



Loran Receiving Set AN/APN-152

FUNCTIONAL DESCRIPTION

This loran receiving set continuously gives a numerical display of time-difference measurements of transmissions in a Loran-C ground station chain. Using the time-difference measurements between the various stations in a Loran-C ground station chain, a pilot or navigator can accurately locate the position of the aircraft on a loran chart.

RELATION TO OTHER EQUIPMENT**REMOTE READOUT:**

Loran Receiver R-1157/APN-152 has provisions for the installation of size eleven synchro transmitters or shaft encoders to drive coordinate converters, recorders, or other remote equipment. The envelope readout on each channel is 1000 microseconds per revolution and the phase readout on each channel is 10 microseconds per revolution.

ANTENNA COUPLER HF OUTPUT:

Antenna Coupler CU-1103/APN-152 has a 50-ohm output terminal for use with a high-frequency communication receiver.

EQUIPMENT REQUIRED BUT NOT SUPPLIED**ANTENNA:**

An external antenna is required.

CABLING:

Three interconnecting cables are needed to interconnect the units. A 6-foot power cable connecting Power Supply PP-3256/APN and Loran Receiver R-1157/APN-152 is supplied. Connectors for all other cables are also supplied. The required cables are:

- a. Cable between Power Supply PP-3256/APN and primary aircraft power.
- b. Cable between Antenna Coupler CU-1103/APN-152 and Loran Receiver R-1157/APN-152.
- c. Strap between antenna (not supplied) and Antenna Coupler CU-1103/APN-152.

ELECTRICAL AND MECHANICAL CHARACTERISTICS**TYPE OF RECEPTION:**

Amplitude-modulated (pulsed) signals conforming to Loran-C patterns and repetition rates.

FREQUENCY:

Preset frequency of 100-kc with a 20-kc bandwidth.

TYPE OF READOUT:

Two one-digit and two four-digit mechanical

counters located on loran receiver front panel. Read-out provisions are provided for external electronic equipment not supplied.

PULSE GROUP REPETITION RATES:

Six basic repetition rates modified by eight specific rates making a total of 48 rates covering all Loran-C rates.

FREQUENCY ACCURACY:

After one hour warm-up, maximum frequency drift in 5-minute period, 3 parts in 10^8 . Maximum frequency drift in 24-hour period, 5 parts in 10^8 .

PEAK POWER REQUIREMENTS:

115 \pm 10 volts, 400 cycles, single phase, 1.6 amperes and +28 \pm 4 volts dc, 2.0 amperes maximum.

MECHANICAL MOUNTING REQUIREMENTS:

Both Loran Receiver R-1157/APN-152 and Power Supply PP-3256/APN are each mounted on a resilient mount assembly. Two winged nuts on the front of each mount hold the units in place. The mounts are fastened to the aircraft by four legs, with each leg having a separate shock absorber.

These units may be located at any convenient position in the aircraft but it is preferred that the loran receiver be mounted as close as possible to its power supply. A supplied 6-foot power cable between the loran receiver and the power supply limits the distance between these two units. Antenna Coupler CU-1103/APN-152 is mounted directly to the aircraft frame and should be located directly at the antenna lead-in point in the aircraft.

POWER SUPPLY OUTPUTS:

Power Supply PP-3256/APN provides the following voltages and currents for use by the loran receiver set: -12 volts dc, 0.25% regulation, 2.0 amperes; -55 volts dc, 0.25% regulation, 0.15 ampere; +55 volts dc, 0.25% regulation, 0.45 ampere; -11 volts dc, 5.0% regulation, 0.8 ampere; -30 volts dc, 5.0% regulation, 0.01 ampere; +28 volts dc, unregulated (fed through power supply from aircraft source), 1.5 amperes; and +15 volts peak, unregulated and unfiltered, 1.5 amperes.

TYPE OF RECEIVER FREQUENCY CONTROL:

Temperature regulated crystal oscillator tuned to 100 kc/s \pm 1 ppm. Oven control keeps temperature at +70°C (+158°F).

AMBIENT TEMPERATURE RANGE:

From -54°C (-65°F) to +55°C (+131°F).

TYPE OF ANTENNA REQUIRED:

Flush (plane surface), long-wire type, or trailing wire with a effective electrical height greater than 2 meters.

MANUFACTURER'S OR CONTRACTOR'S DATA

TT Federal Laboratories, 500 Washington Avenue, Nutley, New Jersey.

Loran Receiving Set AN/APN-152 drawing number C-2313018G1, contract number Tcg 41922, dated 2 February 1962.

TUBE, DIODE AND TRANSISTOR COMPLEMENT

Type	Quantity	Type	Quantity
BX1000	4	1N761	8
GT2701	5	2N1183A	1
J596	2	2N1184A	10
MP3506	5	2N1275	6
RD669	16	2N1311	11
SC3015P1B	1	2N1670	13
SG22	5	2N1719	5
S320G	4	2N1907	2
TG110	1	2N207B	1
TR865	12	2N2239	6
V100	24	2N2304	3
1N1508A	6	2N2305	1
1N1614	7	2N2349	6
1N226	5	2N274	56
1N270	119	2N2305	1
1N2940	3	2N335A	9
1N2941	3	2N335B	3
1N457	9	2N337	3
1N540	6	2N396A	1
1N645	11	2N427	91
1N708	3	2N489	1
1N712	1	2N494	1
1N718	1	2N525	4
1N725	2	2N576A	4
1N746	2	2N600	42
1N759	1	2N861	2
1N759A	1	2N865	2

REFERENCE DATA AND LITERATURE

Technical Manual for Loran Receiving Sets AN/APN-152 and AN/APN-151 Publication Number CG-273-90.

PROCUREMENT DATA

Type Designation: AN/APN-152
 Design Cognizance: U. S. Coast Guard
 Procurement Cognizance: U. S. Coast Guard
 Procurement Information: Tcg 41922 (CG-53, 893-A) dated 2 February 1962
 Purchase Description: EEE-8-62

DESCRIPTION OF COAST GUARD ELECTRONIC EQUIPMENT

EQUIPMENT SUPPLIED

LORAN RECEIVING SET AN/APN-152			
Quantity	Nomenclature	Height x Width x Depth (Inches)	Weight (Pounds)
1	Loran Receiver R-1157/APN-152	7.75 x 15.5 x 22.8	54.70
1	Resilient Mount Assembly MT-2823/APN-152	1.56 x 5.88 x 16.3	1.94
1	Resilient Mount Assembly MT-2683/APN	1.56 x 16.4 x 23.3	2.57
1	Power Supply PP-3256/APN	7.75 x 5.00 x 15.2	8.75
1	Antenna Coupler CU-1103/APN-152	2.00 x 3.80 x 5.92	0.81
2	Technical Manuals CG-273-90	4.0 x 9.0 x 11.5	3.00
1	Test Module	12.1 x 4.6 x 1.0	0.50
1	Screwdriver		
1	Hexdriver		
1	Connector Amphenol part no. 67-06C14-63S		
3	Connectors UG-260B/U		
1	Connector Amphenol part no. 67-06C18-37S		
1	Receiver Power Cable (W1)		
1	Attenuator ITTFL part no. 2391662G1	2.0 x 4.0 x 2.50	0.75

SHIPPING DATA

Number of Boxes	Contents	Volume (Cu Ft)	Height x Width x Depth (Inches)	Weight Packed (Pounds)
1	Loran Receiving Set AN/APN-152 (includes) Loran Receiver R-1157/APN-152 Resilient Mount Assembly MT-2683/APN Power Cable (6 feet) Technical Manuals (2) CG-273-90 Test Module Screwdriver Hexdriver Power Supply PP-3256/APN Resilient Mount Assembly MT-2823/APN-152 Antenna Coupler CU-1103/APN-152 Attenuator	13.0	24 x 28 x 34	165