

20 MM A.A. GUN

20 mm Machine Gun Mechanisms, Marks 2 and 4
20 mm Gun Barrels, Marks 2, 3, 4, and 4 Mod. 1
20 mm Sights, Marks 2, 4, 4 Mod. 1, and 5
20 mm Magazines, Marks 2 and 4
20 mm Shoulder Rests, Marks 2, 4, 5, and 5 Mod. 1

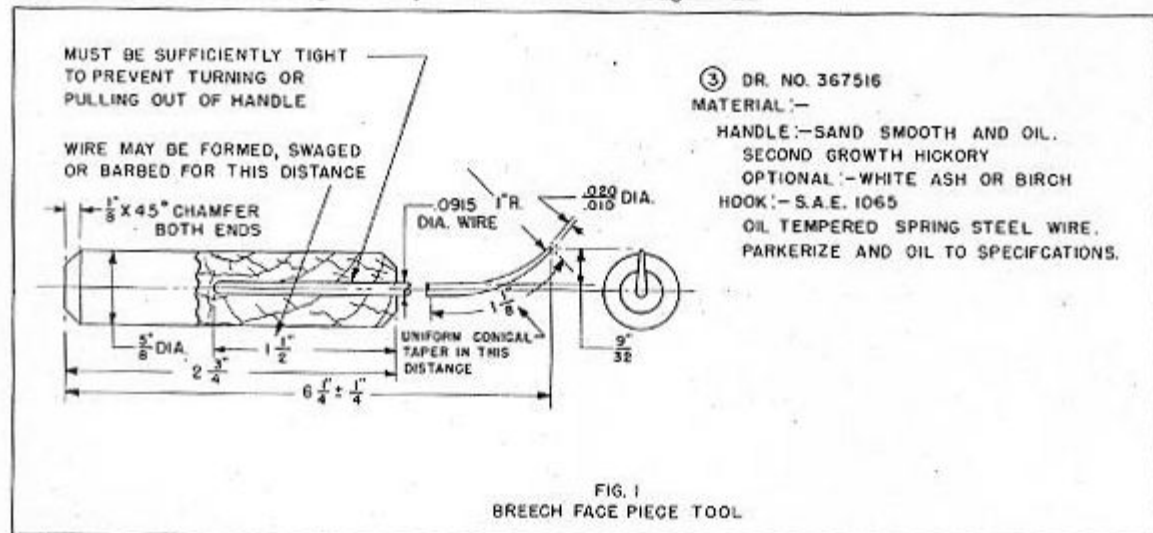
O.P. 911 is changed as follows:

The purpose of this addendum is to amplify the instructions contained in O.P. 911, and to describe new tools and methods intended to increase the efficiency and safety of operation of the 20 mm A.A. gun. The following items are covered herein:

- (a) Breech Face Piece Tool
- (b) Auxiliary Handle for Magazine
- (c) Magazine Casualty
- (d) Cocking Index Line
- (e) Plugging of Holes in Shield Plates
- (f) Parallelogram Assembly
- (g) Permanent Set of Barrel Springs
- (h) Safety Handles for Ejector Rod Assembly
- (i) Spring for Barrel Bore Inspection Mirror
- (j) Hammer Plate Securing Spring
- (k) Breech Face Piece
- (l) Cotter Pins for Trigger and Barrel Locking Lever

(a) BREECH FACE PIECE TOOL

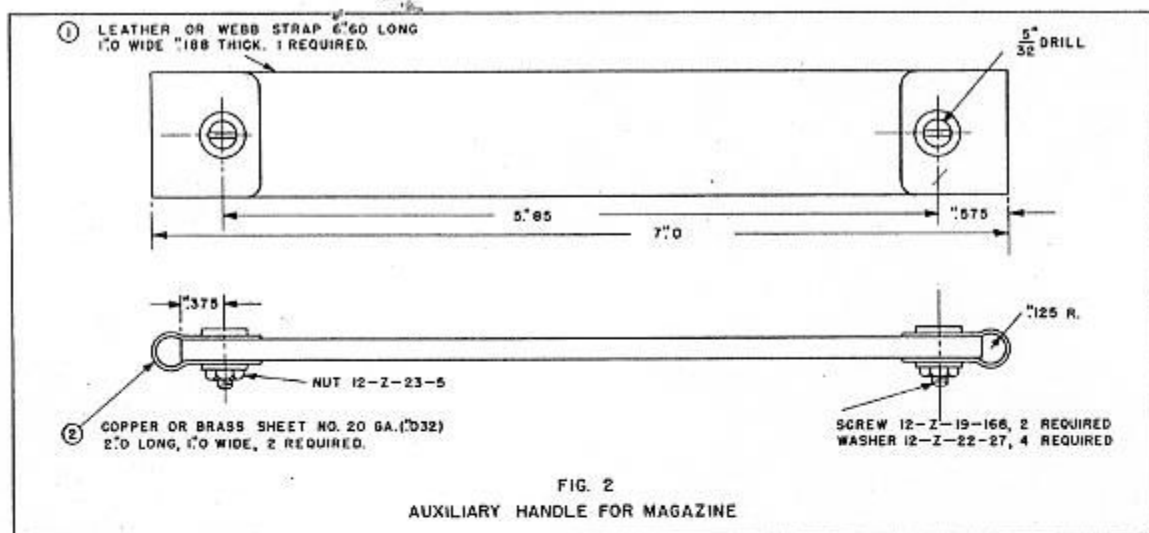
Figure 1 has been approved for production and will be furnished in the tool rolls of new guns. For guns now in service, the tool of Figure 1 may be made up by any activity that considers it desirable. A number of similar tools have been submitted by the Fleet. In one case, a common file handle was used as a grip for the tool. In another design, one end of a rod was pointed in a manner similar to that shown in Figure 1 and the other end was formed into a loop to serve as an integral handle. Any of these methods may be employed, provided that the pointed end of the tool conforms generally to that shown in Figure 1.



(b) AUXILIARY HANDLE FOR MAGAZINE

Difficulties have been encountered in removing 20 mm magazines from Type X ready service storage chests similar to NYD Norfolk Sk. No. 47237 (HuOrd. Dr. No. 332979) - 20 mm Ready Service Ammunition Chest. In this type of chest, the magazines are racked with their axes horizontal, and the handles are not readily accessible through the opening at the top of the chest.

Figure 2 shows an auxiliary handle that has been developed to aid in lifting magazines from chests of this type. The handle is fastened to the magazine by the two casing bolts which are on top when the magazine is stowed. The handle is not available for distribution to the service but may be manufactured and used by any activity that so desires.



(c) MAGAZINE CASUALTY

A casualty has occurred in service wherein a cartridge in the magazine mouthpiece was fired while the magazine was being shipped. The forward guide lugs on the magazine were not pushed all the way forward and the rear part of the mouthpiece struck and tripped the magazine catch (299679-2), allowing the ejector (299681-1) to move forward. The toe of the interlock lever (299680-4) then struck the primer of the cartridge in the mouthpiece, igniting the propellant. In order to prevent a recurrence of this casualty, care should be taken when shipping a magazine to see that the guide lugs are pushed all the way forward in the slot in the breech casing before the rear of the magazine is lowered into place.

(d) COCKING INDEX LINE

Occasionally the need arises for some visible indication of whether or not the gun is cocked. In one instance, following a stoppage, the breechblock was retracted to a point where it was supposedly cocked and the safe-fire lever was turned to the "safe" position. The block, however, was actually being held in the retracted position by the cartridge case which had jammed between the block and the breech casing. When one of the personnel, thinking that the mechanism was latched back, partially released the case with his hand, the recoiling mass suddenly moved forward and a serious injury resulted. To prevent a similar occurrence, it is recommended that an index line be painted on one of the breech bars and on the breech casing in such a manner that if the recoiling parts are retracted to the point where the two lines match up, the block will latch back. The recoiling parts should travel about 9/16" beyond the final latched back position in order that the breech pawls may properly engage the lugs on the bottom parallelogram levers. This point can be determined by drawing back the recoiling mass slowly and listening for the click as the pawls pass under the lugs.

(e) PLUGGING OF HOLES IN SHIELD PLATES

Accomplishment of Ordalt No. 1395, by which the shields on 20 mm Mounts, Marks 2 and 4 are lowered to increase the sight field, leaves four unused 17/32 inch diameter holes in each shield plate. It has been suggested that these holes be plugged to prevent the possible passage of small fragments or bullets. It is recommended that, if it is desired to plug the holes, 1/2" bolts (12-Z-24-82), nuts (12-Z-9-5) and lockwashers (12-Z-22-55) be used.

(f) PARALLELOGRAM ASSEMBLY

Damage to the breech pawls, parallelogram levers and trigger crank may result from improper installation of the new type, parallelogram axis bolt, top front (299695-6). When reassembling parallelogram mechanisms having this type of bolt, the head of the bolt must always be installed on the right hand side (looking toward the muzzle). The letter "R" is marked on the head of the axis bolt, and when the bolt is correctly assembled the letter will be visible from the right side. Some of the first of this type of bolt, however, were issued without the letter "R" on the head.

(g) PERMANENT SET OF BARREL SPRINGS

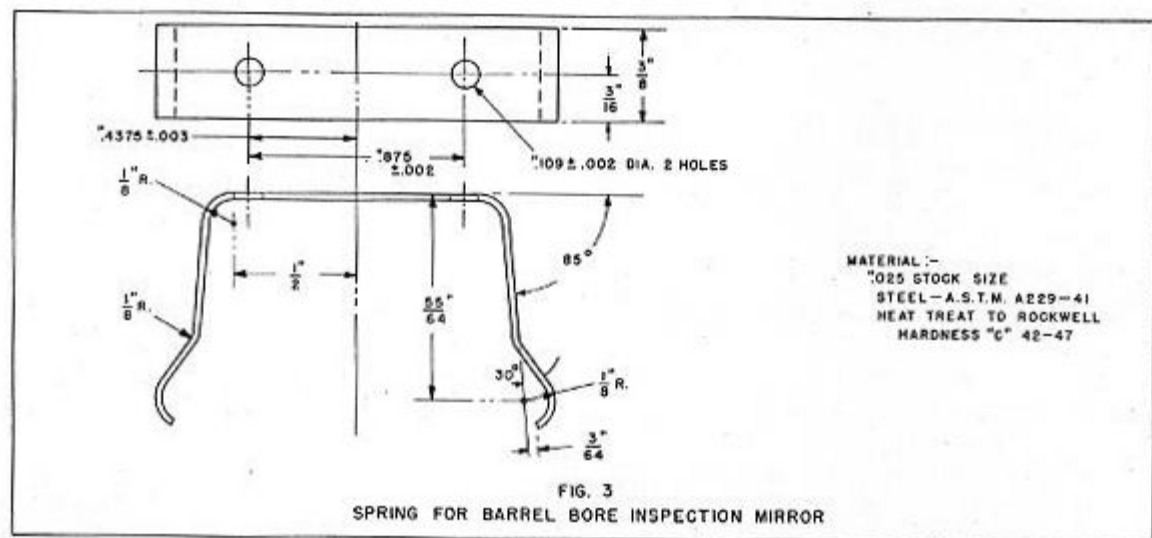
In Ordnance Pamphlet No. 813, 20 mm A.A. Gun and Mount, Mark 4 and Mark 2, it is stated that whenever possible the gun should be kept uncocked in order to relieve the spring tension and prevent the possibility of a permanent set of the barrel springs. This statement also appears in the new Ordnance Pamphlet on the 20 mm A.A. Gun, O.P. 911, which supersedes O.P. 813. However, information now at hand, based on the results of tests conducted by the Naval Gun Factory, indicates that holding the mechanism in the retracted position over long periods of time has a negligible effect upon the life of the barrel springs. It is therefore, considered a satisfactory practice, from the standpoint of barrel spring life, to keep the gun cocked during any period of readiness which the occasion demands.

(h) SAFETY HANDLES FOR EJECTOR ROD ASSEMBLY

The backing out of a projectile from the barrel by means of the ejector rod assembly supplied with the tool roll entails a certain amount of risk. In one instance, a member of a 20 mm A.A. gun crew received serious injuries when, in attempting to back out a projectile, the nose of the projectile was struck with sufficient force to explode the fuze and detonate the burster charge. Even when the ejector tool is applied gently, there is the possibility, in the case of a hot barrel, of the round "cooking off" during the process of removal. In order to lessen the danger to the operating personnel, a new ejector tool is under design, and will consist essentially of a central rod with handles projecting outward and rearward on each side. Using the projecting handles, the operator can keep his hands and arms out of the line of fire of the gun, in the event that the round should detonate. Until such time as the new tool is in production and becomes generally available, it is recommended that all the activities using the 20 mm A.A. gun install auxiliary handles on the present cleaning rod and ejector assembly. A suggested arrangement is to secure (either by welding or by means of an adapter) a U-shape steel bar to the cleaning rod handle assembly (299816-1 or 367516-1) in such a manner that, when the ejector rod is inserted in the barrel, the ends of the bar will project toward the rear and be in the same plane as the barrel bore axis.

(i) SPRING FOR BARREL BORE INSPECTION MIRROR

A new design of barrel bore inspection mirror has recently been approved for production. The new mirror assembly differs from the present design (367517) in that the mirror and its supporting arm can be folded back into the frame to facilitate stowage, and the sides of the frame fit snugly (with spring action) in the magazine slot in the breech casing. Until such time as the new type of mirror assembly becomes available, the bore inspection mirrors now on hand may be altered to provide a retaining spring for securing the mirror assembly to the casing. Figure 3 shows the details of a spring which is intended to be fastened to the under side of the present bore inspection mirror base (367517-2 or 3) by means of rivets. The spring should be located so that the rivets are about $59/64$ " from the rear of the base. Authorization is given for the manufacture and installation of the spring by any service activity that considers it desirable.



(j) HAMMER PLATE SECURING SPRING

It is considered that some cases of hammer breakage can be attributed to improper seating of the hammer plate (299677-2) rather than to any defect in the hammer itself. If the hammer plate securing spring (299677-1) has been weakened during assembly or disassembly or if it has not been properly seated in its slot in the breech casing, it is possible for the hammer plate to work over into such a position that one of the front toes of the hammer will strike the camming surface intended for the rear toe, resulting in breakage of the hammer. Accordingly, it is recommended that special care be taken during assembly to insure that the securing spring is properly seated in the slot in the breech casing. Regular and frequent inspection of the hammer plate and spring should be made, and if the spring is found to be weak it should be replaced. If the spring is bent out of shape, it should be straightened, or if necessary, replaced.

(k) BREECH FACE PIECE

Peening of the forward end of the striker pin hole in the breech face piece (299651-1) sometimes occurs and interferes with the operation of the striker pin (299653-1) and hammer (299654-1). The face piece should be inspected frequently and, when any evidence of peening is discovered, the striker pin hole should be cleared out to its original diameter.

(1) COTTER PINS FOR TRIGGER AND BARREL LOCKING LEVER

It has been reported that the securing pins (299672-6) used on the trigger (299698-3) and the barrel locking lever (299681-1) are, at first, difficult to remove, and, after several assembly operations, often become loose and drop out. To eliminate this condition it is recommended that the securing pins be replaced with 1/8" x 1" split cotter pins (12-Z-48-38 or 638). In some cases the existing holes may be too small to admit the cotter pins, and should be enlarged by means of a 1/8" drill. Attention is called to the fact that the trigger is hardened to Rockwell "C" 47-53, and special care must be taken in drilling this part. When installing the cotter pin in the trigger, it should always be inserted from the rear in order to prevent the possibility of the split ends jamming between the trigger and the trigger cover.

NAVY DEPARTMENT
BUREAU OF ORDNANCE
WASHINGTON 25, D. C.

To all holders of Ordnance Pamphlet 911
insert change; write on cover 'Change 1 inserted'
Approved by The Chief of The Bureau of Ordnance

OP 911

CHANGE 1

2 December 1944

M. R. Kelley
Acting Chief of Bureau

1 Page _____ Page 1

ORDNANCE PAMPHLET 911
is changed as follows:

20mm MACHINE GUN MECHANISMS MARKS 2 AND 4
20mm GUN BARRELS MARKS 2, 3, 4 AND 4 MOD. 1
20mm SIGHTS MARKS 2, 4, 4 MOD. 1, AND 5
20mm MAGAZINES MARKS 2 AND 4
20mm SHOULDER RESTS MARKS 2, 4, 5 AND 5 MOD. 1

Page 148

On line 3 of paragraph 9(b), delete the sentence 'Place the flat center spacer (367534-4) on the barrel.'

In the illustration, Figure 100, delete the reference to Dwg. No. 367534-4.

Plate 1 - facing page 160

Delete the reference to Dwg. No. 367534-4.

Page 177

Delete the center spacer (367534-4) from the parts list.

Extensive firing tests indicate that operation of the 20mm gun equipped with round wire barrel springs having the center spacer removed results in a substantial increase in life of the barrel springs and a small increase in cyclic rate and length of recoil, with no detrimental effect on gun functioning or life of associated gun parts. In order to secure the benefits of spacerless operation, the center spacer should be removed from all guns equipped with round wire barrel springs and from all spare round wire barrel spring assemblies. The center spacer will be eliminated from new production barrel spring assemblies.

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OP 911

CHANGE 2

23 July 1945

2 Pages — Page 1

ORDNANCE PAMPHLET 911
is changed as follows:

20-MM MACHINE GUN MECHANISMS MARKS 2 AND 4
20-MM GUN BARRELS MARKS 2, 3, 4 AND 4 MOD 1
20-MM SIGHTS MARKS 2, 4, 4 MOD 1, AND 5.
20-MM MAGAZINES MARKS 2 AND 4
20-MM SHOULDER RESTS MARKS 2, 4, 5 AND 5 MOD 1

Page 27: Under the heading Double Loading Stop add as paragraph 2 the following:

Elimination of Double Loading Stop from 20-mm Machine
Gun Mechanisms Mark 2 Mod 0 and Mark 4 and Mods.

1. Service experience and specific tests have indicated that the double loading stop on the 20mm Machine Gun Mechanisms Mk 2 Mod 0 and Mk 4 and Mods is of insignificant value. Cartridge case failures of the type wherein the double loading stop is intended to operate to prevent double loading are very rare and ordinarily prevent sufficient recoil to pick up the next round. Casualties have been reported wherein the double loading stop failed to prevent double loading although the case ruptured at a point to the rear of the double loading stop plunger. A sticking or sluggish double loading stop mechanism sometimes causes gun stoppages. Slivering and cutting of cartridge cases caused by poorly fitted or worn stop plungers or breech casings that have become peened just above the double loading stop plunger have been determined to be a cause of projectile prematures.

2. In view of the comments of paragraph 1, above, the double loading stop mechanism will be eliminated by Ordalt 2417, to be issued in the near future and new production gun barrels will not be machined for the lower double loading stop plunger. In eliminating the double loading stop, Ordalt 2417 will provide for the removal of the following parts from all 20mm Machine Gun Mechanisms Mark 2 Mod 0 and Mark 4 and Mods:

Double Loading Stop Plunger 1 - upper (299674-4 or OE 1080)
Double Loading Stop Lever (299674-5 or OE 1053)
Double Loading Stop Lever Axis Bolt (299675-1 or OE 1063)
including Snap Ring (299665-4 or OE 1346)
Double Loading Stop Guide Bushing (299675-2 or OE 1055)
including Locking Washer (299675-3 or OE 1081)
NOTE: Breech Casing (299670-1 or OE 1081)
only uses these parts. Breech Casing (299670-2)
does not use these parts.
Double Loading Stop Plunger Springs (299674-3 or OE 1336)
Double Loading Stop Plungers (299674-2 or OE 1071)
Double Loading Stop Plunger (299675-4 or OE 1069)
Double Loading Stop Plunger Spring (299675-5 or OE 1344)
Double Loading Stop (299674-1 or OE 1054)

3. All of the above parts are also to be removed from spare parts stocks and turned in to the nearest Navy Yard.

4. The double loading stop plunger - lower (299902-1, 2 or 3 or (299827-1) and retaining pin (299827-2) must be retained assembled in all barrels which have been machined for these parts, since such barrels must not be fired without the plunger in place. Spare parts stocks of plungers and retainers must also be maintained.

5. When the double loading stop plunger - upper and the double loading stop guide bushing have been removed, and a barrel having a double loading stop plunger - lower is used, care should be taken to prevent dirt, grease, or other foreign material from collecting in the plunger and guide bushing hole in the breech casing and interfering with free movement of the plunger in the barrel.

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S74(20mm)
(Re5a)

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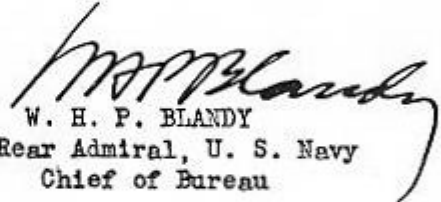
1 October 1943

BUREAU OF ORDNANCE CIRCULAR LETTER NO. G39-43

Subj: Ordnance Pamphlet No. 911, 20 mm. Antiaircraft
Gun, Change No. 3.

Encl: (A) Change No. 3 to Ordnance Pamphlet No. 911,
(HW) 20 mm. Antiaircraft Gun

1. Enclosure (A) is forwarded herewith for insertion
in Ordnance Pamphlet No. 911 as Change No. 3.


W. H. P. BLANDY
Rear Admiral, U. S. Navy
Chief of Bureau

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Insert this change in OP 911
and write the following on the
cover: "Change 3 entered."

ORDNANCE PAMPHLET NO. 911
CHANGE 3 1 OCTOBER 1943

20mm A. A. GUN

OP 911 is changed as follows:

Page 111

Substitute the following for the last paragraph on this page:

The bore erosion gauge assembly (367548) should be used after approximately each thousand rounds of firing or less. Measurements taken with this gauge will indicate when the bore wear is so great that the gun barrel should be removed from service. When a gun barrel becomes too worn, recoil is shortened so that stoppages and failures to latch back will occur. The bore erosion gauge should be used as follows:

1. Be sure the barrel is cool enough to handle with the bare hands. In a hot barrel, the gauge will read differently and may become stuck.
2. Loosen the setscrew on the gauge crossbar, and insert the plug end of the gauge into the breech end of the barrel until firmly seated. Move the crossbar up against the breech end of the barrel, and secure it with the setscrew.
3. Remove the gauge and note the position of the forward face of the crossbar relative to the markings on the shank of the gauge.
4. Interpretation of gauge reading.
 - (a) Four marks appear on the shank of the gauge, at distances of 6"4, 6"8, 7"0, and 9"4 from the forward edge of the 0"8 diameter section of the plug. These seating distances, from the seating point of the 0"8 plug to the breech end of the barrel, correspond respectively to about 1/3, 2/3, 80%, and 100% of the serviceable life of the barrel. They also correspond to muzzle velocity losses of about 15, 80, 100, and 215 feet per second.
 - (b) When the seating distance is less than 7"0 (80% life), stoppages due to barrel wear (short recoil) are not ordinarily to be expected. For seating distances between the 80% and 100% distances, barrel wear is rapid, and occasional stoppages due to short recoil may occur. Beyond the 100% distance stoppages due to short recoil are to be expected, making gun operation unreliable. Barrels should be removed from combat service as soon as practicable after the seating distance reaches 7"0 (80% life).

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OP 911 CHANGE 4

14 NOVEMBER 1947

K. H. Noble
Acting Chief of Bureau

Pages 1 Page 1

ORDNANCE PAMPHLET 911 20MM A.A. GUN
is changed as follows:

Insert attached page 233.

Insert this change sheet inside front cover of OP 911.

NOTE: The following changes to OP 911 have been issued previously in addition to the NOTICE inside the front cover:

Addendum 1 dated 12 July 1943
Addendum 2 issued as OCL G33-43 dated 21 September 1943
Change 1 dated 2 December 1944
Change 2 dated 23 July 1945
Change 3 issued as OCL G39-43 dated 1 October 1943

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12. BuOrd Special List 12.A; 13.A, B, S, T, U, BB.

SAFETY PRECAUTIONS

1. See that the top of the barrel locking lever is flush with the breech casing. See that the barrel is fully seated.
(Failure to comply has resulted in barrels being blown out of the gun, and injuries to personnel.)
2. See that the magazine is properly tensioned.
(A fully loaded magazine is properly tensioned only when the spring axis has been rotated against the positive stop. See NavOrd OCL G31-44.)
3. Make sure that the double loading stop plunger and retaining pin are in place in the barrel.
(Loss of the plunger while changing barrels has resulted in ruptured cases and escape of burning gases through the plunger hole.)
4. Check the parallelogram linkage for proper assembly.
(Incorrect assembly can cause a "runaway gun". See OTI G12-44.)
5. When a stoppage occurs, be sure to follow the procedure of OP 1591, Clearing of Live Ammunition from Guns.

NAVY DEPARTMENT

BUREAU OF ORDNANCE

WASHINGTON, D. C.

S74(20mm)

(Re5)

April 7, 1943

BUREAU OF ORDNANCE CIRCULAR LETTER NO. G8-43

Subject: 20 mm. A.A. Gun - Muzzle Extension for
Use with Pipe Rail Limit Stops.

Reference: (a) BuOrd Sketch No. 111923.

1. Purpose. This Circular Letter is intended to acquaint the Service (especially Navy Yards) with the muzzle extension shown on reference (a), which may be used where such a device is needed in connection with pipe rail limit stops. In addition, this Circular Letter contains general instructions in regard to the use of train and elevation stops of all types.

2. Pipe rail limit stops, which are under the cognizance of the Bureau of Ships, are installed with 20 mm. A.A. guns in certain locations in certain ships, in order to prevent movement of a gun into areas where the ship's structure would be in the line of fire. In some cases this purpose is served adequately by fixed train stops (independent of the gun elevation angle) and by fixed elevation and depression stops (independent of the angle of train). In other cases, safe limits of train and elevation are not independent one from the other, and it is necessary to provide for a variable limiting angle of elevation or depression which depends upon the angle of train. Pipe rail limit stops are one method of accomplishing this objective.

3. Normally, with a pipe rail stop, the pipe is located so that it will engage the barrel of the gun. Sometimes such a position would interfere with the gunner or another member of the gun crew in operating or serving the gun on the approximate reverse bearing. The best way to avoid this interference is to move the pipe rail further away from the center of rotation of the mount, and to install a muzzle extension on the gun barrel, so that the extension will engage the pipe rail. The design shown by reference (a) is approved for use when a muzzle extension is required for this purpose.

4. Vandyke copies of reference (a) are being sent to all Navy Yards and to all Supervisors of Shipbuilding. These muzzle extensions should be manufactured by the activity making the pipe rail installation, as a charge against

S 74 (20 mm)

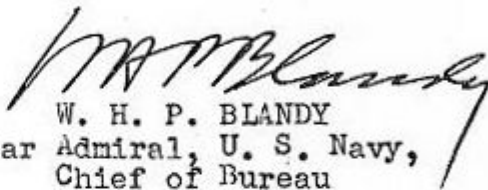
ordnance funds, or (in case no ordnance funds are available) the muzzle extensions should be obtained on requisition from the nearest Navy Yard.

5. Pipe rail limit stops for 20 mm. A.A. guns are a temporary expedient, pending the availability of a satisfactory cam type of limit stop. Several designs of cam type stops have been worked up, and a few experimental installations on shipboard have been made. Additional designs are being tested at the Naval Gun Factory. Thus far, no design has been tested that is satisfactory as a standard, for wide spread use. It is expected that one of the designs now under test will be approved in the near future. As soon as a satisfactory cam type limit stop has been tested and is approved, it is planned to issue an Ordalt which will authorize manufacture and installation of the cam type to replace pipe rail stops already installed and to be used instead of pipe rail stops with subsequent installations.

6. The policy of the Bureau of Ordnance in regard to train and elevation limit stops in general, whether of the pipe rail type or the cam type, and as applied to all gun mounts and turrets; regardless of caliber, is outlined as follows:

- (a) The function of these stops is to prevent movement of the gun into a position where its fire would endanger: (1) Any part of the fixed structure of the ship (such as a deck house); or (2) adjacent moveable equipment (such as a crane or a gun mount) with the latter in its position of least interference.
- (b) In considering interferences caused by other moveable equipment, it is obvious that valuable arcs of fire would be lost if the limit stops were set to exclude all possible interferences. Therefore, in general, a limit stop is intended to prevent an interference that can not be avoided otherwise.
- (c) Limit stops are not intended to protect adjacent personnel from blast. An exception to this rule may exist if the adjacent personnel (a director crew, for example) are necessary for the service of the gun. Generally speaking, exposed persons will have to leave their stations if a near-by gun trains into a position where they would be injured by blast.

- (d) The adjustment or machining of limit stops, which will determine the effective limiting angles, is the responsibility of the ship's force. As a general rule, a stop should be set so that with the gun in its limiting position, the axis of the bore of the gun will clear the interfering object by at least one caliber (for guns of 5" bore and larger), or by at least five inches (for guns smaller than 5").


W. H. P. BLANDY
Rear Admiral, U. S. Navy,
Chief of Bureau

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NAVY DEPARTMENT

BUREAU OF ORDNANCE

S74,(20mm)
(Re 5d)

NAVORD OCL G21-44
17 April 1944

WASHINGTON, D. C.

RESTRICTED

BUREAU OF ORDNANCE CIRCULAR LETTER G21-44

Subject: 20mm Machine Gun Mechanisms Mark 2 and Mark 4,
20mm Magazines Mark 2 and Mark 4 - Permanent
Set of Barrel Springs and Magazine Springs.

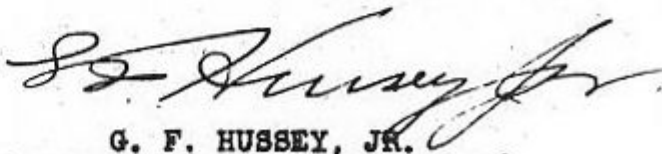
Reference: (a) Ordnance Pamphlet No. 911.

1. The question has arisen in the service as to the length of time that a 20mm anti-aircraft gun can be kept cocked and the length of time that a 20mm magazine can be held under full tension, without damage to the barrel springs or to the magazine spring.

2. As previously stated in Addendum 1 (dated 12 July 1943) of reference (a), the results of tests conducted on the barrel springs indicate that the gun may be held in the cocked position over long periods of time with negligible permanent set.

3. Recent tests on the magazine spring indicate that the magazine spring may be stored in the fully tensioned condition over long periods without appreciable loss in tension.

4. It is considered to be a satisfactory practice, from the standpoint of the life and performance of the barrel springs and the magazine springs, to keep the gun cocked and the magazine fully tensioned during any period of readiness which the occasion demands.



G. F. HUSSEY, JR.
Rear Admiral, U. S. Navy
Chief of Bureau

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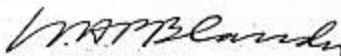
Washington, D. C., 21 September 1943.

BUREAU OF ORDNANCE CIRCULAR LETTER NO. G33-43

Subject: Ordnance Pamphlet No. 911, 20-mm. Machine Gun Mechanism Mks. 2 and 4; 20-mm. Gun Barrel Mks. 2, 3, 4, 4-1. Addendum 2.

Enclosure: (A) Addendum 2 to Subject Ordnance Pamphlet (page 86a).

1. Insert enclosure (A) in subject Ordnance Pamphlet and write on cover, "Addendum 2 entered."


W. H. P. BLANDY,
Rear Admiral, U. S. Navy,
Chief of the Bureau of Ordnance.

(Enclosure A)

ADDENDUM 2 to OP 911.

OP 911 is changed as follows:

PAGE 86: Add this sheet as page 86a.

A small quantity of pentolite loaded 20-mm. ammunition was manufactured in this country for Lend Lease and in a few instances was issued to US vessels. HEI-T, tetryl loaded, 20-mm. has never been placed in production. However, the above rounds are included in the color chart to permit identification in event any of these types are issued to US vessels from British sources.

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*Applicable Ships.

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AMMUNITION



AP

BLACK



HEI

TETRYL

RED



HEI

PENTOLITE

BRIGHT PINK



HET

TETRYL

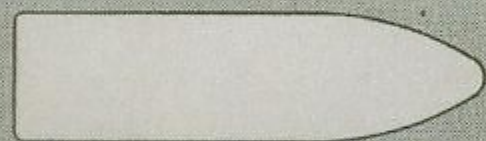
LIGHT GRAY



HET

PENTOLITE

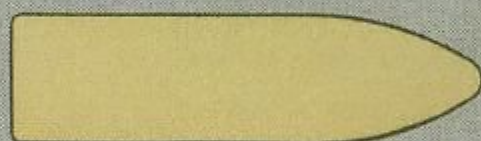
BLUE



HE

TETRYL

WHITE



HE

PENTOLITE

YELLOW



HEI-T

TETRYL

BRIGHT GREEN



BL AND P

DARK GRAY GREEN



DRILL, DUMMY

(With Holes in Cartridge Case)

SEAL BROWN



BL AND T

DARK GRAY GREEN

(With $\frac{1}{8}$ In. Yellow Band)

20 MM. AMMUNITION COLOR CHART