

C-O-N-F-I-D-E-N-T-I-A-L

Subject: U.S.S. CALHAN (SS323) - Report of First
Simulated War Patrol.

(H) ATTACK DATA

NO TORPEDOES FIRED.

(I) MINES

No mining operations were conducted, and no mines or mining activity were observed.

The Port Director at Truk reported that although that area had been pretty thoroughly swept, an occasional mine floated ashore. In this regard strict compliance with Hydropac 427-D is recommended.

(J) ANTI-SUBMARINE MEASURES AND EVASION TACTICS

"Hovering" was practiced whenever possible and the results obtained confirmed those of Mr. Vines in "PERFORMANCE CHARACTERISTICS OF SUBMERGED SUBMARINES." The neutral angle determined for this vessel is $2\frac{1}{4}$ degrees DOWN. On one occasion a "hovering" attitude was maintained for about two hours during which torpedoes in both rooms were removed from the tubes, routined, and re-loaded. In addition, the noon meal was piped down during this period.

Consideration of the possibilities of backing down as an evasive maneuver is suggested. This was used very successfully by an Italian submarine operating with the DD-DE Shakedown Group at Bermuda in 1944.

The following comments concern ASM exercises for aircraft, Y-77-AW to Y-81-AW, USF 54. With any whitecaps at all, the planes invariably lost visual contact with the periscope during exercises 77 and 78, and failed to make contact even when both periscopes plus the radar mast were exposed. Likewise, under these conditions, the planes could not detect either the stream of air bubbles or the oil streaks, (Exercise Y-79). In the conduct of exercise Y-80, the most effective attacks were made out of the sun. In using visual information only, the planes were able to close to a good attack position before being sighted. Harpoon planes were especially effective in this exercise with their high speed. In regard to SONO-BUOY exercises, the

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(J) ANTI-SUBMARINE MEASURES AND EVASION TACTICS (Cont'd)

planes report very little success in tracking a submarine that is making less than 5 knots. In the interests of economy, instead of using smoke bombs on all of the above exercises, green dye, obtained from theaviators, was expelled from the maneuvering room head as a marker.

(K) MAJOR DEFECTS AND DAMAGE

1. ENGINEERING

(a) MAIN ENGINES (GM16-278A) The general performance of all main engines was very good. Two cracked cylinder heads developed during the patrol, one in number four and the other in number two. Both of these heads were cracked between the two inboard exhaust valve ports. The only other major casualties were two cracked cylinder liners, both in number three main engine. It is firmly believed that the majority of cracked heads and liners in these type engines is caused by unequal and excessive tension on the holding down bolts. It is recommended that tests be made to determine whether or not the currently specified settings are too high.

Considerable difficulty has been experienced with air box inspection plates blowing off due to failure of the explosion plates to lift on diving. It is believed that the designed spring tension on these plates is too high. The shutting of engine exhaust valves has been delayed to the limit of safety and these covers still blow off.

On one occasion number one main engine failed to stop on submerging. This was caused because the throttlemanship did not properly latch the throttle in the "shut" position on shutting down the engine, and because the controllermanship vented the emergency shut down before the engine had stopped turning over. This latter action released the throttle and the engine was turning over fast enough to restart, and be controlled by the governor. This casualty was strictly due to personnel errors, and it was fortunate that no damage occurred either to material or personnel.

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(K) MAJOR DEFECTS AND DAMAGE (Cont'd)

1. ENGINEERING (Cont'd)

(a) MAIN ENGINE (GP16-273A) (Cont'd) Engine hours accumulated during the patrol are as follows:

No. 1	960.5	No. 3	632.8
No. 2	780.8	No. 4	425.0

(b) Auxiliary Engine (GP3-268)- This engine was operated for a total of 580.2 hours during the patrol without a casualty, and it was not out of commission at any time except for routine inspections.

(c) Engine Auxiliaries.- Both stills were operated for a total of 550 hours each during the patrol and 43,000 gallons of water was made. No casualties occurred.

Two sets of bearings burned out and were renewed in each of the fuel and lube oil purifiers in the forward engine room. This was directly due to exposure to salt water entering the main induction hull valve during heavy weather. These units are very poorly protected in their present location, and it is recommended that design activities attempt to relocate them or provide suitable protection if relocation is not possible.

2. ELECTRICAL

(a) Main Storage Battery. - Battery performance has been normal and satisfactory except for high temperatures in warm climates. One cell, 48F, has repeatedly been the low cell on charge with an average individual voltage of 2.58v. This cell has a history of high nickel content and the electrolyte was last renewed in July 1946. An analysis made in November 1946 showed the nickel content to be well within specified limits.

(b) Main Motors and Generators.- No defects.

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Subject: U.S.S. GADW (SS323) - Report of First
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2. ELECTRICAL (Cont'd)

(c) Electrical Auxiliaries - The bridge diving alarm flooded out due to deteriorated rubber insulation adjacent to the shoulder vulcanized on the cable at the outer opening of the hull gland. This deterioration is believed to be caused by overheating during the vulcanizing process. New cable, without the shoulder, was installed and no further trouble has been experienced.

The port side light cable flooded out early in the patrol due to leakage into the fixture through a defective bottom plate. No cable was available and this defect has not been repaired.

The searchlight cable flooded out repeatedly through the spark plug connection box, and repairs have not been effected.

The DEMI synchronous differential driving motor burned out due to an open circuit in the rotor winding. No on board spare is allowed for this unit.

3. HULL

(a) Auxiliary Machinery - No defects.

(b) Structural - The transverse bulkhead in the superstructure aft of the forward escape trunk was badly dished in and the welds on the port side were broken loose. If the necessary strength and support for the superstructure and main deck can be obtained by stanchions and angle supports, it is recommended that such be installed in lieu of this bulkhead. In addition to this, additional strength members should be installed under the main deck just forward of the anchor windlass gear to keep that section of the main deck from sagging.

The baffle plates around the main induction outboard valve were only tack welded to their braces when installed at HRSY, and since then they have broken loose three times. These plates should be backed by additional braces and secured by a continuous weld. It is also recommended that the forward transverse plate be curved, and that all plates be slightly perforated.

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3. HULL (Cont'd)

The bridge venturi shield (Tropang Type), when installed at LINSY, was secured to the supporting brackets with bronze screws. This shield was torn loose by heavy seas and all of these screws were sheared off flush with the upper surface of the supporting brackets. This shield should be secured with a continuous weld.

The life line stanchions installed in the Navy Yard are weak and many have been loosened and bent by the seas. Two of the linged stanchions in way of the 5" gun have broken at the hinge. These are not of sufficient strength and should be of more rugged construction.

The LINSY method of securing the brow to the main deck forward with T shaped deck lugs is not satisfactory. Three of four of these lugs snapped due to pressure of the sea underneath the brow. A recommended stowage is flush alongside the conning tower fairwater secured by wing nuts on four studs welded to the fairwater.

The after marker buoy was rotated loose from its securing shaft by the sea and lost over the side with the stowage tub. This buoy had been inspected and was definitely properly secured in place prior to getting underway the day it was lost. The locking pin on the hand wheel was still inserted and the threads on the securing shaft were undamaged. It is recommended that two anti-rotation bars, fitted with a lug on the outer end that will fit between the wooden deck pieces, be welded to the top of the outer rim of the buoy, diametrically opposite each other.

4. ORDNANCE

(a) Torpedoes - One MK 14-3A torpedo, No. 66877, developed an air leak in the air charging stop valve, which allowed the air flask to bleed down enough to cause the exercise head to blow. A new valve assembly was installed.

(b) Torpedo Tubes - All tube rollers have been removed in compliance with ConSubPac's serial 1965 of 23 September, 1946, for a test period of 12 months. To date no difficulty has been experienced in loading or withdrawing torpedoes.

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4. Ordnance: (Cont'd) -

under these conditions, nor has there been any evidence of unusual corrosion. The only trouble encountered has been that the speed setting spindles will not disengage when set in low power. No defects in the tubes or tube appendages have occurred.

(c) Fire Control - The Mark 8 TBT flooded out completely early in the patrol through the huzzar cover and the connecting cable due to a gasket failure. All electrical elements were completely grounded out and a renewal of the entire assembly is required.

The target designation system is continually blowing fuses and it is considered that this circuit is fused too low (15A) for all the repeaters it is required to handle.

The bearing transmitter on No. 2 periscope bound so badly that the periscope could not be rotated. Removal of the key assembly remedied this defect, but made the transmitter inoperative.

Problems 15 and 18 of the routine position keeper test for the TDC have repeatedly failed to solve in bearing. The solution to this defect has not yet been found.

(d) Dock Guns and Automatic Weapons - The entire assembly for the pointers seat on the after 5" gun was broken completely off during heavy weather.

Lens covers on Mk 91 telescopes on the forward 5" gun were continually opened and badly twisted by the seas. It is recommended that a spring clip be installed on the underside of the telescopes to hold these covers down.

High speed aircraft ring sights are installed on both 40 mm guns, and these are too weak to withstand the pressures encountered on diving. After each dive these sights are found bent backwards as much as 45 degrees.

The bridge stanchion mounts for the .50 caliber M.C.'s vibrated excessively when guns were fired from these positions, and any accurate control of the guns was impossible.

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4. Ordnance (Cont'd)

It is recommended that triangular stiffeners be welded at the base of each stanchion for additional strength.

(c) Miscellaneous - In order to fire the submerged signal ejector with the desired pressure of 10 lbs above sea pressure, it is necessary to shut off the air to the low pressure volume tank (normally 225 lbs) and bleed the air down to the pressure required. By doing this, 225 lb air cannot be maintained at the torpedo tubes. To remedy this situation, it is recommended that a small volume tank with pressure gauge and stop valve be installed in the line between the signal gun stop valve and the 225 lb volume tank.

(L) RADIO

1. MATERIAL - There were no major casualties or failures in any radio equipment or in the LMC and 7MC announcing systems.

2. RECEPTION - The overall reception of both NPM How and NPM George fox schedules was very good, except for three short periods when excessive interference, believed to be atmospheric, made NPM completely unreadable. On two occasions while guarding NPM, submarine messages were received on the all ships schedule which had no sugar numbers and were not later repeated as sugar serials. A few sugar serials were missed because NPM failed to repeat schedules when requested in compliance with ComSubPac serial 22, but in general both stations were very good about re-running submarine traffic.

3. TRANSMISSION - The only difficulties experienced in transmitting on ship-shore frequencies were with the frequent heavy overload of traffic, and the usual weaknesses of the submarine side antennae. On one occasion when the antennae were thoroughly grounded, all insulators were found completely encrusted with salt. A good washing with fresh water remedied the situation.

Last serial sent - No. 89.

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(L) RADIO (Continued)

4. GENERAL COMMUNICATIONS - Merchantmen were observed to be thoroughly lacking in circuit discipline and they were particularly lax in observing the required silent period on 500 kcs.

No communications of any nature were effected on 4155 kcs, and very few ships were heard using this frequency. Several attempts were made to raise EIU BACK when she was in our general area, but all were unsuccessful.

Considerable difficulty was experienced with NPL in failing to relay messages after receipting for them. This occurred specifically on two serials addressed to ComSubPac.

Voice communication with aircraft was very effective using 3000 kcs, but in the Marianas area considerable CW interference was experienced from a tactical frequency of 2994 kcs. used by GTF 38. VHF communication with aircraft was very unreliable except at very short ranges.

Weather reports were prepared regularly in compliance with PacFlt letter 51-47, but in many cases it was impossible to get them transmitted at the proper time due to the traffic load.

The submerged loop was tested regularly on low frequency schedules with completely negative results. The only signals heard were from our own fathometer.

(M) RADAR

1. SV-1 RADAR - This equipment gave excellent results and was operated for a total of 575 hours without a single major casualty or failure. All minor troubles experienced were remedied by replacement of the following tubes and crystals:

- (a) V1, type 5D2M - modulator tube chassis.
- (b) V4, type 4J39 - transmitter-receiver.
- (c) V7, type 6SN7J - A-E sweep video panel.
- (d) V10, type 6AC7 - range unit panel.
- (e) V14, type 1B27 - transmitter-receiver.
- (f) (2) Y1, type 1N21B crystals - trans-rec.

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(M) RADAR (Cont'd)

1. SV-1 RADAR (Cont'd)

Sea return was always prominent when using this radar and it caused considerable interference with close targets unless the receiver gain was sharply reduced. Sea return also used as a quick check on the proper tuning of the equipment.

While operating with Privateer aircraft (PB4Y2) at OKINAWA, a range test was made wherein the plane flew directly away from the ship at an altitude of 200 feet until contact was lost, and then returned at an altitude of 100 feet. Contact was lost going out at 41,000 yards and regained on the return trip at 43,000 yards. The increased range on the return trip probably resulted because the propellers gave a better target from ahead.

Other maximum ranges obtained were:

Ship (CV)	40 mi.	Land (1554 ft)	60 mi.
Ship (DB)	25.5 mi.	Land (5489 ft)	34 mi.
Ship (UMK)	26 mi.	Rain squall	35 mi.
Aircraft	34.3 mi.	Birds	5 mi.

The birds mentioned above were encountered repeatedly near OKINAWA and were observed to be large flocks of geese flying in tight formation.

2. SS Radar

This instrument performed very satisfactorily and was operated for a total of 375 hours without a major casualty. The following tubes failed and were replaced:

- (a) V4, type 6SN7W - modulation gen. trans-rec.
- (b) V5, type 6SN7W - FPI sweep video panel.
- (c) V10, type 724B - transmitter-receiver.
- (d) V11, type 1B24 - transmitter-receiver.

As in the SV-1, sea return was prominent at all times and interfered considerably with close targets. This return was very noticeably reduced when trained aft in the direction of the SV-1 antenna.

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(M) RADAR (Cont'd)

2. SS Radar(Cont'd)

Whenever both SV-1 and SS radars were operated simultaneously, the SV-1 caused a "jitter" on both the PFI and A-B scopes of the SS, which made that instrument useless.

Maximum ranges obtained were:

Ship (CV) - 21.4 mi.	Land (1614 ft) - 54 mi.
Ship (DD) - 17.3 mi.	Land (1290 ft) - 38 mi.
Ship (UNK) - 15 mi.	Rain squall - 17 mi.

3. ST Radar

This radar was used for a period of 15 hours with no casualties or failures of any nature. Very good ranges up to 15,000 yards were obtained on a CV from a depth of 60 feet. When several targets were present close together, considerable difficulty was had in ranging on the desired target due to the broad bearing characteristics of this radar.

4. RCM Equipment and IFF Equipment.

These units were tested on various occasions without any contacts. No casualties or failures were experienced.

(N) SONAR GEAR AND SOUND CONDITIONS

No material casualties or failures occurred in either the QB or JK-QC equipment, and the performance of these units was very satisfactory.

Only two very minor casualties were experienced with the JP-JT sound gear, and this equipment gave excellent performance throughout the patrol.

The OCN bathythermograph unit in the control room was inoperative during the entire patrol due to failure of the temperature control unit. The instrument installed in the conning tower performed satisfactorily, except for a short period during which the temperature unit was out of adjustment.

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(M) RADAR (Cont'd)

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4. RCI Equipment and IFF Equipment.

These units were tested on various occasions without any contacts. No casualties or failures were experienced.

(N) SONAR GEAR AND SOUND CONDITIONS

No materiel casualties or failures occurred in either the QB or JK-QC equipment, and the performance of these units was very satisfactory.

Only two very minor casualties were experienced with the JP-JT sound gear, and this equipment gave excellent performance throughout the patrol.

The OCN bathythermograph unit in the control room was inoperative during the entire patrol due to failure of the temperature control unit. The instrument installed in the conning tower performed satisfactorily, except for a short period during which the temperature unit was out of adjustment.

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(N) SONAR GEAR AND SOUND CONDITIONS (Cont'd)

Sound conditions in the OKINAWA area were very poor. An accompanying destroyer escort was heard at a maximum range of 5,000 yards, and ping ranges could not be obtained in excess of 1,000 yards.

During conduct of a photographic reconnaissance at OKINO DAITO JIMA, sound conditions were excellent, and ping ranges were obtained continuously on the encircling reef up to 2,500 yards.

In the GUAM-Saipan area, sound conditions were good. A destroyer making 25 knots was heard when over ten miles away and a carrier at medium speed was heard on several occasions at ranges in excess of five miles. Ping ranges up to 1,700 yards were obtained in this area.

While operating submerged with aircraft at SAIPAN, PT planes passing overhead were clearly heard in the JP-JT sound gear as deep as 80 feet.

During operations with a task force, excellent bearings were obtained by JP-JT, but considerable difficulty was experienced in distinguishing types of targets.

(O) Density Layers

Bathythermograph traces were taken daily to test depth whenever conditions permitted. A total of forty-eight cards were traced and these have been included as enclosure (D) to this report.

A list of all negative gradients observed follows:

<u>DATE</u>	<u>LAT.</u>	<u>LONG.</u>	<u>GRADIENT</u>	<u>DEPTH LIMITS</u>
11-25-46	28-05N	173-01W	(-) 10.5 deg.	250-416
11-26-46	28-23N	178-30W	(-) 4.0 deg.	370-420
11-28-46	29-24N	177-57E	(-) 8.0 deg.	260-415
11-29-46	30-23N	174-15E	(-) 8.0 deg.	255-418
11-30-46	31-48N	169-49E	(-) 6.5 deg.	290-418
12-1-46	33-21N	161-15E	(-) 4.0 deg.	220-418
12-18-46	26-01N	127-22E	(-) 2.5 deg.	390-420
12-19-46	24-33N	131-13E	(-) 3.5 deg.	365-420
12-20-46	22-43N	133-29E	(-) 8.0 deg.	335-420

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(O) Density Layers (Cont'd)

12-21-46	19-25N	138-02E	(-)5.5 deg.	340-415
12-22-46	16-08N	141-54E	(-)3.5 deg.	375-420
1-9-47	15-20N	145-40E	(-)5.0 deg.	340-425
1-13-47	15-30N	145-35E	(-)2.0 deg.	380-420
1-14-47	15-18N	145-40E	(-)3.5 deg.	295-418
1-15-47	15-24N	145-47E	(-)4.5 deg.	415-450
1-22-47	18-09N	144-05E	(-)2.0 deg.	405-425
1-23-47	18-30N	144-30E	(-)2.0 deg.	390-425
1-27-47	10-52N	146-53E	(-)8.5 deg.	330-420
1-28-47	07-41N	150-40E	(-)12.5 deg.	260-420
1-30-47	06-35N	154-37E	(-)10.0 deg.	270-420
1-31-47	06-11N	158-54E	(-)11.5 deg.	322-420
2-1-47	05-28N	152-57E	(-)7.5 deg.	280-420
2-2-47	06-40N	165-11E	(-)10.0 deg.	318-420
2-3-47	08-42N	167-35E	(-)10.0 deg.	250-420
2-4-47	08-42N	167-41E	(-)7.0 deg.	215-450
2-5-47	10-35N	171-41E	(-)6.5 deg.	305-420
2-6-47	12-40N	176-50E	(-)3.5 deg.	325-420

(P) HEALTH, FOOD, AND HABITABILITY

1. Health -

The incidence of disease was low during the patrol, but there were more than an average number of injuries. Three men were hospitalized, one for observation and probable surgery of an old spine injury, one for psychiatric observation, and one for first degree powder burns. Seventy-six routine inoculations were given.

Diseases were confined to minor complaints. There were few colds and no cases of venereal disease. One man suffered constantly from a severe case of sea sickness, and one potential appendicitis case responded successfully to conservative treatment.

Injuries were varied and numerous. The major ones included three cases of first and second degree burns, one case of a severely sprained ankle, and three cases of severe multiple lacerations. All but one burn case were successfully treated on board.

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(P) HEALTH, FOOD, AND HABITABILITY (Cont'd)

1. Health (Cont'd)

Homer W. Williams, 346 96 80, PHM1, USN, is to be congratulated for his devotion to duty and for the efficient manner in which he discharged his responsibilities. His performance of duty is a direct credit to the thorough and efficient system by which pharmacist's mates are selected and trained for independent duty.

2. Food

In general, food was appetizing and well prepared. Particularly outstanding was the excellent bread and pastry prepared by R. M. DAVIDSON, 283 84 54, ERM2, USN.

The quality of meat received was uniformly poor and about 10 percent of it spoiled immediately on being thawed for use. Included in that amount were 9 turkeys that had been intended for use on Christmas and New Year's Day. Boneless beef, which averaged 62 percent roasting and frying and 19 percent each of stewing and ground meat, was of low grade, coarse grained and tough. On one occasion, 5 cases marked "ground meat" were found to contain unground scraps that were mostly fat and unfit for any use on board.

A large quantity of re-issued canned goods, particularly those of Australian origin, were found to have ruptured and spoiled. It is recommended that a submarine going on extended independent operations be issued only new canned foods. Likewise, only tinned flour, coffee, and sugar should be issued.

The problem of stowage space for sufficient food for an extended patrol is a pressing one, and one that requires careful attention by each individual submarine to make the best use of all available space. With all spares and consumable supplies aboard, there is little enough space left for food and very careful planning is required.

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(P) HEALTH, FOOD AND HABITABILITY (Cont'd)

3. Habitability

In general, habitability was good. During the few cold days experienced in Japanese areas, more than enough heat was provided by the portable electric heaters. In warm climates, the forward battery compartment is always hot and uncomfortable, both while submerged and on the surface. It is considered that this condition could be remedied by the installation of either a booster blower in the control room or a separate air conditioning unit in the forward battery compartment, neither of which is installed at present.

It is highly recommended that the practice of discharging heads into sanitary tanks be discontinued, primarily to eliminate the offensive odor that permeates the ship through the ventilation system whenever these tanks are blown and vented. A recommended solution is to install a cylindrical tank of about 10 gallons capacity for each head. Air connections can be easily provided and discharge and flushing connections can be readily made to existing pipes and valves without installing additional sea valves. Sufficient capacity is provided for submerged periods, and the inconvenience caused by the raised heads is negligible. An installation of this type was used in GURWARD (SS254) and proved very satisfactory. In this regard, it is also recommended that the inboard vent for number two sanitary tank be moved from the crew's head space to the forward engine room to eliminate the offensive odor that persists in the crew's quarters.

To increase the habitability of the officers quarters, it is recommended that the wash basin now installed in the shower space be removed, and that two additional wash basins be installed in the four man stateroom. This can be easily accomplished by enlarging the entrance and extending the bulkhead between the bunks out to the passageway to literally make two separate staterooms. Wash basin units could then be easily installed on each side of this bulkhead with plumbing connections readily made to those for the Commanding Officer's stateroom.

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(Q) PERSONNEL

(a) Number of men on board at start of patrol	- 70
(b) Number transferred during patrol	- - - - - 7
(c) Number received during patrol	- - - - - 2
(d) Number unqualified at start of patrol	- - - 28
(e) Number unqualified at end of patrol	- - - 28
(f) Number in (e) with less than six (6) months service in submarines.	- - - - - 23

Of the seven men transferred during this patrol, five were qualified, one was disqualified and one was unqualified. Both men received were unqualified. Regarding the five unqualified men with sufficient service for qualification at the end of the patrol, all but one will be leaving submarines very shortly. Out of the total of twenty three men in item (f), eleven have only to complete the required service in order to qualify.

In general, the performance of the enlisted personnel was satisfactory. On departing the Navy Yard in October 1946 only fifteen men remained of those who brought the ship in three months earlier. Included in the replacements were seventeen men fresh from submarine school. These men were all carefully selected, mainly on the basis of the classification for adaptability for submarines as given at the Submarine School. In only one case was this classification in error, and that was a man who stood very high in all his courses but lacks the good common sense of a submariner. It might also be added, that all of the eleven men ready for qualification, plus one more who qualified, are amongst this group of seventeen. For comparison: of eight unqualified non-submarine school graduates aboard, none are anywhere near ready for qualification and four will in all probability soon be dropped for lack of adaptability.

Among the new personnel CAIMAN received were four ex-reservists who had left the Navy and returned at the last minute. Three of these men are definitely below average in ability and character, and one was disqualified during the patrol and sent to general duty.

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(Q) PERSONNEL (Cont'd)

School of the boat has been held regularly and educational training has been stressed. The state of training is not up to wartime levels by far, but improvement has been gradual and definite. The greatest single handicap encountered so far, and one that is hard to combat, is the "short-timer" attitude amongst all the first enlistment men, which breeds a lack of ambition and enthusiasm. However, in spite of this all but six men are in some stage of completing the course for the next higher rating.

It is recommended that the on board allowance for submarines be changed to eliminate the ratings of SOM1 and RDML and to replace them with an ETM and VCS in a lower rating group to provide additional opportunities for advancement. The acute shortage of both of these latter ratings is recognized, but it is felt that they are needed.

The performance of officer personnel was satisfactory but the general inexperience of the officers becomes very apparent during a patrol of this nature. The majority lack war patrol experience, but even more evident is the lack of familiarity with the Navy in general, and a nearly complete lack of understanding of the administrative needs and functions that returned with the peace. If not already effective it is recommended that the period of sea duty required for entry to Submarine School, be increased from one to two years as soon as the needs of the Submarine Force will permit it.

(R) MILES STEAMED - FUEL USED

PEARL to GUAM	5959 miles	91,558 gals.
MARIANAS AREA	2250 miles	27,480 gals.
GUAM to PEARL	3990 miles	55,505 gals.
TOTAL	12,199 miles	174,543 gals.

C-O-N-F-I-D-E-N-T-I-A-L

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(S) DURATION

DAYS PEARL to GUAM	32
DAYS MARIANAS AREA	33
DAYS GUAM to PEARL	17
TOTAL	82

DAYS UNDERWAY (24 hrs)	34
DAYS PORTAL OPERATIONS	32
DAYS IN PORT	16
TOTAL	82

DAYS SUBMERGED (12 hrs)	4
TOTAL HRS. SUBMERGED	175

(T) FACTORS OF ENDURANCE REMAINING

<u>TORPEDOES</u>	<u>FUEL</u>	<u>PROVISIONS</u>	<u>PERSONNEL</u>
16	56,491 gals.	7 days	30 days

Limiting factor this patrol - Operation Order.

(U) COUNTERMEASURES

Not applicable.

(V) REMARKS

The simulated war patrol is considered an excellent idea and its retention as part of our training program is highly recommended. As a long tour of independent operations, it provides not only a timely period for intensive training, it is also a test of the endurance of ship and personnel and an active check of the effectiveness of war patrol routines and procedure.

The current practice of scheduling short visits to various ports during the first part of the patrol is an excellent morale factor, but the necessity of maintaining a fixed time schedule is a definite handicap to proper conduct of a patrol. Furthermore, short visits,

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(V) REMARKS (Cont'd)

such as this vessel's two day stop at YOKOSUKA, are very unsatisfactory in all respects. So much time is consumed in arranging and effecting the many necessary details such as changing money, that too little time is left for properly enjoying the visit.

It is considered that this situation could best be remedied by scheduling visits to major ports and bases in conjunction with periods wherein services can be furnished to units based there, such as was done at OKINAWA. Thus, in addition to providing desirable services, sufficient opportunity for recreation and sight-seeing is provided, and more time can be devoted to proper conduct of the patrol.

It is further recommended that whenever possible submarines on patrol be routed via outlying activities having isolated air or surface units to give them a few days of services.

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