The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam
– The appearance of the gun between 1994 and 2009—

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This brief report was written as a background document in partial response to a request for information on the possible conservation of Japanese guns on public display at the Navy Base, Guam (Bulgrić, 2017). This document provides photographic data on the appearance of the 20cm dual purpose gun at Ga’an Point, Agat, Guam in June 1994, when it was photographed as part of a metal conservation course (Look & Spennemann, 1994), and on subsequent visits in 2006, 2007 and 2008.

The 20cm 12 cal. Model 3 (Short) Naval Gun (1943)
The sections under this heading have been extracted from an in-depth description of the 20cm Model 3 (Short) Naval Gun provided elsewhere (Spennemann, 2017d).

This gun was designed as an (experimental) support weapon to be placed on light-decked armed merchant vessels over 5,000t for use against submarine (surface) attacks. While theoretically also functional as a heavy anti-aircraft weapon, U.S. intelligence services did not deem it to be very effective in that role (CinCPac–CinCPOA, 1945b, p. 60). The 20cm guns had a moderate range of 6,900 yards. The guns are described as of light weight, having an interrupted thread breech block and a hydro-spring recoil mechanism with the recoil cylinder mounted on the top of the gun. The gun was mounted on a navy-type pedestal mount capable of a 360º traverse. Elevating and traversing occurred by hand wheels, both located on the left side of the mount. The rate of traverse when operated by hand was approximately 8.6º/sec, while the rate of elevation was 8º/sec, making it a slow weapon for anti-aircraft fire (CinCPac–CinCPOA, 1945b, p. 60; OPNAV, 1945, p. 58; USNTMJ, 1946b, p. 16). The gun was not fitted with individual fire control systems (USNTMJ, 1946b, p. 16).

From available data it appears that one person could operate the weapon, even though the standard complement appears to have been nine, including gun layers and ammunition handlers. With a full complement, a rate of four rounds per minute could be sustained. The technical data for the gun have been summarised in Table 1. Post-World War II assessment of guns and gun mounts held by the Kure Naval Arsenal showed that the gun was constructed in three subtypes or variants (USNTMJ, 1946b, p. 10), the details of which appear not to be documented. The ammunition required for the gun was semi-fixed and consisted of a 103 (134) pound shell and a Cu-alloy cartridge (7.2lb) containing the propellant (CinCPac–CinCPOA, 1945a, p. 103; OPNAV, 1945, p. 61; U.S. War Office, 1953, p. 505; USNTMJ, 1946a, p. 13).

Even through primarily designed as a naval weapon to be carried afloat, the 20cm short naval gun found intensive use as a coastal defence weapon in the late stages of the Pacific War (see below for locations). They were sited in a variety of emplacements: open emplacements, similar to those used for other calibres, open earth covered emplacements, concrete revetments, concrete reinforced casemates and cave positions with concrete or coral boulder embrasures. The local environment governed the choice of emplacement and concealment.

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The short-barrelled 20cm guns are absent on the earlier Japanese bases (Look & Spennemann, 1993; Spennemann, 2008a, 2008b; Spennemann & Clemens, 2014). They were installed as coastal defense guns during the latter part of the Pacific war, mainly in beach situations where their plunging fire could serve to interrupt landing operations.

The short-barrelled 20cm guns have been reported as coastal defence guns from Western Micronesia, such as Peleliu, Palau (Denfeld, 1988, p. 71); Saipan (Spennemann, 2017b) and especially Guam: Bangi Point, Guam (Denfeld, 1992, p. 51); Gogna Beach (‘Gun Beach’), Tumon Bay, Guam (Spennemann, 2017a); Dungcas Beach, Tamuning, Guam (in replica emplacements on the grounds of the Onwards Beach Hotel)(Spennemann, 2017c); Naval Magazine, Guam (on display) (Spennemann, 2017c); and Ga’an Point, Agat, Guam (on public display)(this report).
Table 1. Technical data of the 20cm short naval gun. Various sources

<table>
<thead>
<tr>
<th>Model</th>
<th>200mm Short”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>3rd Year</td>
</tr>
<tr>
<td>Year</td>
<td>1943</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Kure Naval Yard</td>
</tr>
<tr>
<td>Calibre (mm)</td>
<td>203</td>
</tr>
<tr>
<td>Calibre (inch)</td>
<td>8</td>
</tr>
<tr>
<td>Length overall (inch/cm)</td>
<td>100/252</td>
</tr>
<tr>
<td>Length of barrel (inch/cm)</td>
<td>95.9/243.8</td>
</tr>
<tr>
<td>Weight with breech (lbs/kg)</td>
<td>1,390/630</td>
</tr>
<tr>
<td>Weight overall (lbs/kg)</td>
<td>1,702/772</td>
</tr>
<tr>
<td>Muzzle velocity (ft/sec, m/sec)</td>
<td>1,016 / 305</td>
</tr>
<tr>
<td>Max range horizontal (yds/m)</td>
<td>6,900 / 6,300</td>
</tr>
<tr>
<td>Max range vertical (feet/ m)</td>
<td>10,800 / 3,300</td>
</tr>
<tr>
<td>Effective range vertical (ft)</td>
<td>9,000</td>
</tr>
<tr>
<td>Maximum rate of fire</td>
<td>4-5</td>
</tr>
<tr>
<td>Practical rate of fire</td>
<td>3</td>
</tr>
<tr>
<td>Approximate Lifespan</td>
<td>2000 service rounds</td>
</tr>
<tr>
<td>Traverse</td>
<td>360°</td>
</tr>
<tr>
<td>Elevation</td>
<td>75°</td>
</tr>
<tr>
<td>Depression</td>
<td>-15°</td>
</tr>
<tr>
<td>Rate of Traverse</td>
<td>8.6°/sec (hand)</td>
</tr>
<tr>
<td>Rate of Elevation</td>
<td>8°/sec (hand)</td>
</tr>
<tr>
<td>Breech system</td>
<td>interrupted screw</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>200mm Short”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber length (in / cm)</td>
</tr>
<tr>
<td>Chamber volume (cu.in / l)</td>
</tr>
<tr>
<td>Length of recoil (inch)</td>
</tr>
<tr>
<td>Type of rifling</td>
</tr>
<tr>
<td>Nº of lands</td>
</tr>
<tr>
<td>Groove depth (mm)</td>
</tr>
<tr>
<td>Rifling system</td>
</tr>
<tr>
<td>Recoil system</td>
</tr>
<tr>
<td>number of guns manufactured</td>
</tr>
<tr>
<td>Loading angle</td>
</tr>
<tr>
<td>Loading support</td>
</tr>
<tr>
<td>Ramming</td>
</tr>
<tr>
<td>Type of ammunition</td>
</tr>
<tr>
<td>Type of projectile</td>
</tr>
<tr>
<td>Weight of projectile (lb/kg)</td>
</tr>
<tr>
<td>Type of charge casing</td>
</tr>
<tr>
<td>Weight of charge (lbs / kg)</td>
</tr>
<tr>
<td>Type of mount</td>
</tr>
<tr>
<td>Total weight (tons)</td>
</tr>
</tbody>
</table>

| Chamber length (in / cm)| 16.1 / 39.5 |
| Chamber volume (cu.in / l)| 891 / 14.6 |
| Length of recoil (inch)| 10 |
| Type of rifling| raised |
| Nº of lands| 32 |
| Groove depth (mm)| 1.5 |
| Rifling system| left turn, increasing 1/30 to 1/13 |
| Recoil system| hydro-spring |
| number of guns manufactured| ca 250 |
| Loading angle| 10° |
| Loading support| land-based: simple derricks, ships: cargo hoists |
| Ramming| by hand |
| Type of ammunition| semi-fixed round |
| Type of projectile| anti-aircraft, armour piercing, high explosive, incendiary, incendiary shrapnel |
| Weight of projectile (lb/kg)| HE 103 / 47 |
| Type of charge casing| brass, later steel |
| Weight of charge (lbs / kg)| 4.4 / 2 |
| Type of mount| pedestal |
| Total weight (tons)| 3.5 (4.1) |

Background to the gun at Ga’an Point, Agat, Tamuning

There appears to be no documentation that explains from which of the war-time gun locations the gun now on display at Ga’an Point originated (see below for administrative history). The gun itself has some distinguishing marks, namely the dented end cap of the recuperator (Fig. 77–Fig. 78) and shrapnel damage to the left side of the gun barrel (Fig. 49–Fig. 53). Perusal of the available World War II-era imagery of 20cm/12 guns on Guam (compiled in Spennemann, 2017d) shows a gun emplaced in an unfinished reinforced concrete casemate near Neye Island (Fig. 2), which exhibits shrapnel impact to the end cap of the recuperator (Fig. 3). This is the only 20cm/12 gun photographed on Guam that shows this specific damage. As the left side of the gun barrel is not visible, we cannot confirm the observed shrapnel damage. The elevation of the gun barrel, however, is the same as that of the gun on display.

History of public display

When the War in the Pacific National Historic Park (WAPA) was conceptualised in 1967, Ga’an Point only comprised of the Japanese strong point and associated concrete features (US NPS, 1967) and neither of the two guns that are present today were in place. These were also not mentioned in the draft management plan of 1981 (US NPS, 1981), nor in the environmental assessment of 1983 (US NPS, 1983). While they are included in the War in the Pacific Historic Resource Study (Thompson, 1985), there is no indication in the WAPA administrative history that sets out where the guns came from or when exactly they were moved to Ga’an Point (Evans-Hatch & Associates, 2004).
Fig. 2. A short Japanese 20cm/12 gun in an open emplacement on a point near Neye Island, Agat (Neye nº 2). Image taken on October 5, 1944. (National Archives 80-G-247687).²

Fig. 3. Detail of a short Japanese 20cm/12 gun near Neye Island, Agat (Neye nº 2) (detail of Fig. 2). Note the damage to the end cap of the recuperator.
Together with a Type 96 25mm twin-barrelled anti-aircraft gun, the 20cm gun was placed on public display sometime time between 1982 and 1985 as part of the Agat Unit of the War in the Pacific National Historic Park. The 1988 statement for management lists the guns at Piti in need of metals conservation (US NPS, 1988, p. 32), but does not mention the guns on display. In preparation of the 50th anniversary of the US liberation of Guam, part of which was to take place at Ga’an Point, WAPA requested that the guns on display be treated for corrosion. In June 1994 the guns were temporarily removed from the site to a NPS warehouse and conservation-treated as part of the Metals Conservation Course and Demonstration Project ‘Conservation Management of Historic Metal in Tropical Environments’ (Look & Spennemann, 1994). After the completion of the treatment the guns were returned to their location, set on specifically prepared concrete bases.

The public display of the guns is on the itinerary of tour buses as well as individual visitors, who interact with the gun in various ways (Fig. 8–Fig. 10).

The 1994 conservation treatment
At the time of documentation in late 1994, the gun had already been removed from the site and transported to a NPS-owned workshop facility. It was photographed in the workshop, sitting on a flat-bed trailer (Fig. 11, Fig. 16, Fig. 39, Fig. 43). The gun had been sandblasted before the paint conservator arrived to take formal samples. The gun (before being treated) had been painted in a dark brown-green colour (e.g. Fig. 16).

During sandblasting, the manufacturer’s stamp on the breech block was made visible again, showing that the gun had been manufactured in the Kure Naval Yard and had been given the serial number 50 (Fig. 5).
As the gun had been on public display, the gun barrel was (ab-)used as a receptacle for trash (Fig. 19, Fig. 73, Fig. 74), which aided in the decay as the debris trapped moisture. The gun was cleaned, sandblasted (Table 2) and then spray painted with one coat of primer, one intermediate coat and one top coat (Table 3). All three had different colours in order to a) ensure that every part of the gun was adequately coated and b) that any wear or abrasion would be readily detectable.

**Table 2. Paint removal during the conservation workshop in June 1994**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>#12</td>
<td>copper slag</td>
</tr>
<tr>
<td>#20</td>
<td>medium silica sand</td>
</tr>
<tr>
<td>#30</td>
<td>fine silica sand</td>
</tr>
</tbody>
</table>

**Table 3. Paint systems applied to the 20cm gun during the conservation workshop in June 1994**

<table>
<thead>
<tr>
<th>Type</th>
<th>mil spec</th>
<th>formula</th>
<th>Colour</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primer</td>
<td>#24441</td>
<td>150</td>
<td>green</td>
<td>zinc-rich epoxy polyamide primer³</td>
</tr>
<tr>
<td>Intermediate coat 1</td>
<td>#24441</td>
<td>150-157</td>
<td>blue</td>
<td>epoxy polyamide primer⁶</td>
</tr>
<tr>
<td>Intermediate coat 2</td>
<td>#24441</td>
<td>151</td>
<td>haze-grey</td>
<td>epoxy polyamide primer⁷</td>
</tr>
<tr>
<td>Finish coat</td>
<td>#24648</td>
<td></td>
<td>medium grey (gloss)</td>
<td>Aliphatic polyurethane⁸</td>
</tr>
</tbody>
</table>

**Subsequent management**

Despite meticulous sandblasting and wire brushing of crevices during the 1994 conservation treatment, it was impossible to remove the various manifestations of crevice corrosion. A gun design such as that of the 20cm/12cal gun has simply too many moving parts, both in the mount and especially the pedestal. Once the protective coating provided by paint and lubricants (in the crevices of moving parts) has decayed, corrosion will set in. The only way to overcome this is to disassemble to gun into its constituent parts, to treat the components, and then to reassemble the unit. For various reasons this was impossible during the 1994 conservation event. Consequently, crevice corrosion soon reappeared.

An example for this is the corrosion between the oil reservoir for the recuperator and the recuperator itself (Fig. 45–Fig. 46) as well as corrosion of the breech threads of the gun barrel (Fig. 45–Fig. 46). Of particular concern were the small wheels that support the pedestal mount and allow it to rotate. As the mount has corroded and can no longer be turned, these are impossible to access at those places that are behind protective covers. Even where
the wheels can be accessed (Fig. 55–Fig. 56), corrosion will soon reoccur (Fig. 58–Fig. 59) as only the external parts could be treated in a meaningful way.

Based on photographic evidence, the front cap protecting the retaining nuts of the recoil cylinder was lost some time between September 2007 and March 2008 (compare Fig. 21, Fig. 23).

The guns were recoated with a dark battleship grey paint in about 2010. Either the paint system was not compatible, or the surface of the gun was not properly cleaned and prepared, but the paint applied in ca 2010 showed evidence of failure as early as 2011. By May 2013 it had flaked off large sections on the top of the gun barrel as well as the muzzle (Fig. 76).
Photographic documentation
of the guns at Ga’an Point, Agat, Guam
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 6. Ga’an Point as seen from the rear, September 2007

Fig. 7. March 2008
Fig. 8. Tourist interaction with the gun at Ga’an Point (March 2008)

Fig. 9. Tourist interaction with the gun at Ga’an Point (March 2008)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 10. Tourist interaction with the gun at Ga’an Point (March 2008)

Fig. 11. Rear view of the untreated gun. Note the extent of corrosion (June 1994)

Fig. 12. Rear view with primer applied (June 1994)
Fig. 13. Rear view with Intermediate coat 1 (June 1994)

Fig. 14. Corrosion is evident (July 2006)

Fig. 15. Increased corrosion (March 2008)
Dirk HR. Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 16. Front view of the untreated gun (June 1994)

Fig. 17. Front view with primer applied (June 1994)

Fig. 18. Rear view of the untreated gun (June 1994)

Fig. 19. Front view of the untreated gun. Note the debris in the gun barrel (June 1994)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 20. View from front left with primer applied (June 1994)

Fig. 21. View from front left. Note extensive crevice corrosion (September 2007)

Fig. 22. View from front right with Intermediate coat I applied (June 1994)

Fig. 23. View from front right. Note extensive crevice corrosion (March 2008)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 24. View from front right. Note re-emergent crevice corrosion (May 2013)

Fig. 25. Left side of the pedestal mount, untreated gun (June 1994)

Fig. 26. Right side of the breech end, untreated gun (June 1994)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 27. Rear left view of untreated gun (June 1994)

Fig. 28. Rear left view with Intermediate coat 2 (June 1994)

Fig. 29. Rear left view. Corrosion is evident (March 2008)

Fig. 30. Rear left view. Corrosion is again evident (May 2013)
Fig. 31. Breech block, untreated (June 1994)

Fig. 32. Breech block, with intermediate coat I (June 1994)

Fig. 33. Corrosion is evident (July 2006)

Fig. 34. Increased corrosion (March 2008)
Fig. 35. Breech block seen from right, untreated gun (June 1994)

Fig. 36. Breech block seen from right (September 2007)

Fig. 37. Breech block seen from left (September 2007)

Fig. 38. Breech block seen from left (May 2013)

Fig. 39. View of right side, untreated gun (June 1994)

Fig. 40. View of right side (September 2007)
Fig. 41. View of right side (July 2011)

Fig. 42. View of right side (December 2011)

Fig. 43. View of the left side, untreated gun (June 1994)

Fig. 44. View of the left side (September 2007)

Fig. 45. The gun from the right rear in September 2007.

Fig. 46. The gun from the right rear in March 2008
Fig. 47. View of the left side of the pedestal, primer applied (June 1994)

Fig. 48. View of the left side of the pedestal, intermediate coast 1 applied (June 1994)

Fig. 49. Shrapnel damage to the gun barrel, untreated gun (June 1994)

Fig. 50. Shrapnel damage to the gun barrel, untreated gun (June 1994)

Fig. 51. Shrapnel damage to the gun barrel, primer applied (June 1994)

Fig. 52. Shrapnel damage to the gun barrel, intermediate coast 1 applied (June 1994)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 53. Shrapnel damage to the gun barrel, (September 2007)

Fig. 54. Pedestal cavity, untreated gun (June 1994)

Fig. 55. Pedestal, caster wheels, untreated gun (June 1994)

Fig. 56. Pedestal, caster wheels (June 1994)

Fig. 57. Pedestal, caster wheels (July 2011)

Fig. 58. Pedestal, caster wheels (September 2007)

Fig. 59. Pedestal, caster wheels (March 2008)
Fig. 60. Left side of the pedestal with housing for the worm gear of the traversing mechanism, untreated gun (June 1994)

Fig. 61. Left side of the pedestal with housing for the worm gear of the traversing mechanism (March 2008)

Fig. 62. Housing for the worm gear of the traversing mechanism, intermediate coat 1 applied (June 1994)

Fig. 63. Housing for the worm gear of the traversing mechanism (September 2007)

Fig. 64. The face of the trunnion on the right hand side, untreated gun (June 1994)

Fig. 65. The face of the trunnion on the right hand side, with final coat (June 1994)
Fig. 66. The face of the trunnion on the right hand side (July 2011)

Fig. 67. The right side of the pedestal mount, primer applied (June 1994)

Fig. 68. The right side of the pedestal mount (July 2006)

Fig. 69. The right side of the pedestal mount (September 2007)

Fig. 70. The right side of the pedestal mount (March 2008)
Fig. 71. Gun cradle, seen from front left, primer applied (June 1994)

Fig. 72. The worm gear for the gun elevation, after application of final coat (June 1994)

Fig. 73. Interior of the gun barrel. Note the debris at the breech end, as well as the fine corrosion residue at the bottom (June 1994)

Fig. 74. Interior of the gun barrel. Note the debris at the breech end, as well as the fine corrosion residue at the bottom (June 1994)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 75. Muzzle of the 20cm gun, with Intermediate coat I applied (June 1994)

Fig. 76. Muzzle of the 20cm gun. Note the paint failure of the 2010 repainting (May 2013)

Fig. 77. The front cap of the recuperator, untreated gun (June 1994)

Fig. 78. The front cap of the recuperator, primer applied (June 1994)

Fig. 79. The front cap of the recuperator (July 2006)

Fig. 80. The front cap of the recuperator (September 2007)
Fig. 81. Pedestal, Final coat applied. Note the decay near the base (June 1994)

Fig. 82. Breech block, detail. Intermediate coat 1 applied (June 1994)

Fig. 83. Manufacturers stamp, sand blasted (June 1994)

Fig. 84. Weight notice on the breechblock

重量七七二痡 Weight 772 kg

Fig. 85. Manufacturers stamp, intermediate coat 1 (June 1994)

Fig. 86. Weight notice on the breechblock, intermediate coat 1 (June 1994)
Dirk HR Spennemann, The Japanese 20cm dual purpose gun at Ga’an Point, Agat, Guam

Fig. 87. Front of pedestal mount with brake (July 2006)

Fig. 88. Front of pedestal mount with brake (March 2008)

Fig. 89. Traversing brake (lock) (September 2007)

Fig. 90. Traversing brake (lock) (March 2008)

Fig. 91. Rear of pedestal mount (July 2006)

Fig. 92. Rear of pedestal mount (March 2008)
Fig. 93. Oil cylinder for the gun cradle (July 2006)

Fig. 94. Oil cylinder for the gun cradle (March 2008)

Fig. 95. Oil reservoir for the recoil cylinder (July 2006)

Fig. 96. Oil reservoir for the recoil cylinder (July 2011)

Fig. 97. Breech end (July 2006)

Fig. 98. Breech end (September 2007)
Fig. 99. Elevation gear seen from front (September 2007)

Fig. 100. Crevice corrosion at pedestal mount (September 2007)

Fig. 101. Crevice corrosion at pedestal mount (September 2007)

Fig. 102. Crevice corrosion at pedestal mount (September 2007)

Fig. 103. Flaking on underside of traversing bracket (September 2007)

Fig. 104. Flaking on underside of traversing bracket (September 2007). Note the egg case of a praying mantis.
Fig. 105. Colonisation by mud wasps (September 2007)

Fig. 106. Crevice corrosion at pedestal mount (September 2007)

Fig. 107. Crevice corrosion at pedestal mount (September 2007)
Acknowledgments

I am indebted to David Look (Winchester, VA) for the collaboration in 1994. Several historic images were kindly furnished by Nina Peck (Museum Technician, WAPA, US NPS Guam). I am also indebted to the following for the kind provision of images that show the preservation of the gun at various points in time: Jim Curtis (Wichita Falls, TX) and Ciaran Hickey (Buckingham, VA).

Endnotes

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1. Breech face to muzzle.

2. Image scan courtesy of WAPA>

3. The conservator’s travel was unavoidably delayed. Samples were taken of the 25mm AA and the 47mm PAK gun that were also treated at the time, but the 20cm gun had been completely sandblasted at that time (Pace, 1995).

4. The gun at the Naval Magazine had the serial number 57 (Spennemann, 2017c).

5. USN supply code #8010-01-302-3608.

6. Grey primer, pigmented dark blue for distinction; USN supply code #8010-00-964-6004.

7. DeVoe F151, USN supply code #8010-01-302-6838.

8. MIL-C-83286B, USN supply code #8010-01-068-3115.

9. Image Courtesy Jim Curtis

10. Image Courtesy Jim Curtis.


12. Image courtesy Ciaran Hickey.

13. Image source Wiki Commons, media file https://commons.wikimedia.org/wiki/File:Artillery_War_in_the_Pacific_National_Historical_Park_(Ga%27an_Point)_-_DSC00882.JPG.


15. Image courtesy Ciaran Hickey.

16. Image Courtesy Jim Curtis

17. Image courtesy Ciaran Hickey.

References


OPNAV. (1945). Japanese antiaircraft & coastal defense guns. Photographic Intelligence Center Report nº3 [OPNAV 16-V-PI03]. Washington: Air Intelligence Group, Division of Naval Intelligence, Office of the Chief of Naval Operations, Navy Department.


