

LAMPIRAN

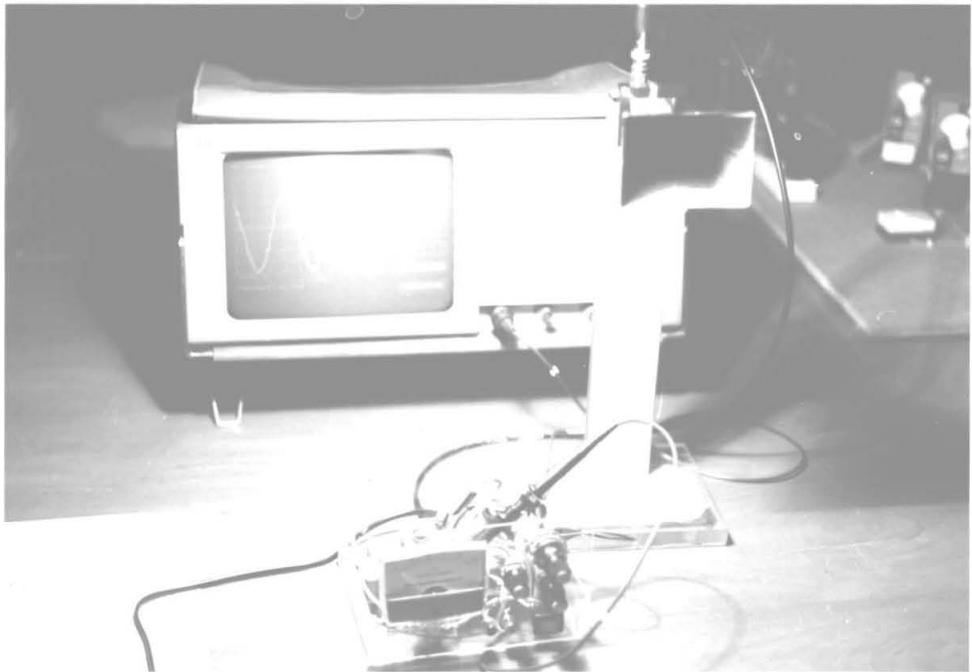


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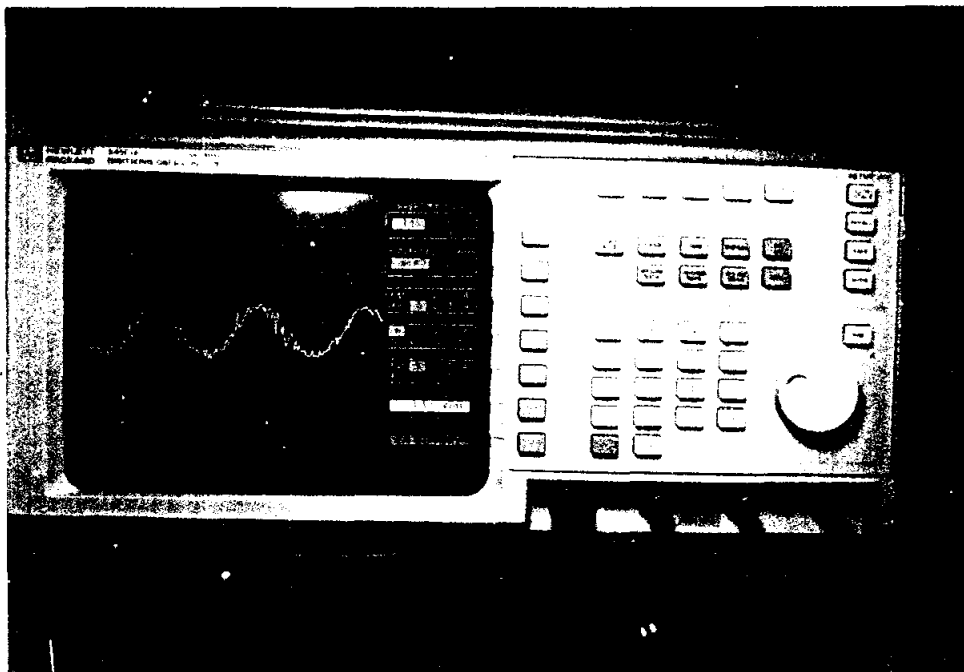


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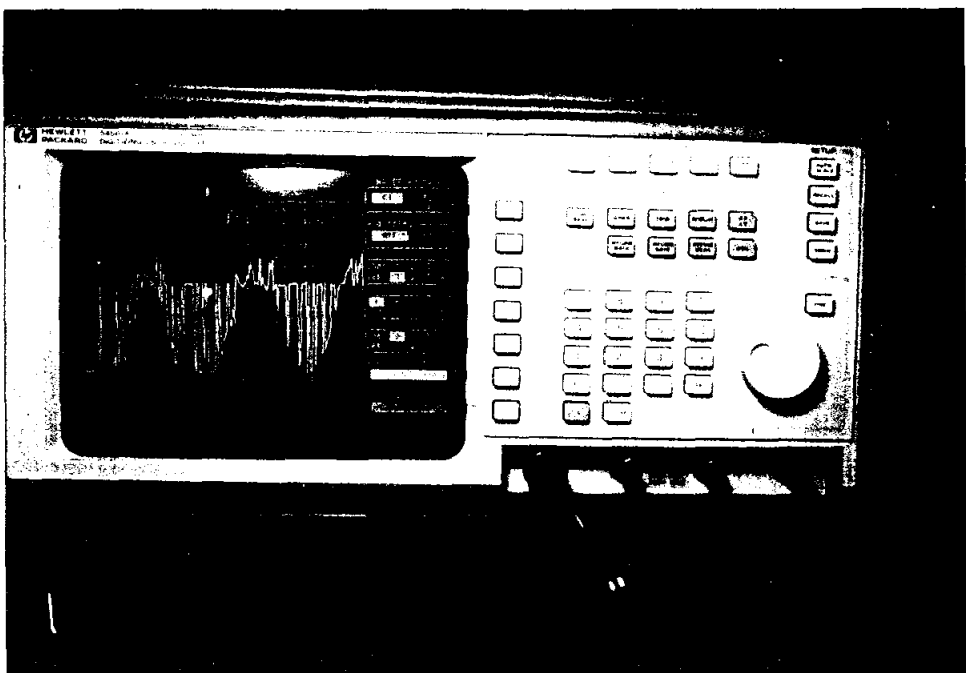


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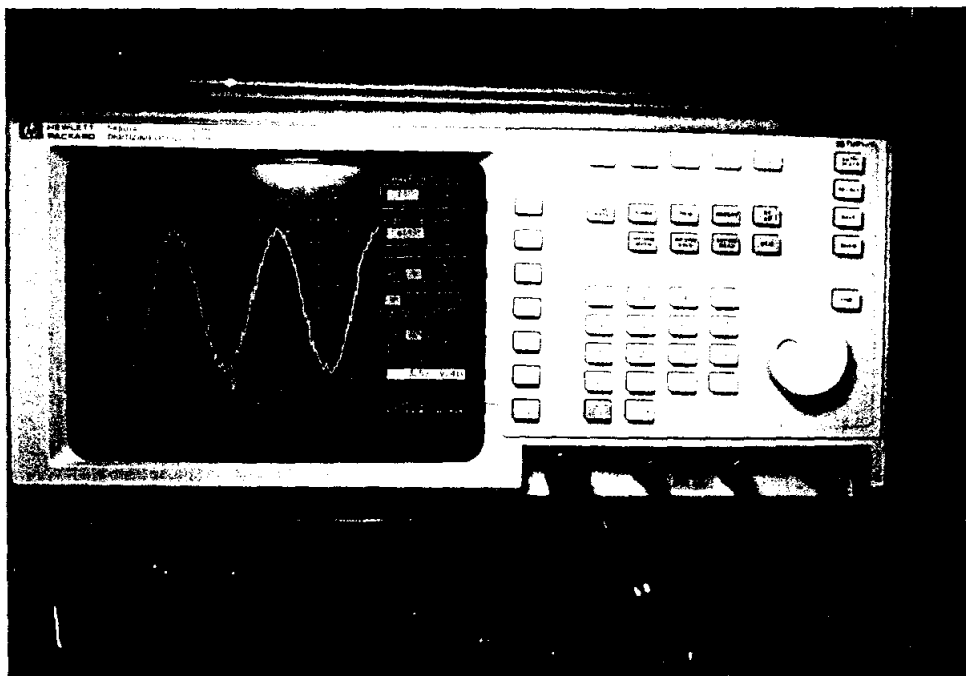


FOTO SINYAL OUTPUT DARI RANGKAIAN PENGUAT

Table 11

Copper Wire Specifications

Bare and Enamel-Coated Wire

Wire Size (AWG)	Diam (Mils)	Area (CM ²)	Enamel Wire Coating Turns/Linear inch ²			Feet per Pound Bare	Ohms per 1000 ft 25° C	Current Carrying Capacity Continuous Duty ³		Conduit or hundles	Diam (mm)
			Singlo	Heavy	Tripla			at 700 CM per Amp ⁴	Open air		
1	289.3	83694.49				3.948	0.1239	119.564			7.348
2	257.6	66357.76				4.978	0.1563	94.797			6.543
3	229.4	52624.36				6.277	0.1971	75.178			5.827
4	204.3	41738.49				7.918	0.2485	59.626			5.189
5	181.9	33087.61				9.98	0.3134	47.268			4.620
6	162.0	26244.00				12.59	0.3952	37.491			4.115
7	144.3	20822.49				15.87	0.4981	29.746			3.665
8	128.5	16512.25				20.01	0.6281	23.589			3.264
9	114.4	13087.36				25.24	0.7925	18.696			2.908
10	101.9	10383.61				31.82	0.9987	14.834			2.588
11	90.7	8226.49				40.16	1.2610	11.752			2.304
12	80.8	6528.64				50.61	1.5880	9.327			2.052
13	72.0	5184.00				63.73	2.0010	7.406			1.829
14	64.1	4108.81	15.2	14.8	14.5	80.39	2.5240	5.870	32	17	1.628
15	57.1	3260.41	17.0	16.6	16.2	101.32	3.1810	4.658			1.450
16	50.8	2580.64	19.1	18.6	18.1	128	4.0180	3.687	22	13	1.290
17	45.3	2052.09	21.4	20.7	20.2	161	5.0540	2.932			1.151
18	40.3	1624.09	23.9	23.2	22.5	203.5	6.3860	2.320	16	10	1.024
19	35.9	1288.81	26.8	25.9	25.1	256.4	8.0460	1.841			0.912
20	32.0	1024.00	29.9	28.9	27.9	322.7	10.1280	1.463	11	7.5	0.813
21	28.5	812.25	33.6	32.4	31.3	406.7	12.7700	1.160			0.724
22	25.3	640.09	37.6	36.2	34.7	516.3	16.2000	0.914			0.643
23	22.6	510.76	42.0	40.3	38.6	646.8	20.3000	0.730			0.574
24	20.1	404.01	46.9	45.0	42.9	817.7	25.6700	0.577			0.511
25	17.9	320.41	52.6	50.3	47.8	1031	32.3700	0.458			0.456
26	15.9	252.81	58.8	56.2	53.2	1307	41.0200	0.361			0.404
27	14.2	201.64	65.8	62.5	59.2	1639	51.4400	0.288			0.361
28	12.6	158.76	73.5	69.4	65.8	2081	65.3100	0.227			0.320
29	11.3	127.69	82.0	76.9	72.5	2567	81.2100	0.182			0.287
30	10.0	100.00	91.7	86.2	80.5	3306	103.7100	0.143			0.254
31	8.9	79.21	103.1	95.2		4170	130.9000	0.113			0.226
32	8.0	64.00	113.6	105.3		5163	162.0000	0.091			0.203
33	7.1	50.41	128.2	117.6		6553	205.7000	0.072			0.180
34	6.3	39.69	142.9	133.3		8326	261.3000	0.057			0.160
35	5.6	31.36	161.3	149.3		10537	330.7000	0.045			0.142
36	5.0	25.00	178.6	166.7		13212	414.8000	0.036			0.127
37	4.5	20.25	200.0	181.8		16319	512.1000	0.029			0.114
38	4.0	16.00	222.2	204.1		20544	648.2000	0.023			0.102
39	3.5	12.25	256.4	232.6		26969	846.6000	0.018			0.088
40	3.1	9.61	285.7	263.2		34364	1079.2000	0.014			0.078
41	2.8	7.84	322.6	294.1		42123	1323.0000	0.011			0.071
42	2.5	6.25	357.1	333.3		52854	1659.0000	0.009			0.064
43	2.2	4.84	400.0	370.4		68259	2143.0000	0.007			0.056
44	2.0	4.00	454.5	400.0		82645	2593.0000	0.006			0.051
45	1.8	3.10	526.3	465.1		106600	3348.0000	0.004			0.045
46	1.6	2.46	588.2	512.8		134000	4207.0000	0.004			0.040

Teflon Coated, Stranded Wire

(As supplied by Belden Wire and Cable.)

Size	Strands ⁵	Turns per Linear inch ² UL Style No.			Size	Strands ⁵	Turns per Linear inch ² UL Style No.			Size	Strands ⁵	Turns per Linear inch ² UL Style No.		
		1180	1213	1371			1180	1213	1371			1180	1213	1371
16	19 x 29	11.2			22	19 x 34	16.7	20.0	23.8	26	7 x 34			
18	19 x 30	12.7			22	7 x 30	16.7	20.0	23.8	28	7 x 36			
20	7 x 28	14.7	17.2		24	19 x 36	18.5	22.7	27.8	30	7 x 38			
20	19 x 32	14.7	17.2		24	7 x 32		22.7	27.8	32	7 x 40			

¹A circular mil (CM) is a unit of area equal to that of a one-mil-diameter circle (π/4 square mils). The CM area of a wire is the square of the mil diameter.²Figures given are approximate only; insulation thickness varies with manufacturer.³Maximum wire temperature of 212° F (100° C) with a maximum ambient temperature of 135° F (57° C).⁴700 CM per ampere is a satisfactory design figure for small transformers, but values from 500 to 1000 CM are commonly used.⁵Stranded wire construction is given as "count" x "strand size" (AWG).

Table 6

Powdered-Iron Toroidal Cores— A_L Values (μH per 100 turns)

Core Size	41-Mix Green $\mu = 75$	3-Mix Grey $\mu = 35$ 0.05-5 MHz	15-Mix Rd & Wh $\mu = 25$ 0.1-2 MHz	1-Mix Blue $\mu = 20$ 0.5-5 MHz	2-Mix Red $\mu = 10$ 2-30 MHz	6-Mix Yellow $\mu = 8$ 10-50 MHz	10-Mix Black $\mu = 6$ 30-100 MHz	12-Mix Gn & Wh $\mu = 3$ 50-200 MHz	0-Mix Tan $\mu = 1$ 100-300 MHz
T-200	755	425	NA	250	120	100	NA	NA	NA
T-184	1640	720	NA	500	240	195	NA	NA	NA
T-157	970	420	360	320	140	115	NA	NA	NA
T-130	785	350	250	200	110	96	NA	NA	15.0
T-106	900	450	345	325	135	116	NA	NA	19.0
T-94	590	248	200	160	84	70	58	32	10.6
T-80	450	180	170	115	55	45	32	22	8.5
T-68	420	195	180	115	57	47	32	21	7.5
T-50	320	175	135	100	49	46	31	18	6.4
T-44	229	180	160	105	52	42	33	18.5	6.5
T-37	308	120	90	80	40	30	25	15	4.9
T-30	375	140	93	65	43	36	25	16	6.0
T-25	225	100	85	70	34	27	19	12	4.5
T-20	175	76	65	52	25	22	16	10	3.5
T-16	130	61	55	44	22	19	13	8	3.0
T-12	112	60	50	48	20	17	12	7.5	3.0

NA—Not available in that size.

Turns = $100 \sqrt{L_p H} \div A_L$ value (above)

All frequency figures optimum.

Number of Turns vs. Wire Size and Core Size

Approximate maximum of turns—single-layer-wound enameled wire

Wire Size	T-200	T-130	T-106	T-94	T-80	T-68	T-50	T-37	T-25	T-12
10	31	17	10	10	8	7	5	1	1	0
12	41	23	14	14	12	9	6	3	1	0
14	53	30	20	20	17	12	8	5	1	0
16	68	40	27	27	23	15	11	7	3	1
18	86	51	35	35	30	21	16	9	4	1
20	109	66	45	45	39	28	21	12	5	1
22	139	83	58	58	51	36	28	17	7	2
24	176	107	75	75	66	47	37	23	11	4
26	223	137	96	96	84	61	49	31	15	5
28	282	173	123	123	108	79	63	41	21	8
30	357	220	156	156	137	101	81	53	28	11
32	445	275	195	195	172	127	103	67	37	15
34	562	348	248	248	219	162	131	87	48	21
36	707	439	313	313	276	205	166	110	62	29
38	886	550	393	393	347	257	210	140	79	37
40	1115	693	496	496	438	325	265	177	101	47

Physical Dimensions

Core Size	Outer Dia (in)	Inner Dia (in)	Height (in)	Cross Sect. Area (cm ²)	Mean Length (cm)	Core Size	Outer Dia (in)	Inner Dia (in)	Height (in)	Cross Sect. Area (cm ²)	Mean Length (cm)
T-200	2.000	1.250	0.550	1.330	12.97	T-50	0.500	0.303	0.190	0.121	3.20
T-184	1.840	0.950	0.710	2.040	11.12	T-44	0.440	0.229	0.159	0.107	2.67
T-157	1.570	0.950	0.570	1.140	10.05	T-37	0.375	0.205	0.128	0.070	2.32
T-130	1.300	0.780	0.437	0.733	8.29	T-30	0.307	0.151	0.128	0.065	1.83
T-106	1.060	0.570	0.437	0.690	6.50	T-25	0.255	0.120	0.096	0.042	1.50
T-94	0.942	0.560	0.312	0.385	6.00	T-20	0.200	0.088	0.070	0.025	1.15
T-80	0.795	0.495	0.250	0.242	5.15	T-16	0.160	0.078	0.060	0.016	0.95
T-68	0.690	0.370	0.190	0.196	4.24	T-12	0.125	0.062	0.050	0.010	0.75

Courtesy of Amidon Assoc. and Micrometals, Inc.

