CF-105 SERVICE DATA

Radome De-icing System

CONFIDENTIAL

CF-105 SERVICE DATA

Section 49
50

ELECTRICAL SYSTEM

RADOME DE-ICING

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

CF-105 SERVICE DATA

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFF'TY	REF. NO.
ELECTRICAL	RADOME DE-ICING	25201	11-7

DESCRIPTION

General

1. An ice detection system and an alcohol de-icing system are fitted to prevent icing of the radome.

2. Icing conditione are detected by an ice detector fitted on the undereide of the radar nose. The detector transmite a eignal to a time delay relay which energizes the system, and alcohol ie then fed via a eystem of valves and tubee to a dietributor nozzle ring around the nose boom.

3. If the eystem has been in operation during flight, an annunciator indicatee to the ground crew that the alcohol ehould be replenished.

4. A noise euppressor ie fitted in the circuit to prevent interference with the radio eyeteme.

Ice Detection

5. The ice detector is fitted with a control probe and a reference probe each of which has a number of holes in its forward and aft faces. The reference probe is continuously heated from the main d-c bus, and the control probe is heated intermittently during icing conditions.

6. The control and reference probes are connected to opposite sides of a pressure ewitch. During ice free conditions the airflow through the holes of both probes creates a pressure on both eides of the pressure switch which keeps the switch contacts open.

7. When icing conditions are encountered, formation of ice on the forward holes of the control probe decreases the preesure on the control probe side of the pressure switch and the switch contacte cloee. This eends a eignal impulse to the time delay relay and aleo completes a 28V d-c supply to the heating element in the control probe.

8. When the heating element has melted the ice on the control probe the pressure switch contacte open and cut off the eupply to the heating element and to the time delay relay.

9. Thie cycle is repeated until icing conditions cease.

Time Delay Relay

10. When the time delay relay receivee a eignal pulse from the ice detector, it eupplies 28V d-c from the main bus to the solenoids of a shut-off valve and a 3-way control valve. The shut-off valve opens the L.P. air line to the 3-way control valve.

ISSUE	1							
DATE	21 Mar 57							

TMI-3413-2-3

The 3-way control valve opens the alcohol line to a fluid distributor in the radome, which fills with alcohol. After a timed interval, the time delay relay de-energizes the solenoid of the 3-way control valve which then feeds the L.P. air supply to the distributor to spray the alcohol over the radome.

11. One pulse from the detector motors the time delay relay for 25 seconds. The shut-off valve is energized to open, for the full 25 seconds. The 3-way control valve is energized for one second for the alcohol feed and de-energized for 24 seconds for the air supply.

12. This cycle is repeated until icing conditions cease.

13. The alcohol and pneumatic components of the system are described in the service data for Radome De-icing - Ref. 20-1.

ISSUE	1							
DATE	21 Mar 57							

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRICAL	RADOME DE-ICING	Ice Detector	11-7-1

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-2055-27	PSC Applied Research		25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1500 hours

FUNCTION

To detect icing conditions.
To signal the presence of icing conditions in the form of electrical impulses to a time delay relay.

LOCATION

Underside of the radar nose at station 116.10.

ACCESS

MEN X MINUTES

Remove the access panel on the underside of the radar nose at station 108.45 to 114.24 - 16 x 10/32 inch screws.

REPLACEMENT PROCEDURE

MEN X MINUTES

Fit and secure the ice detector to the structure - four screws.
Connect and secure the electrical connector from the noise filter.

TMI-3913-2-5

INSPECTION	MEN X MINUTES	
Check that the holes on the leading and sheltered sides of the probes are clear. Check that the unit is securely mounted. Check that the electrical connector is properly and securely fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	21 Mar 57								

TM1-3913-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRICAL	RADOME DE-ICING	Noise Filter	11-7-2

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-2055-105	PSC Applied Research		25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1500 hours

FUNCTION

To filter electrical interference originated by the ice detector.

LOCATION

Underside of the radar nose at station 111.96, adjacent to the ice detector.

ACCESS — MEN X MINUTES

Remove the access panel on the underside of the radar nose at station 108.45 to 114.24 - 16 x 10/32 inch screws.

REPLACEMENT PROCEDURE — MEN X MINUTES

Fit and secure the noise filter to the structure - four bolts.
Re-connect the circuit connector to the ice detector.
Fit and secure the circuit wiring to the suppressor.

TMI-3413-2-5

INSPECTION	MEN X MINUTES	
Check the panel for security and cleanliness. Check the warning lights by operating the "Press-to-Test" switch and the DAY/NIGHT switch. Function test by a test box installed at the Master Warning Control Box. Lift the panel and check the wiring and hardware for security and damage.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Test Box to introduce signals into the master warning control box.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	19 Mar 57								

TM1-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRICAL	RADOME DE-ICING	Time Delay Relay	11-7-3

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-1151-13	A.W. Haydon Company	B-7839	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1500 hours

FUNCTION

When operated by a aignal from the ice detector, controla the position of the 3-way solenoid valve and the shut-off valve, and supplies a signal to the annunciator unit.

LOCATION

Topside of the radar nose at station 72.0.

ACCESS

Remove the de-icing equipment access panel on the topside of the radar nose at station 68.5 to 84.25.

MEN X MINUTES

REPLACEMENT PROCEDURE

Fit and secure the unit to its mounting - four bolts.
Fit and secure the circuit wiring to the unit.

MEN X MINUTES

TM1-3413-0-3

INSPECTION	MEN X MINUTES	
Check that the circuit wiring is securely and properly fitted. Check that the unit is securely mounted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

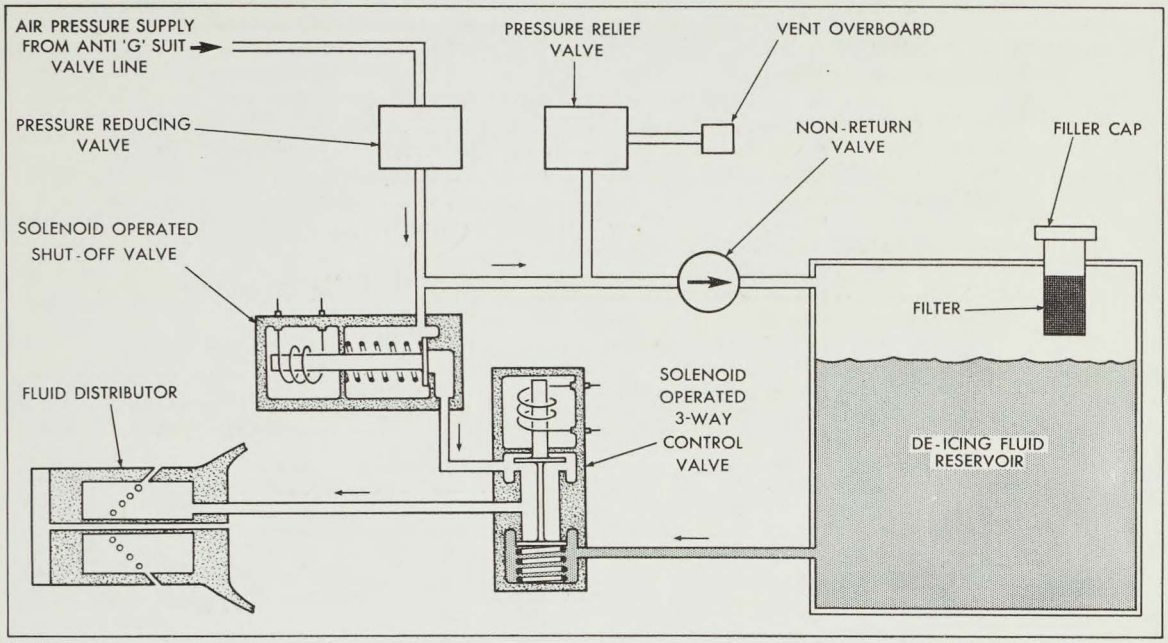
ISSUE	1								
DATE	21 Mar 57								

TM1-3413-2-6

RADOME DE-ICING SYSTEM

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS



7M1-2901-1

FIG. 1 RADOME DE-ICING SYSTEM - SCHEMATIC

7M1-3413-2-2

CF-105 SERVICE DATA

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFFTY	REF. NO.
DE-ICING	RADOME DE-ICING	25201	20-1

DESCRIPTION

General.

1. A de-icing system, using an alcohol based fluid is provided for the radome. The system is electrically operated and is entirely automatic.

Pressure Reducing Valve.

2. Air taken from the anti-g suit valve line in the L.P. Air System at 18-90 psi is reduced to 10-12 psi by a pressure reducing valve. From the pressure reducing valve the air is supplied to a fluid reservoir and to a shut-off valve.

Pressure Relief Valve.

3. A pressure relief valve is fitted downstream of the pressure reducing valve and relieves pressure in excess of 14 psi.

Non-return Valve.

4. A non-return valve is fitted in the air supply line to the reservoir to prevent de-icing fluid from backing up into the low pressure air system.

Reservoir.

5. The de-icing fluid reservoir has a capacity of 2.75 Imp.gallons (3.3 U.S.). A gauze filter in the filler adaptor removes impurities from the fluid when filling, and also gives an indication of the correct filling level. The gauze filter element can be removed for cleaning. The fluid from the reservoir is led to a 3-way control valve.

3-Way Control Valve.

6. The 3-way control valve is solenoid operated and controls the flow of fluid and air to a fluid distributor.

Fluid Distributor.

7. The fluid distributor distributes the fluid evenly over the radome.

Shut-off Valve.

8. The shut-off valve, fitted in the air line between the pressure reducing valve and the 3-way control valve is solenoid operated and shuts off the air supply when the solenoid is de-energized.

ISSUE	1							
DATE	17 Dec.56.							

TM1-3413-2-3

Operation.

9. The system is controlled electrically and details of the electrical components are described under Electrical System - De-Icing. The following is a brief description of the operation.

10. Icing conditions are detected by an ice detector located forward of the nose wheel well. The detector feeds signals to a de-icing intervalometer. The intervalometer controls the shut-off valve and the 3-way control valve to give a timed period of fluid flow to the distributor followed by a timed period of air pressure to force the fluid from the distributor to the surface of the radome. This sequence is maintained for the duration of icing conditions.

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
DE-ICING	RADOME DE-ICING	Valve - 3 Way Control	20-1-1

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-2052-14	Eckel Valve Co.		25201

OVERHAUL LIFE: KNOWN- ESTIMATED-

FUNCTION

Control of air and fluid to radome distributor.

LOCATION

Radar nose, Stn. 70.0 to 74.0

ACCESS | MEN X MINUTES

Through radome de-icing equipment access door at Stn. 68.5 - 78.95

REPLACEMENT PROCEDURE | MEN X MINUTES

Place in position.
Insert two attachment bolts.
Connect three pipe connections.
Connect one electrical connection

INSPECTION	MEN X MINUTES	
Check for cleanliness, security of attachment and connections.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Electrical ground power unit.
Compressed air unit.
Cockpit access stand.
B4 access stand.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	17 Dec.56								

TM1-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
DE-ICING	RADOME DE-ICING	Valve - Pressure Reducing	20-1-2

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-0120-8 7-2000-11	Surface Combustion Corp.	27034	25201-25205

OVERHAUL LIFE: KNOWN- ESTIMATED- 500 hours

FUNCTION

To reduce pressure of air supplied from the low pressure air system to 10-12 psi before delivering it to the de-icing fluid tank and shut-off valve.

LOCATION

Radar nose, station 80 - top.

ACCESS | MEN X MINUTES

Through radome de-icing equipment panel at station 78.95 - 84.25 - top of radar nose.

REPLACEMENT PROCEDURE | MEN X MINUTES

Place in position.
Insert two mounting bolts.
Connect three pipe lines.

TMI-3413-2-5

INSPECTION	MEN X MINUTES	
Check valve for security.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Compressed air unit.
Electrical ground power unit.
Cockpit access stand.
B5 access stand.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	17 Dec.56								

7MI-3913-2-6

C2

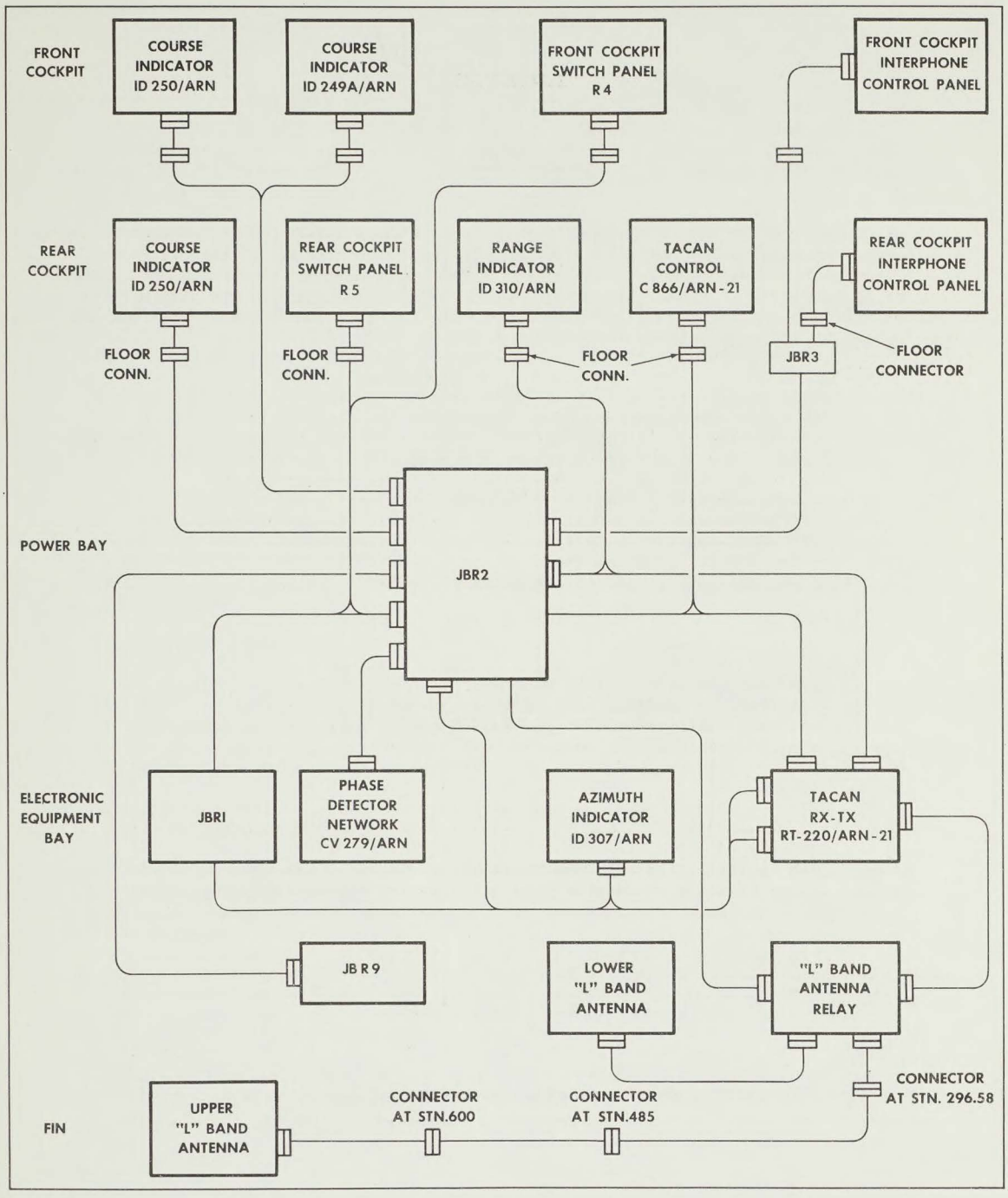
CF-105 SERVICE DATA

SECTION 51
ELECTRONICS

TACAN AN/ARN-21

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS



7MI-7011-2

FIG. 1 TACAN AN/ARN-21-GENERAL ARRANGEMENT

7MI-5933-2-2

CF-105 SERVICE DATA

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFF'TY	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	25201	13-2

DESCRIPTION

General

1. The Tactical Air Navigation (TACAN) Radio system AN/ARN-21 indicates continuously, the bearing of, and distance to, a selected ground navigation beacon located within a line of sight distance from the aircraft. The indicated distance information is limited to 195 nautical miles. Bearing information and distance information are displayed on separate indicators. A third indicator enables the pilot to determine whether the aircraft is headed toward the beacon or away from it.

2. The system comprises the following component units:

(a) Radio Set Control C866/ARN-21

(b) Receiver-Transmitter RT220/ARN-21 and Mounting.

(c) 'L' Band Antenna System.

(d) Azimuth Indicator ID307/ARN.

(e) Phase Detecting Network CV279/ARN.

(f) Course Indicator ID249/ARN.

(g) Range Indicator ID310/ARN.

(h) Course Indicator (Dual) RMI Type ID250/ARN (2).

Radio Set Control C866/ARN-21.

3. The radio set control incorporates two channel selector controls marked CHAN, an identity tone signal level control marked VOL and an OFF-REC-T/R switch.

4. Channel selection is accomplished by turning the two controls marked CHAN. The right hand control determines the unit figure, and the left hand control the tens and hundreds figure of the channel number. The number of the selected channel appears in a cut out window between the controls. Dial numbers up to 129 can be selected but only channels 001 to 126 are usable. The OFF-REC-T/R switch energizes the equipment when selected to REC or T/R. In the REC position only bearing information is displayed and in the T/R position both bearing and distance information are displayed.

Receiver-Transmitter RT220/ARN-21

5. The receiver-transmitter transmits distance interrogation pulses. It receives from the ground beacon, distance reply signals, variable bearing signals,

ISSUE	1							
DATE	11 Feb 57							

reference bearing signals and audio tone signals.

6. Distance interrogation pulses transmitted by the Tacan transmitter trigger the ground beacon which then transmits a reply pulse. When a reply pulse is received by the Tacan receiver, range circuits measure the time elapsed between transmission of the interrogation pulse and reception of the reply pulse. The range circuits operate to display this difference on a range indicator, located in the rear cockpit, as the distance to the beacon in nautical miles.

7. Variable bearing signals and reference bearing signals are transmitted continuously by the ground beacon. When these signals are received by the Tacan receiver, azimuth circuits measure the phase difference between the reference bearing signals and the variable bearing signals. The resulting phase difference is displayed on an azimuth indicator located in the electronic equipment bay, as the bearing of the aircraft relative to the ground beacon. The bearing indication is relayed from the azimuth indicator to remote radio magnetic indicators located one in each cockpit.

8. Audio tone signals keyed in international morse code are transmitted at regular intervals by the ground beacon. These audio tone signals which serve to identify the ground beacon, are received in the headsets when the TACAN mixing switches on the appropriate interphone system control panels are selected ON.

9. The transmitter has 126 assigned frequency channels spaced one megacycle apart. Channel 1 has a frequency of 1025 Mc/s and channel 126 has a frequency of 1150 Mc/s. The receiver frequency for channels 1 to 63 is always 63 megacycles below the transmitter frequency, i.e. 962 to 1024 Mc/s, and for channels 64 to 126 the receiver frequency is always 63 megacycles above the transmitter frequency, i.e. 1151 to 1213 Mc/s.

Range Indicator ID210/ARN

10. The range indicator indicates continuously, up to 195 nautical miles, the distance between the aircraft and the ground beacon. The numerals are partially covered by a red strip when the indicator is not computing. This warns the operator against reading incorrect distance indications. The indicator is operative when the OFF-REC-T/R switch on the set control unit is selected to T/R.

Course Indicator ID249A/ARN

11. The course indicator, located in the front cockpit, will indicate deviation to the left or to the right when the aircraft is being steered on a ground beacon bearing. In addition, the indicator will determine whether the aircraft is headed toward the ground beacon or away from it.

12. The course being flown is indicated by numerals in a cut-out window on the indicator. Deviation to the left or to the right of this course is indicated by a pointer pivoted at the centre of the dial which is controlled by signals from the azimuth indicator operating in conjunction with a phase detecting network.

13. Signals from the azimuth indicator and the phase detecting network are also resolved in the course indicator to indicate whether the aircraft is headed toward the

CF-105 SERVICE DATA

SYSTEM DATA SHEET

SYSTEM	SUB-SYSTEM	AIRCRAFT EFF'TY	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	25201	13-2

ground beacon or away from it. When the aircraft is headed toward the ground beacon a flag marked TO appears in a cut-out window on the course indicator and when the aircraft is headed away from the beacon a flag marked FROM appears in the window.

Course Indicator (Dual) RMI ID250/ARN

14. The bearing of the aircraft from the ground beacon is displayed on the radio magnetic indicators. Two indicators are provided, one in each cockpit. The indicators are dual reading instruments with two indicating needles, one broad and one narrow. The broad needle operates with the radio compass system. The narrow needle operates with either the TACAN system or the UHF homer system. RMI needle selector switches, located one on the front cockpit switch panel R4 and one on the rear cockpit switch panel R5, facilitate selection of the narrow needle for operation with the system required.

'L' Band Antenna System

15. The TACAN system shares the upper and lower 'L' band antennas with the IFF system. A two-position 'L' band antenna transfer switch is mounted on switch panel R5 which is located in the rear cockpit. The switch is marked IFF UP/TACAN LOW and IFF LOW/TACAN UP, and energizes an 'L' band antenna relay which connects the antennas to the systems as selected.

Power Requirements.

16. The system operates using 27.5 volts d-c at 0.75 amps, 115 volts a-c 400 cps at 480 VA.

ISSUE	1							
DATE	11 Feb 57							

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Radio Set Control	13-2-1

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply	C866/ARN-21	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

To house controls necessary for the operation of the system.

LOCATION

Mounted on the RH console in the rear cockpit.

ACCESS

Unobstructed, when the unit is released from the console.

MEN X MINUTES

REPLACEMENT PROCEDURE

MEN X MINUTES

Fit and secure connector J1801 (AN 3102-20-27S). Secure the unit to the console with four Dzus fasteners.

INSPECTION	MEN X MINUTES	
Check that the panel is securely mounted. Check that the controls are securely mounted. Check that the connector is securely and properly fitted. Operate the controls and check that the action is not rough or sluggish.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or radio test set TS 823/ARM.
Radio test set AN/ARM-17.
Test equipment listed in EO 35AA-10ARN21-2.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TM1-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Receiver-Transmitter	13-2-2

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply (10EU/44474)	RT 220/ARN-21	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

Receives bearing signals which are resolved to furnish azimuth indication and audio code signals which serve to identify the ground beacon. In addition, transmits interrogation pulses to a ground beacon and receives, in return, reply pulses which are resolved to furnish range indication.

LOCATION

Electronics Equipment Bay - RH side.

ACCESS	MEN X MINUTES
Open the electronic equipment bay RH access door - 46 camlocs.	

REPLACEMENT PROCEDURE	MEN X MINUTES
Fit the unit into its mounting and secure with two wing nuts.	

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check that the connectors are securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or radio test set TS 823/ARM and signal generator TS497/VRR.
Radio test set AN/ARM-22.
Test equipment listed in EO 35AA-10ARN21-2.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TMI-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Receiver-Transmitter Mounting	13-2-3

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply (10EP/36243)	MT 928/ARN-21	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1500 hours

FUNCTION

To shockmount the RT 220/ARN-21 receiver-transmitter and, by means of a push-to-connect receptacle, to ensure that a positive connection is made to the circuit wiring. Also mounts the power control relays.

LOCATION

Electronic Equipment Bay - RH side.

ACCESS — MEN X MINUTES

Open the electronic equipment bay RH access door - 46 camlocs.

REPLACEMENT PROCEDURE — MEN X MINUTES

Fit shockmounts to structure - 16 screws.
Secure mounting tray to shockmounts - four screws.
Fit and secure four connectors (R1021-4, R1021-5, R1014-2, R1015-2).

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check that the relays and connectors are securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or electric ground power unit AN/ARN-21 field tester.
Test set radio AN/ARM-22.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TM1-1411-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Range Indicator	13-2-4

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply	ID 310/ARN	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

Displays the distance from the aircraft to the TACAN ground beacon in nautical miles, up to a line of sight distance of 195 nautical miles.

LOCATION

Mounted on the rear cockpit Instrument Panel.

ACCESS — MEN X MINUTES

Unobstructed when the unit is released from the instrument panel.

REPLACEMENT PROCEDURE — MEN X MINUTES

Fit and secure connector P1601.
Fit and secure the unit to the instrument panel with four mounting screws.

TM1-3413-2-5

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check for cracks and cleanliness. Check that the connector is securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or radio test set TS 823/ARM.
Radio test set AN/ARM-17.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TMI-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	'L' Band Antenna - Lower	13-2-5

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
17-1354-39	Aircraft Appliances		25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

To transmit and receive signals in the 'L' Band. Operates with the TACAN system or the IFF system as selected by the 'L' Band antenna selector switch.

LOCATION

Mounted on the Electronic Equipment Bay centre access door.

ACCESS — MEN X MINUTES

Release and lower the electronic equipment bay centre access door - 33 camloc fasteners.

REPLACEMENT PROCEDURE — MEN X MINUTES

Fit and secure unit to access door using 16 screws (AN509-8R6).
Fit and secure centre access door - 33 camloc fasteners.

TM1-3913-2-5

INSPECTION	MEN X MINUTES	
Check that the antenna is securely mounted. Check the antenna for damage and cracks. Check that the connector is securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

See IFF AN/APX-6 Ref. No. 13-6-7.

ISSUE	1								
DATE	11 Feb 57								

TMI-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	'L' Band Antenna - Upper	13-2-6

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-1383-3	Sinclair Radio		25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

To transmit and receive signals in the 'L' Band.
Operates with the TACAN system or the IFF system
as selected by the 'L' Band antenna selector switch.

LOCATION

Fin tip - combined with the upper UHF antenna.

ACCESS | MEN X MINUTES

Remove the fin tip - 56 screws.

REPLACEMENT PROCEDURE | MEN X MINUTES

Fit and secure the antenna to the fin tip - 12 screws.
Fit and secure two connectors.
Refit and secure the fin tip to the fin - 56 screws.

TM1-3913-2-5

INSPECTION	MEN X MINUTES	
Check that the antenna is securely mounted. Check the antenna for damage, cracks and corrosion. Check that the connectors are securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

See IFF AN/APX-6 Ref. No. 13-6-6.

ISSUE	1								
DATE	11 Feb 57								

TMI-3933-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	'L' Band Antenna Relay	13-2-7

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-1354-13	Aircraft Appliances and Equipment		25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

To connect the upper and lower 'L' Band antenna for operation with the TACAN and the IFF system as selected by the 'L' Band antenna selector switch.

LOCATION

Electronic Equipment Bay - RH side Sta. 282.

ACCESS	MEN X MINUTES
Release and lower the electronic equipment bay centre access door - 33 camlocs.	

REPLACEMENT PROCEDURE	MEN X MINUTES
Fit and secure unit to airframe using four mounting screws. Fit and secure four connectors (R1056-2, R1101-1, R1102-2, R1104-2). Refit the access door - 33 camloc fasteners.	

INSPECTION	MEN X MINUTES	
Check that the relay is securely mounted. Check that the connectors are securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

See IFF AN/APX-6 Ref. No. 13-6-8.

ISSUE	1								
DATE	11 Feb 57								

TM1-3433-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Azimuth Indicator	13-2-8

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply	ID 307/ARN	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

Works in conjunction with the phase detecting network to relay bearing signals to the course indicator ID 249A/ARN.
Displays bearing signals received by Receiver-Transmitter RT 220/ARN-21.

LOCATION

Electronic Equipment Bay - RH side.

ACCESS — MEN X MINUTES

Release and lower the electronic equipment bay centre access door - 33 camlocs.

REPLACEMENT PROCEDURE — MEN X MINUTES

Fit and secure connector P1701.
Fit unit to airframe with four mounting bolts.

TM1-3413-2-5

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check for cracks and cleanliness. Check that the connector is securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or radio test set TS 823/ARM.
Radio test set AN/ARM-17.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TM1-3413-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Azimuth Indicator Mounting	13-2-9

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
7-1354-86	Avro Aircraft Ltd.		25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1500 hours

FUNCTION

Shockmounts Azimuth Indicator ID 307/ARN.

LOCATION

Electronic Equipment Bay - RH side.

ACCESS — MEN X MINUTES

Open the RH side electronic equipment bay access door - 19 camlocs.

REPLACEMENT PROCEDURE — MEN X MINUTES

Fit and secure the bonding lead.
Fit the mounting to the airframe with six mounting screws.

TWI-3413-2-5

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check the bonding lead for signs of fraying and corrosion.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1									
DATE	11 Feb 57									

TM1-3913-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Phase Detecting Network	13-2-10

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply	CV 279/ARN	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

Works in conjunction with Azimuth Indicator ID 307/ARN to relay bearings to the Course Indicator ID 249A/ARN.

LOCATION

Electronic Equipment Bay - RH side.

ACCESS | MEN X MINUTES

Open the RH access door of the electronic equipment bay - 46 camlocs.

REPLACEMENT PROCEDURE | MEN X MINUTES

Fit and secure one connector (AN-3106-18-1P).
Fit two mounting screws (NAS-221-9) securing unit to airframe.

TM1-3413-2-5

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check that the connector is securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or radio test set TS 823/ARM.
Test set radio AN/ARM-17.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TMI-3913-2-6

CF-105 SERVICE DATA

COMPONENT DATA SHEET

SYSTEM	SUB-SYSTEM	COMPONENT	REF. NO.
ELECTRONICS	TACAN AN/ARN-21	Course Indicator	13-2-11

AVRO PART NO.	MANUFACTURER	MAN'F'R'S PART NO.	AIRCRAFT EFFECTIVITY
	RCAF Supply (10EA/39340)	ID 249A/ARN	25201

OVERHAUL LIFE: KNOWN- ESTIMATED- 1000 hours

FUNCTION

Displays deviation of the aircraft course to left or right of the TACAN ground beacon.
Provides for radial course selection.
Enables pilot to determine whether he is flying toward or away from the Tacan beacon.

LOCATION

Mounted on the Main Instrument Panel - front cockpit.

ACCESS

	MEN X MINUTES	
Unobstructed when released from the instrument panel.		

REPLACEMENT PROCEDURE

	MEN X MINUTES	
Fit and secure connector R1032-1. Fit unit to main instrument panel - four screws.		

TMI-3413-2-5

INSPECTION	MEN X MINUTES	
Check that the unit is securely mounted. Check that the connector is securely and properly fitted.		

FUNCTIONAL CHECKS	MEN X MINUTES	

GROUND HANDLING AND GROUND TEST EQUIPMENT

Beacon station if within range or field test set.
Test set radio AN/ARM-22.

SPECIAL TOOLS TO REMOVE OR SERVICE

REMARKS

ISSUE	1								
DATE	11 Feb 57								

TM1-3433-2-6