

SERVICE MANUAL

ADCOM[®] AC ENHANCER ACE-515

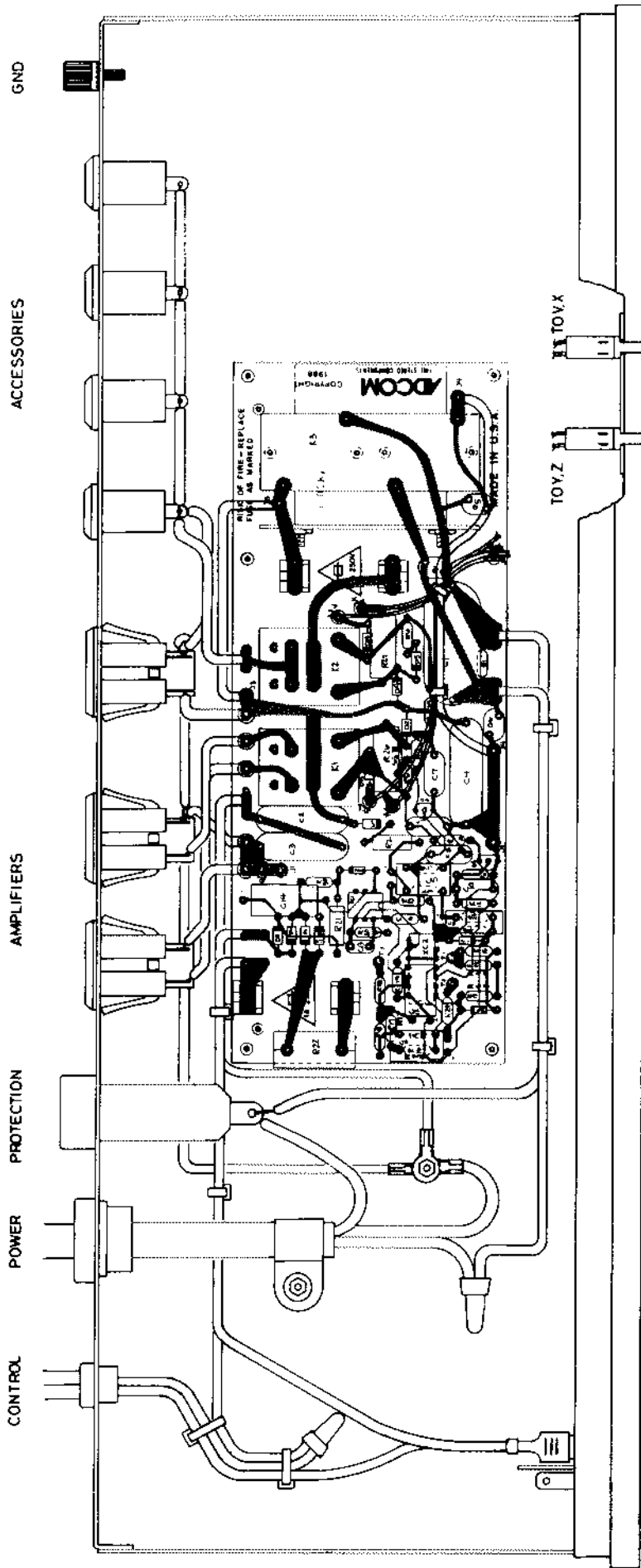
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Chassis Layout



Mode of Operation:

As the ACE-515 is supplied from the factory, with 120V applied to the POWER cord, filtered and conditioned AC is constantly available at the UNSWITCHED outlet. ACCESSORIES and AMPLIFIERS outlets are not energized until AC power is applied at the CONTROL line cord input. This condition will immediately energize the ACCESSORIES outlets and, after a delay of 10 seconds, the AMPLIFIERS outlets. When AC power is removed from the CONTROL line cord, the AMPLIFIERS outlets will be immediately de-energized and, after a delay of 30 seconds, the ACCESSORIES outlets will de-energize.

Input Power:

Operating voltage is 120VAC, $\pm 20\%$, 50/60Hz.

Control Input:

120VAC, $\pm 20\%$, 50/60Hz, fused @ 1A.

Outputs:

AMPLIFIERS outlets will provide 10A, maximum, per pole, continuous. ACCESSORIES outlets will provide a total of 10A, maximum, continuous, fused @ 10A.

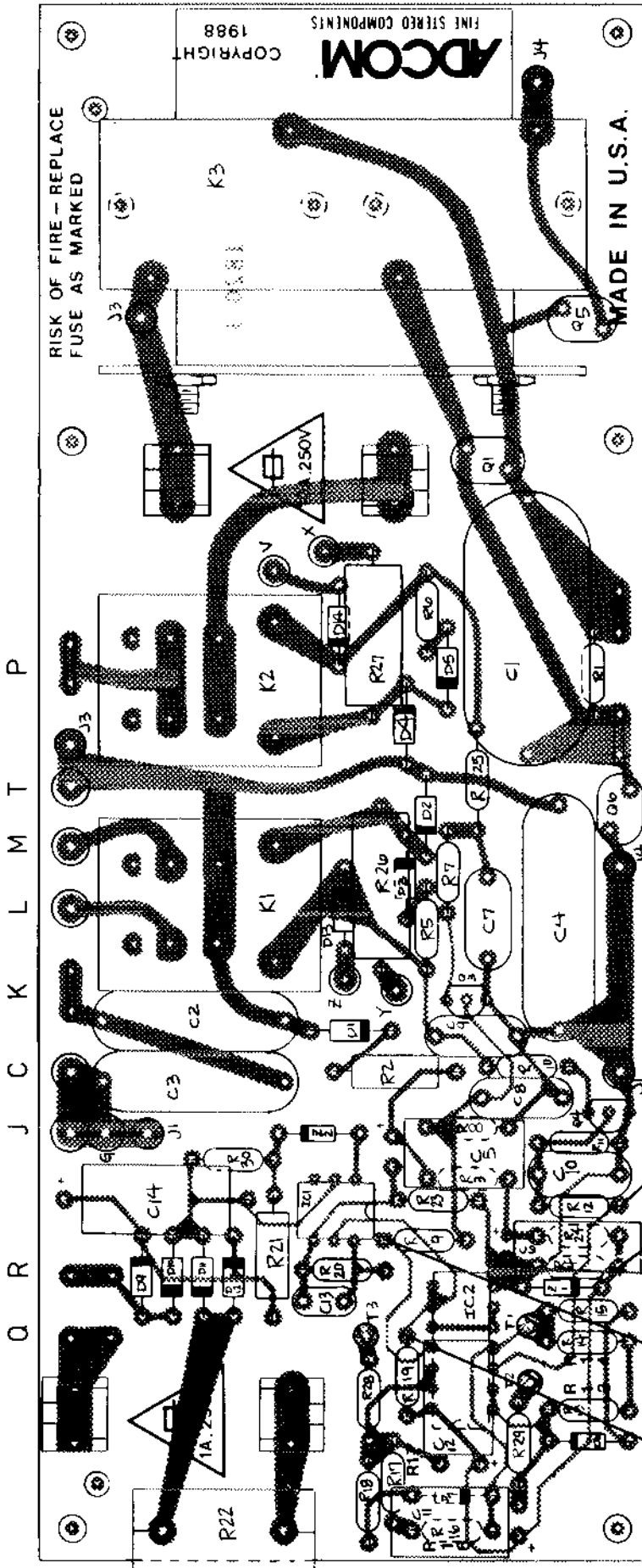
Time Delay:

As provided from the factory, there is a delay-on-make of 10 seconds, $\pm 20\%$, and a delay-on-break of 30 seconds, $\pm 20\%$. See **Mode of Operation**, above.

Environmental:

Operating temperature is, ambient, 0°C to $+50^{\circ}\text{C}$. Storage temperature is -40°C to $+80^{\circ}\text{C}$.

PCB/Component Layout



TP A Circuit ground and ground reference for all measurements below.

TP B + 9VDC, ± 10% when input POWER is applied to A & B.

TP E + 9VDC, ± 10% when input POWER is applied to A & B and no power applied to CONTROL AC Q & R.

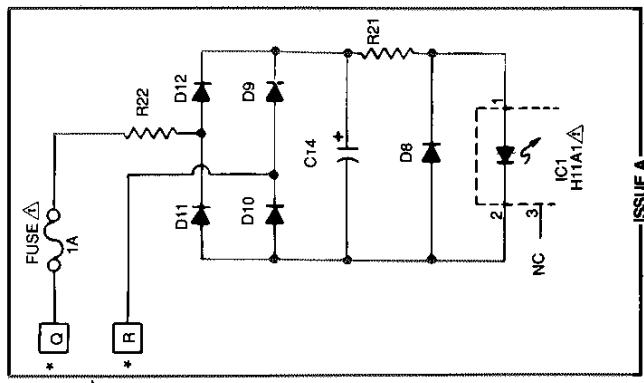
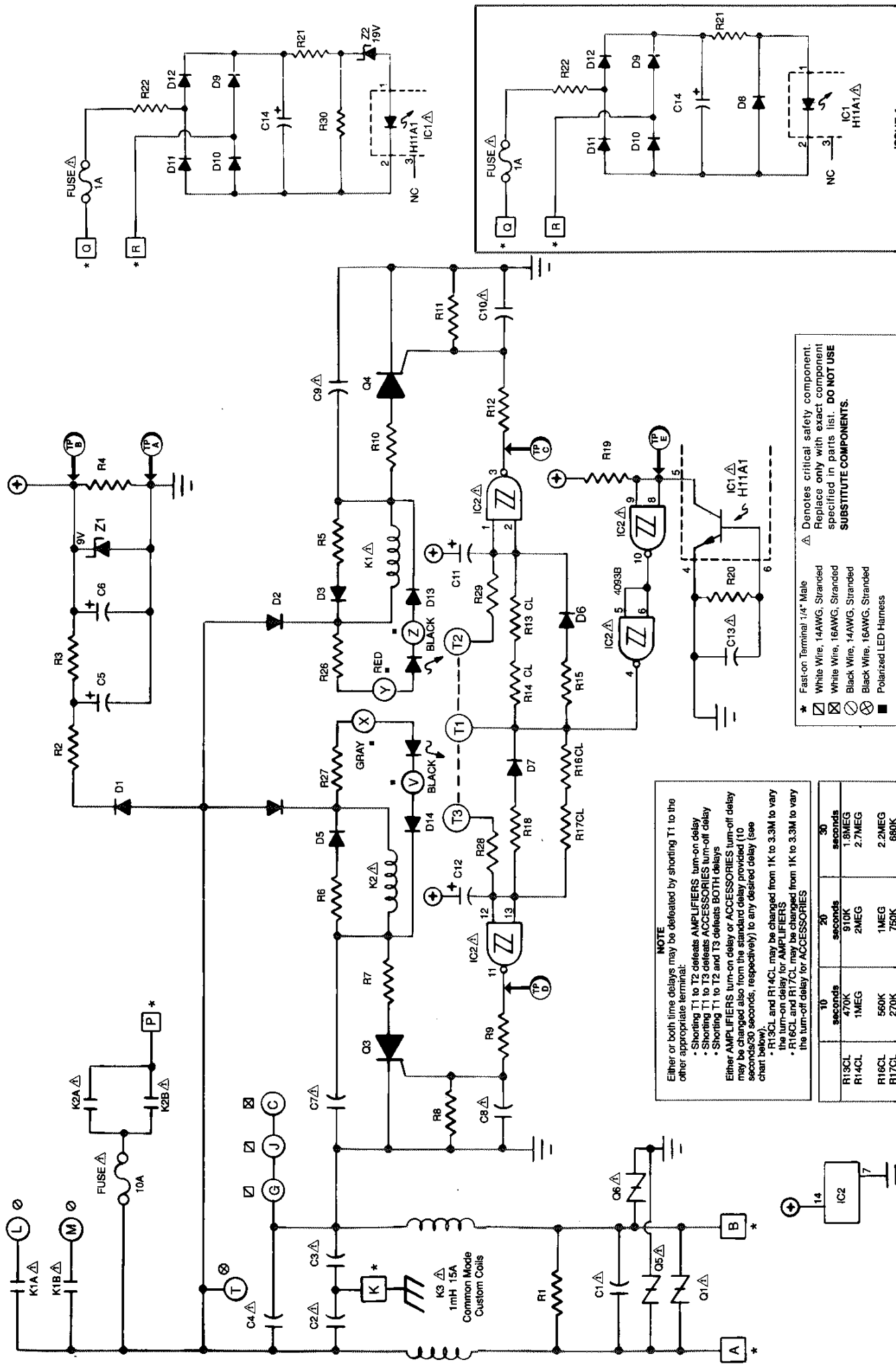
TP E Less than +0.5VDC with input POWER to A & B and CONTROL AC power applied to Q & R.

TP D When voltage is less than 0.5VDC, K2 relay (ACCESSORIES) is de-energized; ACCESSORIES off.

TP D When voltage is +9VDC, ±10%, K2 relay (ACCESSORIES) is energized; ACCESSORIES on.

TP C When voltage is less than 0.5VDC, K1 relay (AMPLIFIERS) is de-energized; AMPLIFIERS off.

TP C When voltage is +9VDC, ±10%, K1 relay (AMPLIFIERS) is energized; AMPLIFIERS on.



* Fast-on Terminal 1/4" Male
 □ White Wire, 14AWG, Stranded
 ⊗ White Wire, 16AWG, Stranded
 ⊙ Black Wire, 14AWG, Stranded
 ⊗ Black Wire, 16AWG, Stranded
 ■ Polarized LED Harness

Δ Denotes critical safety component.
 Replace only with exact component specified in parts list. **DO NOT USE SUBSTITUTE COMPONENTS.**

All capacitor values are in microfarads unless otherwise noted.
 All resistor values are in ohms unless otherwise noted.
 Resistors are all 1/4 watt, 5% unless otherwise noted.

NOTE
 Either or both time delays may be defeated by shunting T1 to the other appropriate terminal:
 • Shunting T1 to T2 defeats AMPLIFIERS turn-on delay
 • Shunting T1 to T3 defeats ACCESSORIES turn-off delay
 • Shunting T1 to T2 and T3 defeats BOTH delays
 Either AMPLIFIERS turn-on delay or ACCESSORIES turn-off delay may be changed also from the standard delay provided (10 seconds/30 seconds, respectively) to any desired delay (see chart below).
 • R13CL and R14CL may be changed from 1K to 3.3M to vary the turn-on delay for AMPLIFIERS
 • R16CL and R17CL may be changed from 1K to 3.3M to vary the turn-off delay for ACCESSORIES

	10 seconds	20 seconds	30 seconds
R13CL	470K	910K	1.8MEG
R14CL	1MEG	2MEG	2.7MEG
R16CL	560K	1MEG	2.2MEG
R17CL	270K	750K	680K

Repair Parts List Model ACE-515

Reference #	Part #	Description	
C1	P0100-140	△ Capacitor 0.47 μ F @ 125 VAC	Panasonic ECQU1A474MH Nichicon-QXC2E474TPT
C2	P0100-141	△ Capacitor 0.047 μ F @ 125VAC	Panasonic-ECQU1A473MH Nichicon-QXC2E473TPT
C3	P0100-141	△ Capacitor 0.047 μ F @ 125VAC	Panasonic-ECQU1A473MH Nichicon-QXC2E473TPT
C4	P0100-142	△ Capacitor 0.1 μ F @ 125VAC	Panasonic-ECQU1A104MH Nichicon-QXC2E104TPT
C5	P0100-24	Capacitor 10 μ F @ 35VDC	
C6	P0100-42	Capacitor 1 μ F @ 50VDC	
C7	P0100-46	△ Capacitor 0.047 μ F @ 250VDC	Panasonic-ECQE2473KZS
C8	P0100-45	△ Capacitor 0.1 μ F @ 250VDC	Panasonic-ECQE2104KZS Nichicon-QXJ2E104KTPT
C9	P0100-46	△ Capacitor 0.047 μ F @ 250VDC	Panasonic-ECQE2473KZS
C10	P0100-45	△ Capacitor 0.1 μ F @ 250VDC	Panasonic-ECQE2104KZS Nichicon-QXJ2E104KTPT
C11	P0100-24	Capacitor 10 μ F @ 35VDC	
C12	P0100-24	Capacitor 10 μ F @ 35VDC	
C13	P0100-21	Capacitor 1000pF @ 500VDC	
C14	P0100-33	Capacitor 22 μ F @ 63VDC	
D1	P1024-25	Rectifier 1000V, 1A	
D2	P1024-8	Rectifier 800V, 2.5A	
D3	P1024-8	Rectifier 800V, 2.5A	
D4	P1024-8	Rectifier 800V, 2.5A	
D5	P1024-8	Rectifier 800V, 2.5A	
D6	P1024-2	Diode 75V Signal	
D7	P1024-2	Diode 75V Signal	
D8	P1024-3	Rectifier 400V, 1A	
D9	P1024-25	Rectifier 1000V, 1A	
D10	P1024-25	Rectifier 1000V, 1A	
D11	P1024-25	Rectifier 1000V, 1A	
D12	P1024-25	Rectifier 1000V, 1A	
D13	P1024-25	Rectifier 1000V, 1A	
D14	P1024-25	Rectifier 1000V, 1A	
Z1	P1021-2	Zener 9V	
Z2	P1021-1	Zener 19V, \pm 5%, 500mW	
K1, K2	P1007-2	△ Relay 115VAC, DPDT, 10 A	Potter & Brumfield — K10P-4205-AC120 Potter & Brumfield — K10P-11A55-AC120 Aromat-HL2P-AC115V Omron-LY2-O-US-AC120
K3	RLS1328-15-1000	△ Common Mode Coils 1mH, 15A	ADCOM Custom Coils
IC1	S100030-1	△ Opto-Coupler	Optron-OPI2253 Motorola-TIL 117, H11A1
IC2	P1000-3	△ Quad Nand	Motorola-MC 14093BCP RCA-CD 4093BE GE-V130LA2
Q1, Q5, Q6	P1012-5	△ MOV 130V, 11 Joules	
Q3	P1010-1	SCR 400V, 0.8 A	
Q4	P1010-1	SCR 400V, 0.8 A	
R1	P1008-2.7M	Resistor 2.7M, 1/4W, \pm 5%	
R2	P1009-33	Resistor 10k, W, \pm 5%	
R3	P1008-3K	Resistor 3k, 1/4W, \pm 5%	
R4	P1008-10K	Resistor 10k, 1/4W, \pm 5%	

Repair Parts List Model ACE-515 (cont'd)

Reference #	Part #	Description
R5	P1027-100	Resistor 100, 1/4W, ±10%
R6	P1027-100	Resistor 100, 1/4W, ±10%
R7	P1027-100	Resistor 100, 1/4W, ±10%
R8	P1008-4.7K	Resistor 4.7k, 1/4W, ±5%
R9	P1008-10K	Resistor 10k, 1/4W, ±5%
R10	P1027-100	Resistor 100, 1/4W, ±5%
R11	P1008-4.7K	Resistor 4.7k, 1/4W, ±5%
R12	P1008-10K	Resistor 10k, 1/4W, ±5%
R13CL	P1008-470K	Resistor 470k, 1/4W, ±5%
R14CL	P1008-1M	Resistor 1M, 1/4W, ±5%
R15	P1008-100	Resistor 100, 1/4W, ±5%
R16CL	P1008-2.2M	Resistor 2.2M, 1/4W, ±5%
R17CL	P1008-680K	Resistor 680k, 1/4W, ±5%
R18	P1008-100	Resistor 100, 1/4W, ±5%
R19	P1008-100K	Resistor 100k, 1/4W, ±5%
R20	P1008-2.2M	Resistor 2.2M, 1/4W, ±5%
R21	P1009-37	Resistor 1.5k, 1W, ±5%
R22	P1009-13	Resistor 8.5k, 5W, ±5%
R23	P1008-0	Jumper 0, 1/4W
R24	P1008-0	Jumper 0, 1/4W
R25	P1008-0	Jumper 0, 1/4W
R26	P1009-61	Resistor 18k, 2W, ±5%
R27	P1009-61	Resistor 18k, 2W, ±5%
R28	P1008-47K	Resistor 47k, 1/4W, ±5%
R29	P1008-47K	Resistor 47k, 1/4W, ±5%
R30	P1008-3.9K	Resistor 3.9k, 1/4, ±5%
J1	P1020-162	Wire 14AWG, STR, BLK, UL1015, STRIP 1/4'x1/4'
J3	P1020-162	Wire 14AWG, STR, BLK, UL1015, STRIP 1/4'x1/4'
J4	P1020-162	Wire 14AWG, STR, BLK, UL1015, STRIP 1/4'x1/4'
A	P1015-4	Terminal 1/4 Male
B	P1015-4	Terminal 1/4 Male
Q	P1015-4	Terminal 1/4 Male
R	P1015-4	Terminal 1/4 Male
K	P1015-4	Terminal 1/4 Male
P	P1015-4	Terminal 1/4 Male
C	P1020-161	Wire 16AWG, STR, WHT, UL1015, STRIP 1/4'x1/2'
G	S1015170-1	Wire 14AWG, STR, WHT, UL1015, STRIP 1/4'x1/4'
J	S1015170-1	Wire 14AWG, STR, WHT, UL1015, STRIP 1/4'x1/4'
L	S1015169-1	Wire 14AWG, STR, WHT, UL1015, STRIP 1/4'x1/4'
M	S1015169-2	Wire 14AWG, STR, WHT, UL1015, STRIP 1/4'x1/4'
T	S1015169-3	Wire 14AWG, STR, WHT, UL1015, STRIP 1/4'x1/4'
V,X	WI09020285	LED Socket/Wire Ass'y, Gray/Black
Y,Z	WI09020273	LED Socket/Wire Ass'y, Red/Black
T1-T3	P1015-16	Barrel Terminal
	P1015-169	0.187 Female Fully Insulated Terminal
	P1015-170	0.187 Female Insulated Terminal
	P0600-5	△ Fuse 1 AMP Bussman-AGC-1 Little Fuse 3AG312001
	P0600-4	△ Fuse 10 AMPS Bussman-AGC-10 Little Fuse 3AB314010
	P0700-23	Fuse Clip
	P0700-179	Wire Tie (For Coil)
	P100-100	Label (Date Code)
	P0700-57	Wire Tie (For V, X, Y & Z Wires)
	AA80001072	Front Panel (ACE-515) 2 TTD-1#1
	AA80001084	Front Panel (ACE-515W) 2 TTD-1#2

Repair Parts List Model ACE-515 (cont'd)

Reference #	Part #	Description
	DD40000757	LED LTL-2201A 3F RED
	SH40000180	Rocker Power SW Carling RGSCC711-R-B-B-O, Black
	SH40000192	Rocker Power SW Carling RGSCC711-R-W-W-O, White
	AR80000879	Screened Rear Panel
	CD00000279	⚠ AC Cord SJT-3 AWG#14 4TR-2461
	CD00000280	⚠ AC Cord SJT-2#18 W/Clp 4TR-2475
	SA00001413	⚠ AC Outlet Socket AC-G07FB18
	SA00001450	⚠ AC Outlet Socket S-16519
	SA00001802	⚠ AC Outlet Socket AC-G07FW43
	SC00000027	AC Cord Relief SR-4N-4
	SC00000143	AC Cord Relief SR-7W-2
	TP20000158	Screw Terminal 089C-3647 UB-0060
	AM00001549	Chassis Body TRP-472
	BC00000465	Cylinder Bushing 4TR-2187#4
	FT00000035	Plastic Foot 4TR-1257 20x8
	AU00000798	Upper Cover 2TUI-3#2

⚠ = Because of fire, shock and/or other hazards, parts identified by, and listed with, this sign **MUST** be replaced with the **IDENTICAL FACTORY PART** listed in the **REPAIR PARTS LIST**. No substitutions with other "equivalent" parts can be made.

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