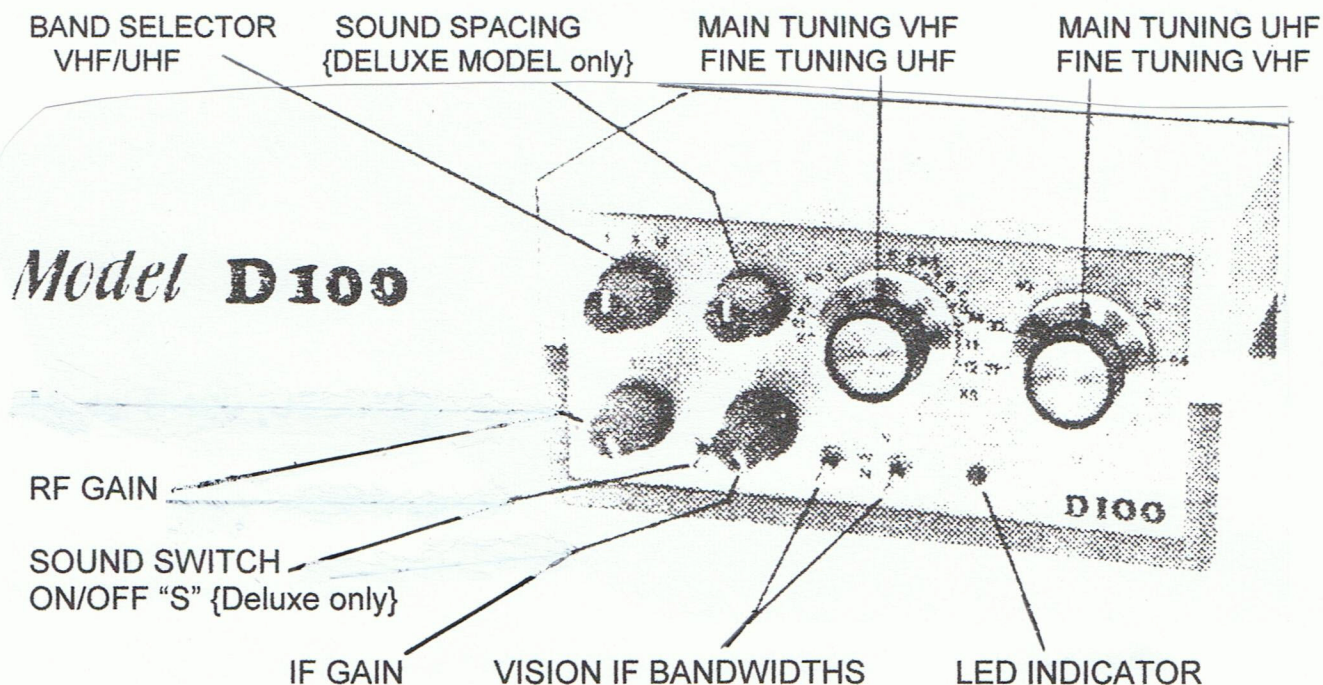


# DX-TV CONVERTER

with WIDE and NARROWBAND I.F.  
SWITCHING



## {DELUXE} Version

Covers VHF and UHF channels in Bands I-II-III-IV and V. Switchable IF>F.

Bandwidths ensure greater selectivity and picture enhancement on weak DX reception.

The sound take-off allows you to monitor sound spacing's of 4.5MHz - 5.5MHz and 6.5MHz

Sound systems via an ordinary VHF /FM receiver, irrespective of the vision I.F. bandwidth settings.

Colour reception is possible on full I.F. bandwidth provided the TV receiver is equipped with the appropriate decoder.

## Standard VERSION

Covers VHF and UHF channels in Bands I-II-III-IV- and V. Switchable I.F.

Bandwidths ensures greater selectivity and picture enchantment on weak Dx Reception.

Colour and sound is possible {on full I.F. bandwidth} provide your TV receiver is equipped with the appropriate colour decoder and has a sound I.F. spacing for the system you want to receive.

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**PLEASE READ THE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO OPERATE THE D-100**

**IMPORTANT**

The 3-core mains lead must be connected to a suitable mains plug fitted with a 1A fuse. The following colour coding MUST be observed:-

BROWN = LIVE            BLUE = NEUTRAL            GREEN/YELLOW = EARTH

Should the coaxial fly lead of the D-100 require extending, use a coax fly lead and coaxial coupler?

DE-LUXE version. The thin lead goes to the TV receiver. The thicker lead connects to the aerial socket of an FM radio or scanner. Alternatively, the centre wire of the co-ax cable may be attached to a telescopic rod aerial (ignore the outer wire).

NB A mains on/off switch is not fitted to the D-100 converter. Simply unplug from the mains supply. This ensures greater safety. Although you could have an in-line switch.

BEFORE CONNECTING THE D-100 TO THE MAINS SUPPLY OR TV RECEIVER, PLEASE FOLLOW THE FOLLOWING:-

1. The RF and IF GAIN controls are set fully clockwise to maximum.
2. Both IF BANDWIDTH switches are set to their DOWN (narrowest IF) positions.
3. The BAND SELECTOR SWITCH is set to its "U" (UHF position).
4. The SOUND SWITCH is set to its upper position - DE-LUXE version only.

**TUNING IN THE TV RECEIVER**

1. Ensure that your TV is capable of covering the UHF channels 21 to 37.
2. Connect the coaxial fly lead of the D-100 to the UHF aerial socket of the TV.
3. Turn on the TV and find an unused channel. Do not connect the TV aerial to the D-100 at this stage.
4. NOW CONNECT THE D-100 TO THE MAINS SUPPLY. The front panel LED will light.
5. Tune the TV through channels 21 to 37 starting at the lower channel numbers. A noise peak (mushy snow) should be observed. Advancing the TV channel a further peak should produce an unmodulated raster, i.e. a blank screen effect without any snow. Further tuning a second noise peak should be located. Select the best peak of the two.  
N.B. The lower channel will give the best performance on WIDE BAND IF for colour reception.

To confirm that the TV is tuned to the output of the D-100 converter, return the IF BANDWIDTH switches to their UPPER position. The noise peak should reduce in intensity.

6. Connect a UHF aerial to the coax input socket at the rear of the D-100. By rotating the UHF TUNING knob {Right Hand Side}, local stations within the UHF band should be received. It may be necessary to reduce the IF GAIN Control to prevent overloading. Adjust the UHF Fine Tune control {Left Hand} for optimal results. The TV tuning scale or frequency may need slight readjustment if it is of the numerical variant for best results. It may even be more convenient to assign a separate channel for wideband use. Note the D-100 output is set at 506.50 MHz or close to channel 31. The sound channel of your local station should also be heard. If a buzzing occurs the IF GAIN and for that matter the RF GAIN control may be to highly set OR the alternate tuning position may be required {See Step 5}. {Repeat steps 5 and 6}

N.B. ALWAYS REMEMBER TO SET THE FINE TUNING CONTROL FOR THE APPROPRIATE BAND TO ITS MID-WAY POSITION, BEFORE USING THE MAIN TUNING CONTROL.



## PAGE 3

Once satisfactory vision has been established, the D-100 may be coupled to an FM radio or tuner or scanner, as follows.

The thicker RF output lead {coax cable} is fitted with a coaxial plug and is designed to connect to an FM radio receiver preferable with a coax input socket, this ensures the possibility of any stray RF is kept to a minimum. Tune the FM receiver between 104-108 MHz, for sound take off {reception}.

### **SETTING THE D-100 FOR SIMULTANEOUS SOUND AND VISION RECEPTION**

Ensure that the RF gain control is set fully clockwise {maximum gain this ensures maximum sound sensitivity} Tune in a local TV station with both the IF bandwidth switches in the WIDE {UPPER} position. Note the IF GAIN setting may have to be reduced to prevent overloading.

Once the optimum picture is established set the oscillator switch to the lower S position. Rotate the OSC control until the TV sound channel is heard. If it cannot be found or if it is accompanied by a load buzz {Vision on Sound} reduce the setting of the RF GAIN control slightly more and try once again.

With experience the setting of the RF and IF gain can be found quite quickly. Adopt the same procedure when tuning DX stations with different sound and vision spacings.

### **SOUND RECEPTION IRRESPECTIVE OF IF BANDWIDTH SETTINGS**

Simultaneous sound and vision reception is possibility irrespective of the IF bandwidth settings. N.B. the FINE TUNING control may have to be adjusted slightly for best results on different bandwidths. This will also necessitate slight readjustment of the OSC control

### **French Reception {AM Sound}**

Many FM radio have inadequate AM rejection, thus providing a basic means of monitoring the French sound channels. Such an arrangement for sound is therefore considered adequate for TV-DX purpose.

### **Oscillator Shift Control**

N.B. Should patterning occurs on some TV channels the output frequency of the sound system may be shifted by means of the OSC {Oscillator shift} control, {Upper Left Hand Side}. Adjust for freedom of such patterning and retune the tuning on the FM receiver. The same procedure may be adopted if oscillator harmonics are present on part of the band you wish to monitor.





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TV SYSTEM		SOUND SPACING	VISION MODULATION	NUMBER OF LINES
VHF	UHF	MHz		
B	G/H	+5.5	Negative	625
D	K	+6.5	Negative	625
I	I	+6.0	Negative	625
L	L	+6.5* (AM)	Positive	625
M	M	+4.5	Negative	525

Fig. 1: TV system differences which can help pin-point reception to a particular country or group of countries. (\*-6.5 AM in Band I)



TABLE B

BANDS I AND II CHANNEL ALLOCATIONS

		MHZ									
		50	55	60	65	75	80	85	90	95	100
		42.75	49.75	56.75							
		48.25	55.25	62.25							
B		E2	E3	E4							
		44.25									
		49.75									
		E2a	(Austria only)								
		48.25	56.75								
		53.75	62.25				82.25				
B	(Italian)	IA	IB				IC				
		43.75	52.75								
		49.75	59.25			77.25	85.25	93.25			
D		R1	R2			R3	R4	R5			
			55.75	63.75							
L		L2	L4								
			60.50								
		L3									
		47.75	55.75								
		53.75	61.75								
I		B	C								
		50.75	56.75								
		55.25	61.25	67.25		77.25	83.25				
M		A2	A3	A4		A5	A6				
		C'Ph 6m(Amateur)	62 - 72 MHz					88 - 108 MHz			
		Misc II	OIRT FM					W. EUROPE FM			

BAND III CHANNEL ALLOCATIONS

		MHZ							
		175	200	210	225				
		175.25	182.25	189.25	196.25	203.25	210.25	217.25	224.25
B		E5	E6	E7	E8	E9	E10	E11	E12
		175.25	183.25	191.25	199.25	207.25	215.25	223.25	
D		R6	R7	R8	R9	R10	R11	R12	
		175.25	183.25	191.25	199.25	207.25	215.25	223.25	
I		D	E	F	G	H	I	J	
		176.00	184.00	192.00	200.00	208.00	216.00		
L		L5	L6	L7	L8	L9	L10		

The frequencies shown indicate the vision carrier. The sound carrier frequency is indicated by the number in parentheses following that particular system.



**SETTING THE D-100 FOR ZERO SOUND AND VISION SPACING**

When using the D-100 for the monitoring of OIRT FM Radio stations on the Eastern Block FM Radio Band within the frequency ranges of 66.32 - 72.50 MHz it is necessary to adjust the oscillator control for ZERO sound and vision spacing.

**Proceed as follows:**

Set the IF bandwidth switches to their narrow band positions, i.e., both switch's DOWN. Turn both the RF and IF gain controls fully clockwise. Set the oscillator switches to the "S" position {DOWN}. Tune into a TV sound channel carrier by observing the screen, It will be recognised as a blank raster found by tuning clockwise from the picture setting, It may be easier to tune into a semi weak to semi local transmission that way the carrier should be more easier recognisable. Rotate the OSC control until the sound channel is heard {the control will be almost fully anti-clockwise}. Tune into a picture. If you have set the oscillator control correctly, a buzz should be heard which will vary with picture content. The sound and vision circuits now coincide.

Remember. Maximum sound sensitivity is obtained with the RF gain control turned fully clockwise.

**SPECIAL NOTES.**

{A} Sometimes under certain types of propagation conditions such as Sporadic-E it will be found that this mode of reception will not support the sound being heard, especially on the Band I channels.

{B} since splits IF sound rather than intercarrier sound techniques are employed during conversion, a slight background hum may be unavoidable on some transmissions.

{C} The sound output has been set to the upper part of the VHF FM radio band. Should internal adjustments of the module be necessary to change its output frequency, access to the internal oscillator is obtained by parting the two halves of the D-100s case using a small coin or such like object, twisting into the sides as provided. When refitting make sure no wires get trapped.

The preset trimmer is located on the oscillator module situated behind the OSC control {see drawing} Adjust with care, ensuring that the range required from the shift is sufficient.

{D} A 400 mA quick blow fuse is fitted to the main power supply a replacement should be of the same type.

Transmissions.

Cordless Telephones	Set tuner to R1
OIRT FM Stations	R2 upwards.
Italian Radio Links	E2 to E4
E2 Sound	1a
E2a Sound {Austria}	E3
R1 Sound	Just above E3
1a Sound {Italy}	Just above R2
E3 Sound	Just above R2
R2 Sound	Just above E4
E4 and 1b	above E4



### BAND I/II and III OPERATION

Connect an appropriate aerial {antenna} to the coaxial input of the D-100 converter. Select the Band required by means of the 3 position switch. For BAND I and II set the switch to the #1 position, BAND II is an extension of BAND I.

Note that the MAIN VHF TUNING control is on the LEFT HAND SIDE the right hand control now functions as the VHF FINE TUNING CONTROL.

### FRENCH RECEPTION {Positive going video modulation}

Normally a TV receiver capable of resolving positive video is required, although the D-100 will pass such a signal.

The D-100 IS NOT intended for use as a TV standard converter.

In practice video inversion can take place within the D-100 but only on strong signals.

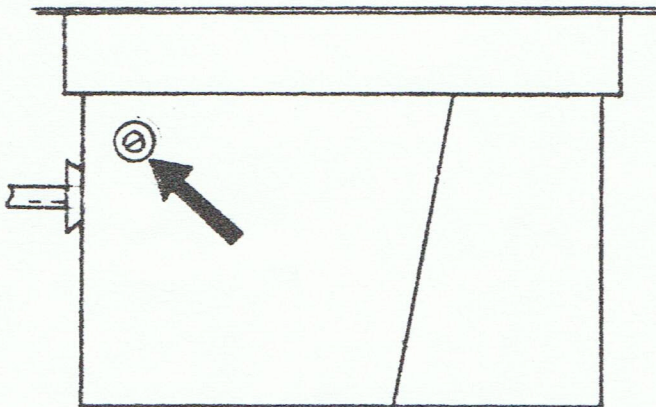
The TV receiver has to be tuned to the unmodulated raster side to resolve French video. Best results are obtained with both IF switch's DOWN.

Slight adjustment to the TV frequency and the IF GAIN control may be necessary to achieve optimum video inversion.

For operating convenience a second TV channel could be left just for French reception.

### MODULATOR OSCILLATOR ADJUSTMENT

Should patterning appear on local channels the oscillator setting may need to be adjusted?  
TO ADJUST.



1. Disconnect the D-100 from the mains.
2. Remove the lid, the case unclips by inserting a coin into the side slot.
3. See Fig 2, for locating oscillator adjustment. There is a small trimming capacitor located in the corner of the IF module deck.
4. Rotate the screw turning very slightly using a trimming tool or a small screw driver.
5. Reconnect the D-100 to the mains power.
6. Repeat tuning procedure {Steps 5.6.7 and 8}
7. Repeat oscillator adjustment if necessary.
8. Replace casing note which way round the two sections fit together take care not to trap any wires.

### GENERAL NOTES.

{A} A weak signal may be enhanced by selecting a narrower IF bandwidth. Use one or both of the IF BANDWIDTH switches as required.

Note. Slight retuning of the D-100 and the TV receiver may be necessary for optimum results when using narrow IF bandwidths.

{B} On strong signals it may be advisable to take advantage of the wide IF bandwidth settings for improved picture definition. Adjust the D-100 tuning and the TV accordingly for best results.



{C} With strong signals, on any IF bandwidth setting {and RF} gain controls may need to be turned anti-clockwise away from their maximum settings. These will decrease the gain of the system and reduce any overloading.

**REMEMBER TO RETURN THEM TO THEIR MAXIMUM POSITION FOR WEAK SIGNAL RECEPTION.**

{D} An improved display can be obtained by using a monochrome receiver.

**TROUBLE SHOOTING TECHNIQUES**

Should the D-100 not appear to function, please check the following?

The mains supply plug and its fuse by substitution is working.

An internal fuse is fitted internally to the D-100 should this be suspect replace it with a 400mA quick blow type, if the RED LED is lit, this confirms that the internal 12 volt rail and fuse is in line and working.

**NO RESULTS ON TV RECEIVER {NO SNOW EFFECT}**

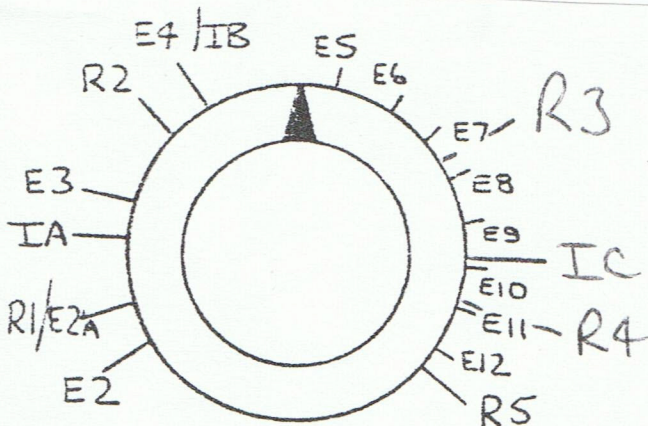
Ensure that the appropriate aerial {antenna} is in fact connected to the D-100 aerial socket; also ensure that the aerial is delivering a signal test by connecting it to your television directly.

Check that the RF GAIN controls have not been turned fully anti-clockwise on the D-100.

**VHF TUNING KNOB CALIBRATIONS.**

NOTE. The closer calibrations refer to BAND III

All markings correspond to reduced IF bandwidth settings.



SERIAL  
NUMBER  
DETAILS 09113

SET FOR 240 V