flickr*, photo date 26 September 2020, uploaded 28 September 2020, [accessed 12 August 2023], at https://www.flickr.com/photos/75729258@N07/50394886877/.

Secondary source:
Santiago Blánquez, '60-0056', *Jetphotos*, photo date 14 March 2023, uploaded 1 April 2023, [accessed 23 July 2023], at https://www.jetphotos.com/photo/10910175.

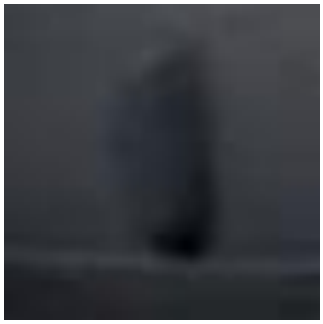
60-0057

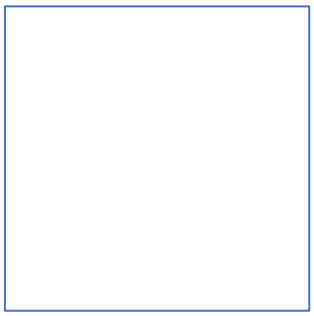
Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0057
Tail number	AF 60 057
Fuselage nose number	0057
Construction number	464422

Main operating base	Barksdale AFB, Louisiana
Unit	340th Weapons Squadron, USAF Weapons School, 57th Wing (340 WS flagship)

Enhanced:





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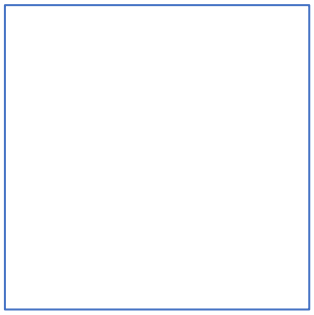


Primary source:
Max Daigle, 'B-52 Stratofortresses at sunrise', *DVIDS*, video ID: 691406, VIRIN: 190620-F-AC305-1001, video date 20 June 2019, uploaded 20 June 2019, (at 1:13 mins.), [accessed 22 February 2024], at https://www.dvidshub.net/video/691406/b-52-stratofortresses-sunrise.

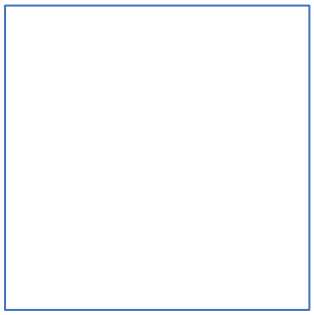
Secondary source:
Lukasz Stawiarz, '60-0057', *Jetphotos*, photo date 13 September 2018, uploaded 27 September 2018, [accessed 23 July 2023], at https://www.jetphotos.com/photo/9077537.

60-0058

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0058
Tail number	AF 60 058
Fuselage nose number	0058
Construction number	464423

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing



Primary source:
Michiel Van Herten, '60-0058', *Nuclear-capable B-52H Stratofortress bombers image*, image supplied, photo date 28 March 2019, uploaded 20 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

Nicole Ledbetter, 'B-52H Stratofortress Support BTF Integration Mission [Image 4 of 4]', *DVIDS*, photo ID: 8103446, VIRIN: 231028-F-KX495-1210, photo date 28 October 2023, uploaded 7 November 2023, [accessed 17 February 2024], at https://www.dvidshub.net/image/8103446/b-52h-stratofortress-support-btf-integration-mission.

60-0059

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0059
Tail number	AF 60 059
Fuselage nose number	0059
Construction number	464424

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing (96 BS flagship)

Primary source:
Lauren Clevenger, 'Guam Mayors visit Andersen AFB [Image 10 of 11]', *DVIDS*, photo ID: 8114536, VIRIN: 231103-F-NI202-1227, photo date 3 November 2023, uploaded 8 November 2023, [accessed 17 February 2023], at https://www.dvidshub.net/image/8114536/guam-mayors-visit-andersen-afb.

Secondary source:
'B-52s integrate with Indonesian Air Force during Bomber Task Force Mission', *Pacific Air Forces*, VIRIN: 210901-F-XX000-0005, photo date 1 September 2021, uploaded n.d., [accessed 15 February 2024], at https://www.pacaf.af.mil/News/Photos/igphoto/2002846631/. High resolution at https://media.defense.gov/2021/Sep/02/2002846631/-1/-1/0/210901-F-XX000-0005.JPG.

60-0060

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0060
Tail number	AF 60 060
Fuselage nose number	0060
Construction number	464425

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

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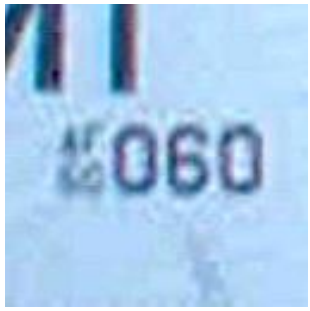
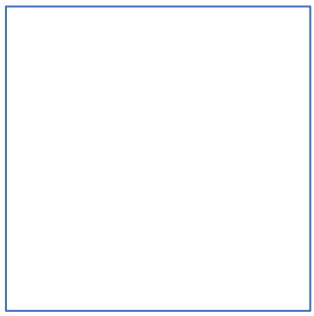




Primary source:
Nicholas Crisp, 'Minot B-52s deploy to Indo-Pacific in support of Bomber Task Force', [photo 3 of 16], U.S. Strategic Command, VIRIN: 210715-F-NJ201-1004, photo date 15 July 2021, uploaded 15 July 2021, [accessed 15 February 2024], at https://www.stratcom.mil/Media/News/News-Article-View/Article/2695679/minot-b-52s-deploy-to-indo-pacific-in-support-of-bomber-task-force/. High resolution at https://media.defense.gov/2021/Jul/15/2002778275/-1/-1/0/210715-F-NJ201-1004.JPG.

Secondary source:
Jonathan Carkhuffand, photographer Andrew Eddie, 'US Air Force B-52s showcase long reach of American airpower during Talisman Sabre 2021', *Pacific Air Forces*, VIRIN: 210726-F-JC316-2005, photo date 26 July 2021, uploaded 4 August 2021, [accessed 24 July 2023], at https://www.pacaf.af.mil/News/Article-Display/Article/2720211/us-air-force-b-52s-showcase-long-reach-of-american-airpower-during-talisman-sab/. High resolution at https://media.defense.gov/2021/Aug/04/2002822928/-1/-1/0/210726-F-JC316-2005.JPG.

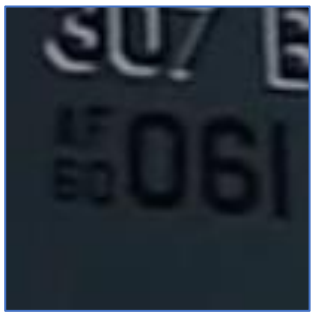
60-0061

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	60-0061
Tail number	AF 60 061
Fuselage nose number	0061
Construction number	464226

Main operating base	Barksdale AFB, Louisiana
Unit	307th Bomb Wing (307 BW flagship)

Enhanced: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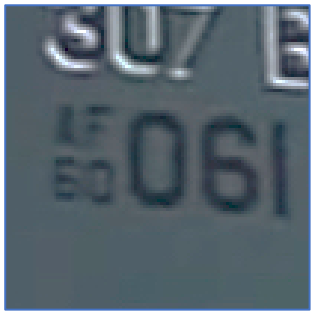



Primary source:
Max Daigle, 'B-52 Stratofortresses at sunrise', *DVIDS*, video ID - 691406, VIRIN: 190620-F-AC305-1001, video date 20 June 2019, uploaded 20 June 2019, (at 3:40 mins.), [accessed 22 February 2024], at https://www.dvidshub.net/video/691406/b-52-stratofortresses-sunrise.

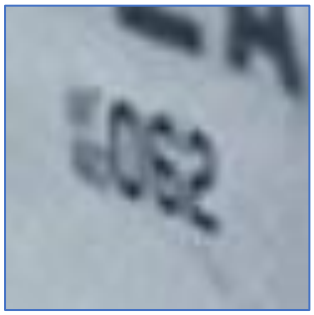
Secondary source:
Dylan Phelps NFW, '60-0061', *Flickr*, photo date 28 August 2020, uploaded 29 August 2020, [accessed 5 September 2023], at https://www.flickr.com/photos/10979857@N06/50279829993/.

60-0062

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	60-0062
Tail number	AF 60 062
Fuselage nose number	0062
Construction number	464427

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing



Primary source:
Andrei Schmatko,'60-0062 USA-Air Force Boeing B-52H Stratofortress', *Planespotters.net*, photo date10 February 2018, [accessed. 25 July 2023], at https://www.planespotters.net/photo/895557/60-0062-usa-air-force-boeing-b-52h-stratofortress.

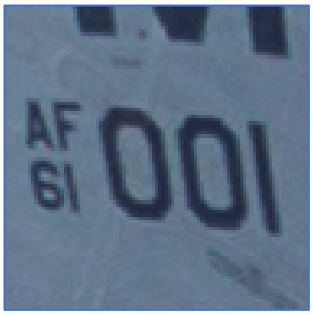
Secondary source:
Christina Rios, Philip Bryant, and Baylee Yassu (photographers), airboyd, 'B-52 Elephant Walk • Barksdale Air Force Base', *YouTube*, 17 October 2020, (video at 8:24 mins.), video date 14 October 2020, uploaded 17 October 2020, [accessed 20 April 2024], at https://www.youtube.com/watch?v=QpKYem_SVwQ.

61-0001

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0001
Tail number	AF 61 001
Fuselage nose number	1001
Construction number	464428

Main operating base	Minot AFB, North Dakota
Unit	69th |Bomb Squadron, 5th Bomb Wing



Primary source:
Reed Skyllingstad, 'BUFF Landing', *Flickr*, photo date 27 June 2018, uploaded 13 July 2018, [accessed 30 November 2023], at https://www.flickr.com/photos/skyllinr/29508408438/in/album-72157697497123931/.

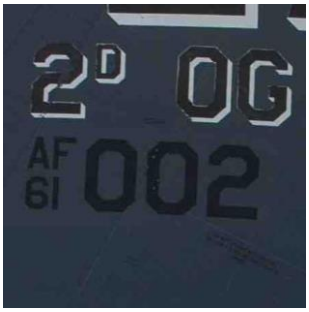
Secondary source:
Nick Michaud, '61-0001', *Jetphotos*, photo date 20 September 2022, uploaded 30 October 2022, [accessed 24 July 2023], at https://www.jetphotos.com/photo/10747656.

61-0002

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0002
Tail number	AF 61 002
Fuselage nose number	1002
Construction number	464429

Main operating base	Barksdale AFB, Louisiana
Unit	2nd Bomb Wing (2nd OG flagship)



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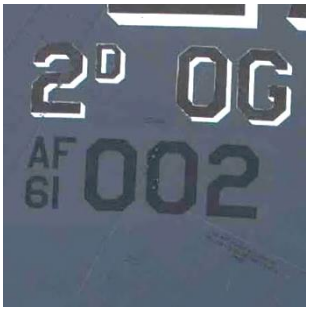
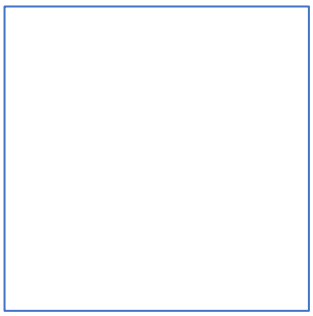




Primary source:
Alexander Riedel, 'U.S. forces intergrate with Australian during EAC at RAAF base Darwin' [sic], *Andersen Air Force Base*, VIRIN: 180404-F-CH060-0060, photo date 4 April 2018, uploaded n.d., [accessed 28 February 2024], at https://www.andersen.af.mil/News/Photos/igphoto/2001900602/.

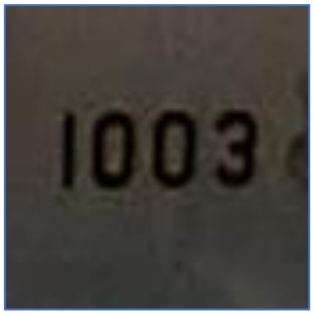
Secondary source:
Royal Australian Air Force, 'USAF B 52 Bomber touches down in Darwin', *YouTube*, photo date 29 March 2018, uploaded 3 April 2018, (video at 00:21 mins.), [accessed 7 September 2023], at https://www.youtube.com/watch?v=XEQwiVdzpR0.

61-0003

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0003
Tail number	AF 61 003
Fuselage nose number	1003
Construction number	464430

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing



Primary source:
Zachary Wright, 'Bomber Task Force Europe: Strategic bombers soar through NATO's Eastern Flank, complete successful 2-month rotation, EUCOM, photo date 18 February 2022, uploaded 18 April 2022, [accessed 28 February 2024], at https://www.eucom.mil/pressrelease/42017/bomber-task-force-europe-strategic-bombers-soar-through-natos-eastern-flank-complete-succe. High resolution at https://www.eucom.mil/Img/42018/File/bomber-task-force-europe-strategic-bombers-soar-through-natos-eastern-flank-complete-succe.

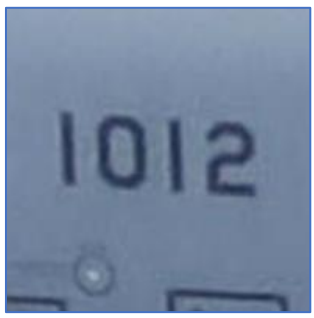
Secondary source:
Alexander Nottingham, '220707-F-EQ797-1007.JPG', *Minot Air Force Base,* photo date 7 July 2022, uploaded n.d., [accessed 28 February 2024], at https://www.minot.af.mil/Multi-Media/Photos/igphoto/2003044295/. High resolution at https://media.defense.gov/2022/Jul/27/2003044295/-1/-1/0/220707-F-EQ797-1007.JPG.

61-0004

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0004
Tail number	AF 61 004
Fuselage nose number	1004
Construction number	464431

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing



Primary source:
Swedish Air Force, 'Bombers support operations in the Baltic Sea', *U.S. Naval Forces Europe and Africa / U.S. Sixth Fleet*, 11 June 2021, (image 3 of 3), VIRIN: 210609-F-F3253-0002, photo date 9 June 2021, uploaded 11 June 2021, [accessed 4 March 2024], at https://www.c6f.navy.mil/Press-Room/News/News-Display/Article/2654556/bombers-support-operations-in-the-baltic-sea/. High resolution at https://media.defense.gov/2021/Jun/11/2002739808/-1/-1/0/210609-F-F3253-0002.JPG.

Secondary source:
Robert Sullivan, 'Boeing B-52H-165-BW "Stratofortress" (s/n 61-0004)', *Flickr*, photo date 27 July 2018, uploaded 21 October 2019, [accessed 24 July 2023], at https://www.flickr.com/photos/my_pblic_domain_photos/48935481908/.

61-0005

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0005
Tail number	AF 61 005
Fuselage nose number	1005
Construction number	464432

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing

Primary source:
Adrian Stürmer, '61-0005 B-52H Stratofortress | KNBG | 19.03.2022', *Flickr*, photo date 19 March 2022, uploaded 26 May 2022, [accessed 10 October 2023], at https://www.flickr.com/photos/adraf/52100878918/.

Secondary source:
Marco Papa, '61-0005', *Jetphotos*, photo date 25 January 2018, uploaded 6 February 2018, [accessed 24 July 2023], at https://www.jetphotos.com/photo/8846974 .

61-0006

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0006
Tail number	AF 61 006
Fuselage nose number	1006
Construction number	464433

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing

Enhanced:


Enhanced:


Primary source:
Delia Martinez, 'Barksdale supports Bomber Task Force missions', *DVIDS*, video ID: 889900, VIRIN: 230705-F-DB515-1001, video date 10 July 2023, uploaded 11 July 2023, (at 00:21 mins.), [accessed 16 February 2024], at https://www.dvidshub.net/video/889900/barksdale-supports-bomber-task-force-missions.

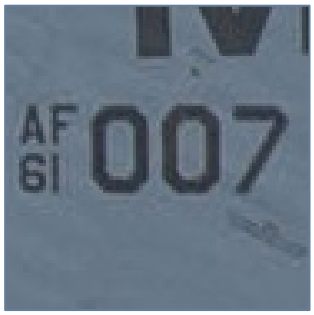
Secondary source:
Agustin Anaya, '61-0006', *Jetphotos*, photo date 15 June 2018, uploaded 17 July 2018, [accessed 18 August 2023], at https://www.jetphotos.com/photo/9010474.

61-0007

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0007
Tail number	AF 61 007
Fuselage nose number	1007
Construction number	464434

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing



Primary source:
Nicholas Crisp, photographer, 'Minot B-52s deploy to Indo-Pacific in support of Bomber Task Force', *U.S. Strategic Command*, photo date 15 July 2021, uploaded 15 July 2021, [accessed 16 February 2024], at https://www.stratcom.mil/Media/News/News-Article-View/Article/2695679/minot-b-52s-deploy-to-indo-pacific-in-support-of-bomber-task-force/. High resolution at https://media.defense.gov/2021/Jul/15/2002763714/-1/-1/0/210715-F-NJ201-1003.JPG.

Secondary sources:
LAXSPOTTER, '61-0007', *Flickr*, photo date 22 June 2019, uploaded 14 February 2021, [accessed 25 August 2023], at https://www.flickr.com/photos/122510653@N02/50940278253/.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

'Boeing B-52H Stratofortress', *AMARC Experience Database*, [accessed 10 December 2023], http://www.amarcexperience.com/ui/index.php.

AMARC Experience Database

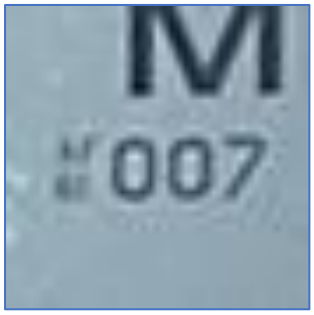
61-0007

Boeing B-52H Stratofortress

PCN	AABC0489
Code	MT
CN	464434
Unit	23rd Bomb Squadron/5th BW, Minot AFB, ND.
Arrival Date	13-NOV-2008
Notes	
Departure Date	13-FEB-2015
Disposition	Returned to service at Barksdale AFB, LA.
Disposition Type	Returned to service

Notes:
Entered storage 13 November 2008. Returned to service from storage at Davis-Monthan AFB, Tucson, Arizona, on 27 September 2016 as nuclear-capable. Replaced 60-0049 which was grounded after a fire in the crew compartment on 28 January 2014.

Below: B-52H 61-0007 undergoing restoration from storage at Davis-Monthan AFB, Arizona on 18 January 2015 in preparation for return to active service (with details).

Source: Lieuwe Hofstra, '61-0007', *Airhistory.net,* photo date 18 January 2015, uploaded 21 February 2020, [accessed 2 December 2023], at https://www.airhistory.net/photo/215910/61-0007/AF61-007.

61-0008

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0008
Tail number	AF 61 008
Fuselage nose number	1008
Construction number	464435

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing

Primary source:
Callie Ware, 'Heavy Metal', *307th Bomb Wing*, VIRIN: 180804-F-IJ844-1008, photo date 4 August 2018, uploaded 27 August 2018, [accessed 16 February 2024], at https://www.307bw.afrc.af.mil/News/Art/igphoto/2001958279/. High resolution at https://media.defense.gov/2018/Aug/24/2001958279/-1/-1/0/180804-F-IJ844-1008.JPG.

Secondary source:
AviatorTravis, '61-0008', *Flickr*, photo date 4 December 2021, uploaded 25 October 2023, [accessed 16 December 2023], at https://www.flickr.com/photos/147459361@N04/53286125119/.

61-0009

Status	Inactive – integration model
Armament classification	N/A
Confidence level	N/A

Air Force serial number	61-0009
Tail number	AF 61 009
Fuselage nose number	1009
Construction number	464436

Main operating base	Boeing Oklahoma City facility, Tinker AFB
Unit	Bombers Directorate, Air Force Lifecycle Management Center

Primary source:
'B-52 parts to be used in research, modernization and innovation efforts', *Air Force Life Cycle Management Center*, VIRIN: 210520-F-F3456-1010, photo date 20 May 2021, [accessed 22 February 2024], at https://www.aflcmc.af.mil/NEWS/Article-Display/Article/2624605/b-52-parts-to-be-used-in-research-modernization-and-innovation-efforts/. High resolution at https://media.defense.gov/2021/May/20/2002674721/-1/-1/0/210520-F-F3456-1010.JPG.

Secondary source:
Boeing B-52H Stratofortress', *AMARC Experience Database*, [accessed 1 March 2024], http://www.amarcexperience.com/ui/index.php.

Notes:
Departed 309th AMARG June/July 2021; fuselage and left wing entered Boeing Oklahoma City facility, Tinker AFB, January 2022; partially re-assembled for ground testing of systems development integration.

Tinker AFB@TeamTinker, *X*, 25 January 2022, photo by April McDonald, [accessed 25 August 2022], at https://twitter.com/Team_Tinker/status/1485648311730253827/photo/1.

April McDonald, 'Damage Inc II arrives', *Tinker Air Force Base*, VIRIN: 220122-F-LB106-1005, photo date 22 January 2022, at https://www.tinker.af.mil/News/Photos/igphoto/2002926162/.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 11 June 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

Brian Brackens, 'B-52 parts to be used in research, modernization and innovation efforts', *Air Force Life Cycle Management Center*, VIRIN: 210520-F-F3456-1010, photo date 20 May 2021, [accessed 22 February 2024], at https://www.aflcmc.af.mil/NEWS/Article-Display/Article/2624605/b-52-parts-to-be-used-in-research-modernization-and-innovation-efforts/.

61-0010

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0010
Tail number	AF 61 101
Fuselage nose number	1010
Construction number	464437

Main operating base	Barksdale AFB, Louisiana
Unit	343rd Bomb Squadron, 307th Bomb Wing (343 BS flagship)

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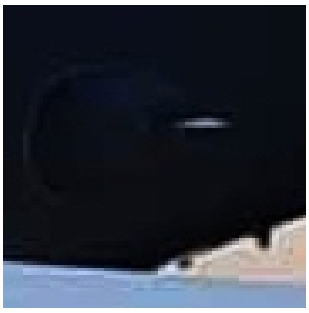
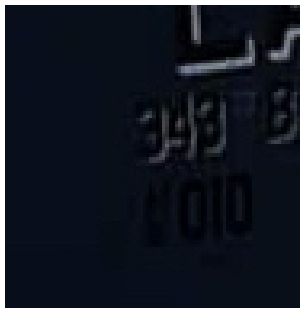


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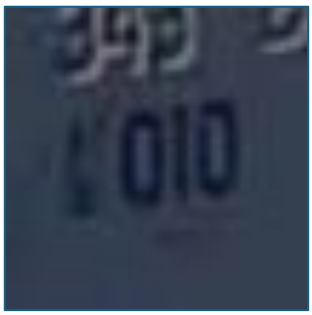



Primary source:
Shannon Hall, 'Air, Space Expo wraps up at Dyess', *Dyess Air Force Base*, VIRIN: 180512-F-KI416-1007, photo date 12 May 2018, uploaded 12 May 2018, at https://www.dyess.af.mil/News/Photos/igphoto/2001916519/.

Secondary source:
Santiago Blánquez, '61-0010', *Jetphotos*, photo date 2 June 2021, uploaded 22 August 2021, [accessed 18 August 2023], at https://www.jetphotos.com/photo/10264993.

61-0011

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0011
Tail number	AF 61 011
Fuselage nose number	1011
Construction number	464438

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing

Primary source:
Florida Metal, '61-0011, 1961 Boeing B-52H Stratofortress, C/N: 464438', *Airport-Data.com*, photo ID: AC1734897, photo date 18 April 2021, uploaded 25 December 2022, [accessed 18 August 2023], at https://www.airport-data.com/aircraft/photo/001734897.html.

Secondary source:
Florida Metal, '61-0011, 1961 Boeing B-52H Stratofortress, C/N: 464438', *Airport-Data.com*, photo ID: AC1734896, photo date 18 April 2021, uploaded 25 December 2022, [accessed 25 July 2023], at https://www.airport-data.com/aircraft/photo/001734896.html.

61-0012

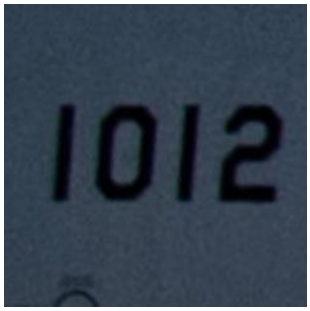
Status — Active

Armament classification — Nuclear-capable

Confidence level — High

Air Force serial number	61-0012
Tail number	AF 61 012
Fuselage nose number	1012
Construction number	464439

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing



Primary source:
Christopher Qua, 'Sequenced Bomber Missions to Australia Showcase', *Andersen Air Force Base*, (image 3 of 3), VIRIN: 180807-F-NX530-1034, photo date 6 August 2018, uploaded 21 August 2018, [accessed 28 February 2024], at https://www.andersen.af.mil/News/Features/Article/1611297/sequenced-bomber-missions-to-australia-showcase-alliance/. High resolution at https://media.defense.gov/2018/Aug/17/2001955934/-1/-1/0/180807-F-NX530-1034.JPG.

Secondary source:
Aileen Lauer, 'B-52 takes off at Morón Air Base for BTF operations [Image 2 of 2]', *DVIDS*, VIRIN: 210614-F-QB377-217, photo date 14 June 2021, uploaded 14 June 2021, [accessed 16 February 2024], at https://www.dvidshub.net/image/6691193/b-52-takes-moron-air-base-btf-operations.

61-0013

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0013
Tail number	AF 61 013
Fuselage nose number	1013
Construction number	464440

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing

Primary source:
Michiel Van Herten, '61-0013', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 28 March 2019, uploaded 20 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

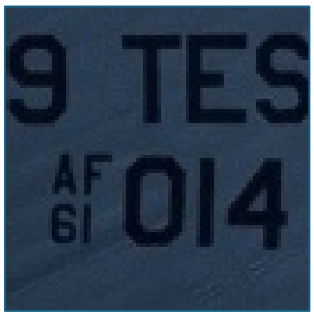
Secondary source:
Nick Sheeder, '61-0013', *Jetphotos*, photo date 25 January 2023, uploaded 13 February 2023, [accessed 25 July 2023], at https://www.jetphotos.com/photo/10863144.

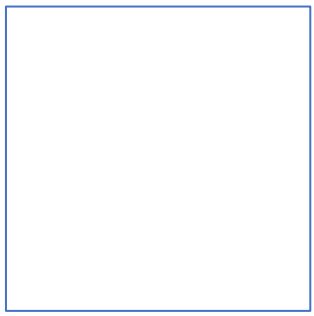
61-0014

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0014
Tail number	AF 61 014
Fuselage nose number	1014
Construction number	464441

Main operating base	Barksdale AFB, Louisiana
Unit	49th Test and Evaluation Squadron, 53rd Wing





Primary source:
William Lewis, 'WSINT 23-1 Taxi and Take off', *Barksdale Air Force Base*, VIRIN: 230531-F-UT528-1001, photo date 31 May 2023, uploaded n.d., [accessed 5 September 2023], at https://www.afgsc.af.mil/News/Photos/igphoto/2003273762/. High resolution at https://media.defense.gov/2023/Aug/02/2003274566/-1/-1/0/230531-F-UT528-1001.JPG.

Secondary source:
paulp, '61-0014, 1961 Boeing B-52H Stratofortress, C/N: 464441, *Airport-Data.com*, photo ID: AC1289019, photo date 27 April 2017, uploaded 27 April 2017, [accessed 25 July 2023], at https://www.airport-data.com/aircraft/photo/001289019.html.

61-0015

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0015
Tail number	AF 61 015
Fuselage nose number	1015
Construction number	464442

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing

Primary source:
Aileen Lauer, 'B-52s Take of in Support of Operation Allied Sky [Image 1 of 3]', *DVIDS*, photo ID: 6670120, VIRIN: 210531-F-QB377-508, photo date 31 May 2021, uploaded 31 May 2021, [accessed 16 February 2024], at https://www.dvidshub.net/image/6670120/b-52s-take-support-operation-allied-sky.

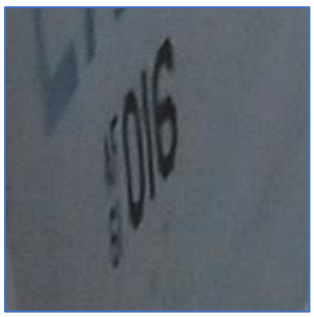
Secondary source:
Michiel Van Herten, '61-0015', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 28 March 2019, uploaded 20 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

61-0016

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0016
Tail number	AF 61 016
Fuselage nose number	1016
Construction number	464443

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing



Primary source:
Alexandre Montes, 'Red Flag Nellis: Heating up', *DVIDS*, photo ID: 6745964, VIRIN: 210721-F-BN304-045, photo date 21 July 2021, uploaded 22 July 2021, [accessed 1 March 2024], at https://www.dvidshub.net/image/6745964/red-flag-nellis-heating-up.

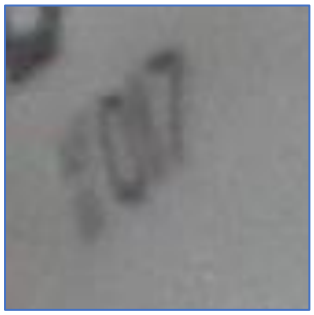
Secondary source:
Tessa Corrick, 'Exercise tests Barksdale's readiness', *Barksdale Air Force Ba*se, VIRIN: 200925-F-DX695-1087, photo date 25 September 2020, uploaded n.d., [accessed 5 September 2023], at https://www.barksdale.af.mil/News/Photos/igphoto/2002506237/.

61-0017

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0017
Tail number	AF 61 017
Fuselage nose number	1017
Construction number	464444

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



Enhanced:



Primary source:
Steve Barnes, '61-1017-OSH-28-07-2018', *Flickr*, photo date 28 July 2018, uploaded 28 December 2018, [accessed 5 September 2023], at https://www.flickr.com/photos/swbkcb/45779794194/.

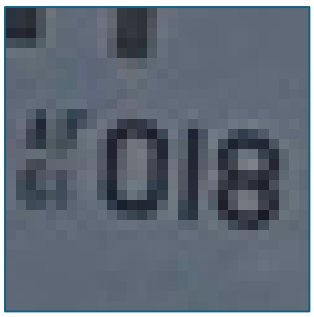
Secondary source:
Florida Metal, '61-0017, 1961 Boeing B-52H Stratofortress, C/N: 464444', *Airport-Data.com*, photo ID: AC1742390, photo date 28 July 2018, uploaded 7 February 2023, [accessed 25 July 2023], at https://www.airport-data.com/aircraft/photo/001742390.html.

61-0018

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0018
Tail number	AF 61 018
Fuselage nose number	1018
Construction number	464445

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing



Primary source:
Kyle Cortis, '61-0018', *Jetphotos*, photo date 9 March 2022, uploaded 28 March 2022, [accessed 25 July 2023], at https://www.jetphotos.com/photo/10520223

Secondary source:
Luke Weigel, '61-0018', *Jetphotos*, photo date 11 June 2021, uploaded 26 June 2021, [accessed 19 August 2021], at https://www.jetphotos.com/photo/10201470.

61-0019

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0019
Tail number	AF 61 019
Fuselage nose number	1019
Construction number	464446

Main operating base	Edwards AFB, California
Unit	419th Flight Test Squadron, 412th Test Wing

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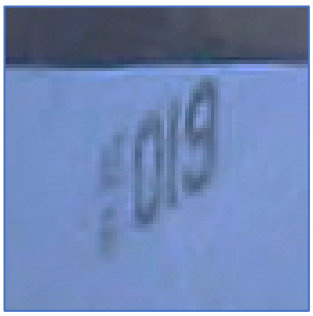
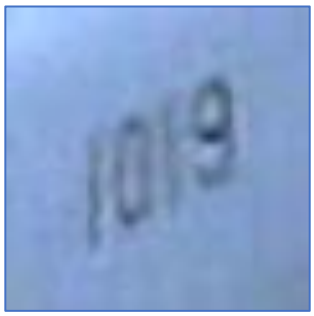



Primary source:
Charles Dover, 'B-52H 61-0019 419th FLTS/ 412th TW', *Flickr*, photo date 4 May 2022, uploaded 9 June 2022, [accessed 20 April 2024], at https://www.flickr.com/photos/charlesdover/52135077690/.

Secondary source:
jbp274, 'United States Air Force Boeing B-52H Stratofortress 61-0019', *Flickr*, photo date 2 October 2021, uploaded 8 October 2021, [accessed 19 August 2023], at https://www.flickr.com/photos/92009354@N00/51566070459/.

61-0020

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0020
Tail number	AF 61 020
Fuselage nose number	1020
Construction number	464447

Main operating base	Barksdale AFB, Louisiana
Unit	20th Bomb Squadron, 2nd Bomb Wing (20 BS flagship)

Primary source:
61-0020 - William R. Lewis, 'Red Flag 21-3 Aircraft Take offs [Image 8 of 8]', *DVIDS*, photo ID: 6747559, VIRIN: 210722-F-UT528-1006, photo date 22 July 2021, uploaded 23 July 2021, [accessed 1 March 2021], at https://www.dvidshub.net/image/6747559/red-flag-21-3-aircraft-take-offs.

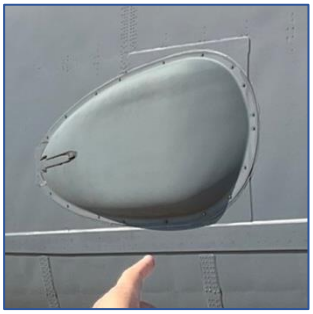
Secondary source:
Jeff Rojas, '61-0020', *Jetphotos*, photo date 22 July 2021, uploaded 27 July 2021, [accessed 25 July 2023], at https://www.jetphotos.com/photo/10233390.

61-0021

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0021
Tail number	AF 61 021
Fuselage nose number	1021
Construction number	464448

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing



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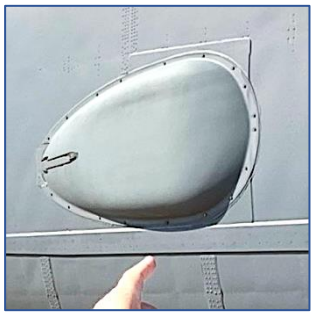
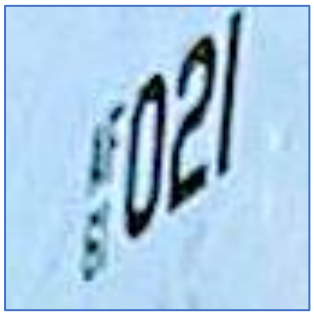
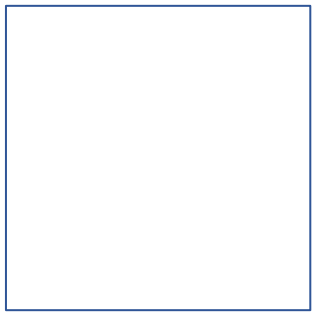






Primary source:
Hans Kristensen@nukestrat, *X*, photo date 19 September 2022, uploaded 19 September 2022, [accessed 3 August 2023], at https://twitter.com/nukestrat/status/1571518011143602176.

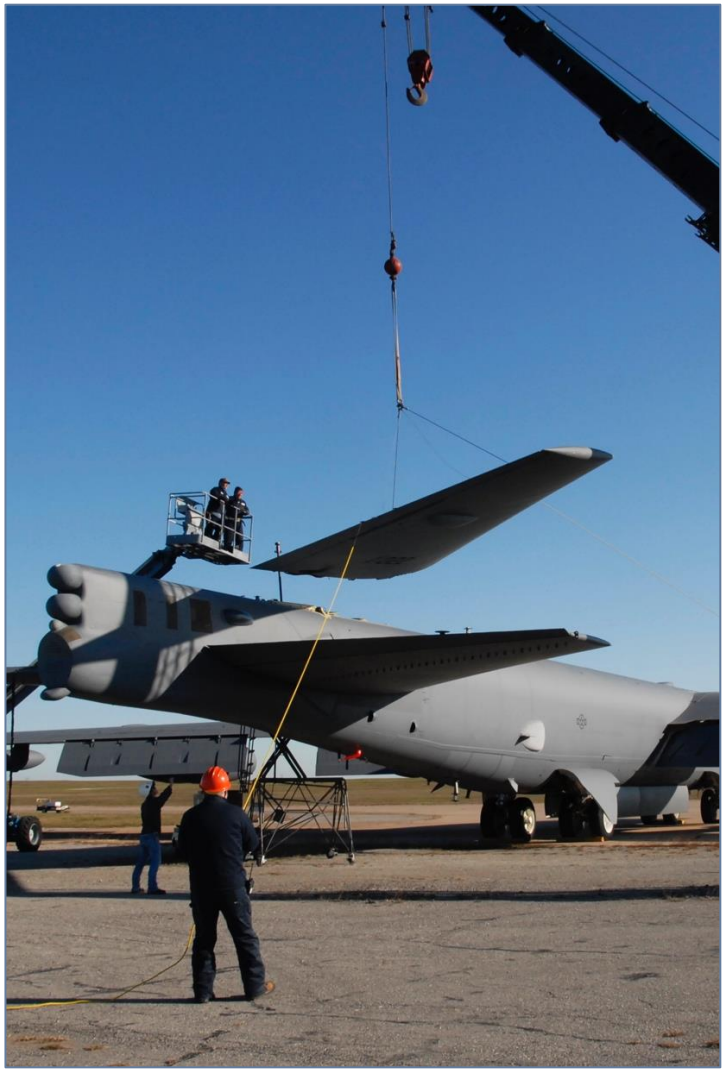
Secondary source:
William H Davis Jr, 'B-52 Bomber Barksdale Airforce Base', *Flickr*, photo date 8 January 2020, uploaded 9 January 2020, [accessed 6 September 2023], at https://www.flickr.com/photos/93561133@N03/49354642823/.

61-0022

Status	Inactive - GITA
Armament classification	N/A
Confidence level	N/A

Air Force serial number	61-0022
Tail number	AF 61 022
Fuselage nose number	1022
Construction number	464449

Main operating base	Sheppard AFB, Texas
Unit	82nd Training Wing



Enhanced :

Primary source:
Mike Littekin, 'Historical B-52 transitions from operational to trainer', *Sheppard Air Force Base*, VIRIN: 091117-F-8781L-001, photo date 17 November 2009, uploaded n.d., [accessed 2 March 2024], at https://www.sheppard.af.mil/News/Photos/igphoto/2000430235/. High resolution at https://media.defense.gov/2009/Nov/18/2000430235/-1/-1/0/091117-F-8781L-001.JPG.

Secondary source:
Amarillo Aviation, 'Boeing B-52H Stratofortress 61-0022', *Flickr*, photo date 17 September 2016, uploaded 22 September 2016, [accessed 21 August 2023], at https://www.flickr.com/photos/i9i_photography/29845609845/in/album-72157676191583663/.

Notes:
The Sheppard Air Force Base primary source from 17 November 2009 shows the B-52H tail being removed, with the text indicating conversion to ground maintenance role at that point. The presence of the New START fin in the primary source was not itself indicative of nuclear-capable status, although in 2009, 61-0022, like all other active B-52H aircraft, was nuclear-capable.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 25 July 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

John Ingle, 'Sheppard receives historic B-52H for training', *Sheppard Air Force Base*, VIRIN: 090909-F-2316I-101, photo date 9 September 2009, uploaded n.d., [accessed 2 March 2024], at https://www.sheppard.af.mil/News/Photos/igphoto/2000486310/.

61-0023

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	61-0023
Tail number	AF 61 023
Fuselage nose number	1023
Construction number	464450

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

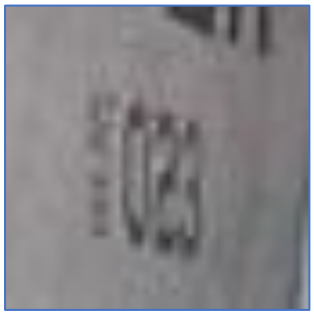
61-0023

Boeing B-52H Stratofortress

PCN	AABC0481
Code	LA
CN	464450
Unit	20th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	24-JUL-2008
Notes	
Departure Date	
Disposition	

Primary source:
'61-0023 Boeing B-52H Stratofortress', *AMARC Experience Database*, [accessed 6 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
Eric Salard, '61-0023 B-52H AMARG DMA', *Flickr*, photo date 29 July 2013, uploaded 3 June 2020, [accessed 7 May 2024], at https://www.flickr.com/photos/airlines470/49967421363/.



Notes:
AMARC records tail data as LA, 20th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 25 July 2023, at https://www.joebaugher.com/usaf_serials/1961.html

61-0024

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	61-0024
Tail number	AF 61 024
Fuselage nose number	1024
Construction number	464451

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

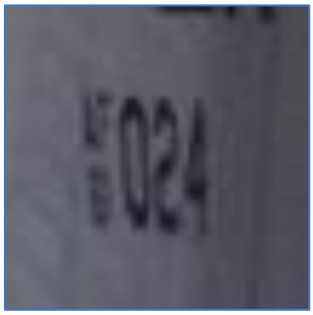
61-0024

Boeing B-52H Stratofortress

PCN	AABC0491
Code	
CN	464451
Unit	96th Bomb Squadron/2nd Bomb Wing, Barksdale AFB, LA.
Arrival Date	06-JAN-2009
Notes	
Departure Date	
Disposition	

Primary source:
'61-0024 Boeing B-52H Stratofortress', *AMARC Experience Database*, [accessed 6 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
Jay Dee Kay, '61-0024 - Davis Monthan AMARC (DMA) 24.09.2009', *Flickr*, photo date 24 September 2009, uploaded 21 October 2015, [accessed 7 May 2024], at https://www.flickr.com/photos/jaydeekay/22327380416/.



Notes:
AMARC records tail data as 96th Bomb Squadron, 2nd Bomb Wing.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 25 July 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

61-0025

Status	Inactive - GITA
Armament classification	N/A
Confidence level	N/A

Air Force serial number	61-0025
Tail number	AF 61 025
Fuselage nose number	1025
Construction number	464452

Main operating base	Sheppard AFB, Texas
Unit	82nd Training Wing

Primary source:
Jason Grant, '61-0025 B-52H NASA 82d TRW', *Flickr*, photo date 23 October 2012, uploaded 26 March 2013, [accessed 5 May 2024], at https://www.flickr.com/photos/jasonintamworth/8592488862/in/album-72157632319076274/.

Secondary source:
Zane Adams, '61-0025 - 1961 Boeing B-52H Stratofortress C/N 464452', *Airport-Data.com*, photo date 17 September 2016, photo uploaded 26 April 2016, [accessed 15 September 2023], at https://www.airport-data.com/aircraft/photo/001403257.html.

Notes:
61-0025 was transferred from NASA to Sheppard AFB on 9 May 2008.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 25 July 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

Yvonne Gibbs, 'NASA Armstrong Fact Sheet: B-52H Air-Launch and Research Testbed', *NASA News*, 1 March 2014, updated 7 August 2017, at https://www.nasa.gov/centers/armstrong/news/FactSheets/FS-094-DFRC.html.

David Cenciotti, 'Watch these rare photos of NASA's white B-52H Stratofortress refueling from an Air Force tanker', *The Aviationist*, 16 August 2013, at https://theaviationist.com/2013/08/16/nasa-b-52/.

61-0027

Status	Storage - restorable
Armament classification	Conventional-only
Confidence level	N/A

Air Force serial number	61-0027
Tail number	AF 61 027
Fuselage nose number	1027
Construction number	464454

Main operating base	Davis-Monthan AFB, Arizona
Unit	309th Aerospace Maintenance and Regeneration Group

AMARC Experience Database

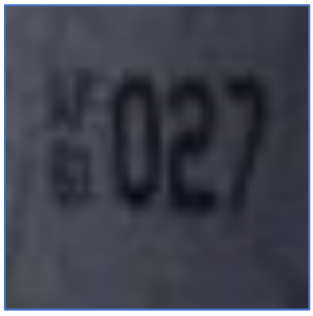
61-0027

Boeing B-52H Stratofortress

PCN	AABC0492
Code	MT
CN	464454
Unit	23rd Bomb Squadron/5th BW, Minot AFB, ND.
Arrival Date	21-JAN-2009
Notes	
Departure Date	
Disposition	

Primary source:
'61-0027', *AMARC Experience Database*, [accessed 6 August 2023], at http://www.amarcexperience.com/ui/index.php.

Secondary source:
Jay Dee Kay, '61-0027 - Davis Monthan AMARC (DMA) 24.09.2009', *Flickr*, photo date 24 September 2009, uploaded 1 March 2017, [accessed 7 May 2024], at https://www.flickr.com/photos/jaydeekay/32380478703/



Notes:
AMARC records tail data as MT, 23rd Bomb Squadron, 5th Bomb Wing.

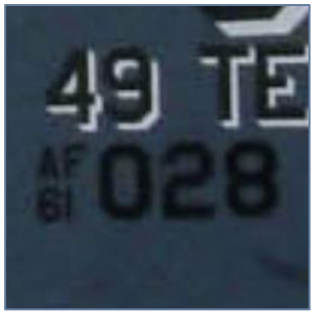
Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 25 July 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

61-0028

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0028
Tail number	AF 61 028
Fuselage nose number	1028
Construction number	464455

Main operating base	Barksdale AFB, Louisiana
Unit	49th Test and Evaluation Squadron, 53rd Wing



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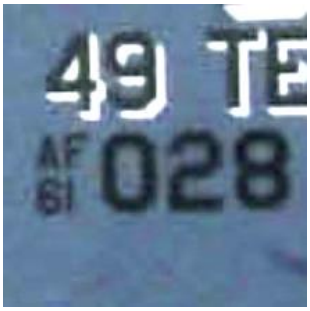

Primary source:
Alexander Nottingham, 'B-52 OT, WPS, and Ops squadrons collaborate during Test and Weapons School Roadshow at Minot AFB', *U.S. Strategic Command*, photo date 7 July 2022, uploaded 27 July 2022, [accessed 16 February 2024], at https://www.stratcom.mil/Media/News/News-Article-View/Article/3110386/b-52-ot-wps-and-ops-squadrons-collaborate-during-test-and-weapons-school-roadsh/. High resolution at https://media.defense.gov/2022/Jul/27/2003044295/-1/-1/0/220707-F-EQ797-1007.JPG.

Secondary source:
Dayon Wong, '61-0028', *Jetphotos*, photo date 28 August 2020, uploaded 14 September 2020, [accessed 5 August 2023], at https://www.jetphotos.com/photo/9847871.

61-0029

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0029
Tail number	AF 61 029
Fuselage nose number	1029
Construction number	464456

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing (93rd BS flagship)

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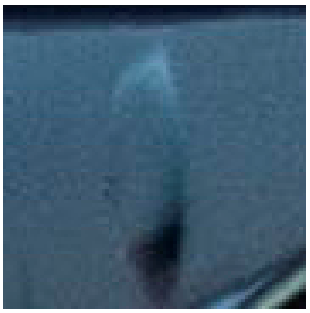

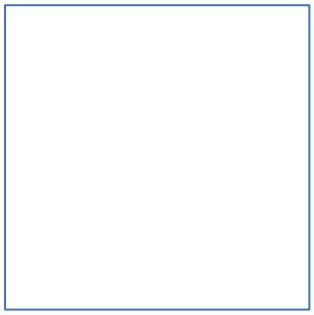

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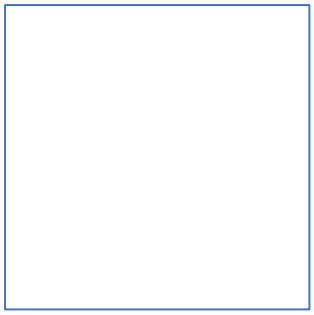
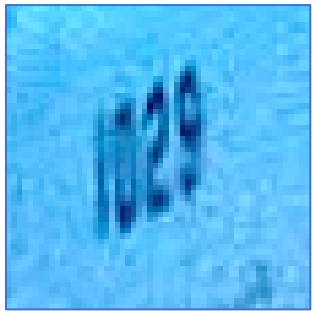




Primary source:
Dwane Young, 'Weapons School exercise kicks off [Image 2 of 11]', *DVIDS*, photo ID: 6675868, VIRIN: 210602-F-NX702-1005, photo date 2 June 2021, uploaded 3 June 2021, [accessed 7 March 2024], at https://www.dvidshub.net/image/6675868/weapons-school-exercise-kicks-off. High resolution at https://media.defense.gov/2021/Jun/07/2002736846/-1/-1/0/210602-F-NX702-1005.JPG.

Secondary source:
William R. Lewis/USAF, 'A B-52H Stratofortress bomber assigned to the 340th Weapons Squadron at Barksdale Air Force Base, La., takes off during a Weapons School Integration exercise at Nellis Air Force Base, Nev., June 2, 2021', in 'B-52 Stratofortress', *National Review*, 6 August 2021, photo number 36/42, at https://www.nationalreview.com/photos/us-air-force-b-52-stratofortress/.

61-0031

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0031
Tail number	AF 61 031
Fuselage nose number	1031
Construction number	464458

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing

Primary source:
Jonn Cruz, '61-0031', *Jetphotos*, photo date 24 September 2022, uploaded 29 October 2022, [accessed 5 August 2023], at https://www.jetphotos.com/photo/10746907.

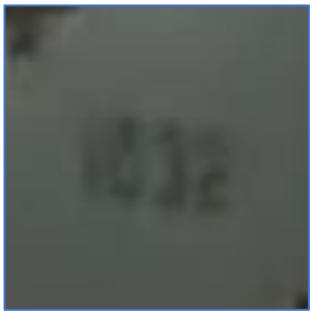
Secondary source:
Erik Johnston, 'B-52 Walkaround Stratofortress', *YouTube*, uploaded 7 October 2021, [at 1:12:24 mins.], at https://www.youtube.com/watch?v=2sHUJnsMC2M.

61-0032

Status	Inactive - GITA
Armament classification	N/A
Confidence level	N/A

Air Force serial number	61-0032
Tail number	AF 61 032
Fuselage nose number	1032
Construction number	464459

Main operating base	Minot AFB, North Dakota
Unit	-



Primary source:
USA News YouTube Channel, '[US Air Force glides toward B-52 engine replacement plan]', *YouTube*, 5 September 2017, (video at single pan from 3:57 – 4:08 mins.) at https://www.youtube.com/watch?v=5XvLa5sylmk.

Secondary source:
Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, [accessed 6 August 2023], at https://www.joebaugher.com/usaf_serials/1961.html.

Notes:
Redesignated as GB-52H. 5 September 2017 USA News video shows 61-0032 in a hangar, without tail, undergoing tests and engine disassembly, and installation of a cruise missile labelled 'NON-FLIGHT HARDWARE'. The main images above are clipped from a single uninterrupted pan from the tail starting at 3:57 mins. to the nose at 4:08 mins.

61-0034

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0034
Tail number	AF 61 034
Fuselage nose number	1034
Construction number	464461

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

Primary source:
Jan Valle (photographer), 'Bomber Barons return from Bomber Task Force Europe', *Minot Air Force Base*, VIRIN: 200926-F-AV821-027.JPG, (photo 2 of 4) photo date 26 September 2020, uploaded 5 October 2020, [accessed 17 February 2024], at https://www.minot.af.mil/News/Article-Display/Article/2371796/bomber-barons-return-from-bomber-task-force-europe/. Higher resolution at https://media.defense.gov/2020/Oct/05/2002511562/-1/-1/0/200926-F-AV821-027.JPG.

Secondary source:
Darren Currie, 'B-52H - 61-0034 / MT 'Checkmate' – 'KAGO 12' - 23d EBS Minot AFB', *Flickr*, photo date 14 September 2020, uploaded 27 September 2020, [accessed 7 March 2024], at https://www.flickr.com/photos/22790934@N07/50389558088/.

61-0035

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0035
Tail number	AF 61 035
Fuselage nose number	1035
Serial number	464462

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing

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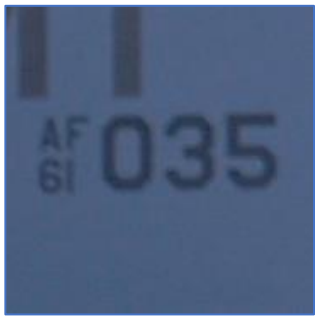


Primary source:
Seth Watson, 'Barksdale participates in Global Thunder 23 [Image 4 of 4]', *DVIDS*, photo ID7740373, VIRIN 230412-F-KW266-1011, photo date 12 April 2023, uploaded 12 April 2023, [accessed 17 February 2024], at https://www.dvidshub.net/image/7740373/barksdale-participates-global-thunder-23.

Secondary source:
Joshua Ruppert, 'B-52-61-0035 45 (6)', *Flickr*, photo date 3 August 2018, uploaded 31 October 2020, [accessed 6 September 2023], at https://www.flickr.com/photos/130680687@N02/50552648287/.

61-0036

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0036
Tail number	AF 61 036
Fuselage nose number	1036
Construction number	464463

Main operating base	Barksdale AFB, Louisiana
Unit	96th Bomb Squadron, 2nd Bomb Wing

Primary source:
EdilsonCarlos, '61-0036', *Jetphotos*, photo date 3 April 2018, uploaded 20 April 2018, [accessed 7 August 2023], at https://www.jetphotos.com/photo/8925507.

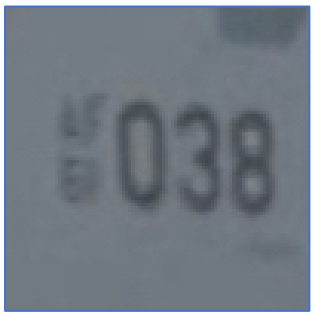
Secondary source:
Positive Rate Photography, '61-0036', *Jetphotos*, photo date 5 October 2020, uploaded 15 January 2021, [accessed 7 August 2023], at https://www.jetphotos.com/photo/10016723.

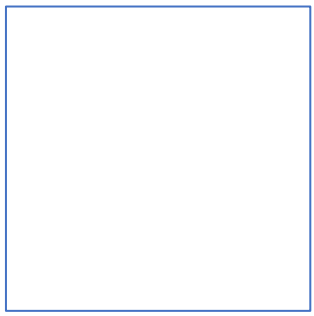
61-0038

Status	Active
Armament classification	Conventional-only
Confidence level	High

Air Force serial number	61-0038
Tail number	AF 61 038
Fuselage nose number	1038
Construction number	464465

Main operating base	Barksdale AFB, Louisiana
Unit	93rd Bomb Squadron, 307th Bomb Wing





Primary source:
61-0038 - Max Daigle, 'B-52 Stratofortresses at sunrise', *DVIDS*, video ID - 691406, VIRIN: 190620-F-AC305-1001, video date 20 June 2019, uploaded 20 June 2019, (at 6:58 mins), [accessed 22 February 2024], at https://www.dvidshub.net/video/691406/b-52-stratofortresses-sunrise.

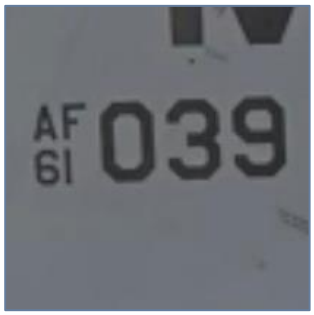
Secondary source:
Lieuwe Hofstra, '61-0038', *Flickr*, photo date 18 May 2019, uploaded 13 February 2022, [accessed 10 October 2023], at https://www.flickr.com/photos/lieuwe/51879485511.

61-0039

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0039
Tail number	AF 61 039
Fuselage nose number	1039
Construction number	464466

Main operating base	Minot AFB, North Dakota
Unit	69th Bomb Squadron, 5th Bomb Wing



Primary source:
Kyle Wilson, 'Team Minot executes Surge Week', *DVIDS*, 14 December 2023, video ID: 907787, VIRIN: 231214-F-VB725-1001 (video at 00:43 mins.), video date 14 December 2023, uploaded 18 December 2023, [accessed 22 February 2024], at https://www.dvidshub.net/video/907787/team-minot-executes-surge-week.

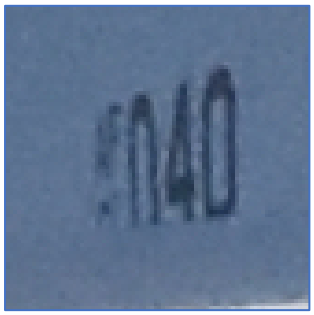
Secondary source:
Robert Symes, '61-0039 B52-H as Nobel 42. "The Warrior", returns to RAF Fairford after a training sortie', *Flickr*, photo date 24 February 2022, uploaded 25 February 2022, [accessed 10 October 2023], at https://www.flickr.com/photos/91936841@N08/51900680382/.

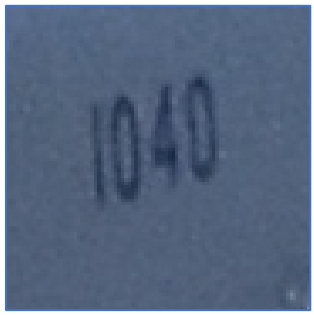
61-0040

Status	Active
Armament classification	Nuclear-capable
Confidence level	High

Air Force serial number	61-0040
Tail number	AF 61 040
Fuselage nose number	1040
Construction number	464467

Main operating base	Minot AFB, North Dakota
Unit	23rd Bomb Squadron, 5th Bomb Wing





Primary source:
Andrew Lawrence, '61-0040 - DSC_7235.JPG', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 13 February 2024 (time: 16:37:13), uploaded 21 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

Secondary source:
Andrew Lawrence, '61-0040 – DSC_7249.JPG', *Nuclear-capable B-52H Stratofortress bombers image gallery*, image supplied, photo date 13 February 2024, (time: 16:37:27), uploaded 21 May 2024, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

Notes:
Both sources show images of 61-0040 over Tinker Air Force Base taken seconds apart. Both images, kindly provided by Andrew Lawrence (Andy-87), have EXIF data verifying date and time. Both have been uploaded to the *Nuclear-capable B-52H Stratofortress bombers image gallery*, at https://nautilus.org/briefing-books/australian-defence-facilities/nuclear-capable-b-52h-stratofortress-bombers-image-gallery/.

Andy-87 (Andrew Lawrence), 'B-52H 61-0040 at Tinker AFB', *r/planespotting, Reddit*, '28 days ago', photo date: n.d., upload date c. 15 February 2024, [accessed 13 March 2024], at https://www.reddit.com/r/Planespotting/comments/1aq703j/b52h_610040_at_tinker_afb/.

Joe Baugher, '1961 USAF Serial Numbers', *Joe Baugher.com*, revised 25 July 2023, at https://www.joebaugher.com/usaf_serials/1961.html.

Part 4. Technical appendices

Appendix 1. B-52H command structure

All frontline B-52H bombers in the USAF are assigned to two major commands that report directly to USAF Headquarters – Air Force Global Strike Command (AFGSC) and Air Force Reserve Command (AFRC) (Box 1.) If mobilized, all B-52H air-reserve forces are gained by Air Force Reserve Command. A handful of active B-52H training and testing aircraft are operated by Air Combat Command and Air Force Material Command. Air Force Material Command is also responsible for operating those B-52H bombers held in long-term storage at the 309th Aerospace Maintenance and Regeneration Group (AMARG), located at the Davis–Monthan AFB, Tucson, Arizona.

Major Commands are generally organized into one or more numbered air force, wing, group, and squadron. Numbered Air Forces provide operational leadership and supervision for subordinate wings, groups and squadrons. The Eighth Air Force, assigned to AFGSC, and the Tenth Air Force, assigned to AFRC, are the two Numbered Air Forces with subordinate B-52H units. Wings are comprised of a flying component along with various operational and mission support functions. There are some 58 active-duty B-52H bombers operated by the 2nd and 5th Bomb Wings (BWs) assigned to Eighth Air Force and a further 18 air-reserve B-52H bombers operated by the 307th Bomb Wing assigned to Tenth Air Force. Both the 2nd and 307th wings are located at Barksdale AFB, Louisiana, while the 5th wing is located at Minot AFB, North Dakota.

The flying and operational component of each B-52H wing is organized into the operations group (OG). The 2nd OG of the 2nd BW operates the 11th, 20th and 96th bomb squadrons; the 5th OG of the 5th BW operates the 23rd and 69th bomb squadrons; and the 307th OG of the 307th BW operates the 93rd and 343rd bomb squadrons. Two training and operational testing squadrons assigned to Air Combat Command – the 49th Test and Evaluation Squadron and 340th Weapons Squadron – operate as 'tenant' units hosted by the 307th BW at Barksdale AFB.[102] An additional squadron responsible for developmental testing is operated by the 412th Test Wing at Edwards AFB, California, assigned to Air Force Material Command.

[102] In 2023, the 49th Test and Evaluation Squadron and 340th Weapons Squadron reportedly joined to form an integrated team for testing and developing tactics for unfielded B-52 systems. Captain Lindsey Heflin, 53rd Wing, 'B-52 Operational Test and Weapons School form "Super Squadron"', *Air Force Global Strike Command*, 3 August 2023, at https://www.afgsc.af.mil/News/Article-Display/Article/3481617/b-52-operational-test-and-weapons-school-form-super-squadron/

Box 1. USAF B-52H Command Structure - organisation

Air Force Global Strike Command (AFGSC) is headquartered at Barksdale AFB, Louisiana. It is responsible for nuclear deterrence and global strike operations and is comprised of three intercontinental ballistic missile wings and the USAF's entire bomber force. AFGSC is responsible for two numbered air forces (NAFs) that provide operational leadership and supervision for subordinate wings, groups and squadrons. Eighth Air Force is the subordinate NAF of AFGSC that operates the B-52H bomber.

Eighth Air Force (8th AF) is headquartered at Barksdale AFB, Louisiana. It is the single bomber force provider for all combatant commands. The Commander of 8th AF also commands the Joint – Global Strike Operations Centre (J – GSOC) which together conduct indefinite strategic deterrence operations worldwide. The 2nd and 5th bomb wings are the subordinate units of the 8th AF that operate the B-52H bomber.

2nd Bomb Wing (2nd BW) is located at Barksdale AFB, Louisiana. It is the largest bomb wing of AFGSC. The flying and operational component of the 2nd BW is organised into the **2nd Operations Group** which operates three B-52H bomb squadrons:

11th Bomb Squadron (11th BS)

11th BS also operates the B-52 Formal Training Unit, in association with 93rd BS.

20th Bomb Squadron (20th BS)

96th Bomb Squadron (96th BS)

5th Bomb Wing (5th BW) is located at Minot AFB, North Dakota. The flying and operational component of the 5th BW is organised into the **5th Operations Group** which operates two B-52H bomb squadrons:

23rd Bomb Squadron (23rd BS)

69th Bomb Squadron (69th BS)

Air Force Reserve Command (AFRC) is headquartered at Robins AFB, Georgia. It is the federal air reserve component of the USAF and its responsibilities include supporting global strike and nuclear deterrence operations. AFRC is responsible for three NAFs. Tenth Air Force is the subordinate NAF of AFRC that operates the B-52H bomber which, if mobilised, are gained by AFGSC.

Tenth Air Force (10th AF) is headquartered at Naval Air Station Joint Reserve Base Fort Worth, Texas. Among other functions it manages and supervises all reserve fighter and bomber operations and training. 10th AF flying units are either classic or active associates. Classic associates are located with host active-duty wings who own the aircraft or mission related equipment. In the case of active associates the air-reserve unit owns aircraft or equipment and the active-duty unit provides the resources. The 307th Bomb Wing is the single subordinate unit of the 10th AF that operates the B-52H bomber.

307th Bomb Wing (307th BW) is headquartered at Barksdale AFB, Louisiana. It operates both the B-52H and B-1 Lancer bombers. The flying and operational component of the 307th BW that comprises the B-52H is organised into the **307th Operations Group** which operates two bomb squadrons:

93rd Bomb Squadron (93rd BS)

93rd BS administers the B-52 Formal Training Unit and qualifies aircrew to operate the B-52, in *active association* with 11th BS, 2nd OG.

343rd Bomb Squadron (343rd BS)

343rd BS performs the nuclear enterprise and global strike missions in *classic association* with the 2nd OG.

307th BW also hosts two tenant units that operate the B-52H bomber from Barksdale AFB but that report to **Air Combat Command (ACC):**

49th Test and Evaluation Squadron (49th TES)

49 TES is a geographically separated active unit of the 53rd Wing (53 WG) headquartered at Eglin AFB, Florida, assigned to the USAF Warfare Centre, headquartered at Nellis AFB, Nevada, reporting directly to ACC. 49 TES is tasked with supporting and conducting operational testing for the B-52H. It is assigned aircraft from AFGSC, with the 307th BW generating sorties for the 49th TES.

340th Weapons Squadron (340th WPS)

340th WPS is a geographically separated active unit of the USAF Weapons School, part of the 57th Wing (57th WG) assigned to the USAF Warfare Centre, reporting directly to ACC. 340th WPS provides instructional flying for the B-52H bomber.

In 2023, the 49th TES and the 340th WPS joined to form an integrated team for testing and developing tactics for unfielded B-52 systems.

Air Force Material Command (AFMC) is headquartered at Wright-Patterson AFB, Ohio. AFMC conducts research, development, test and evaluation, and provides the acquisition management services and logistics support to the USAF. The Air Force Test Centre is the single subordinate unit of the AFMC that operates the B-52H bomber.

Air Force Test Centre (AFTC) is headquartered at Edwards AFB, California. The AFTC conducts developmental and follow-on testing and evaluation of air, space, cyber and emerging systems. AFTC also operates the Air Force Test Pilot School where pilots, navigators, and engineers learn how to conduct flight tests. The AFTC has one subordinate unit (412th Test Wing) that operates the B-52H bomber.

412th Test Wing (412th TW) is located at Edwards AFB. It conducts, analyzes and reports on all flight and ground testing of aircraft, weapons systems, software and components in addition to modelling and simulation for the USAF. The flying and operational component of the 412th TW that comprises the B-52H bomber is organised into the **412th Operations Group** which operates one squadron:

419th Flight Test Squadron (419th FLTS) is located at Edwards AFB. It is responsible for the developmental test and evaluation of the B-52H, B1-B Lancer and B-2A Spirit bombers.

AFMC also operates the **309th Aerospace Maintenance and Regeneration Group (309th AMARG)** located on the Davis–Monthan AFB, Tucson, Arizona. AFMC provides critical aerospace maintenance and regeneration capabilities for all branches of the US military. There are presently 11 B-52H (10 restorable, 1 dismantled) aircraft held in long-term storage at 309th AMARG.

Appendix 2. B-52H Fleet Structure, 2007-2024

In 2007, after rejecting a series of proposals by the United States Air Force (USAF) to drastically reduce the B-52H fleet, the U.S. Congress reached a compromise that mandated no fewer than 76 aircraft be maintained in service to meet long-range strike requirements.[103] At that time, there were 94 B-52H aircraft in the USAF inventory, with eight of the 102 originally built in 1960 and 1961 having been destroyed in aviation incidents (Table 9).[104]

On 24 July 2008, the USAF announced that it had retired the first of an intended 18 B-52H bombers (AF Serial No: 61-0023) in order to meet the congressionally mandated target of 76 aircraft. One B-52H bomber would be retired and placed in long-term storage every two weeks thereafter until all 18 were decommissioned.[105] However, on 21 July 2008, just prior to the Air Force announcement, a B-52H bomber (60-0053) was destroyed in an aviation incident, leaving 93 aircraft of the 102 originally built.

Between 24 July 2008 and 21 January 2009, according to an unofficial but comprehensive database of aircraft in long-term storage at the 309th Aerospace Maintenance and Regeneration Group (AMARG), Davis-Monthan AFB, Arizona, 13 of the retired B-52H aircraft were transferred to the Arizona storage facility.[106] In the same years an additional two aircraft became ground instructional training aircraft (GITA). On 9 May 2008, a B-52H bomber (61-0025) that had been a testbed aircraft for NASA was transferred to Sheppard AFB, Texas, and designated a GITA.[107] This was followed by a second GITA designation (61-0022) on 9 September 2009, also transferred to Sheppard AFB.[108]

GITA are ground instructional training aircraft used for personnel and maintenance training. Previously, GITA could either be temporarily grounded as 'active' GITA, subject to recall to the active fleet (which includes active duty and air reserve aircraft), or permanently

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[103] The congressional mandate was issued as part of the FY2008 Defense Authorisation Bill. 'U.S. Strategic Nuclear Forces: Background, Developments, and Issues', *Congressional Research Service*, updated 14 December 2021, pp. 41-3, at https://sgp.fas.org/crs/nuke/RL33640.pdf

[104] A more detailed chronology of B-52H fleet structure and armament capability changes is set out in Vince Scappatura and Richard Tanter, *B-52H Fleet Structure and New START Treaty-related Armament Capability Changes, 2008 – 2024*, at https://nautilus.org/wp-content/uploads/2024/05/B-52H-Fleet-Structure-and-New-START-Treaty-related-Armament-Capability-Changes-2008-2024-8-July-2024-1.pdf.

[105] Benjamin Stratton, 'B-52H reaches retirement', *Minot Air Force Base*, 30 July 2008, at https://www.af.mil/News/Article-Display/Article/122845/b-52h-reaches-retirement/

[106] AMARC Experience Database, last updated 19 April 2024, http://www.amarcexperience.com/ui/index.php?option=com_content&view=article&id=30&Itemid=220

[107] 'B-52 Heavy-lift Airborne Launch Aircraft', NASA, updated 12 August 2009, at https://www.nasa.gov/reference/b-52/; David Cenciotti, 'Watch these rare photos of NASA's white B-52H Stratofortress refueling from an Air Force tanker', *The Aviationist*, 16 August 2013, at https://theaviationist.com/2013/08/16/nasa-b-52/

[108] 'Sheppard receives historic B-52H for training', *Sheppard Air Force Base*, n.d. [accessed 6 December 2023], at https://www.sheppard.af.mil/News/Photos/igphoto/2000486310/

grounded as 'inactive' GITA.[109] However, from 2013, B-52H GITA began to be rendered permanently non-flyable by removing the vertical fin to comply with the requirements of the New START Treaty.[110] Current USAF guidelines specify that all GITA are permanently grounded and maintained in a non-flyable but system/subsystem operational condition for the purpose of maintenance training. They are redesignated with the addition of the prefix 'G', i.e. 'GB-52H'.[111]

In 2024, the USAF maintains four B-52H GITA in total, including the two aircraft transferred to Sheppard AFB in 2008 and 2009. A third GITA (60-0016) was rendered permanently non-flyable on 19 August 2013 and resides at Barksdale AFB.[112] A fourth GITA (61-0032) is based at Minot AFB. One unofficial but comprehensive database lists 61-0032 as a GITA from August 2012, and there is visual evidence of its GITA status from 5 September 2017.[113]

The 18 aircraft that were initially earmarked for retirement in 2007 presumably consist of the 13 aircraft transferred to storage at AMARG between July 2008 and January 2009, the four GITA designations, plus the B-52H bomber (60-0053) destroyed on 21 July 2008. In any case, the USAF achieved the mandate set by congress to retain 76 B-52H aircraft in the active fleet.

This remained the case until 28 January 2014, when one B-52H bomber (60-0049) was grounded beyond repair at Barksdale AFB after a fire in the crew compartment, eventually sent to storage at AMARG on 28 July 2017 and completely dismantled in 2018.[114] The USAF B-52H fleet remained below the congressionally-mandated level of 76 until 2021 when it was finally restored to full strength.

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[109] 'Air Force Instruction 21-101', *United States Air Force*, 21 May 2015, at https://static.e-publishing.af.mil/production/1/minotafb/publication/afi21-101_afgscsup_minotafbsup/afi21-101_afgscsup_minotafbsup.pdf

[110] Jason McCasland, 'First B-52H becomes New START compliant ground trainer', *Barksdale Air Force Base*, 20 September 2013, at https://www.barksdale.af.mil/News/Article/635194/first-b-52h-becomes-new-start-compliant-ground-trainer/

[111] 'Air Force Instruction 21-101', *United States Air Force*, 16 January 2020, corrective actions applied on 15 September 2020, at https://static.e-publishing.af.mil/production/1/acc/publication/afi21-101_accsup/afi21-101_accsup.pdf

[112] Jason McCasland, 'First B-52H becomes New START compliant ground trainer'. For visual evidence of 61-0016 as GITA see Owen O'Rourke, 'Boeing B-52H 60-0016', *Flickr*, photo date 1 May 2016, uploaded 28 July 2016, [accessed 31 May 2024], at https://www.flickr.com/photos/planesandstuff/28564350256/in/photostream/

[113] Scramble Dutch Aviation Society, 'Military Database', updated 27 November 2023, [accessed 31 May 2024], at https://www.scramble.nl/database/military/usaf. For visual evidence of 61-0032 as a GITA see, USA News YouTube Channel, 'US Air Force glides toward B-52 engine replacement plan', *YouTube*, 5 September 2017, [video single pan from 3.57 – 4.08 mins] at https://www.youtube.com/watch?v=5XvLa5sylmk.

[114] 'B-52H Repaired With New Tail After Lightening Strike', *Key.Aero,* 15 March 2018, at https://www.key.aero/article/b-52h-repaired-new-tail-after-lightning-strike; Joe Baugher, '1960 USAF Serial Numbers', Joe Baugher.com, revised 3 October 2023, at https://www.joebaugher.com/usaf_serials/1960.html; Stacey Ward, 'Balls 49 deconstruction', YouTube, uploaded 23 January 2023, at https://www.youtube.com/watch?v=BwlNG-y2N_U

Table 9. B-52H fleet structure changes, 2014-2024

	2014	*2015*	*2016**	*2017*	*2018*	*2019*	*2020*	*2021*	*2022*	*2023*	*2024*
Active	75	75	75	75	75	75	75	76	76	76	76
Inactive (GITA)	4	4	4	4	4	4	4	4	4	4	4
Inactive (Integration Model)	0	0	0	0	0	0	0	1	1	1	1
Inactive (grounded beyond repair)	1	1	1	0	0	0	0	0	0	0	0
Storage (restorable)	13	12	12	12	12	11	11	10	10	10	10
Storage (dismantled or awaiting dismantling)	0	0	0	1	1	1	1	1	1	1	1
Pending restoration	0	1	0	0	0	1	1	0	0	0	0
Destroyed	9	9	10	10	10	10	10	10	10	10	10
TOTAL	102	102	102	102	102	102	102	102	102	102	102

* During 2016 the active fleet briefly dropped to 74. This was because one B-52H bomber, 60-0047, was destroyed in an aviation incident on 19 May 2016. Some four months later on 27 September 2016, the B-52H bomber, 61-0007, was returned to service after being restored from AMARG, bringing the B-52H active fleet strength back to 75.

Appendix 3. B-52H New START Treaty-related Armament Capability Changes, 2014-2024

On 8 April 2010, the New START Treaty was signed by US President Obama and Russian Federation President Medvedev, restricting the aggregate number of strategic offensive arms in both countries, entering into force on 5 February 2011. The treaty's verifiable numerical limits on warheads and delivery platforms came into effect on 5 February 2018.

On 8 April 2014, exactly four years after the treaty was signed, the Obama administration released a force structure report detailing how the US Department of Defense planned to implement New START. The Obama administration indicated that the US would retain 46 nuclear-capable B-52H aircraft (42 deployed and 4 non-deployed or test aircraft), the remainder to be converted to conventional-only (Table 10).[115]

On 17 September 2015, Air Force Global Strike Command (AFGSC) announced that it had converted to conventional-only capability the first of an intended 30 B-52H bombers in the active fleet, plus an additional 12 in storage, for a total of 42 intended conversions.[116]

In September 2015, there were 75 B-52H aircraft in the active fleet. In addition, one B-52H bomber (61-0007) was pending restoration from storage, eventually to be returned to active service as nuclear-capable on 27 September 2016.[117] The 30 planned conversions to conventional-only capability of the 75 aircraft in the active fleet, in addition to the return to service of 61-0007 as nuclear-capable, would result in a total of 46 nuclear-capable bombers remaining in the active fleet, in accordance with the Obama administration's published guidelines.

However, by no later than 1 March 2017, when the conversions were completed, only 41 of the intended 42 B-52H bombers had been converted to conventional-only.[118] Presumably this was because one B-52H bomber (60-0047) was destroyed in an aviation incident on 19

[115] 'U.S. Strategic Nuclear Forces: Background, Developments, and Issues', p. 8 and 43. See also Vince Scappatura and Richard Tanter, *B-52H Fleet Structure and New START Treaty-related Armament Capability Changes, 2008 – 2024*, at https://nautilus.org/wp-content/uploads/2024/05/B-52H-Fleet-Structure-and-New-START-Treaty-related-Armament-Capability-Changes-2008-2024-8-July-2024-1.pdf.

[116] 'AFGSC completes first New START bomber conversion', *Barksdale Air Force Base*, 17 September 2015, at https://www.af.mil/News/Article-Display/Article/617628/afgsc-completes-first-new-start-bomber-conversion/. According to the Russian government, the first exhibition of a converted B-52H heavy bomber in accordance with New START was undertaken on 10 September 2015. *Problems related to implementation of The* Treaty *Between The United States Of America And The Russian Federation On Measures For The Further Reduction And Limitation Of Strategic Offensive Arms, 2010*, Government of the Russian Federation, releasable to U.S., December 2018, (unofficial Russian translation), at https://www.wsj.com/public/resources/documents/Russia.pdf

[117] John Parker, ''Ghost Rider' in the sky: B-52 departs Tinker in historic flight', *72nd Air Base Wing Public Affairs*, 30 September 2016, at https://www.af.mil/News/Article-Display/Article/961002/ghost-rider-in-the-sky-b-52-departs-tinker-in-historic-flight/

[118] 'U.S. Strategic Nuclear Forces: Background, Developments, and Issues', p.43.

May 2016 during the period when conversions were taking place, reducing the active fleet to 74 (Table 11). Shortly thereafter, on 27 September 2016, 61-0007 was returned to service as nuclear-capable after being restored from AMARG, bringing the B-52H active fleet strength back to 75.

In sum, of the 75 B-52H aircraft in the active fleet at this time, 29 of the planned 30 conversions to conventional-only were eventually undertaken, leaving 46 nuclear-capable bombers. The 29 B-52H active aircraft that were converted, along with the additional 12 aircraft in storage, brought the total number of conversions to 41.

On 10 March 2021, the B-52H fleet reached the congressionally mandated strength of 76 active aircraft when 60-0034 was returned to service from storage as a conventional-only bomber after a period in restoration.[119] Of the 76 aircraft in the active fleet, 46 were by then nuclear-capable and 30 conventional-only.

Also in 2021, a B-52H aircraft (61-0009) was taken out of storage and partially dismantled to serve as an integration model, eventually being relocated to a Boeing facility near Tinker AFB on 22 January 2022.[120] Consequently, eleven B-52H aircraft remained in storage at Davis-Monthan AFB, one of which (60-0049) had been dismantled in 2018.

In 2024, the USAF maintains 46 nuclear-capable B-52H bombers.[121] There are a total of 76 aircraft in the active fleet, 46 of which are nuclear-capable and 30 conventional-only. A further eleven aircraft are kept in storage at Davis-Monthan AFB, ten of which are conventional-only and considered restorable, and one dismantled. An additional four B-52H bombers are unflyable GITA (60-0016, 61-0022, 61-0025, and 61-0032), two at Sheppard AFB, one at Barksdale AFB and one at Minot AFB. Another unflyable B-52H aircraft (61-0009) serves as an integration model at a Boeing facility near Tinker AFB.

[119] 'Tinker completes B-52 restoration as 'Wise Guy' re-enters arsenal', , *Wright-Patterson Air Force Base*, 25 March 2021, at https://www.wpafb.af.mil/News/Article-Display/Article/2550248/tinker-completes-b-52-restoration-as-wise-guy-re-enters-arsenal/

[120] Brian Brackens, 'B-52 parts to be used in research, modernization and innovation efforts', *Air Force Material Command*, 20 May 2021, at https://www.afmc.af.mil/News/Article-Display/Article/2625243/b-52-parts-to-be-used-in-research-modernization-and-innovation-efforts/; April McDonald, 'Damage Inc II arrives', *Tinker Air Force Base*, n.d., [accessed 6 December 2023], at https://www.tinker.af.mil/News/Photos/igphoto/2002926162/

[121] Hans M. Kristensen, Matt Korda, Eliana Johns & Mackenzie Knight, 'United States Nuclear Weapons, 2024', *Bulletin of the Atomic Scientists*, Volume 80, Issue 3, 182-208, 6 May 2024, at https://doi.org/10.1080/00963402.2024.2339170

Table 10. B-52H New START Treaty-related armament capability changes, 2014-2024

	2014	*2017 (post conversion to conventional-only)*	*2018*	*2019-2020*	*2021-2024*
Active					
Nuclear-capable	75	46	46	46	46
Conventional-only	0	29	29	29	30
Total (active)	75	75	75	75	76
Storage					
Nuclear-capable	13	0	0	0	0
Conventional-only	0	12	12	11	10
Grounded beyond repair/dismantled	0	1	1	1	1
Total (storage)	13	13	13	12	11
Pending restoration					
Nuclear-capable	0	0	0	0	0
Conventional-only	0	0	0	1	0
TOTAL					
Total nuclear-capable	75	46	46	46	46
Total conventional-only	0	41	41	41	40

Appendix 4. B-52H Aircraft Destroyed in Aviation Incidents

Figure 12. B-52H Stratofortress bomber destroyed after aborted take-off, Andersen Air Force Base, Guam, 19 May 2016

Source: USAF photo, in Alex Horton, 'Air Force: Mechanical failures led to B-52 aborted takeoff, fire in 2016 Guam incident', *Stars and Stripes*, 24 April 2017, at https://www.stripes.com/theaters/asia_pacific/air-force-mechanical-failures-led-to-b-52-aborted-takeoff-fire-in-2016-guam-incident-1.465157.

Table 11. B-52H aircraft destroyed in aviation incidents

Date of Incident	*Air Force Serial No*	*Source(s)*
2 November, 1967	61-0030	Primary source: 'Crash of a Boeing B-52H-175-BW Stratofortress at Griffiss AFB: 6 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-175-bw-stratofortress-griffiss-afb-6-killed. Secondary source: 'ASN Wikibase Occurrence # 48280', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48280.
4 October, 1968	60-0027	Primary source: 'Crash of a Boeing B-52H-145-BW Stratofortress near Minot AFB: 4 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-145-bw-stratofortress-near-minot-afb-4-killed. Secondary source: 'ASN Wikibase Occurrence # 48285', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48285.
21 January, 1969	61-0037	Primary source:

		'Crash of a Boeing B-52H-175-BW Stratofortress at Minot AFB: 6 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-175-bw-stratofortress-minot-afb-6-killed. Secondary source: 'ASN Wikibase Occurrence # 48286'. Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48286.
30 May, 1974	60-0006	Primary source: 'Crash of a Boeing B-52H-135-BW Stratofortress at Wright-Patterson AFB Bureau of Aircraft Accidents', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-135-bw-stratofortress-wright-patterson-afb Secondary source: 'ASN Wikibase Occurrence # 48288', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48288.
14 November, 1975	61-0033	Primary source: 'ASN Wikibase Occurrence # 48287', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48287.
1 April, 1977	60-0039	Primary source: 'Crash of a Boeing B-52H-150-BW Stratofortress at Kenneth Ingalls Sawyer AFB: 8 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-150-bw-stratofortress-kenneth-ingalls-sawyer-afb-8-killed. Secondary source: 'ASN Wikibase Occurrence # 48282', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48282.
6 December, 1988	60-0040	Primary source: 'Crash of a Boeing B-52H-150-BW Stratofortress at Kenneth Ingalls Sawyer AFB: 8 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-150-bw-stratofortress-kenneth-ingalls-sawyer-afb-8-killed. Secondary source: 'ASN Wikibase Occurrence # 48281', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/48281.
24 June, 1994	61-0026	Primary source: 'Crash of a Boeing B-52H Stratofortress at Fairchild AFB: 4 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-stratofortress-fairchild-afb-4-killed. Secondary source:

		'ASN Wikibase Occurrence # 17433', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/17433.
21 July, 2008	60-0053	Primary source: 'Crash of a Boeing B-52H-155-BW Stratofortress off Guam Island: 6 killed', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-155-bw-stratofortress-guam-island-6-killed. Secondary source: 'ASN Wikibase Occurrence # 21780', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/21780.
19 May, 2016	60-0047	Primary source: 'Crash of a Boeing B-52H-155-BW Stratofortress at Andersen AFB', *Bureau of Aircraft Accidents Archives*, [accessed 29 May 2024], at https://www.baaa-acro.com/crash/crash-boeing-b-52h-155-bw-stratofortress-andersen-afb. Secondary source: 'ASN Wikibase Occurrence # 187413', Flight Safety Foundation Aviation Safety Network, [accessed 29 May 2024], at https://aviation-safety.net/wikibase/187413.

Appendix 5. States of Neither Confirm nor Deny – a research note

One key longstanding restriction on democratic accountability for nuclear weapons policy is the United States doctrine to neither confirm nor deny the presence or absence of nuclear weapons on board its ships, submarines or aircraft (NCND). When combined with the common reciprocal commitment of host governments to 'understand and respect' this doctrine, the result is closure. Classically, as in the case of the then Australian Chief of the Defence Force, when asked about the possibility of nuclear weapons on board visiting US warships, this results in the startlingly limp, but telling response for dependent allied states that 'We do not ask'.[122]

This brief note amplifies several aspects of the discussion of neither confirm nor deny policy as discussed in the main body of this study, including:

- the temporal limits of the codified form of NCND;
- specified exceptions and exclusions to unyielding or inappropriately consistent applications;
- the policy's contemporary practical application only to US aircraft, submarine-launched ballistic missiles, air-launched cruise missiles, and bombs;
- the three criteria that characterize the unique Australian exception in the 1980s to the otherwise worldwide and still ongoing NCND policy (referred to hereafter as the Fraser model);
- as a heuristic tool, broad scenarios of the possible and actual range of states of NCND policy regarding nuclear-armed bombers, each involving the positions of the United States, the governments of countries hosting nuclear-armed bombers, and the publics of host countries; and
- two small and still unconfirmed reported exceptions to US NCND policy in Britain prior to 1982 and in 1991, with possible parallels to the Fraser model.

1. The codified form of NCND from 1958

The Neither Confirm Nor Deny policy was codified in the mid- and late-1950s following the passage of the Atomic Energy Act of 1954, which slightly loosened strict limitations in the original Atomic Energy Act of 1946 on the provision to allied countries of a category of information classified as 'Formerly Restricted Data' on atomic weapons.[123]

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[122] Parliament of Australia, *Testimony of Air Vice Marshal Angus Houston, Chief of Defence Force,* Hansard (Senate), Standing Committee on Foreign Affairs, Defence and Trade, Estimates, 25 February 2009, pp. 94-95, at https://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/11649/toc_pdf/6553-6. In fact, there have been no nuclear weapons on USN surface vessels visiting Australia since 1991.

[123] The establishment of the codified form of NCND doctrine was preceded by a decade of *ad hoc* policy development and application, driven by a tension between the requirements of the 1946 Atomic Energy Act to restrict dissemination of sensitive information on almost all nuclear weapons matters, and the needs of Truman and Eisenhower administrations to navigate practicalities and political requirements of Navy and Air Force foreign deployments of nuclear weapons. One example is that of deployment of US bombers, bombs and

In early 1958 the US government first promulgated the codified form of the doctrine now known as Neither Confirm Nor Deny, which contains the essence of its current form:

> 'In the event that an official of any other country, desiring to make statements about the presence or absence in their country of the nuclear component of nuclear-capable weapons, queries U.S. officials about so doing, U.S. officials should respond that it is the strong desire of the U.S. that such statements be avoided. The inquiring official should be informed that it is the policy of the United States Government concerning any public statements on this subject neither to confirm nor deny the presence of the nuclear component of nuclear-capable weapons in any other country, and that this policy would be followed in the event that U.S. officials are queried with respect to any statement made by an official of a foreign country or by any other source.'[124]

This formulation of NCND remains substantially in place almost seventy years later, as can be seen in contemporary Department of Defense and armed service formulations.

2. Specified exclusions

As already discussed above in Part 2, the most recent formal statement of the doctrine is a 2015 Department of Defense public affairs guidance in the event of a nuclear-radiological incident.[125] That guidance is largely concerned with the critical, and virtually unavoidable exception to a strict application of NCND in the case of a evident nuclear weapon radiological accident - 'if the public is, or may be, in danger of radiation exposure or other danger posed by the weapon'.

Notably, the 2015 guidance states that the NCND policy is to be applied even when a suggested location of US nuclear weapons or platforms 'is thought to be known or obvious'. In 2006, the most recent US naval guidance phrased this requirement as follows:

> 'The above guidance continues to apply, notwithstanding that certain weapons systems have been publicly identified as having nuclear capability, and

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ballistic missiles to Britain in the late 1940s and 1950s, and the uneven, unreliable and largely accountable situation of the Attlee, Eden and Macmillan governments, richly documented in Ken Young, *The American Bomb in Britain*, (University of Manchester Press, 2016), especially pp. 90-94.

[124] Mansfield D. Sprange, Assistant Secretary of Defense for International Security Affairs, 13 January 1958, cited by Hans M. Kristensen, *The Neither Confirm Nor Deny Policy - Nuclear Diplomacy At Work: A Working Paper*, Federation of American Scientists, February 2006, p. 6, at https://www.nukestrat.com/pubs/NCND.pdf.

[125] Department of Defense, *Instruction No. 5230.16, Nuclear-Radiological Incident Public Affairs (PA) Guidance*, 6 October 2015, at https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/523016p.pdf. See also Department of the Navy, Office of the Chief of Naval Operations, *Release of Information on Nuclear Weapons and on Nuclear Capabilities of U.S.* Forces, OPNAVINST 5721.1F N5GP, 3 February 2006, at https://irp.fas.org/doddir/navy/opnavinst/5721_1f.pdf; and the commentary by Hans Kristensen following its declassification: 'The Neither Confirm Nor Deny Policy', *Nuclear Information Project*, Federation of American Scientists, at https://www.nukestrat.com/us/navy/ncnd.htm.

notwithstanding any public discussion with respect to the presence or absence of nuclear weapons or components on board any ship, station, or aircraft, or in any general location.'[126]

In fact since 1991, the domain of US naval application of NCND has in practice excluded surface vessels, naval aviation, attack submarines, and cruise-missile submarines, following a 1991 Presidential Directive withdrawing tactical nuclear weapons from these classes of USN weapons platforms.[127]

The 1991 directive is a matter of policy instruction rather than a binding US legal requirement, and could be reversed in practice as soon as those delivery platforms can be fitted with contemporary nuclear weapon systems.[128]

Outside security practitioner and policy circles, the fact of the 1991 withdrawal of tactical nuclear weapons from USN surface vessels appears to be little known.

US-allied governments hosting basing or visits of US warships sometimes announce that such ships are not carrying nuclear weapons, as if that were a policy achievement on their part, without mentioning the post-1991 situation.[129] And perhaps more importantly, without making their publics aware of the potential impermanence of that condition, absent legally-binding host country legislation or international treaty obligations.

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[126] The 2006 naval guidance phrases this requirement as follows: 'The above guidance continues to apply, notwithstanding that certain weapons systems have been publicly identified as having nuclear capability, and notwithstanding any public discussion with respect to the presence or absence of nuclear weapons or components on board any ship, station, or aircraft, or in any general location.'

[127] Department of Defense, Secretary of Defense, Memorandum for Secretaries of the Military Departments, 'Reducing the United States Nuclear Arsenal', Secret/Formerly Restricted Data, 28 September 1991, at https://nsarchive.gwu.edu/document/22049-document-03-department-defense-secretary. This document is accompanied by related US documents included in Svetlana Savranskaya and Thomas Blanton (eds.), 'Unilateral U.S. nuclear pullback in 1991 matched by rapid Soviet cuts', *National Security Archive, Briefing Book 561*, 30 September 2016, at https://nsarchive.gwu.edu/briefing-book/nuclear-vault-russia-programs/2016-09-30/unilateral-us-nuclear-pullback-1991-matched.

[128] When the 1991 directive was made there was no real impediment to these withdrawn missiles, which had been placed into storage, being returned by order of the president on short notice. In 2010 the Obama administration ordered the withdrawn missiles be permanently retired, a process that was completed by 2013. In 2018 the Trump administration proposed a new nuclear-armed sea-launched cruise missile, and although the Biden administration proposed cancelling the program, Congress continued to provide funding for its development, and the Biden administration has since taken steps to begin its implementation. 'Nuclear-Armed Sea-Launched Cruise Missile (SLCM-N)', Congressional Research Service, updated 19 July 2024, at https://crsreports.congress.gov/product/pdf/IF/IF12084

[129] Parliament of Australia, *Testimony of Air Vice Marshal Angus Houston, Chief of Defence Force,* Hansard (Senate), Standing Committee on Foreign Affairs, Defence and Trade, Estimates, 25 February 2009, pp. 94-95, at https://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/11649/toc_pdf/6553-6.

3. States of NCND – a model

Heuristically, there are three potential dimensions to any given application of NCND to the presence or absence of US nuclear weapons in relation to countries hosting nuclear-capable delivery platforms: the position and statements of the US government; the position and statements of the host government; and the resulting knowledge of the host country public.

The US government may have three basic patterns of behaviour:

- The US does not inform the host government; or
- The US informs host government leaders secretly and/or selectively; or
- The US informs the host government formally

Out of each of these three US government positions, the awareness, position and actions of host governments then gives to rise a large set of possibilities, at least in theory.

Host governments which are not informed by the US may:

- be deceived as to the reality;
- know the truth tacitly, with or without some further leakage;
- not know and not ask, expressing 'respect for and understanding of' the NCND situation;
- know practically or de facto (as maybe the cases with NATO nuclear sharing[130]); or
- seek to establish certainty unilaterally, for example by carrying out radiological border testing (as in the case of the Lange government in New Zealand).[131]

Host governments which are informed secretly by the US may:

- involve selected officials informed by the US on a trusted basis;
- involve core of government knowledge, but publicly adhere to understanding and respecting US NCND policy, effectively dissembling/deceiving the host public; or
- be characterised by a leaking of tacit knowledge to wider official circles.

Host governments which are informed formally by the US may then:

- not inform the public, and/or dissemble;

[130] This note seeks to draw attention to limitations of research to date on the national host-country processes and conditions attached to NATO 'nuclear-sharing' arrangements, especially in terms of accountability. The ground-breaking study by Hans Kristensen and his colleagues on *Nuclear Weapons Sharing in 2023* focussing mainly on the United States and NATO states draws attention to the severe decision-making constraints imposed on individual member states by both NATO policy organisation and by military socio-technical systems in times of nuclear crisis. These constraints eclipse even discussion of democratic accountability for which NCND transparency is a prerequisite. Hans M. Kristensen, Matt Korda, Eliana Johns and Mackenzie Knight, 'Nuclear weapons sharing, 2023', *Bulletin of the Atomic Scientists*, Vol. 79, No. 6, pp. 399-400.

[131] On the Lange government sought precisely to avoid direct public contradiction of the US NCND policy through border testing, see the discussion of New Zealand in *'They will tell me!' – NCND exceptions for 'trusted leaders'?* in Part 2 above.

- publicly declare knowledge of the situation, but not discose the content of the information supplied by the US, on the basis of understanding and respecting US NCND policy;
- publicly declare the state of affairs accurately;
- seek public US confirmation; or
- seek reform of US policy and/or deployment arrangements.

In historical reality, the most common position has been that host governments are not formally informed by the US, and even with a level of tacit knowledge, publicly adhere to understanding and respecting US NCND policy, effectively dissembling/deceiving the host public. Certainly there are documented instances of trusted leaders being informed secretly, and there are certainly instances of governments being deceived.

4. NCND conditions of the Fraser heterodoxy

The Australian case between 1980 and 1991 appears unique, insofar as three conditions were successfully required of the Carter administration and the incoming Reagan administration by the Fraser government

- the US informs the host government;
- the host government informs the host country public; and
- the US confirms the host's stated understanding in public.

These requirements were developed explicitly as a part of a set of Cabinet-approved guidelines by the Fraser cabinet halfway through almost a year of negotiations. Cabinet documents confirm the pursuit of these and other conditions, and CINCPAC documents confirm their achievement and the inability of the Reagan administration to subsequently alter the NCND arrangements, despite a strong preference to do so, especially in the face of dissatisfaction on the part of Japan.

To reiterate, what is important in both the theoretically possible cases, and in the apparently unique Australian case, is not whether or not nuclear weapons were deployed. What matters politically is whether the worldwide US position of upholding the neither confirm nor deny doctrine was maintained.

The Fraser conditions provided a basis for democratic accountability for host countries – albeit imperfect. Fraser's nuclear heterodoxy provides a model of what a US ally can achieve within the confines of nuclear alliance. That achievement ought to be able to be replicated by US allied host states today.

5. Two unverified reported anomalies

In the main text of this study we noted two previously unreported cases of the United States government apparently publicly acknowledging an exception to strict imposition of

NCND doctrine for overseas deployment of bombers in the period following the codification of NCND policy in mid- to late-1950s.

The first is the single sentence in the *CINCPAC CY1982 Command History* claiming that exceptions to US NCND policies similar to those extracted by Fraser in the Australian case 'had been made in the past (in the United Kingdom for example)'.[132] The source provides no further information. A number of specialists in US and UK nuclear weapons history and policy have kindly responded to inquiries on the matter, without result to date.

The second is a more limited claim that during the Gulf War (August 1990 – February 1991) the UK government received an assurance from the US that B-52 bombers operating from RAF airfields on Middle East operations would not carry nuclear weapons. On 13 August 1991, the Australian Minister for Defence, Robert Ray, answered a parliamentary question on notice from Senator Jo Vallentine, an Australian Greens representative from Western Australia, and veteran peace activist.

Vallentine asked Ray

> 'Is the Minister aware that the United States Government assured the British Government during the Gulf War that B-52 bombers deployed through the USAF bases at Fairford in Gloucestershire would not carry nuclear weapons.'

The Minister's one word reply was

> 'Yes.'[133]

The implication of Ray's otherwise cryptic answer is that he was indeed aware of such an assurance provided by the US to the UK government.

This claim is more limited than the 1982 CINCPAC statement because there is no suggestion in the 1991 texts of either the question or the answer that the US assurance to the UK was subsequently made public, unlike in the Fraser case.

Again, inquiries to UK nuclear history specialists have not shed further light on the claim.[134] Vallentine kindly searched her memory and files from almost four decades ago, but was unable to recall the sources on which she relied at the time.

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[132] Commander in Chief Pacific*, CINCPAC Command History 1982, (Vol I),* Command History Division, Office of the Joint Secretary, Headquarters, CINCPAC, SER T71, 16 September 1983, pp. 322, at https://nautilus.org/wp-content/uploads/2012/01/c_eightytwo.pdf.

[133] Parliament of Australia, Hansard (Senate), No. 147, 13 August 1991, p. 231, at https://parlinfo.aph.gov.au/parlInfo/download/chamber/hansards/1991-08-13/toc_pdf/S%201991-08-13.pdf.

[134] Jo Vallentine kindly searched her memory and files from almost four decades ago, but was unable to recall the sources on which she relied at the time.