LORAN STATION ATTU

AN/FPN-41 Timer Synchronization, Free Running Mode, Operational Procedure for

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and
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Note: Legibility is minimal - mimeograph ink is difficult to copy.

(e)

From: Commander, Seventeenth Coast Guard District
To: Commanding Officer, Loran Station, Attu Island, Alaska
Commanding Officer, Loran Station, Sitkinak, Alaska
Commanding Officer, Loran Station, Port Clarence, Alaska

Subj: AN/FPN-41 Timer Synchronizer, Free Running Mode, operating procedure for

1. Effective upon receipt the North Pacific Loran-C chain will commence operating in the Free Running Mode. This was made possible due to the accuracy of the recently installed Cesium Beam Oscillator. However, the Free Running Mode requires a new operating procedure as outlined below:

a. The cesium beam frequency standard should be connected to both timers.

b. Operate the on-air timer, after initial synchronization with Master (lock on), with M envelope and M cycle servos turned off. Keep all servos on the standby timer energized.

c. CDAs (Coding Delay Adjustments) will be entered on the Master Phase Resolver on the on-air timer in lieu of the local cycle dial. The standby timer, with all servos on, will give true monitoring of on-air functions, therefore the CDAs will appear on the standby and timers can be switched without any further adjustment.

d. Accurately record every CDA with its appropriate sign (+), in such a way as to be able at the end of the month to come up with a net value which will be the offset between the Master Cesium and the Slave Cesium. As the Master also records CDAs, the Slave must agree with the algebraic total and sign, in order for C field corrections to be properly calculated and supplied by Commander, Seventeenth Coast Guard District.

e. Continue to constantly monitor the transmitting trigger gate waveform. Exact alignment of these trigers prior to switching timer remains very important to avoid loss of synchronization.

2. It is mandatory that watchstanders be thoroughly familiar with the above operating procedure, especially in the fact that CDAs are no longer inserted in the local cycle channel and that the CDA switch shall not be used.

3. Make interim pencil change to paragraph C-6-2A of CG-222 APP C to read "The CDA (Coding Delay Adjustment) is entered by the Slave on the Master Phase Resolver on the on-air timer to correct for errors in synchronization occuring on the cycle." This change will be incorporated in Change 2 to CCGD17 Supplement to Appendix C, CG-222.

4. If for any reason this change to operating procedures affects operations in a degrading manner report immediately the cause, effect and suggested cure.

J. A. BLAKE
By direction

Copy to:
CGLORSTA St. Paul

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

Address reply to:
COMMANDANT (EEE-4)
U.S. COAST GUARD
WASHINGTON, D.C.
20591

3262/52
OCT 20 1969

From: Commandant
To : Commander, Seventeenth Coast Guard District(e)

Subj: Free Running Mode for the North Pacific Loran-C Chain

Ref : (a) COMDT (EEE-4) ltr 3262/52 dtd 27 Aug. 1969

1. Reference (a) stated that East Coast COCO Instruction 3262 would be forwarded under separate cover for your perusal. Upon examination the instruction reveals that it is intended primarily for stations which do not have cesium beam frequency standards. Therefore, the instruction will not be forwarded. However, recommended procedures are outlined below:

a. The cesium beam frequency standard should be connected to both timers.

b. When the slave stations are synchronized, the master envelope and cycle servos on the operate timer should be turned off. These servos will remain off until the timers are switched.

c. All CDA's will be inserted using the master phase resolver. The net value of CDA's for each month should be used to calculate the offset between the master and slave cesium standards.

d. C field corrections to the slave cesium standards should be directed by CCGD17 (eee) if the offset exceeds 5×10^{-13} for thirty days. Shorter periods of time should not be used to determine offset. C field corrections to the master station cesium standard will be issued by Commandant (EEE). A figure of 4.56×10^{-13} per half C field dial division (each half division represents a single digit in the dial reading) should be used to calculate corrections. A higher number setting of the C field dial results in a higher frequency output.

2. When the master station is supplied with a second cesium standard a comparison between the internal clocks should be made with a time interval counter once per day. The conventions used for reporting such measurements are contained in Time Service Announcement, Series 14, No. 2, dated 30 September 1968, which will be forwarded by the U. S. Naval Observatory. Amplifying instructions concerning reports required will be furnished when the additional standard is delivered.

J. P. Stewart
J. P. STEWART
BY DIRECTION