

APPENDIX 3
FUNCTION OF DEVICES
NR-150

FOUR (4) PAGES OF FUNCTIONAL DEVICE DESCRIPTIONS
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FUNCTIONAL DESCRIPTION OF ACTIVE COMPONENTS

Ref.	Part Number	Description of Parts	Functional Description of Parts
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D001	DDE2-1K60	RF Diode (1N60)	RF Detector for Noise Blanker circuit
D002	DDE2-1K60	RF Diode (1N60)	RF Detector for Noise Blanker circuit
D003	DDE1N4148	Switch Diode (1N4148)	Switching Diode for NB noise shunting transistor TR7
D004	DDE1N4148	Switch Diode (1N4148)	Switching Diode - disable AM IF in SSB Mode
D005	DDE1N4148	Switch Diode (1N4148)	Switching Diode - disable 2nd Mixer in SSB Mode
D006	DDE1N4148	Switch Diode (1N4148)	Switching Diode - disable 2nd Mixer in TX mode
D007	DDE1N4148	Switch Diode (1N4148)	Switching Diode - voltage gating - Rx AGC
D008	DDE1N4148	Switch Diode (1N4148)	Switching Diode - SSB AGC attack time control
D009	DDE1N4148	Switch Diode (1N4148)	Switching Diode - AM AGC attack time control
D010	DDE2-1K60	RF Diode (1N60)	IF Level Detector - for Rx Signal Meter and AGC
D011	DDE2-1K60	RF Diode (1N60)	IF Level Detector - for Rx Signal Meter and AGC
D012	DDE1N4148	Switch Diode (1N4148)	Switching Diode - voltage gating for Signal Meter signal
D013	DDE1N4148	Switch Diode (1N4148)	Switching Diode - voltage gating
D014	DDE1N4148	Switch Diode (1N4148)	Switching Diode - voltage gating
D015	DDEMI301	Pin Diode	Protect Receiver Front end from excessive signal
D016	DDEMI301	Pin Diode	Protect Receiver Front end from transmitter signal
D017	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Enable SSB IF path in SSB Mode
D018	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Provide 10.695MHz signal to TX mixer in AM Tx Mode
D019	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Provide 10.695MHz signal to FL3 in AM Tx Mode
D020	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable AM receiving path in Tx Mode
D021	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable SSB receiving path in Tx Mode
D022	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable SSB IF amplifiers in Tx Mode
D123	DDE1N4148	Switch Diode (1N4148)	Switching Diode PLL VCO circuit
D023	DDE2-1K60	RF Diode (1N60)	AM Demodulator
D024	DDE2-1K60	RF Diode (1N60)	AM Demodulator
D025	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Enable SSB IF circuit in SSB Mode
D026	DDE1N4148	Switch Diode (1N4148)	ANL circuit
D027	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Mute SSB Carrier re-insertion in AM Mode
D028	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Mute Rx audio in Tx Mode
D029	DDE1N4007	Power Diode	Voltage Clamping
D030	DDESVC251	VC Diode	PLL VCO
D033	DDE1N4148	Switch Diode (1N4148)	Switching Diode PLL VCO circuit
D034	DDE1N4148	Switch Diode (1N4148)	Switching Diode - LSB mode
D035	DDE1N4148	Switch Diode (1N4148)	Switching Diode - USB mode
D036	DDE1N4148	Switch Diode (1N4148)	Switching Diode - AM mode
D038	DDE1N4148	Switch Diode (1N4148)	Switching Diode - voltage gating
D039	DDE1N4148	Switch Diode (1N4148)	Voltage Clamping
D040	DDE1N4148	Switch Diode (1N4148)	Switching Diode - enable 2nd offset oscillator in SSB Mode
D057	DDE1N4148	Switch Diode (1N4148)	Switching Diode - AM mode

Ref.	Part Number	Description of Parts	Functional Description of Parts
D058	DDE1N4148	Switch Diode (1N4148)	Switching Diode - USB mode
D059	DDE1N4148	Switch Diode (1N4148)	Switching Diode - disable SSB power control TR47 in AM mode
D060	DDE1N4148	Switch Diode (1N4148)	Switching Diode - LSB mode
D061	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Mute Squelch when PLL is out of lock
D062	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable balanced mixer output in Rx Mode
D063	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable balanced mixer input in AM Mode
D065	DDE1N4148	Switch Diode (1N4148)	Voltage Clamping
D066	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable PTT when PLL is out of lock
D067	DDE1N4148	Switch Diode (1N4148)	Audio Detector for automatic mic audio level control
D068	DDE1N4148	Switch Diode (1N4148)	Audio Detector for automatic mic audio level control
D069	DDE1N4148	Switch Diode (1N4148)	Audio Detector for automatic mic audio level control
D070	DDE1N4148	Switch Diode (1N4148)	Switching Diode - ALC operation
D071	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Mute Mic audio during receive mode
D074	DDE1N4148	Switch Diode (1N4148)	Switching Diode - AM mode
D076	DDE-C5V1G	Zener 5.1v $\pm$ 2% On S505	Voltage offset for Rx active voltage switch TR36/TR38
D077	DDEMA29TA	VR Diode (KB362)	Switching Diode for Tx active voltage switch TR38
D078	DDE-C7V5G	Zener 7.5V $\pm$ 2%	Reference voltage source for 8V voltage regulator TR40/TR41
D079	DDEMA29WA	VR Diode (KB262)	Bias Diode for 8V voltage regulator TR40/TR41
D080	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Mute AF Power amplifier in Tx Mode
D081	DDE1N4148	Switch Diode (1N4148)	Switching Diode - PTT keying control
D082	DDE1N4148	Switch Diode (1N4148)	Switching Diode - PTT keying control
D083	DDE2-1K60	RF Diode (1N60)	Audio Detector for ALC operation
D084	DDE1N4148	Switch Diode (1N4148)	Switching Diode - SSB mode
D086	DDE1N4148	Switch Diode (1N4148)	Transmit level detector for TX Power meter
D087	DDE1N4148	Switch Diode (1N4148)	Transmit level detector for TX Power meter
D088	DDEMA29A	VR Diode (MV1Y)	RF Power Transistor bias protection temperature sensor
D089	DDEMA29A	VR Diode (MV1Y)	RF Power Transistor bias protection temperature sensor
D090	DDE1N4148	Switch Diode (1N4148)	Voltage Clamping
D091	DDE1N4148	Switch Diode (1N4148)	Voltage Clamping
D092	DDE1N4148	Switch Diode (1N4148)	Bias Control for TR53
D093	DDE1N4004	Power Diode	Secondary Power Supply polarity reversal protection
D094	DDE1N4148	Switch Diode (1N4148)	Switching Diode - enable 2nd offset oscillator in TX Mode
D094a	DDESVC251	VC Diode	PLL VCO
D097	DDE1N4148	Switch Diode (1N4148)	Switching Diode - PA Operation
D113	DDE1N4148	Switch Diode (1N4148)	Switching Diode - Disable Rx audio during PA operation
D114	DDE1N4148	Switch Diode (1N4148)	Voltage Clamping
D116	DDE-C7V5G	Zener 7.5V $\pm$ 2%	Voltage regulator for PA circuit
D124	DDESVC251	VC Diode	PLL offset frequency oscillator - Clarifier frequency control
D125	DDE1N4148	Switch Diode (1N4148)	Switching Diode - disable AM IF in SSB or TX Mode
D309	LED-R-0021RGM	LED DIA.3mm Red/Green	Tx/Rx Indicator
D401	DDE2-1K60	RF Diode (1N60)	SWR signal detector

Ref.	Part Number	Description of Parts	Functional Description of Parts
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D402	DDE2-1K60	RF Diode (1N60)	SWR signal detector
D501	DDE6A05	Diode 6A/50V On DC Socket	Primary Power Supply polarity reversal protection
D701	DDE1N4148	Switch Diode (1N4148)	Clock Input Switch for IC706
FL001	FLRB00M455A5	Ceramic Filter 455KHz	AM Second IF Filter
FL002	FLRB10M700A1A	Ceramic Filter 10.7MHz	AM First IF Filter
FL003	FLRA10M695A3	Crystal Filter 10.695MHz	SSB IF filter, SSB Tx frequency filter
IC001	ICT324N	LM324N	Amplifier for : Signal Meter, Squelch Control, Receiver AGC
IC003	ICT612	AN612	Balanced Modulator for SSB operation
IC004	ICT4558D	NJM4558D	Amplifier for : Microphone Audio, PTT control
IC707	ICT145106P	MC145106P	PLL Synthesizer IC
IC008	ICT7222AP	TA7222AP	4W Audio Power Amplifier IC
IC009	ICT6130-5	TDA6130-5	RF Mixer IC for Tx frequency generation
IC010	ICT7310P	TA7310P	RF Mixer with buffer amplifier for PLL offset frequency generation
IC701	ICPZ0408	Z86E0408P	CPU For Channel Switch
IC702	ICT93LC46P-A	HT93LC46	EEPROM for CPU
IC703	ICT7805	LM7805	5V DC Regulator IC
IC704	ICT74LS164N	SN74LS164N	Channel display LED Latch Driver
IC705	ICT74LS164N	SN74LS164N	Channel display LED Latch Driver
IC706	ICT74HC164	TC74HC164AP	Latch driver for PLL programmable divider
IC901	ICKA8507	KA8507	Compandor Circuit
Q261	TTR2SC945P	2SC945P	PA Tone Amplifier
Q701	TTR9013H-A	STS9013H	Driver for Channel display LED
Q703	KTC3876Y	KTC3876Y	Driver for PLL programmable divider
TR001	TTR2SC1675K	2SC1675K	Noise Blanker RF amplifier
TR002	TTR2SC1675K	2SC1675K	Noise Blanker RF amplifier
TR003	TTR2SC945P	2SC945P	Noise Blanker RF amplifier
TR004	TTR2SC945P	2SC945P	AGC Control for Noise Blanker RF amplifier
TR005	TTR2SC945P	2SC945P	Noise Blanker - Audio Noise amplifier
TR006	TTR2SA733P	2SA733P	Noise Blanker - Audio Noise amplifier
TR007	TTR2SC945P	2SC945P	Noise Blanker - IF Shunting transistor
TR008	TTR2SC1674L	2SC1674L	Second IF Mixer
TR009	TTR2SC1675K	2SC1675K	455KHz IF Amplifier
TR010	TTR2SC1675K	2SC1675K	455KHz IF Amplifier
TR011	TTR2SC1675K	2SC1675K	455KHz IF Amplifier
TR012	TTR2SC945P	2SC945P	AGC Attack time control in SSB Mode
TR013	TTR2SC945P	2SC945P	Signal meter adjustment - AM Mode
TR014	TTR2SC945P	2SC945P	Signal meter adjustment - SSB Mode
TR015	TTR2SC945P	2SC945P	Audio amplifier for demodulated AM & Product detector for SSB
TR016	TTR2SC945P	2SC945P	Switch - disable receiver audio

Ref.	Part Number	Description of Parts	Functional Description of Parts
TR018	FETJ310	J310 (FET)	First IF Mixer
TR019	TTR2SC1674L	2SC1674L	SSB IF Amplifier
TR020	TTR2SC1675K	2SC1675K	SSB IF Amplifier
TR021	TTR2SC1675K	2SC1675K	SSB IF Amplifier
TR022	TTR2SC1906	2SC1906	SSB IF Amplifier
TR023	TTR2SC945P	2SC945P	Switch - AM Demodulator control
TR024	TTR2SC1675K	2SC1675K	10.24MHz Reference Frequency crystal oscillator
TR025	TTR2SC1675K	2SC1675K	PLL VCO
TR026	TTR2SC1675K	2SC1675K	PLL VCO
TR030	TTR2SC1675K	2SC1675K	Second offset frequency crystal oscillator
TR031	TTR2SC945P	2SC945P	Switch - disable balanced modulator input in AM Mode
TR032	TTR2SC945P	2SC945P	ALC audio shunting transistor
TR034	TTR2SA733P	2SA733P	Audio Detector for ALC operation
TR036	TTR2SA1282	2SA1282	Rx Active voltage control
TR037	TTR2SC945P	2SC945P	Rx Active voltage control
TR038	TTR2SA1282	2SA1282	TX Active voltage control
TR040	TTR2SC945P	2SC945P	8V Power supply regulator
TR041	TTR2SB1566E	2SB1566E	8V Power supply regulator
TR042	TTR2SC945P	2SC945P	Audio pre-amplifier for received audio
TR043	TTR2SC1969	2SC1969	RF Power Transistor
TR044	TTR2SC2166C	2SC2166C	RF Power Driver
TR045	TTR2SC1973	2SC1973	RF Power Pre-Driver
TR046	TTR2SC1906	2SC1906	RF amplifier
TR047	TTR2SC1675K	2SC1675K	SSB Power level control
TR049	TTR2SC945P	2SC945P	AM RF Power control and AM Modulator
TR050	TTR2SA1282	2SA1282	AM RF Power control and AM Modulator
TR051	TTR2SB754Y	2SB754Y	AM RF Power control and AM Modulator
TR052	TTR2SC945P	2SC945P	Switch - disable AM Modulator for SSB operation
TR053	TTR2SC945P	2SC945P	AM Modulation Control
TR061	FET3SK77GR	3SK77GR	Receiver front end amplifier
TR351	TTR2SC945P	2SC945P	E.L. Lamp Inverter Driver
TR901	TTR2SC945P	2SC945P	PA Bridge Amplifier
X001	XTLB10M2400A2	Crystal 10.2400MHz (YUWA)	Crystal for PLL reference frequency oscillator
X002	XTLB14M0100A1	Crystal 14.0100MHz (YUWA)	Crystal for PLL offset frequency mixer oscillator
X004	XTLB10M6975A1	Crystal 10.6975MHz (YUWA)	Crystal for second offset frequency oscillator
X701	XTLC08M0000A1	Crystal 8.0MHz	Clock Crystal for Channel Switch CPU