



**CONTROL CIRCUIT**

C101 .47 MFD	R101 40 Ω 5W	R123 47 K Ω
C102 .50 MFD	R102 68 K Ω	R129 47 K Ω
C103 .047 MFD	R104 10 K Ω 2W	R131 10 K Ω 2W
C104 .047 MFD	R105 27 K Ω	R132 10 K Ω
C106 .047 MFD	R106 47 K Ω	
C107 .1 MFD	R107 15 K Ω	Q101 2N 5655
C108 .47 MFD	R108 22 K Ω	Q102 MJ 3029
C110 1 MFD	R109 10 K Ω	Q103 2N 4123
C113 .15 MFD	R110 1.5 K Ω	Q104 2N 4123
C114 .15 MFD	R111 5 K Ω TRIMMER	Q105 2N 4123
C116 .047 MFD	R112 47 K Ω	Q106 2N 4123
C117 .02 MFD	R113 33 K Ω	Q107 2N 4123
C118 .02 MFD	R114 10 K Ω	Q108 2N 4123
C119 .02 MFD	R115 100 Ω	Q1010 2N 6027
C120 .02 MFD	R117 47 Ω	Q1103 P5E 43
D101 16 A	R118 6.8 K Ω	LED 1A
D102 16 A	R119 6.8 K Ω	LED 1B
D103 16 A	R120 680 Ω	LED 1C LIGHT EMITTING
D104 THRU 1 A	R121 2.7 K Ω	LED 1D DIODE
D115	R122 47 K Ω	LED 1E
DZ 101 25V.	R123 100 Ω	SCR 101 8A 600V
	R124 100 Ω	SCR 102 8A 600V
	R125 2.7 K Ω	SCR 103 16A 400V
	R126 2.7 K Ω	SCR 104 16A 400V
	R127 4.7 K Ω	

PT 101 TRANSIENT PROTECTOR  
 F101 1/2 A SLOW BLOW FUSE  
 F102 2 A FUSE  
 PT 104 PULSE TRANSFORMER  
 PT 105 PULSE TRANSFORMER

**LOGIC CIRCUIT**

C201 .02 MFD	R201 1.5 K Ω	R229 4.7 K Ω
C202 2 MFD	R202 4.7 K Ω	R230 4.7 K Ω
C203 .02 MFD	R203 15 K Ω	R231 4.7 K Ω
C204 10 MFD	R204 470 Ω	R232 100 K Ω
C205 18 MFD	R205 100 K Ω 2W	R233 100 Ω
C206 .02 MFD	R206 6.8 K Ω	R234 100 Ω
C207 50 MFD	R207 1.5 K Ω	R235 100 Ω
C208 2 MFD	R208 33 K Ω	R236 22 K Ω
C209 .02 MFD	R209 10 K Ω	R237 470 Ω
C210 10 MFD	R210 5 K Ω 2W	R238 470 Ω
C211 THRU .02 MFD	R211 1 K Ω	R239 470 Ω
C214 .02 MFD	R212 2.7 K Ω	X201 QUAD 2 INPUT NANDGATE
C215 .02 MFD	R213 47 K Ω	X202 QUAD 2 INPUT NANDGATE
CR 201 DPST N.O. 24V. D.C.	R214 1.5 K Ω	X203 QUAD 2 INPUT NANDGATE
CR 202 DPST N.O. 24V. D.C.	R215 10 K Ω	X204 QUAD 2 INPUT NANDGATE
DZ 201 16 V.	R216 10 K Ω	X205 HEX INVERTER
DZ 202 THRU DZ 208 3V.	R217 47 K Ω	X206 HEX INVERTER
Q101 2N 5655	R218 4.7 K Ω	X207 QUAD 2 INPUT NANDGATE
Q102 2N 5657	R219 10 K Ω	X208 QUAD 2 INPUT NANDGATE
Q103 2N 4123	R220 2.7 K Ω	L201 5.6mH
Q104 2N 5657	R221 4.7 K Ω	
Q105 2N 5657	R222 1K Ω	
Q106 2N 5657	R223 10 K Ω 2W	
Q107 2N 5657	R224 4.7 K Ω	
Q108 2N 5657	R225 4.7 K Ω	
Q109 2N 4123	R226 4.7 K Ω	
Q110 2N 4123	R227 4.7 K Ω	
Q111 2N 4123	R228 4.7 K Ω	

**VARIABLE VOLTAGE CIRCUIT**

C301 2 MFD	R301 4.7 K Ω 2W
C302 .1 MFD	R302 100 Ω
C303 .01 MFD	R303 10 K Ω TRIMMER
C304 .02 MFD	R304 15 Ω
C305 .01 MFD	R305 47 Ω
C306 2 MFD	R311 68 Ω
C307 .02 MFD	R312 4.8 K Ω 2W
C308 .22 MFD	R313 6.8 K Ω
C309 .02 MFD	R314 47 K Ω
	R315 1K Ω 12W
D301 THRU 1 A	R316 470K Ω
D302 THRU 1 A	R317 10K Ω
D303 THRU 1 A	R318 470K Ω
D304 THRU 1 A	R319 10K Ω
DZ 301 5.1V.	
DZ 302 10V.	
DZ 303 25V.	
R301 4.7 K Ω	Q301 P5E 43
R302 4.7 K Ω 2W	TP 301 TRANSIENT PROTECTOR
R303 4.8 K Ω	PT 301 PULSE TRANSFORMER
R304 27 K Ω	S 301 DPDT TOGGLE SWITCH
R305 100 K Ω	T 301 24V TRANSFORMER

**\* OPTIONAL CIRCUIT**

C401 18 MFD	
C402 .02 MFD	
C403 .02 MFD	
D401 THRU 1 A	
D402 THRU 1 A	
D403 THRU 1 A	
D404 THRU 1 A	
D405 THRU 1 A	
D406 THRU 1 A	
D407 THRU 1 A	
D408 THRU 1 A	
D409 THRU 1 A	
D410 THRU 1 A	
D411 THRU 1 A	
D412 THRU 1 A	
D413 THRU 1 A	
D414 THRU 1 A	
D415 THRU 1 A	
D416 THRU 1 A	
D417 THRU 1 A	
D418 THRU 1 A	
D419 THRU 1 A	
D420 THRU 1 A	
D421 THRU 1 A	
D422 THRU 1 A	
D423 THRU 1 A	
D424 THRU 1 A	
D425 THRU 1 A	
D426 THRU 1 A	
D427 THRU 1 A	
D428 THRU 1 A	
D429 THRU 1 A	
D430 THRU 1 A	
D431 THRU 1 A	
D432 THRU 1 A	
D433 THRU 1 A	
D434 THRU 1 A	
D435 THRU 1 A	
D436 THRU 1 A	
D437 THRU 1 A	
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D443 THRU 1 A	
D444 THRU 1 A	
D445 THRU 1 A	
D446 THRU 1 A	
D447 THRU 1 A	
D448 THRU 1 A	
D449 THRU 1 A	
D450 THRU 1 A	
D451 THRU 1 A	
D452 THRU 1 A	
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D494 THRU 1 A	
D495 THRU 1 A	
D496 THRU 1 A	
D497 THRU 1 A	
D498 THRU 1 A	
D499 THRU 1 A	
D500 THRU 1 A	

**COMPONENTS NOT ON P.C. BOARD**

R1 2 Ω 50 W	S1 DPST CONTROL POWER SWITCH
R2 10K Ω 2W POWER SAMPLE INPUT CONTROL	S2 SPST TRAVEL SWITCH
R3 5K Ω 2W WIRE FEED SPEED CONTROL	S3 SPST INCH UP SWITCH
R4 250 Ω 25 W	S4 SPST INCH DOWN SWITCH
	S5 SPST START SWITCH
	S6 SPST STOP SWITCH
	1CR SPST 110 VDC COIL
	2CR SPST 110 VDC COIL
	3CR SPST 110 VDC COIL
	4CR REED SWITCH ACTIVATED BY WELDING CURRENT
	5CR OPTIONAL SPST 110 VDC COIL ACTIVATED BY 4CR CIRCUIT
	OPTIONAL 4CR SOLID STATE RELAY FOR LINC. FULL STARTING RELAY OPERATION
	OPTIONAL 7CR LINC. FILL STARTING RELAY RELAY KIT
	OPTIONAL X401 QUAD 2 INPUT NANDGATE

**METHODS OF TRAVEL**

TRAVEL METHOD	LEAD NO. TO PIN NO.	TRAVEL METHOD	LEAD NO. TO PIN NO.
START-STOP WITH SWITCHES	691 P 5	WIRE FEED STOP AND CONTACTOR DELAY	693 P 3
START-STOP WITH CURRENT	691 P 8	INCH UP AND CONTACTOR DELAY	692 P 1
START WITH START SWITCH	691 P 5	INCH UP AND NO STOP WITH STOP SWITCH	693 P 4
STOP WITH STOP SWITCH	692 P 7	CONTACTOR DELAY	690 P 4
START WITH START SWITCH	691 P 8	CONTACTOR DELAY	690 P 2
STOP AFTER CRATER FILL	692 P 9		

**A.N.S.I. ELECTRICAL SYMBOLS PER E-1537**

N.A. TO OPERATE UNIT WITHOUT VARIABLE VOLTAGE BOARD JUMPER 637 TO 539 & 635 TO 636

N.B. TO OPERATE UNIT WITHOUT OPTIONAL START BOARD JUMPER 583 (S) & 584 (S)

N.C. TO OPERATE UNIT WITHOUT OPTIONAL CRATER FILL BOARD JUMPER 583 (C) & 584 (C)

N.D. X201 THRU X207 AND X401 PIN 7 CONNECTED TO 539 PIN 14 CONNECTED TO 616

NOTE: CIRCLED NUMBERS SHOW CHANGES MADE ON CHANGE SHEET NUMBERS

THE ELECTRIC CO. AUTOMATICALLY MADE BY THE ELECTRIC CO. OPERATING SCHEMATIC

*SUPERSEDED BY G-1385  
 SUBSEQUENTLY WITHDRAWN*