



APPROXIMATE VOLTAGE AND RESISTANCE MEASUREMENTS
TUBE SOCKET LUGS TO FLOATING GROUND

TUBE	FUNCTION	BAND SW. POSITION	VOLTAGE									RESISTANCE								
			1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
12AT7	FM Converter	FM	98	-1*	0	0	AG 12	96	-2	0	AG 6	-	880K	0	0	30	-	22K	.2	20
		AM	**	**	0	0	AC 12	**	**	0	AC 6	Inf.	1 meg.	0	0	30	Inf.	22K	.2	20
12BE6	AM Converter	FM	**	0	AC 43	AC 31	**	**	**	**	**	22K	.5	50	36	Inf.	Inf.	100K		
		AM	-9	0	AC 43	AC 31	109	109	-1			22K	.5	50	36	†	†	785K		
12BA6	1st I-f Amp. (FM)	FM	-.8	0	AC 55	AC 43	96	96	0			410K	0	60	50	†	†	0		
		AM	**	0	AC 55	AC 43	**	**	**	0		522K	0	60	50	Inf.	Inf.	0		
12BA6	2nd I-f Amp. (AM-FM)	FM	-.5	0	AC 67	AC 55	94	94	0			100K	0	70	60	†	†	0		
		AM	-.8	0	AC 67	AC 55	104	104	0			785K	0	70	60	†	†	0		
19T8	AM-FM Det. 1st Audio AVC	FM	-.8	-1.6	-.8	AC 31	AG 12	**	0	-.9*	38*	522K	100K	522K	36	30	Inf.			
		AM	**	**	**	AC 31	AC 12	-1.1	0	-.9*	40*	Inf.	100K	Inf.	36	30	420K			
50L6	Output	FM	0	AC 67	118	98	0	0	AC 117	7		Inf.	70	†	†	470K	Inf.			
		AM	0	AC 67	120	110	0	0	AC 117	7.8		Inf.	70	†	†	470K	Inf.			

All voltage readings not indicated otherwise are +DC.
 *Measure with vacuum tube voltmeter.
 **These lugs are not used in this position of the band switch.
 on different sets and with different types of meters.
 Inf - Infinite resistance or open circuit.
 † Resistance readings at these points will vary greatly.

ARVIN RADIOS, MODELS 360TFM AND 361TFM
 CHASSIS RE-260, 6 TUBE AC-DC, AM-FM
 MANUFACTURED BY NOBLITT-SPARKS INDUSTRIES, Inc., COLUMBUS, INDIANA

ARVIN RADIO Models 360TFM and 361TFM, Chassis RE-260

ALIGNMENT PROCEDURE

AM

1. Plug set into 117 V. power source, turn volume control full on and band switch to AM, (left).
2. Connect output meter across speaker voice coil.
3. Connect signal generator high side through .05 mfd. condenser to converter grid and generator ground lead to receiver floating ground. Open tuning condenser. ator to test loop. Set signal generator to 1650 Kc. Tune trimmer A5 on oscillator section of tuning condenser for maximum output.
4. Close tuning condenser and set pointer at end mark of dial. Open tuning condenser. Connect signal generator to 1650 Kc. Tune trimmer A5 on oscillator section of tuning condenser for maximum output.
5. Set signal generator to 1400 Kc. Adjust tuning shaft until maximum output is obtained. Tune antenna trimmer A6 on tuning condenser for greatest output. Reset tuning shaft until output is again a maximum. Retune antenna trimmer. Repeat this cycle of operations at 1400 Kc until no further increase of output can be obtained. Keep generator output at a low value to prevent detuning by A. V. C. action.
6. Set signal generator to 600 Kc. Adjust tuning shaft for maximum output. Adjust tuning condenser plates for maximum output.
7. Check sensitivity at 1000 Kc. If sensitivity is too low, tuning condenser plates can be adjusted for tracking at this frequency. If this adjustment is made, tracking at 600 Kc must be readjusted.
8. Check coverage and calibration after alignment. Coverage should include 535 and 1650 Kc. Calibration should be such that pointer covers some part of calibration mark. If coverage and/or calibration are not correct, plates of tuning condenser can be adjusted. Calibration check points are 1400, 1000 600 and 540 Kc. If oscillator plates are adjusted, tracking of antenna section must be rechecked and corrected if necessary.
9. Check setting of trimmers on tuning condenser. Trimmer adjustments must not be extremely tight nor so loose as to be noisy or vibrate.
10. After alignment, check for noise due to condenser plates touching or pointer touching dial as tuning shaft is turned through the full tuning range.
11. The sensitivity of this set should be approximately 500 uv/m with 400 cycles, 30% modulation and 200 milliwatts, (.8 volt output).

FM

1. Turn band switch to FM, (right).
2. Connect (FM) I.F. generator to the second 12BA6 I.F. amp. grid, (lug #1) through the .01 uf mica dummy.

Connect oscilloscope across volume control. With 150 Kc deviation 10.7 on the I. F. generator and the same audio voltage used as horizontal sweep on the scope, adjust the ratio detector transformer slugs A7-A8 for the characteristic "S" curve (See Fig. 1), with maximum vertical height on the scope. After this adjustment the top slug of the ratio detector should not be moved during the rest of the alignment.

3. Connect I.F. generator to mixer grid through .01 mica dummy. Using 23 Kc deviation 10.7 Mc adjust 10.7 Mc I. F. transformer slugs A9, A10, A11 and A12 for maximum output. Maximum output may be indicated by maximum vertical height on the scope or maximum voltage on a standard output meter across the voice coil of the receiver. After the two I.F. transformers have been aligned the bottom slug A8 of the ratio detector should also be peaked. The characteristic "S" curve of the complete I.F. channel should be checked by applying a 10.7 Mc signal with 150 Kc deviation to the mixer grid and observing the "S" curve on the scope. It should not be very much different from that observed in step 2.
4. Connect R.F. (FM) generator (88 to 108 Mc) to the antenna terminals through the standard 300 ohm dummy (150 ohm in each side of generator leads). Use R.F. generator with 23 Kc deviation. With the variable condenser completely open and S.G. tuned to 108.5 Mc adjust oscillator trimmer A13 (small ceramic trimmer) for maximum reading on output meter.

Then tune receiver to low end of band (variable completely closed) and S.G. to 87.5 Mc. If the receiver does not tune to this frequency the FM oscillator coil L4 will either have to be squeezed together or lengthened to cover the band, (squeezing lowers and lengthening raises the frequency). Any change in the coil will have to be compensated by the trimmer at the high end of the band.

5. With the same S.G. connections as per paragraph 4 tune S.G. and set to 105 Mc. Tune R.F. trimmer A14 for maximum output at the same time rock variable back and forth through the frequency. (Rocking is necessary because slight oscillator pulling causes erroneous maximum readings). Tune S.G. and set the 90 Mc. Adjust R.F. coil L3 length for maximum output by squeezing or lengthening. Any change in the coil will have to be compensated at 105 Mc by the R.F. trimmer A14.
6. After steps 4 and 5 are finished check calibration and band coverage. Steps 4 and 5 may have to be repeated if set is off calibration. Band coverage should be 87.5 Mc to 108.5 Mc. Sensitivity should be approximately 200 uv at 105 Mc, 98 Mc and 90 Mc.

