EBW1: A COMPUTER CODE FOR THE PREDICTION OF THE BEHAVIOR OF ELECTRICAL CIRCUITS EXPLODING WIRE ELEMENTS

by T. J. Tucker

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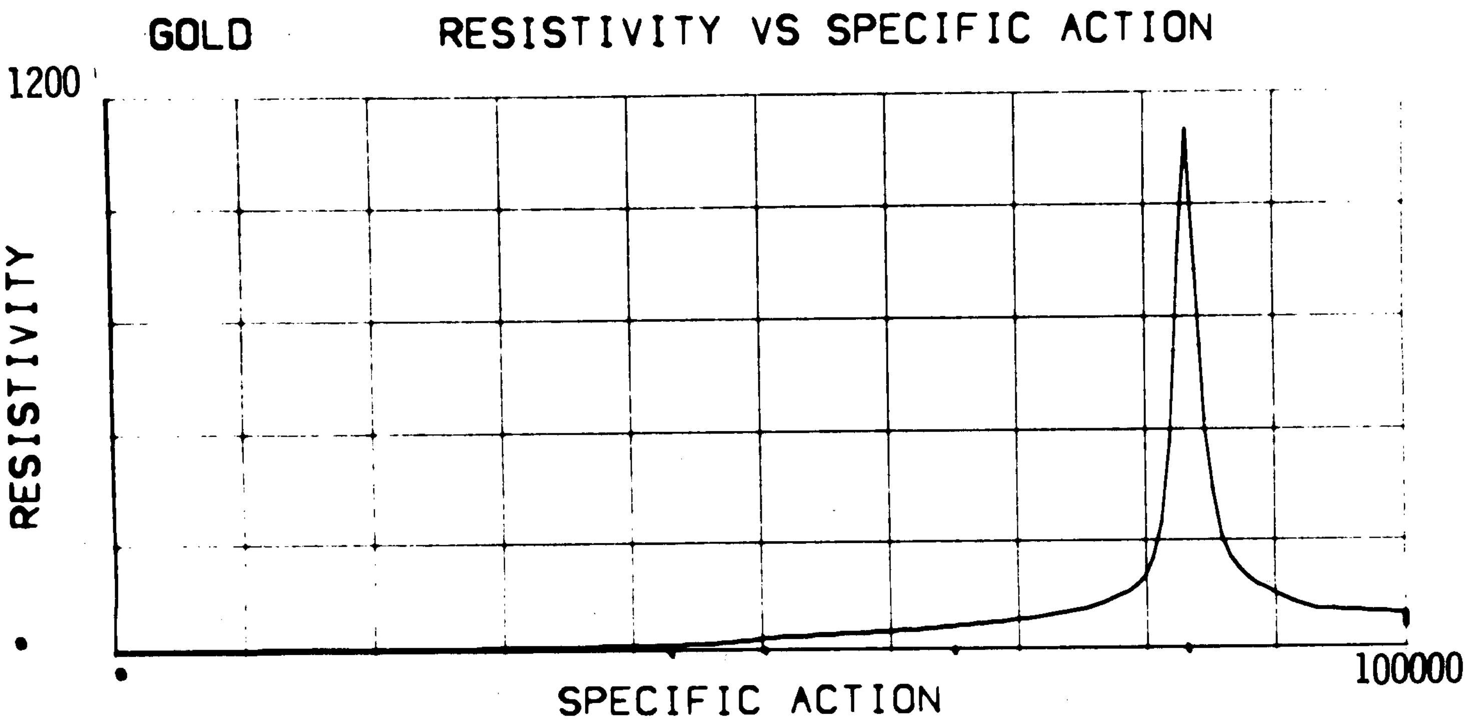
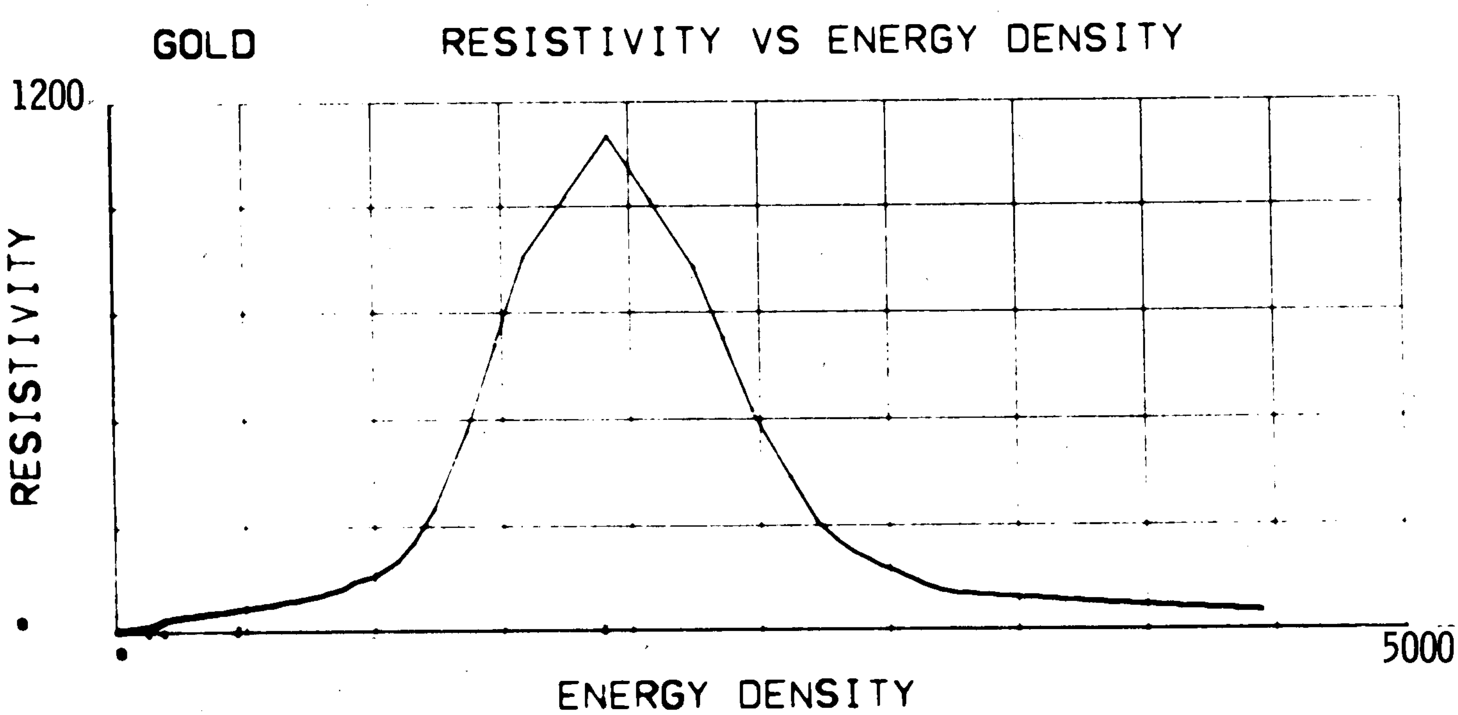
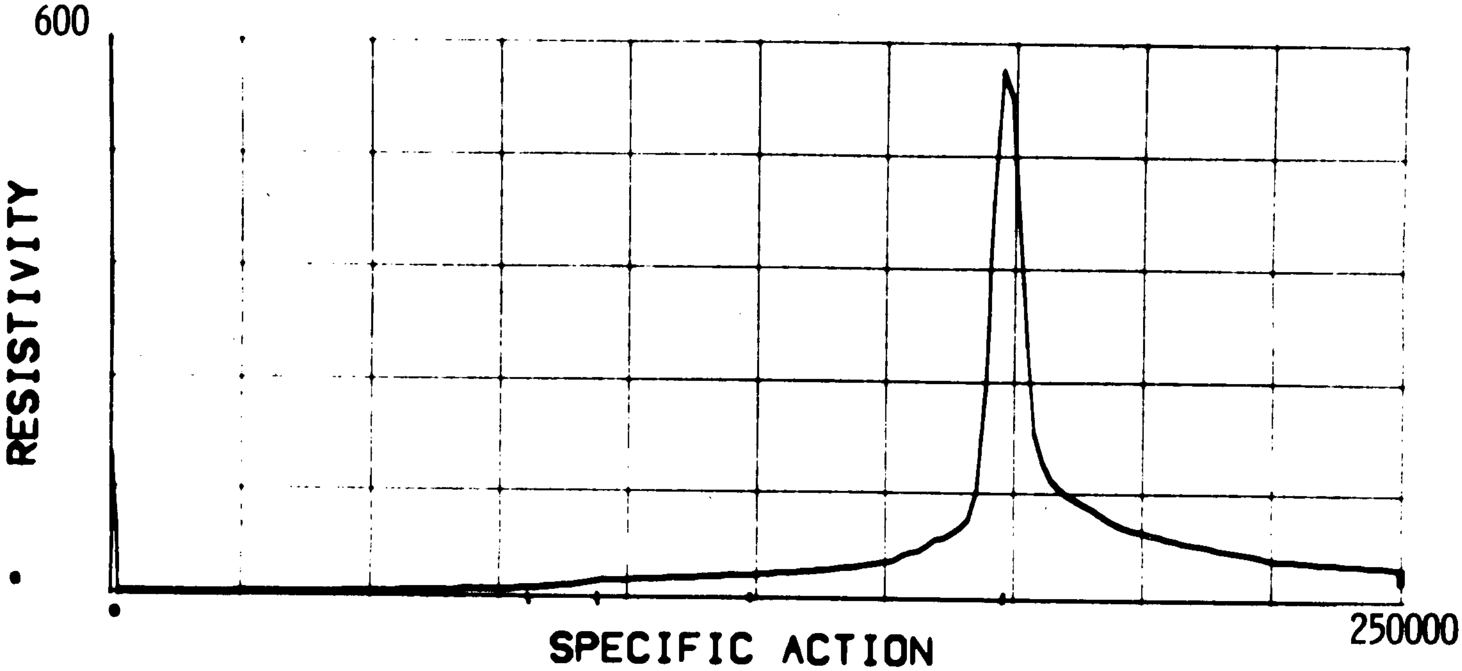
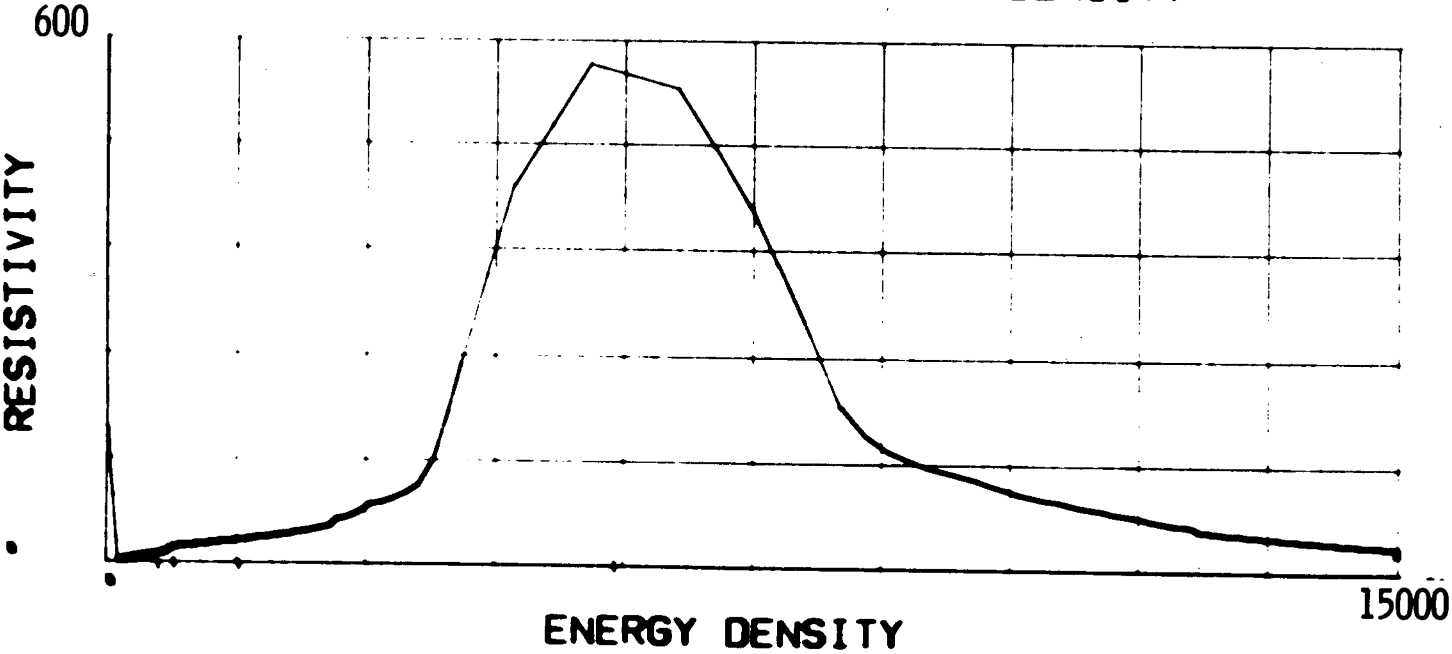


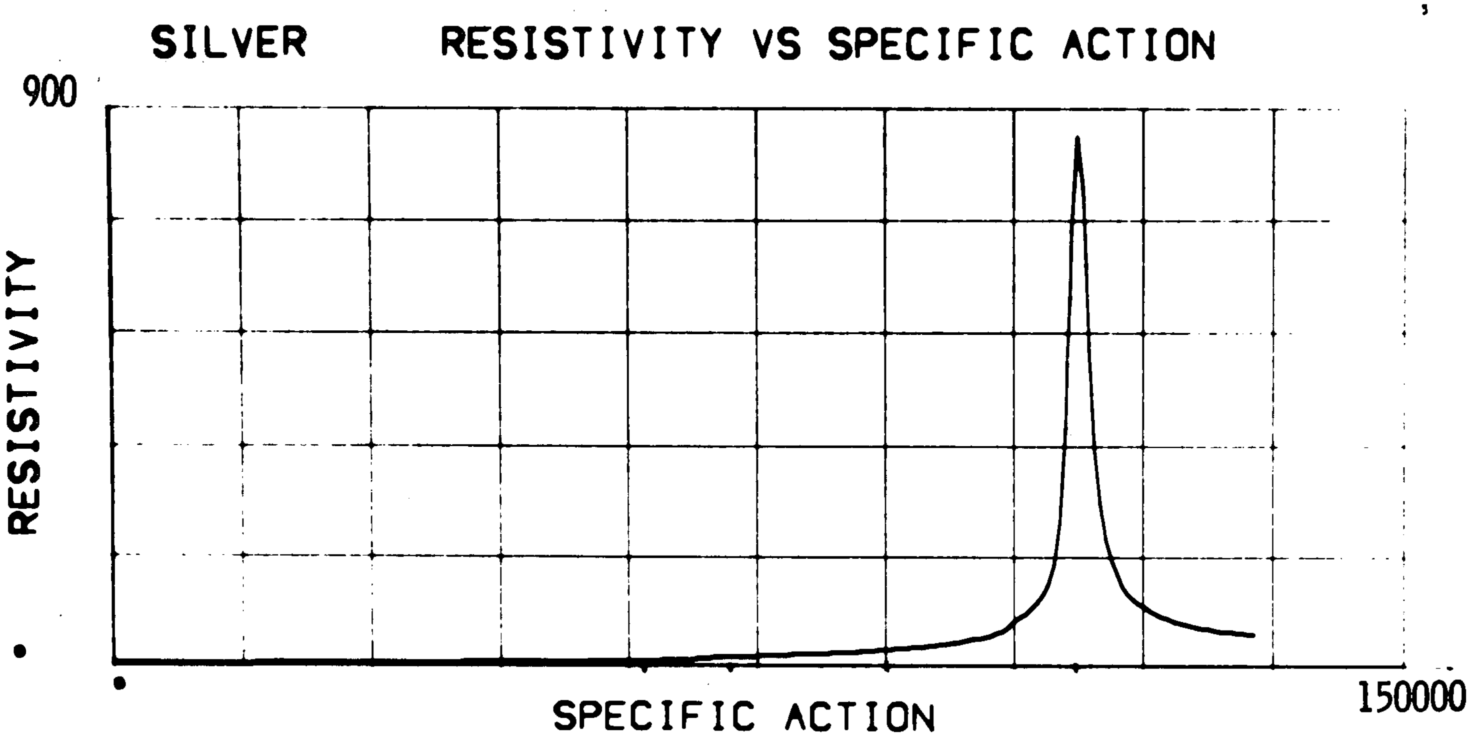


COPPER RESISTIVITY VS SPECIFIC ACTION

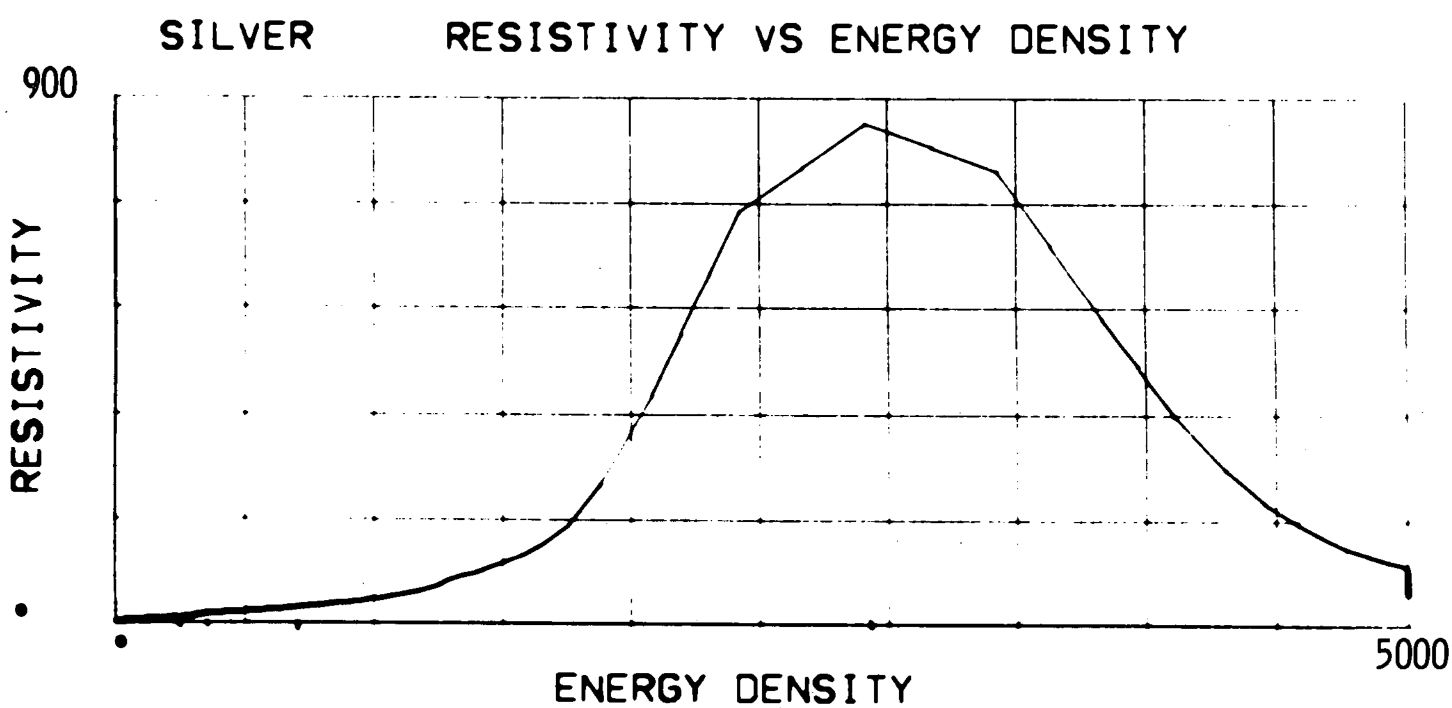


COPPER RESISTIVITY VS ENERGY DENSITY





SILVER RESISTIVITY VS SPECIFIC ACTION
900
RESISTIVITY
SPECIFIC ACTION
150000



SILVER RESISTIVITY VS ENERGY DENSITY
900
RESISTIVITY
ENERGY DENSITY
5000

EXPLODING BRIDGE WIRE STUDIES

using differential input oscilloscope technique

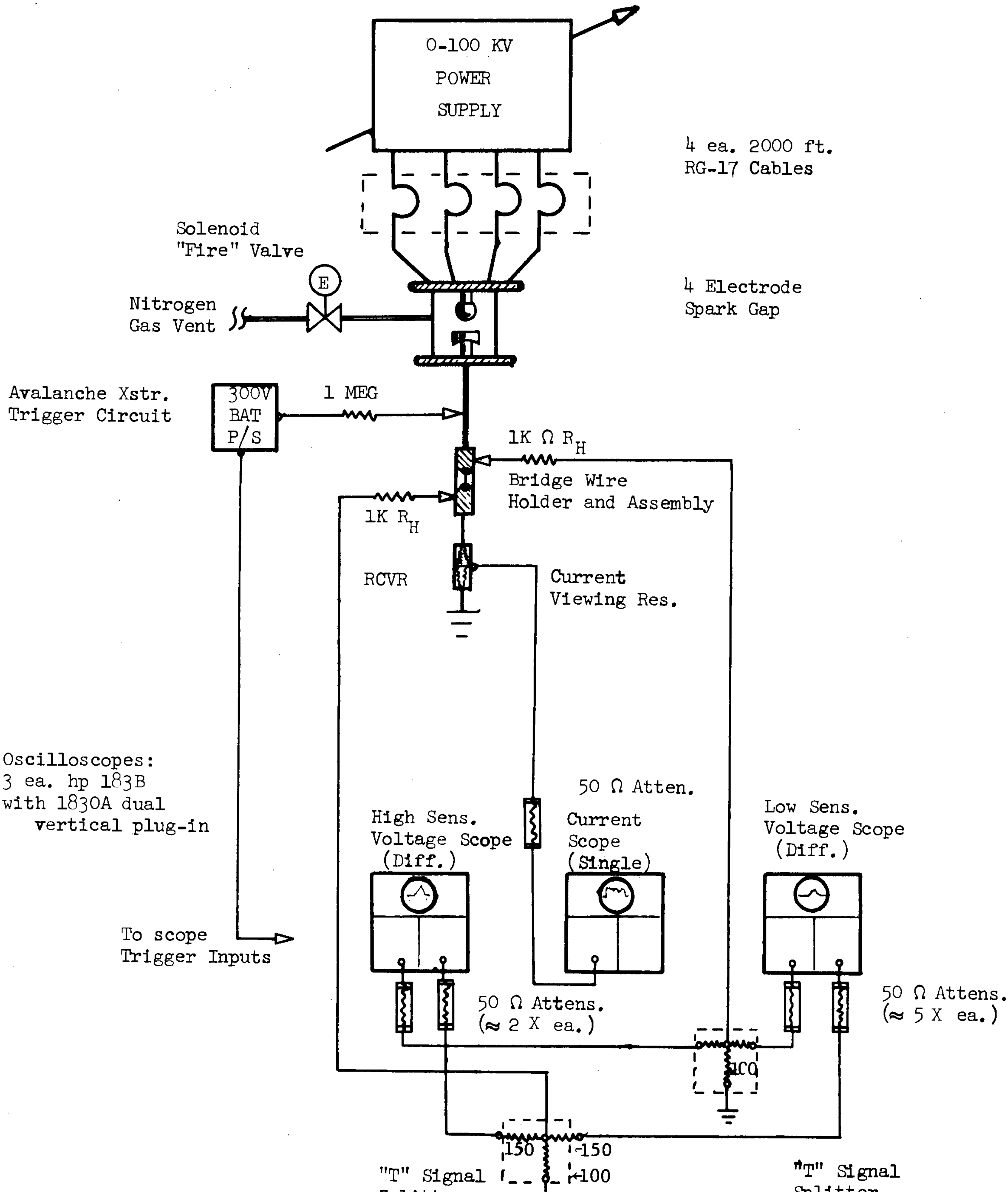
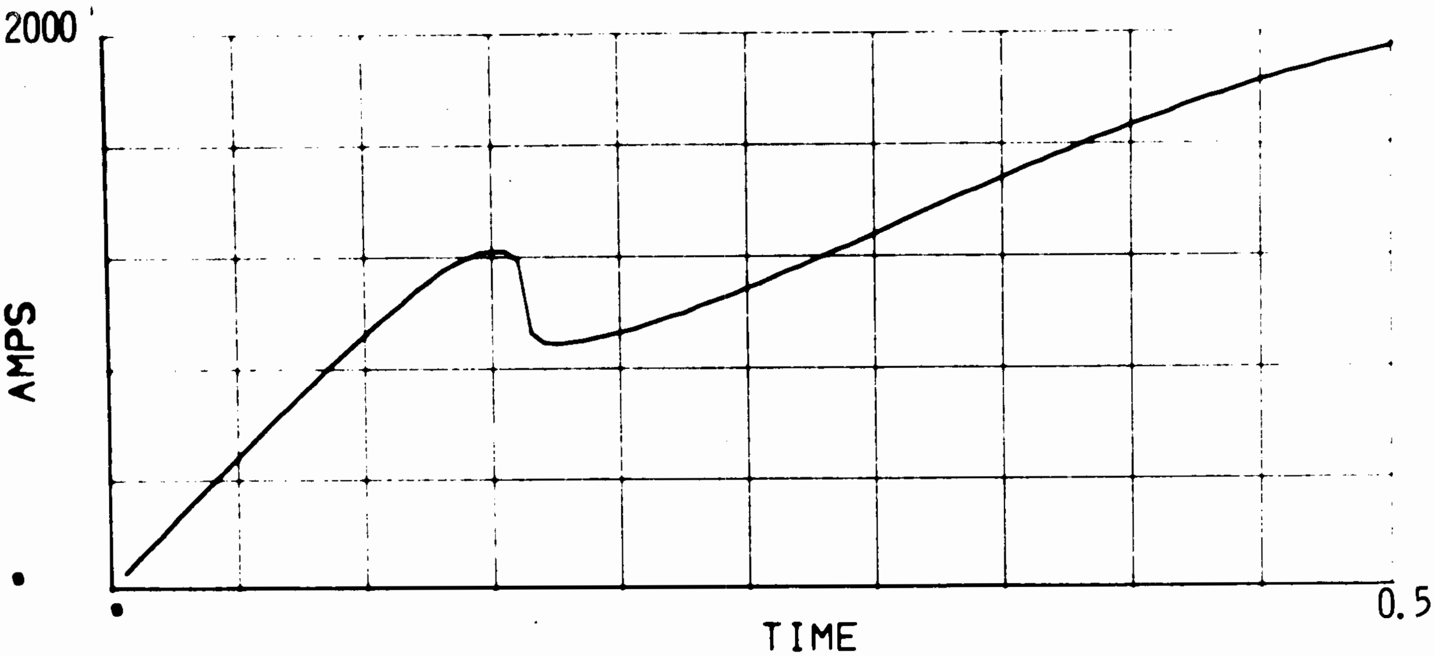
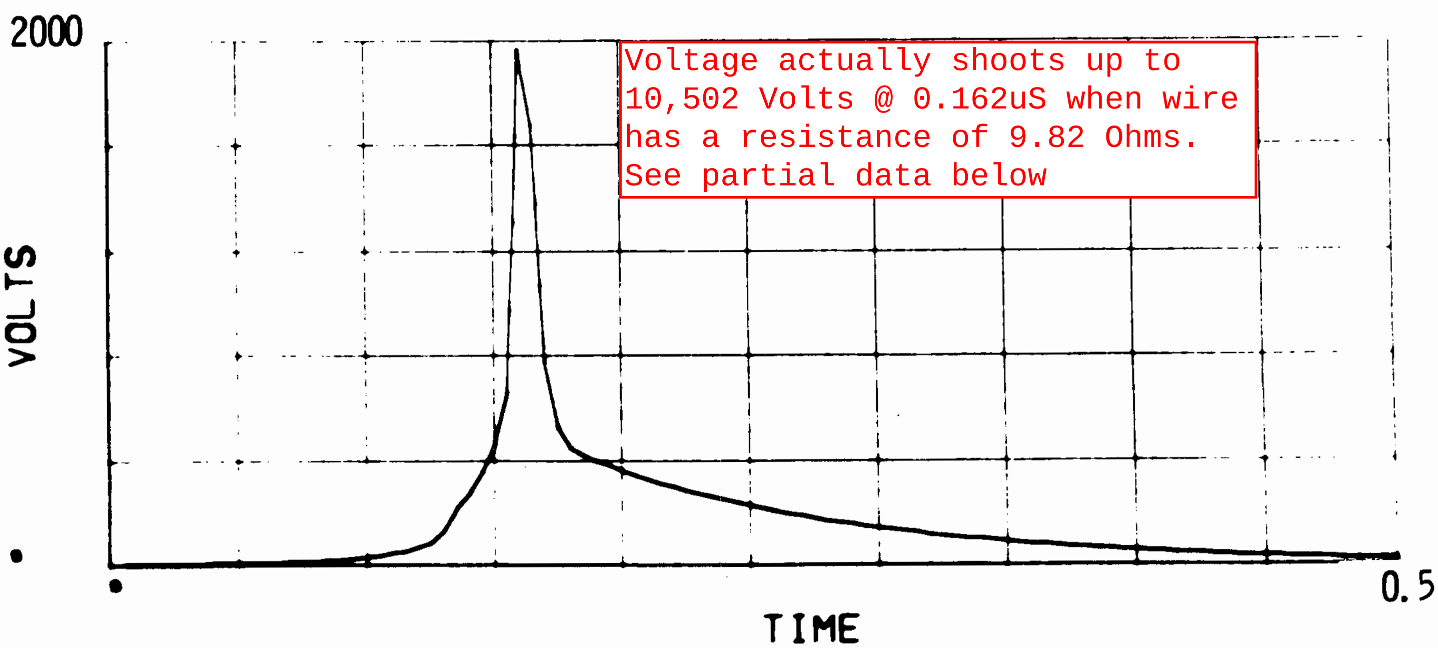


FIGURE 1.

SHOT 2 BRIDGEWIRE CURRENT VS TIME



SHOT 2 BRIDGEWIRE VOLTAGE VS TIME



	TIME MICROSEC	CURRENT AMPS	VOLTS	OHMS	POWER KILOWATTS	ENERGY MILLIJ	ACTION AMP2 SEC	GDENS AMP2 SEC/MM4	EDENS J/GM
S	.102	939.3	46.2	.04914	43.364	.98	.0315	2.4232E+04	44.372
S	.104	955.5	47.7	.04988	45.541	1.07	.0333	2.5611E+04	48.376
S	.106	971.6	51.1	.05263	49.677	1.16	.0352	2.7038E+04	52.693
S	.108	987.4	55.4	.05615	54.747	1.26	.0371	2.8512E+04	57.372
S	.110	1003.1	63.5	.06330	63.700	1.38	.0391	3.0033E+04	62.739
S	.112	1018.6	69.5	.06821	70.776	1.52	.0411	3.1603E+04	68.935
S	.114	1033.9	70.6	.06825	72.965	1.66	.0433	3.3221E+04	75.456
S	.116	1049.2	76.7	.07314	80.511	1.82	.0454	3.4888E+04	82.372
S	.118	1064.1	84.4	.07929	89.777	1.99	.0477	3.6603E+04	90.091
S	.120	1078.9	93.3	.08650	100.685	2.18	.0499	3.8367E+04	98.724
S	.122	1093.4	103.8	.09496	113.526	2.39	.0523	4.0180E+04	108.395
S	.124	1107.6	115.3	.10424	127.874	2.63	.0547	4.2040E+04	119.366
S+L	.126	1121.5	123.2	.10989	138.219	2.90	.0572	4.3949E+04	131.386
S+L	.128	1135.1	146.0	.12861	165.697	3.20	.0598	4.5904E+04	145.030
S+L	.130	1147.9	189.3	.16490	217.291	3.57	.0624	4.7907E+04	161.981
S+L	.132	1159.6	258.7	.22311	299.995	4.08	.0650	4.9952E+04	185.277
L	.134	1169.9	301.3	.25755	352.525	4.74	.0677	5.2036E+04	215.207
L	.136	1179.5	331.5	.28133	391.024	5.49	.0705	5.4157E+04	248.914
L	.138	1188.5	361.0	.30375	429.086	6.31	.0733	5.6311E+04	286.119
L	.140	1195.8	392.4	.32784	469.605	7.21	.0762	5.8496E+04	326.843
L	.142	1204.3	434.9	.36099	523.598	8.20	.0790	6.0711E+04	371.807
L	.144	1210.9	480.2	.39655	581.436	9.30	.0820	6.2951E+04	421.958
L+V	.146	1216.4	532.3	.43756	647.456	10.53	.0849	6.5214E+04	477.599
L+V	.148	1222.8	593.8	.48639	724.874	11.90	.0879	6.7496E+04	539.626
L+V	.150	1223.9	664.6	.54335	813.266	13.43	.0909	6.9792E+04	609.108
L+V	.152	1225.0	760.3	.62062	931.335	15.17	.0939	7.2095E+04	688.125
L+V	.154	1224.1	872.8	.71296	1068.404	17.16	.0969	7.4400E+04	778.495
L+V	.156	1220.4	1058.7	.86749	1292.098	19.47	.0998	7.6696E+04	883.150
L+V	.158	1211.2	1414.0	1.16744	1712.572	22.48	.1028	7.8969E+04	1019.908
L+V	.160	1188.8	2858.4	2.40447	3397.967	26.98	.1057	8.1190E+04	1224.054
ARC	.162	1069.1	10502.3	9.82322	11228.387	42.30	.1083	8.3204E+04	1919.093
ARC	.164	951.7	3564.5	3.74528	3392.382	55.76	.1103	8.4735E+04	2529.332
ARC	.166	916.6	1841.3	2.00874	1687.802	60.47	.1120	8.6067E+04	2742.990
ARC	.168	901.3	1346.0	1.49343	1213.080	63.29	.1137	8.7334E+04	2871.137
ARC	.170	892.7	1110.2	1.24363	991.018	65.47	.1153	8.8569E+04	2970.067
ARC	.172	887.9	943.4	1.06256	837.664	67.30	.1169	8.9786E+04	3052.847
ARC	.174	886.1	809.2	.91319	717.071	68.84	.1185	9.0994E+04	3122.913
ARC	.176	886.6	713.0	.80416	632.177	70.18	.1200	9.2201E+04	3183.738
EXT	.178	888.7	652.8	.73454	580.180	71.38	.1216	9.3411E+04	3237.954
EXT	.180	891.4	638.0	.71576	568.743	72.53	.1232	9.4628E+04	3290.068
EXT	.182	894.3	623.9	.69759	557.927	73.65	.1248	9.5853E+04	3341.173
EXT	.184	897.5	610.3	.67999	547.677	74.76	.1264	9.7086E+04	3391.323
EXT	.186	900.8	597.2	.66292	537.946	75.84	.1280	9.8328E+04	3440.567
EXT	.188	904.4	584.6	.64636	528.689	76.91	.1296	9.9579E+04	3488.950
EXT	.190	909.2	572.4	.63028	519.868	77.96	.1313	1.0084E+05	3536.513
EXT	.192	912.2	560.7	.61467	511.445	78.99	.1329	1.0211E+05	3583.294
EXT	.194	916.3	549.3	.59952	503.389	80.01	.1346	1.0340E+05	3629.328
EXT	.196	920.7	538.4	.58475	495.671	81.00	.1363	1.0469E+05	3674.646
EXT	.198	925.2	527.7	.57040	488.264	81.99	.1380	1.0600E+05	3719.279
EXT	.200	929.9	517.4	.55644	481.142	82.96	.1397	1.0732E+05	3763.252