

Ranger RCI-2970

Documentation Project

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Transistor Voltage Chart

Ref #	Function	Part #			LOC	B	C	E
Q1		2SC1675L	NPN		B-3	0.00  NB Off	0.00  NB Off	0.00 NB Off
						1.77  NB On	7.67  NB On	1.06 NB On
Q2		2SC1675L	NPN		C-2	0.00  NB Off	0.00  NB Off	0.00  NB Off
						0.71  NB On	2.09  NB On	0.00  NB On
Q3		2SC945	NPN		C-3	0.00  NB Off	0.00  NB Off	0.00  NB Off
						2.09  NB On	7.76  NB On	1.45  NB On
Q4		2SC945	NPN		B-2	0.00  NB Off	8.01  NB Off	0.01  NB Off
						0.02  NB On	8.01  NB On	1.06  NB On
Q5		2SC945	NPN		C-3	0.00  NB Off	7.37  NB Off	0.01  NB Off
						0.01  NB On	7.37  NB On	0.03  NB On
Q6		2SA733	PNP		C-2	7.36  NB Off	0.00  NB Off	8.01  NB Off
						7.36  NB On	0.00  NB On	8.01  NB On
Q7		2SC945	NPN		C-2	0.00  NB Off	0.00  NB Off	0.00  NB Off
						0.00  NB On	0.01  NB On	0.00  NB On
Q8		2SC1674	NPN		D-2	1.18 AM RX	6.93 AM RX	0.48  AM RX
						0.02 AM TX	0.03 AM TX	2.44  AM TX
						1.18 FM RX	6.93 FM RX	0.48  FM RX
						0.01 FM TX	0.02 FM TX	2.44  FM TX
						1.30 SSB RX	7.60 SSB RX	2.38  SSB RX
						0.01 SSB TX	0.02 SSB TX	2.44  SSB TX
Q9		2SC1675	NPN		D-3	0.71  AM / FM RX	3.04  AM / FM RX	0.00  AM / FM RX
						0.01  AM / FM TX	0.03  AM / FM TX	0.00  AM / FM TX
						0.82 SSB RX	0.03 SSB RX	0.00  SSB RX
						0.81 SSB TX	0.02 SSB TX	0.00  SSB TX
Q10		2SC1675	NPN		D-4	3.03  AM / FM RX	5.76 AM / FM RX	2.26  AM / FM RX
						0.02  AM / FM TX	0.02  AM / FM TX	0.01  AM / FM TX
						0.03 SSB RX	8.02 SSB RX	0.00  SSB RX
						0.02 SSB TX	0.02 SSB TX	0.01  SSB TX

Q11		2SC1675L	NPN		D-4	2.26  AM / FM RX	5.49  AM / FM RX	1.52  AM / FM RX
						0.01  AM / FM TX	0.02  AM / FM TX	0.01  AM / FM TX
						0.00 SSB RX	8.02 SSB RX	0.01  SSB RX
						0.01 SSB TX	0.02 SSB TX	0.01  SSB TX
Q12		2SA733	PNP		B-4	8.02  NB Off	0.00  NB Off	8.06  NB Off
						7.35  NB On	8.01  NB On	8.06  NB On
Q13		2SC945	NPN		B-4	0.00  AM / FM RX	-0.25  AM / FM RX	0.00  AM / FM RX
						0.01  AM / FM TX	-0.24  AM / FM TX	0.00  AM / FM TX
						0.71 SSB RX	0.01 SSB RX	0.00 SSB RX
						0.71 SSB TX	0.01 SSB TX	0.00  SSB TX
Q14		2SC945	NPN		B-4	0.70  AM / FM RX	0.01  AM / FM RX	0.00  AM / FM RX
						0.71  AM / FM TX	0.02  AM / FM TX	0.00  AM / FM TX
						0.01 SSB RX	0.11 SSB RX	0.00 SSB RX
						0.01 SSB TX	0.01 SSB TX	0.00  SSB TX
Q15		2SC945	NPN		E-4	0.01  AM / FM RX	0.02  AM / FM RX	0.00  AM / FM RX
						0.01  AM / FM TX	0.01  AM / FM TX	0.00  AM / FM TX
						0.70 SSB RX	0.01 SSB RX	0.00 SSB RX
						0.71 SSB TX	0.01 SSB TX	0.00  SSB TX
Q16		2SC945	NPN		E-5	1.26  AM / FM RX	5.04  AM / FM RX	0.68  AM / FM RX
						1.26  AM / FM TX	5.05  AM / FM TX	0.68  AM / FM TX
						1.26 SSB RX	5.01 SSB RX	0.68 SSB RX
						1.26 SSB TX	5.01 SSB TX	0.68  SSB TX
Q17		2SC945	NPN		B-2	0.00  AM / FM RX	0-0.01  AM / FM RX	0.00  AM / FM RX
						0.76 SSB TX	0.02 SSB TX	0.00  SSB TX
Q18		2SC1674	NPN		C-2	2.15 AM RX	7.73 AM RX	1.41  AM RX
						0.02 AM TX	0.03 AM TX	0.01  AM TX
						2.15 FM RX	7.73 FM RX	1.41  FM RX
						0.03 FM TX	0.08 FM TX	0.01  FM TX
						2.16 SSB RX	7.74 SSB RX	1.41 SSB RX
						0.01 SSB TX	0.02 SSB TX	0.01  SSB TX
Q19		J310	FET		D-3	0.03  AM / SSB RX	7.95  AM / SSB RX	1.89  AM / SSB RX
						0.01  AM / SSB	0.02  AM / SSB	0.03  AM / SSB

						TX	TX	TX
						0.00 FM RX	7.95 FM RX	1.90  FM RX
						0.01 FM TX	0.07 FM TX	0.07  FM TX
Q20		2SC1674	NPN		D-4	0.95 AM RX	0.24 AM RX	0.23  AM RX
						3.41 AM TX	3.02 AM TX	7.34  AM TX
						0.95 FM RX	0.24 FM RX	0.23  FM RX
						1.66 FM TX	1.19 FM TX	7.35  FM TX
						1.60 SSB RX	6.69 SSB RX	0.85 SSB RX
						3.40 SSB TX 3.42 With MOD	7.11 SSB TX 7.13 With MOD	7.34 SSB TX 7.36 With MOD
Q21		2SC1675	NPN		D-4	0.22  AM / FM RX	1.74  AM / FM RX	0.00  AM / FM RX
						0.02  AM / FM TX	0.03  AM / FM TX	0.00  AM / FM TX
						0.73 SSB RX	3.43 SSB RX	0.00 SSB RX
						0.01 SSB TX 0.03 With MOD	0.02 SSB TX 0.04 With MOD	0.00 SSB TX
Q22		2SC1675	NPN		D-4	1.74  AM / FM RX	0.93  AM / FM RX	0.92  AM / FM RX
						0.03  AM / FM TX	0.40  AM / FM TX	0.02  AM / FM TX
						3.43 SSB RX	6.52 SSB RX	2.66 SSB RX
						0.02 SSB TX 0.04 With MOD	7.09 SSB TX 7.16 With MOD	0.01 SSB TX 0.03 With MOD
Q23		2SC1906	NPN		D-4	3.92  AM / FM RX	7.78  AM / FM RX	0.23  AM / FM RX
						0.02  AM / FM TX	0.02  AM / FM TX	0.02  AM / FM TX
						2.65 SSB RX	6.10 SSB RX	1.90 SSB RX
						0.01 SSB TX 0.02 With MOD	0.02 SSB TX 0.04 With MOD	0.01 SSB TX 0.03 With MOD
Q24		2SC945	NPN		D-2	0.70 AM RX	0.01 AM RX	0.00  AM RX
						0.71 AM TX	0.02 AM TX	0.00  AM TX
						0.01 FM RX	0.18 FM RX	0.00  FM RX
						0.02 FM TX	0.05 FM TX	0.00  FM TX
						0.01 SSB RX	0.01 SSB RX	0.00 SSB RX
						0.01 SSB TX 0.03 With MOD	0.02 SSB TX 0.20 With MOD	0.00 SSB TX
TR25		2SA733	PNP		D-1	ANL 8.01 AM RX ON 6.72 OFF	ANL 0.16 AM RX ON 7.38 OFF	ANL 8.05 AM RX ON 7.38 OFF
						ANL 8.02 AM TX ON 6.73 OFF	ANL 0.22 AM TX ON 7.38 OFF	ANL 8.06 AM TX ON 7.39 OFF
						ANL	ANL	ANL

					0.01 FM RX ON 0.01 OFF	0.01 FM RX ON 0.01 OFF	0.01 FM RX ON 0.01 OFF
					ANL 0.02 FM TX ON 0.02 OFF	ANL 0.02 FM TX ON 0.02 OFF	ANL 0.02 FM TX ON 0.02 OFF
					ANL 0.01 SSB RX ON 0.01 OFF	ANL 0.01 SSB RX ON 0.01 OFF	ANL 0.01 SSB RX ON 0.01 OFF
					ANL 0.02 SSB TX ON 0.02 OFF	ANL 0.01 SSB TX ON 0.01 OFF	ANL 0.01 SSB TX ON 0.01 OFF
Q26		2SC945	NPN	 D-1	AM / FM / SSB RX 2.82	AM / FM / SSB RX 7.19	AM / FM / SSB RX 2.28
					AM / FM / SSB TX 2.84	AM / FM / SSB TX 7.20	AM / FM / SSB TX 2.29
Q27		2SC1675	NPN	 C-5	AM / FM / SSB RX 3.44	AM / FM / SSB RX 5.93	AM / FM / SSB RX 2.70
					AM / FM / SSB TX 3.45	AM / FM / SSB TX 5.94	AM / FM / SSB TX 2.71
Q28		2SC1675	NPN	 D-4	AM / FM / SSB RX 0.72	AM / FM / SSB RX 4.36	AM / FM / SSB RX 0.00
					AM / FM / SSB TX 0.72	AM / FM / SSB TX 4.37	AM / FM / SSB TX 0.00
Q29		2SC1675	NPN	 E-6	0.01 AM RX	7.95 AM RX	0.00 AM RX
					0.02 AM TX	7.96 AM TX	0.00 AM TX
					0.75 FM RX	0.02 FM RX	0.00 FM RX
					0.79 FM TX	0.07 FM TX	0.00 FM TX
					0.01 SSB RX	7.94 SSB RX	0.00 SSB RX
					0.01 SSB TX	7.95 SSB TX	0.00 SSB TX
Q30		2SC945	NPN	 F-1	0.71 AM / FM RX	0.02 AM / FM RX	0.00 AM / FM RX
					0.72 AM / FM TX	0.03 AM / FM TX	0.00 AM / FM TX
					0.01 SSB RX	2.95 SSB RX	0.00 SSB RX
					0.01 SSB TX 0.03 With MOD	2.89 SSB TX 2.91 With MOD	0.00
Q31		2SA733	PNP	 B-3	8.02 AM RX	0.11 AM RX	8.06 AM RX
					8.02 AM TX	-0.34 AM TX	8.06 AM TX
					8.02 FM RX	0.11 FM RX	8.06 FM RX
					8.02 FM TX	-0.39 FM TX	8.06 FM TX
					8.02 SSB RX	-0.11 SSB RX	8.06 SSB RX
					8.02 SSB TX 6.95 With MOD	-0.43 SSB TX 5.46 With MOD	8.05 SSB TX 7.57 With MOD
Q32		2SA945	NPN	 F-6	AM / FM / SSB RX 0.71	AM / FM / SSB RX 0.01	AM / FM / SSB RX 0.00
					AM / FM / SSB TX	AM / FM / SSB TX	AM / FM / SSB TX

						0.01 0.50 With MOD	0.01	0.00
Q33		2SC945	NPN		E-6	AM / FM / SSB RX 0.24	AM / FM / SSB RX 0.25	AM / FM / SSB RX 0.00
						AM / FM / SSB TX 0.57 0.58 SSB MOD	AM / FM / SSB TX 0.72 0.74 SSB MOD	AM / FM / SSB TX 0.00
Q34		2SC945	NPN		F-6	AM / FM / SSB RX 0.00	AM / FM / SSB RX 1.32	AM / FM / SSB RX 0.00
						AM / FM / SSB TX 0.00 0.01 SSB MOD	AM / FM / SSB TX 0.01 0.94 AM/SSB MOD	AM / FM / SSB TX 0.00
Q35		2SA733	PNP		C-5	AM / FM / SSB RX 8.02  R.B. Off	AM / FM / SSB RX 3.05  R.B. Off	AM / FM / SSB RX 8.06  R.B. Off
						AM / FM / SSB TX 8.03  R.B. Off	AM / FM / SSB TX -0.70  R.B. Off	AM / FM / SSB TX 8.07  R.B. On
						AM / FM / SSB RX 7.41  R.B. On	AM / FM / SSB RX 8.05  R.B. On	AM / FM / SSB RX 8.06  R.B. On
						AM / FM / SSB TX 7.42  R.B. On	AM / FM / SSB TX 8.06  R.B. On	AM / FM / SSB TX 8.07  R.B. On
Q36		2SC945	NPN		C-6	AM / FM / SSB RX 0.01 	AM / FM / SSB RX 8.03	AM / FM / SSB RX 0.01 
						AM / FM / SSB TX 0.02	AM / FM / SSB TX 8.04	AM / FM / SSB TX 0.35
Q37		2SA1282	PNP		D-6	AM / FM / SSB RX 7.36 	AM / FM / SSB RX 0.02	AM / FM / SSB RX 8.06
						AM / FM / SSB TX 8.05	AM / FM / SSB TX 8.04	AM / FM / SSB TX 0.35
Q38		2SA1282	PNP		C-6	8.02  AM RX	0.00  AM RX	8.06  AM RX
						7.27  AM TX	7.95  AM TX	8.05  AM TX
						8.02 FM/SSB RX	0.00 FM/SSB RX	8.06 FM/SSB RX
						7.28 FM/SSB TX	7.96 FM/SSB TX	8.04  FM/SSB TX
Q39		2SC945	NPN		A-2	AM / FM / SSB RX 0.63 	AM / FM / SSB RX 0.05	AM / FM / SSB RX 0.00 
						AM / FM / SSB TX 0.01	AM / FM / SSB TX 8.04	AM / FM / SSB TX 0.00
Q40		2SA1282	PNP		A-1	AM / FM / SSB RX 7.54	AM / FM / SSB RX 0.28	AM / FM / SSB RX 8.05
						AM / FM / SSB TX 7.35	AM / FM / SSB TX 8.04	AM / FM / SSB TX 8.06
Q41		2SC945	NPN		B-1	AM / FM / SSB RX 0.00	AM / FM / SSB RX 0.29	AM / FM / SSB RX 0.00
						AM / FM / SSB TX 0.01	AM / FM / SSB TX 3.15	AM / FM / SSB TX 0.00
						0.70 CW Mode RX	0.01 CW Mode RX	0.00  CW Mode RX
						0.71 CW Mode TX	0.02 CW Mode TX	0.00  CW Mode TX
Q42		2SC945	NPN		B-1	AM / FM / SSB RX 0.77	AM / FM / SSB RX 1.65	AM / FM / SSB RX 0.15
						AM / FM / SSB TX	AM / FM / SSB TX	AM / FM / SSB TX

						0.78	1.65	0.16
Q43		2SC1675	NPN		B-3	0.00  AM / FM RX	8.04  AM / FM RX	5.06  AM / FM RX
						0.01  AM / FM TX	8.04  AM / FM TX	5.05  AM / FM TX
						0.00 SSB RX	8.04 SSB RX	0.30 SSB RX
						0.01 SSB TX 0.07 With MOD	8.04 SSB TX 5.60 With MOD	0.30 SSB TX 1.05 With MOD
Q44		2SC1675	NPN		B-6	0.02  AM / FM RX	0.03  AM / FM RX	0.01  AM / FM RX
						2.12  AM / FM TX	4.56  AM / FM TX	1.41  AM / FM TX
						2.10 SSB RX	4.54 SSB RX	1.38 SSB RX
						2.12 SSB TX	4.57 SSB TX	1.40 SSB TX
Q45		2SA733	PNP		B-6	AM / FM / SSB RX 8.04	AM / FM / SSB RX 0.01	AM / FM / SSB RX 0.00
						AM / FM / SSB TX 8.05	AM / FM / SSB TX 0.02	AM / FM / SSB TX 0.01
						8.04 CW Mode RX	0.00 CW Mode RX	8.04  CW Mode RX
						4.91 CW Mode TX	5.54 CW Mode TX	5.58  CW Mode TX
Q46		2SC2312	NPN		B-6	0.00  AM / FM RX	4.15  AM / FM RX	0.00  AM / FM RX
						0.68  AM / FM TX	3.80  AM / FM TX	0.00  AM / FM TX
						0.00 SSB RX	13.25 SSB RX	0.00 SSB RX
						0.68 SSB TX 0.71 With MOD	12.60 SSB TX 15.11 With MOD	0.00
Q47		2SC2312	NPN		A-6	0.00  AM / FM RX	4.15  AM / FM RX	0.00  AM / FM RX
						0.58  AM / FM TX	3.80  AM / FM TX	0.00  AM / FM TX
						0.00 SSB RX	13.25 SSB RX	0.00 SSB RX
						0.68 SSB TX 0.71 With MOD	12.60 SSB TX 15.11 With MOD	0.00
Q48		2SC2166	NPN		B-4	0.00  AM / FM RX	4.15  AM / FM RX	0.00  AM / FM RX
						0.74  AM / FM TX	3.88  AM / FM TX	0.00  AM / FM TX
						0.00 SSB RX	13.25 SSB RX	0.00 SSB RX
						0.74 SSB TX	12.75 SSB TX	0.00
Q49		2SC2314	NPN		B-4	0.00  AM / FM RX	0.00  AM / FM RX	0.00  AM / FM RX
						1.25  AM / FM TX	8.30  AM / FM TX	0.70  AM / FM TX

						0.00 SSB RX	0.00 SSB RX	0.00 SSB RX
						1.28 SSB TX 1.30 With MOD	7.95 SSB TX 8.06 With MOD	0.57 SSB TX 0.59 With MOD
Q50		2SC1906	NPN		B-4	0.00  AM / FM RX	0.00  AM / FM RX	0.00  AM / FM RX
						1.41  AM / FM TX	7.95  AM / FM TX	0.71  AM / FM TX
						0.00 SSB RX	0.00 SSB RX	0.00 SSB RX
						1.45 SSB TX	7.95 SSB TX 7.97 With MOD	0.66 SSB TX 0.69 With MOD
Q51		2SB754	PNP		B-4	13.31  AM / FM RX	4.29  AM / FM RX	13.79  AM / FM RX
						12.74  AM / FM TX	3.43  AM / FM TX	13.57  AM / FM TX
						13.25 SSB RX	13.25 SSB RX	13.79 SSB RX
						12.80 SSB TX 12.15 With MOD	12.80 SSB TX 12.13 With MOD	13.66 SSB TX 13.39 With MOD
Q52		2SC945	NPN		B-4	4.03  AM / FM RX	13.30  AM / FM RX	4.10  AM / FM RX
						4.03  AM / FM TX	12.15  AM / FM TX	3.48  AM / FM TX
						12.27 SSB RX	12.63 SSB RX	12.85 SSB RX
						11.75 SSB TX 11.23 With MOD	12.30 SSB TX 11.52 With MOD	12.55 SSB TX 11.79 With MOD
Q53		2SA473	PNP		B-4	13.30  AM / FM RX	4.29  AM / FM RX	13.31  AM / FM RX
						12.15  AM / FM TX	3.43  AM / FM TX	12.74  AM / FM TX
						12.63 SSB RX	13.25 SSB RX	13.25 SSB RX
						12.30 SSB TX 11.52 With MOD	12.80 SSB TX 12.13 With MOD	12.80 SSB TX 12.15 With MOD
Q54		2SC945	NPN		B-4	0.00  AM / FM RX	13.30  AM / FM RX	0.00  AM / FM RX
						0.02  AM / FM TX	12.18  AM / FM TX	0.00  AM / FM TX
						0.73 SSB RX	0.05 SSB RX	0.00 SSB RX
						0.73 SSB TX 0.75 With MOD	0.05 SSB TX 0.07 With MOD	0.00 SSB TX
Q55		2SC945	NPN		B-4	0.63  AM / FM RX	8.05  AM / FM RX	0.53  AM / FM RX
						0.64  AM / FM TX	8.05  AM / FM TX	0.43  AM / FM TX
						0.63 SSB RX	8.05 SSB RX	1.65 SSB RX
						0.63 SSB TX 0.63 With MOD	8.05 SSB TX 6.90 With MOD	0.63 SSB TX 0.63 With MOD
Q56		2SC945	NPN		B-4	0.71  AM / FM RX	0.01  AM / FM RX	0.00  AM / FM RX

						0.72  AM / FM TX	0.02  AM / FM TX	0.00  AM / FM TX
						0.71 SSB RX	0.01 SSB RX	0.00 SSB RX
						0.71 SSB TX 0.73 With MOD	0.01 SSB TX 0.03 With MOD	0.00 SSB TX
Q57		2SC945	NPN		B-4	0.69 AM RX	0.02 AM RX	0.00  AM RX
						0.70 AM TX	0.03 AM TX	0.00  AM TX
						0.00 FM RX	0.71 FM RX	0.00  FM RX
						0.02 FM TX	0.72 FM TX	0.00  FM TX
						0.00 SSB RX	0.71 SSB RX	0.00 SSB RX
						0.01 SSB TX 0.03 With MOD	0.72 SSB TX 0.73 With MOD	0.00 SSB TX
Q58		2SC945	NPN		B-4	0.01 AM RX	0.01 AM RX	0.01  AM RX
						0.02 AM TX	0.02 AM TX	0.02  AM TX
						1.02 FM RX	4.32 FM RX	0.38  FM RX
						1.03 FM TX	4.32 FM TX	0.40  FM TX
						0.01 SSB RX	0.01 SSB RX	0.01 SSB RX
						0.01 SSB RX	0.01 SSB RX	0.01 SSB RX

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