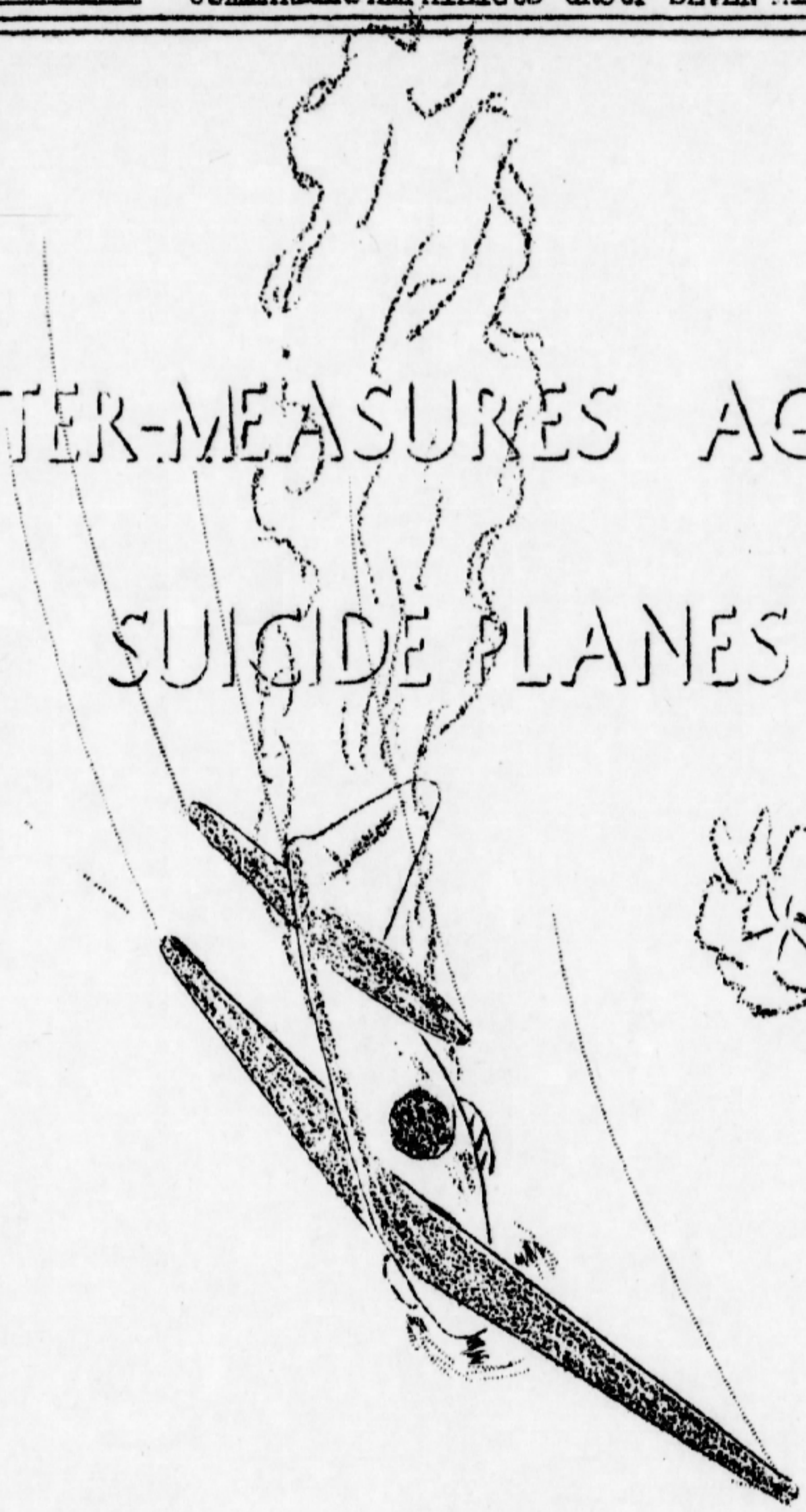


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COUNTER-MEASURES AGAINST SUICIDE PLANES



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- AMPHIBIOUS GROUP SEVEN -

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COUNTER-MEASURES AGAINST SUICIDE PLANES

- FOREWORD -

The following notes are based upon the experiences and recommendations of numerous ships, which have been attacked by suicide planes since the beginning of the OKINAWA Operation. The Commanding Officers and other personnel attached to at least forty-five (45) of these ships were interrogated in the KERAMA RETTO Anchorage by intelligence officers of Amphibious Group SEVEN. Many of the comments and suggestions in this summary pertain only to certain types of ships, notably destroyers and small support craft, since the vast majority of the attacks studied have been directed against these types. It is believed, however, that other classes of ships will find some of the observations of value in combatting suicide attacks. Recommendations concerning the modification and improvement of ships' armament and other equipment, as well as the development of better defensive facilities, are included in a separate report. This summary aims mainly at suggesting "how to fight 'em with what you've got now."

I. TACTICS OF SUICIDE PLANES.

Here are some of the more striking tactical features noted in numerous suicide attacks, which have occurred since the beginning of the OKINAWA Operation:

(1) Coordination in Force. Many coordinated suicide attacks were carried out by groups usually of two to five planes, making runs from different directions. Isolated ships, like Radar Pickets, were favorite targets in these attacks.

(2) A glide or a low approach over the water was employed during the final run in the majority of cases.

(3) Suicide attacks have occurred during all hours of the day and night.

(4) A high percentage of old planes, especially VAL's, was noticed, but many other types were also employed. Even trainers, biplanes and twin-float planes have been pressed into service for these missions.

(5) The suicide pilots apparently have been both skilful and inexperienced. In the vast majority of cases, however, CAP has shot them down like sitting ducks. They are bent on one mission, a suicide crash, and invariably they exhibit little desire or ability to fight with CAP. Their planes are totally inadequate for that purpose.

(6) Most suicide attacks have been pressed home with fanatical persistence and in the face of terrific AA fire from ships. Some planes may carry special armor for the pilot.

(7) Running lights (steady or blinking, and red, green, white and other colors) and possibly signalling lights, were shown by enemy planes in several night attacks. The purpose of the running lights is probably to induce our ships to open fire and thus reveal their location. One plane may show the lights while another makes the attack.

(8) Decoy planes were used in several attacks to divert a ship's attention from the direction of the real attack.

(9) IFF was apparently shown by the enemy planes in some attacks.

(10) A control plane, such as a BETTY, was apparently used during several attacks to direct the suicide planes.

(11) Suicide planes strafed ships during their final run in several attacks.

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(12) Delayed action bombs have been carried by suicide planes in many attacks. Thermite bombs may also have been employed.

(13) Several ships have been attacked just before dusk and immediately after CAP secured. The possibility that the enemy planes intercepted radio transmissions between our planes and ships has been suggested. The suicide planes apparently escaped radar detection prior to the attack by flying very low over the water.

(14) Suicide planes may attack in pairs. Be careful of second and other planes following behind the lead plane.

II. SHIP MANEUVERS.

(1) In general, the most effective maneuver against suicide attacks is to bring the plane on the beam and to increase the ship's speed so that it reaches a maximum during the plane's final run. This maneuver will enable the ship to bring the greatest number of guns to bear on the plane and at the same time will make the ship a full deflection target for the attacker.

(2) In all types of attack the primary means of defense is considered to be the early opening of fire and the maintenance of maximum fire by the ship being attacked until the plane is splashed, passes out of range, or crashes. Maximum speed and radical maneuvers are the second most important means of defense against the steep dive attack. Smoke has been suggested by one destroyer as the second most important means of defense against the low-altitude and shallow glide attack.

(3) When the enemy plane is just beyond maximum gun range (18,000 to 25,000 yards), destroyers should increase speed to about twenty to twenty-five knots. Maneuvers should be as gentle as possible and with the idea of keeping the aircraft, or the greater number of aircraft, as near the beam as possible. At this time, ships should not be making over two-thirds speed and should hold some speed in reserve so as to be able, if necessary, to change course rapidly with flank speed when the enemy plane is close. This is particularly true if the ship is operating alone.

(4) Keep suicide planes abeam. Don't let them come in from dead ahead or astern.

(5) Keep accelerating from two-thirds to flank speed during the attack in order to present a changing deflection problem to the suicide plane.

(6) When the suicide pilot is believed to have committed himself to the final run, increase speed to flank speed and continue to keep the enemy plane on the beam. The increased speed serves to destroy the original solution arrived at by the enemy pilot.

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(7) A turn away when the suicider is within short range (2000 yards) may be of value in throwing the pilot off his aim; however, the turn should not prevent all the guns from bearing to the end.

(8) Unless the suicide plane is diving at a very steep angle, do not maneuver violently when under attack. Change course just sufficiently to bring and keep the suicide plane on the beam, so that the maximum number of guns can fire on the target.

(9) A skilfully maneuvered ship may be able to dodge a steep suicide dive. Many ships have also avoided such dives (angle greater than 40°) by steaming at high speed on a course normal to the bearing of the plane. But speed and maneuvering have little effect in avoiding the low level glides or "on the deck" suicide attacks. In both cases, the maximum possible volume of fire on the beam is your best defense. Radical maneuvers seem to gain nothing, and tend only to handicap the gunners.

(10) Maneuvers in Coordinated Attacks:

(a) Violent maneuvering against multiple coordinated attacks is especially ineffective and disturbs your own gunners. Maneuver only to unmask batteries and to keep targets from getting ahead or astern.

(b) For a simultaneous attack by two suicide planes, requiring that you take both planes under fire, use maximum speed and place the more persistent plane on the beam, leaving the other on the bow or quarter. Split your battery, shifting all guns to the remaining plane as soon as one plane is shot down.

(11) Boilers:

(a) When practicable, keep all boilers hot and ready to be cut in on the main line on very short notice.

(12) Maneuvers at Night:

(a) If underway on a patrol station at night, steam at a relatively slow speed on a wandering course, with as little wake as possible.

(b) One LCI recommended that, when an enemy plane is believed to be present in the area, the craft should be stopped dead in the water and wake eliminated. Another LCI reduced speed to six knots when low-flying bogies appeared over the patrol area at night and stopped its engines whenever a plane was heard. Neither craft was attacked.

(c) If in bright moonlight, try to close the dark side of land for additional concealment, or follow dark patches caused by clouds. In short, try to hide.

(d) In Radar Picket Stations destroyers should steam at night at ten to twelve knots, with as little wake as possible and with very frequent course changes.

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III. CRUISING DISPOSITIONS.

(1) When in company with other ships, stay in close formation for mutual fire support. This consideration is most important and outweighs the protection, if any, gained by high speed and radical defensive maneuvers.

(2) Whenever the tactical situation does not demand otherwise, small vessels should travel in groups and should close destroyers or heavier types during twilight and red alerts.

(3) When slow landing craft are supporting destroyers, place the ships in a close circular formation, with the destroyers about equally spaced in order to provide mutual fire support. Maintain this formation unless the attack comes in the form of a high angle dive. In the event of such an attack, the destroyer types should accelerate as rapidly as possible and pull out of the formation as may be necessary to bring the battery to bear. They may still be able to remain in mutual support with the remainder of the formation by circling it at high speed.

(4) A circular formation may be maneuvered by emergency turn signals so as to bring the most number of guns to bear on the exposed flank. A better maneuver would probably be for the whole formation to circle, or "chase tails." Thus a constantly changing target angle would be presented to the attacking planes, and the destroyers would not be obstructed if it should become desirable for them to break out of the circle at high speed. These maneuvers should be practiced daily until all ships in the formation attain a satisfactory degree of efficiency.

(5) The following formation, composed of two destroyers and four small support craft, was found very satisfactory during a heavy suicide plane attack:

(a) Two small craft were placed at 1000 and the other two at 1180, each station unit in close column.

(b) Destroyers were assigned approximate stations 1090 and 1270, with freedom to maneuver as desired, as long as they stayed close enough to the rest of the formation to give or receive fire support. The formation was maneuvered by Corpen Love signals.

(6) LCI's should patrol at standard speed and when attack is imminent, should circle at full speed. As soon as enemy planes are spotted, make liberal use of voice radio and "Emerg Victor" hoists in order to alert ships in company, since the first burst of gunfire usually precipitates the attack.

(7) In the case of multiple suicide plane attacks, the importance of the formation increases and the value of maneuvering is lost. Against multiple coordinated attacks quadrant control is believed to be absolutely essential. To be effective, quadrant control requires extreme alertness on the part of lookouts, confident identification of planes and relatively little maneuvering of the ship.

IV. WEAPONS.

(1) The relative effectiveness of destroyer guns against suicide planes is:

- (a) The 5-inch thirty eight.
- (b) The 40 MM.
- (c) The 20 MM.

(2) Five Inch Thirty Eight Guns.

(a) The most effective weapon against suicide planes is the 5"/38 gun battery, using a high percentage (at least 60%) of influence fuze projectiles. The NEWCOMB (DD-586) recommends a four to one ratio of VT to AA common projectiles. All ships agree that the MK 53 VT fuze is greatly superior to any other in combatting suicide plane attacks. According to the HUTCHINS (DD-476), however, the value of the VT fuze projectiles against very low flying planes is questionable and a great number of premature bursts were observed. At altitudes of over 100 feet, the "prematures" were definitely in a minority. The HUDSON (DD-475) recommends a few rounds of white phosphorous for blinding effect at night.

(b) Destroyers in Radar Picket Stations will find it effective to agree that in event of simultaneous air attacks from both sides, the leading ship will fire with its main battery on targets to starboard, while the second destroyer fires on targets to port.

(c) Open fire early (10,000 - 12,000 yards) and keep the major threat as near the beam as possible. In other words, open fire as soon as a fair to good solution on the suicide plane is obtained and at as great a range as possible, at which there is any reasonable expectancy of hitting the attacking plane. This range is probably 10,000 to 12,000 yards. Don't fire with the 5-inch battery when the range is greater than 12,000 yards.

(d) Any maneuvers after firing has started should be with a view to keeping the greatest threat as near the beam as possible, so that it may be covered by 5-inch fire. The maneuvers should still be as gentle as is consistent with doing the job and not upsetting the fire control solution. When planes approach on a zigzag course, the director pointer and trainer must track the mean course and not attempt to keep their cross wires constantly on the plane.

(e) Your best defense is a terrific offense. Knock him down before he gets close enough to damage you.

(f) The HAGGARD (DD-555) makes the following recommendations for defense measures against surprise suicide attacks:

- (1) When bogies are in the area, keep all 5-inch guns "half loaded" (powder and projectile in tray) with influence fuze projectiles and placed in "dive attack sectors" (elevated 45°, each gun trained in center of own sector).

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(2) Keep computer set up (time motor off) with target angle zero, range 2000 yards, target speed 275 knots (or other logical set-up).

(3) Gun captains should be authorized to open fire on their own initiative.

(g) A second officer in the Director has been found very useful for spotting and designating targets to the Control Officer.

(h) Straight shottng and a high volume of fire are the only sure defenses against the suicide plane, and it must be hit hard and often to be knocked down.

(3) Forty and Twenty Millimeter Guns.

(a) Open fire with machine guns at the maximum range of the weapon and keep firing until the plane is splashed or is out of range.

(b) A quadrant control system in which there is a control (sky) officer for each 40 MM and its adjacent 20 MM guns has proved very effective in getting on the target early and splashing suicide planes.

(c) Local battery control for 40 MM and 20 MM guns (sector control by gun captains) is essential against multiple attack. At all times each machine gun must have authority to take an attacking plane under fire.

(d) Hold your 20 MM fire, so as to be able to shot during the last part of the plane's run. Use the mark 14 sight, whenever possible.

(e) During daylight the use of incendiary ammunition in 40 MM, 20 MM, and .50 calibre machine guns has been highly recommended against suicide planes by an LCI.

(f) Against very fast, steep-diving or gliding suicide planes, it may be effective to stagger the firing of the 20 MM guns, with a good lead on the target.

(g) Take every attacking plane under fire with some weapon, even if it is only a single 20 MM.

(4) Firing at Night:

(a) Except as a last resort, never fire tracers at enemy planes at night.

(b) During darkness or when under a smoke screen, don't open fire unless you are first attacked directly. Exploit to the fullest the advantage of concealment.

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(c) When under attack at night, hold machine gun fire until the target is visible to the director operators or gunners. When firing is commenced, usually burst firing is best because it is easier to keep the target in the sight.

(d) Don't fire from under smoke coverage. If partially covered, use only automatic weapons and then only when you are under direct attack.

(5) Directing CAP by Gunfire.

(a) If a melee develops and fighter director control becomes confused or is put out of action, direct CAP to approaching enemy planes by firing bursts in the general direction of the enemy aircraft, even though the target may be well outside the range of the available armament.

(6) Firing at BAKA Bombs.

(a) Early detection and a heavy volume of accurate AA fire are the best surface defenses against BAKA Bombs. The following suggestions have been made by ships which were attacked unsuccessfully by BAKA Bombs:

From the JEFFERS (DMS-27):

- (1) Firing should be commenced against the mother plane at the earliest possible opportunity, with the employment of a high percentage of influence-fuze ammunition.
- (2) The target should be shifted immediately when the BAKA Bomb is released.
- (3) Introduce a high initial speed in the computer when the target angle is zero.
- (4) Shift to the use of AA common at once, as the bomb drops to low altitude.

From the H. A. WILEY (DM-29):

- (1) Fire a fixed barrage with 2-second fuze setting at the BAKA Bomb, using both common and special (VT) projectiles.
- (2) Use tracer fire for both 40 MM and 20 MM guns instead of trying to track the fast-moving BAKA Bomb with the Mark 51 Director or the Mark 14 Sight.

V. ANCHORAGES.

(1) Indiscriminate firing, especially in anchorages, must be avoided. Ships and landing craft must not open up unless the target is identified, is within effective range of the weapon to be used, and there is an ample safety angle between the line of fire and friendly ships.

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(2) In anchorage VT fuzes should be used only in daylight and then primarily by the ships in the outer stations in the anchorage. Don't use VT fuzes at night when anchored in an inside station.

(3) In an anchorage, smoke is the best weapon at night. Smoking should be started early and with the maximum number of smoke-producers up-wind.

(4) The following suggestions will be of assistance to ships at anchor in transport areas during daylight:

- (a) If threatened by enemy suicide plane attack, ships should go ahead with hard-over rudder so as to bring maximum anti-aircraft fire to bear on the enemy plane.
- (b) If threatened by enemy torpedo plane attack, ships should go ahead full power with rudder gyro over and swing around the anchor at sufficient angle to have the ship parallel to the torpedo track, preferable with its stern toward the enemy.

VI. LOOKOUTS AND GUN CREWS.

(1) Vigilant lookouts and gun crews, both of whom must be well-trained in visual recognition of aircraft, are of paramount importance in combatting suicide attacks.

(2) Attention of lookouts, gun crews and others must not be diverted from their own sectors of responsibility by attacks from other directions.

(3) In a coordinated attack, lookouts or others should keep the area on each side of the major threat, as well as ~~the~~ the disengaged side, under observation.

(4) At the break-up of an attacking group of planes, one or more aircraft may break off with the idea of coming in from ahead and astern at the same time as the major threat approaches from near the beam. All aircraft should be under observation at all times, if possible.

(5) Keep all lookouts and other stations fully advised of the current situation during attacks.

VII. TRAINING.

(1) Hold extensive and frequent AA "shoots."

(2) Aircraft recognition training for all hands is of the utmost importance.

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(3) In training, emphasize target designation drill and the absolute importance of sector responsibility in a concerted and coordinated attack. Suiciders have a nasty habit of coming in undetected from a direction exactly 180° opposite the spot which you happen to be watching and where all the action may be taking place at the moment. Don't take your eyes off your own sector of responsibility in order to watch other attacks. Don't be a sight-seer.

VIII. MISCELLANEOUS HINTS.

(1) All personnel, except those at gun and control stations, take cover.

(2) Wear your Kapok Life Jacket during attacks. It has prevented injury from shrapnel fragments.

(3) Make sure that all of your fire fighting gear is in complete readiness for any emergency and that ship's personnel are well-trained in its use.

(4) Keep the motor whaleboats rigged out for sea. The boats will then be ready for any emergency, the fire hazard is reduced and they may serve to deflect a suicide plane.

(5) In Radar Picket Stations, go to General Quarters automatically when bogies are reported within 20 miles of the ship.

CONCLUSION.

The Commanding Officer of one Radar Picket Destroyer said:

"Don't give up. Keep shooting even after you see the slant of his eyes. A last moment hit may cause him to miss--and a miss is as good as a mile. It is the only thing that can save you."