

BUSH 1433

General Information

Also Covers
Bush 1434, 1435, 1473 T, 1474 T, 1435 GTV
Alba CTV 3409, CTV 3459
Goodmans GTV 3409, GTV 3459
11 AK08 & 11AK20 Chassis

Safety Notes

DO NOT CHANGE ANY MODULE UNLESS THE SET IS SWITCH OFF.

The mains supply side of the switch mode power supply transformer is live. Use an isolating transformer. The receivers fulfill completely the sfety requirements.

Safety precautions

- Servicing of this TV should only be carried out by a qualified person.
- Components marked with the warning symbol on the circuit diagram are critical for safety and must only be replaced with an identical component.
 - Power resistor and fusable resistors must be mounted in an identical manner to the original component.
 - When servicing this TV, check that the EHT does not exceed 26 KV.

TV set switched off:

Make short-circuit between HV-CRT clip and CRT ground layer.
Short 0808 (150µF) before changing IC801 or other components in primary side of SMPS.

Measurements

Voltage readings and oscilloscope traces are measured under following conditions. Antenna Signal 60 dBuV from colorbar generator. (100% white, 75% color saturation)
Brightness, contrast, color set for a normal picture. Mains supply, 220V AC, 50 Hz.

Service Adjustments

The following preset adjustment procedures are not required during installation and should be made, if necessary, after servicing.

WARNING

EHT SHOCK HAZARD The EHT must be safely discharged before attempting to disconnect the EHT lead from the tube anode.
Clip one end of a convenient lead, such as a meter lead, to the tube earthing strap on the tube body, fold back the suction cap and discharge the EHT through the lead.
Press in one side of the spring clip which protects into the tube cavity to ease removal of the EHT connector.

IMPORTANT

Do not disturb the tube neck adjustments as these have been set for optimum performance during the tube manufacture.

Before attempting the following adjustments, the receiver should be tuned with the brightness, contrast and colour controls adjusted for the best picture and all measurements are to be made after a warm-up period of approximately 5 minutes, unless stated otherwise.

- 60 dBmV signal at any channel frequency
- Color bar pattern and 1 KHz sound signal
- Mains 220-240V AC, 50Hz

The adjustments should be carried out in the following order for convenience.

SMPS SYSTEM VOLTAGE

- 1) Set the BCS (Brightness, Contrast, Saturation) and VOL (Volume) to minimum.
- 2) Check the voltage at the shorted pins of socket PL602 (TP1)
- 3) If necessary, adjust VR801 $112 \pm 0.5V_{DC}$ (14" and 15 models)
- 4) Set the BCS and VOL to normal picture and sound

VISION DEMODULATOR AND AFC

- 1) Set the pattern generator for 10mV, 38.9 MHz (B/G models) or 39.5 MHz (for I models) or 38.0 MHz (for O/K models) RF output
- 2) Connect the RF output of the pattern generator to any one input of SAW filter and connect the other input of SAW filter to ground through 10 nF capacitor (No antenna input applied)
- 3) Check the voltage at the base of 0201 (TP2)
- 4) Adjust VL401 for 3.5 ± 0.1 Voc

2) PICTURE GEOMETRY AND FOCUS

- 1) Set the pattern generator for centre-cross, circle and cross-hatch composite pattern.
- 2) Adjust VR702 for vertical size, VR701 for vertical linearity, VR401 for horizontal centering and focus potentiometer (on EHT transformer) for optimum focusing.

TUNER AGC

- 1) Check the voltage at pin 1of TUNER (TP4)
- 2) Adjust VR402 for 1V less than maximum.

SCREEN VOLTAGE

- 1) Set the pattern generator for grey scale.
- 2) Set the BCS (Brightness, Contrast, Saturation) to minimum.
- 3) Measure cathode voltages on the CRT base board by using a 1/1000 probe.
- 4) Adjust screen pot of FBT for $175 \pm 2V$ reading on maximum cathode voltage.

CRT BASEBOARD:CUT-OFF VOLTAGES AND WHITE BALANCE

- 1) Set the pattern generator for grey scale.
- 2) Set the BCS (Brightness, Contrast, Saturation) to minimum.

SECAM L MODULE (L/L' AND B/G) OR (L/L' AND K1) (11SL02)

- 1) Set the pattern generator for the colour bar pattern at system PAL B/G and at frequency of 63.75MHz.
- 2) Tune the receiver for the best picture.
- 3) Switch pattern generator to system SECAM L and the receiver to SYS2 mode.
- 4) Connect the frequency counter to pin 13 of IC101.
- 5) Adjust VL101 for 72.3MHz reading and VR101 for no interference on the screen.

MAIN PCB FAULT FINDING GUIDE

AT FIRST CHECK ALL THE SUPPLY VOLTAGES, THEN CHECK FOLLOWING RELEVANT POINTS FOR TROUBLE SHOOTING. TROUBLES SHOULD BE THE SAME AT ALL CHANNELS.

TROUBLE	CHECK POINTS
NO PICTURE, NO SOUND	TUNER VOLTAGES, INPUT/OUTPUT SIGNALS OK Q401, 1C401
NO PICTURE, SOUND OK	INT CVBS IN, IC401, SCREEN VOLTAGE
NO COLOUR	IC401, IC402, IC403, X401
NO VERTICAL DEFLECTION	26V, R711., PL701, IC701
VERTICAL LINEARITY	C705, VR701
VERTICAL SIZE	R704, VR702
VERTICAL SHIFT	VR703
VERTICAL FOLD	26V, R711
HORIZONTAL LINEARITY	L601, C606
HORIZONTAL SIZE	C603, SYSTEM VOLTAGE (112V)
HORIZONTAL FOLD	SYSTEM VOLTAGE (112V)
FLUE PICTURE	TR602, G3 (FOCUS), EHT, FLAMENT VOLTAGE
DARK PICTURE	TR602 G2 (FOCUS), BRIGNES, CONTRAST VOLTAGE
NOISY PICTURE	AGC VOLTAGE, RF SIGNAL
VERTICAL/HORIZONTAL SYNC.	IC401
INTERFERENCE	TUNER (TU201)
NO SOUND	R303, IC401. (PIN5), IC301
LOW SOUND	IC401 (PIN5, SOUND CONTROL VOLTAGE), R303, IC301
SOUND DISTORTION	R303, IC301., 26V
POP NOISE	Q301, C307
CONTRAST	IC401 (PIN25)
BRIGHTNESS	IC401 (PIN17)
COLOUR	IC401 (PIN26)
AUTO TUNING	Q501
MEMORY	IC502
BAND SELECT	IC503
NO VIDEO AT SCART	SET AV MODE, CHECK IC401 (PIN5), (PIN6)
NO SOUND AT SCART	IC401 (PIN6)
MISSING CHARACTER AT TELETXT	SIGNAL AT PIN8 OF IC101
REMOTE CONTROL	BATTERY, IR DIODE, CURRENT PATH OF IR DIODE

CPU & Adjustments

uC (MICROCONTROLLER):

The microcontroller hardware that is member of the ST6 family has a TV receiver control software with menu control. It controls the chassis through IIC bus, PWM outputs and I/O ports. Dominant features of controller are control of optional teletext, outputs for OSD, IR control signal receiving, and internal EEPROM.
The controller has IIC communication port at #40 , #41 and OSD driver (R,G,B,FBI) at # 22, # 23, # 24, # 25. PWM control outputs are tuning # 34; vertical linearity adjustment # 1; AGC adjustment # 2. Other control outputs are Muting - video ident # 3; led driver # 4; system switches # 5, # 6, # 8, # 19, # 20, # 36; tuner switches # 18, # 19 and inputs are AFC information from IF #9; keyboard # 10, # 11, # 13, # 14; scart mode ident (4/3-16-9) #38, #39; horizontal sync # 26; vertical # 27; infrared #35 and reset # 33.

The uC starts system according to option diodes configuration (D501, D503, D505, D506, D508).
The controller has also a software which is able to control some service adjustments: R, G, B gain; R, G cut off; vertical position; vertical linearity; horizontal position; vertical amplitude; AGC; language selection for teletext.
For enter to service mode followed procedure must be act within four seconds:

- 1 - Press volume down button on the keyboard;
- 2 - Press 'prog' button on the R/C hand set;
- 3 - Press '- -' button on the R/C hand set;
- 4 - Press "TV" button on the R/C hand set;

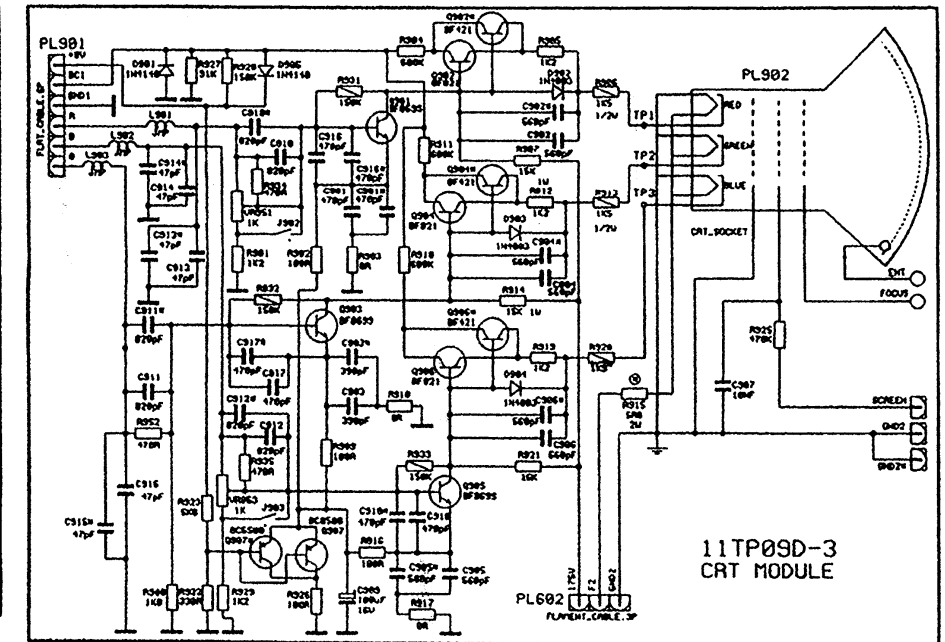
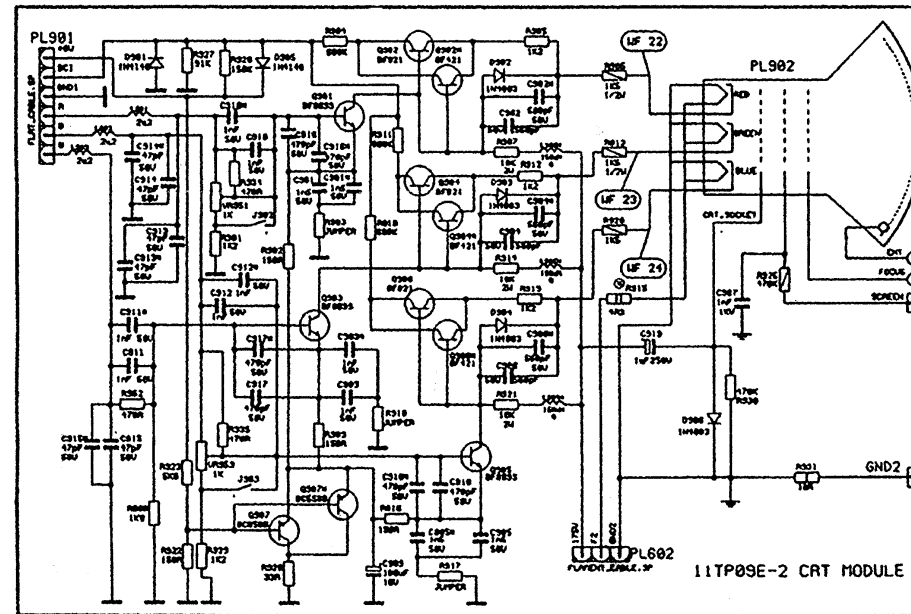
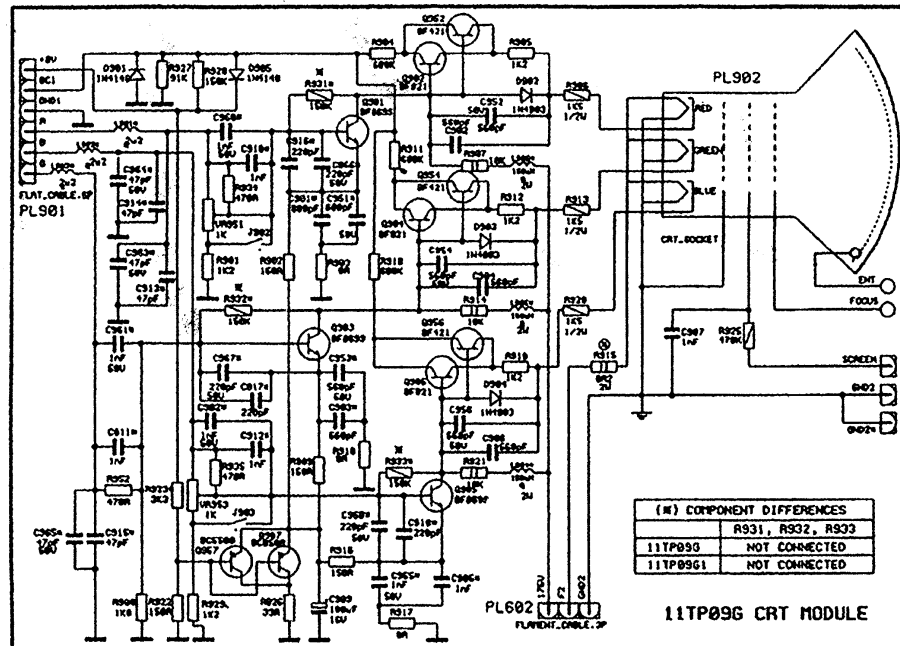
Parameters can be selected by program up and down, parameter adjustments can be done by volume up and down buttons. Memorizing the adjusted parameters can be done by pressing red button. For exit from service mode Press "TV " button.

CRT Differences

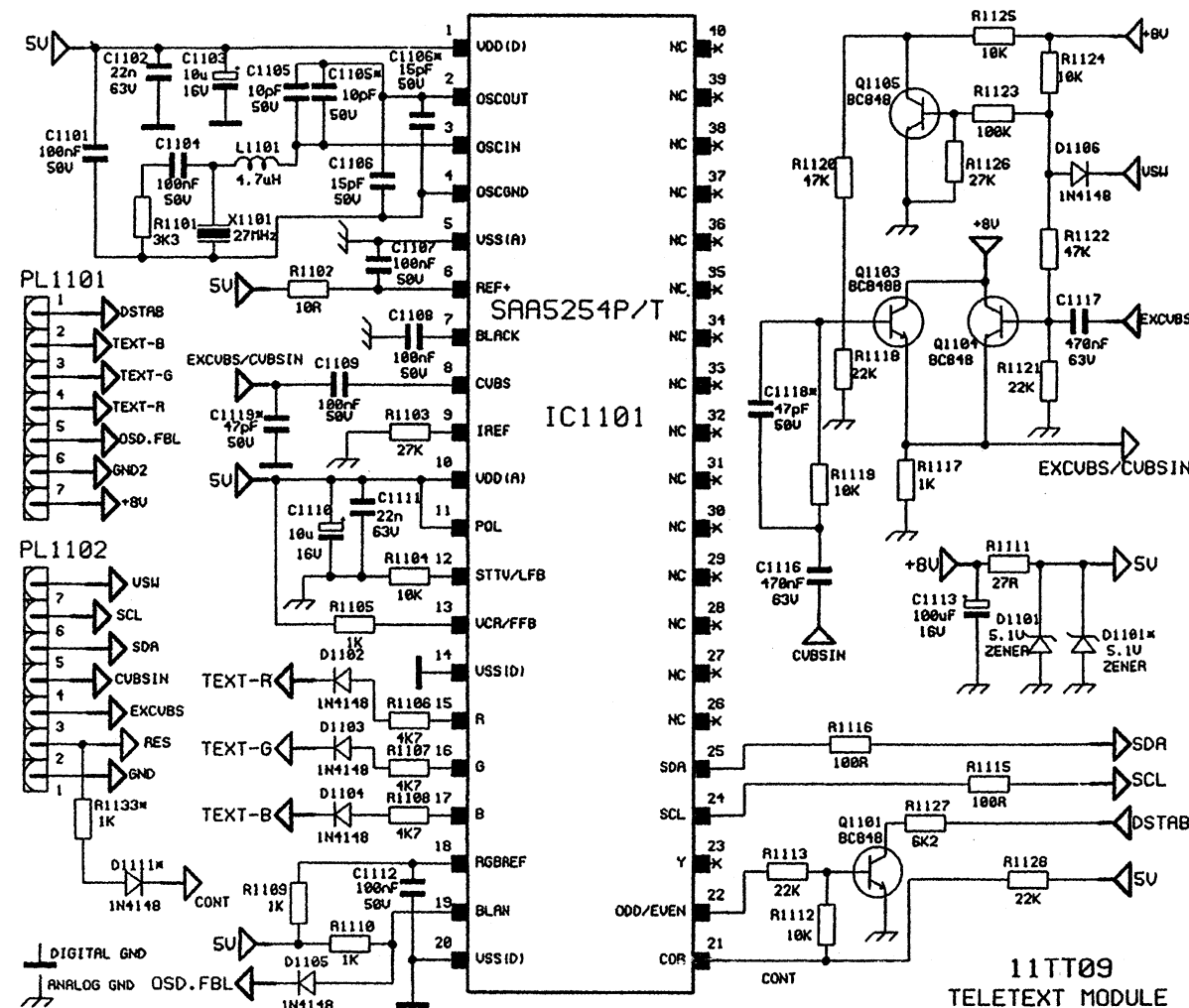
Item	Part No.	Description
11TP09D-2 CRT MODULE COMPONENT USED FOR 14-15" CRT MODELS		
PL902	3862021300	SOCKET CRT (MINI NECK)
COMPONENT DIFFERENCES DEPENDING ON CRT TYPES		
COMPONENTS USED WITH 14" PHILIPS A34EAC01X06 CRTS		
C603	3036227078	CAP MKP 6.2NF 1.6KV 3.5%
C606	3033344038	CAP MKP 330NF 400V J
C615	3051010832	SER 100PF 50V J
R456	3311620437	RES CF 1.6K 0W25 J
R717	3311020437	RES CF 1K 0W25 J
L601	4091411110	LINEARTY COIL 224L/150uH
	4013150017	LOSS COIL 150uH
COMPONENT USED WITH 14" ORION A34JLL90X23 (W) CRTS		
C603	3032827078	CAP MKP 7.8NF 1.6KV 3.5%
C606	3033344038	CAP MKP 430NF 400V J
C615	3054700836	CAP SER 47PF 50V J
R456	3311220437	RES CF 1K2 0W25 J
R717	3311020437	RES CF 1K 0W25 J
L601	4091411110	LINEARITE COIL 224/50uH
COMPONENT USED WITH 14" GOLDSTAR A34KPU02XX46 CRTS		
C603	3037527038	CAP MKP 7.5NF 1.6KV 3.5%
C606	3034341538	CAP MKP 430NF 250V J
C615	3051010832	CAP SER 100PF 50V J
R456	3311220437	RES CF 1K2 0W25 J
R717	3311020437	RES CF 1K 0W25 J
L601	4090109000	LINEARTY COIL 50uH
COMPONENT USED WITH 15" ORION A36JSW90X01 CRTS		
C603	3036227038	CAP MKP 6.2NF 1.6KV 3.5%
C606	3033344038	CAP EL 330NF 400V J
C615	3051010832	CAP SER 100PF 50V J
R456	3311620437	RES CF 1.6K 0W25 J
R717	3315610437	RES CF 560R 0W25 J
L601	4091611100	LINEARITE COIL 15" LIN
11TP09G CRT MODULE COMPONENT USED FOR 14" CRT MODEL		
PL902	3862021010	SOCKET CRT (NARROW NECK)
COMPONENT USED WITH 14" CAIHONG 37SX110Y22-DC05 CRTS		
C603	3038227038	CAP MKP 8.2NF 1.6KV 3.5%
C606	3033344038	CAP EL 330NF 400V J
C615	3054700836	CAP SER 47PF 50V J
C901	3056810030	CAP SMD 680PF 50V J
C903	3055610030	CAP SMD 560PF 50V J
C905	3051020030	CAP SMD 1NF 50V J
C910	3051020030	CAP SMD 1NF 50V J
C911	3051020030	CAP SMD 1NF 50V J
C912	3051020030	CAP SMD 1NF 50V J
C913		NOT CONNECTED
C914		NOT CONNECTED
C915		NOT CONNECTED
C916	3052210030	CAP SMD 220PF 50V J
C917	3052210030	CAP SMD 220PF 50V J
C918	3052210030	CAP SMD 220PF 50V J
R456	3311220437	RES CF 1.2K 0W25 J
R717		RES CF 1K 0W25 J
R902	3311510830	RES SMD 150R 1/8W J
R909	3311510830	RES SMD 150R 1/8W J
R916	3311510830	RES SMD 150R 1/8W J
R907	3351032137	RES MO 10K 2W J
R914	3351032137	RES MO 10K 2W J
R915	3353993137	RES MO 3.9R 3W J
R921	3351032137	RES MO 10K 2W J
R922	3311510830	RES SMD 150R 1/8W J
R923	3313320830	RES SMD 3K3 1/8W J
R926	3313300830	RES SMD 33R 1/8W J
R931		NOT CONNECTED
R932		NOT CONNECTED
R933		NOT CONNECTED
L601	4090109000	LINEARITE COIL 224/50UH
	4031001905	LOW FOCUS FBT

BUSH 1433

CRT Module Diagrams



Text Module Diagram



CRT Differences Tables

(*) COMPONENT DIFFERENCES DEPENDING ON SYSTEM								
SYSTEM	Z201	Z403	Z404 LT403	LT402	L405	S401	G102, G103, G104, R104, R105, R106 R107, R108, R112, R128, R129	S109, S402, S403, S404 S405, S406, S407
PAL B/G	OPN J 1953	SFE 6.0	N.C	T5.5	JUMPER	CON.	NOT CONNECTED	CONNECTED
PAL I	OPN J 1953	SFE 6.0	N.C	T6.0	JUMPER	CON.	NOT CONNECTED	CONNECTED
PAL SECAM B/G	OPN K 2954	SFE 6.0	N.C	T5.5	JUMPER	N.C	NOT CONNECTED	NOT CONNECTED
SECAM D/K	OPN K 2954	SFE 6.0	N.C	T6.5	JUMPER	N.C	NOT CONNECTED	NOT CONNECTED
PAL-SECAM B/G, D/K	OPN K 2954	SFE 5.5	SFE6.5 T6.5	T5.5	COIL 6.5uH	N.C	NOT CONNECTED	NOT CONNECTED
PAL-SECAM B/G-L/L	OPN K 1903	SFE 6.5	N.C	T5.5	JUMPER	N.C	CONNECTED	NOT CONNECTED
SECAM L/L *-K1	OPN K 2950	SFE 6.0	N.C	T6.5	JUMPER	N.C	CONNECTED	NOT CONNECTED

(N) FOR MODELS WITH SECAM L A 1UF 16V CAPACITOR WILL BE CONNECTED IN PARALLEL WITH R1044.

(*) COMPONENT DIFFERENCES DEPENDING ON CRT												
CRT TYPE	CODE	C603 1600V/nF	C606 250V J	KR45E 1/4W J	R177 1/4W J	C615 500V	50A 50V	S113 LINK	S114 LINK	L601 L.COIL	LOSS COIL	
PHILIPS	A34EAC1x05	6.2nF	-	1K6	1K	100pF	LINK	-	LINK	*224L/500uH	150uH	
ORION	A34.LK9x23	7.8nF	-	1K2	1K	47pF	LINK	-	LINK	*224L/500uH	-	
GOLDSTAR	A34KPU02x46	7.5nF	430nF	1K2	1K	100pF	LINK	-	LINK	500uH	-	
CAIHONG	37SXL110Y22-OC05	8.2nF	230pF 400V	1K2	560R	47pF	-	LINK	224L	-	-	
ORION	A51EBV13x01	8.2nF	320pF 400V	1K6	560R	100pF	LINK	-	LINK	15' L.JN	-	

TEXT	J412, J418, J433, J436, J493, J549, J551	SVHS	0104, 0401, 0407, C465 R457, R457, R460
WITH TEXT	CONNECTED	WITH SVHS	CONNECTED
WITHOUT TEXT	NOT CONNECTED	WITHOUT SVHS	NOT CONNECTED

(*) COMPONENT DIFFERENCES DEPENDING ON FEATURES						
AVAILABLE BANDS	TU201	S101 S107	D102 D103	C503, C204, C205, C208, C209, C510 R522, R523, R524, D503, D504		
VHF I-III / UHF	2000 KHC	N.C.	N.C.		CONNECTED	
ONLY UHF	TFK 3011	CON.	N.C.		NOT CONNECTED	
VHF I-III-HYPER/UHF	2000 KHC	N.C.	CON.		CONNECTED	

(*) COMPONENT DIFFERENCES DEPENDING ON FTZ		OTHERS	
	WITH FTZ	WITHOUT FTZ	
Z201	0Fw G 1963	0Fw G 1963	C426, C452, C815 C415, D805, P4 50V
C309	SE 580pF L SL	NOT CONNECTED	R2525, R527, R528 R206, R207, R208
C413	SE B20pF 50V K8	NOT CONNECTED	R529, R530
C432	SE B20pF 50V KB	NOT CONNECTED	NOT CONNECTED
C439, C449	SE 220pF L SL	NOT CONNECTED	JUMPER
C457, C458, C459	SE 47pF 50V J SL	NOT CONNECTED	
C491	SE 100nF 50V Z F	NOT CONNECTED	
C801, C802	MKT 100nF 250V AC	MKT 150nF 250V AC	
J443	FIXED COIL 2.2uH	JUMPER	
J444, J445, J446	CF 560R 1/4W J	JUMPER	
L201	FIXED COIL 1uH	NOT CONNECTED	
L403	FIXED COIL 2.2uH	JUMPER	
R418, R419, R420	CF 270R 1/4W J	CF 100R 1/4W J	
R433, R434	CF 1K 1/4W J	JUMPER	
R490	CF 1K 1/4W J	JUMPER	

11AK08		
	TDA362A N1	TDA362A N2
R510	15K	12K
R511	120K	27K
R517	22K	18K
R513	270K	470K
R518	27K	47K
R436	47K	8K2

