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Date: May 1977

Measurements on Atlas 210 x

No: TK [REDACTED]

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Sensitivity Page (1)
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Measured with two methods!

Method no. 1: carrier on zero beat
modulated 90 % with 1 kHz tone
measured 10 dB ratio S+N/N

equipment: (1) Rohde & Schwarz AM/FM Signalgenerator
SMDF EN 41311

Factory no. M 1773/250

(2) AF-Voltmeter Goerz Unigor
1 Meg Ohm/Volt

Method no. 2: SINAD 10 dB

Only carrier, shifted 1 kHz, so that a 1 kHz tone
appears.

Measured 10 dB ratio S+N+D/N+D

equipment: (1) as method no. 1

Rohde & Schwarz *as above*

(2) Hewlett Packard Distortion Analyser
HP 331 A

Factory no. G 528-00140

1kHz 90% modulated

SINAD

Frequency kHz	Method 1 Sensitivity in μV	Method 2 Sensitivity in μV
3500	1	2,8
3600	1	no measurement done = n.m.o
3650	n.m.d.	2,8
3700	1	n.m.d.
3800	1	1,2
7000	0,9	2,2
7050	n.m.d.	2,2
7100	0,95	2,2
7250	n.m.d.	2,2
7500	n.m.d.	4,3
14000	1,8	3,8
14100	2	n.m.d.
14200	2,1	n.m.d.
14250	2,1	4
14300	2,1	n.m.d.
14500	n.m.d.	6
21000	3,2	4
21100	3	n.m.d.
21200	3,2	n.m.d.
21250	n.m.d.	3,6
21300	2,8	n.m.d.
21400	2,8	n.m.d.
21450	2,8	n.m.d.
21500	n.m.d.	3,4
28400	15	25
28500	14	n.m.d.
28600	13	n.m.d.
28700	13	n.m.d.
28800	13	n.m.d.
28900	13	20
29000	11	n.m.d.
29100	12	n.m.d.
29200	12	n.m.d.
29300	12	n.m.d.
29400	13	17

S-Meter deflection

Carrier unmodulated !

At frequency in kHz: =====					
	3700	7050	14350	21250	28600
S 1	6 μ V	6 μ V	10 μ V	9 μ V	43 μ V
S 5	8,3 μ V	8,4 μ V	16 μ V	13 μ V	100 μ V
S 9	58 μ V	58 μ V	100 μ V	100 μ V	830 μ V

Appendix

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Measurements on another Atlas 210 π have shown following data;
method no. 2, SINAD 10 dB:

Frequency		μ V
28,4	SINAD 20 dB	15
	SINAD 10 dB	4,2
28	"	4,2
21	"	0,86
14	"	0,9
7	"	0,28
3,6	"	0,28

VFO DIAL ALIGNMENT

Equipment Required

- 1 Power Supply Extender Cable or 200PS
- 2 DD-6 Digital Dial or Signal Generator

Procedure

- 1 Remove top cover of transceiver to permit access to VFO trimmer capacitors, which are located along the right side of the dial drum.
NOTE: On earlier sets the trimmer capacitors are reached through holes in the VFO cover plate under the bottom cover of the transceiver.
- 2 Connect power to transceiver using power supply extender cable.
- 3 Rotate tuning knob until dial indicates exactly 200 * and set Dial Set to center position.
- 4 Place function switch in Rec. and connect DD-6 Digital Dial.
- 5 Place bandswitch in desired band and adjust corresponding trimmer capacitor** until DD-6 indicates exactly as dial indication

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* On model 215 and 215X, the 160 meter band (1.8 MHz) should be aligned with the dial set at 1800.

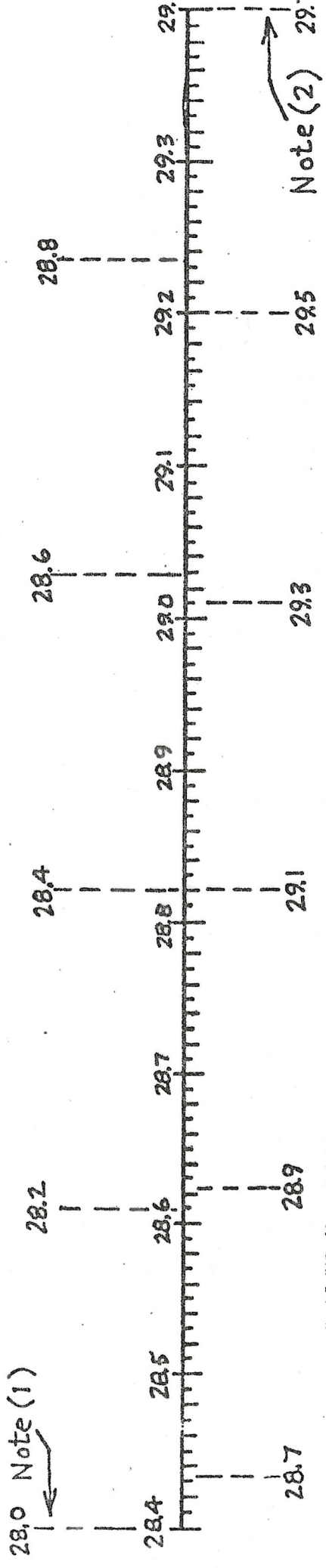
** The frequency is normally printed adjacent to the trimmer capacitor; if it is not the lowest frequency band trimmer is located nearest the front panel and the next higher band trimmer just behind it, etc.

NOTE: If using RF signal generator in lieu of DD-6, adjust trimmer capacitor to zero-beat with signal generator.

Factory calibration of the 10 meter band covers from 28.4 to 29.4 MHz.

By adjustment of the 10 meter VFO trimmer, calibration may be modified to tune from 28.0 to 29.0, or from 28.7 to 29.7 MHz, or any other 1000 kHz portion of the band.

The 10 meter VFO trimmer is located on the top side of the VFO compartment, and is designated by the figure 28.5 and an arrow pointing to the trimmer. A small size screwdriver is required for this adjustment.



Moving the VFO calibration higher or lower in frequency will have some effect on tracking with the dial scale. If the low end is moved down to 28.0 MHz, tracking will fall as indicated in Note (1) above the illustrated dial scale. (Only the 10 meter calibration is shown, for clarity). If the high end is moved up to 29.7 MHz, tracking will fall as indicated in Note (2) below the illustrated dial scale.

The DIAL SET control can be used to bring calibration into line at 100 kHz intervals, as required. If closer tracking is desired, adjustment of the 10 meter "Gimmick" coil inside the VFO compartment will be necessary, and not usually reco-

RECEIVER INPUT FILTER ADJUSTMENT

Equipment Required

- 1 RF Signal Generator
- 2 Power Supply Extender Cable or 200PS
- 3 Plastic Hex tuning wand

Procedure

- 1 Remove top cover of transceiver.
- 2 Connect power to transceiver using extender cable.
- 3 Connect output of RF Signal Generator to antenna connector.
- 4 Place bandswitch in lowest band.
- 5 Tune transceiver to center of band.
- 6 Place function switch in Rec.
- 7 Advance RF gain control fully clockwise.
- 8 Set output of RF Signal Generator to 10 uv and tune for greatest indication on S-meter.
- 9 Adjust top, then bottom slug of appropriate receiver input coil for greatest S-meter indication.

NOTE:

Receiver input coils are located behind and under the dial drum. The lowest band is farthest to the left and the highest band is furthest to the right. Later sets use fixed tuning for 40 meters and below requiring tuning on 20 meters and above only.

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S-METER ADJUSTMENT PROCEDURE

Equipment Needed

- 1 RF Signal Generator
- 2 Power Supply Extender Cable or 200PS

Procedure

- 1 Remove top cover of transceiver to permit access to S-meter adjust R220.
- 2 Connect power using extender cable.
- 3 Place function switch in REC and band switch in 3.5 MHZ (80 meter) position.
- 4 Connect output of RF signal generator to antenna connector of transceiver and adjust sig. generator to 3.7 MHZ at 30 uv output.
- 5 Advance RF gain control fully clockwise.
- 6 Tune transceiver for greatest deflection of S-meter.
- 7 Adjust R220 for a reading of S9. S-meter will now indicate correctly.

NOTE:

S-meter adjust R220 is located just behind the front panel dimmer switch, under and just to the left of the dial drum, on the PC-200 board.

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FILTER ROLL-OFF ADJUSTMENT PROCEDURE

Equipment Needed

- 1 Audio Signal Generator with output adjustable to .03 VAC
2. Dummy Load Wattmeter
- 3 Power Supply Jumper Cable, or 200PS

Procedure

- 1 Remove bottom cover plate of transceiver.
- 2 Connect power, using jumper cable.
- 3 Connect output of Audio Generator to Mike Input receptacle.
- 4 Set Side Band selector switch to Norm.
- 5 Set Band switch to lowest band.
- 6 Set Audio Generator to 1500 CPS at .03 VAC.
- 7 Place transceiver in Xmit, and advance Mike Gain setting until output is 40 W.
- 8 Without disturbing Mike Gain setting, readjust Audio Generator to 300 CPS at .03 VAC.
- 9 Adjust C603* (located on Carrier Osc. board) until output reads 10 W.
- 10 Switch Sideband selector switch to Opp and adjust C602* until output reads 10 W.
- 11 Reset Audio Generator to 1500 CPS at .03 VAC and check that output reads 40 W in both Norm and Opp positions of sideband selector switch.
- 12 Repeat steps 6 through 12 as necessary.

Roll-off will now be set correctly.

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* Early operating manuals designate these as C607 and C608, respectively.

CARRIER NULL (SUPPRESSION) ADJUSTMENT

EQUIPMENT NEEDED

- 1 Dummy Load
- 2 VTVM
- 3 Power Supply Extender Cable or 200PS

PROCEDURE

- 1 Remove top cover of transceiver.
- 2 Connect dummy load to antenna connector.
- 3 Connect power to transceiver using extender cable.
- 4 Place bandswitch in lowest band.
- 5 Place function switch in TRANS. (do not connect mike to input.)
- 6 Measure RF output at center lead of antenna connector; if output is greater than .1VAC proceed with step #7.
- 7 Carefully adjust C103 and R101 alternately for lowest reading on VTVM. C103 is located at the upper rear of the PC-100 board and R101 is just forward of C103 and L102 (toroid). (On the PC-120 board R101 is forward and above C103).

NOTE:

IF the lowest reading obtainable is greater than .2 VAC mixer diodes D101 through D104 should be replaced.

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TRANSMITTER INPUT FILTER ADJUSTMENT

Equipment Required

- 1 Audio Signal Generator
- 2 Dummy Load Wattmeter
- 3 PC Board Right Angle Adaptor
- 4 Power Supply Extender Cable or 200PS
- 5 200 ohm Resistor

Procedure

- 1 Remove top cover of transceiver.
 - 2 Remove PC-100 (or PC-120) Board from edge connector and reinsert, using PC Board Right Angle Adapter. This allows access to PC-900 Trimmer Capacitors.
- CAUTION: Be sure to reinsert PC-100 (or PC-120) such that pin one makes to pin one, etc. Reversal of the board will cause severe damage to chassis wiring.
- 3 Connect Dummy Load Wattmeter to antenna output connector.
 - 4 Connect power to transceiver using power supply extender cable.
 - 5 Connect audio signal generator to mike input receptacle and adjust to 1500 cycles at .03 VAC.
 - 6 Place bandswitch in lowest band (see note two).
 - 7 Jumper C901 on PC-900 board, using 200 ohm resistor. (see note three)
 - 8 Tune transceiver to center of band.
 - 9 Place function switch in Trans and advance mike gain control fully clockwise.
 - 10 Adjust C902 for maximum indication on Wattmeter.
 - 11 Place function switch in REC.
 - 12 Remove jumper resistor from C901 and jumper C902.
 - 13 Place function switch in Trans and adjust C901 for maximum indication on wattmeter.
 - 14 Place function switch in REC. The lowest band is now properly adjusted.
 - 15 Using the above procedure, adjust each pair of trimmers in turn for their appropriate band. (see note one)

Note 1:

The jumper resistor need only be used on 7 MHZ band and below.

Note 2:

Later model sets use fixed components on 7 MHZ bands and below and tuning is only needed on 14 MHZ band and above.

Note 3:

The correct pair of trimmers can be located easily, by tracing the connections from the band switch section nearest the PC-900 Board.

HIGH-SWR PROTECT CIRCUIT ADJUSTMENT²
FOR 210X

Equipment Required

- 1 Audio Signal Generator
- 2 Power Supply Extender Cable or 200PS

Procedure

- 1 Perform ALC adjustment procedure and bias adjustment.
- 2 remove the two bolts from the top sides of the PA heat sink and open the heat sink case to permit access to the power amplifier circuitry.
- 3 Connect power to transceiver using power supply extender cable.
- 4 Connect audio signal generator to mike input receptacle and adjust for 1500 cycles at .03 VAC.
- 5 Place bandswitch in 20 meter band (14 MHZ),
- 6 Place function switch in Trans.
NOTE: Leave antenna open circuited,
- 7 Advance mike gain control fully clockwise.
- 8 Advance SWR adjust* until ammeter on front panel indicates 6 amps. The SWR Protect Circuit is now correctly adjusted.

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* The SWR adjust is a subminiature potentiometer located on the far left side of the PA circuitry.

ALC ADJUSTMENT

Equipment Required

- 1 Audio Signal Generator
- 2 Dummy Load
- 3 VTVM
- 4 Power Supply Extender Cable or 200PS

Procedure

- 1 Remove the top cover of the transceiver.
- 2 Remove the shield which is fastened to the metal bracket which supports the receiver input tuning coils and to the rear lip of the chassis. (This permits access to the ALC trimmer capacitor which is located in the now exposed groove, just to the right of center.)
- 3 Connect the dummy load to the antenna connector.
- 4 Connect the Audio Signal Generator to the mike input receptacle and adjust it for 1500 cycles at .03 VAC.
- 5 Connect power to the transceiver using power supply extender cable.
- 6 Place the bandswitch in the highest band.
- 7 Connect the +DC probe of the VTVM to the accessible lead of the 1000 ohm resistor which is to the right and forward of the ALC trimmer capacitor and set the VTVM on its most sensitive scale.
- 8 Place the function switch in Trans and advance the mike gain control until the VTVM reads about mid-scale.
- 9 Adjust the ALC trimmer capacitor until a minimum reading is obtained on the VTVM. The ALC circuit will now be properly adjusted.

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POWER AMPLIFIER BIAS ADJUSTMENT

Equipment Required

- 1 Dummy Load
- 2 Power Supply Extender Cable or 200PS.

Procedure

- 1 Connect dummy load to antenna connector.
- 2 Connect power to transceiver using extender cable.
- 3 Place bandswitch in lowest band.
- 4 Place function switch in CW.
- 5 Advance Mike Gain Control fully clockwise for about 10 seconds to allow finals to reach normal operating temperature.
- 6 Turn Mike Gain Control full CCW. Place function switch in Transmit.
- 7 Adjust Bias adjust R515 for a reading of 1/4 to 1/2 amp on ampmeter.

Note 1:

Bias adjust R515 is a screwdriver adjustment which can be reached through the small hole in the center, left of the heat sink.

CAUTION: Bias settings in excess of 1/2 amp will cause distortion and may result in damage to the final PA transistors

Note 2:

Carrier null adjustment should be performed before attempting to adjust PA bias.