

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

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RESTRICTED

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

E. r. a.			Jap Calendar	Our Calendar	E. r. a.			Jap Calendar	Our Calendar
MEIJI	TAISHO	SHOWA			MEIJI	TAISHO	SHOWA		
33			2560	1900		12		2583	1923
34			2561	1901		13		2584	1924
35			2562	1902		14		2585	1925
36			2563	1903		15	1	2586	1926
37			2564	1904			2	2587	1927
38			2565	1905			3	2588	1928
39			2566	1906			4	2589	1929
40			2567	1907			5	2590	1930
41			2568	1908			6	2591	1931
42			2569	1909			7	2592	1932
43			2570	1910			8	2593	1933
44			2571	1911			9	2594	1934
45	1		2572	1912			10	2595	1935
	2		2573	1913			11	2596	1936
	3		2574	1914			12	2597	1937
	4		2575	1915			13	2598	1938
	5		2576	1916			14	2599	1939
	6		2577	1917			15	2600	1940
	7		2578	1918			16	2601	1941
	8		2579	1919			17	2602	1942
	9		2580	1920			18	2603	1943
	10		2581	1921			19	2604	1944
	11		2582	1922			20	2605	1945

Fig. A - Comparison of Calendars

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JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

Introduction

1. The identification of captured or recovered Japanese underwater ordnance by means of markings and labels presents a difficult problem to personnel unfamiliar with oriental languages for many obvious reasons, not the least of which is the different alphabet employed. The fact that, as in the English language, certain letters or combinations thereof often embody several different meanings also adds to the problem as does the different method of writing. This chapter purports to present background information giving insight into the Japanese designation systems as well as representative examples of labels found on or in captured or recovered specimens of underwater ordnance.
2. It should be noted that the information contained herein is intended merely as a guide, and the fact that it may serve to permit reasonably accurate identification of some specimens should not be construed as relieving disposal personnel of the responsibility for making accurate tracings or clear photographs of all labels and markings encountered in the line of disposal duties. The data presented herein, while believed to be accurate, are not complete and therefore not suitable as a basis for a final decision as to a specimen's Japanese designation.
3. Understanding the Japanese ordnance designation system is contingent upon an understanding of the Japanese calendar system whereas proper reading and interpretation of markings and labels require that the translator be familiar with the many vagaries and inconsistencies of the Japanese numeral system. Brief discussions of the calendar and numeral systems follow immediately below.

Japanese Calendar

1. The Japanese employ two distinct calendar systems, one in which the current year is recorded with respect to the founding of the Japanese empire, and the other in which the current year is recorded with respect to the date on which the reign of the incumbent emperor began. The empire was founded in 740 B.C. hence the Christian year 1945 is 2605 in the empire calendar. Three eras based on an emperor's reigning years are pertinent to this discussion:

(a) The Meiji Era (明治) 1868 to 30 July 1912.

(b) The Taisho Era (大正) 31 July 1912 to 25 December 1926.

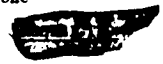
(c) The Showa Era (昭和) 26 December 1926 to date.

The Christian year 1945 is therefore the year 20 of the Showa Era.

Numeral System

1. Although the Japanese characters representing the cardinal numbers are well standardized, several systems are used for writing multiples and number combinations with resultant confusion in translation. The number combinations are usually set down, in Japanese characters, either from left to right or from top to bottom, but in some cases may be found written from right to left in the traditional oriental manner. It will be noted, however, that long series of numbers such as serial numbers are almost always written in arabic numerals in the conventional manner.
2. Two different systems employed for writing number combinations follow below:
 - (a) The arithmetic method whereby the actual addition and multiplication involved in achieving the sum or multiple is depicted in the characters representing said sum or multiple. This method has rarely been encountered and is not believed to be in general use. Typical examples are given below:

(1) 15	-----	十	五	ten-(plus) five					
(2) 50	-----	五	十	five (times) ten					
(3) 57	-----	五	十	七	five (times) ten (plus) seven				
(4) 6231	-----	六	千	二	百	三	十	一	six (times) thousand (plus) two (times) hundred (plus) three (times) ten (plus) one



JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

九三式 機雷四型	
藥種	假稱一式爆藥
種目	第關 C7 號
製造	昭和 18 年 4 月
銷造	昭和 年 月
藥量	100 尅 000 瓦
裝年月	昭和 18 年 5 月
損所名番號	吳 1 號
總重量	223 尅 300 瓦

93 Type Mine & Model	
Explosive Type	Provisional Designation 1 Type Explosive
Lot No.	No. "Kan" C7
Manufactured	Shows Era 18 Year 4 Month (April 1943)
Cast	(No Date - Powder Type Explosive)
Explosive Weight	100 kg. 000 gms.
M f d.	Date Name and Number of Piece
	Shows Era 18 Year 5 Month (May 1943) Mine Case "Pure 21" Plant No. Refers to
Total Weight	223 kg. 300 gms.

Fig 1 - Mine Type 93 Model 4, Label Pasted Either on Charge Container or Under Base Plate.

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

(Numerical System, Cont'd.)

- (b) A method, closely corresponding to the English decimal system, whereby digit by digit representation by Japanese equivalents of arabic numerals is used to depict sums and multiples. Under this system, the characters representing the numbers ten, hundred, thousand, etc., are omitted as in the arabic system. Typical examples follow:

(1) 15	一五	one five
(2) 50	五〇	five zero
(3) 57	五七	five seven
(4) 6231	六二三一	six two three one

3. A situation somewhat analogous to the two different systems of writing numerals may be found in the English system whereby the number, "214," might be read either as "two fourteen" or "two hundred and fourteen." In conclusion, it must be reemphasized that any of the numbers listed in Par. (a) or (b) above may be written from left to right, from top to bottom or from right to left and, in cases where several numerals are written close together, care and logic must be exercised continually in order to effect proper translations.

Type Number

1. The primary or basic designation of Japanese underwater ordnance is generally the type number. This ordinarily consists of the last two numbers of the empire calendar year, or year of the era of the reigning emperor, during which the ordnance was officially accepted for service. During the Meiji and Taisho eras, the era year was generally used while during the present (Showa) era, the empire year has been most often used. In the accompanying calendar (Fig. A), the numbers used for ordnance designation for each year since 1900 are underlined. It will be noted that the year designations used in the years 1912-1915 and 1941-1945 are identical. The actual designations used, however, are easily differentiated because, while the type numbers used are identical, different systems are used to record the actual designations. For example, the designation 三年式 (Third Year Type) indicates that the ordnance was adopted in 1914, whereas the designation 三式 (Type 3) indicates adoption in 1943.

Model and Modification Numbers

1. These numbers are used to designate various degrees of change in basic types (see Para. 1 above) although their exact significance is not definitely known. All ordnance designation systems contain inconsistencies and the Japanese system is no exception. The following conclusions, drawn from examination of various specimens, have been generally borne out and are believed to be reasonably accurate.
- (a) If a model number is assigned to an ordnance item, it indicates that changes of an adaptive nature have been made. In the case of a mine, slight alterations in its size or shape for the purpose of adapting it for laying from an unusual type of minelayer would probably warrant assigning a model number.
- (b) If a modification number is assigned to an ordnance item, it indicates that changes of a corrective or improving nature have been made. In the case of a mine, correction of a fault in the mine firing mechanism by a design change would probably warrant assigning a modification number.
2. Model and Modification numbers may be assigned in combination to a single ordnance item. Although the Japanese system for so assigning these numbers is not definitely known, examination of captured specimens indicates the following to be generally applicable:
- (a) Modifications of earlier Models are ordinarily indicated in an item's complete designation. The hypothetical example of a mine designated, "Type 26, Model 3, Modification 1" indicates that a Modification has



JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

94 Type Mine 2 Model		
火藥	藥種	八八式爆藥
	種目	第 276 號
	製造月	昭和 17 年 1 月
	空体量	無
	炸填量	無
裝填	年月	昭和 17 年 6 月
號	所番號	17 標 34 號

94 Type Mine 2 Model		
Powder	Kind of powder	88 Type Explosive
	Lot No.	No. 276
	Manufacture date	Shows Era 17 years one month (Jan. 1942)
Empty weight		Kilograms
Charge loaded weight		Kilograms
Loaded	Date	Shows Era 17 year six month (June 1942)
	Name and number of place	17 "Toto" Is No.

Fig 2 - Mine Type 94 Model 2. Label Pasted Under Cover Plate.

品名	炸藥八八式機雷改一用
藥種	下瀬爆藥
種目	第 混 30 號
製造年 月	昭和 14 年 3 月
鑄造年 月	昭和 14 年 3 月
海軍火藥廠	

Name of Article	Bursting Charge 88 Type Mine Mod 1 Use
Kind of powder	Shimosa Explosive
Lot No.	"Kon" No. 20
Manufacture date	Shows Era 14 Year 3 Month (March 1939)
Castng date	Shows Era 14 Year 3 Month (March 1939)
Naval Powder Factory	

Fig 3 - Mine Type 88 Mod 1, Label Pasted on Blocks of Explosive

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

(Model and Modification Numbers, Cont'd.)

been made in the basic design of the Type 26, Model 3.

- (b) Models of previous Modifications are not indicated in an item's designation. Continuing with the example drawn above, a mine designated, "Type 26, Model 4", might well be a new Model of the Type 26, Model 3, Modification 1 and include all the modified features of the Type 26, Model 3, Modification 1, although that fact is not obvious from its designation. The fact that no such designation as "Type 26, Modification 1, Model 3" (i.e., a designation with the Modification number written before the Model number) has ever been encountered, coupled with the facts previously noted in this paragraph, tends to substantiate the belief that when a new Model is made incorporating the features of a previous Modification, the Modification number is dropped from the actual designation.

Mark Number

1. The significance of Mark numbers is not clear. When assigned to a Navy bomb, a Mark number indicates the use to which the bomb is to be put, e.g., Mark 1 group - chemical bombs, Mark 2 group - depth bombs, etc. However, as applied to underwater ordnance and, in particular, to mines, the significance of these numbers is not apparent. It has never been found used in torpedo or depth charge designations except in two obsolete torpedo models which were developed prior to 1920.

Miscellaneous Designations

1. The terms "Experimental" 試 and "Temporarily (Provisionally) Designated" 假稱 are used to designate items which, although they may be found in trial service in forward areas, have not been finally accepted for general service. The term "Number", 番 followed by actual digits, is often found in bomb designations and, when so used, indicates the weight of the bomb. The actual number used represents the weight of the bomb in kilograms divided by ten.

Underwater Ordnance Identification

1. Mines

- (a) Mines may often be identified, upon disassembly, by examination of the printed labels which are ordinarily pasted to one or all of the following:
 - (1) The charge container
 - (2) The charge proper
 - (3) The inside of the cover plate.
- (b) Labels of the type noted above give such information as the mine's designation, type and weight of charge, date and place of manufacture or assembly, total weight, etc. The accompanying samples (Fig. 1 & 2) were taken respectively from the bottom of the charge container of a Type 7, Model 4 and from the inside of the cover plate of a Type 9a, Model 2.
- (c) In rare cases, a mine's designation may be found stamped on the cover plate, base plate or in various positions on the case.

2. Torpedoes

- (a) Each torpedo specimen recovered to date has contained its designation stamped on the top center line of the air flask section, adjacent to the warhead joint. Warhead designations may be found in any one of the following locations:
 - (1) Stamped on the nose, near the center.
 - (2) Stamped on the top center line, just forward of the warhead joint.
 - (3) On a printed label, pasted to the charge inside the warhead or on the warhead bulkhead.
- (b) The accompanying samples show typical warhead and torpedo designation labels.

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

实用假稱 九一式改六
愛二七號

Service Use Provisional Designation 91 Type Mod 6
"AI" 27

Service Use Temporarily Designated Type 91 Mod 6
Serial No. 27

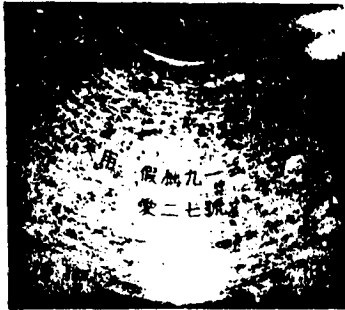


Fig 4 - Type 91 Mod 6 Warhead, Label on Nose.

三式实用
九一式改三改五
愛一三五号

3 Type Service Use
91 Type Mod 3 Mod 5
"AI" 135

Type 3 Service Head for Use with
Type 91 Mod 3 or Mod 5
Serial No. 135

Fig 5 - Type 3 Warhead, Markings on Nose

九一式魚雷長³³³改二

91 Type Torpedo "Naga" 333 Mod 2
Type 91 Mod 2 Torpedo, Serial No. 333

Fig 6 - Type 91 Mod 2 Warhead, Label on Nose.

實用九一式改三
長一八五號

Service Use 91 Type Mod 3
"Naga" 1850 Number

Service Use Type 91 Mod 3
Serial No. 1850

Fig 7 - Type 91 Mod 3 Warhead, Label on Nose.

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

(Underwater Ordnance Identification, Cont'd.)

3. Depth Charges

- (a) The marking system for depth charges is not definitely known nor is any consistent marking procedure indicated by examination of recovered specimens. The accompanying sample (Fig. 8) was taken from around the pistol end of the case of a Type 95 Depth Charge. Labels have also been found on the explosive charge.

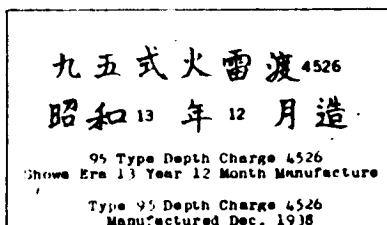


Fig. 8 - Type 95 Depth Charge,
Markings on Edge of Case.



Fig. 9 - Type 3 Warhead, Label on Bulkhead.

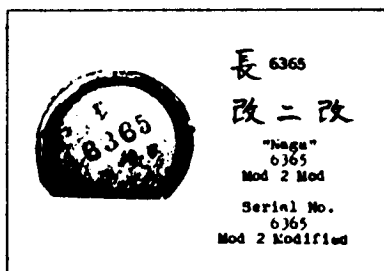


Fig. 10 - Type 91 Mod 2 Torpedo,
Label on Airflask Bulkhead.



Fig. 11 - Type 90 Model 2 Exploder Storage Box, Label on Cover

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

吳 72
九一式爆發火一型
"Kure" 72
91 Type Exploder 1 Model
Serial No. 72
Type 91 Exploder Model 1

Fig 12 - Type 91 Model 1 Exploder, Label on Body.

八九式改一長 109
昭和十三年造
89 Type Mod 1 "Naga" 109
Showa Era 13 Manufactured
Type 89 Mod 1 Serial No. 109
Manufactured 1938

Fig 13 - Type 89 Mod 1 Torpedo, Label on Forward End of Airflask, Top Centerline.

九三式一型改二吳 631
昭和十五年造
93 Type 1 Model Mod 2 "Kure" 631
Showa Era 15 Manufactured
Type 93 Model 1 Mod 2, Serial No. 631
Manufactured 1940

Fig 14 - Type 93 Model 1 Mod 2 Torpedo, Label on Forward End of Airflask, Top Centerline.

九一式魚雷改三特
吳 1022
昭和十七年造
91 Type Torpedo Mod 3 Special
"Kure" 1022
Showa Era 17 Manufactured
Type 91 Mod 3 Special Torpedo
Serial No. 1022
Manufactured 1942

Fig 15 - Type 91 Mod 3 Special Torpedo, Label on Forward End of Airflask.

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

九一式魚雷改三特
長 6018
91 Type Torpedo Mod 3 Special
"Naga" 6081
Type 91 Torpedo Mod 3 (Special)
Serial No. 6081

Fig. 16 - Type 91 Mod 3 Torpedo, Label on Forward End of Airflood.

品名	九七式實用頭部炸藥 假稱九一式魚雷改六用
藥種	九七式爆藥
種目	第 207 号
製造年月	昭和 17 年 5 月
鑄造年月	昭和 17 年 5 月
第三海軍火藥廠	

Name of Article	97 Type Service Use Warhead Bursting Charge For Provisional Type 91 Mod 6 Torpedo Use.
Kind of Powder	97 Type Powder
Lot	Number 207
Date of Manufacture	Shows Era 17 Year 5 Month (May 1942)
Date of Casting	Shows Era 17 Year 5 Month (May 1942)
No. 3 Naval Powder Factory	

Fig. 17 - Type 91 Mod 6 Warhead, Label Posted on Blocks of Explosive.

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

Japanese Markings on the Type 4 Torpedo

Below is a list of the characters found around the external fittings of the Type 4 Special Torpedo.

- | | |
|----------------|--|
| 1. 開
塞弁 | Open.
Air Stop Valve. |
| 2. 閉 | Close. Characters 1 and 2 are found
around the air stop valve. |
| 3. 安全弁 | Safety Valve. Around the relief valves
on the midships section and the after-
body. |
| 4. 裝氣弁 | Air Charging Valve. |
| 5. 潤滑油 | Lubricating Oil. By the oil filling hole. |
| 6. 潤滑油排 | Lubricating Oil Drain. |
| 7. 清水 | Fresh Water. By the water filling hole. |
| 8. 清水排 | Fresh Water Drain. |
| 9. 燃料 | Fuel. By fuel filling holes. |
| 10. 空氣 | Air. The characters for "air", "fuel",
and "water" are found beside the open
access slots or on the plates covering
these slots to the different leads. |
| 11. 燃料排 | Fuel Drain. |
| 12. 一調油
二調油 | Around the two access holes to the
reducer adjusting studs. |

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

(Japanese Markings on the Type 2 Torpedo, Cont'd.)

- | | |
|----------|---|
| 11. 接 | Join |
| 14. 離 | Separate. Characters 14 and 15 are located around the access holes to the locking ring rack. These openings are found on the warhead, the midship section, and the afterbody. |
| 15. 深度調定 | Depth Setting. Found with several rows of characters around the depth setting dial. Characters 16 and 17 are also found here. |
| 16. 深 | Deep. |
| 17. 淺 | Shallow. |
| 18. 濾網 | Strainer. Used with "air", "fuel", and "water" by their respective strainer holes. |
| 19. 歸弁 | Check Valve. Used with "air", "fuel", and "water" by their respective check valve holes. |

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

GLOSSARY

The following glossary is presented with a view toward familiarizing mine disposal personnel with the Japanese characters most likely to be encountered in ordnance items and installations. Primary emphasis is placed upon characters and terms used in connection with underwater ordnance although some general ordnance terms are also included, as are data on the Japanese numeral systems and other related non-technical subjects.

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	Romaji	Kanji
acoustic mine	onkyokirui	音 響 機
air	kuki	空 氣
air charging valve	sokiben	裝 氣 弁
air service	kokuhai	航 空 兵
air service(abbr.)	ko	航
air stop valve	saiben	塞 弁
amatol	shoto yaku	硝 斗 藥
ammonal	amonaru kayak	[アンモナル] 火 藥
anchored type	kenshiki	繫 維 式
Army	rikugun	陸 軍
arsenal	koshō; zohseho	工 廠 造 兵 廠
ballistite	barisutaito	[バリスタイト]
black	kuro	黑
blasting gelatine	baku nessel serachin	爆 發 性 [セラチン]
bomb	bakudan	爆 彈
booby trap	yūgekiteki jirai	遊 撃 的 地 雷

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	<u>Romaji</u>	<u>Kanji</u>
booster	shidō hatsutenki	傳 爆 藥
booster charge	denka yoku	傳 火 藥
bottom	shita (ge)	下
bursting charge	aku yaku	炸 藥
burst	haratau	破 裂
calibre	kei	徑
cast	chū	鑄
centimeter	senchi-mētoru	厘
check valve	kiben	歸 弁
cheddite	ennayaku	鹽 那 藥
chloropicric	kurōrupikuran	「クロールピクリン」
classification "A"	ko	甲
classification "B"	otsu	乙
classification "C"	hei	丙
close	tojiru	閉
color	iro	色

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	<u>Romeji</u>	<u>Kenji</u>
controlled naval mine	shihatsukirai	視發機雷
controlled naval mine	kansaikirai	管制機
cordite	chūjō kayaku	紐狀火藥
day	nichi	日
deep	fuka	深
delay	nobasu	延
demolition	bakai	破壞
demolition clock	jigen bakkeki	時限發火器
depth charge	bakurai	爆雷
depth charge pistol	bakurai hakkasochi	爆雷發火裝置
depth setting	shindō chōtai	深度調定
detonator	baku bō	爆帽雷管
drain	hai	排
dynamite	dainamaito	「ダイナマイト」
electric cap	denkiraihan	電氣雷管
experimental	shi	試

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	Romaji	Kanji
explosives	baku yaku	爆藥
explosive grapnel (hook)	bakuhakō	爆破鉤
filled	sa (abb. for sakuten)	サ
fine grain powder	shōryūsan	小粒藥
fresh water	seisui	清水
fuel	senryō	燃料
fuze, electric (igniter bridge)	kayōnen	可熔片
fuze, detonator	shinkan no kibakuzai	信管, 起爆劑
fuze, delay action	tanenki shinkan	短延期信管
fuze, projectile	shinkan	信管
fuze, percussion	chakubatsu shinkan	着發信管
fuze, instantaneous	shumpetsu shinkan	瞬發信管
fuze, sensitive	shumpetsu shinkan	觸發信管
fuze, time	eika shinkan	曳火信管
grade	kōbetu	口別
gram	guramu	瓦

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	Romaji	Kanji
green	midori	綠
ground type (naval mine)	ohinteshiki	沈底式
gun	hō	砲
gun cotton	menkeyaku	綿火藥
gun powder	kayaku	火藥
horn (naval mine)	shokraku	觸角
igniter charge	tenkeyaku	點火藥
initiator (detonator)	kibakuyaku	起爆藥
induction type mine	yudōgata pki kirai	誘導型磁氣機雷
incendiary symbol	ya	ヤ
illuminating	shomei	照明
inspect	ken	檢
inspector's stamp	yoshi	可
instantaneous	shun	瞬
large	dai	大
left	hidari	左

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

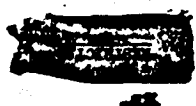
	<u>Romaji</u>	<u>Kenji</u>
loaded	sōten	装 填
lot	shimoku	種 目
lubricating oil	junkatsuyū	潤 滑 油
lyddite	ridaito	[リタイト]
magnesium	maguneshiyūm	[マグネシウム]
magnetic mine (marine)	jiki kirai	磁 氣 機 雷
magnetic needle type (magnetic mine)	jishin gata pki kirai	磁 針 型 磁 氣 機 雷
manufacture	seizō	製 造
mark	go	號
mercury fulminate	raisan suigin	雷 酸 水 銀
meter	mōtoru	米
middle	naka (chū)	中
millimeter	miri-mōtoru	耗
mine	kirai	機 雷
mine, sea	suirei	水 雷
mine, land	rirai	地 雷

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

Japanese Designation	Romanji	English Designation
機雷原	kirei fusetou onitai	mine field
敷設水雷	fusetou suirei	mine laid
觸發地雷	shokuhatsu jirei	mine, contact land
防禦地雷	borgyo jirei	mine, anti-tank
浮游水雷	uoyu suirei	mine, floatin
型	kata	model
改	kaishi	modification
月	gatsu	month
山	yama (san)	mountain
雷原	raigen	naval mine field
機雷	kireien	naval mine barrier
海軍	kaigun	Navy
[=トクリテリ]	nitrogurisen	nitro glycerine
番	ban	number
所	tokoro (sho)	place
火藥	kyaku	powder

Added 1 July 1965
(Change No. 8)

-21-



JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	<u>Romaji</u>	<u>Kanji</u>
powder charge	sōyaku	裝藥
powder factory	kayaku seizōsho	火藥製造所
powder, yellow picric acid	ōshoku yaku	黃色藥
practice	renshū	練習
prefix to numerals	dai	第
primer	bakkan	爆管
provisional designation	kashō	假稱
(1) period delay mechanism (2) ships counter (naval mines)	kaisūkibakusōchi	回數起爆裝置
repair	shūri	修理
recondition, reconstruct	kaizō	改造
red	aka	赤
rocket	funshinden	噴進彈
right-	migi	右
safe	anzen	安全
safety valve	ansenden	安全弁
service use	jitsu yō	實用

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	Romaji	Kanji
shallow	asa	浅
shaped charge, hollow charge	ta (dan)	夕 彈
shown era	shōwa	昭和
small	shō	小
smoke symbol	ke	ヶ
special	toku	特 殊
strainer	rokumō	濾 網
tetryl	meisayaku	若 亞 藥
thermite	shakunetsuzai	灼 熱 劑
time	eika	曳 火
Tokyo	tōkyō	東 京
torpedo exploder	bakuhetsusen	爆 發 尖
torpedo	gyōkei suirai (or gyōrai)	魚 雷
top	ue (jō)	上
tri-nitro-phenyl-methyl-nitramine	sanshōki (fueniru) mechirunitoranin	[メチール、ニトロ、アミン] 三 硝 基

JAPANESE DESIGNATION OF UNDERWATER ORDNANCE

	Romaji	Kanji
tri nitro toluene	sanshōki toruōru	「トルオール」三硝基
type	shiki	式
use	yō	用
weight	ryō	量
white	shiro (haku)	白

NUMERALS

Arabic	Japanese	
	Simplified	Alternate Form
0	〇	
1	一	壹
2	二	貳
3	三	參
4	四	
5	五	
6	六	
7	七	
8	八	
9	九	
10	十	拾
100		百
1000		千

