

UNITED STATES GOVERNMENT

Memorandum

Sitkinak File
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TO : Chief, Engineering Division
VIA : Chief, Electronics Engineering Branch
FROM : CWO2 D. R. GAY 29990 USCG

DATE: 27 MAR 1974

SUBJECT: Trip Report, Technical visit, CG Loran Station, Sitkinak

1. COMMSTA Kodiak was visited 20 and 21 Feb 1974 while awaiting transportation. The following comments apply to that visit.

a. COMMSTA personnel were very helpful with rounding up and supplying parts needed to insure completion of the installations of LORSTA Sitkinak.

b. The COMMSTA was concerned, at the time of my visit, with the lack of HF coverage in the Shelikof Strait. They are planning some test to find the extent of the problem which will be the subject of separate correspondence to (oc).

2. The CGC CONFIDENCE was visited on 22 February, while awaiting transportation, to check on the operation of the AN/SPN-45 Loran-C receiver. The following comments apply to that visit.

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a. The AN/SPN-45 receiver was inoperative during my visit due to replacement of the ANT and ANT coupler. The unit complained of unsatisfactory operation since installation. The receiver was taken to AIRSTA Kodiak and operated properly on their test set up. I measured the input 400Hz line voltage and it was 85 volts. I showed the ET how to adjust it and informed the unit we would like to be advised if proper operation was achieved on the next trip.

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b. Another problem that exists is the Loran-C charts for the areas they operate are not of sufficient scale to be of much use for Fishery Patrol.

3. Loran station Sitkinak was visited from 25 February to 10 March 1974. The following comments apply:

a. General

1. The physical appearance of the station was excellent. The appearance of the crew was a great improvement over my last visit to the station.

2. The station is not standing the live maintenance watches as required by CCGD17 ltr 3262 dtd 21 May 1973. The reason given was the shortage of personnel that has existed. One ET3 arrived on the same plane I did which fills all the billets assigned. The watch is to be established at the completion of training of the last two arrivals. There are two ET3's aboard that came from the East Coast Chain, however the only experience they have with the gear is as watchstanders. The journey man



Subj: Trip Report, Technical visit, CG Loran Station Sitkinak

is not going to do us much good unless these people get some practical maintenance experience before reporting to their station.

b. Electronics Equipment

1. The communications equipment is in need of alignment. The transmitters were transmitting their correct power out, however they were very difficult to tune. The station was under the impression I was bringing new transmitters with me so they had not aligned or worked on theirs. The exciters were being aligned at my departure.

2. The new communications console was installed during the visit. A detailed description of the work performed is included as enclosure one. During the installation it was noted that there was a water in the cable trenches. This condition should be corrected do to the inherent danger of electrical circuits and water in close proximity. There were several electrical splices with wire nuts in the trenches and in the process of changing these wires to a continuous run it was noted that the conduit located in the trenches had mud in them which had to be cleaned out before new cables could be run. The trenches were also noted to have numerous cables located in them that were not connected. These cables appeared to be cables that were replaced due to earthquake damage and are no longer needed. These cables could add to Loran interference problems at Sitkinak so they should be identified and removed from the building if no longer needed.

3. The AN/FPN-42 Loran-C transmitters were in need of more preventive maintenance. The only check made of the equipment was of the voltage drop between the filament transformers and PA tubes. This check was made in connections with trouble shooting a problem in balancing the output. All the filament connections were found to need a through cleaning to bring the drop back into acceptable limits. Transmitter S/N 4 is in need of a new T5 do to internal arcing. I was unable to completely check it out since HP310 selective voltmeter was inoperative. A new T5 has been ordered by District and it will be installed on arrival. Six new Pa tubes have been sent to Sitkinak from St. Paul (2) and Port Clarence (4) since the station was down to 4 usable in balancing and Brooklyn is presently out of the 8597 tubes. This should make the balancing of the transmitters much easier and less time consuming.

4. The AN/FPN-41 Loran-C timers were within published figures as far as inter-timer discrepancy was concerned at the time the AN/FPN-54 timers were placed on air. The discrepancy drifted apart to exceed the limits and the problem was being worked on at my departure. A detailed report of the work performed to install the AN/FPN-54 timers is enclosed as enclosure (2).

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Encl: (1) Communications console installation
(2) AN/FPN-54 installation

COMMUNICATIONS CONSOLE INSTALLATION

1. In connection with installing the new console the radio room was reconfigured to match the radio rooms at St. Paul and Port Clarence. This intailed moving AN/URT-17A number 2 next to number 1 with enough clearance for a 19 inch relay rack to be installed between them. The radio room was originally installed in this configuration so no cables had to be changed just re-routed. During the change over there was no loss of communications with the Loran net.

2. The first step was to run all new cables that were needed leaving the ends unterminated. All existing cables were replaced except the cable from the timer room screen room filter and the CMX-126 timer room remote control. This cable was the only existing cable that was made up of shielded pairs and replacement was not necessary.

3. The screen room filter had 4 new R-F interference filters installed and the new cable was wired up with the exception for the existing remote wires. These left installed for use until the new remote unit was installed.

4. The control section of the old console was removed and set on the deck behind the console for use until the new console was installed. One pair of R-1735 receivers and the COL-651-1A were removed and placed on the desk in the radio room for use during the change over. These receivers were wired into the existing control unit to allow switching into the timer room.

5. The old console was disassembled and removed from the radio room. AN/URT-17A number 2 was disconnected and moved next to number one. The existing cables were re-routed and reconnected to the existing system. New A-C wiring was run from the radio room panel to the XMTR to remove the splices that were in the line. The conduit had to have mud removed before the wire could be replaced and this was accomplished by running rags saturated in CRC through the conduit. 1/2" conduit 90° angle was substituted for the electrical box installed in the trench and 1/2 flex conduit was run to the transmitter.

6. The new console was installed in the radio room in the original location of AN/URT-17A number 2. The A-C to the console was connected first. The same procedure as for the XMTR was employed. The outlet strips were not installed prior to shipping so they were installed and wired at the same time. The R-1735 receivers (6 ea) were tuned to the Loran net frequencies and installed in the console.

7. All the new cables entered the console through 90° cable clamps. The console was positioned so all the cables dropped straight into the cable trench to eliminate people tripping on them or having them pulled loose during clean-up.

8. The new remote cable was connected into the console. One XMTR was wired into the console using new cable. The existing radio room to timer room cable was removed and the new cable connected to allow the timer room to maintain comms via the new console. This intailed 5 minutes of no timer room xmit function. The old cable from the radio room to the timer room was pulled and re-installed in the timer room from the screen room filter kit to the new remote unit through previously installed 1/2" conduit. This installation was not final until after the AN/FPN-54 installation do to the position of the recorder racks blocking access. When the new remote unit was installed all the existing comm equipment in the timer room was removed and all cables except to the CMK-126 remote unit were removed.

9. The other URT-17A was the connected to the console. The COL-651-1A receiver installed in the console. All existing cables to the old control unit removed from the radio room. The last step was to connect the TTY machines to the console.

10. The following problems were encountered:

a. The remote key terminal on the rear of the AN/URT-17A does not go to ground when the XMTR is keyed via the transmitter on switch on the exciter. The console was rewired to supply the ground to the internal keying relay and XMTR on light via the auxilliary contacts of the XMTR T-R relay. All corrections to the drawings were made before my departure.

(eee) comments

b. The CMX-126 timer room remote unit did not have a speaker installed and the unit had been modified to work with a AN/PRC-59 handset. The unit was returned to original except there was no speaker on board. The unit was instructed to order one.

This apparently was an unauthorized modification made by station personnel. A lack of initiative is demonstrated by the fact that the unit had to be told to order a loud speaker and that the district rep had to "fix" the microphone.

c. The phone patch had to be by-passed to allow sufficient drive from the local position. The two mikes in use were (1) a PRC-59 handset and (2) a Sure 55S frame with parts from a station junk bin. This problem was solved by having COMMSTA Kodiak send a high impedance mike to the station then all wiring was returned to normal.

d. The water and extra cables in the trenches. This problem was not investigated during my stay.

During the district inspection of October 1973, the condition of the cable trenches was noted and brought to the attention of the CO and EMO. They assured that the matter would be taken care of. Apparently it has not. I therefore recommend that the CO's fitness report reflect the fact that he does not follow district instructions.

e. A Teletype 500 MA power supply was installed in the console and wired into the loop 4 position. This was helpful during maintenance on the machines.

f. The Teletype machines would not necessarily type what character was pressed. The distortion of the machines were checked but due to the lack of a test message generator the range was not set. One machine periodically shuts itself off and the motor stop relay must be manually reset.

The station will be scheduled for a visit by a TT from COMMSTA Kodiak during the 4th quarter to perform maintenance on their machines.

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1. The AN/FPN-54 installation was in accordance with District Instructions with the following exceptions:

a. The square D ducting was not available so the cables to the 54 were run through 1 inch conduit. The conduit for the electrical circuit was not received, however COMMSTA Kodiak provided this conduit and it was used.

b. The conduit to the oscillator rack was run along the rear of the timer room in lieu of next to the timer square D to allow clearance from the existing lighting conduit.

2. The following problems were encountered during the installation:

a. The timer room A-C coming from the timer filter and common to the timers was not isolated from ground. This problem was found in the recorder rack A-C wiring. The A-C wiring in the timer room needs work to correct several discrepancies. This will be taken care of when the timer room A-C distribution is rewired.

b. After the first authorized off-air period the AN/FPN 41 timers would not work on the standby buss to the pulse generator due to excessive AC on the bus. Re-arranging the cables and cleaning the operate/standby switches in the P. G. solved this problem.

c. During the first off-air it was noted that the cesium oscillators went to internal batter in lieu of the AN/URQ-11 battery pack. AC was supplied to the oscillators from outside the timer room during the move. Investigation showed the DC was not connected to the battery exerciser. One connector was found and the operate oscillator was connected to the AN/URQ-11 oscillator rack, however DC was still not connected. The battery pack had both plus and minus DC leads connected to the same terminal. The station was informed to service the battery pack and connect it properly.

This item was pointed out to the EMO and CO during previous visits.

d. The final acceptance tests and selected acceptance tests listed in Electronics Equipment Specification No. eee-10-71 were performed. All tests were satisfactory except the following:

(1) Table 4-11 Step 9. "No external agreement" indicator lamps on both timers did not light. This was solved with a new control board in timer 1.

(2) Table 4-11 Step 16 through 24. The triggers specified in step 16 were not present. A square wave referenced to ground with the positive portion 6 microseconds and the negative portion 4 microseconds was viewed. The waveform stepped with the ETA switch as the triggers were supposed to do. This problem was resolved as a modification placed in the 54 at Wildwood to work with the new TAC to be supplied at a later date. This modification is to be removed in a later visit to Sitkinak. During the process of checking for a failure it was noted that the transmitter triggers moved with cyc comp. This function is part of the modification to be removed.

(3) Table 4-11 Step 52. The strip chart did not have full scale deflection and no slow slew was noted. The problem of no full scale deflection is at all stations and most likely do to the length of cable between the timer and the recorder rack. Some experimentation did not solve the no slow slew problem. This problem was resolved at my departure and felt to be beneficial do to the excessive cyc comp drive during transmitter switches as a result of the TAC modification.

e. The AN/FPN-54 was placed on air using the published transmitter switch method. At the switch 8 minutes unusable was logged do mainly to poor control information received from St. Paul.

f. Two transmitter switches were performed after the M-Z leg was stabilized with the AN/FPN-54 on air to determine what effect cyc comp drive during switches would have. Do to fast slew a maximum of .1 microsecond spike was all that showed up on the AN/FPN-41 timers which was not considered objectional.

Both the TAC mod and the cycle comp slew problem will be investigated during a future visit. They are not considered serious enough at this time to justify an immediate "fix".

General

A letter report outlining deficiencies in transmitter preventive maintenance, cable trench cleanliness, and oscillator emergency power connections will be sent to the Commanding Officer. Upon receipt of proper materials, another visit by district personnel will be scheduled to complete the installations and investigate the ETA and cycle comp problems in the AN/FPN-54 equipment.

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