

**AF Unit (X49-1140-00)**

Con- nector No.	Termi- nal No.	Termi- nal	Remarks	Destination				
				Unit/switch	Con- nector No.	Termi- nal No.	Termi- nal	
①	1	GND	Detector input Bias voltage for SSB	IF unit IF unit	① ③	1	DET SSB	
	2	DET						
	3	SSB						
	4	GND	VOX input Noise blanker input	IF unit IF unit Rectifier unit	③ ②	3 1	VXI NBI STB	
	5	VXI						
	6	NBI STB						
②	1	AV2	Arm of AF gain control	AF gain control				
	2	GND	Top of AF gain control	AF gain control				
	3	AV1						
	4	GND	To ground in CW and CW NAR To ground in Tune. USB and LSB	MODE SW S18-6			STE	
	5	STE						
	6	KEY						MODE SW S18-6
③	1	SP	Speaker internal	REMOTE socket		1	SP	
	2	GND	Side tone SW	KEY Jack		7	STS	
	3	STS						
④	1	SS	Stand by SW VOX switch to ground VOX on	REMOTE socket VOX SW			3	SS
	2	VXS						
	3	VXD	VOX delay control VOX gain control	VOX delay control VOX gain control				
	4	VXG						
	5	GND	Speaker output	Phone jack			2	
	6	SP						
⑤	1	VR3	Final bias control	Bias control KEY jack			3	VR3
	2	KEY	Key jack					
	3	VR1	Final bias control	Anti VOX control Stand by SW S17 IF unit	⑩		3	SS RL
	4	AV	Anti VOX arm					
	5	SS	Stand by SW	EXT VFO socket			3	9
	6	RL	Relay Voltage + 12.3V on TX + 9V					
	7	9						
⑥	1	RB1	Bias for Q1 RF amp on RF unit	RF unit	⑧	2	RB1	
	2	GND	From Q18 on AF unit bias to MIXer	RF unit			3	MXB
	3	MXB						
	4	TOF	TX stop signal for WARC	RF unit	⑥	1	TOF	
	5	DRB	Bias for control grid V1	RF unit	⑧	1	DRB	
⑦	1	XIT	Transmitter incremental tuning	XIT SW S2-1				XIT
	2	TM	Meter select switch S13 arm	Meter SW S13				TM
	3	RLT	Relay + 9V on TX	MODE SW S18-3 RIT SW S3-1 MODE SW S18-5 Meter				RLT RSC RLR
	4	RSC	Receiver RIT ON					
	5	RLR	Relay + 9V on RX	RIT SW S3-1 VFO unit				RTI RIT
	6	M	Meter voltage					
	7	-6	Bias voltage - 6V					
	8	RTI	RIT SW					
	9	RIT	RIT to VFO					
		FG	Bias for control grid Final	Final unit				FG
⑧	1	XAL	Transmitter ALC	X VTER socket		6	XAL	
	2	RAL	ALC input remote socket	REMOTE socket		6	RAL	
	3	VR2	Arm of TX bias control	Bias control				
⑨	1	NBV	Top of noise blanker VR	NB control NB SW S16				
	2	NBS	Noise blanker SW + 9V					
	3	9	+ 9V in USB/LSB	MODE SW S18-4 RF gain control				SSB
	4	SSB						
	5	RF1	Top of RF gain control					
⑩	1	NSG	Noise blanker gate signal	IF unit	②	4	NSG	
	2	GND	ALC voltage from Q19 on AF unit	IF unit			3	ALC
	3	ALC						
	4	RB2	Receiver bias for IF unit	IF unit	⑨	5	RB2	
	5	TB	TX bias	IF unit	⑤	1	TB	
	6	SM	S meter signal	IF unit	⑨	2	SM	
	7	RS	Ground on RX	IF unit	⑤	2	RS	

**IF unit (X48-1290-00)**

①	1	IFO1		IF OUT 1 jack			IFO1
	2	G					
②	1	NBI	Noise blanker input	AF unit	①	6	NBI
	2	G	Noise blanker gate signal	AF unit	⑩	1	NSG
	3	G					
	4	NSG					
③	1	-6	-6V	Processor SW S15-1 VR9-2			PRO COT
	2	PRO	Processor SW				
	3	COT	Arm of VR9-2 processor gain control	Meter SW S13			COM
	4	COM	Compression meter signal				

# TS-830S SCHEMATIC ABBREVIATION

Con- nector No.	Termi- nal No	Termi- nal	Remarks	Destination								
				Unit/switch	Con- nector No.	Termi- nal No.	Termi- nal					
④	1	RLT	ALC meter DC signal +9V	MODE SW S18-3 MODE SW S18-5 Meter SW S13			RLT SSB1 ALM					
	2	SSB1										
	3	ALM										
	4	9										
⑤	1	TB	Transmit bias Ground on TX ALC input from AF unit Q19	AF unit AF unit AF unit	⑩ ⑩ ⑩	5 7 3	TB RS ALC					
	2	RS										
	3	ALC										
		CW1		MODE SW S 18-5			CW1					
⑥	1	12	+ 12V									
	2	G										
	3	TIF						TX IF output	RF unit	⑦	2	TIF
	4	G										
	5	G										
	6	RIF						RX IF input	RF unit	⑤	2	RIF
⑦	1	MIC	MIC input	MIC jack								
	2	G										
	3	G										
	4	MV1						Top of MIC gain control	MIC gain control VR9-1			
	5	MV2						Arm of MIC gain control	PRO SW S15-2			
	6	G										
⑧	1	CV	Arm of carrier control Arm of RF gain control AGC SW slow AGC OFF Notch frequency control voltage	CAR control VR9-3  RF gain control VR3-1  AGC SW S11-2 AGC SW S11-1 Notch SW S1-1			CV  RFG  AGS AGO NCH					
	2	RFG										
	3	AGS										
	4	AGO										
	5	NCH										
⑨	1	SSB	Bias voltage for SSB Smeter DC signal To VOX circuit	AF unit AF unit AF unit	① ⑩ ①	3 6 5	SSB SM VXI					
	2	SM										
	3	VXI										
	4	G										
	5	RB2						RX bias	AF unit	⑩	4	RB2
⑩	1	IFO2	IF output for monitor	IF OUT 2 jack			IFO2					
	2	G										
	3	RL						TX bias for Q22 on IF unit from relay drive voltage				
⑪	1	DET	Detector output	AF unit	①	2	DET					
	2	G										
	3	CAR1										
	4	CAR2										
⑫	1	MX	Monitor ON SW Monitor signal ground Monitor signal output Arm of VR1-1	Monitor SW S5  AF gain control VR3-2 VBT control VR1-1			MO VBT					
	2	MOE										
	3	MO										
	4	VBT										
⑬	1	CAR	CAR input	PLL unit	⑦	2	CAR					
	2	G										
⑭	1	210A	210 B +	Rectifier unit			210A					
	2	G										
	3	210B						210 B +	Rectifier unit			
	4	300B						300 B +	Rectifier unit			
⑮	1	300A	300 B +	RF unit	⑦	4	300A					
	2	G										
	3	AGC						Output for AGC	RF unit	⑤	1	AGC

## PLL Unit (X50-1680-00)

①				Counter unit	③			
②				Counter unit	②			
③				Counter unit	②			
④	1	G	Marker output	RF unit RF unit	④ ④	1 2	G MKR	
	2	MKR						
⑤	1	G	VFO input	VFO unit VFO unit		4 5	GND VFO	
	2	VFO						
		VCO	VCO output	RF unit			VCO	
⑥	1	VFO	EXT VFO Socket	EXT. VFO socket  EXT VFO Socket		1  4	VFO  TXC	
	2	G						
	3	TXC						
⑦	1	G	Carrier output	IF unit		⑬	1	CAR
	2	CAR						
⑧	1	9	+9V Relay +9V on RX Calibrator SW S10 +9V on LSB mode +9V on TUN ~ USB Arm of VR2-2 IF shift control MODE SW S18-3 For FIX indicator MODE SW S18-3	CAL SW S10 MODE SW S18-1 MODE SW S18-1 IF SHIFT VR2-2  MODE SW S18-3 FIX IND. D2 MODE SW S18-3			LSB USB IFS  TXC  RLS	
	2	RLR						
	3	MS						
	4	LSB						
	5	USB						
	6	IFS						
	7	TXC						
	8	FXB						
	9	RLS						

### Counter Unit (X54-1540-00)

Con- nector No	Termi- nal No	Termi- nal	Remarks	Destination			
				Unit/switch	Con- nector No.	Termi- nal No.	Termi- nal
①	1 2 3	DH 0.5 12	Display hold 0.5 MHz shift + 12V	DH SW S12 EXT VFO socket		6	0.5
②				PLL unit	②		
③				PLL unit	①		
④				RF unit	①		
⑤	1	28	To +0.5 SW S7-1	RF unit	②	1	28
	2	28.5					
	3	29	To +0.5 SW S7-2	RF unit	②	2	29
	4	29.5					

### VFO Unit (X40-1170-00)

	1	RLC	From MODE SW S18-5	MODE SW S18-5			
	2	RIT	RIT Voltage input	AF unit	⑦	9	RLC
	3	VFB	VFO B + 9V	FIX SW S4			RIT
	4	GND					VFB
	5	VFO	VFO output	PLL unit	⑤	2	VFO

### FINAL Unit (X56-1380-00)

		FG	Control grid bias	AF unit			FG
		H	Heater voltage AC 12.3V				
		SG	Screen grid voltage	Rectifier unit			PD2
		IPM	IP meter voltage	Meter SW S13			
		DRV	Drive input	RF unit			DRV

### RF unit (X44-1360-00)

①				Counter unit	④		
②	1	28	To +0.5 SW S7-1	+0.5 SW S7-1			
	2	29	To +0.5 SW S7-2	+0.5 SW S7-2			
	3	9V	+9V				
③	1	RLR	+9V on RX	RLR Line			
	2	G					
	3	ANT	Receiver antenna input	RF ATT SW S6-1			
④	1	G		PLL unit	④	2	MKR
	2	MKR	Marker input				
⑤	1	AGC	AGC voltage	IF unit	⑬	3	AGC
	2	RIF	RX IF output	IF unit	⑥	6	RIF
	3	G					
⑥	1	TOF	TX turn off signal	AF unit	⑥	4	TOF
	2	12	+12V				
	3	MXB	Bias for TX MIXer	AF unit	⑥	3	MXB
⑦	1	12	+12V				
	2	TIF	TX IF input	IF unit	⑥	3	TIF
	3	G					
	4	300A	300 B +	IF unit	⑬	1	300A
⑧	1	DRB	Control grid bias for V1	AF unit	⑥	5	DRB
	2	RB1	Bias for Q1 RF amp	AF unit	⑥	1	RB1
⑨	1	H	Heater voltage AC 12.3V				
	2	210A	210 B +				
⑩	1	G					
	2	UV	Transverter output	X. VTER socket		7	UV
		NC	Neutralization	Final tank circuit			
		DRV	Drive output	Final unit			DRV
		VCO	VCO input	PLL unit			VCO
		NFB	Negative feed back	Final tank circuit			

### Rectifier unit (X43-1370-00)

		HV	High voltage signal to METER	METER SW S13			HV
		800	800 B +				
		300B	300 B +				
		210B	210 B +				
		210A	210 B +				
		STB	Side tone voltage	AF unit			STB
		-C	Common B -				
		SG2	Approx. -100V				
		TUN	Screen grid voltage	MODE SW S18-2			SG2
			Screen grid low voltage for TUN	MODE SW S18-2			TUN
		12	+12V				
		SGS	To SG SW	SG SW S20			SGS
		SG1	To MODE SW	MODE SW S18-2			SG1
		PD2	Screen grid voltage	Final unit			SG
		PD1					