

WCI

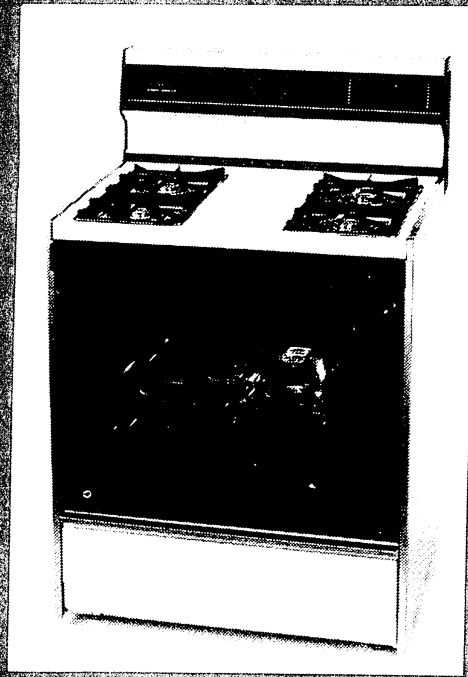
SERVICE MANUAL

ASSN #15

TAPPAN

O'Keefe & Merritt

FREE STANDING GAS RANGES



NOTICE

This service manual is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. White Consolidated Industries, Inc. cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this manual.

WCI CONSUMER SERVICES DIVISION
5000 Penimeter Drive
DUBLIN, OHIO 43017

5995207064

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MAY 1991

SUPERCEDES LT124870100

SAFE SERVICING PRACTICES

To avoid the possibility of personal injury and/or property damage, it is important that safe servicing practices be observed. The following are examples, but without limitation, of such practices:

1. Do not attempt a product repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.
2. Before servicing or moving an appliance:
 - remove power cord from electric outlet, trip circuit breaker to OFF, or remove fuse.
 - turn off gas supply.
 - turn off water supply.
3. Never interfere with the proper operation of any safety device.
4. USE ONLY REPLACEMENT PARTS CATALOGED FOR THIS APPLIANCE. SUBSTITUTIONS MAY DEFEAT COMPLIANCE WITH SAFETY STANDARDS SET FOR HOME APPLIANCES.
5. GROUNDING: The standard color coding for safety ground wires is GREEN or GREEN with YELLOW STRIPES. Ground leads are not to be used as current carrying conductors. IT IS EXTREMELY IMPORTANT THAT THE SERVICE TECHNICIAN RE-ESTABLISH ALL SAFETY GROUNDS PRIOR TO COMPLETION OF SERVICE. FAILURE TO DO SO WOULD CREATE A POTENTIAL HAZARD.
6. Prior to returning the product to service ensure that:
 - all electric, gas, and water connections are correctly and securely connected.
 - all gas and water connections are tested for leaks. DO NOT TEST FOR GAS LEAKS WITH A FLAME.
 - all electrical leads are properly dressed and secured away from sharp edges, high-temperature components and moving parts.
 - all uninsulated electrical terminals, connectors, heaters, etc. have adequate spacing from all metal parts and panels.
 - all safety grounds (both internal and external to the product) are correctly and securely connected.
 - all panels are properly and securely reassembled.

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MAY 1991

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TOP PILOTS

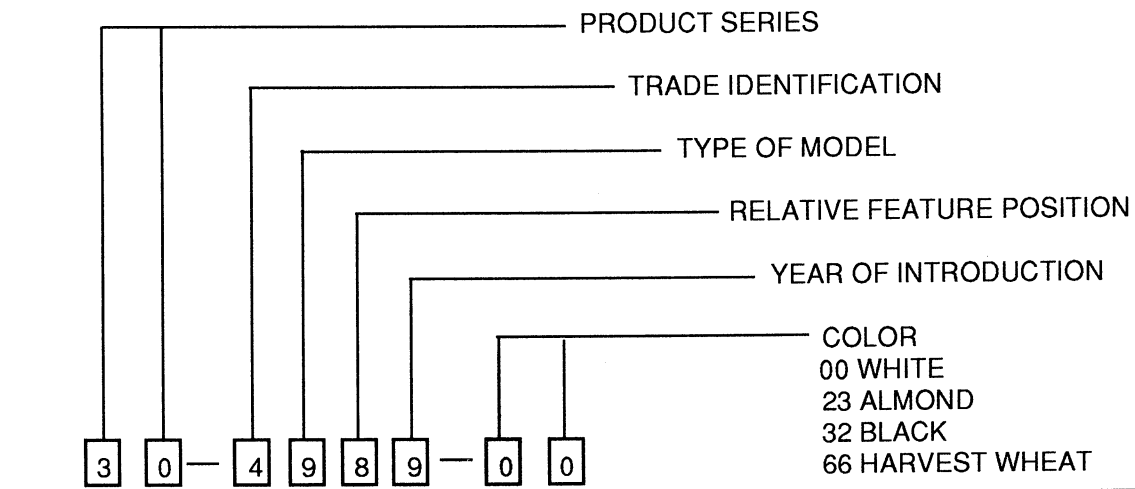
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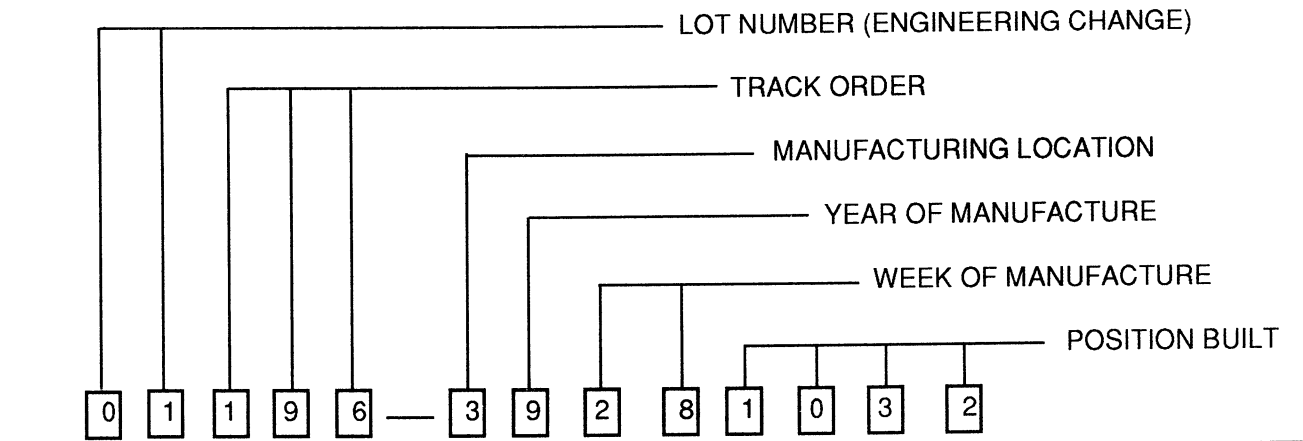
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MODEL/SERIAL NUMBERING

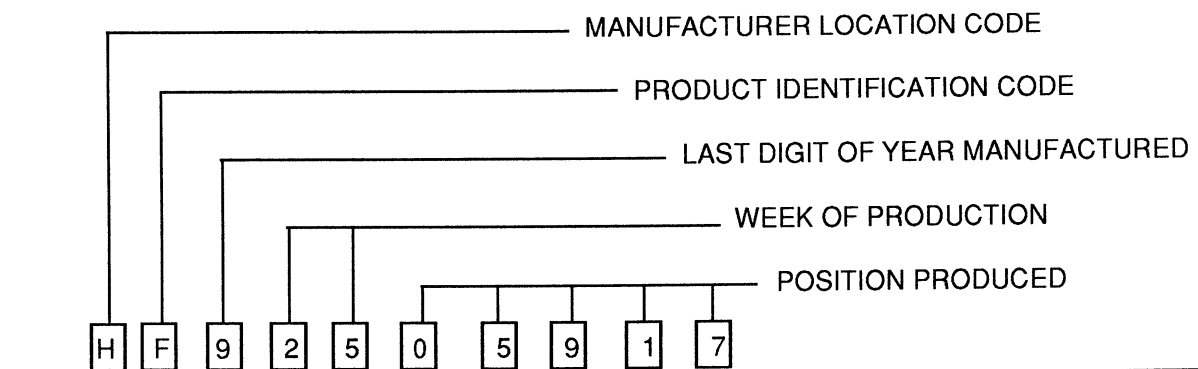
MODEL NUMBER



SERIAL NUMBER EARLY PRODUCTION



SERIAL NUMBER LATER PRODUCTION

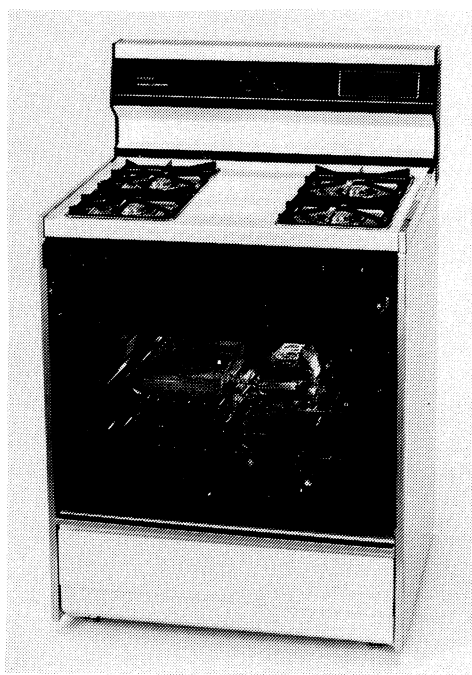


PRODUCT IDENTIFICATION CODE

- | | | |
|--------------------|---------------------|--------------------------|
| A - Refrigerator | F - Range | K - Room Air Conditioner |
| B - Freezer | G - Microwave | L - Cuber |
| C - Washer | H - Dishwasher | M - Humidifier |
| D - Dryer | I - Disposer | N - Dehumidifier |
| E - Laundry Center | J - Trash Compacter | |

PRODUCT IDENTIFICATION

TYPICAL MODELS



MODEL 30-4687



MODEL 30-2137

FEATURE CHART

MODEL NO.	PORCELAIN OVEN	CONTINUOUS CLEAN OVEN	SELF CLEAN OVEN
30-1049	X		
30-1149	X		
30-2117	X		
30-2118	X		
30-2119	X		
30-2137	X		
30-2138	X		
30-2139	X		
30-2228	X		
30-2237	X		
30-2238	X		
30-2239	X		
30-2249	X		
30-2518	X		
30-2528	X		
30-2537		X	
30-2538		X	
30-2549		X	
30-2757			X
30-2758			X
30-2759			X
30-2769			X
30-3147	X		
30-3148	X		
30-3347	X		
30-3348	X		
30-3349	X		
30-3378	X		
30-3647		X	
30-3648		X	
30-3649		X	
30-3657		X	
30-3658		X	
30-3857			X
30-3858			X
30-3859			X
30-3978			X
30-3979			X
30-3987			X
30-3988			X
30-3989			X
30-4387	X		
30-4388	X		
30-4687		X	
30-4688		X	
30-4979			X
30-4980			X
30-4987			X

WIRING DIAGRAM AND SCHEMATIC INDEX

MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
30-1049	1-3	DOES NOT USE	ELECTRICITY
30-1149	1-4	18	19
30-2117	1-2	28	29
30-2118	1-4	28	29
30-2119	1-2	28	29
30-2137	1-3	26	27
30-2138	1-3	26	27
	4-6	18	19
30-2139	1-5	18	19
30-2228	1-3	28	29
30-2237	1-3	26	27
30-2238	1-4	26	27
	5-6	18	19
30-2239	1-5	18	19
30-2249	1-5	18	19

WIRING DIAGRAM AND SCHEMATIC INDEX

MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
30-2518	1-3	28	29
30-2528	1	26	27
	2-5	18	19
30-2537	1-2	26	27
30-2538	1-3	26	27
	4-6	18	19
30-2549	1-5	18	19
30-2757	1-3	52	53
	4-6	32	33
30-2758	1-3	32	33
	4-6	42	43
30-2759	1-3	36	37
30-2769	1-2	36	37
30-3147	1-3	26	27
30-3148	1-2	26	27
	3	18	19
30-3347	1-3	26	27
30-3348	1-2	26	27
	3	18	19

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MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
30-3349	1-5	34	35
30-3378	1-3	22	23
30-3647	1-3	26	27
30-3648	1	58	59
30-3649	1-5	34	35
30-3657	1-3	30	31
30-3658	1-2	30	31
	3-4	40	41
30-3857	1-3	52	53
	4-6	32	33
30-3858	1	32	33
	2-5	42	43
30-3859	1	24	25
	2-3	50	51
30-3978	1-2	32	33
	3-5	42	43
30-3979	1-4	36	37
30-3987	1-3	52	53
	4-6	32	33

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MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
30-3988	1-2	32	33
	3-4	42	43
30-3989	1-3	48	49
30-4387	1-3	54	55
30-4388	1-3	54	55
	4	38	39
30-4687	1-3	54	55
30-4688	1-2	54	55
	3-4	38	39
30-4979	1-3	50	51
30-4980	1	62	63
30-4987	1-3	52	53
	4-6	30	31
30-4988	1-2	32	33
	3-5	42	43
30-4989	1-3	50	51
30-4990	1-3	50	51
30-4997	1-2	56	57
	3-4	44	45

WIRING DIAGRAM AND SCHEMATIC INDEX

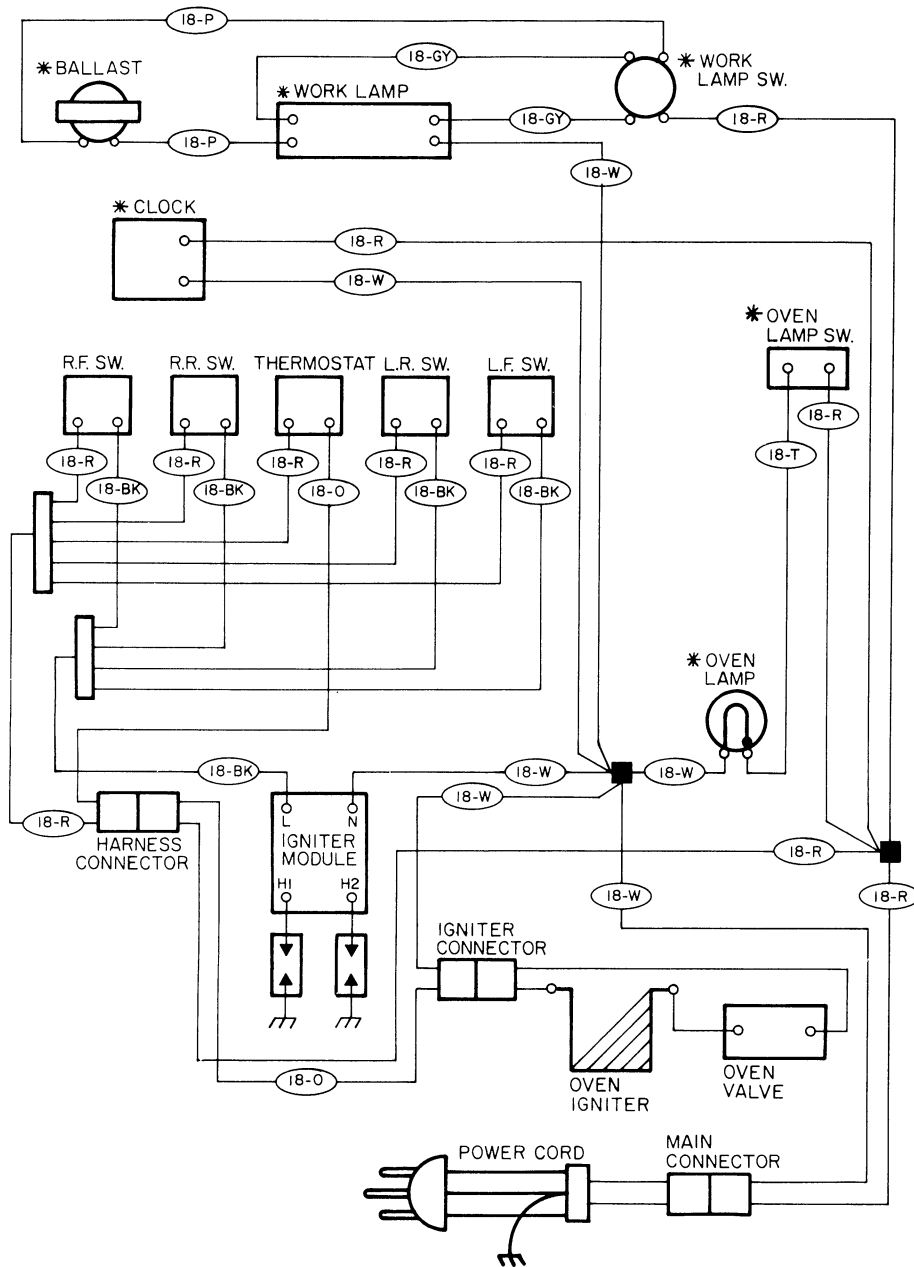
MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
30-4999	1	20	21
	2	46	47
30-6237	1-3	26	27
30-6238	1-3	26	27
	4-7	18	19
30-6239	1-4	18	19
30-6537	1-3	26	27
30-6538	1-3	26	27
	4	18	19
30-6539	1-4	18	19
30-6757	1-3	52	53
	4-6	32	33
30-6758	1-4	32	33
	5-7	42	43
30-6759	1-6	36	37
30-7347	1-3	26	27
30-7348	1-3	26	27
	4-8	18	19
30-7647	1-3	26	27

WIRING DIAGRAM AND SCHEMATIC INDEX

MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
30-7648	1	58	59
30-7987	1-3	52	53
	4-6	32	33
30-7988	1-2	32	33
	3-5	42	43
30-7989	1-3	48	49
32-1007	1-4	DOES NOT USE	ELECTRICITY
32-1009	1-3	DOES NOT USE	ELECTRICITY
32-1019	1-5	18	19
32-1027	1-2	26	27
	3	18	19
32-1029	1	DOES NOT USE	ELECTRICITY
32-1039	1-5	18	19
32-1048	1-3	DOES NOT USE	ELECTRICITY
32-1117	1	28	29
32-1118	1-3	28	29

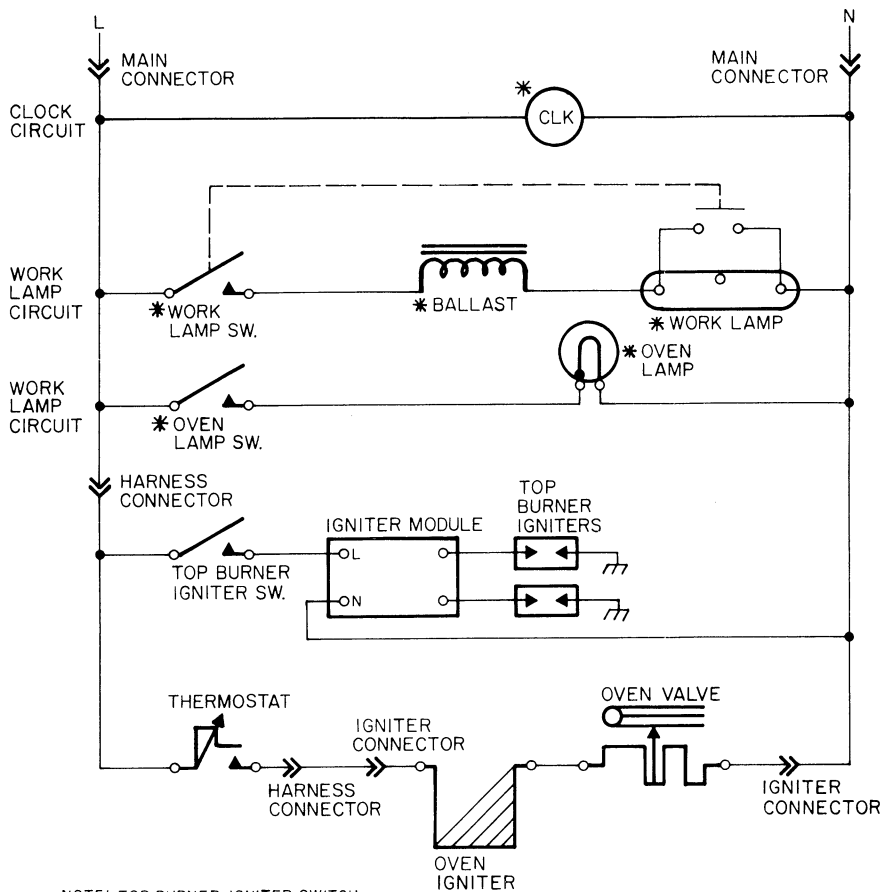
WIRING DIAGRAM AND SCHEMATIC INDEX

MODEL	LOT NUMBER	WIRING DIAGRAM	SCHEMATIC
		PAGE NUMBER	PAGE NUMBER
32-1148	1-2	26	27
	3-5	18	19
32-2207	1	DOES NOT USE ELECTRICITY	
32-2227	1-2	26	27
32-2537	1-2	26	27
32-2538	1-3	26	27
	4	18	19
32-2539	1-3	18	19
	4-5	60	61
32-2637	1-3	26	27
32-2638	1-2	26	27
	3-4	18	19
32-2639	1-3	18	19
	4-5	60	61



NOTES:

1. SERVICE: IF REPLACEMENT OF TERMINALS AND / OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.



NOTE: TOP BURNER IGNITER SWITCH
(1 SWITCH, SHOWN 4 REQUIRED)

WARNING

DISCONNECT POWER
BEFORE SERVICING UNIT.

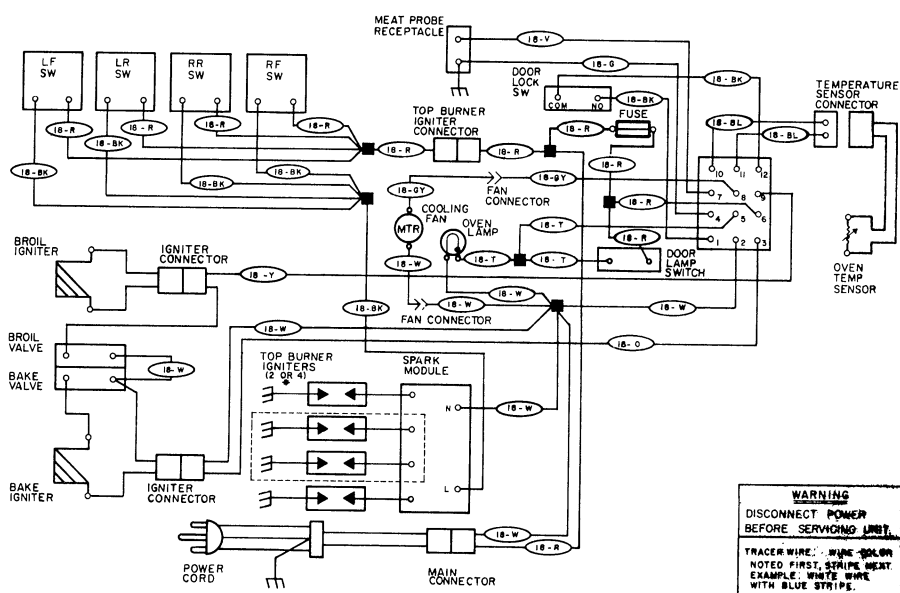
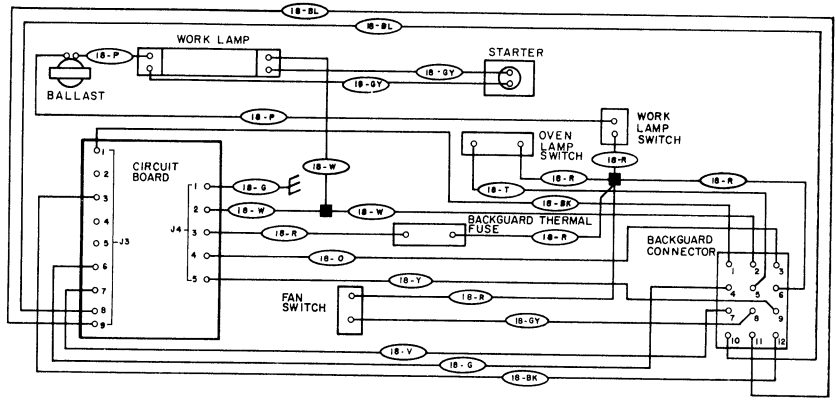
TRACER WIRE: WIRE COLOR
NOTED FIRST, STRIPE NEXT.
EXAMPLE: WHITE WIRE
WITH BLUE STRIPE.

(W/BL-B)

COLOR WIRE NO.

COLOR CODE			
BK	BLACK	BR	BROWN
O	ORANGE	V	VIOLET
T	TAN	Y	YELLOW
C	COPPER	GY	GRAY
BL	BLUE	G	GREEN
P	PINK	R	RED
W	WHITE	PR	PURPLE
G/Y	GRAY WITH YELLOW STRIPE		

191S018F225



- NOTES:
1. SERVICE: IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY, COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

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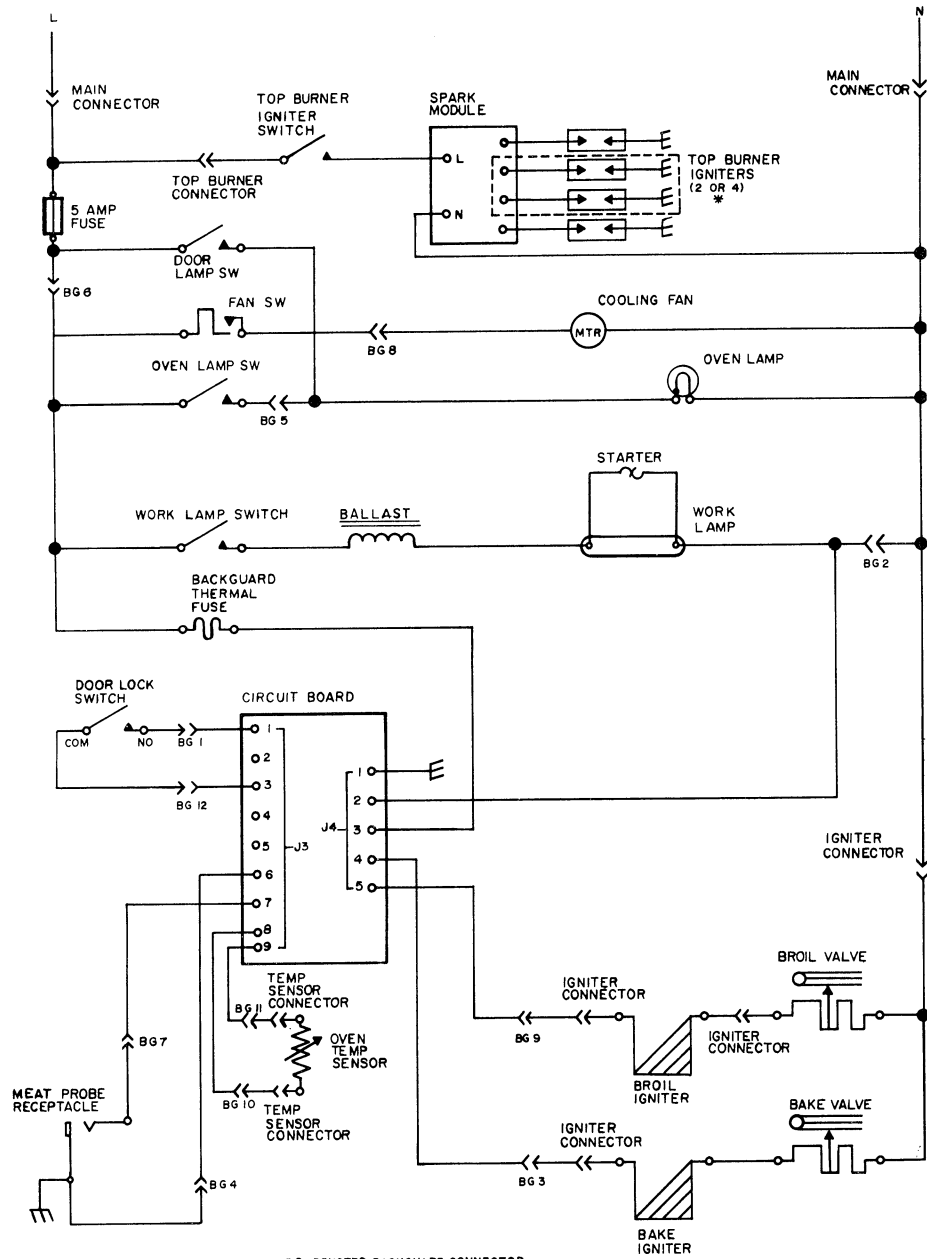
WARNING

DISCONNECT POWER BEFORE SERVICING UNIT

TRACER WIRE: W/B-L
 NOTED FIRST, STRIPE MEANT
 EXAMPLE: WHITE WIRE WITH BLUE STRIPE.

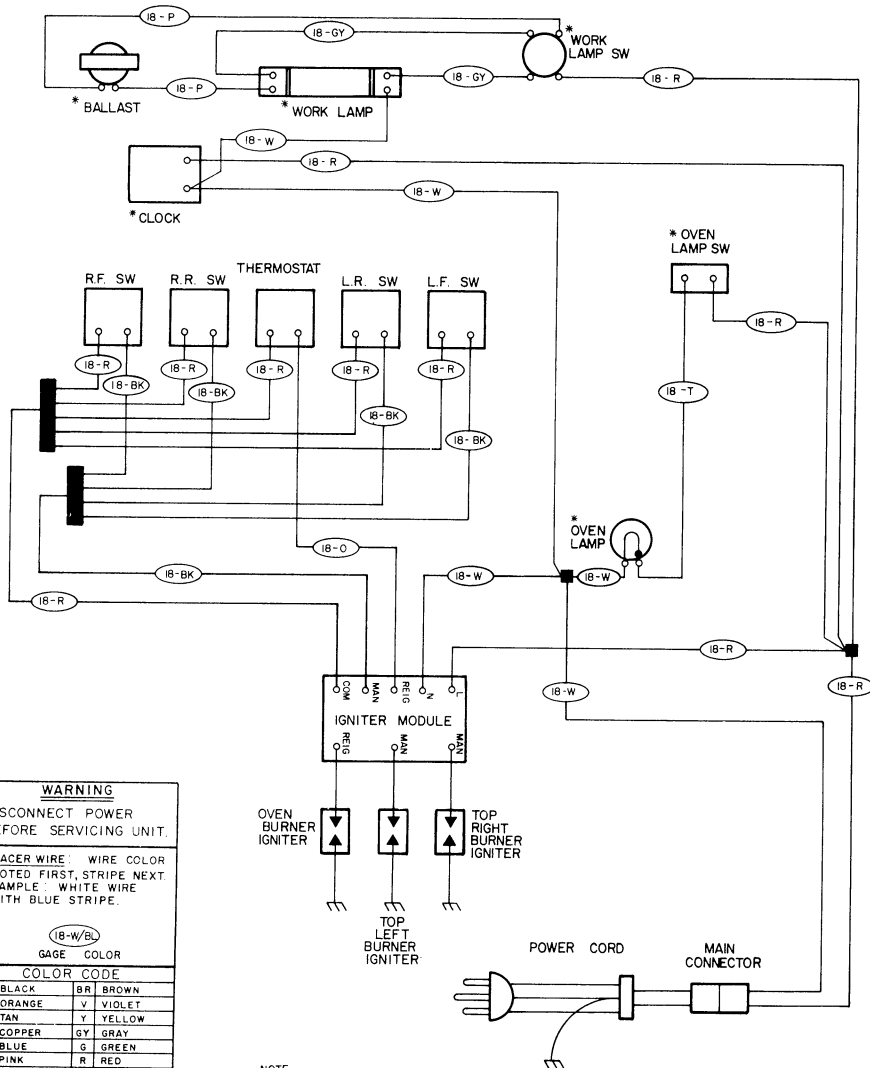
COLOR WIRE NO.		COLOR CODE	
BK	BLACK	BR	BROWN
O	ORANGE	Y	YELLOW
T	TAN	V	VIOLET
C	COPPER	GY	GRAY
BL	BLUE	G	GREEN
P	PINK	R	RED
W	WHITE	PR	PURPLE
B/Y	BLACK WITH BLUE STRIPE		

BURNER IGNITER CIRCUIT
(1 SWITCH SHOWN, 4 REQUIRED)



BG DENOTES BACKGUARD CONNECTOR
* THESE COMPONENTS MAY NOT
APPEAR ON ALL MODELS.

191S018F299



WARNING
DISCONNECT POWER BEFORE SERVICING UNIT.

TRACER WIRE: WIRE COLOR NOTED FIRST, STRIPE NEXT. EXAMPLE: WHITE WIRE WITH BLUE STRIPE.

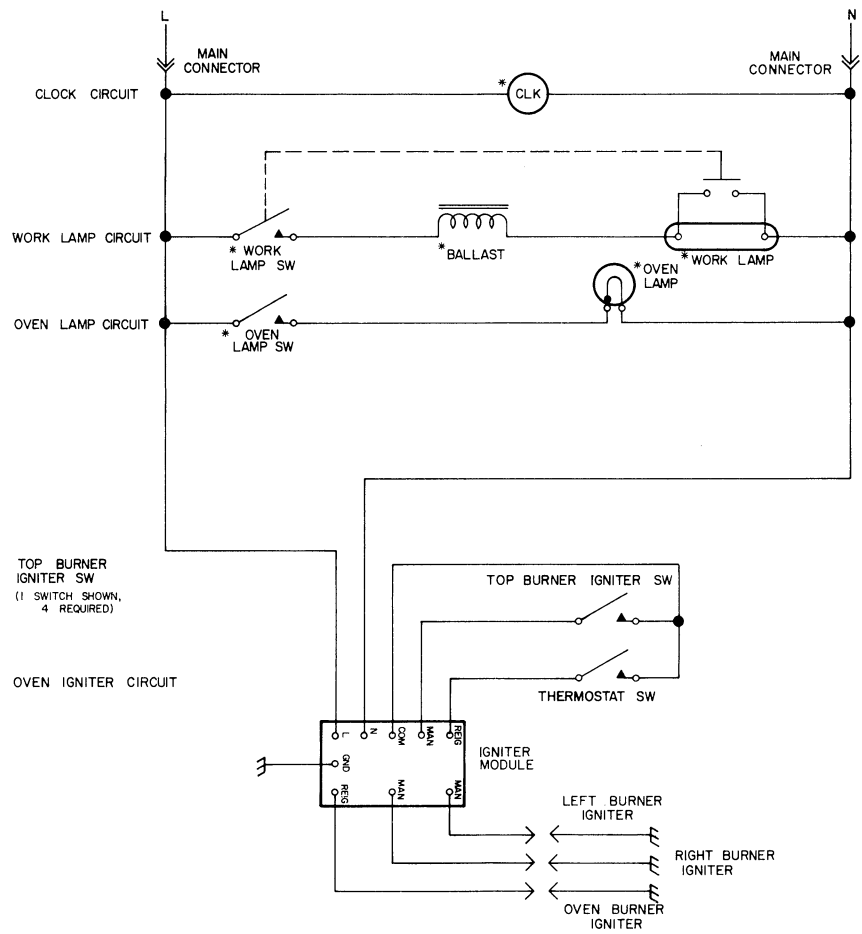
(18-W/B)
GAGE COLOR

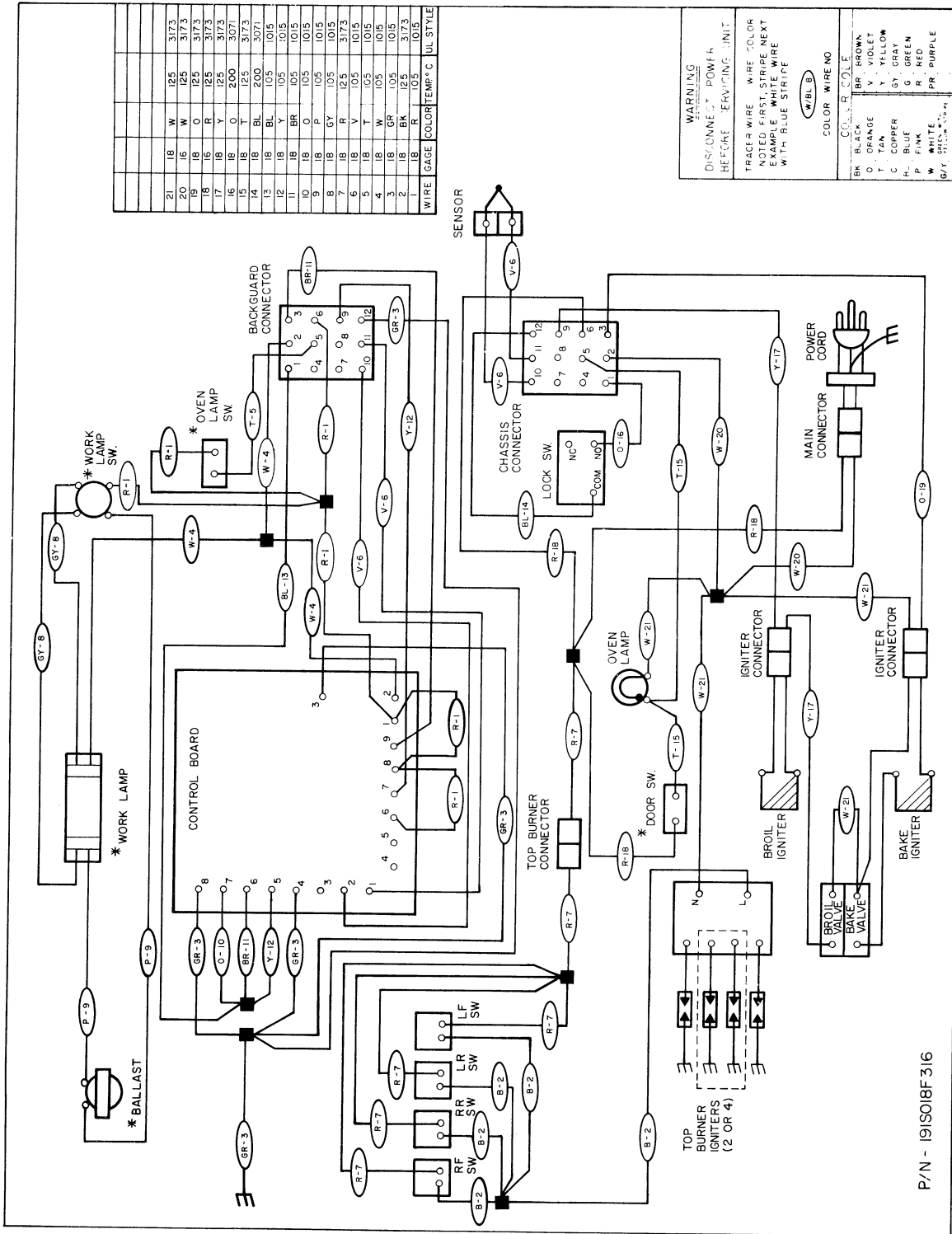
COLOR CODE			
BK	BLACK	BR	BROWN
O	ORANGE	V	VIOLET
T	TAN	Y	YELLOW
C	COPPER	GY	GRAY
BL	BLUE	G	GREEN
P	PINK	R	RED
W	WHITE	PR	PURPLE
B/Y	GREEN WITH BLACK STRIPE		

19IS018F212

DATE:	3-22-88	DRAWN:	JJ
CHECKED:		DATE:	
		APPROVED:	
		DATE:	3-22-88

NOTE
1 SERVICE: IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
2 * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS





WIRE GAGE	COLOR	TEMP °C	UL STYLE	
21	18	W	125	3173
20	16	W	125	3173
19	18	O	125	3173
18	16	R	125	3173
17	18	Y	125	3173
16	18	O	200	3071
15	18	T	125	3173
14	18	BL	200	3071
13	18	BL	105	1015
12	18	Y	105	1015
11	18	BR	105	1015
10	18	O	105	1015
9	18	GY	105	1015
8	18	GY	105	1015
7	18	R	125	3173
6	18	V	105	1015
5	18	T	105	1015
4	18	W	105	1015
3	18	GR	125	3173
2	18	BK	125	3173
1	18	R	105	1015

WARNING
DISCONNECT POWER BEFORE LEAVING UNIT

TRACER WIRE WIRE COLOR NOTED FIRST STRIPE NEXT EXAMPLE WHITE WIRE WITH BLUE STRIPE

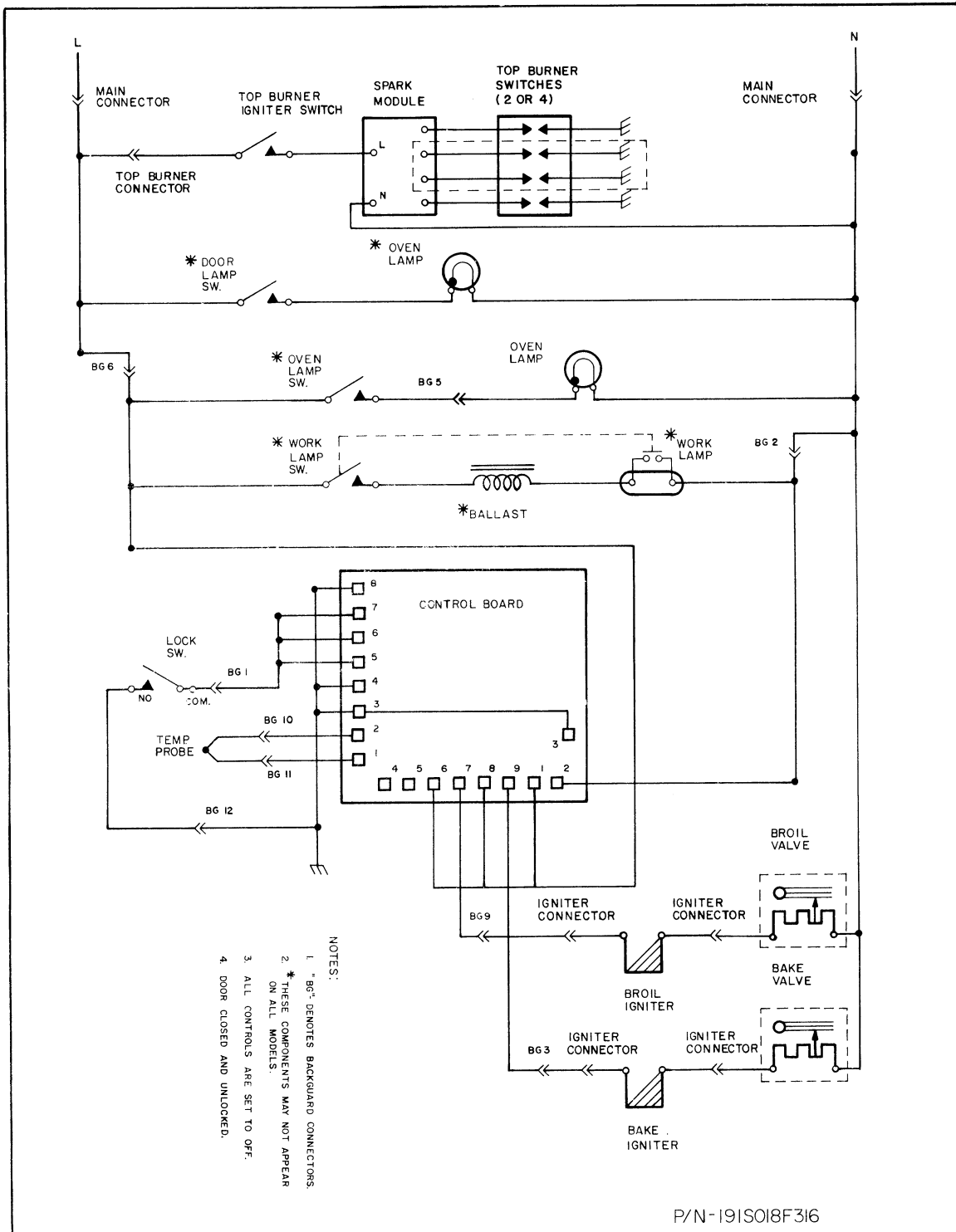
W/B/L/B

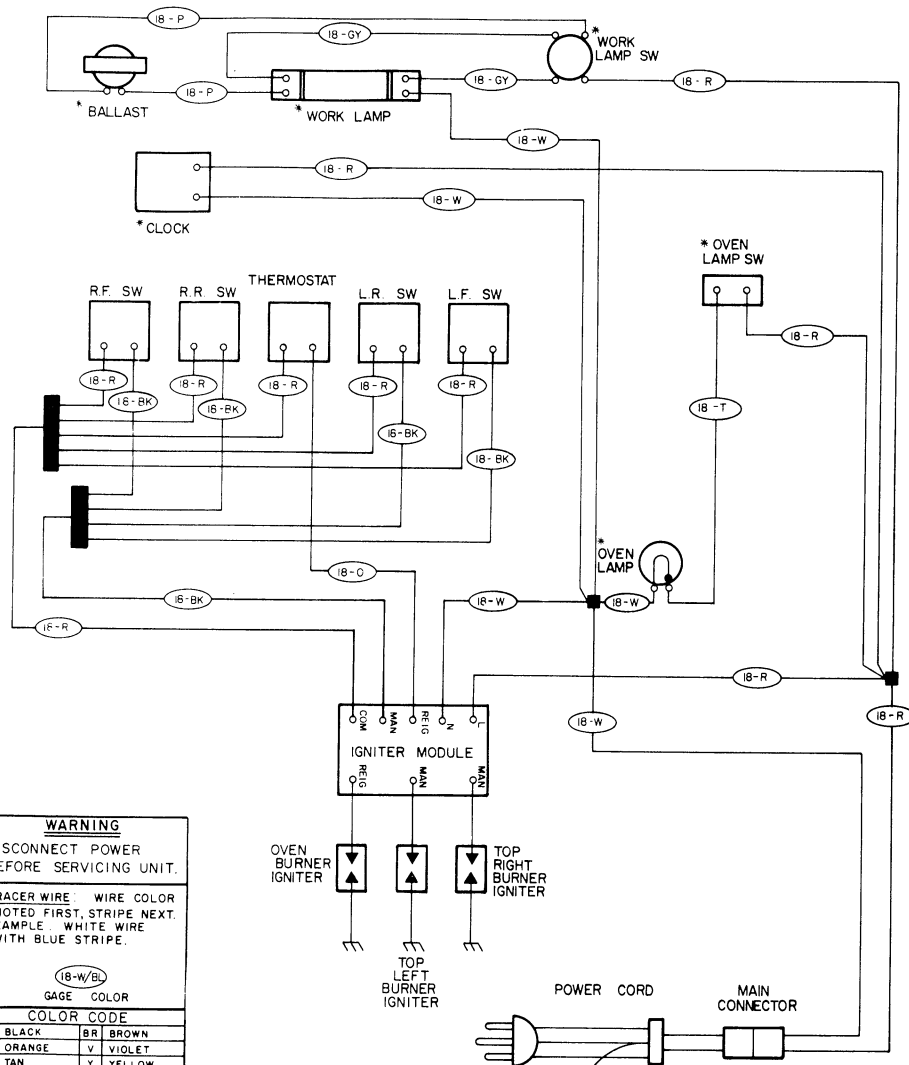
COLOR WIRE NO

COIL COLOR

BK BLACK
BR BROWN
O ORANGE
T TAN
C COPPER
BL BLUE
P PINK
W WHITE
GY GRAY
Y YELLOW
GY GRAY
G GREEN
R RED
PR PURPLE

P/N - 191S018F316





WARNING
DISCONNECT POWER BEFORE SERVICING UNIT.

TRACER WIRE WIRE COLOR NOTED FIRST, STRIPE NEXT. EXAMPLE: WHITE WIRE WITH BLUE STRIPE.

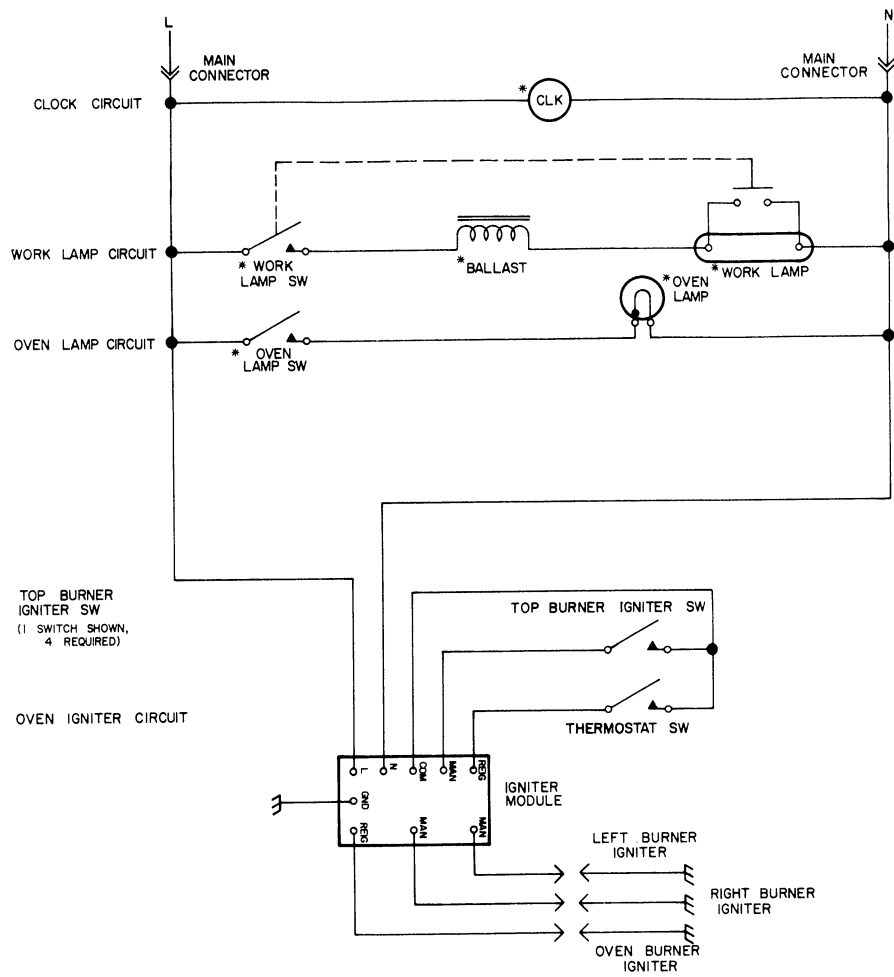
18-W/BL	
GAGE	COLOR
COLOR CODE	
BK BLACK	BR BROWN
O ORANGE	V VIOLET
T TAN	Y YELLOW
C COPPER	GY GRAY
BL BLUE	G GREEN
P PINK	R RED
W WHITE	PR PURPLE
GY GREEN WITH YELLOW STRIPE	

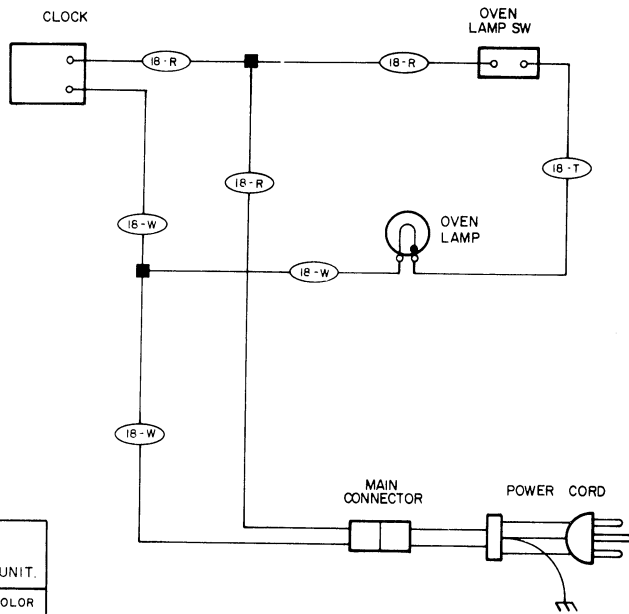
191T122F408

DATE: 6/9/86	DRAWN: J/W		
CHECKED	DATE	APPROVED	DATE

NOTE

- SERVICE IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY. COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
- * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.





WARNING
DISCONNECT POWER BEFORE SERVICING UNIT.

TRACER WIRE: WIRE COLOR NOTED FIRST, STRIPE NEXT. EXAMPLE: WHITE WIRE WITH BLUE STRIPE.

(1B-W/BL)
GAGE COLOR

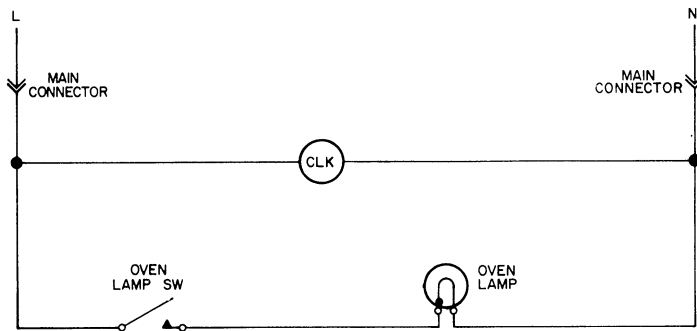
COLOR CODE	
BK BLACK	BR BROWN
O ORANGE	V VIOLET
T TAN	Y YELLOW
C COPPER	GY GRAY
BL BLUE	G GREEN
P PINK	R RED
W WHITE	PR PURPLE
G/Y GREY WITH STRIPE	

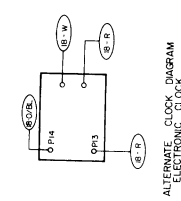
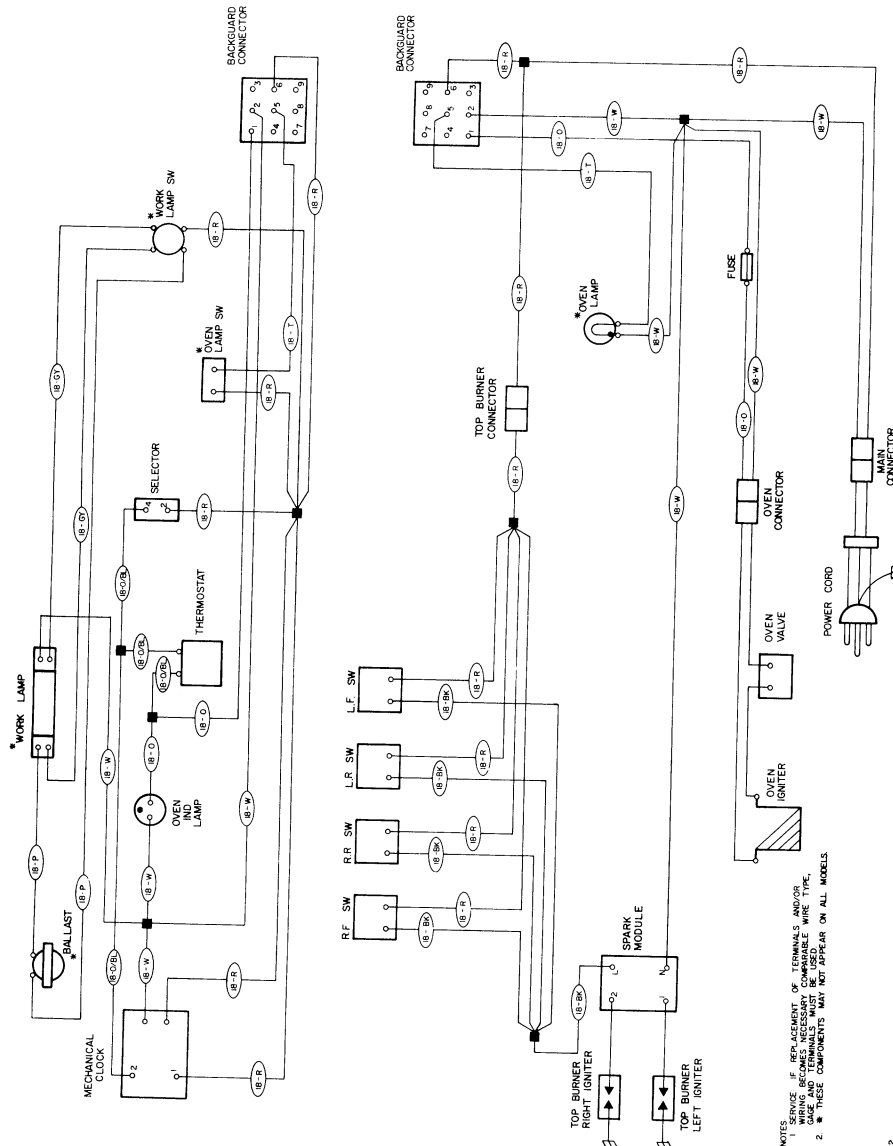
191T122F409

DATE: 6/10/86 DRAWN: JH

CHECKED	DATE	APPROVED	DATE

NOTE
SERVICE IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.





ALTERNATE CLOCK DIAGRAM
ELECTRONIC CLOCK

WARNING
DISCONNECT POWER BEFORE SERVICING UNIT
TRACER WIRE WIRE COLOR WITH BLUE STRIPE NEXT TO BLUE STRIPE

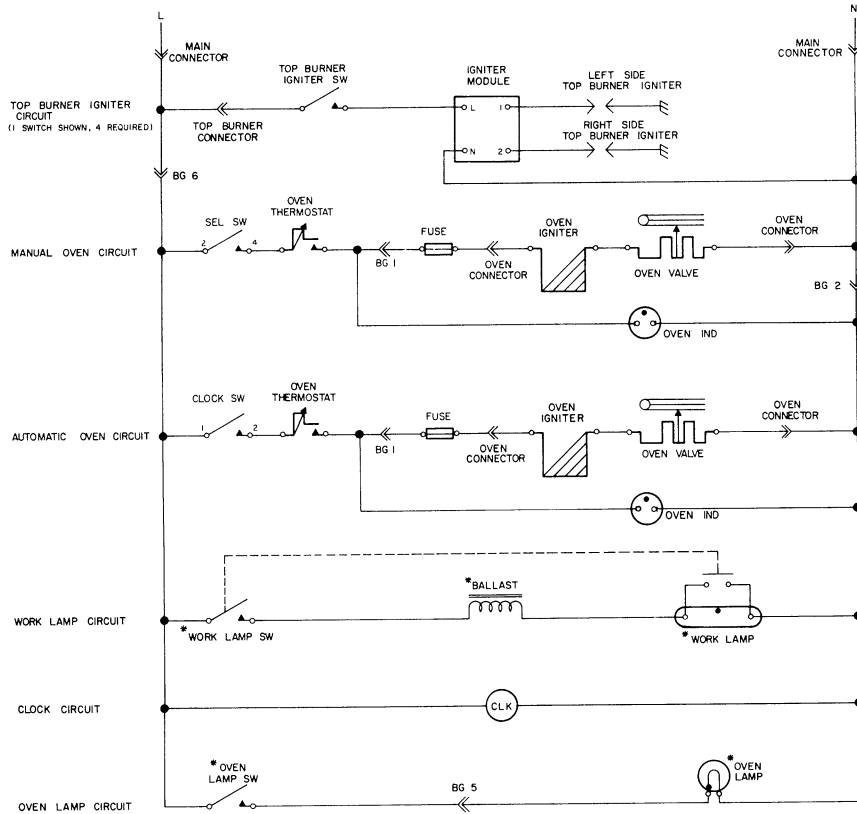
EXAMPLE: WIRE COLOR WITH BLUE STRIPE NEXT TO BLUE STRIPE

WIRE COLOR	WIRE COLOR
BK (BLACK)	BR (BROWN)
OR (ORANGE)	BU (BLUE)
GR (GREEN)	GY (GRAY)
BL (BLUE)	RD (RED)
WH (WHITE)	PK (PURPLE)

19111227418

DATE	BY	DATE	BY

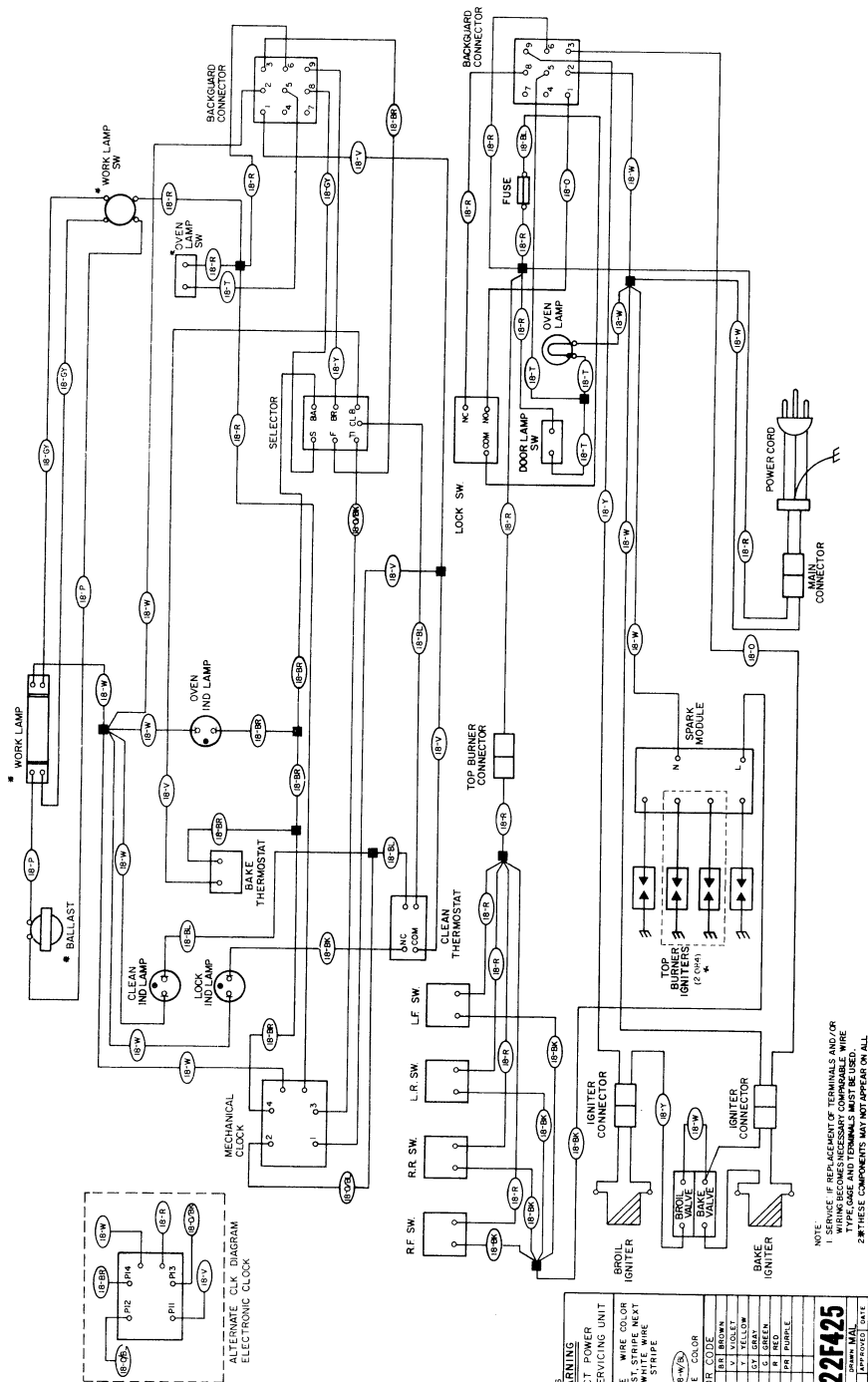
NOTES:
1. WIRE COLOR OF TERMINALS AND/OR WIRING BECOMES ACCESSORY WIRE TYPE. ORIGINAL TERMINALS MUST BE USED.
2. WIRE COMPONENTS MAY NOT APPEAR ON ALL MODELS.



NOTE
 1 "BG..." DENOTES BACKGUARD CONNECTORS
 2 * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS

191T122F418			
DATE: 7/14/86	DRAWN: J.W.		
CHECKED: _____	DATE: _____	APPROVED: _____	DATE: _____

SHEET 2 OF 2



ECN: 10906

WARNING
DISCONNECT POWER BEFORE SERVICING UNIT

TRACER WIRE MARK COLOR NOTED FIRST, STRIKE NEXT
EXAMPLE: WHITE WIRE WITH BLUE STRIPE

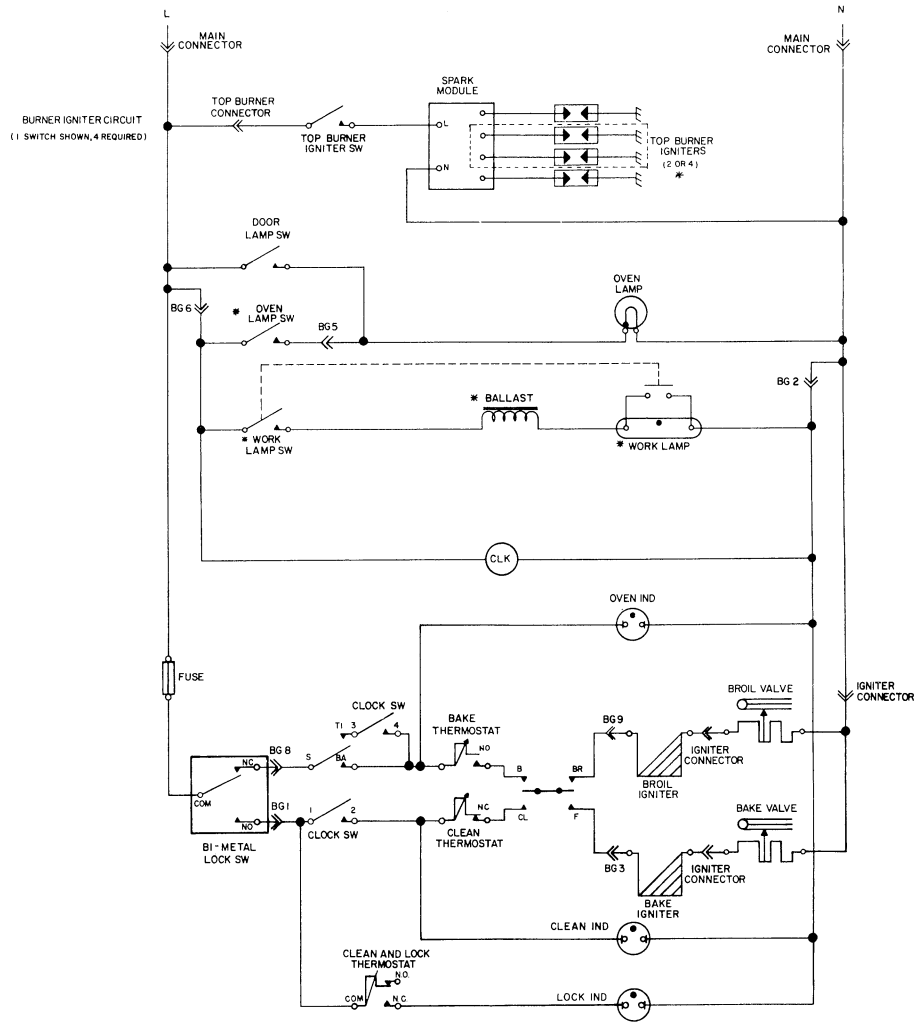
WIRE	MARKING	COLOR
1	BRN	BROWN
2	BLK	BLACK
3	YEL	YELLOW
4	GRN	GREEN
5	BLU	BLUE
6	WHT	WHITE
7	PUR	PURPLE

191122F425

DATE: 1/28/87 DRAWN: M.J.L.
 BY: J.C. APPROVED: M.J.L.
 7.1 7.2 7.3 7.4 7.5 7.6 7.7

NOTE: RANGE IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY COMPATIBLE WITH TYPE GAUGE AND TERMINALS MUST BE USED. 2P COMPONENTS MAY NOT APPEAR ON ALL MODELS.

SHEET 1 OF 2



NOTES:
 1. BG... DENOTES BACKWARD CONNECTORS.
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

CONTACTS	S POSITION SELECTOR SWITCH			
	OFF	BAKE	TIME BAKE	CLEAN BROIL
B TO F		X	X	X
B TO BR				X
CL TO F				X
S TO TI		X		
S TO BA		X		

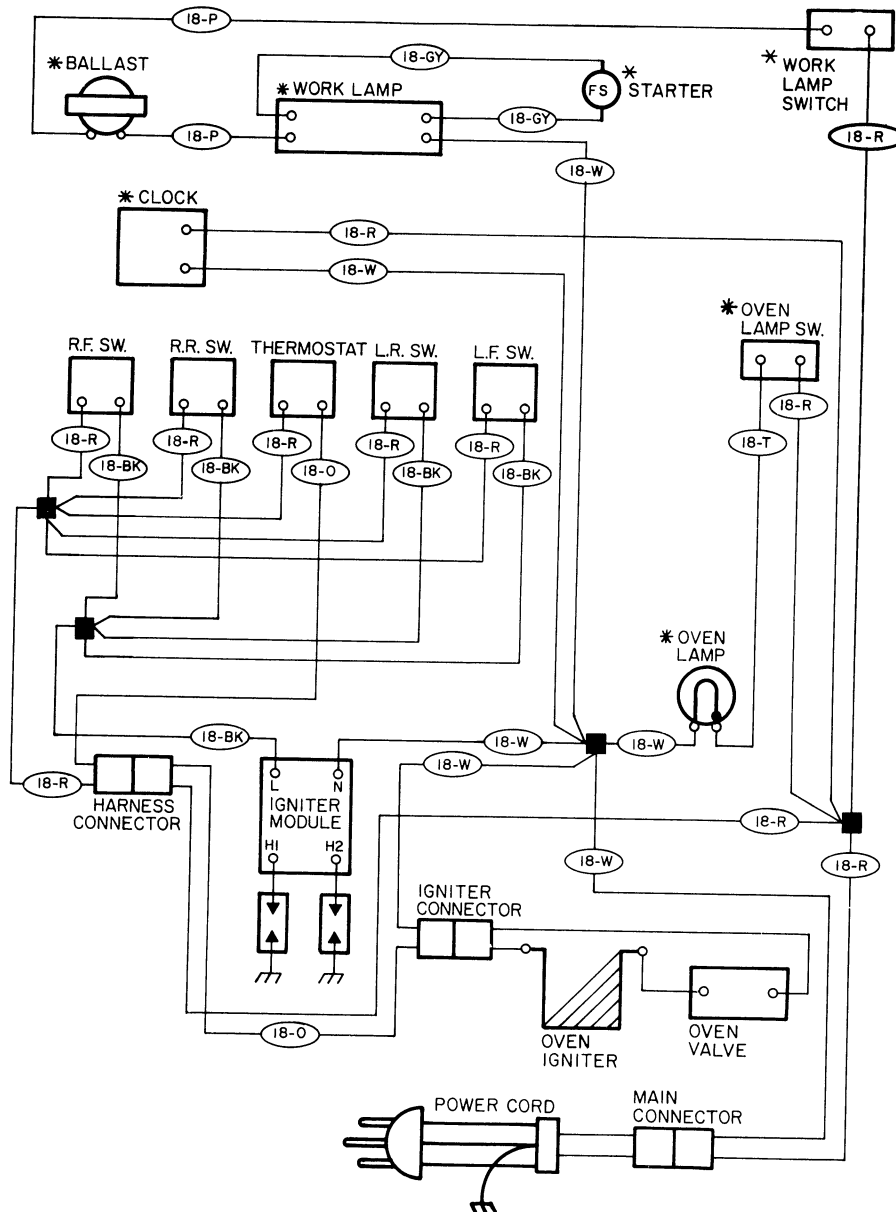
X INDICATES CONTACTS CLOSED

ECH-1996

191T122F425

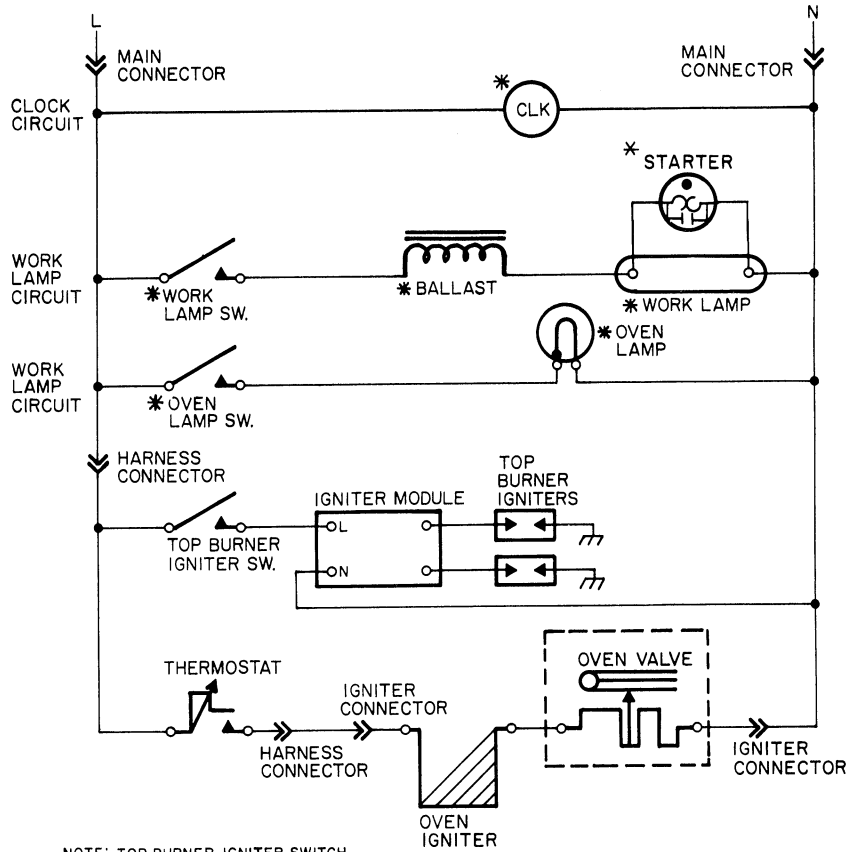
DATE	1/8/87	DRWING	ML
CHECKED	DATE	APPROVED	DATE
T.F.			

SHEET 2 OF 2



NOTES:

1. SERVICE: IF REPLACEMENT OF TERMINALS AND / OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.



NOTE: TOP BURNER IGNITER SWITCH
(1 SWITCH SHOWN 4 REQUIRED)

THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PROPRIETARY AND DISCLOSURE TO OTHERS IS PROHIBITED WITHOUT WRITTEN APPROVAL.

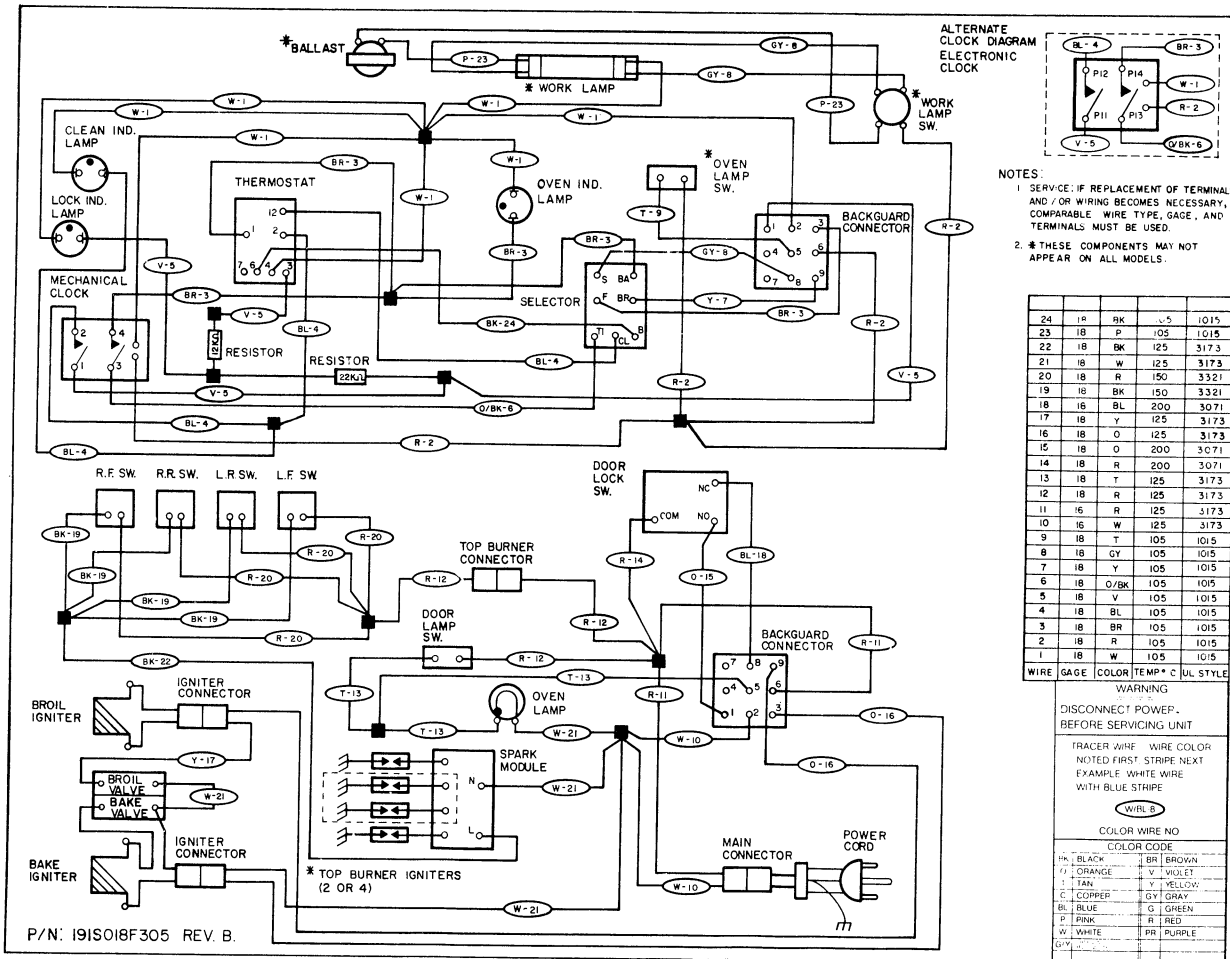
DIAGRAM-WIRING		SCALE
MATERIAL		MATL. SPEC.
FINISH		FINISH SPEC.
DR	PUR.	FAB.
CK	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES.	
ENG	SHEET	
DO NOT SCALE DRAWING		UCI RANGE DIVISION
MFG		REV.
DATE 2-15-99		19IS020P02

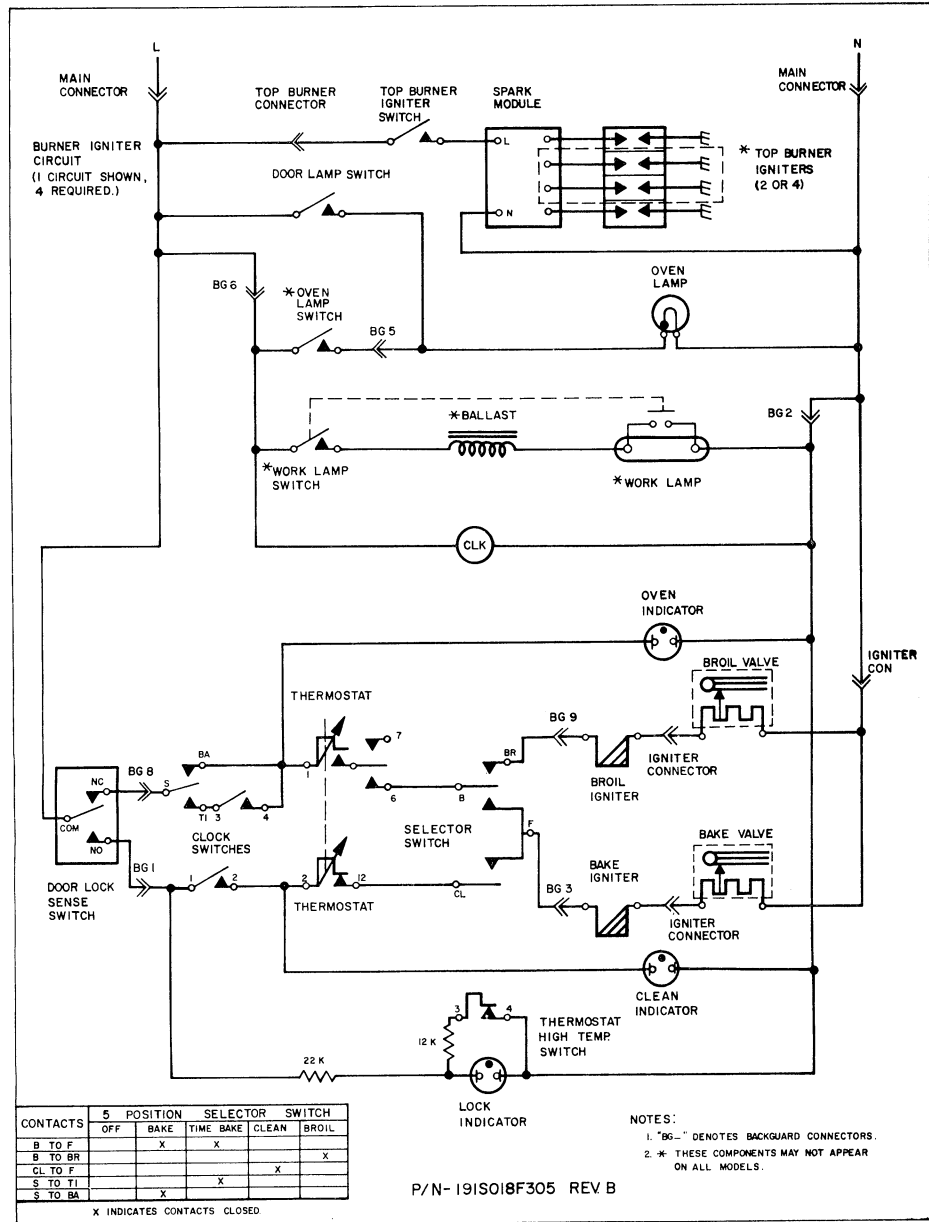
WARNING
DISCONNECT POWER BEFORE SERVICING UNIT.

TRACER WIRE: WIRE COLOR NOTED FIRST, STRIPE NEXT. EXAMPLE: WHITE WIRE WITH BLUE STRIPE.

W/BL-B
COLOR WIRE NO.

COLOR CODE			
BK	BLACK	BR	BROWN
O	ORANGE	V	VIOLET
T	TAN	Y	YELLOW
C	COPPER	GY	GRAY
BL	BLUE	G	GREEN
P	PINK	R	RED
W	WHITE	PR	PURPLE
G/Y	GRAY WITH YELLOW STRIPE		



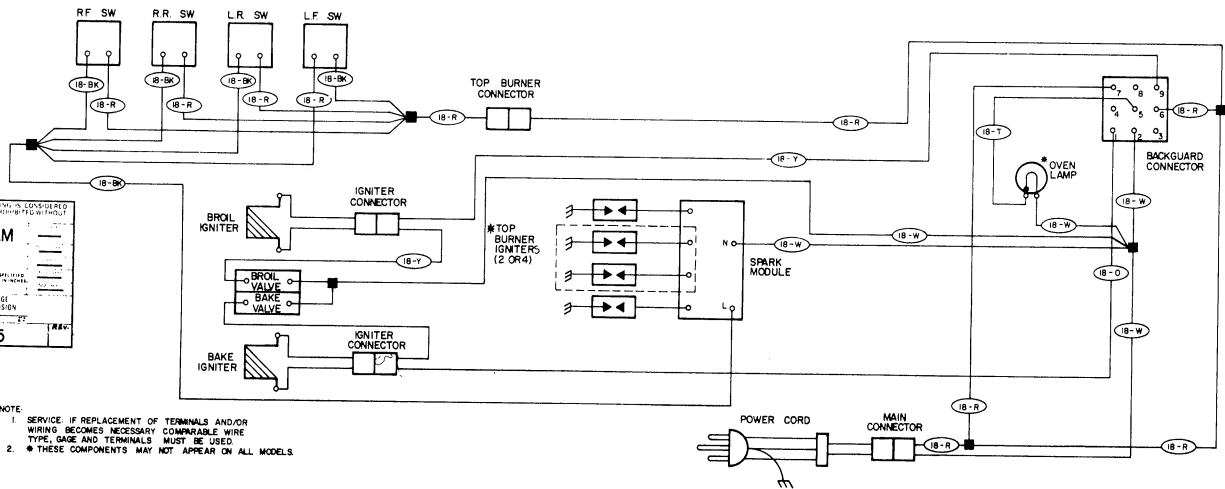
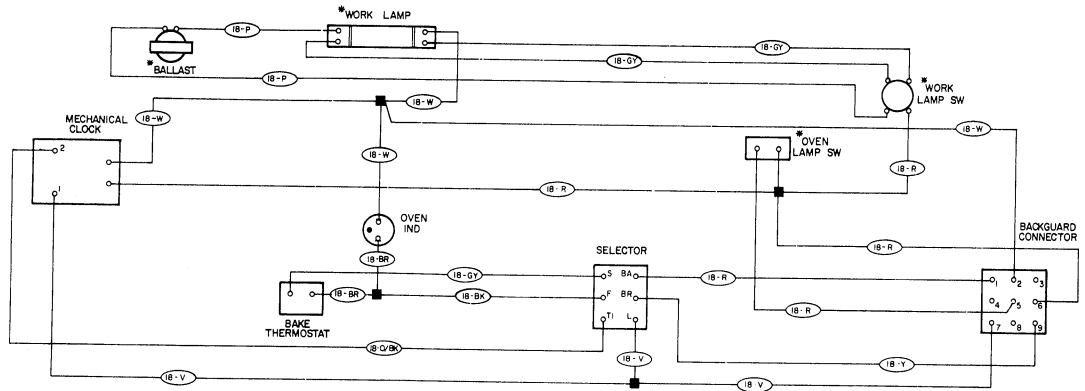
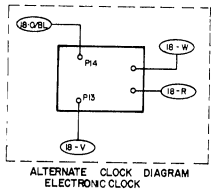


CONTACTS	5 POSITION SELECTOR SWITCH				
	OFF	BAKE	TIME BAKE	CLEAN	BROIL
B TO F		X	X		
B TO BR					X
CL TO F				X	
S TO TI			X		
S TO BA		X			

X INDICATES CONTACTS CLOSED

- NOTES:
1. "BG-" DENOTES BACKGUARD CONNECTORS.
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

P/N-191S018F305 REV B



WIRING - DIAGRAM

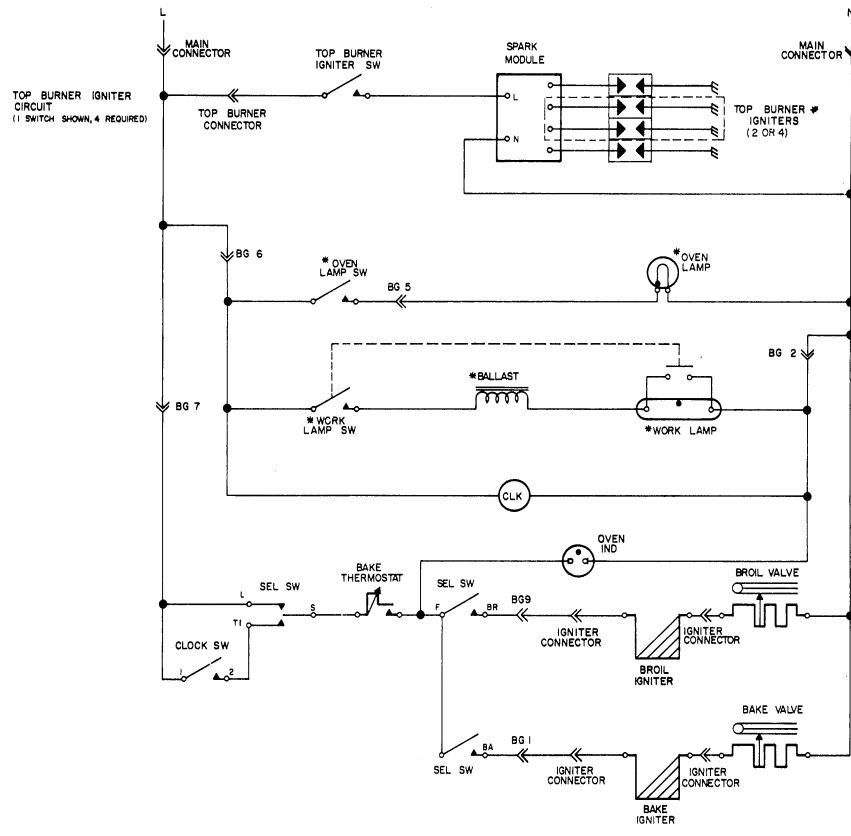
1915018F195

UCI RANGE

SCALE DIVISION

DATE

- NOTE:
- SERVICE IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
 - * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.



NOTES:
 1. *BG* DENOTES BACKGUARD CONNECTORS.
 2. *#* THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

CONTACTS	4 POSITION SELECTOR SWITCH			
	OFF	BAKE	TIMEBAKE	BROIL
T1 TO S		X		X
L TO S		X		X
F TO BR		X	X	X

X INDICATES CONTACTS CLOSED

ECN-1993

WIRING-SCHEMATIC

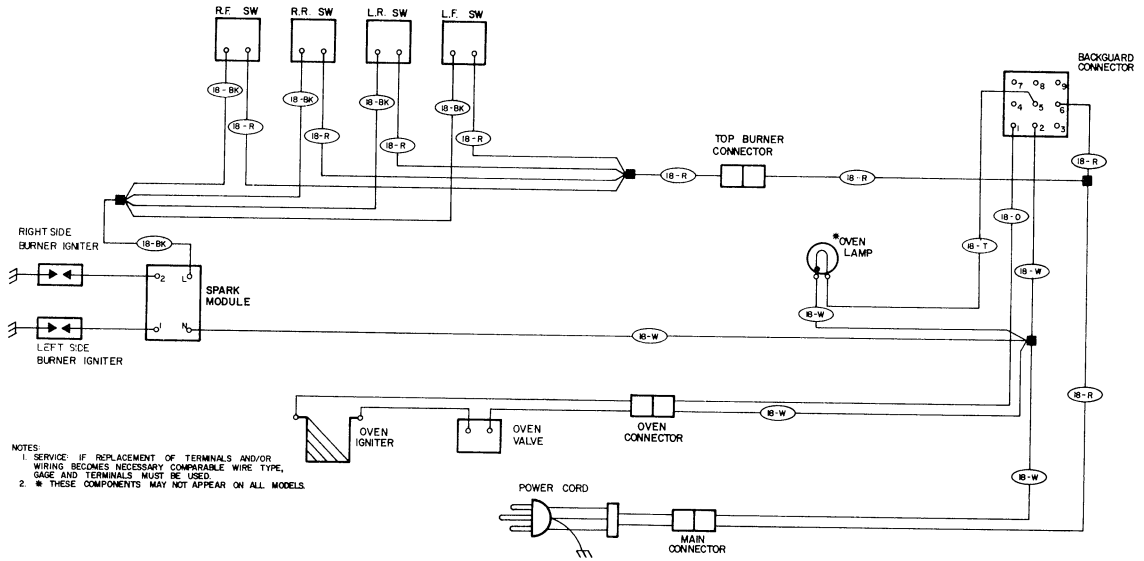
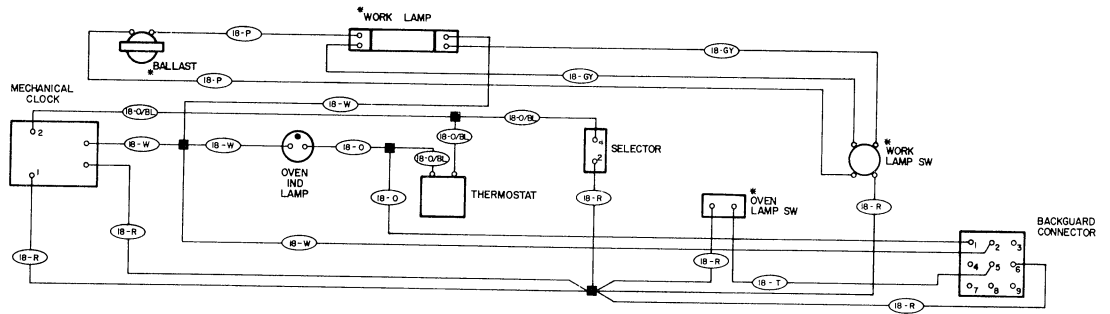
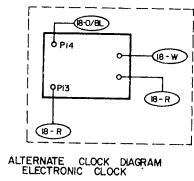
2 OF 2

SCALE

BRANNING

IGIS018FI95

REV



WARNING
DISCONNECT POWER
BEFORE SERVICING UNIT.

TRACER WIRE: WIRE COLOR
NOTED FIRST, STRIPE NEXT.
EXAMPLE: WHITE WIRE
WITH BLUE STRIPE.

IB-W/B	
GAGE	COLOR
1K	BLACK
2	ORANGE
3	TAN
4	COPPER
5L	BLUE
7	PINK
8	WHITE
9	GRAY
10	BROWN
11	VIOLET
12	YELLOW
13	GRAY
14	GREEN
15	RED
16	PURPLE

ECH-1993

THIS DRAWING IS CONSIDERED
FINAL UNLESS OTHERWISE NOTED.
REVISIONS ARE INDICATED BY
CIRCLED NUMBERS.

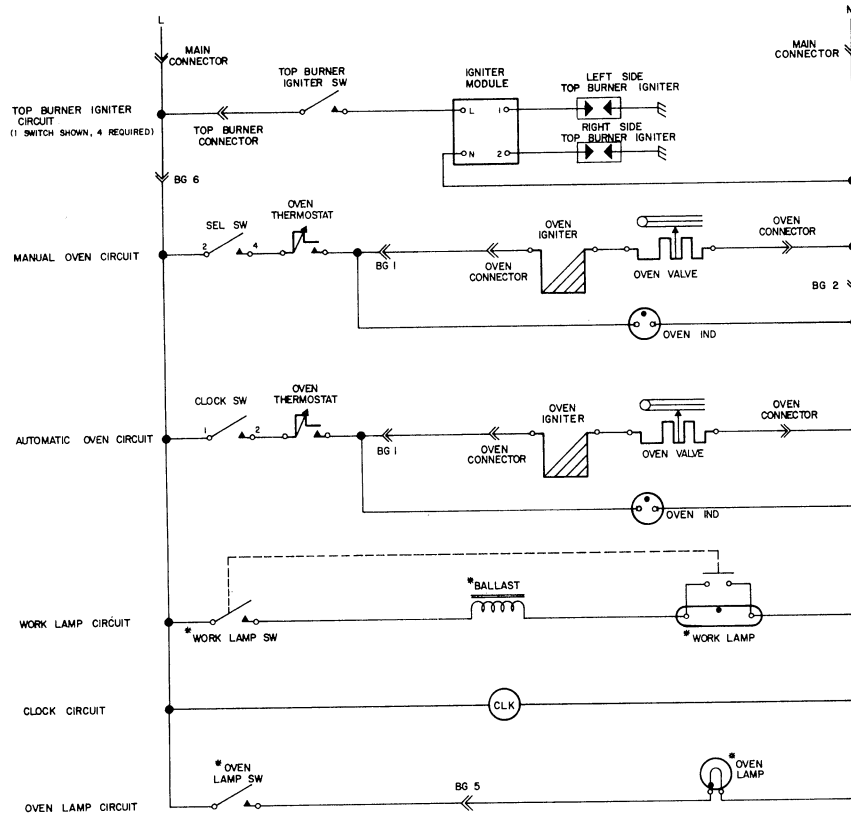
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NOTES:
1. SERVICE IF REPLACEMENT OF TERMINALS AND/OR
WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE,
GAGE AND TERMINALS MUST BE USED.
2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

DO NOT SCALE DRAWING

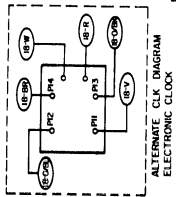
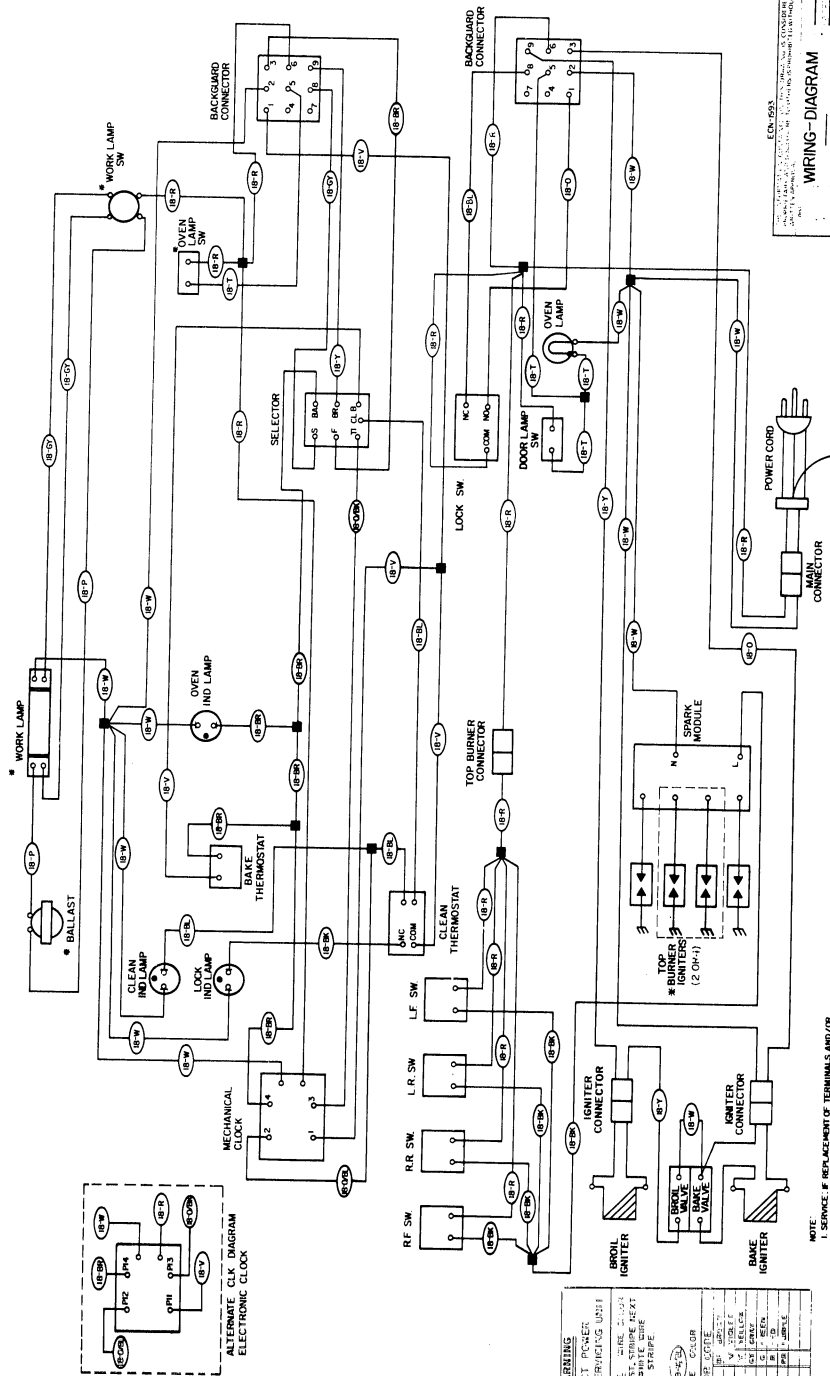
WCI RANGE DIVISION

19ISO18F193 REV.



NOTE
 1. *BG...* DENOTES BACKGUARD CONNECTORS
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS

EEN-1993	
THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PROPRIETARY AND DISCLOSURE TO OTHERS IS PROHIBITED WITHOUT WRITTEN APPROVAL	
WIRING-SCHEMATIC	
REV. 1	DATE: 01/11/98
REV. 2	DATE: 02/02/98
REV. 3	DATE: 02/02/98
REV. 4	DATE: 02/02/98
REV. 5	DATE: 02/02/98
REV. 6	DATE: 02/02/98
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REV. 100	DATE: 02/02/98



WARNING
DISCONNECT POWER BEFORE SERVICING UNIT

TABLE SHOWS WIRE COLOR EXAMPLE WHITE WIRE WITH BLUE STRIPE

WIRE	WIRE COLOR
BR-1	BLACK
BR-2	RED
BR-3	YELLOW
BR-4	GREEN
BR-5	BLUE
BR-6	PINK
BR-7	ORANGE
BR-8	WHITE
BR-9	GRAY
BR-10	BROWN

NOTE: IF ANY ASPECT OF TERMINALS AND/OR WIRING BECOMES NECESSARY, CONSULT THE SERVICE MANUAL FOR THE APPLICABLE MODEL. COMPONENTS MAY NOT APPEAR ON ALL MODELS.

ECN-1953

WIRING-DIAGRAM

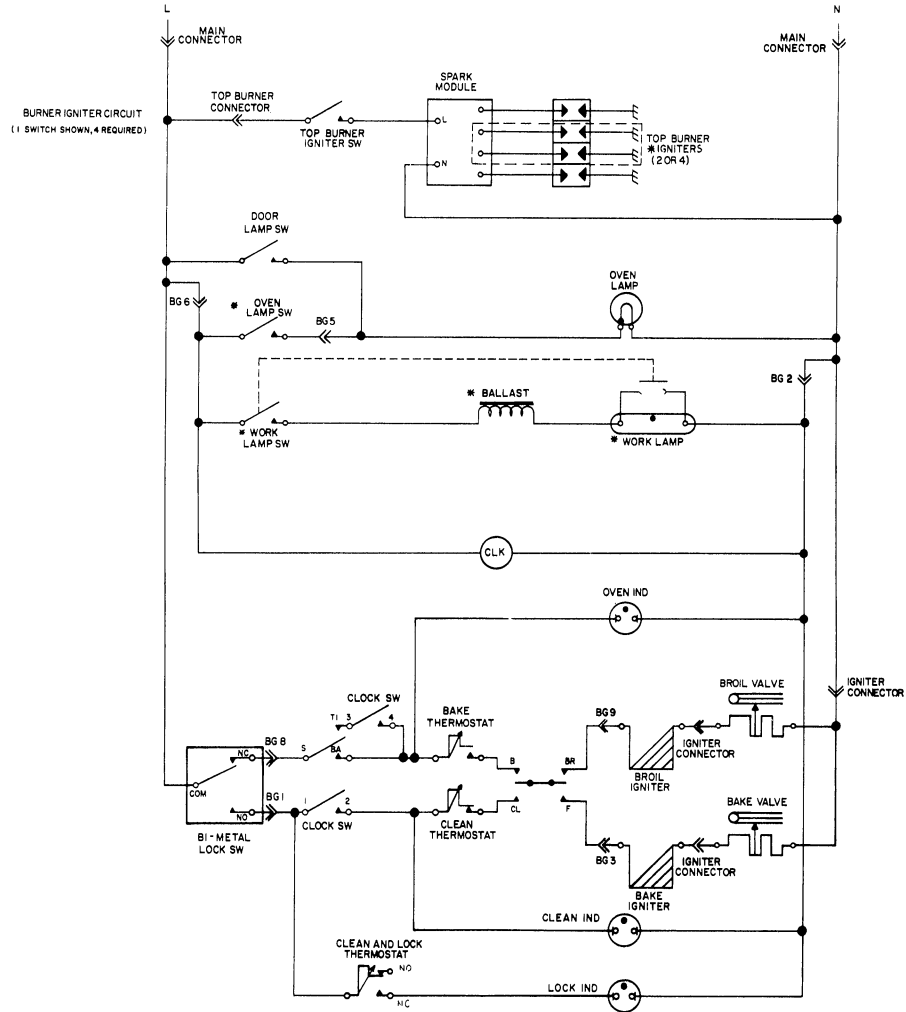
BOOK NO. 107 2

DATE 10/11/83

BY J. J. HARRIS

191018F189

REV. 1



NOTES:
 1 BG - DENOTES BACKGUARD CONNECTORS
 2 * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

CONTACTS	5 POSITION SELECTOR SWITCH				
	OFF	BAKE	TIME BAKE	CLEAN	BROIL
B TO F		X	X		
B TO BR					X
CL TO F				X	
S TO TI			X		
S TO BA		X			

X INDICATES CONTACTS CLOSED

ECN-261

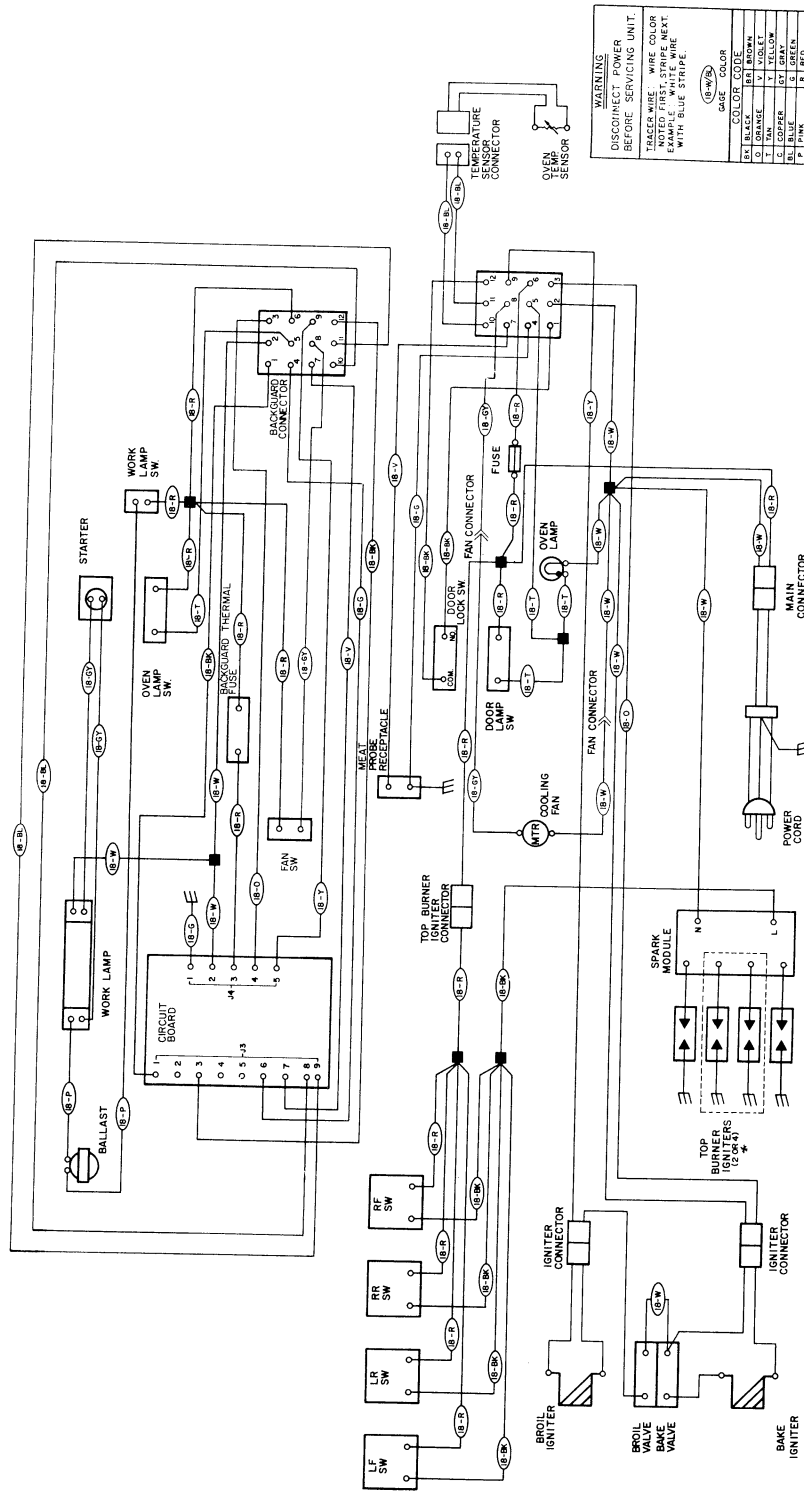
WIRING-SCHMATIC

BROHE

DO NOT SCALE DRAWING

WCI

191S018F189



WARNING
DISCONNECT POWER
BEFORE SERVICING UNIT.
TRACER WIRE: WIRE COLOR
NOTED FIRST, STRIPE NEXT.
WIRE COLOR AND STRIPE
WITH BLUE STRIPE

WIRE SIZE	COLOR
18-1	BLACK
18-2	BROWN
18-3	VIOLET
18-4	YELLOW
18-5	ORANGE
18-6	GREEN
18-7	RED
18-8	WHITE
18-9	BLUE
18-10	GRAY
18-11	GREEN
18-12	RED
18-13	BLUE
18-14	RED
18-15	BLUE
18-16	RED
18-17	BLUE
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18-20	RED
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18-95	BLUE
18-96	RED
18-97	BLUE
18-98	RED
18-99	BLUE
18-100	RED

ECN-1986

THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED
CORRECT AND COMPLETE AS SHOWN. NO OTHER WRITTEN APPROVAL
IS REQUIRED FOR REVISIONS UNLESS SPECIFICALLY NOTED OTHERWISE.

DIAGRAM - WIRING
(GAS TOUCH)

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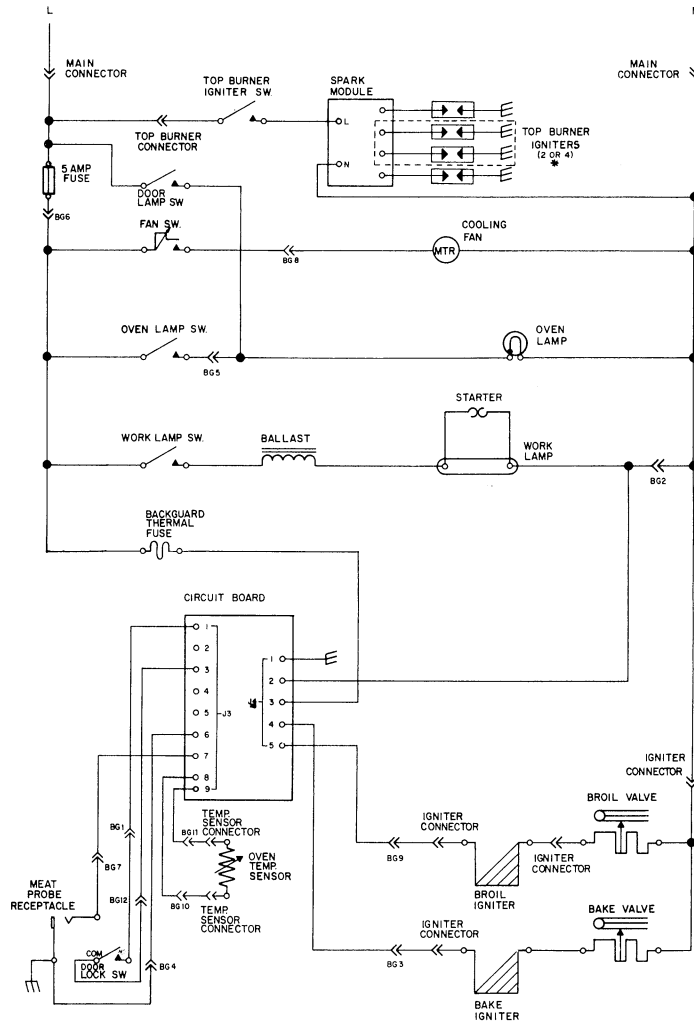
DO NOT
CHANGE
DIMENSIONS
UNLESS
SPECIFICALLY
NOTED
OTHERWISE

19ISO18F158

NOTES

1. WIRE SIZE AND COLOR OF TERMINALS AND/OR WIRING BECOMES NECESSARY, COMMAND # WIRE SIZE AND COLOR AND TERMINALS MUST BE USED ON ALL MODELS.

BURNER IGNITER CIRCUIT
(1 SWITCH SHOWN, 4 REQUIRED)

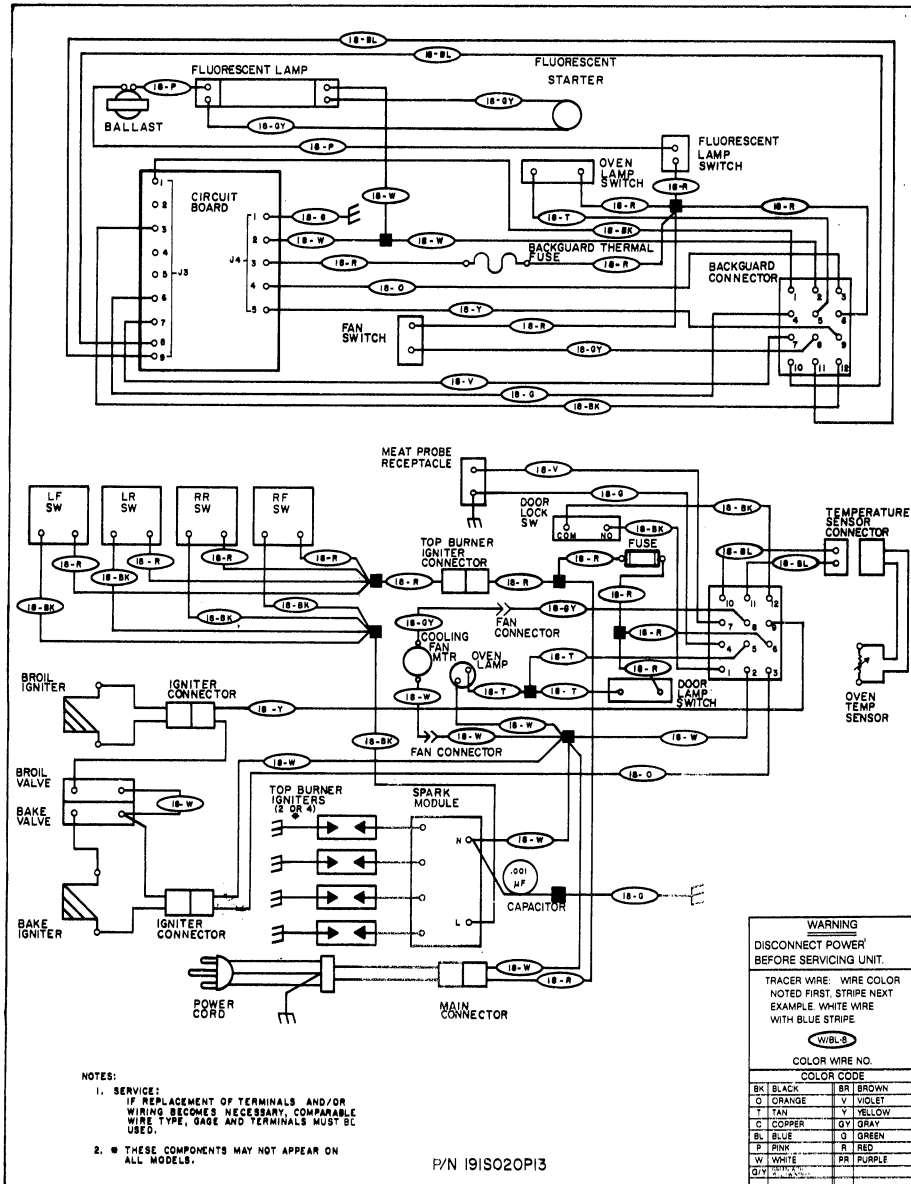


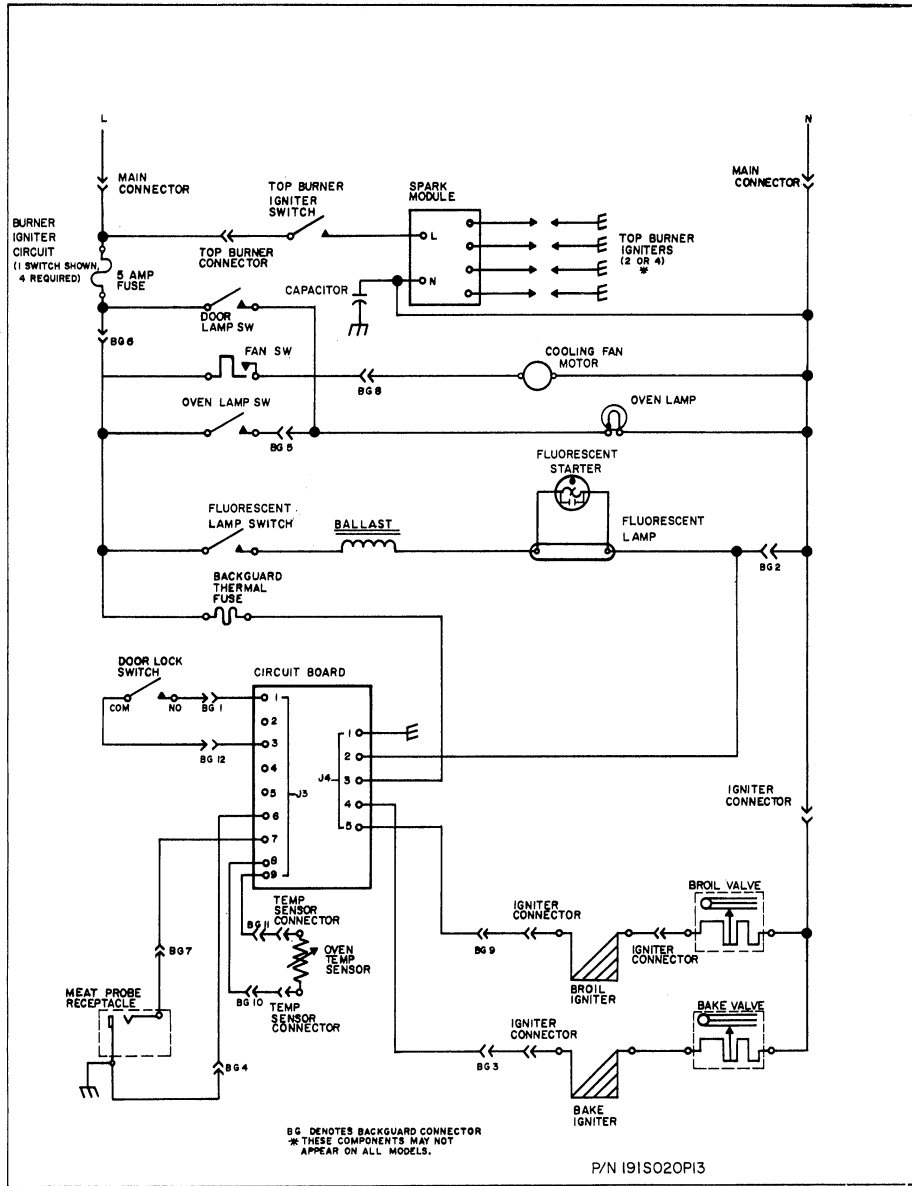
BG DENOTES BACKGUARD CONNECTOR
* THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

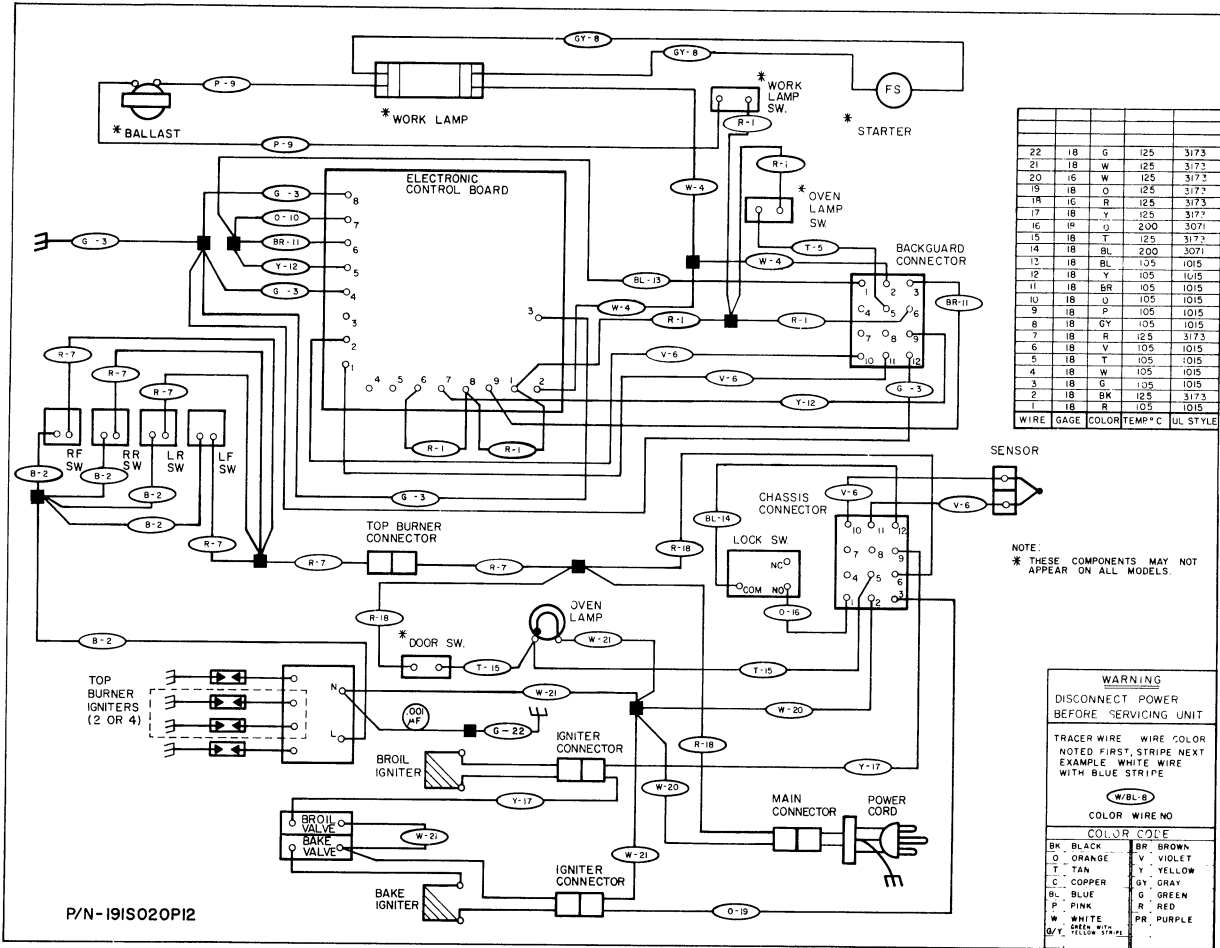
E: N=199 U

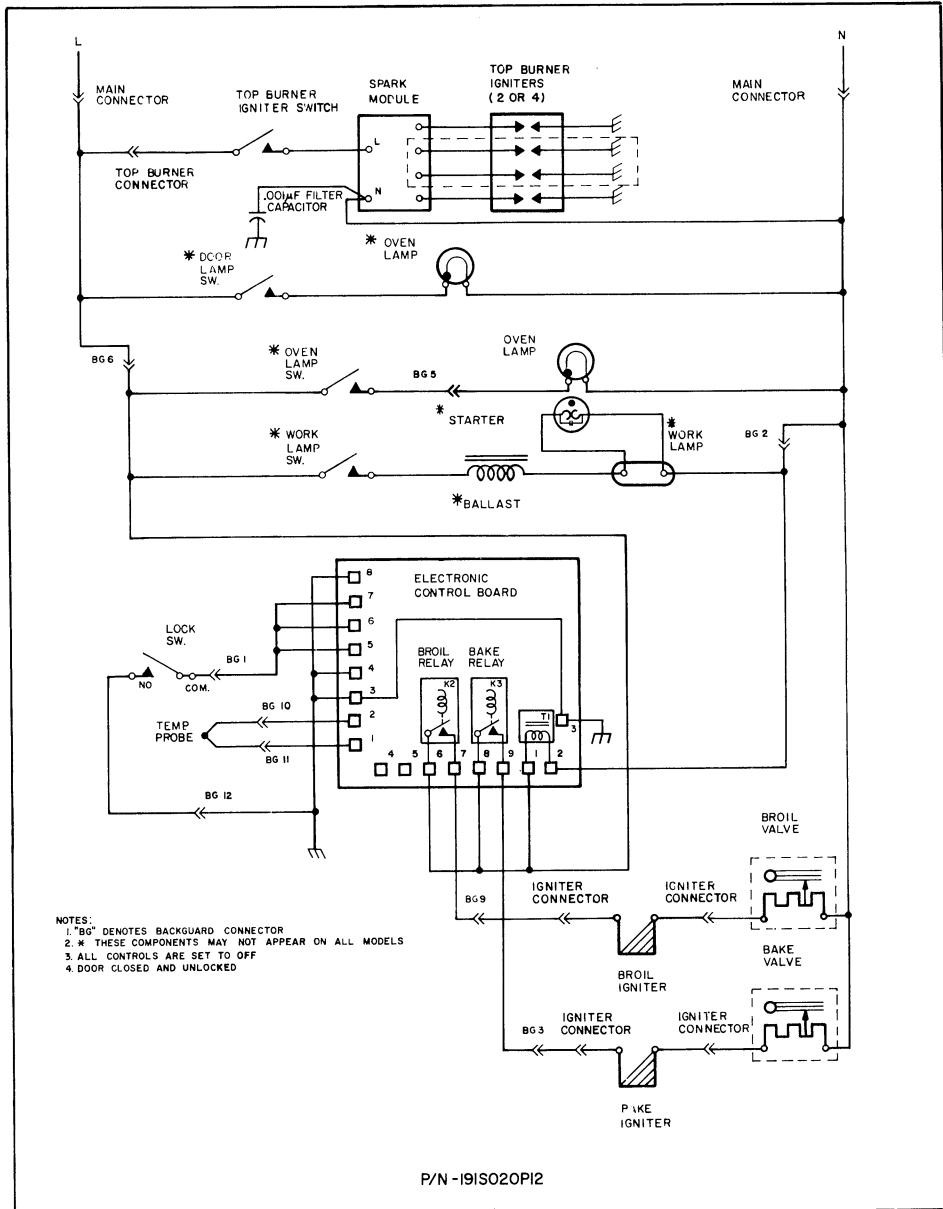
THE INFORMATION CONTAINED ON THIS DRAWING IS CONSIDERED PROPRIETARY AND DISCLOSURE TO OTHERS IS PROHIBITED WITHOUT WRITTEN APPROVAL

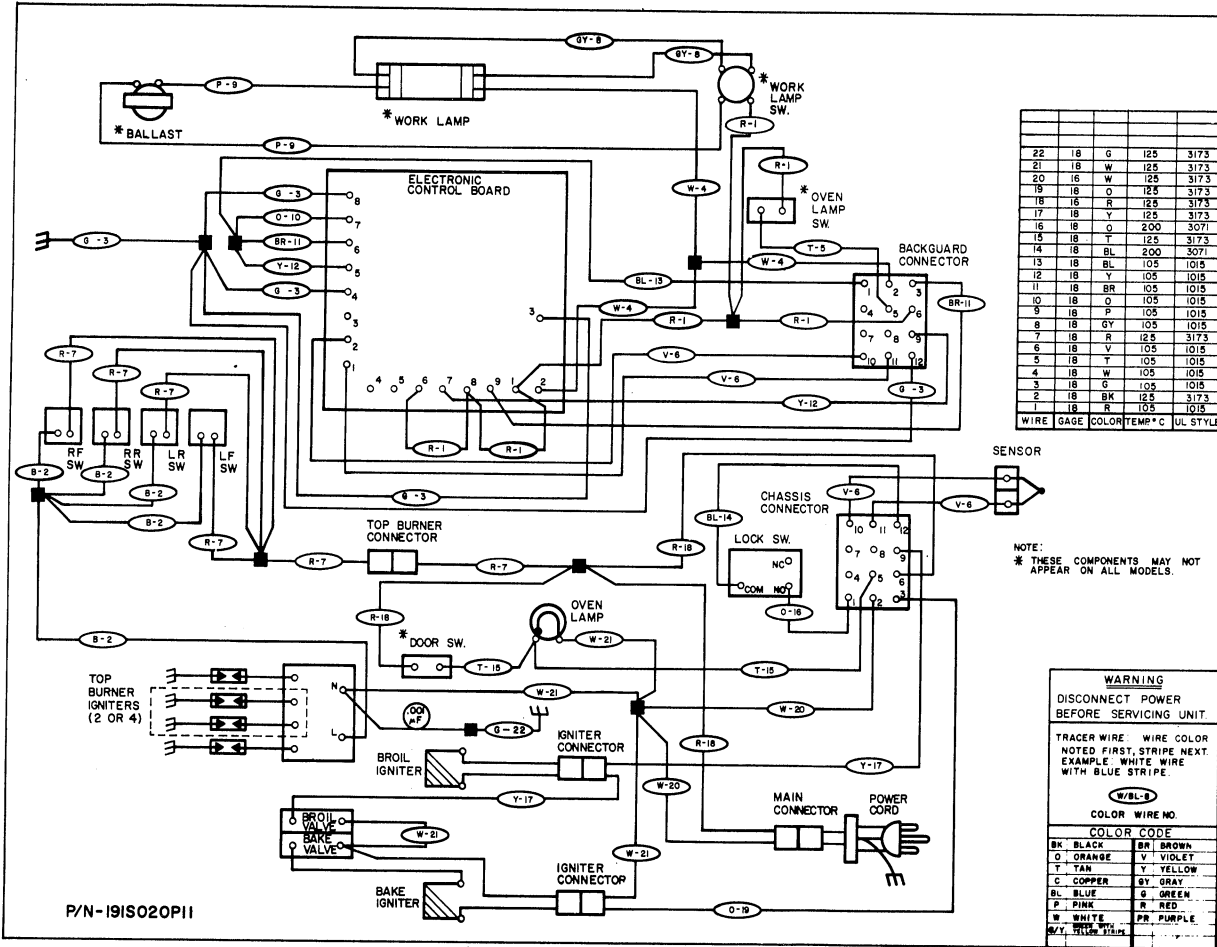
DATE	REV	BY	CHK	APP	SCALE
10/10/04	1	XXX			
DIAGRAM-SCHEMATIC (GAS TOUCH)					
DATE	REV	BY	CHK	APP	SCALE
10/10/04	1	XXX			
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES					
TOL UNLESS NOTED					
NOTED	REV	BY	CHK	APP	SCALE
X-04	1	XXX			
XX-02	1	XXX			
XXX-010	1	XXX			
HGLES-003	1	XXX			
ANGULAR-19	1	XXX			
DO NOT SCALE DRAWING					
W.C. RANGE DIVISION					
19ISO18F158					

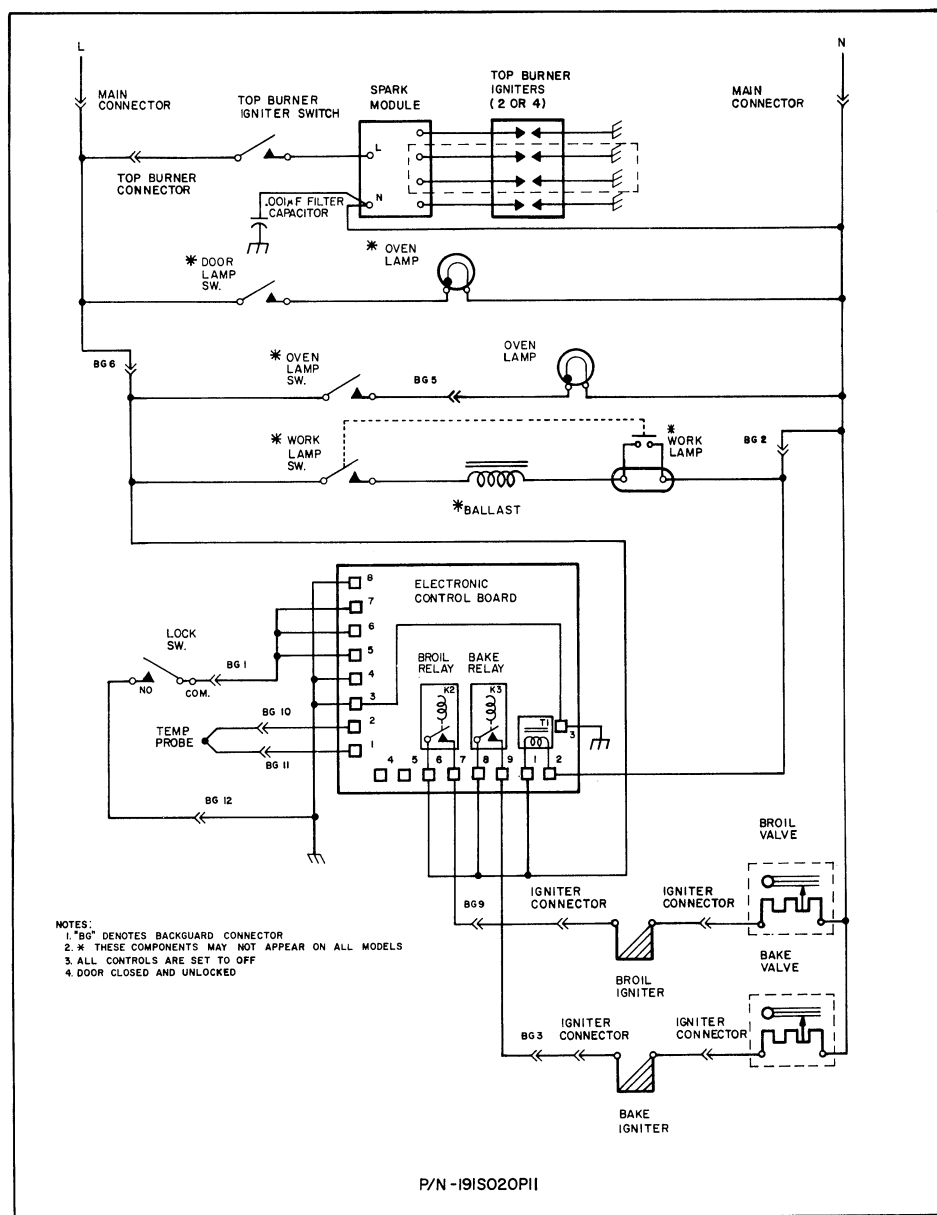


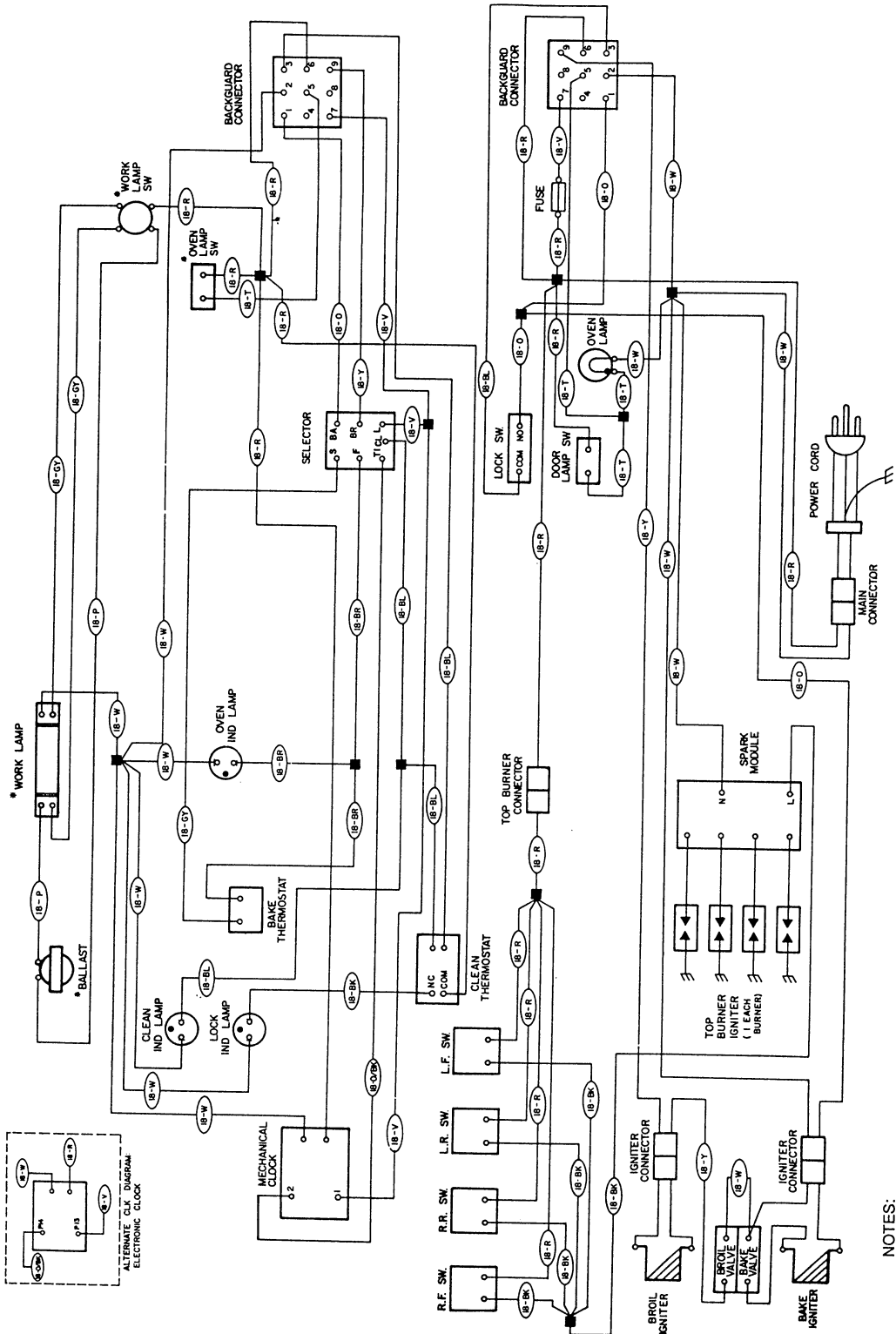




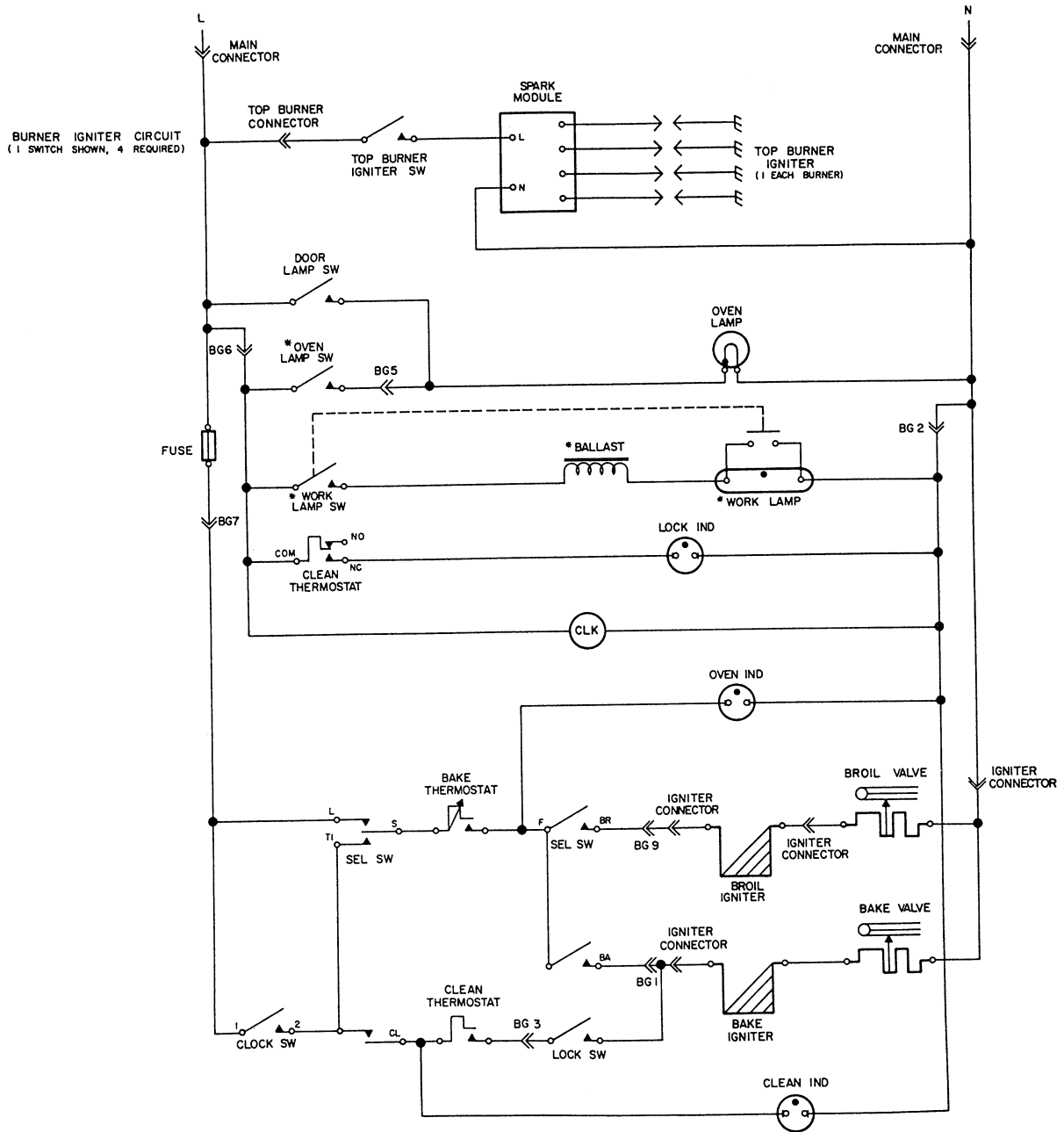






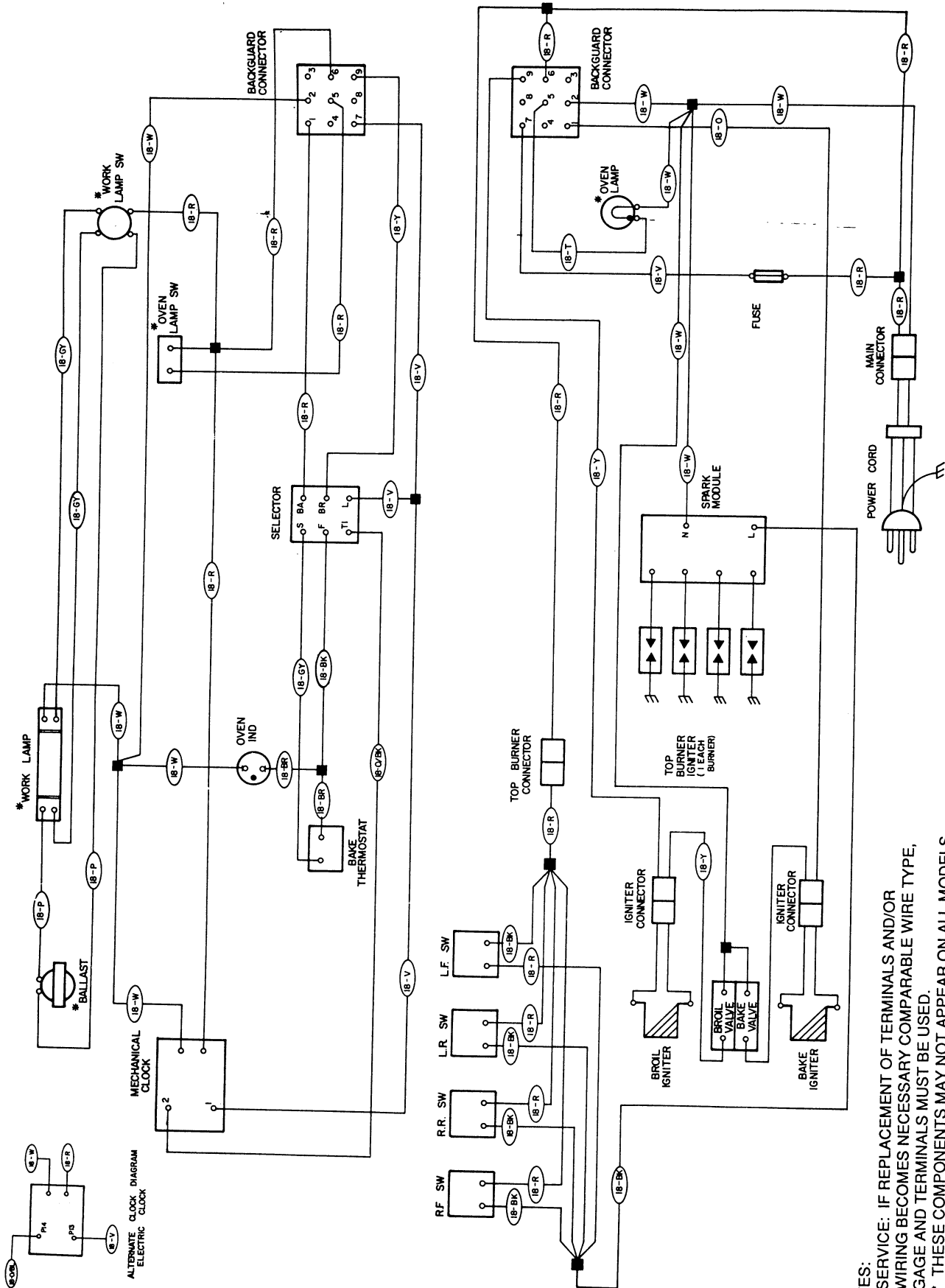


- NOTES:
1. SERVICE: IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

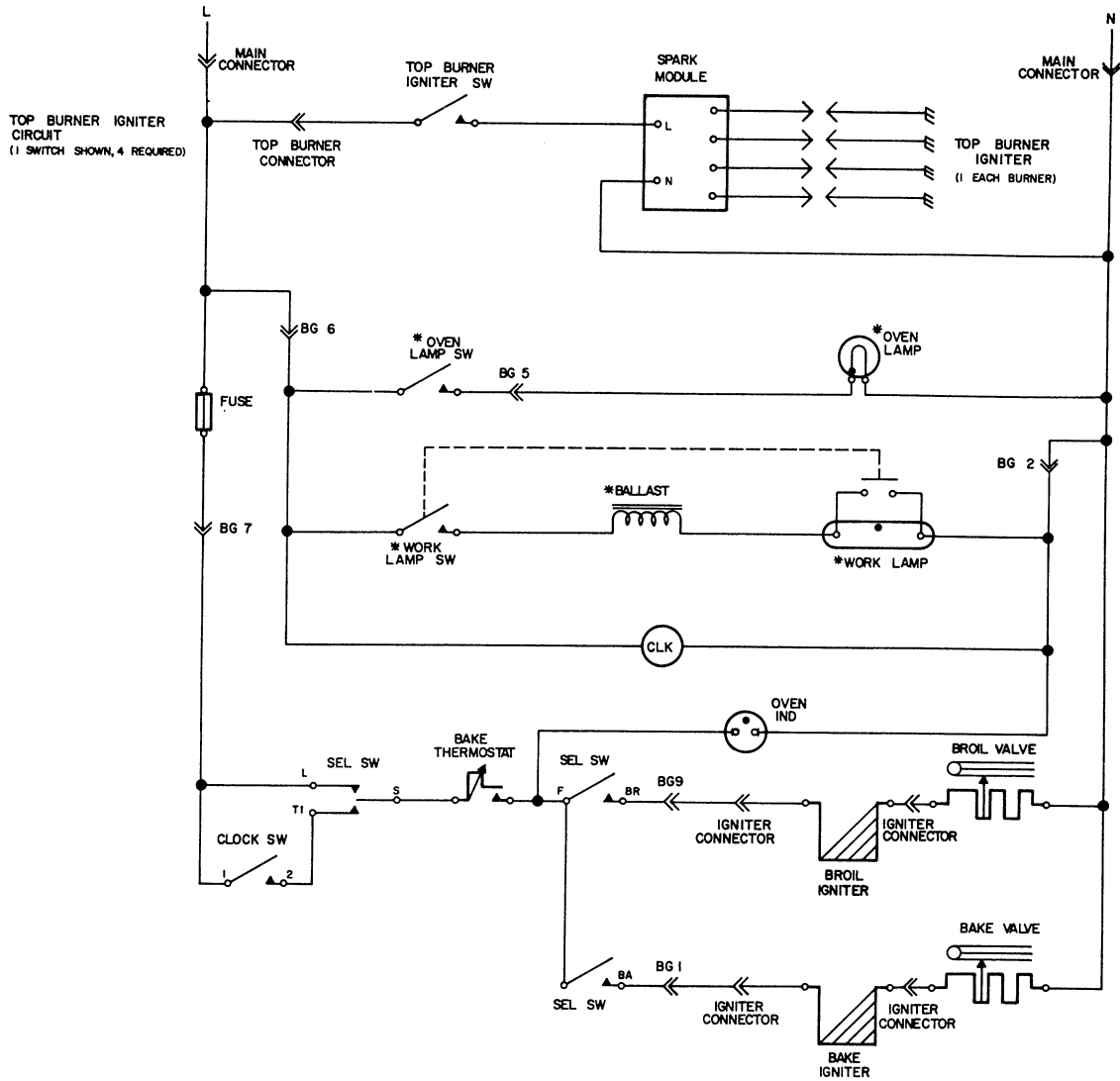


NOTE:
 1. "BG_" DENOTES BACKWARD CONNECTORS
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

CONTACTS	5 POSITION SELECTOR SWITCH				
	OFF	BAKE	TIME BAKE	CLEAN	BROIL
TI TO CL				X	
TI TO S			X		
L TO S		X			X
F TO BR					X
F TO BA		X	X		

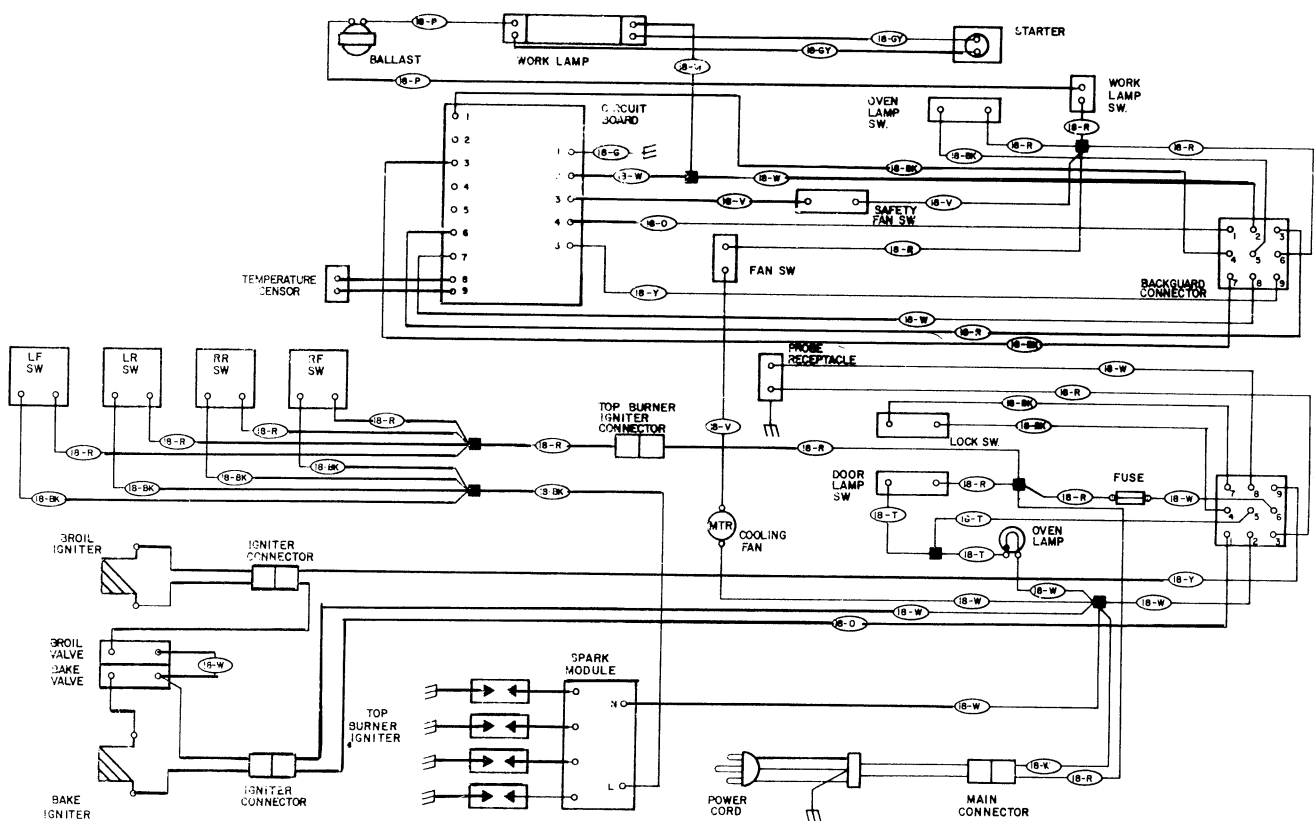


- NOTES:
1. SERVICE: IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED.
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.



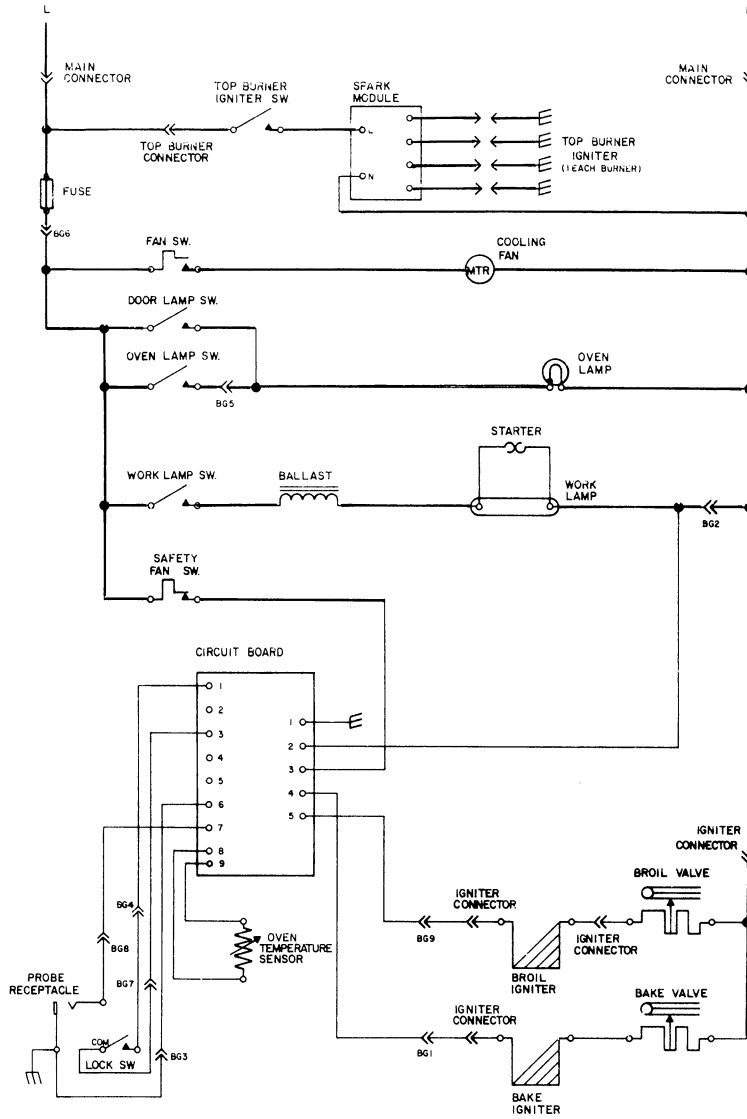
- NOTES:
1. "BG_" DENOTES BACKGUARD CONNECTORS.
 2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS

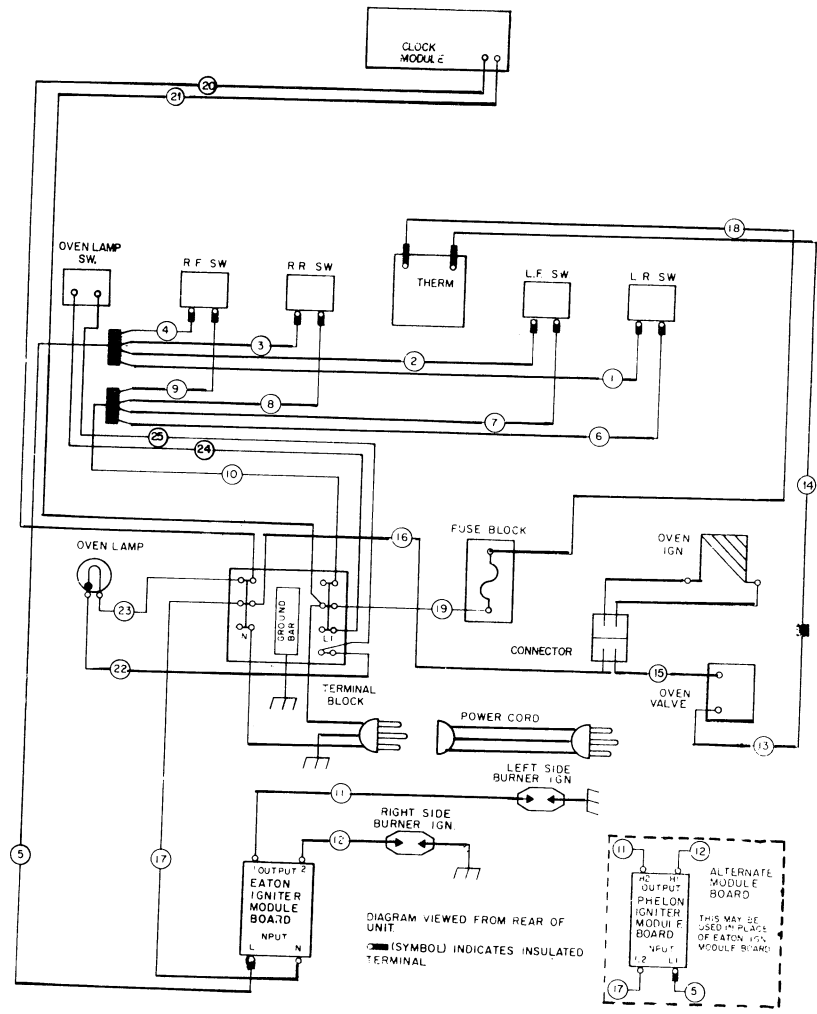
CONTACTS	4 POSITION SELECTOR SWITCH			
	OFF	BAKE	TIME BAKE	BROIL
T1 TO S			X	
L TO S		X		X
F TO BR				X
F TO BA		X	X	

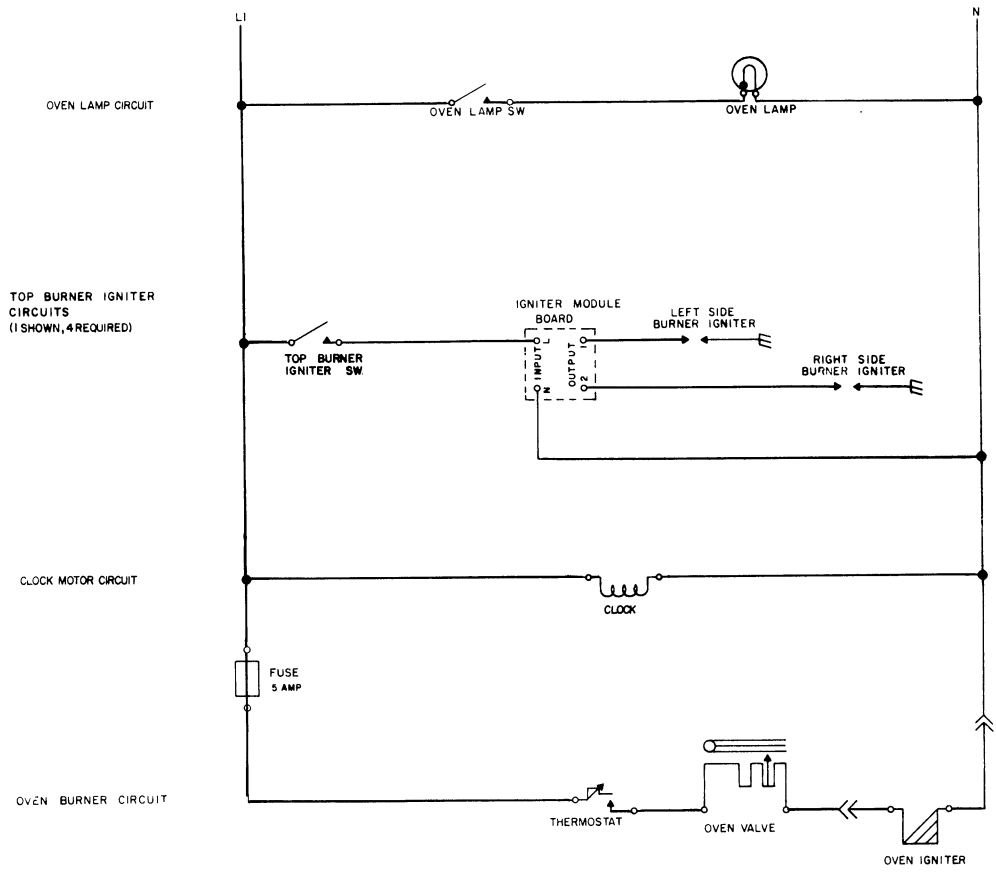


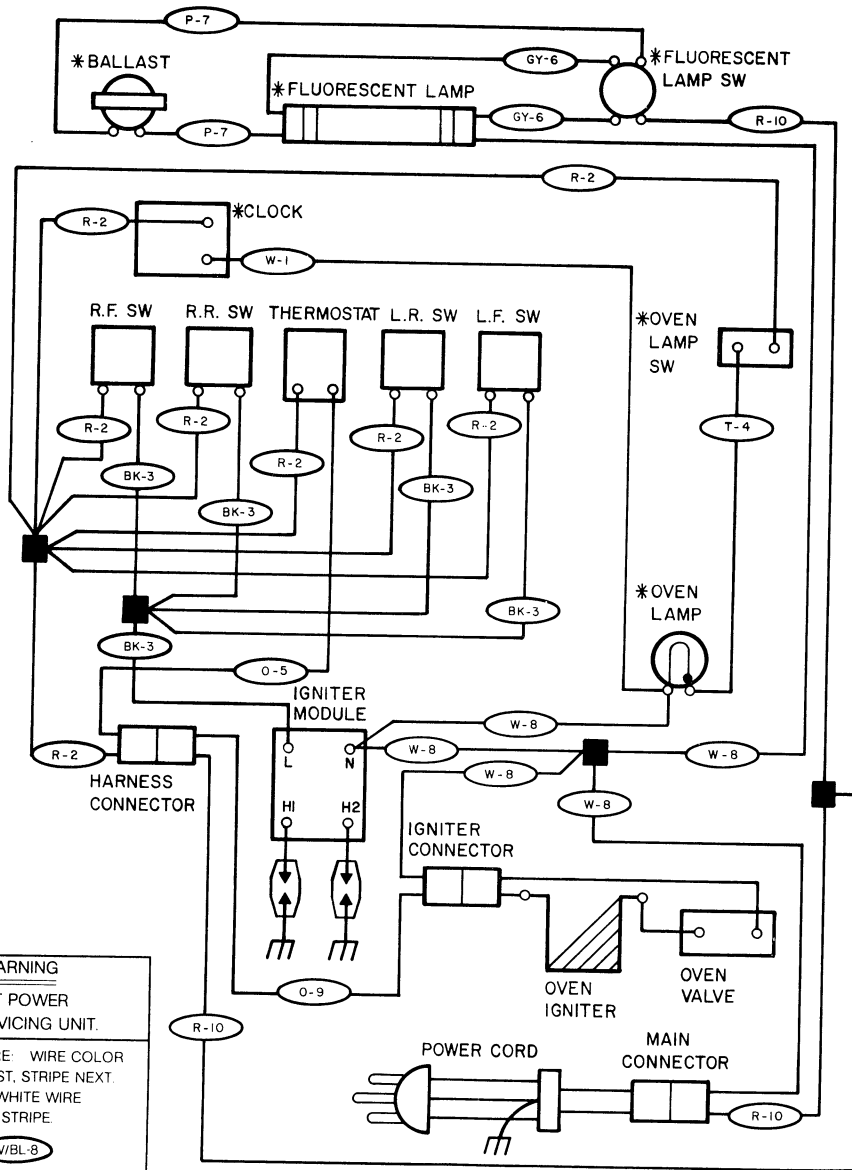
NOTES
 1. SERVICE IF REPLACEMENT OF TERMINALS AND/OR WIRING BECOMES NECESSARY, COMPARABLE WIRE TYPE, GAGE AND TERMINALS MUST BE USED

BURNER IGNITER CIRCUIT
(1 SWITCH SHOWN, 4 REQUIRED)









WARNING
DISCONNECT POWER
BEFORE SERVICING UNIT.

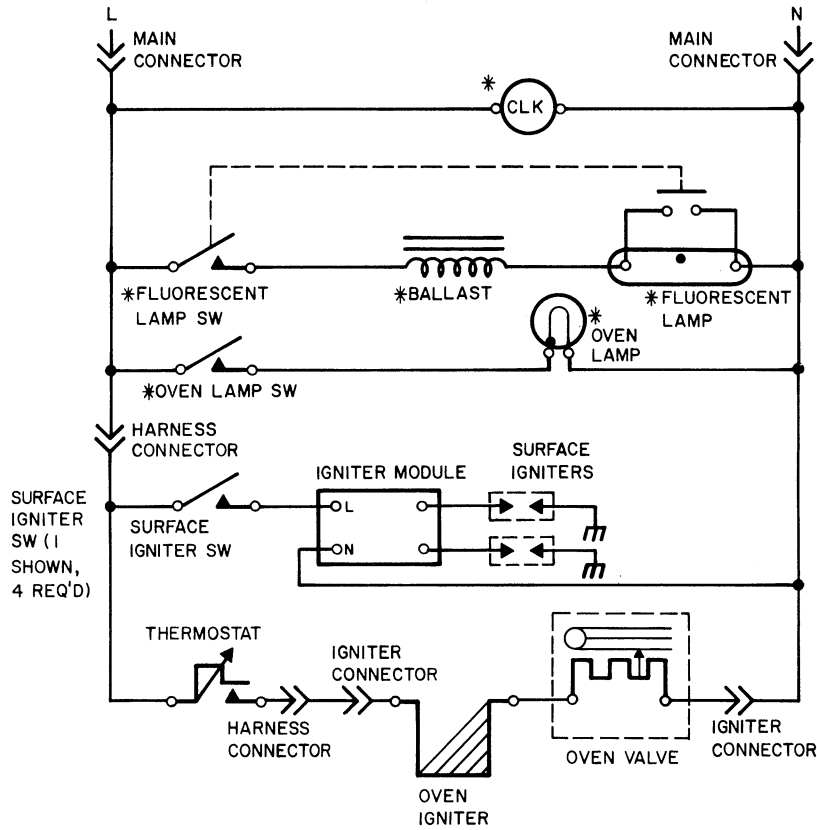
TRACER WIRE WIRE COLOR
NOTED FIRST, STRIPE NEXT.
EXAMPLE: WHITE WIRE
WITH BLUE STRIPE.

(W/BL-8)

COLOR WIRE NO.

COLOR CODE			
BK	BLACK	BR	BROWN
O	ORANGE	V	VIOLET
T	TAN	Y	YELLOW
C	COPPER	GY	GRAY
BL	BLUE	G	GREEN
P	PINK	R	RED
W	WHITE	PR	PURPLE
G/Y	GREEN/YELLOW		

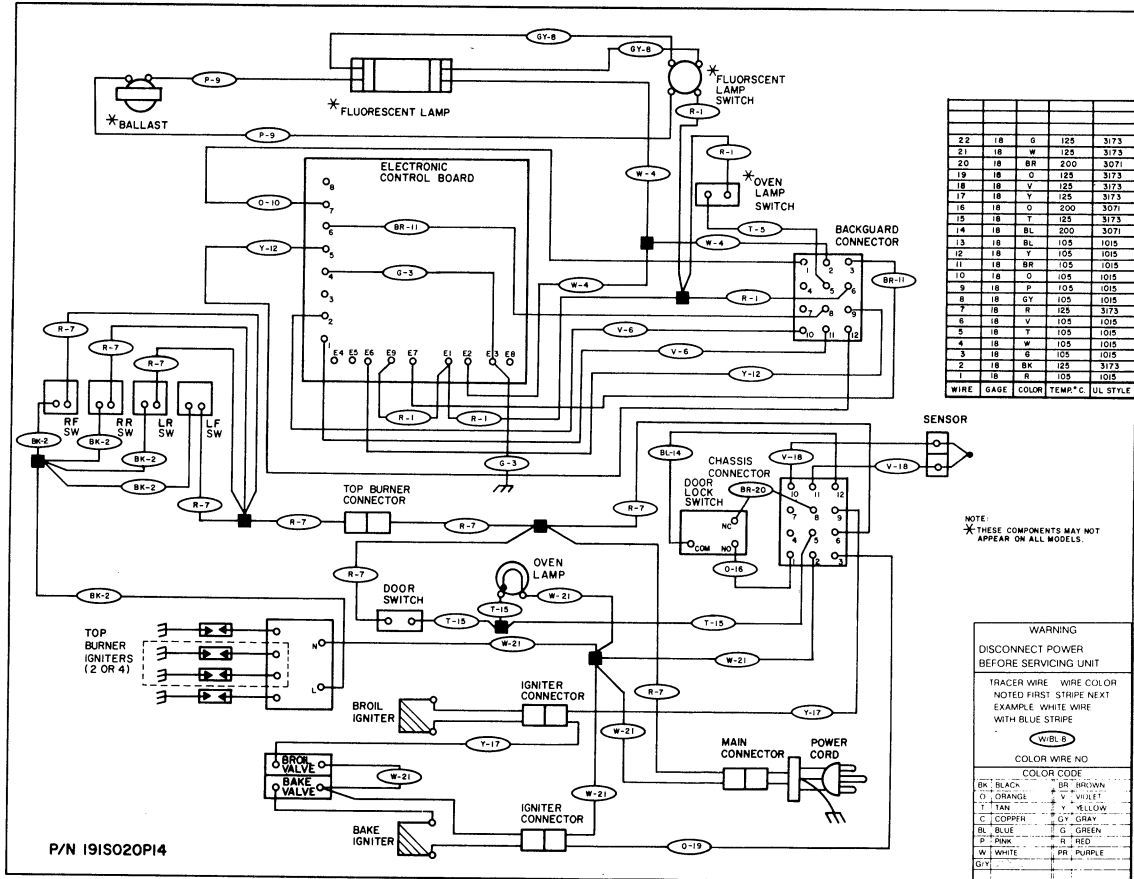
WIRE	COLOR	GAGE	TEMP°C	UL STYLE
10	R	18	105	1015
9	O	18	105	1015
8	W	18	105	1015
7	P	18	105	1015
6	GY	18	105	1015
5	O	18	125	3173
4	T	18	125	3173
3	BK	18	125	3173
2	R	18	125	3173
1	W	18	125	3173

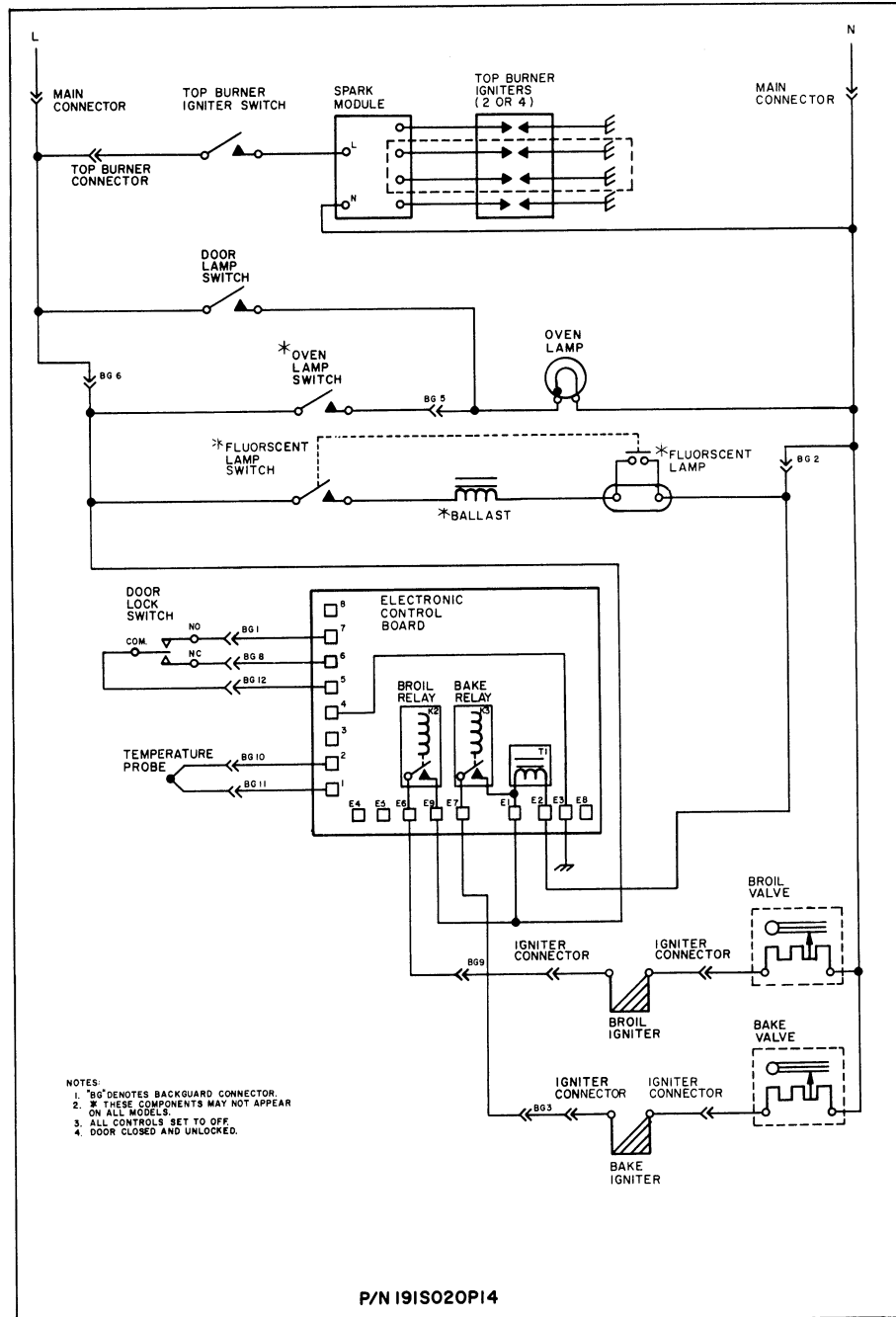


NOTES:

1. SERVICE: IF REPLACEMENT OF TERMINALS BECOMES NECESSARY, COMPARABLE WIRE, TYPE, GAGE AND TERMINALS MUST BE USED.
2. * THESE COMPONENTS MAY NOT APPEAR ON ALL MODELS.

P/N 19IS020PIO





NOTES

SECTION A - INSTALLATION

INSTALLATION INSTRUCTIONS
SELF-CLEAN; 30" FREE-STANDING GAS - ELECTRIC IGNITION & HYDRAULIC OVEN SYSTEM

FOR YOUR SAFETY IF YOU SMELL GAS: 1. OPEN WINDOWS 2. DON'T TOUCH ELECTRICAL SWITCHES 3. EXTINGUISH ANY OPEN FLAME 4. IMMEDIATELY CALL YOUR GAS SUPPLIER	FOR YOUR SAFETY DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.
--	---

NOTE TO INSTALLER: REMOVE ALL PACKING MATERIAL AND LITERATURE FROM THE OVEN BROILER COMPARTMENTS BEFORE CONNECTING GAS AND ELECTRICAL SUPPLY TO RANGE. AFTER INSTALLATION MAKE CERTAIN ALL CONTROLS ARE IN THE OFF POSITION.

PLEASE LEAVE THESE INSTALLATION INSTRUCTIONS WITH THE RANGE.

NOTE TO CONSUMER: PLEASE RETAIN THESE INSTALLATION INSTRUCTIONS FOR FURTHER REFERENCE.

**PLEASE REFER TO INSTRUCTIONS
ON HOW TO OPERATE THE
RANGE DURING A POWER
FAILURE**

SAFETY TIPS

Your new range has been tested to meet the most rigid safety standards. You can feel confident while using it. But use these safety suggestions to help avoid accidents that can cause injury to the user or damage to the range.

NOTE: All safety tips listed may not apply to your model.

Plug the unit into a 120 volt grounded outlet only. Do not remove the round grounding prong from the plug. If in doubt about the grounding of the home electrical system, it is the personal responsibility and obligation of the owner to contact a qualified electrician and have an ungrounded receptacle replaced with a properly grounded three-prong wall receptacle in accordance with the National Electrical Code. Do not use an extension cord with this range.

- Do not repair or replace any part of the range unless specifically recommended in this guide. Call a qualified technician for all other servicing.
- Clean only the parts of the range as instructed in this Owner's Guide.
- Be certain all packing materials are removed from the unit before operating, to prevent fire or smoke damage should the packing material ignite.

KEEPING YOUR KITCHEN SAFER

- Do not leave children alone in the kitchen when the range is in use. They should not be allowed to sit or stand on any part of the range as injury or burns could result. Keep children from touching the oven door or glass window when the range is operating as the door or window could get hot enough to cause serious burns.
- Caution. Do not store items or food of interest to children in cabinets above the range. Children could be seriously burned or injured if they climb on a range to reach these items.
- To eliminate the need of reaching over top burners, cabinet storage space above the top burners should be avoided.
- Keep objects off the range top unless they are directly used in the cooking process. Especially avoid putting plastic items such as salt and pepper shakers, spoons or plates on the range top. They could melt and become difficult to remove.
- Do not use the oven as a storage space. This creates a potentially hazardous situation.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. Explosions or fires could result.
- Do not heat unopened containers of food. A build-up of pressure will burst the containers, causing serious damage or injury.
- Use only dry potholders and not towels or other bulky cloth. Moist or damp potholders may result in steam burns. Keep potholders from touching the range top or oven burner as they could catch fire.
- Be careful of the clothing you wear when cooking. Loose fitting or hanging garments could burn if they brush over a burner or against a hot oven interior.
- Remember, your oven and range top are not designed to heat your kitchen. Such abuse could result in fire and/or damage to the unit and will void your warranty.

VENTILATING HOODS:

Clean Ventilating Hoods Frequently. Grease should not be allowed to accumulate on hood or filter.

When flaming foods under the hood, turn the fan off. The fan, if operating, may spread the flame.

SAFETY ON THE RANGE TOP

- Be sure you know which knob controls which burner. It is always a good practice to place a pan of food on a burner before turning it on and to turn the burner off before removing the pan.
- Always use the "Lite" position, if available, or high position when igniting top burners. Make certain that the burners have ignited.
- For your own safety, turn the burner knob so the burner flame does not extend beyond the edge of cooking utensils.
- When the top burner flame has been turned off, the burner and burner grate will remain sufficiently hot to burn fingers. The range surface may be hot too. Allow these parts to cool to room temperature before touching or removing them from the range.
- Do not allow dry, empty pans to cook on the range top as this could ruin the pan and cause a fire hazard.
- Use only those types of glass, ceramic, earthenware or other glazed utensils that are recommended by the utensil manufacturer for range top service and will not

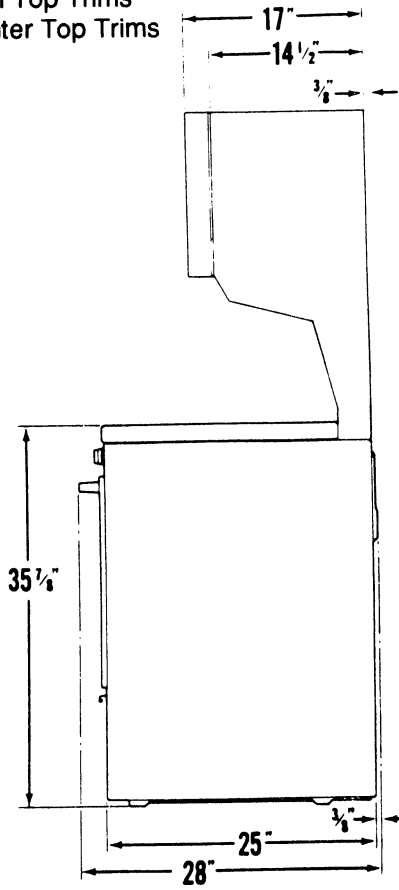
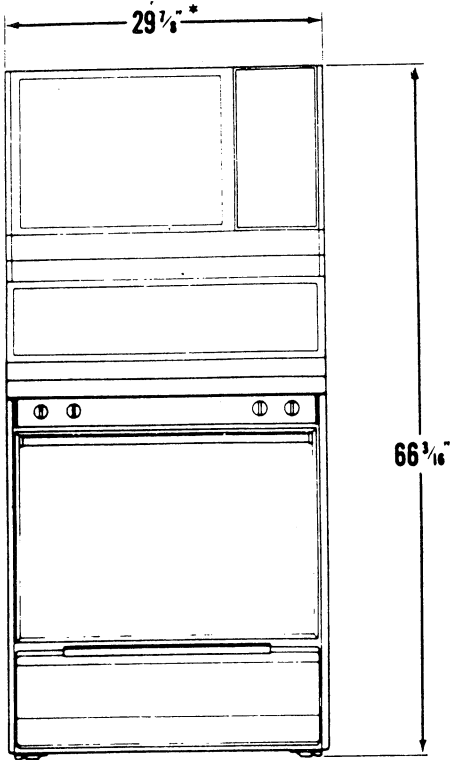
break due to sudden temperature changes.

- Do not use a wok on the cooking surface if the wok is equipped with a round metal ring, which is placed over the burner grate to support the wok. This ring acts as a heat trap which may damage the burner grate, spillover bowls and burner head. Also, it may cause the burner to work improperly. This may create a carbon monoxide level above current standards, resulting in a health hazard.
- To avoid accidental spillage and possible burns, utensil handles should be turned inward and not extend over adjacent burners.
- When heating cooking oil, fat or grease, watch it closely. It will catch fire if allowed to become too hot. If a grease or fat fire should occur in a pan, put out the fire by placing a lid on the pan or by smothering with baking soda. Do not throw water on grease fire. Dry chemical or foam type fire extinguishers may be used.
- Never leave top burners unattended at high heat settings. The pots could boil over, and the spillovers could cause smoke and might even ignite.
- When lowering the range top, be careful not to pinch your fingers. Grasp sides of the top with finger tips and lower into position.

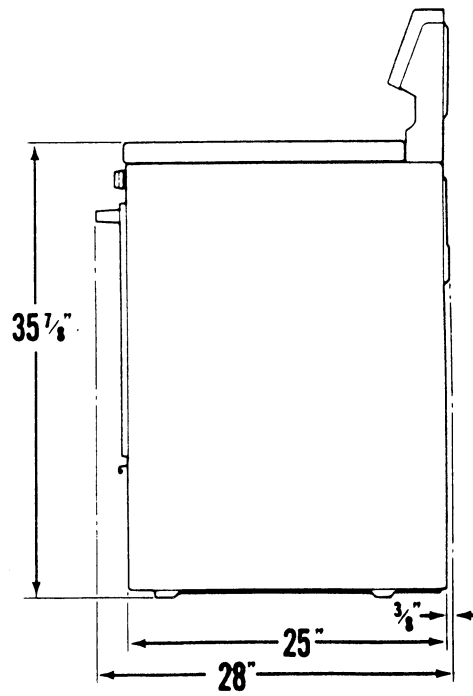
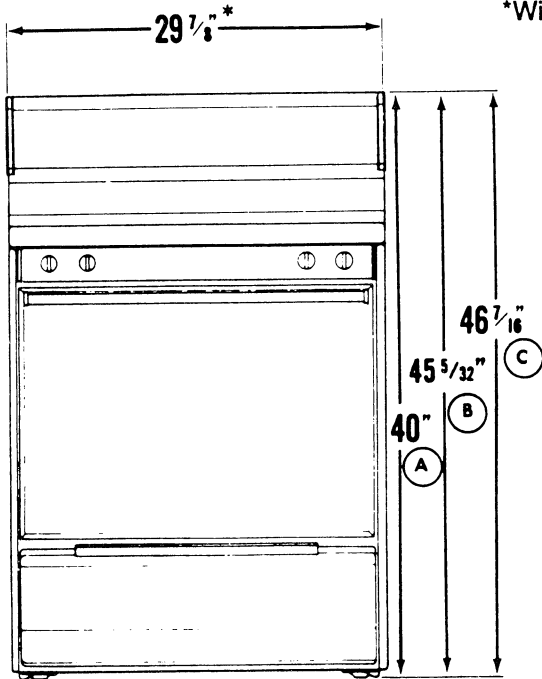
FOR SAFER USE OF THE OVEN

- Use care when opening the oven door. Before reaching in to remove or to replace food, let hot air and steam escape.
- This range requires fresh air for proper burner combustion. Do not obstruct the flow of combustion air at the oven vent nor around the base or beneath the lower front panel of the range. Avoid touching the vent openings or nearby surfaces as they may become hot.
- Always place oven racks in desired location while the oven is cool. If a rack must be moved while the oven is hot, avoid letting potholders contact hot oven walls.
- Do not line the oven bottom or completely cover an oven rack with aluminum foil as it could damage the oven and interfere with heat circulation in the oven.
- Touching a hot oven light bulb with a damp cloth could cause the bulb to break. Should the bulb break, disconnect the range before trying to remove the bulb to avoid electrical shock.
- The broiler pan and its insert are designed to allow dripping fat to drain and be kept away from the high heat of the broiler. Therefore, you should not cover the insert with foil or use the pan without the insert because the exposed fat may catch fire.

*Width - 29 15/16" With Main Top Trims
 - 30 1/16" With Counter Top Trims



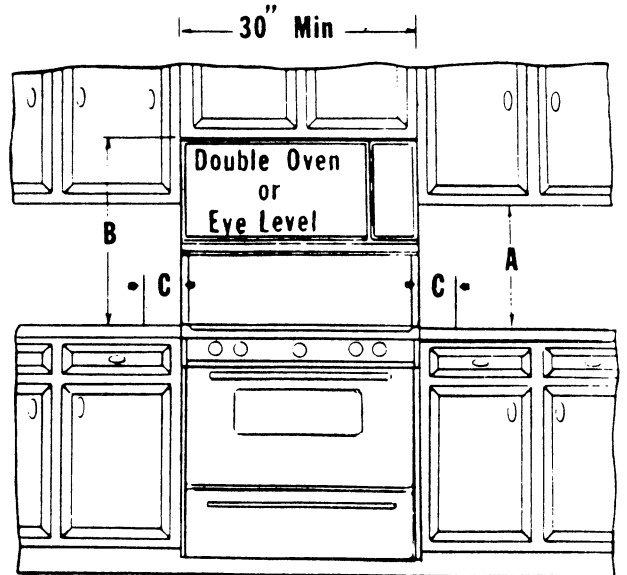
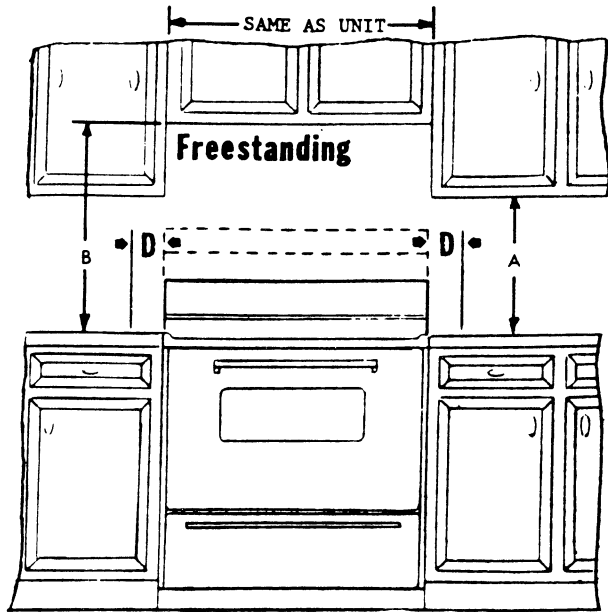
*Width - 29 15/16" With Main Top Trims
 - 30 1/16" With Counter Top Trims



NOTE: HEIGHT VARIES WITH MODELS.

- A = Slide - In
- B = Free - Standing
- C = Free - Standing/Canopy

CUT - OUT DIMENSIONS & VERTICAL CLEARANCE



"A" = 18" - Minimum vertical clearance between the cooking top and combustible horizontal surfaces.

"B" = 30" - Minimum vertical clearance between the cooking top and the cabinets centered above the cooking top.

NOTE: THE INSTALLATION MUST CONFORM WITH LOCAL CODES. IN THE ABSENCE OF LOCAL CODES, THE INSTALLATION MUST CONFORM WITH AMERICAN NATIONAL STANDARD Z223.1 - 1984 NATIONAL FUEL GAS CODE.

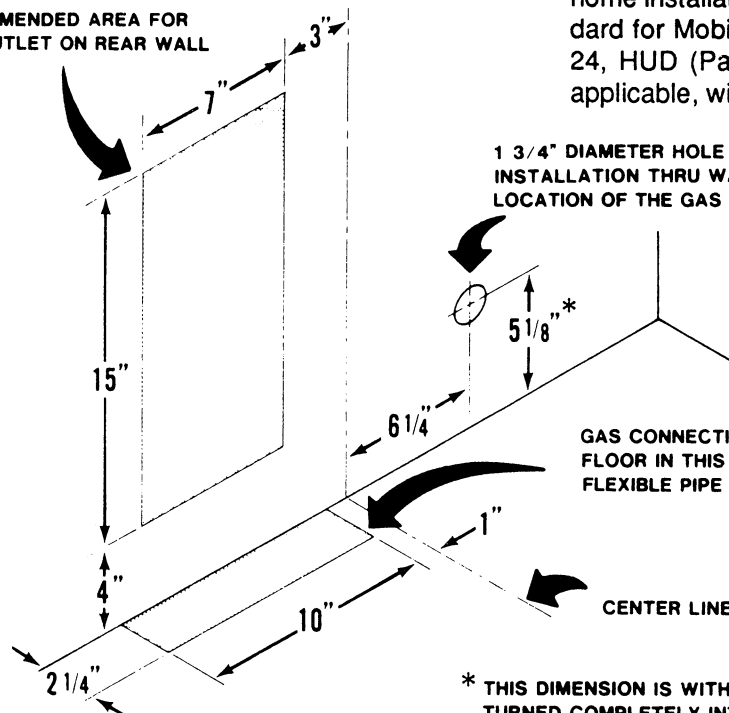
"C" = 4" - Minimum horizontal distance from sides of unit to adjacent vertical combustibles walls extending "D" = "1" above the cooking top.

NOTE: "0" CLEARANCE BELOW THE COOKING TOP, THE CABINETS SURROUNDING THE ELEVATED OVEN AND THE REAR OF THE RANGE.

NOTE: MAXIMUM DEPTH OF CABINETS INSTALLED ABOVE COOKING TOPS IS 13".

The installation of appliances designed for mobile home installation must conform with the Federal standard for Mobile Home Construction and Safety, Title 24, HUD (Part 280) or, when such standard is not applicable, with local codes.

RECOMMENDED AREA FOR 120 V. OUTLET ON REAR WALL



1 3/4" DIAMETER HOLE FOR FLEXIBLE PIPE INSTALLATION THRU WALL. SHOWS THE LOCATION OF THE GAS LINE CONNECTION

GAS CONNECTION CAN BE THRU THE FLOOR IN THIS AREA FOR USE WITH FLEXIBLE PIPE TO THE REGULATOR.

CENTER LINE

* THIS DIMENSION IS WITH THE LEVELING LEGS TURNED COMPLETELY INTO THE BASE.

ATTENTION HOME OWNER

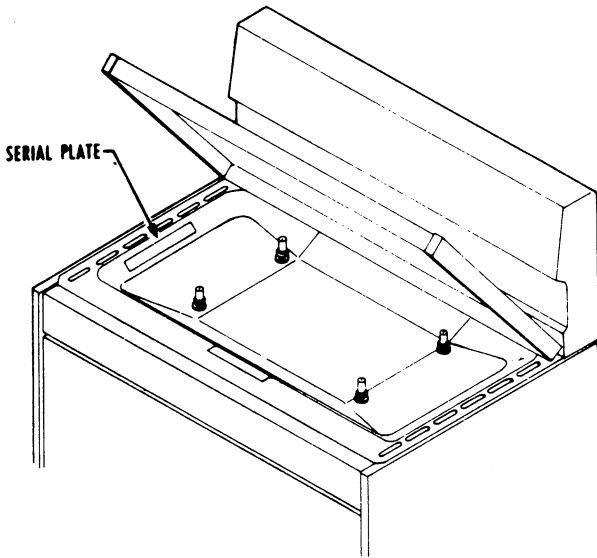
Should a replacement part be needed, proceed as follows:

IMPORTANT

1. Copy the complete model, lot and serial number from the serial name plate.
2. Describe the part you need, using the drawing to get the correct name.
3. Send your request for the part to WCI Part Division, 300 Phillip Rd, Columbus, Ohio 43218
 - A. Description of part.
 - B. Complete model, lot and serial number.
 - C. Date you purchased home, or range.
 - D. The date the part failed.

MODEL AND SERIAL PLATE LOCATION

The model and serial plate is located in the center of the left hand vertical wall of the burner box.



When ordering parts for or inquiries about your range, always be sure to include the model, lot and serial number from the serial plate on your range.

Your serial plate also tells you the ratings of the burners and type of fuel and pressure the range was adjusted for when it left the factory.

INSTALLING RANGE

CARE MUST BE TAKEN DURING INSTALLATION OF RANGE NOT TO OBSTRUCT THE FLOW OF COMBUSTION AND VENTILATION AIR.

Any openings in the wall or floor behind or under the range must be sealed. It is mandatory to have a manual shut off valve in the gas supply line external to the range at a location that is easily accessible.

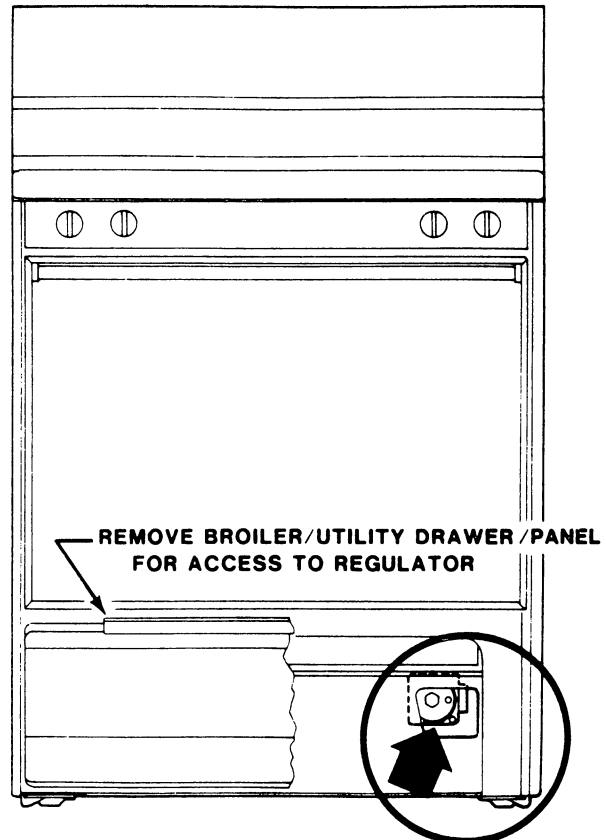
The unit was designed to operate on 4" natural or 10" LP gas. A convertible pressure regulator is connected to the manifold and **MUST** be connected in series with the gas supply line, regardless of which type of fuel is being used.

FOR PROPER OPERATION

The maximum inlet pressure to the regulator should be no more than 14 inches water column pressure. The inlet pressure to the regulator must be at least 1 inch greater than regulator output setting (i.e.) if regulator is set for 4" water column pressure, inlet pressure must be at least 5".

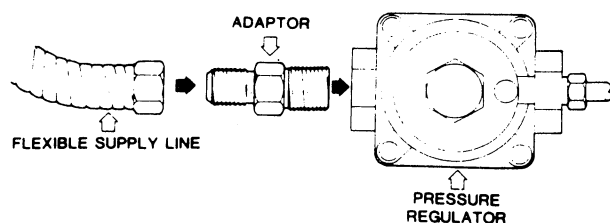
NOTE: ALL HOOKUPS AND ADJUSTMENTS SHALL BE PERFORMED BY QUALIFIED TECHNICIANS.

TO CONNECT THE RANGE TO GAS, you will need a 1/2" nipple for connecting the adaptor or union to the pressure regulator (see photo) and the supply line to the range should be 3/4" pipe.

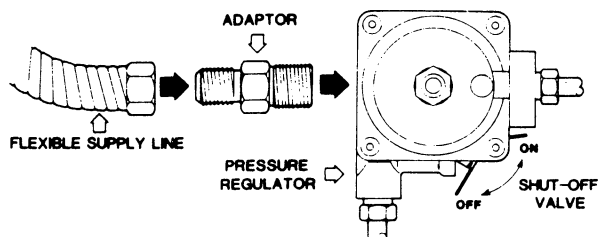


PRESSURE REGULATOR LOCATION

GAS CONNECTION FOR PILOT MODELS



GAS CONNECTION FOR ELECTRIC IGNITION MODELS



TO CONNECT THE RANGE TO LP GAS, the regulator must be converted to LP (see Gas Conversions).

A pipe joint compound (sealant) that will be resistant to the action of liquified petroleum gases must be used on all connections to assure permanent leakproof connections.

After connecting, check the system for leaks with a manometer. If a manometer is not available, turn the gas supply on the range and use a liquid leak detector at all joints and connections to check for leaks.

If necessary, tighten all connections to prevent gas leakage in the range or supply line.

CAUTION: DO NOT USE A FLAME TO CHECK FOR GAS LEAKS.

The Appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig.

The Appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig.

CAUTION: FLOOR COVERINGS

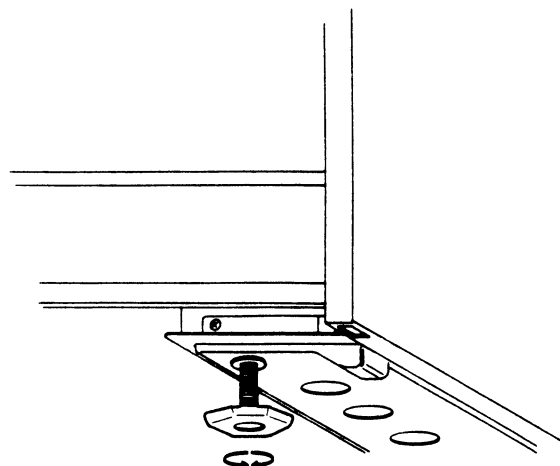
Use caution when installing this range in an area covered with linoleum, carpet, or any other type of synthetic floor

covering. The floor covering should be able to withstand temperatures up to 90°F. above the temperature of your room without shrinking, warping or discoloring.

If you are uncertain of the ability of your floor covering to withstand temperatures like this, it would be advisable to check with the dealer or manufacturer of the floor covering for this information, or use a protective covering (able to withstand this temperature) under the range.

LEVELING

After the range has been placed in its final location, it must be leveled for proper cooking and baking results. Check the levelness by placing a level horizontally on an oven rack. Check front to back and side to side. Level the range by adjusting the leveling legs or by placing shims under the corners of the range base as needed.



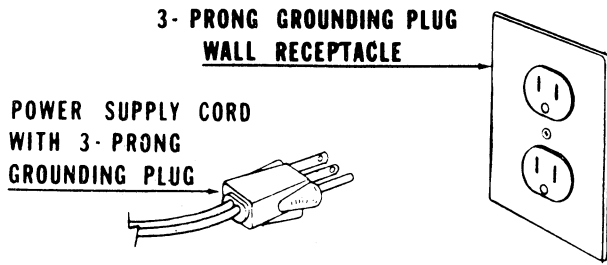
RECOMMENDED GROUNDING METHOD

WARNING:

ELECTRICAL GROUNDING INSTRUCTIONS

This appliance is equipped with a three-prong grounding plug for your protection against shock hazard and must be plugged directly into a properly grounded receptacle. Do not cut or remove the grounding prong from this plug.

Use a properly polarized and grounded three -prong receptacle as is required by NATIONAL ELECTRICAL CODES on all new construction.



NOTE: APPLIANCE MUST BE GROUNDED.

For the safety of the user, when the range is installed it must be electrically grounded in accordance with local codes, or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA No. 70-1984.

Check all code rules and regulations for connecting the appliance to be certain the installation conforms with all local, municipal and state codes as well as local utility regulations.

Where a two-prong wall receptacle is encountered, it is the personal responsibility of the user to contact a qualified electrician and have it replaced with a properly grounded three-prong wall receptacle in accordance with the National Electrical Code.

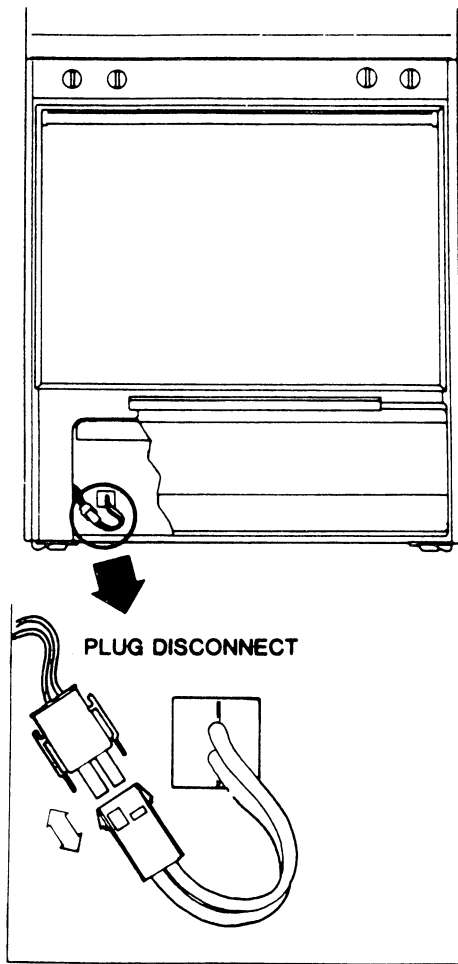
Where a two-prong adapter is used temporarily, it is the personal responsibility and obligation of the user to contact a qualified electrician and have the adapter properly grounded and polarized.

Under no circumstances should the rounded ground prong be removed from the plug.

Failure to comply with the above could result in a serious shock hazard.

ELECTRIC DISCONNECT

The electric disconnect is accessible without moving the range. Remove broiler drawer or storage drawer on self-clean models. Disconnect is located on left side, and to the rear of range. Remove disconnect shield if equipped.



TOP BURNER IGNITER

Operation of electric igniters should be checked after range and supply line connectors have been carefully checked for leaks and range has been connected to electric power.

To check for proper lighting, push in and turn a top burner valve to the "lite" position. The top burner should light when gas is available to top burner. Once the burner lights, it should be turned out of the "lite" position. Each valve should be tried separately until all burners have been checked out.

NOTE: IN THE EVENT OF POWER FAILURE, TOP BURNERS CAN BE MATCH LIT. TURN THE BURNER VALVE TO "LITE" POSITION AND CAREFULLY LIGHT BURNER.

GAS CONVERSION

This range was adjusted for Natural or LP gas as specified on the Serial Plate.

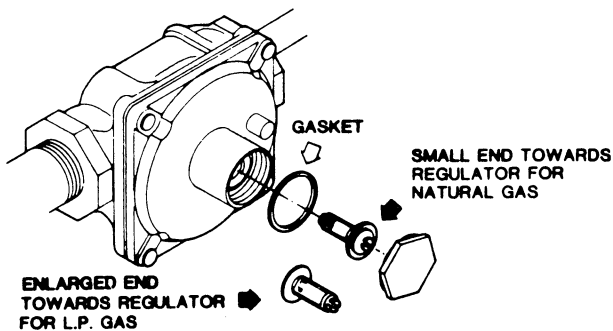
TO CONVERT FROM NATURAL TO LP GAS:

1. Remove the cap from the pressure regulator.

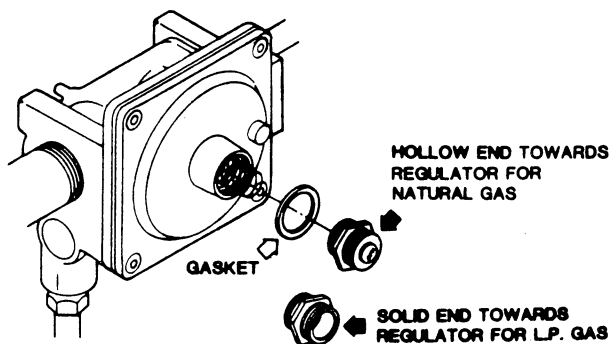
2. Remove the plunger.
3. Turn the plunger upside down with the enlarged end down.
4. Replace the plunger inside the regulator. LP gas should be visible on the exposed end of plunger.
5. Replace the cap with gasket on regulator.

NOTE: THE TYPE OF GAS PRESSURE THE REGULATOR IS SET FOR IS INDICATED ON THE TOP OF THE PLUNGER.

DO NOT REMOVE THE PRESSURE REGULATOR.



**NATURAL/L.P. GAS CONVERSION
PILOT MODELS**



**NATURAL/L.P. GAS CONVERSION
ELECTRIC IGNITION MODELS**

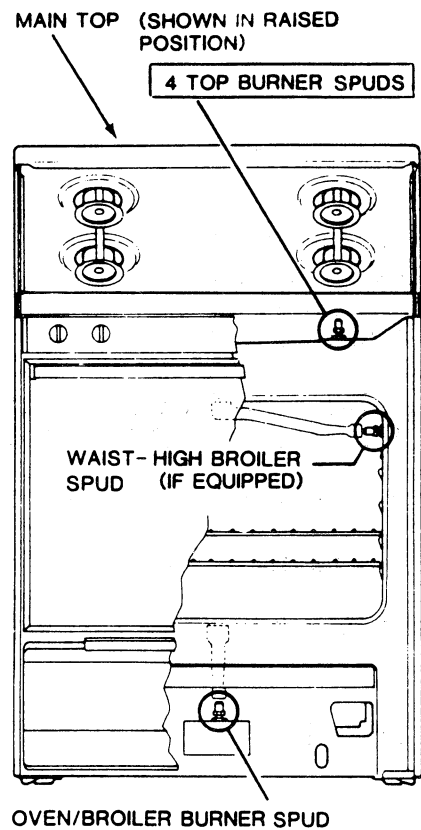
TO CONVERT FROM LP TO NATURAL GAS:

1. Remove the cap from the pressure regulator.
2. Remove the plunger.
3. Reinstall the plunger with the enlarged end up (see previous pressure regulator picture.).

NOTE: THE TYPE OF GAS FOR WHICH THE REGULATOR IS ADJUSTED, IS INDICATED ON TOP OF THE PLUNGER.

4. Replace the cap of the regulator.

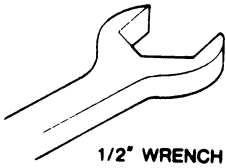
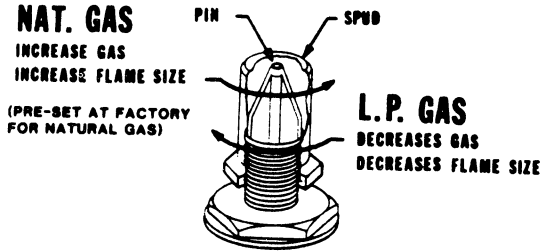
NOTE: READJUST SIMMER POSITION ON TOP BURNER VALVES WHEN NECESSARY. (SEE LATER SECTION RELATING TO THIS ADJUSTMENT).



1. Lift and lock cooktop to gain access to top burner spuds.
2. With 1/2" wrench, turn spud down or clockwise (from

front of range) until snug (approximately 2-1/2 turns). This restricts the flow of gas through spud, to that allowed only by the hollow LP metering pin. (Do not overtighten).

To adjust "warm" setting on valve remove knob, insert a thin bladed screwdriver into the hollow valve stem. Engage the slotted screw inside the valve stem. The flame size can then be increased or decreased. Adjust flame size until you can quickly turn dial from "lite" to "warm" without extinguishing flame. Flame size should be as small as possible without going out when turning the valve quickly from "lite" to "warm".

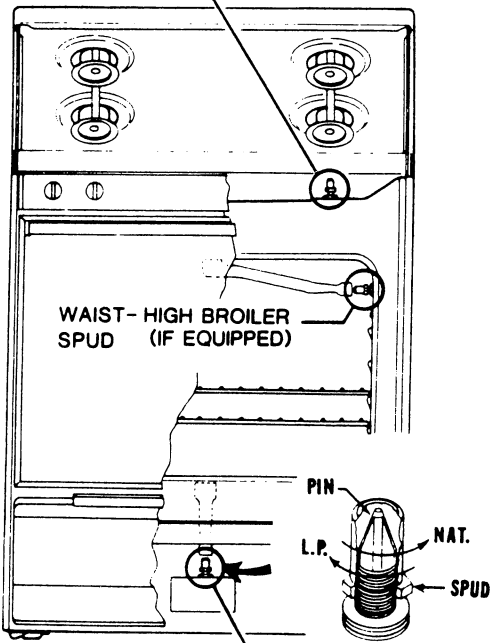
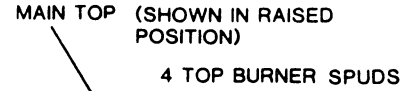
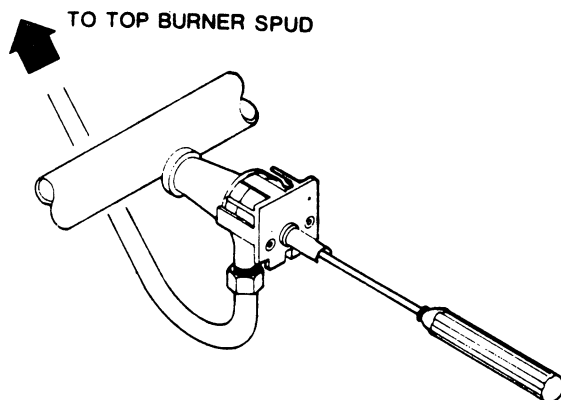


3. Lower main top and apply gas to check for proper flame size.

NOTE: AIR ADJUSTMENT NOT REQUIRED ON TOP BURNERS. BURNERS ARE MANUFACTURED TO OPERATE ON EITHER LP OR NATURAL GAS WITH NO ADJUSTMENT.

CHECKING ADJUSTMENT OF "WARM" SETTING ON BURNER VALVE (ON THREE POSITION VALVES)

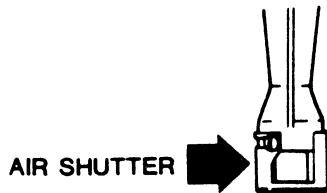
1. Turn dial to "lite" position until burner ignites.
2. Quickly turn dial down to "warm".
3. If burner goes out, the valve will need to be readjusted.



OVEN/BROILER BURNER SPUD

1. Remove storage drawer if self-clean model, or pull broiler drawer out and remove broiler pan if conventional gas range, to gain access to oven burner spud.
2. (For conventional models) using a 1/2" wrench, turn down the adjustable spud which injects gas into the oven burner. Turn this spud until snug against the LP metering pin. This will be approximately 2 - 1/2 turns. (Do not overtighten).
- 2A. (Self-clean models) remove oven bottom and oven burner baffle. To remove oven bottom, remove oven hold down screws at rear of oven bottom pull up at rear, disengage front of oven bottom from oven front frame and pull the oven bottom straight out of the oven. Remove burner baffle so that burner flame can be observed.
3. Using 1/2" wrench, turn down the adjustable spud which injects gas into the oven burner, until snug against the LP metering pin. This will be approximately 2 - 1/2 turns. (Do not overtighten).

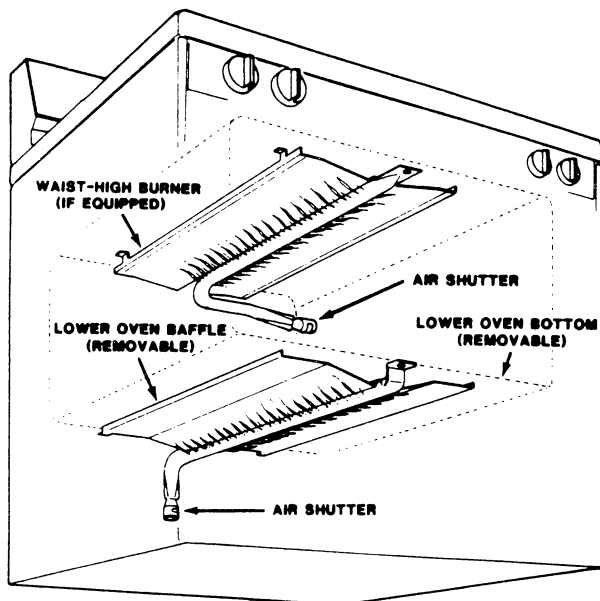
- Turn thermostat and selector (if equipped) to bake and allow oven to cycle on.



- Adjust the air shutter. It is located on the venturi tube and rests on the spud of the valve. It is locked in place with a Phillips head screw. If adjustment is needed, loosen the Phillips screw and rotate the shutter to allow more or less air into the burner tube.

(CONVENTIONAL RANGES)

To determine if the burner flame is proper, observe the flame through the broiler door. It should be steady with approximately 1" blue cones. For LP gas, this usually occurs when the air shutter is fully open.



(SELF-CLEAN RANGES)

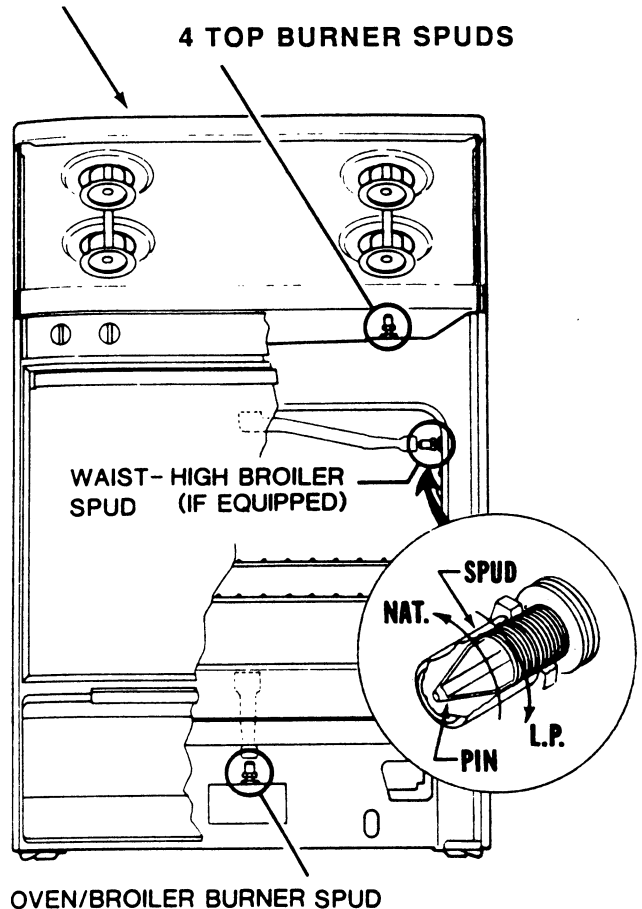
To determine if the oven burner flames is proper, observe the flame by removing oven bottom and burner baffle. Flame should be approximately 1" blue cones with no yellow tipping. With baffle installed, the flame will resettle.

OVEN BURNERS EQUIPPED WITH NORTON IGNITERS CAN NOT BE USED DURING A POWER FAILURE.

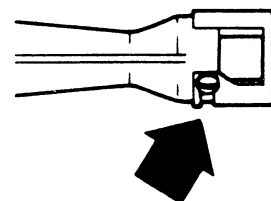
BROILER BURNER SPUD ADJUSTMENT (IF EQUIPPED)

- Open oven door.

MAIN TOP (SHOWN IN RAISED POSITION)



- Locate broiler burner spud and turn down approximately 2 - 1/2 turns so that spud is snug against LP metering pin. (Do not overtighten).

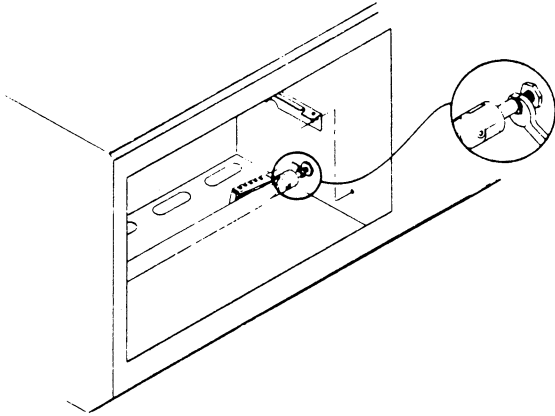


- Locate broiler burner air shutter and adjust to obtain optimum flame. This will normally be completely open for LP gas. Tighten shutter set screw.

To determine if burner flame is proper, observe broiler flame. It should be steady and sharp with no yellow or orange flame tips. The flame should burn clean with no evidence of soot.

OVER UNDER MODELS

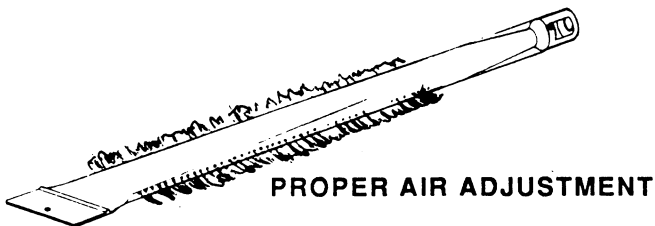
UPPER OVEN BURNER (IF EQUIPPED)



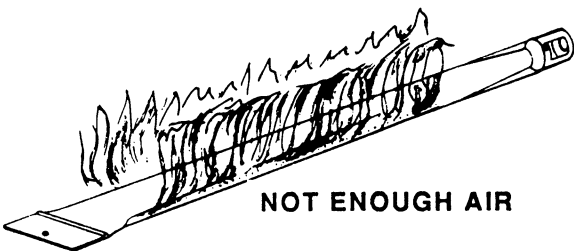
The air adjustment on this burner is very important for satisfactory baking results in this oven.

The air shutter for this burner is located on the right side of the burner and is locked in position with a Phillips head screw. Loosen the screw and adjust the air shutter to make the openings as large as possible. If the oven burner will ignite on both sides with the air shutter in this position, tighten the locking screw.

If the burner will not ignite on both sides or if the flame lifts off severely on the front side of the burner (a slight lifting off of the flame on the front side is desirable with the oven bottom removed), reduce the air to the burner to obtain flame approximately as shown in the photo.



PROPER AIR ADJUSTMENT



NOT ENOUGH AIR

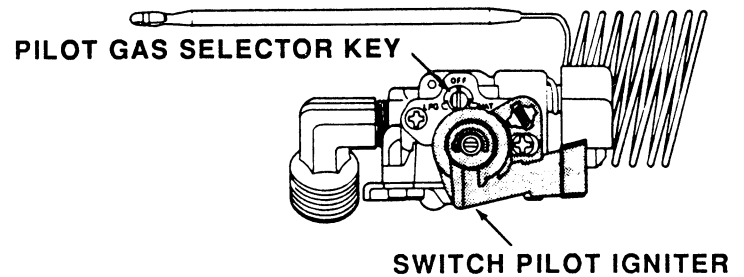
ELECTRIC SPARK IGNITION

ROBERTSHAW SYSTEM - ELECTRIC

This system is designed to be self-lighting and consists of a module which produces a high voltage spark, which is fed to the igniter electrode on the pilot assembly. This in turn lights the pilot and maintains a pilot flame any time the thermostat is turned to any heat setting. (Power 120 VAC) to the module is supplied via a switch mounted on the thermostat shaft.

The oven thermostat is provided with a selector key to provide proper pilot operation for the type of fuel being used. If your range is connected to natural gas, the selector should be turned so the indicator points to the NAT position. If the range is connected to LP or bottled gas, the selector should be turned to the LP position.

If needed, the gas to the oven pilot can be turned off by turning the selector so the pointer is at the "off" position.



To light the oven pilot, proceed as follows:
Remove all tape and packing materials from the oven. Check the selector key on the oven thermostat to be certain the pointer is turned to select the proper fuel being used (natural or LP gas). Connect range to 120 VAC, this will supply power to oven pilot spark system.

Turn the oven thermostat to desired temperature.

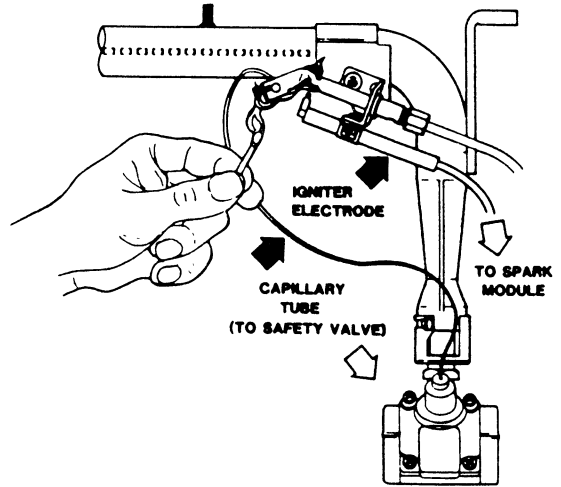
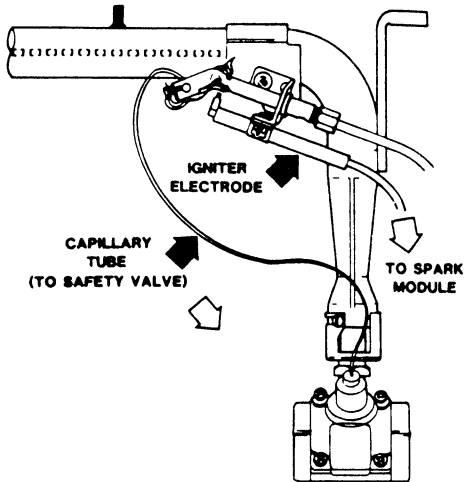
A snapping will occur when the thermostat is set to any temperature, and after a few seconds the pilot will light and snapping will stop.

A flame should be visible at pilot assembly extending outward and burning against a small metal bulb.

After 20 -40 seconds, the main oven burner should ignite and burn until desired temperature is reached. At that time, the oven pilot should get smaller, moving away from the metal bulb which will turn oven burner off after 20-40 seconds.

The oven burner will continue to turn off and on to maintain oven temperature.

NOTE: IF TOP BURNER IGNITERS ARE TURNED ON, SPARKING WILL ALSO OCCUR AT LOWER OVENIGNITER. THE REVERSE WHEN LOWER OVEN IS TURNED ON, EXCEPT THAT AFTER THE PILOT LIGHTS, IGNITER MODULE WILL SHUT DOWN.



TO OPERATE YOUR RANGE DURING AN ELECTRICAL POWER FAILURE:

TOP BURNERS

Hold a lighted match to the desired burner head and slowly turn the corresponding control knob to the "Lite" position. After the burner lights adjust flame size as required.

OVEN BURNER

Open the broiler drawer and remove the broiler pan. Push in and turn the thermostat knob counterclockwise to any position past the "Warm" setting. (The pilot will not light with the thermostat in the "Off" position). Hold a lighted match at the top forward section of the pilot (see diagram). After pilot ignites, immediately remove hand, replace broiler pan, close broiler drawer and set thermostat knob to desired temperature. The oven will operate normally until the thermostat is turned off.

NOTE: SHOULD YOUR TOP BURNERS OR OVEN BE IN USE WHEN ELECTRICAL POWER FAILURE OCCURS, THEY WILL CONTINUE TO OPERATE NORMALLY.

ROBERTSHAW SYSTEM - NON ELECTRIC IGNITION ONLY

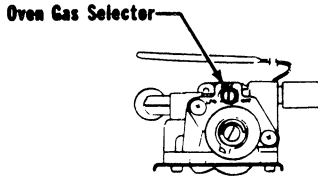
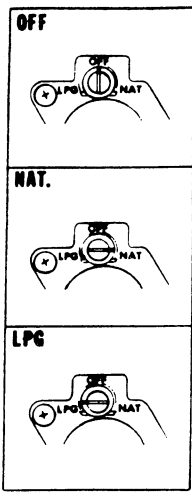
The oven thermostat is provided with a selector key to provide proper pilot operation for the type of fuel being used. If your range is connected to natural gas, the selector should be turned so the indicator points to the NAT position. If the range is connected to LP or bottled gas, the selector should be turned to the LP position.

If desired, the gas to the oven pilot can be turned off by turning the selector so the pointer is at the "Off" position.

To light the oven pilot, proceed as follows:
Remove all tape and packing materials from the oven. Check the selector key on the oven thermostat to be certain the pointer is turned to select the proper fuel being used (natural or LP gas).

Allow enough time for the air to escape from the pilot gas line.

Turn the oven thermostat knob to "Off".



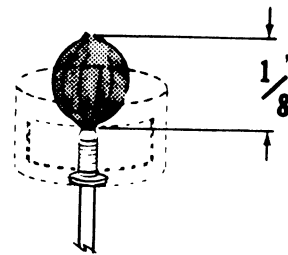
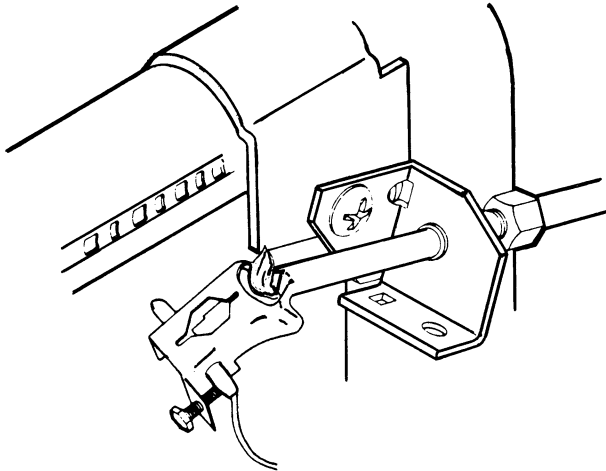
After 20-40 seconds, the main oven burner should ignite and burn until the oven temperature has reached 300°. At that time, the oven pilot should get smaller, moving up away from the metal bulb which will turn the main oven burner off after 20-40 seconds.

The oven burner will continue to turn off and on to maintain oven temperature.

TOP PILOTS - NON-ELECTRIC IGNITION ONLY

1. Remove top grates and combustion pans.
2. Lift top and prop in an up position with hold-up rod or remove if not equipped with rods.
3. Locate pilot filter assembly on the manifold pipe. Adjust to approximately 1/8" flame so that a slight tinge of yellow appears at the top of pilot flame.

Light oven pilot with a match. The oven pilot should burn with a stable flame after a few seconds operation and should have a small flame visible only at the opening in the top of the pilot assembly.

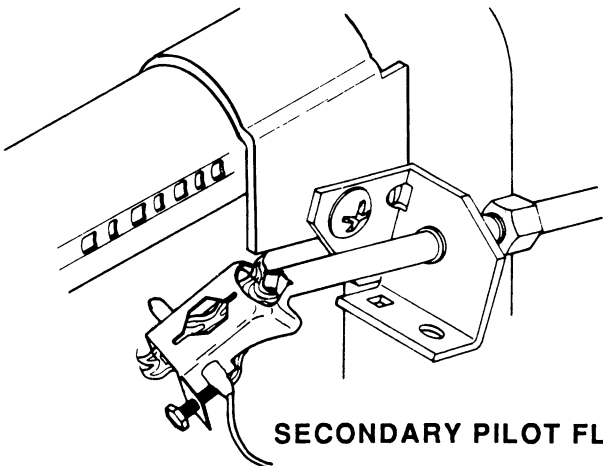


TOTAL HEIGHT MAX

PRIMARY PILOT FLAME

Turn oven thermostat knob to 300°F.

The oven pilot should now be larger with the flame extending down the slanted ramp and burning against a small metal bulb.



SECONDARY PILOT FLAME

CARE AND CLEANING

To care for the metal finishes on your oven, wash with clean, warm soapy water, rinse with clean water and dry immediately. If spots are difficult to remove, use a very mild abrasive cleanser.

CLEANING THE CONTROL PANEL

It's a good idea to wipe the control panel clean after each use of the range. For a thorough cleaning, the control knobs should be removed by pulling them off the knob stem. Clean them with mild soap and water. Rinse thoroughly with clean water and polish dry with a soft cloth.

Do not use abrasive cleaners, strong liquid cleaners or oven cleaners on the control panel as they will cause permanent damage to the finish.

CLEANING THE OVEN RACKS AND SUPPORTS

These may be cleaned with a mild abrasive cleanser. Place the cleanser on a damp cloth and rub over the bars of the racks or supports, rinse with clean water and dry with a soft cloth. If you want, soapy metal pads may be used. After scrubbing, wash with soapy water, rinse and dry.

CLEANING THE OVEN DOOR

Wash with hot soapy water. For stubborn spots, a solution of ammonia and water can be used.

CLEANING THE OVEN PORCELAIN FINISH

If your oven walls are coated with porcelain enamel, proper care will retain its good-looking finish for years. Soap and water will normally do the job. Heavy spattering or spillovers may require cleaning with a mild abrasive cleanser. Soapy wet metal pads may be used.

Do not permit food spills with a high sugar or acid contents (for example: milk, tomatoes, sauerkraut, fruit juices or pie filling) to remain on the surface because it may cause a dull spot even after cleaning.

Household ammonia may make your cleaning job easier. Place 1/2 cup in a shallow glass or pottery container in a cold oven overnight. The ammonia fumes will help loosen the burned on grease and food.

If necessary, a caustic oven cleaner may be used on the lining only. follow package directions.

WARNINGS ABOUT USING SPRAY-ON OVEN CLEANERS

A. Be careful where the oven cleaner is sprayed.

1. Do not spray on the electrical controls and switches because you could cause a short circuit which could cause a fire or eye injury due to sparking.
2. Do not let a film from the cleaner build-up on the temperature sensing bulb in the oven. It could cause the oven to heat poorly. (The temperature sensing bulb is located at the top of the oven along the side). Carefully wipe the sensing bulb clean after each oven cleaning. Be careful not to change the location of the sensing bulb as this could affect how your oven bakes.
3. Do not let any of the cleaner touch the oven door handles or any of the exterior surfaces of the range, linoleum, wood or painted surfaces. The cleaner can damage these surfaces.

THE CONTINUOUS CLEANING OVEN

If your oven has a continuous cleaning finish on the top, sides, and back, oven heat along with this special finish will keep your oven presentably clean.

Because the bottom of your oven is subjected to heavy spillovers and boilovers, your range features a fitted porcelain oven bottom which can be removed and carried to the sink for cleaning.

The porcelain finish on the oven door liner and oven bottom can be cleaned with soapy metal pads or with mild caustic oven cleaners. Make sure that caustic cleaners do not touch the continuous cleaning finish. If this should happen, wash it off immediately with clear water by dabbing the finish with a wet cloth or sponge. Otherwise the finish may be damaged.

If you're baking foods which look as if they might boil over, put a piece of aluminum foil or a cookie sheet on a lower oven rack to catch the boilovers. Make sure the foil does not completely cover the rack because this could interfere with the even distribution of heat and cause improper baking.

If you bake something that causes excessive spattering on the oven sides and back, wipe these spots off with a damp cloth as soon as the oven has cooled. Then brush the spots with a wet nylon scouring pad. Then rinse with clean water applied with a wet sponge. This may not completely remove spotting, but they should disappear gradually as you use your oven.

Sometimes grease spatters may appear on the inside of the oven window. Wipe the window with a paper towel or a dry cloth to prevent grease from accumulating on the glass.

Certain foods with a high acid content can discolor any finish. If you find that some stains do not disappear, it will help to spray them with a quality household cleaner or use full strength ammonia to clean them. Leave this cleaning product on the soil for about 30 minutes, then rinse the surface thoroughly with clean water applied with a wet sponge, then heat the oven at a temperature of 400°F. Repeat this process until the stain begins to fade.

REMEMBER: DO NOT USE CAUSTIC OVEN CLEANERS OR STEEL AND METAL PADS ON THE CONTINUOUS CLEANING FINISH IN THE OVEN. DO NOT SCRAPE THE OVEN WITH A KNIFE OR SPATULA AS THIS COULD PERMANENTLY DAMAGE THE FINISH.

CLEANING THE REMOVABLE PORCELAIN OVEN BOTTOM

The oven bottom is porcelain enamel and is removable to simplify cleaning. With proper care, the oven bottom will retain its lustrous finish for years. If desired, a caustic oven cleaner can be used to clean the oven bottom after it has been removed. **BE SURE TO FOLLOW THE DIRECTIONS OF THE CLEANER LABEL CAREFULLY, AND DO NOT ALLOW CAUSTIC OVEN CLEANERS IN CONTACT WITH THE CONTINUOUS CLEANING FINISH ON THE SIDES, BACK AND TOP OF THE OVEN.**

We suggest protecting the porcelain enamel oven bottom from excessive spillovers. This is particularly important when baking a fruit pie or other foods with high acid content. Hot fruit filling, or foods that are high in acid content (milk, tomato, sauerkraut, and sauces with vinegar or lemon juice) may cause pitting and damage to the porcelain enamel finish.

To protect the oven bottom place a piece of aluminum foil slightly larger than the backing dish or use a small cookie sheet, on the lower oven rack to catch spills and boilovers. Be sure you do not completely cover the oven rack with foil as this would cause uneven heat distribution in the oven.

CLEANING BROILER

After broiling, remove the broiler insert and carefully pour off the grease. Wash and rinse the insert in hot soapy water. If food has burned on, sprinkle the insert while hot with detergent and cover with wet paper towels or a dish cloth. That way, burned on foods will soak loose while the meal is being served. **DO NOT STORE A SOILED BROILER PAN AND INSERT IN THE OVEN.**

CARE AND CLEANING

HOW TO PREPARE OVEN FOR SELF-CLEANING

1. Remove the broiler pan and pan insert, all utensils and any foil. These items are not able to withstand the high cleaning temperatures.
2. You can leave the oven racks in the oven if you want. The color of the racks after going through a cleaning cycle will change from a shiny to a slightly dull color. After the cycle is completed and the oven has cooled, rub the sides of the racks with a paper towel or cloth with a small amount of baby oil or a thin coating of salad oil. This will make the racks glide easier on the rack supports.
3. Leave the porcelain oven rack supports in the oven.
4. Clean any soil from the oven frame, the door liner outside the oven seal strip. These areas heat sufficiently to burn soil on. Clean them with soap and water, soapy metal pads or cleansers. Rinse thoroughly with a cloth dipped in clean water. Do Not use commercial oven cleaner or oven protective coatings of any kind in

or around any parts of the self-cleaning oven.

5. With a paper towel or cloth, remove any grease or spillovers that have not baked onto the oven bottom. A large accumulation of thick soil on the oven bottom may cause smoking to occur.

NOTE: DURING THE INITIAL CLEANING CYCLE ONLY, THERE WILL BE SOME SMOKE AND ODOR DUE TO ADHESIVES AND INSULATION BINDERS.

HOW TO SET SELF-CLEANING CYCLE

1. Make sure the clock is set at the correct time of day. The time on the "Start" and "Stop" dials opposite the pointers will be the same as the time showing on the clock.
2. Press in on the knob of the "Stop" dial and turn the knob until the pointer is two (2) hours beyond the time of day. The "Start" time knob should not be depressed nor turned.
3. Turn the oven selector switch to "Clean".
4. Move the door latch handle to the "lock" position.

As the selector is moved to clean, the "clean indicator light" comes on. The unit begins to heat by means of the oven burner, which stays in operation (the lock light comes on indicating the door cannot be opened until the clean cycle is over). Until the oven temperature climbs to approximately 900° and is maintained for the preset clean time period. At the end of the clean period, the oven burner turns off and the oven begins to cool. Once the oven temperature cools below 600°, the lock mechanism allows the door latch handle to be moved to the "open" position. This will be indicated by the oven "lock light" going off. The latch handle should not be moved until the lock light is off. Once the handle is moved to open, the door can be opened.

The selector switch should then be returned to the "OFF" position.

The oven can now be used in a normal bake or broil or timed bake operation.

If it is necessary to interrupt the cleaning cycle before the lock light comes on, follow these steps:

1. Move door latch handle to the unlock position.
2. Turn selector switch to "OFF".
3. Advance clock timer "Stop" knob clockwise until it "pops" out.

If it is necessary to interrupt the cleaning cycle once the "lock" light has come on, follow these steps:

1. Turn the clock timer "Stop" knob clockwise until it "pops" out.
2. Allow the oven to cool down until after the "Lock" light turns off. Move locking arm to open position, and selector switch to "Off" position.

IMPORTANT: DO NOT ATTEMPT TO FORCE LOCKING ARM TO THE OPEN POSITION BEFORE THE LOCK LIGHT HAS TURNED OFF. THE FOLLOWING THINGS ARE IMPORTANT TO REMEMBER:

1. The oven must be cooled sufficiently before the door will unlock.
 2. Interior oven temperature must be below 600°F.
-

SECTION B - CONSTRUCTION AND OPERATION

CONSTRUCTION

The ranges described in this manual were designed and manufactured in a highly automated plant. The range construction is designed as a box inside a box. The inside box is formed by the chassis, covered with insulation, and enclosed in an outside box formed by the bodysides, burner box cover, and back panel of the range. (See Figure B1)

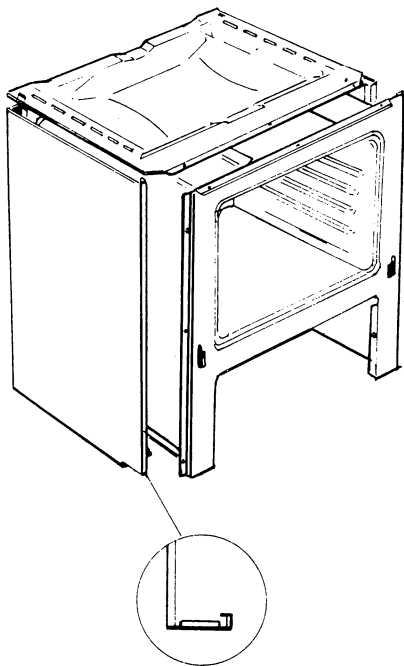


Figure B1

The range chassis is formed and welded by one machine, and then enameled. After enameling, the holes for such things as the oven vent, oven light, etc. are cut in by a laser. The oven door, broiler carriage, backguards, and manifold

assembly are assembled away from the production line using automated stations, tested with the help of a computer, and sent to the assembly line. The parts are then installed on the chassis, inspected, and tested. The results of the inspection and testing are stored by computer.

Operation

The operation of gas ranges differ with each model, but all models in this manual have top burners rated at 9,000 BTU, an oven burner rated at 18,000 BTU, and separate broiler burners rated at 16,000 BTU. The Top burners are controlled by either a 110° or 210° rotation locking style valve. For operation, the valve stem must be pushed in to unlock, turned to the LITE position for ignition, then turned until the desired flame size is obtained.

The ovens are controlled by one of five systems which vary from a hydraulic thermostat controlled oven to a self cleaning oven using an electric control thermostat, selector switch, and clock. To operate the oven, on models that the oven is controlled by the thermostat only, it is necessary to push in on the stem of the thermostat and set the dial to the desired temperature. To operate the oven on models with a selector switch, thermostat, and automatic clock, the selector switch is set to the desired function, (if automatic or clean the clock is set for the time the oven is to start and stop), and in all functions except clean, the thermostat is set to the desired temperature. To operate the oven in self clean, the selector switch is set to CLEAN, the STOP TIME is set ahead of the time of day by the amount of time heat is to be applied to the oven, and the oven door lock latched. The clean indicator light will glow, and the oven starts to heat. As the oven temperature raises above 525°F the lock indicator light will glow indicating the oven door cannot be opened. The oven temperature will then cycle above 900°F until the time of day reaches the stop time. The oven will then turn off, and as the oven cools down (in about one hour), the lock light will turn off indicating the door may be unlatched.

SECTION C - SYSTEM OPERATION

Five different range systems will be described in Section C. For information on a certain system, read the information preceded by the code letter for that system:

System A - Standing pilot models.

System B - Spark ignition top burners and oven burner models.

System C - Spark ignition top burners and silicon carbide oven igniter models

System D - Separate bake and broil burners (non-self clean) models.

System E - Separate bake and broil burners (self clean) models.

GAS FLOW

All Systems:

The home gas supply is connected to the range at the pressure regulator located at the rear of the range. (See Figure C1)

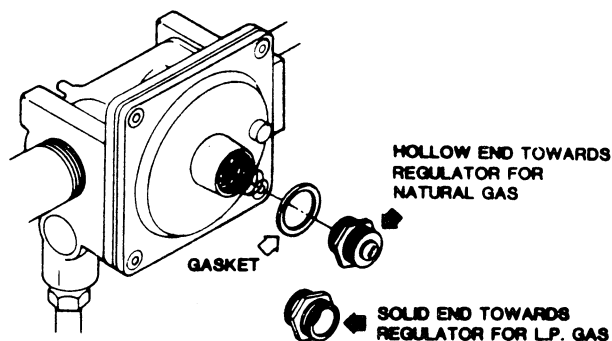
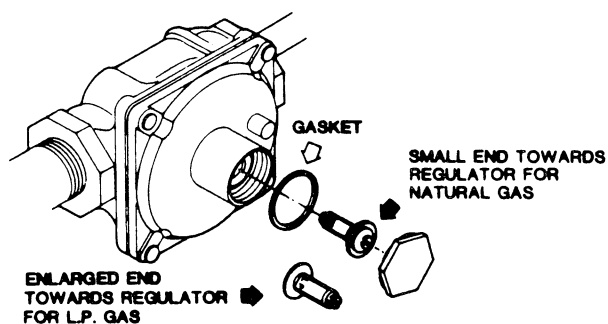
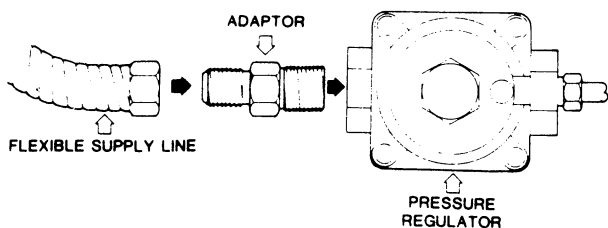


Figure C2

Note: All valves have a mixer pin that has a drilled hole through its center that is the correct orifice size for LP gas. Fins hold the body of the mixer pin away from the valve wall to allow gas to flow around the mixer pin. Covering the mixer pin is a spud with a hole in its center that is the correct orifice size for natural gas. (A natural gas orifice is always larger than a LP gas orifice.) When the spud is not against the mixer pin, gas flows through the center and around the outside of the mixer pin, providing a larger orifice than is in the spud. When the spud is tighten down against the mixer pin, the only path for gas to flow is through the center of the mixer pin. (See Figure C3)

GAS CONNECTION FOR PILOT MODELS



GAS CONNECTION FOR ELECTRIC IGNITION MODELS

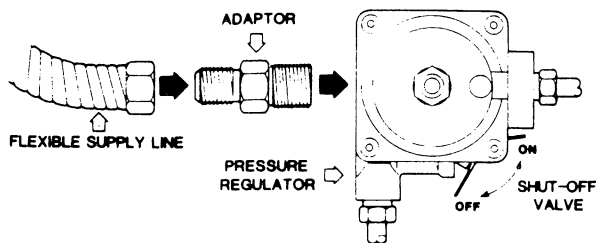


Figure C1

The pressure regulator may be converted to operate with either natural or liquefied petroleum (LP) gas. When the regulator is set for natural gas, the output pressure should be four inches of water column. When the regulator is set for liquefied petroleum (LP) gas, the output pressure should be ten inches of water column. (See Figure C2)

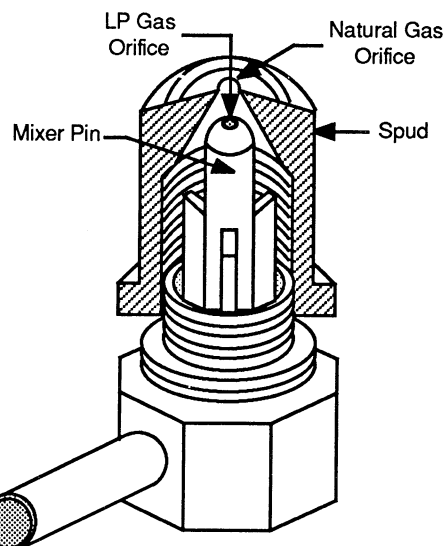


Figure C3

System A:

The gas travels from the output of the pressure regulator through a supply tube to the manifold pipe. The manifold pipe is a rigid steel pipe used to distribute gas to the four top burner valves, top burner pilots, and the oven thermostat. (See Figure C4)

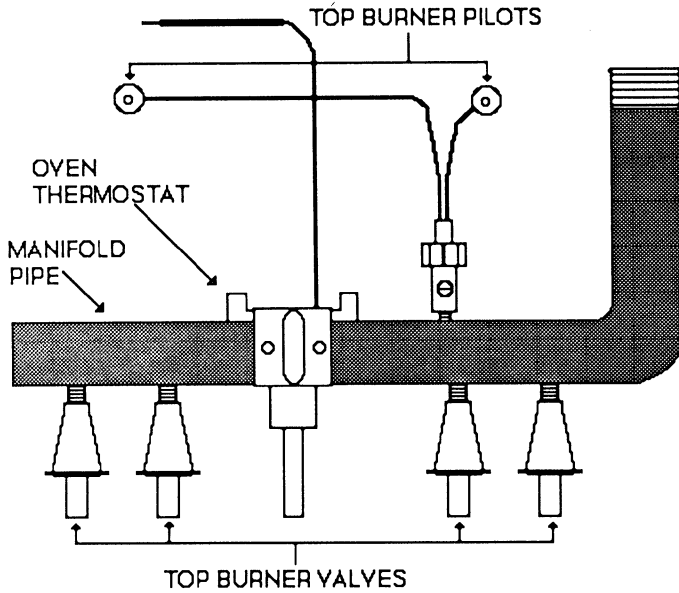


Figure C4

Systems C, D, E:

The pressure regulator has two outlets, one is connected to the manifold pipe, the other to the oven safety valve. The outlet to the oven safety valve has a manual shutoff valve installed in it, so that gas to the oven safety valve may be turned off at the regulator. (See Figure C6)

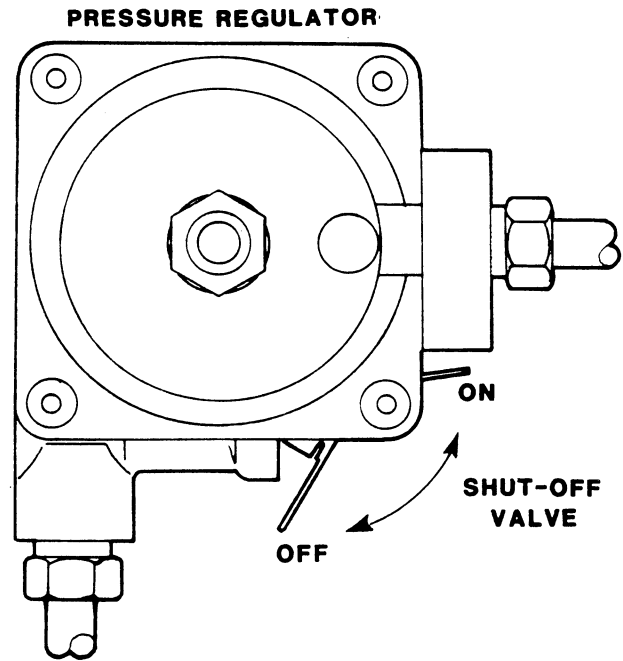


Figure C6

System B:

The gas travels from the output of the pressure regulator through a supply tube to the manifold pipe. The manifold pipe is a rigid steel pipe used to distribute gas to the four top burner valves, and the oven thermostat. (See Figure C5)

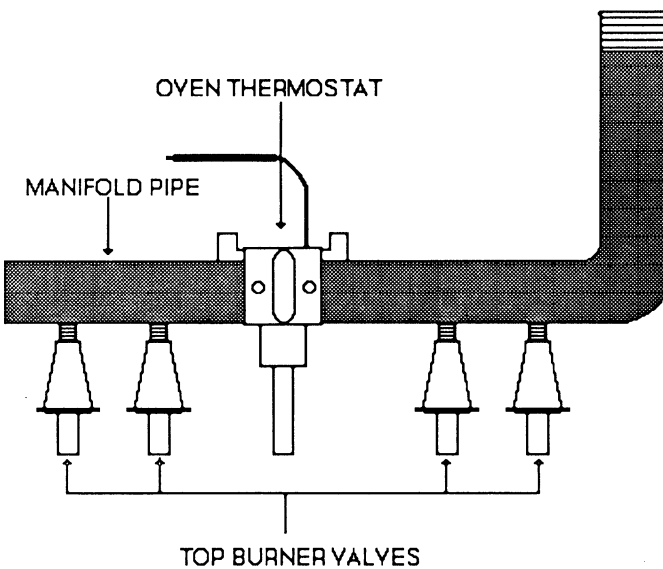


Figure C5

The gas travels from one output of the pressure regulator through a supply tube to the manifold pipe. The manifold pipe is a rigid steel pipe used to distribute gas to the four top burner valves. (See Figure C7)

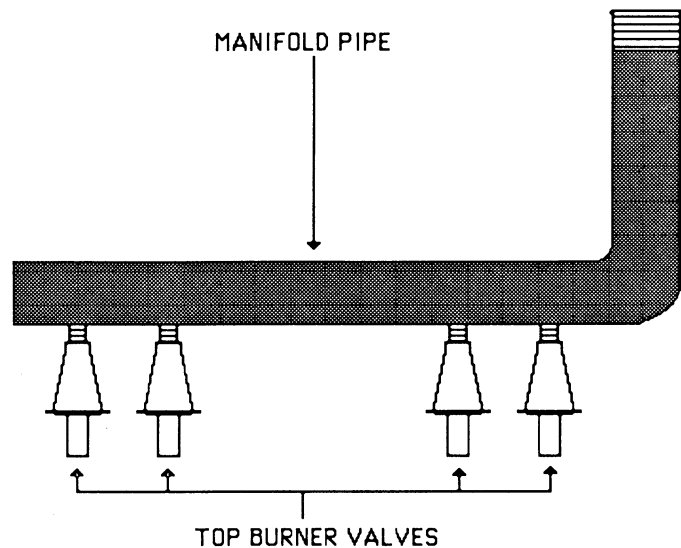


Figure C7

All Systems:

The top burner valves are thread into the manifold pipe, and are used to control the gas flow to the top burners. Two styles of top burner valves are used, depending on the model of the range. The first style valve goes from closed to completely open, by manually rotating the valve stem from 0 to 110 angular degrees. The second style valve has a stem rotation of 220 angular degrees. Gas flow goes from zero to maximum flow at 90 degrees, and from maximum to minimum as the valve stem is turned from 90 to 220 degrees. When the valve is turned on, gas passes through the valve into the tube connecting the valve to the mixer elbow. (See Figure C8)

All Systems:

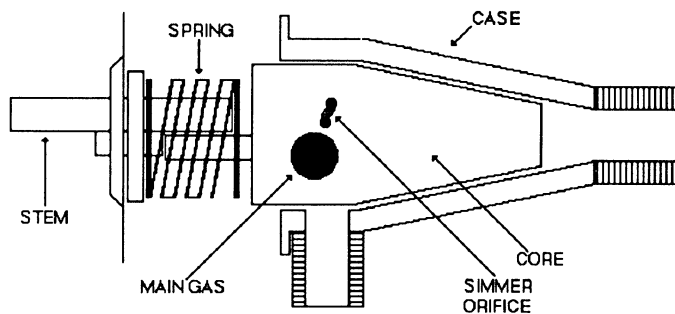


Figure C8

The mixer elbow is held to the burner box by a nut, and contains the orifices that control the maximum amount of gas to the burner head. On the output end of the mixer elbow is a spud, with a number 54 orifice for natural gas, (See Figure C9) that covers a mixer pin with a number 66 orifice for liquefied petroleum. (See Figure C10)

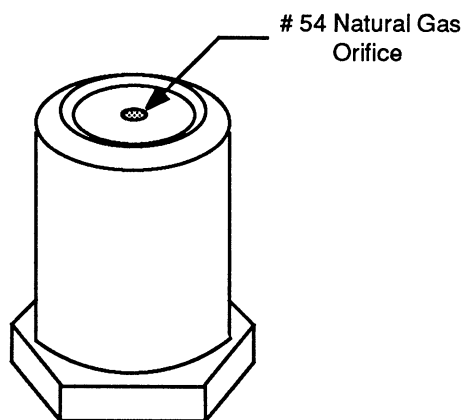


Figure C9

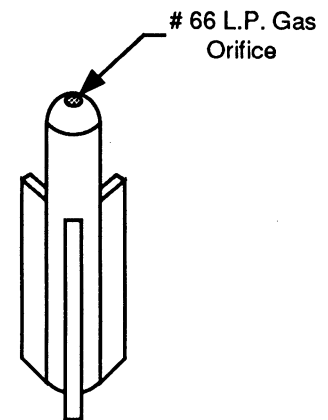


Figure C10

System A:

When gas leaves the orifice of the mixer elbow it passes through the air, and injected into the bottom of the top burner head. As the gas passes between the orifice and the burner head, air is mixed with the gas to form a combustible mixture. The burner head disperses the gas air mixture from around the top for the burner flame, and from ports on the side for ignition. The two lower ports, on the side of the burner head, inject gas down the flash tube to be ignited by the pilot. The other three ports on the side of the burner head allow the flame to climb the side of the burner head and ignite the gas. (See Figure C11)

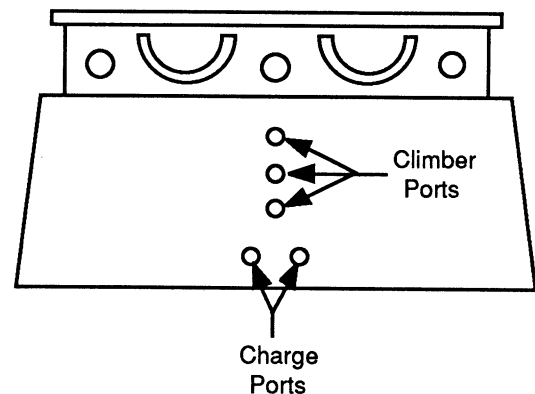


Figure C11

Systems B, C:

When gas leaves the orifice of the mixer elbow it passes through the air, and is injected into the bottom of the top burner head. As the gas passes between the orifice and the burner head, air is mixed with the gas to form a combustible mixture. The burner head disperses the gas air mixture from around the top for the burner flame, and from ports on the side for ignition. The two lower ports, on the side of the burner head, inject gas down the flash tube to be ignited by the igniter. The other three ports on the side of the burner head allow the flame to climb the side of the burner head and ignite the gas. (See Figure C12)

Systems D, E:

When gas leaves the orifice of the mixer elbow it passes through the air, and is injected into the bottom of the top burner head. As the gas passes between the orifice and the burner head, air is mixed with the gas to form a combustible mixture. The burner head disperses the gas air mixture from around the top for burner flame, and from ports on the side for ignition. The two lower ports, on the side of the burner head, inject gas to the igniter. The other three ports on the side of the burner head allow the flame to climb the side of the burner head and ignite the gas. (See Figure C12)

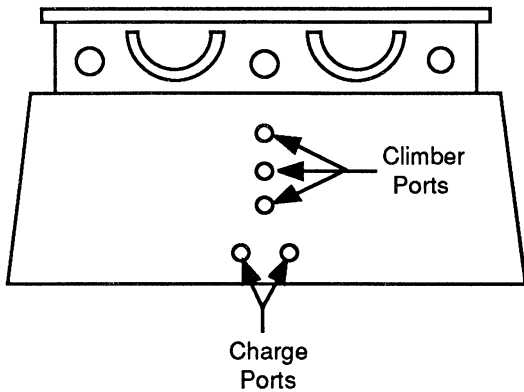


Figure C12

System A:

The manifold pipe also supplies gas to the top pilot assembly. The top pilot assembly is made up of a filter, pilot tubes, and pilot caps. The pilot filter is thread into the manifold pipe and serves two functions. First, it contains a fiber filter to remove any foreign particles from the gas. Second, it controls the amount of pilot gas. An adjustment screw that regulates the amount of gas to both pilot tubes is illustrated in Figure C13. The pilot tubes are joined and connected to the filter by a nut and ferrule. The tubes are orificed at the output end to equalize the pilot height. A pilot cap is threaded on to the end of each pilot tube to hold the output end in place. These caps not only hold the tubes in place, but shield the lower part of the pilot flame from drafts or gas from the flash tube, which could blow out the pilot flame.

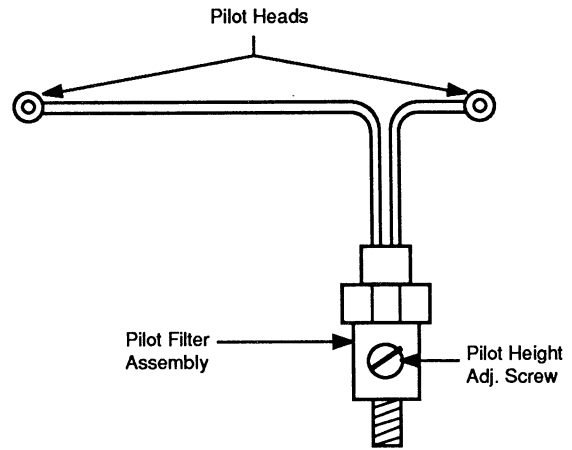


Figure C13

Systems A, B:

The last gas outlet from the manifold pipe is for the oven system. The oven system is made up of the thermostat, oven pilot, oven safety valve, and oven burner. The thermostat controls the temperature in the oven by controlling the amount of gas to the oven pilot and safety valve. The thermostat is connected to the manifold pipe by an adapter that is threaded into the manifold pipe. The thermostat is then fastened to the adapter by two bolts, with a rubber O ring between the adapter and thermostat to form a seal. (See Figure C14)

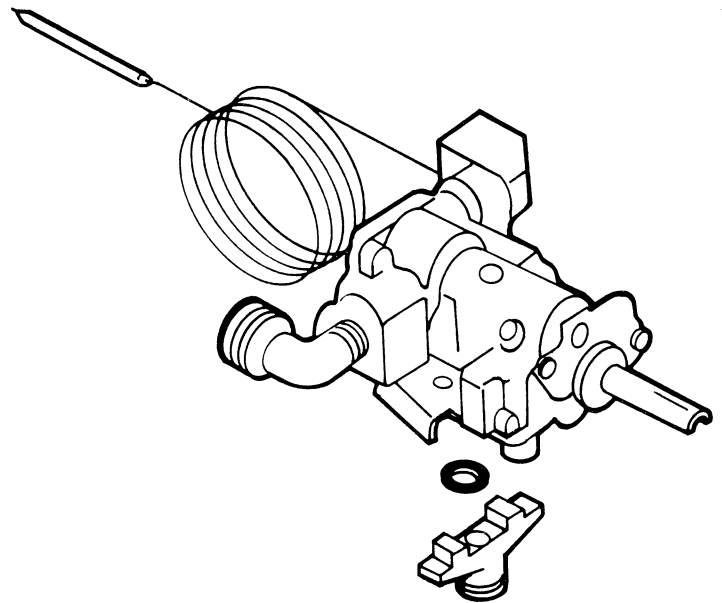


Figure C14

System A:

The thermostat has two gas outlets, and three gas outputs. The outlets are connected to the oven pilot and the oven safety valve. The thermostat supplies two levels of gas to

the pilot head. When the thermostat is in the off position, or the set temperature has been reached in the oven, the thermostat allows sufficient gas for the standing pilot. When the thermostat calls for heat in the oven, the thermostat bellows allows more gas into the pilot tube, increasing the size of the pilot flame. When the pilot flame size increases it heats the bulb of the safety valve, causing the safety valve to open. When a temperature is set on the thermostat, the safety valve outlet of the thermostat provides gas to the safety valve. When the pilot causes the safety valve to open, this gas is injected into the oven burner to be ignited by the pilot and heat the oven. Three things should be noted about this portion of the thermostat. First, the stem and core act as the manual shutoff valve for the oven. Second, to prevent pilot outage a small orifice connects the oven chamber of the thermostat with the thermostat pilot outlet. Because of this orifice, pressure checks on this range must be made with the thermostat in the ON position. Third, if the temperature is set above 400 degrees, the flame is modulated down by the thermostat rather than going off when the temperature is reached. (See Figure C15)

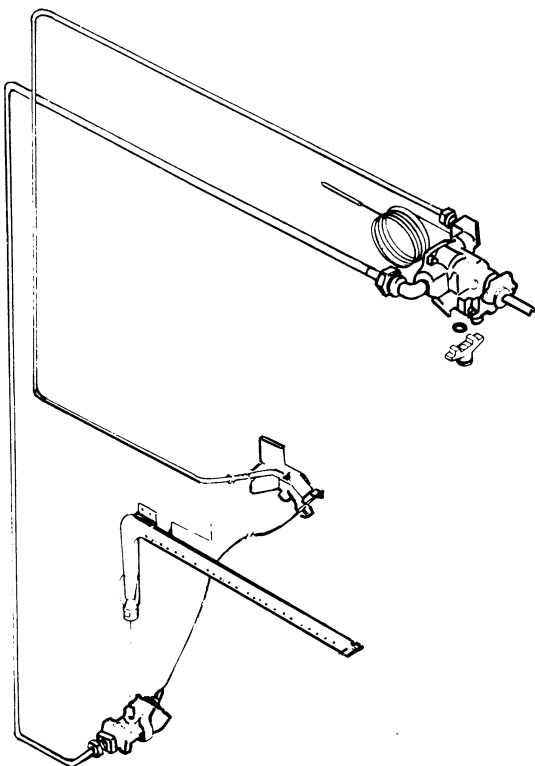


Figure C15

System B:

The thermostat has two gas outlets and three gas outputs. The outlets are connected to the oven pilot and the oven safety valve. The thermostat supplies two levels of gas to the pilot head. When the thermostat is in the off position, it prevents gas flow to either the pilot or the safety valve. When a temperature is set, the thermostat allows both

standing pilot gas and secondary pilot gas to the pilot head, and gas to the oven safety valve. The pilot gas is ignited by an electric spark, and the pilot flame then heats the safety valve bulb, opening the safety valve. Gas from the safety valve flows into the oven burner and is ignited by the pilot flame. When the oven temperature reaches the dial setting, the thermostat reduces the amount of gas to the pilot. With a reduction of gas, the size of the pilot flame is reduced to a standing pilot, allowing the safety valve bulb to cool. When the safety valve bulb is cooled, the safety valve closes, stopping gas flow to the oven burner. Two things should be noted about this portion of the thermostat. First, the stem and core act as the manual shutoff valve for the oven. Second, if the temperature is set above 400 degrees, the flame is modulated down by the thermostat down rather than going off when the temperature is reached. (See Figure C16)

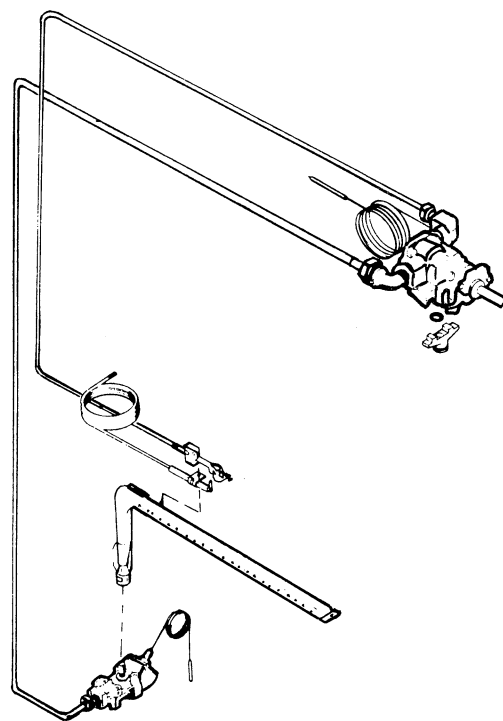


Figure C16

System A:

The oven pilot performs two functions. It acts as a small standing pilot and a larger secondary pilot depending on the amount of gas provided by the thermostat. When the thermostat is in the off position, or not calling for heat in the oven, a constant small flame (standing pilot) is maintained to ignite the higher pressure secondary pilot gas. When the thermostat calls for heat in the oven, it increases the amount of gas to the pilot head. By increasing the amount of gas to the fixed orifice of the pilot head, the velocity of the

gas passing through the orifice is increased. This forces the pilot flame out, rather than up, and into the pilot ramp which directs the flame down on the safety valve bulb. This secondary pilot operation is sustained until the thermostat is satisfied. (See Figure C17)

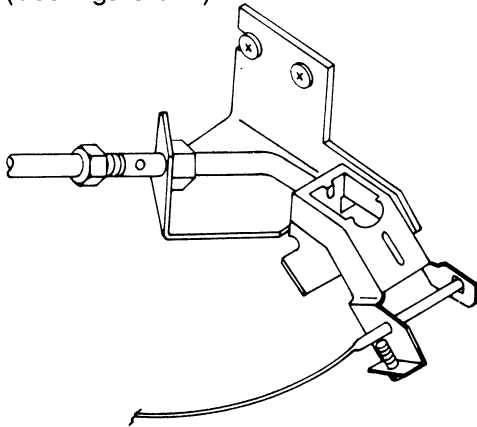


Figure C17

System B:

The oven pilot performs two functions. It acts as a small standing pilot and a larger secondary pilot depending on the amount of gas provided by the thermostat. When the temperature in the oven reaches the dial setting of the thermostat, a constant small flame (standing pilot) is maintained to reignite the higher pressure secondary pilot gas. When the thermostat calls for heat in the oven, it increases the amount of gas to the pilot head. By increasing the amount of gas to the fixed orifice of the pilot head, the velocity of the gas passing through the orifice is increased. This forces the pilot flame out, rather than up, and into the pilot ramp, which directs the flame down on the safety valve bulb. This secondary pilot operation is sustained until the thermostat is satisfied. (See Figure C18)

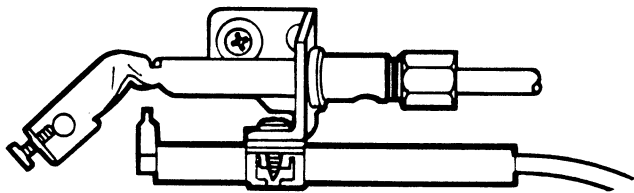


Figure C18

Systems A, B:

Gas flows from the thermostat to the oven safety valve. The safety valve is in the oven system to prevent gas from

entering into the oven burner (unless a pilot is present to ignite the gas.) The safety valve is made up of a chamber with a hydraulic valve at the end. The valve is opened and closed by the expansion and contraction of the bellows that is controlled by the secondary pilot heating the bulb. When the valve is open gas flows through the orificing of the number 56 mixer pin, and the number 46 spud, and then is injected into the oven burner. (See Figure C19)

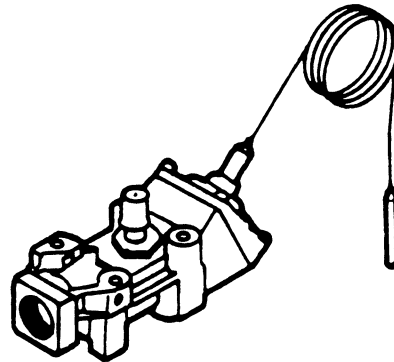


Figure C19

System C:

The second outlet of the pressure regulator is connected to an electric safety valve. Unless the manual shutoff on the pressure regulator is in the off position, gas is present at the safety valve at all times. The outlet of the safety valve is controlled by a electrically heated bi-metal strip. When the valve is open, gas flows through the orificing of the number 56 mixer pin, and the number 46 spud, and then is injected into the oven burner. (See Figure C20)

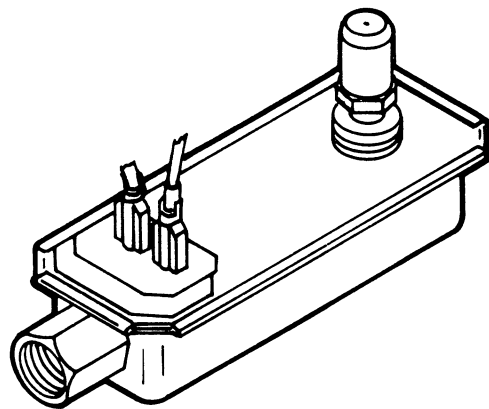


Figure C20

Systems D, E:

The second outlet of the pressure regulator is connected to an electric safety valve. Unless the manual shutoff on the pressure regulator is in the off position, gas is present at the safety valve at all times. The safety valve has two outlets, that are controlled by separate electrically heated bi-metal strips. One outlet has a number 48 spud, covering a number 56 mixer pin, that injects gas into the oven burner. The second outlet is connected by a tube to the broiler mixer elbow. The outlet of the mixer elbow has a number 50 spud covering a number 57 mixer pin to orifice the gas to the broiler burner. (See Figure C21)

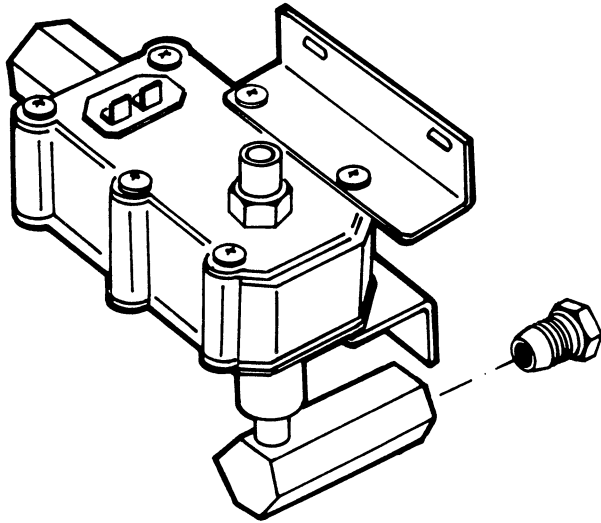


Figure C21

Systems A, B:

The oven burner is ported, and allows an even amount of gas to flow from both sides of the burner. When gas is injected into the burner by the safety valve, it passes by two holes in the burner to draw in primary air. The gas and air are mixed in the burner and passed through the burner ports to be ignited by the pilot. (See Figure C22)

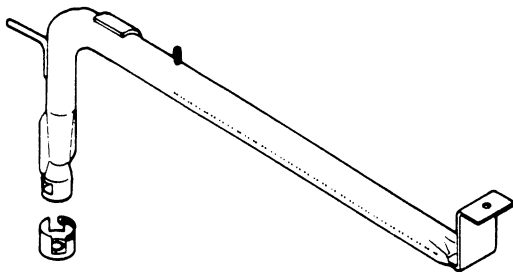


Figure C22

System C:

The oven burner is ported and allows an even amount of gas to flow from both sides of the burner. When gas is injected into the burner by the safety valve, it passes by two holes in the burner to draw in primary air. The gas and air are mixed in the burner and passed through the burner ports to be ignited by the silicon carbide oven igniter. (See Figure C 23)

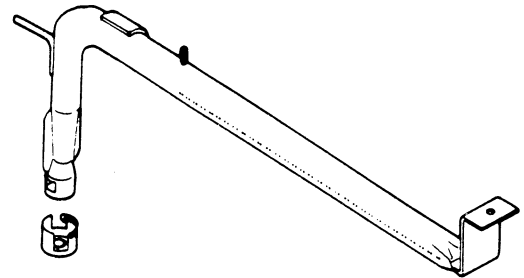


Figure C23

Systems D, E:

Both the oven and broiler burners are ported and allow an even amount of gas from both sides. When gas is injected into burners, it passes by two holes in the side of the burner to draw in primary air. The gases are mixed in the burner and passed through the burner ports, to be ignited by the igniter. (See Figure C24)

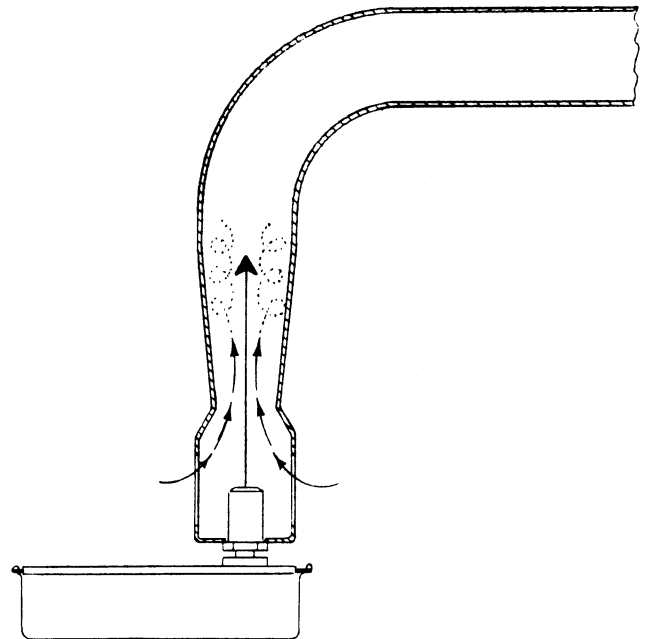


Figure C24

CURRENT FLOW

System A:

The pilot model ranges use electricity for the oven light and the clock. These items operate on line to neutral voltage, and their circuits are connected in parallel. The range is connected to a 120 VAC, 15 amp household outlet by a three prong plug and line cord. The other end of the cord branches out into two red wires carrying line one to the circuits, two white wires that supply neutral for the circuits, and one green wire connected to the chassis for safety grounding. (See Figure C25)

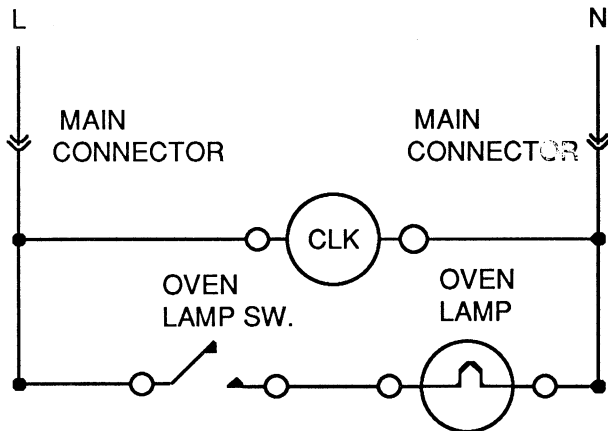


Figure C25

This is a representative wiring diagram. Check the wiring section for the correct diagram for your model.

System B:

Range models with spark ignition for both the top burners and oven burner, use electricity for the oven light circuit, clock circuit, work lamp circuit, top burner ignition, and oven ignition. These items operate on line to neutral voltage, and their circuits are connected in parallel. The range is connected to a 120 VAC, 15 amp household outlet, by a three prong plug and line cord. The other end of the cord branches into red wires carrying line one to the circuits, white wires that supply neutral for the circuits, and one green wire connected to the chassis for safety grounding. (See Figure C26)

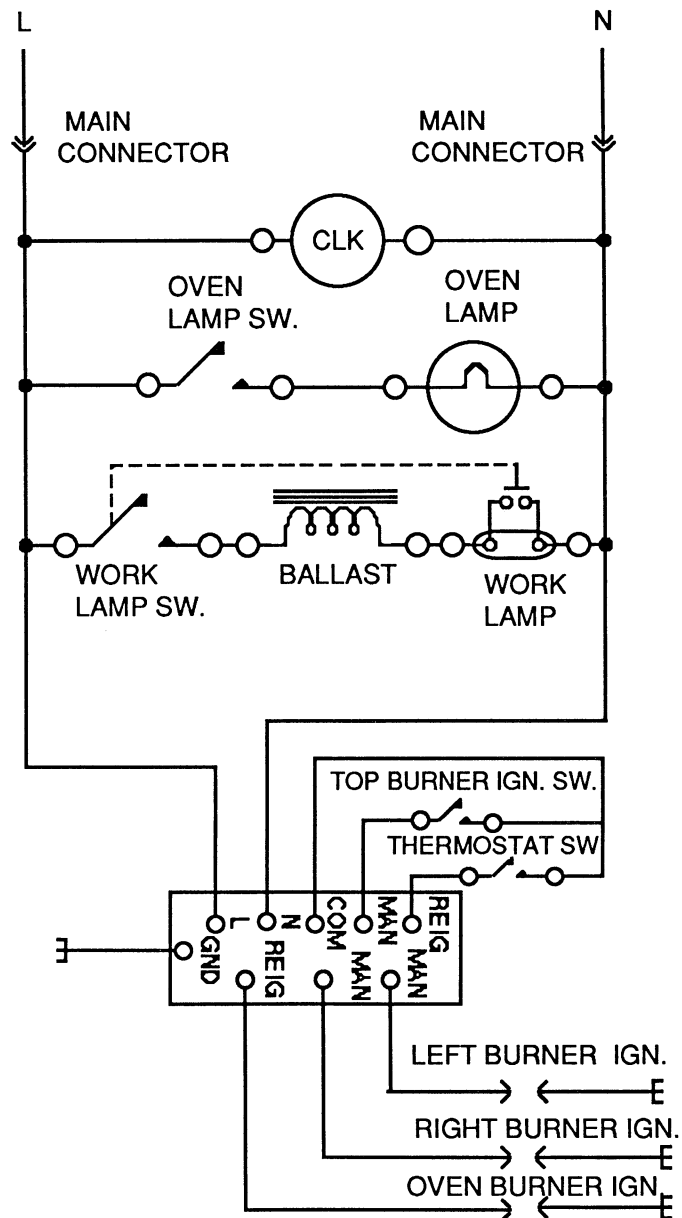


Figure C26

This is a representative wiring diagram. Check the wiring section for the correct diagram for your model.

System C:

Range models with spark ignition for the top burners and a silicon carbide oven burner igniter, use electricity for the oven light circuit, clock circuit, work lamp circuit, top burner ignition, and oven ignition circuit. These items operate on line to neutral voltage, and their circuits are connected in parallel. The range is connected to a 120 VAC, 15 amp household outlet, by a three prong plug and line cord. The other end of the cord branches into red wires carrying line one to the circuits, white wires that supply neutral for the circuits, and one green wire connected to chassis for safety grounding. (See Figure C27)

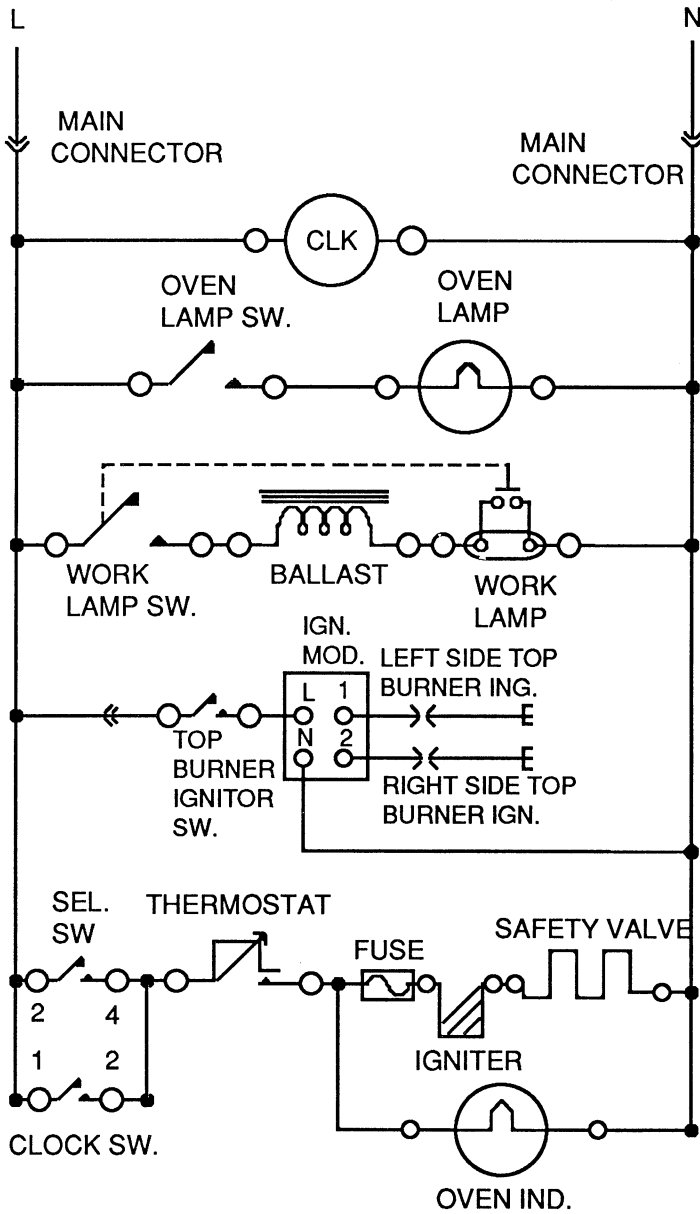


Figure C27

This is a representative wiring diagram. Check the wiring section for the correct diagram for your model.

Systems D, E:

Range models with spark ignition for the top burners and silicon carbide igniters for both the bake and broil burners, use electricity for the oven light circuit, clock circuit, work lamp circuit, top burner ignition, bake burner ignition circuit, and broil burner ignition circuit. These items operate on line to neutral voltage, and their circuits are connected in parallel. The range is connected to a 120 VAC, 15 amp household outlet, by a three prong plug and line cord. The other end of the cord branches into red wires carrying line one to the circuits, white wires that supply neutral for the circuits, and one green wire connected to chassis for safety grounding. (See Figures C28, C29 & C30)

Note: Wiring for System E was changed during production. Figure C29 represent early production and Figure C30 represent later production

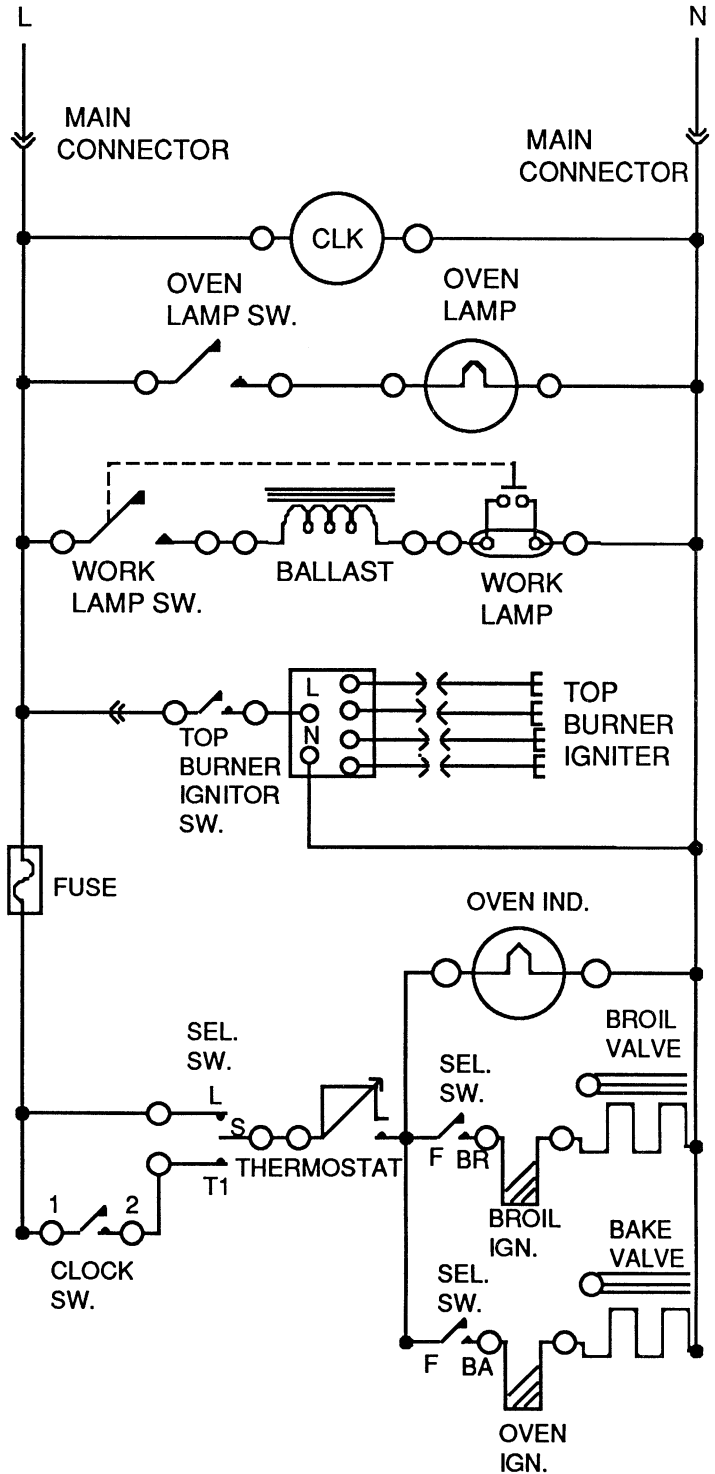


Figure C28

This is a representative wiring diagram. Check the wiring section for the correct diagram for your model.

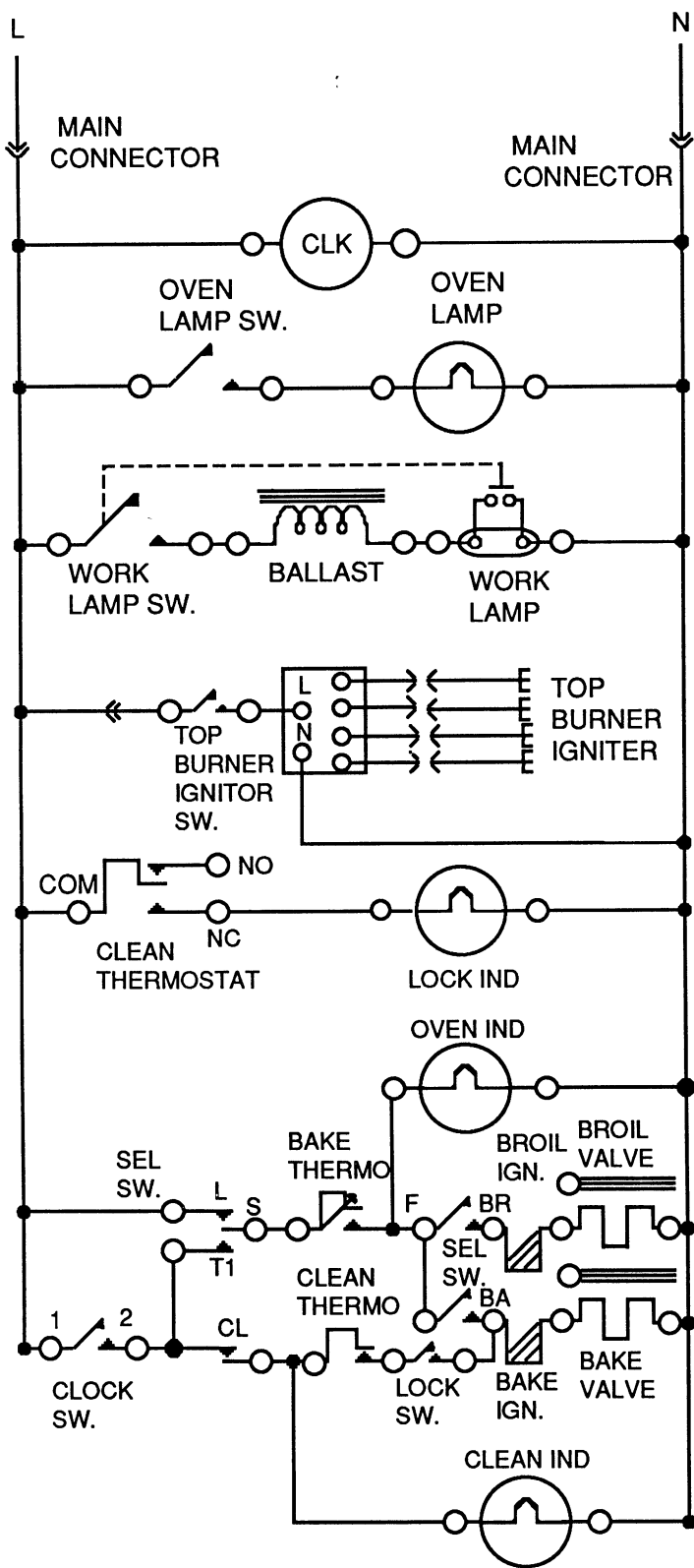


Figure C29

This is a representative wiring diagram. Check the wiring section for the correct diagram for your model.

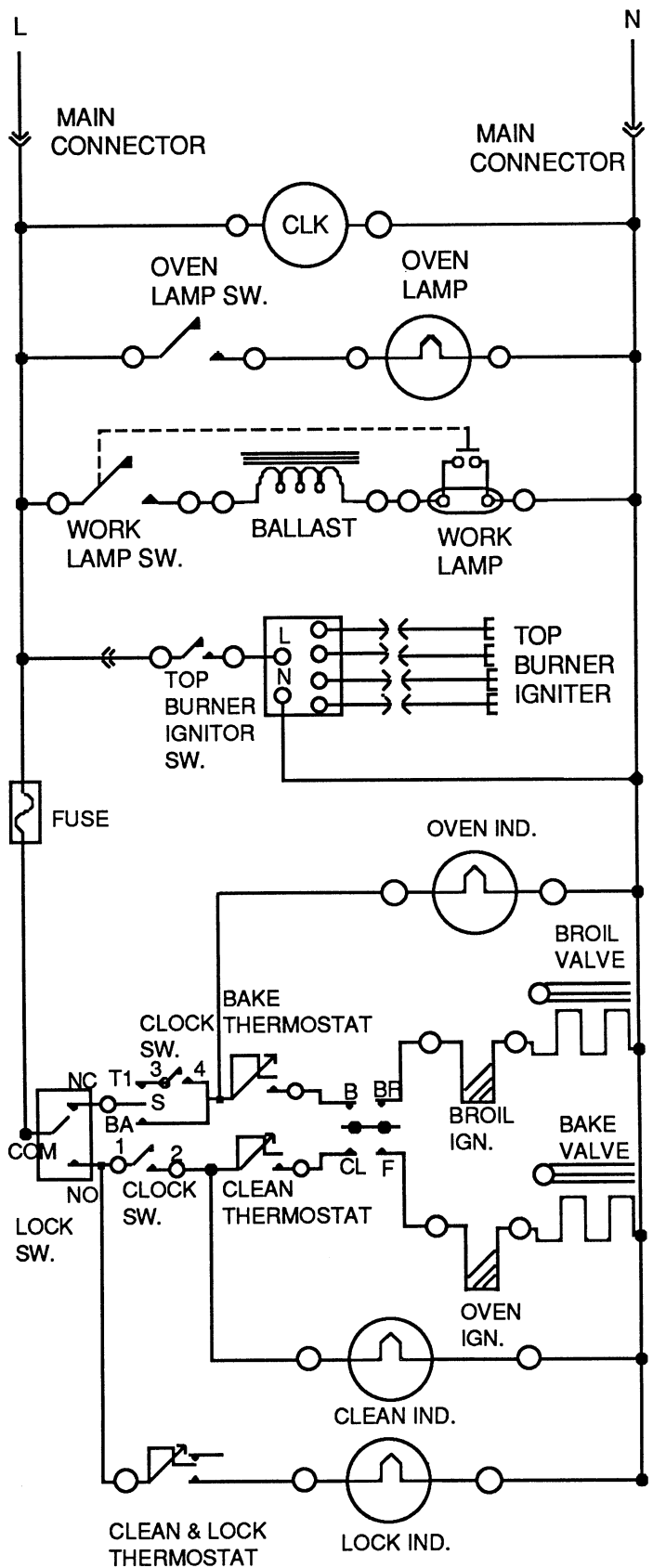


Figure C30

This is a representative wiring diagram. Check the wiring section for the correct diagram for your model.

All Systems:

The oven light circuit is made up of a switch, light socket, and the oven light bulb. When the switch is closed power is applied to the center tab of the light socket. Power from the tab passes through the light bulb filament to the case of the socket. The socket case is connected to neutral to complete the circuit. (See Figure C31)

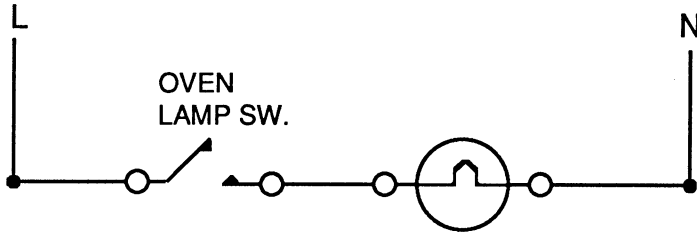


Figure C31

Systems A, B:

The clock is used only as a time of day clock, and therefore the only electrical connection is line to neutral across the motor winding. (See Figure C32)

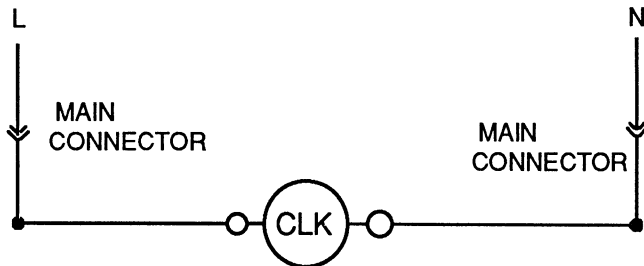


Figure C32

System C:

The clock is used as a time of day clock, and also controls the oven in the automatic operation. The clock motor is connected across line to neutral, and has electrical power all the time. The clock contacts are in parallel with contacts two and four of the selector switch. When the oven is used in Time Bake, contacts two and four of the selector switch are open, leaving the only path for current flow to the thermostat through the contacts of the clock. (See Figure C33)

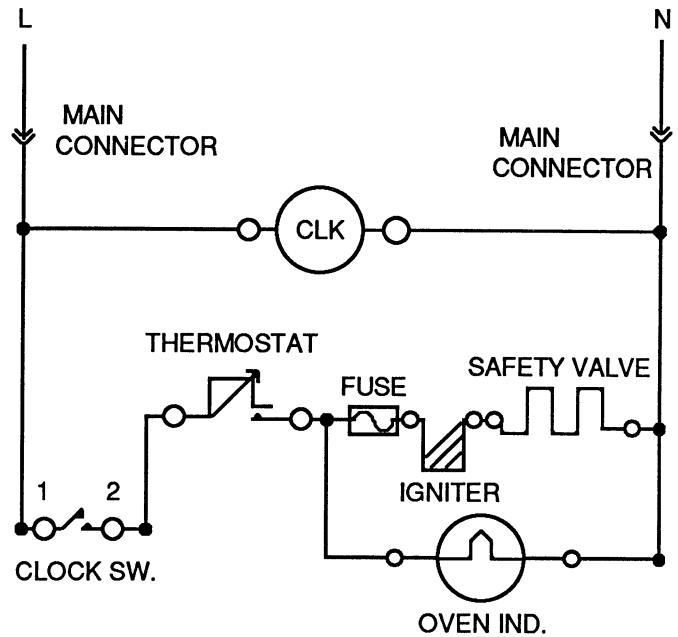


Figure C33

System D:

The clock is used as a time of day clock, and also controls the oven in Time Bake. The clock motor is connected across line to neutral, and has electrical power all the time. The clock contacts are in series with terminal T1 of the selector switch. When the oven is used in Time Bake, contacts T1 and S of the selector are closed, providing power to the thermostat. (See Figure C34)

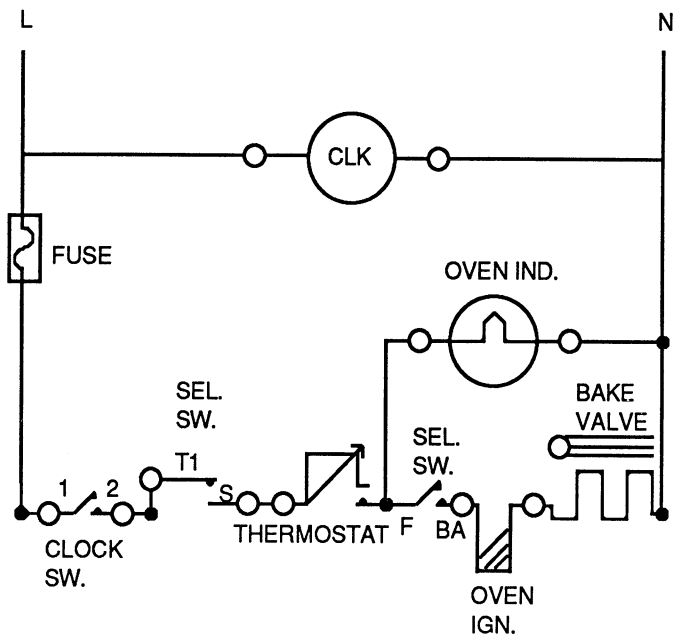


Figure C34

System E: (Early Production)

The clock is used as a time of day clock, and also controls the oven in the Time Bake and Clean. The clock motor is connected across line to neutral, and has electrical power all the time. To control Time Bake and Clean, contacts one and two are used. When the selector switch is set to Time Bake contacts one and two provide power to terminal T1 of the selector switch. When the selector switch is set to Clean contacts 1 and 2 provide power to terminal CL of the selector switch. (See Figure C35)

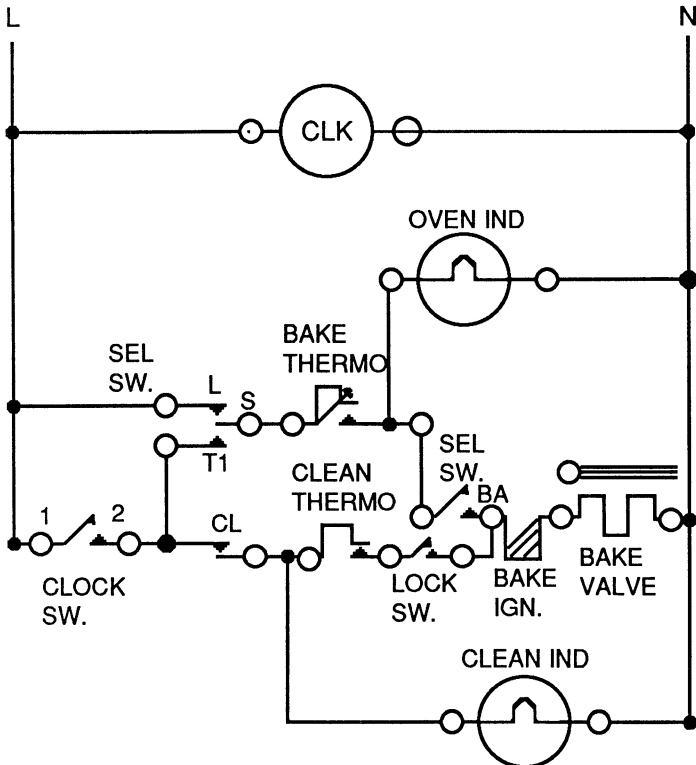


Figure C35

System E: (Later Production)

The clock is used as a time of day clock, and also controls the oven in the Time Bake and Clean. The clock motor is connected across line to neutral, and has electrical power all the time. To control Time Bake and Clean, two sets of contacts are used. When the selector switch is set to Time Bake contacts 3 and 4 of the clock connects terminal T1 of the selector switch to the bake thermostat. When the selector switch is set to Clean contacts 1 and 2 of the clock connect terminal NO of the lock switch to the clean thermostat. (See Figure C34)

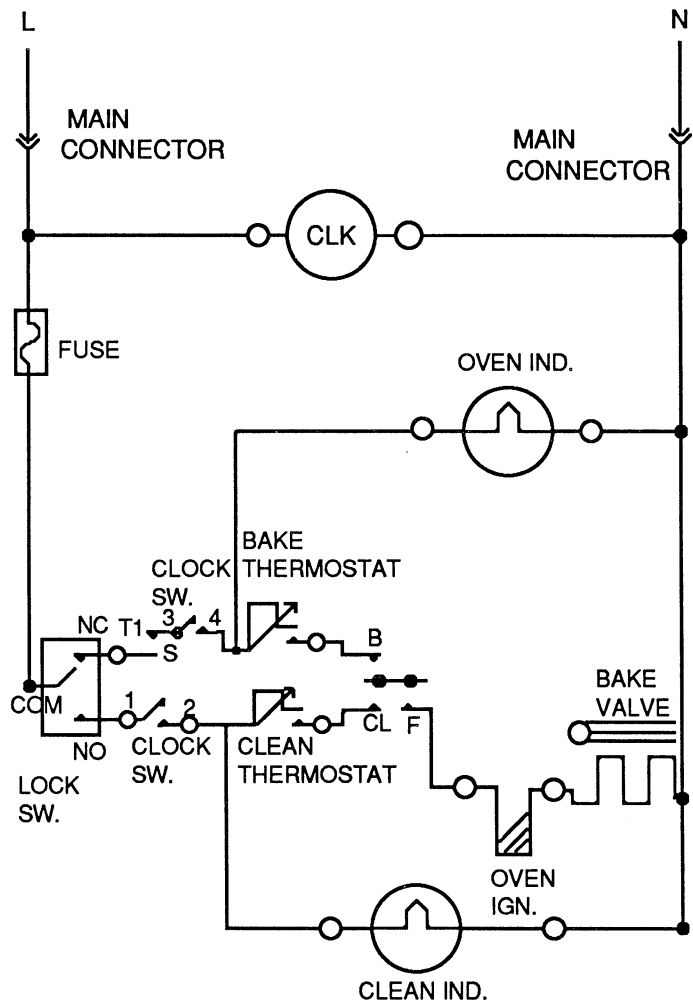


Figure C36

Systems B, C, D, E:

The work lamp circuits consist of a dual contact switch, ballast, fluorescent light bulb, and fluorescent light bulb socket. Line one is connected to the off/on contacts of the work lamp switch. When the contacts are closed, power is applied to the ballast. The ballast has two functions in the circuit, it develops a high starting voltage to break down the bulb's resistance, and provides resistance in the circuit after the bulb is in operation. Power from the ballast is applied to one filament of the light bulb, and from the filament to the momentary contacts of the switch. When the switch is depressed, the circuit is completed through the other filament to neutral. When the momentary contacts are closed, two things happen in the circuit. First a magnetic field is developed around the winding of the ballast. Second the filaments are heated so they will emit electrons. When the switch is released, the magnetic field around the ballast winding collapses inducing about 140 volts across the bulb. This voltage breaks down the gas in the bulb allowing electrons to flow between the filaments causing the light to glow. Once the bulb is in operation, the ballast acts as a resistor to reduce the current flow in the circuit. (See Figure C37)

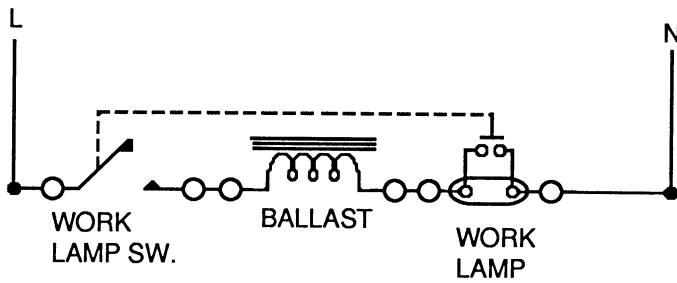


Figure C37

System B:

Note: The top burners, and the oven burner both use the same module.

The top burner ignition circuit, is comprised of four top burner switches, an igniter module, two igniters, two flash tube brackets, and the main top. Line one is connected to terminal LIVE, and the neutral line to terminal NEUTRAL of the module. The input side of the module uses two RC circuits in conjunction with two neon lights to pulse an SCR in parallel with the primary winding of the step up transformer in the module. The gate circuit to control the SCR is activated by opening and closing any of the top burner switches or the thermostat switch. When any of the top burner switches are closed, terminal MANUAL on the module is connected to terminal COMMON on the module, and the primary winding of the step up transformer is pulsed. The secondary of the transformer is connected to the two terminals marked MAN, on the output side of the module. Each MAN terminal is connected to an igniter base. The igniter bases form spark gaps with the igniter caps. The igniter caps are connected to the flash tube assemblies, which are fastened to the main top. The main top ties the two igniter caps together, placing them electrically at the same potential. When the output voltage from the module is high enough to break down the dielectric of the spark gaps, they arc. This allows current flow from one output terminal of the module, through the igniter, across the main top, and through the other igniter to the other output terminal of the module. The amount of voltage developed by the module depends on the distance between the base and the cap. (See Figure C38)

Note: Both the top and oven igniters will spark when either are turn on.

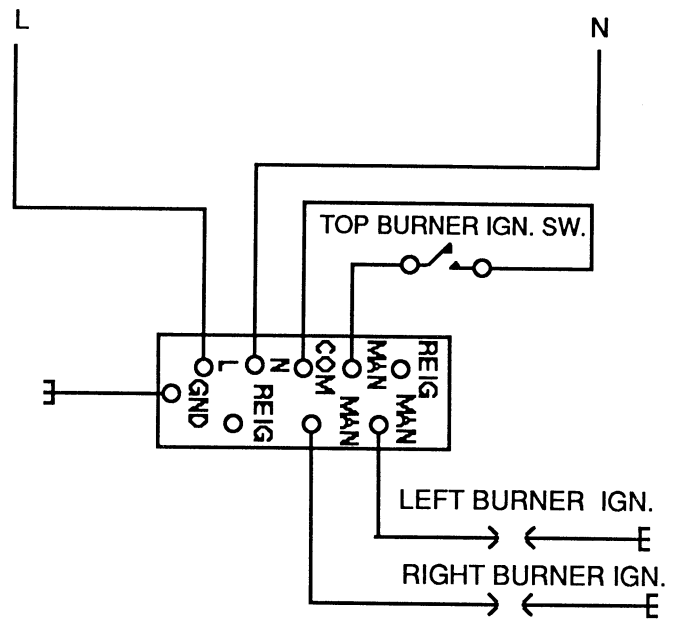


Figure C38

System C:

The top burner ignition circuit is made up of four top burner switches, a module, two igniters, two flash tube assemblies, and the main top. Line one is applied to the four top burner switches, that are connected in parallel with one another, and controlled by the rotation of the stem of the top burner valves. When any one of the top burner switches are closed, 120 VAC is applied to the input side of the module. The module steps up and rectifies the voltage, and applies it to a base of an igniter. The igniter bases form spark gaps with the igniter caps. The igniter caps are connected to the flash tube assemblies, that are fastened to the main top. The main top ties the two igniter caps together, placing them electrically at the same potential. When the output voltage from the module is high enough to break down the dielectric of the spark gaps they arc. This allows current flow from one output terminal of the module, through the igniter, across the main top, and through the other igniter to the other output terminal of the module. The amount of voltage developed by the module depends on the distance between the base and the cap. (See Figure C39)

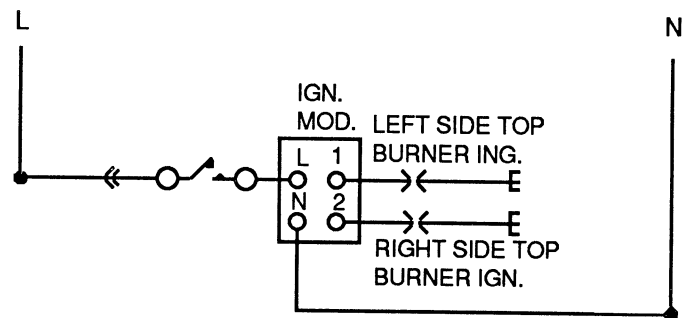


Figure C39

Systems D, E:

The top burner ignition circuit is made up of four top burner switches, a module, four igniters, (one for each top burner) four igniter brackets, and the main top. Line one is applied to the four top burner switches, that are connected in parallel with each other, and controlled by the rotation of the stem of the top burner valves. When any of the top burner switches are closed, 120 VAC is applied to the input side of the module. The module's step up transformer has two secondary windings. Each winding forms a circuit with two igniters, but both circuits operate whenever power is applied to the input of the module. Each output terminal of the module is connected to a base of an igniter. The igniter bases form spark gaps with the igniter caps. The igniter caps are connected to the igniter brackets, that are fastened to the main top. The main top ties the four igniter caps together, placing them electrically at the same potential. When the output voltage, from the module, is high enough to break down the dielectric of the spark gap they arc. This allows current flow from one output terminal of the module, through the igniter, across the main top, through the other igniter to the other output terminal of the igniter. The amount of voltage developed by the module depends on the distance between the base and the cap. (See Figure C40)

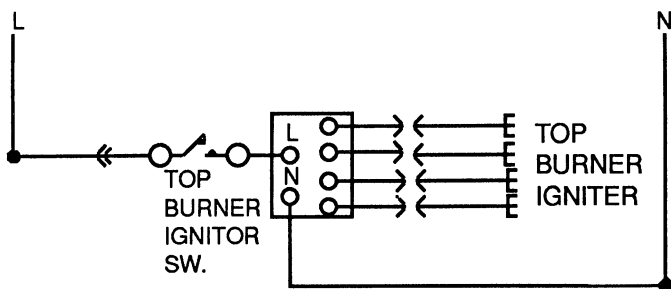


Figure C40

System B:

Note: The top burners, and the oven burner both use the same module.

The oven pilot gas is ignited by a spark between the pencil igniter and the pilot head. Electrical components for the oven circuit are the module, thermostat switch, pilot head, and the range chassis. Line one is connected to terminal LIVE and the neutral line to terminal NEUTRAL of the module. The input side of the module uses two RC circuits in conjunction with two neon lights to pulse an SCR in parallel with the primary winding of the step up transformer in the module. The gate circuit to control the SCR is activated by opening and closing any of the top burner switches or the thermostat switch. When a temperature is set on the thermostat, terminal REIG on the module is connected to terminal COMMON on the module and the primary winding of the step up transformer is pulsed. The module transformer secondary is connected to terminals

REIG and GND, on the output side of the module. The REIG terminal of the output side is connected to the pencil igniter, by a high voltage wire. A spark gap is formed between the pencil igniter and the pilot head. The circuit is completed by the pilot head being connected to terminal GND through the chassis of the range. When the thermostat switch is closed, the step up transformer is pulsed, creating a high voltage differential between the igniter and the pilot head. The high voltage breaks down the dielectric between the igniter and the pilot head causing a spark to occur. When a pilot flame is established, the spark module senses a reduction in resistance of the spark gap and ceases sparking. (See Figure C41)

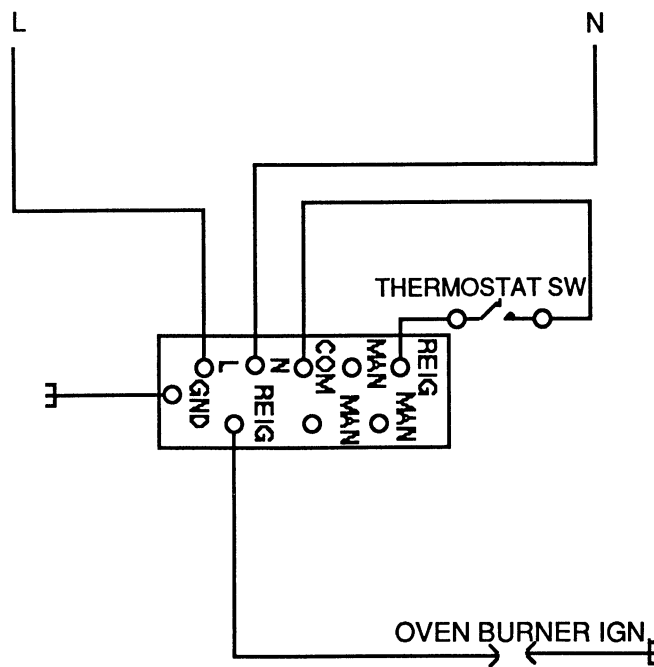


Figure C41

Note: Both the top and oven igniters will spark when either are turned on.

System C:

When the oven is used in the manual setting, line voltage is applied to terminal 2 of the selector switch. With the selector switch set to manual, selector switch terminal 2 is closed to selector switch terminal 4. Power from terminal 4 is applied to the oven thermostat. When a temperature is set on the thermostat, it's contacts close, providing power to the five amp fuse and the oven indicator light. The other lead to the indicator light is connected to neutral. When the contacts of the selector switch and thermostat are closed, the indicator light should glow. Power from the thermostat is also applied to the five amp fuse. The fuse is placed in the circuit to protect the oven safety valve from a shorted oven igniter, or a shorted wire between the fuse and igniter to chassis. Power from the fuse is applied to the oven igniter. The igniter has two functions in the circuit. It controls the

amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter, heat is produced and the resistance of the igniter decreases. Current flows from the igniter through the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases the current flow in the circuit increases to 3.2 amps and the safety valve opens, allowing gas to the oven burner. (See Figure C42)

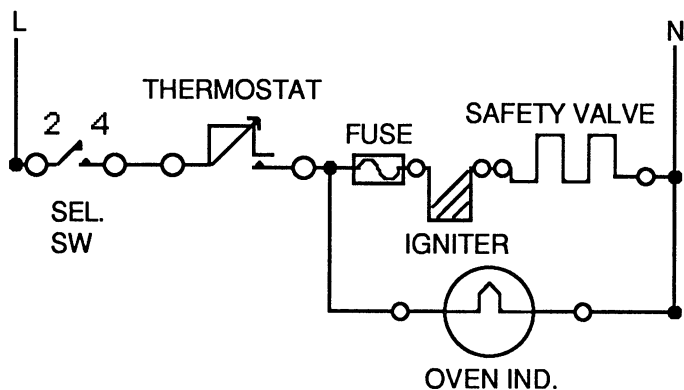


Figure C42

When the oven is set for an automatic operation, the contacts of the selector switch are open. With the selector switch contacts open, the only path for current flow to the thermostat is through the clock contacts. When the start time set on the clock is reached, the clock contacts will close providing power to the thermostat until the stop time is reached.

When power is applied to the thermostat, current flow will be the same in the rest of the circuit as in manual operation. (See Figure C43)

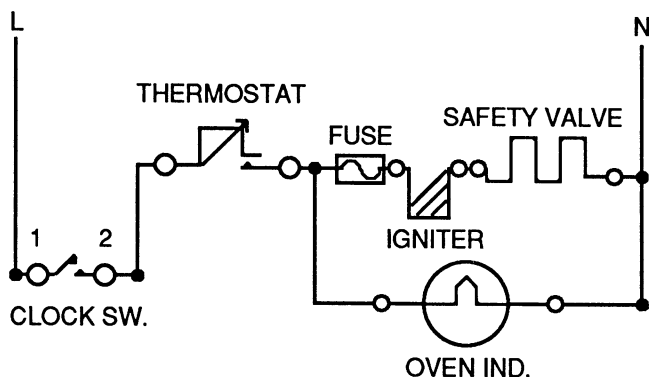


Figure C43

System D and Early Production E:

Bake Operation:

Line voltage is applied through the five amp fuse to terminal L of the selector switch. When the selector switch is turned to manual, terminal L is connected internally to terminal S. Power from terminal S is applied to the oven thermostat. When a temperature is set on the thermostat its contacts close applying power to terminal F of the selector switch, and the oven indicator light. The other lead of the indicator light is connected to neutral. When the selector switch and thermostat contacts are closed the indicator light should glow. With the selector switch set for bake, the power at terminal F is connected internally to terminal BA. Power from BA is then applied to the oven igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms, when current flows through the igniter, heat is produced, and the resistance of the igniter goes down. Current flows from the igniter through the bake side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases above 3.2 amps, the safety valve opens, allowing gas to the oven burner. (See Figure C44)

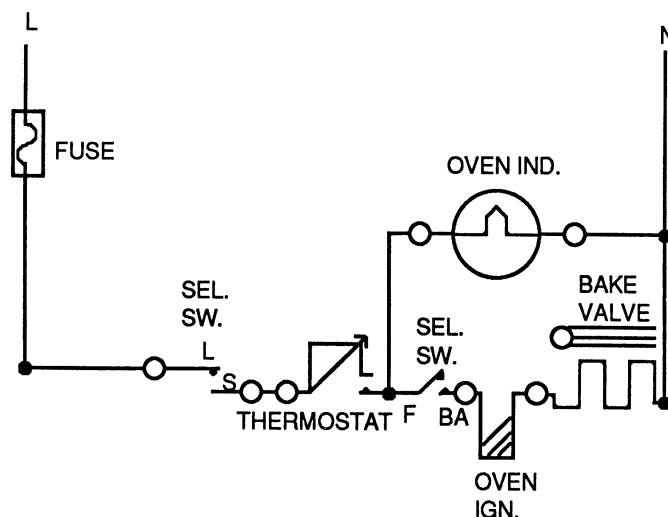


Figure C44

Broil Operation:

Line voltage is applied through the five amp fuse to terminal L of the selector switch. When the selector switch is turned to broil, terminal L is connected internally to terminal S. Power from terminal S is applied to the oven thermostat. When a temperature is set on the thermostat, its contacts close applying power to terminal F of the selector switch, and the oven indicator light. The other lead of the indicator light is connected to neutral. When the selector switch and thermostat contacts are closed the indicator light should glow. With the selector switch set for broil, the power at terminal F is connected internally to terminal BR. Power from BR is then applied to the broil igniter. The igniter has two functions in the circuit. It controls the amount of current

flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms, when current flows through the igniter heat is produced, and the resistance of the igniter goes down. Current flows from the igniter through the broil side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases above 3.2 amps and the safety valve opens, allowing gas to the broil burner. (See Figure C45)

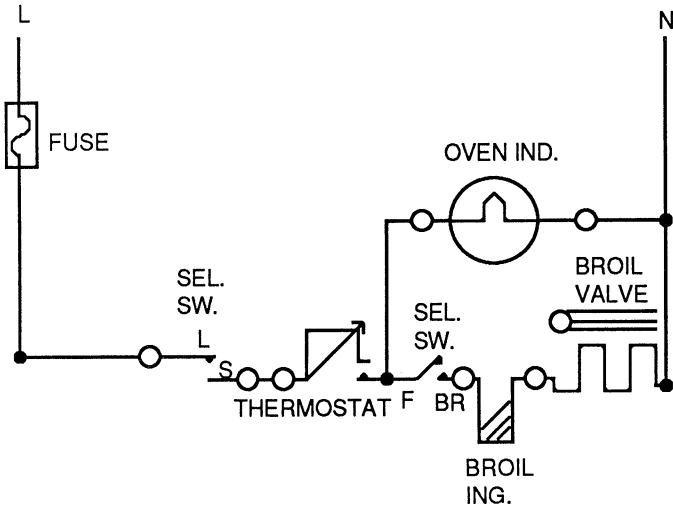


Figure C45

Time Bake Operation:

Line voltage is applied through the five amp fuse to terminal 1 of the clock. When the start time set on the clock is reached, the clock contacts close and provide power to terminal T1 of the selector switch. With the selector switch turned to time bake, terminal T1 is connected internally to terminal S. Power from terminal S is applied to the oven thermostat. When a temperature is set on the thermostat, its contacts close applying power to terminal F of the selector switch, and the oven indicator light. The other lead of the indicator light is connected to neutral. When the selector switch and thermostat contacts are closed the indicator light should glow. With the selector switch set for time bake, the power at terminal F is connected internally to terminal BA of the selector switch. Power from BA is then applied to the oven igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter, heat is produced and the resistance of the igniter goes down. Current flow is from the igniter through the bake side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current

flow in the circuit increases above 3.2 amp and the safety valve opens allowing gas to the oven burner. When the stop time is reached, the clock contacts open, removing power from the circuit. (See Figure C46)

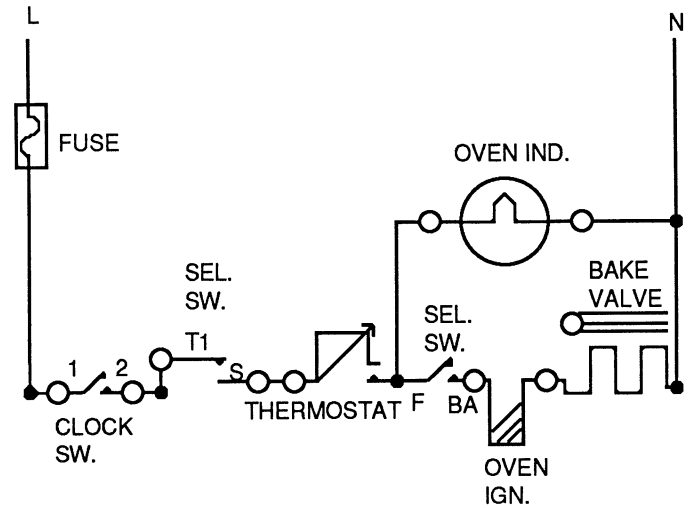


Figure C46

System E: (Early Production)

Clean

Line one is applied through the five amp fuse to the lock contacts of the clean thermostat, and terminal ONE of the clock. The lock contacts are normally open below 525° Fahrenheit. When the temperature in the oven is above 525° Fahrenheit the lock contacts close providing power to the lock light. When a stop time is set on the clock terminal ONE is connected to terminal TWO. Terminal TWO supplies power to terminal T1 of the selector switch. When the selector switch is set to clean, Terminal T1 is connected to terminal CL. Terminal CL provides power to the clean indicator light and the cycling contacts of the clean thermostat that are normally closed below 910° Fahrenheit. Power from the cycling contacts is applied to the contacts of the lock switch that closes when the door is latched, applying power to the oven igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter, heat is produced and the resistance of the igniter goes down. Current flows from the igniter through the oven side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases above 3.2 amps and the safety valve opens allowing gas to the oven burner. When the stop time is reached, the clock contacts open, removing power from the circuit. (See figure 47)

Note: The lock contacts of the clean thermostat only

controls the lock light. The stop that prevents the latch from opening above 550 degrees is controlled by a bi-metal.

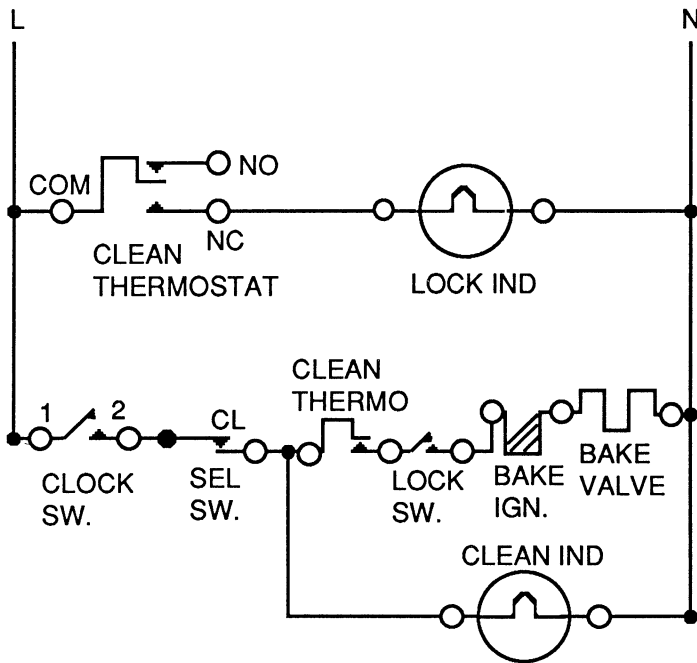


Figure C47

above 3.2 amps, the safety valve opens, allowing gas to the oven burner. (See Figure C48)

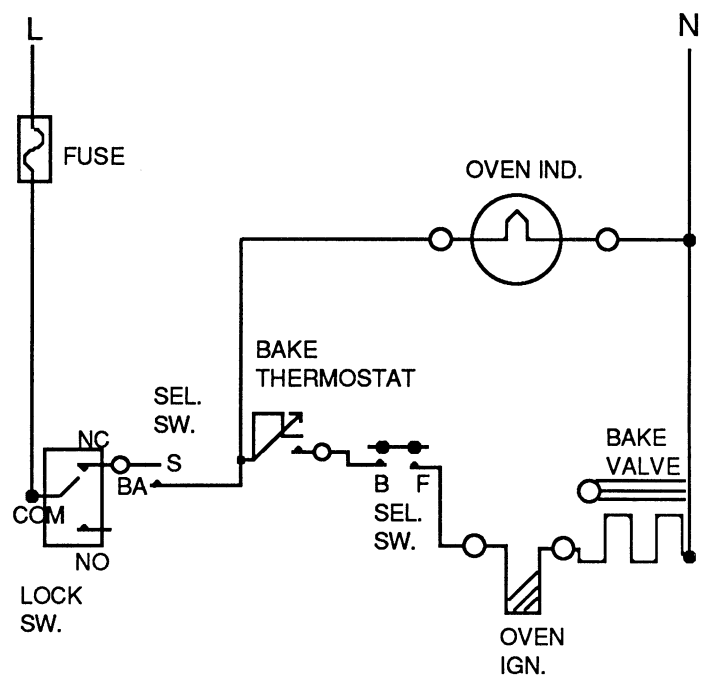


Figure C48

System E: (Later Production)

Bake:

Line one is applied through the five amp fuse to terminal COM of the door latch switch. When the door latch is in the open position, the COM terminal is closed internally to terminal NC. Power from terminal NC is applied to terminal S of the selector switch. When the selector switch is in the bake position, terminal S is closed internally to terminal BA. Power from terminal BA is applied to the oven thermostat and to the oven indicator light. The other lead of the indicator light is connected to neutral. When the latch switch and selector switch contacts are closed the indicator light should glow. When a temperature is set on the thermostat its contacts close, connecting the power from terminal BA of the selector switch to terminal B of the selector switch. Terminal B is connected internally to terminal F. Power from F is then applied to the oven igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter, heat is produced and the resistance of the igniter goes down. Current flows from the igniter through the oven side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases

Broil:

Line one is applied through the five amp fuse to terminal COM of the door latch switch. When the door latch is in the open position, the COM terminal is closed internally to terminal NC. Power from terminal NC is applied to terminal S of the selector switch. When the selector switch is in the broil position terminal S is closed internally to terminal BA. Power from terminal BA is applied to the oven thermostat and to the oven indicator light. The other lead of the indicator light is connected to neutral. When the latch switch and selector switch contacts are closed the indicator light should glow. When a temperature is set on the thermostat its contacts close, connecting the power from terminal BA of the selector switch to terminal B of the selector switch. Terminal B of the selector switch is connected internally to terminal BR. Power from BR is then applied to the broil igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter, heat is produced and the resistance of the igniter goes down. Current flows from the igniter through broil side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases above 3.2 amps and the safety valve opens, allowing gas to the broil burner. (See Figure C49)

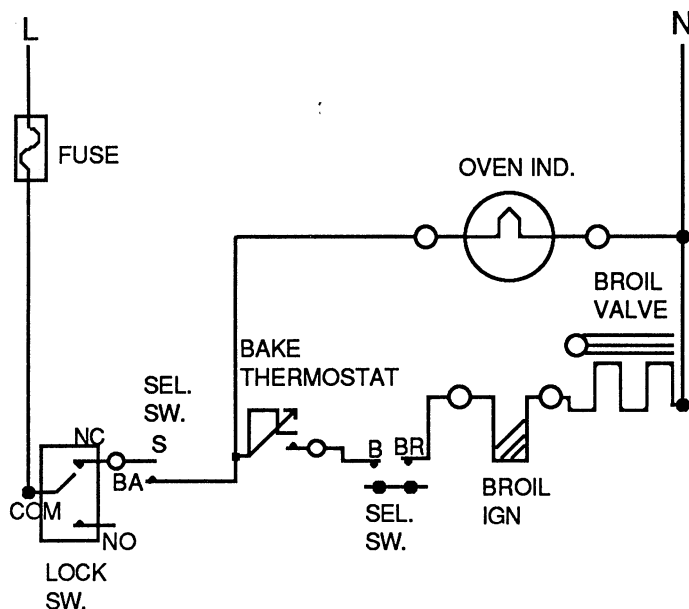


Figure C49

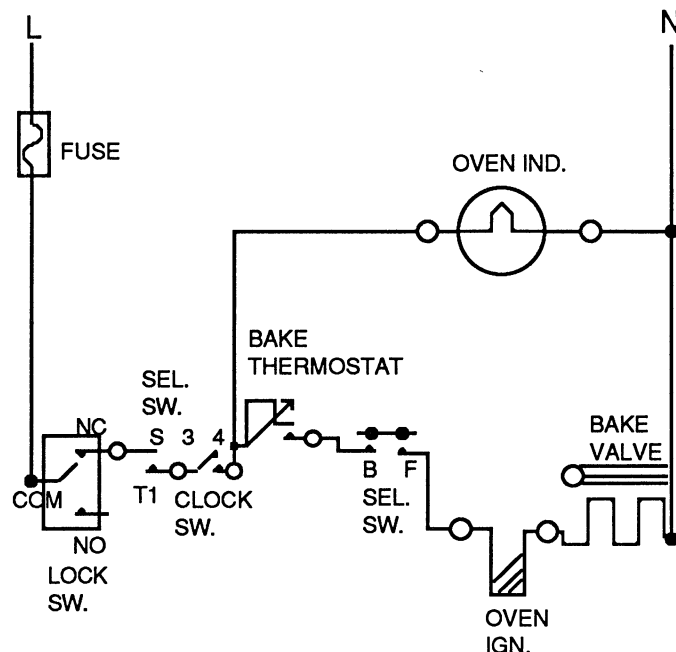


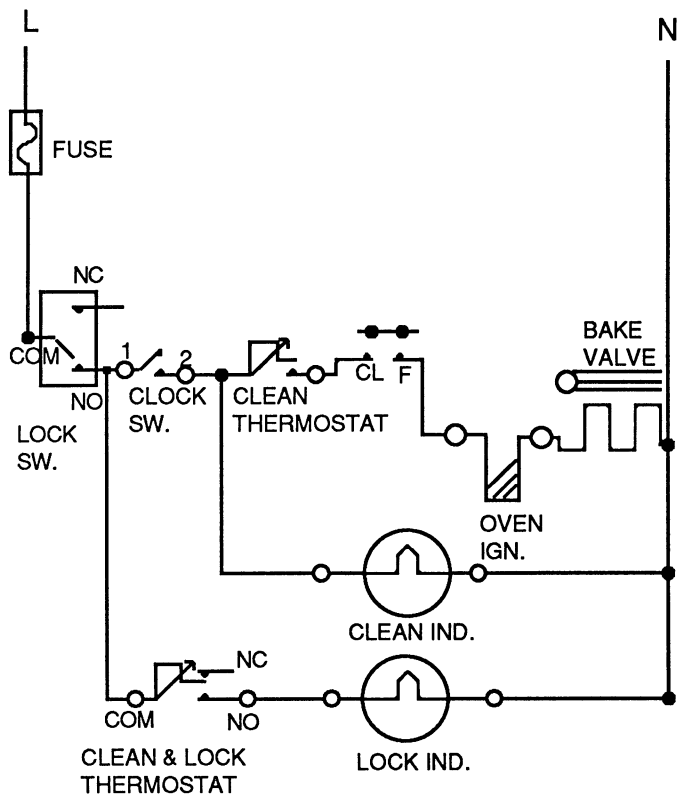
Figure C50

Time Bake:

Line one is applied through the five amp fuse to terminal COM of the door latch switch. When the door latch is in the open position, the COM terminal is closed internally to terminal NC. Power from terminal NC is applied to terminal S of the selector switch. When the selector switch is turned to time bake terminal S is closed internally to terminal T1. Power from terminal T1 is applied to terminal 3 of the clock. When the start time set on the clock is reached, terminal 3 closes to terminal 4 of the clock. Terminal 4 provides power for the oven thermostat and to the oven indicator light. The other lead of the indicator light is connected to neutral. When the latch switch and selector switch contacts are closed the indicator light should glow. When a temperature is set on the thermostat its contacts close, connecting the power from terminal BA of the selector switch to terminal B of the selector switch. Terminal B is connected internally to terminal F. Power from F is then applied to the oven igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter heat is produced, and the resistance of the igniter goes down. Current flows from the igniter through the oven side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases above 3.2 amps and the safety valve opens, allowing gas to the oven burner. When the stop time is reached, the clock contacts open, removing power from the circuit. (See Figure C50)

Clean:

Line one is applied through the five amp fuse to terminal COM of the door latch switch. When the door latch is in the latched position, the COM terminal is closed internally to terminal NO. Power from terminal NO is applied to terminal 1 of the clock, and the lock contacts of the clean thermostat. The lock contacts of the clean thermostat are normally open below 525 degrees Fahrenheit. When the temperature in the oven is above 525 degrees these contacts close providing power to the lock light. When the stop time is set ahead of the time of day, terminal 1 of the clock is connected to terminal 2 of the clock. Terminal 2 of the clock provides power to the clean indicator light and the oven control contacts of the clean thermostat. These contacts are normally closed below 910 degrees Fahrenheit providing power to terminal CL of the selector switch. When the selector switch is set to clean, terminal CL is connected internally to terminal F. Power from F is then applied to the oven igniter. The igniter has two functions in the circuit. It controls the amount of current flow in the circuit, and heats to above 1800 degrees Fahrenheit to ignite the burner gas. When the igniter is at room temperature its normal resistance will be above 100 ohms. When current flows through the igniter, heat is produced and the resistance of the igniter goes down. Current flows from the igniter through the oven side of the safety valve to neutral. The bi-metal heater in the safety valve is current sensitive. When the resistance of the igniter decreases, the current flow in the circuit increases above 3.2 amps and the safety valve opens allowing gas to the oven burner. When the stop time is reached, the clock contacts open, removing power from the circuit. (See Figure C51)



Note: The lock contacts of the clean thermostat only controls the lock light. The stop that prevents the latch from opening above 550 degrees is controlled by a bi-metal.

Figure C51

SECTION D - DESCRIPTION, FUNCTION, AND TESTING OF COMPONENTS

Five different range systems will be described in this section. For information on a certain system read the information preceded by the code letter for that system:

System A - Standing pilot models.

System B - Spark ignition top burners and oven burner models.

System C - Spark ignition top burners and silicon carbide oven igniter models

System D - Separate bake and broil burners (non self clean) models.

System E - Separate bake and broil burners (self clean) models.

ANALOG CLOCK

Purpose: Provide the time of day

How it works:

The radial time of day clock uses an electric motor to turn a set of hands. The motor is connected to the hands by a set of reduction gears.

Adjustment: None

Possible ways of failure:

1. Clock will not run.
 - a. Disconnect power, remove the shield from rear of backguard, and reconnect power.
 - b. Connect a voltmeter across the clock terminals. If the meter reads zero check the wiring in the range. If the meter reads 120 VAC, replace the clock.
2. Clock running slow.
 - a. Check if the clock stem is rubbing the control panel. If the stem is rubbing the control panel, center the clock stem. If the stem is not rubbing the control panel, replace the clock.

ELECTRONIC CLOCK (Non Self Clean)

Purpose: Provide the time of day

How it works:

Line to neutral voltage is applied to the primary of the step down transformer. The output voltages of the transformer are then rectified and applied to the microprocessor. The microprocessor acts as a counter and supplies voltage to segments of the LED display illuminating the correct segments to form a number for the time of day.

Adjustment: None

Possible ways of failure:

1. Display will not illuminate.
 - a. Disconnect power and remove the back of the control panel.
 - b. Reconnect power and connect a voltmeter across the input terminals of the clock. If the meter reads zero, the wiring to the clock is open. If the meter reads 120 VAC, replace the clock.

DIGITAL CLOCK

- Purpose:
1. To provide the time of day.
 2. Control the oven in TIME BAKE
 3. Control the oven in SELF CLEAN.
 4. To provide a minute timer.

How it works:

The three stem digital clock uses an electric motor to drive the digital numbers for the time of day, the START and STOP DIALS, and the minute timer when engaged. The shafts of the START and STOP DIALS control the clock contacts for TIME BAKE and SELF CLEAN by their in and out movement. For the clock contacts to be closed, the START DIAL must be out, and the STOP DIAL must be in. Each of the shafts of the start and stop dials are connected to two matching gears, one on top of the other. The top gear has a round pin welded to it, and the bottom gear has a hole punched in it that matches the pin. When the shaft is pushed in and the dial rotated ahead of the time of day, the pin will hold the shaft in until the pin gear rotates so the pin matches the hole, which is when the dial matches the time of day. The shaft of the minute timer is connected to a gear with an open spot. When the minute timer is in the off position the gear that drives the minute timer matches the open spot and therefore does not turn the minute timer dial. When a time is set on the minute timer, the teeth of the minute timer gear engages the teeth of the drive gear and rotates the shaft to zero. When the minute timer reaches zero, a buzzer sounds until the shaft is turned to the off position.

Adjustment: None

Possible ways of failure:

1. Clock does not run.
 - a. Disconnect power and remove the rear panel from the backguard.
 - b. Reconnect power, and connect a voltmeter across the clock motor terminals. If the meter reads zero, the wiring in the range is open. If the meter reads 120 VAC, replace the clock.
2. Clock running slow.
 - a. Check if the clock stem is rubbing the control panel. If the stem is rubbing the control panel, center the control panel. If the stem is not rubbing the control panel, replace the clock.
3. Oven will not operate in clean.
 - a. Disconnect power and remove the rear panel from the backguard.
 - b. Reconnect power, place the oven to clean, and connect a voltmeter across terminals 1 and 2 of the clock. If the meter reads 120 VAC, replace the clock. If the meter reads zero, the clock is good.
4. Oven will not operate in time bake.
 - a. Disconnect power and remove the rear panel from the backguard.
 - b. Reconnect power, place the oven to clean, and connect a voltmeter across terminals 3 and 4 of the clock. If the meter reads 120 VAC, replace the clock. If the meter reads zero, the clock is good.

ELECTRONIC CLOCK (Self Clean)

Purpose: Provide the time of day, and controls the oven in CLEAN and TIME BAKE.

How it works:

Line to neutral voltage is applied to the primary of the step down transformer. The output voltages of the transformer are then rectified and applied to the microprocessor. The microprocessor acts as a counter and supplies voltage to segments of the LED display, illuminating the correct segments to form numbers for the time of day. When the oven is used in time bake or self clean, the microprocessor controls the gate voltage to a small triac mounted on the clock. The triac works as a switch applying or removing power from the coil of the clock's dual contact relay which

acts as clock contacts.

Adjustment: None

Possible ways of failure:

1. Display will not illuminate.
 - a. Disconnect power and remove the back of the control panel.
 - b. Reconnect power and connect a voltmeter across the input terminals of the clock. If the meter reads zero, the wiring to the clock is open. If the meter reads 120 VAC, replace the clock.
2. Oven will not operate in clean.
 - a. Disconnect power and remove the rear panel from the backguard.
 - b. Reconnect power, place the oven to clean, and connect a voltmeter across terminals 11 and 12 of the clock. If the meter reads 120 VAC, replace the clock. If the meter reads zero, the clock is good.
3. Oven will not operate in time bake..
 - a. Disconnect power and remove the rear panel from the backguard.
 - b. Reconnect power, place the oven to clean, and connect a voltmeter across terminals 13 and 14 of the clock. If the meter reads 120 VAC, replace the clock. If the meter reads zero, the clock is good.

DOOR LATCH (System E)

Purpose: To lock the oven door during the clean cycle.

How it works:

The latch mechanism is to prevent the oven door from being opened during the clean cycle, when the oven temperature is above 600 degrees Fahrenheit. The door is latched by physically moving the latch handle from the unlocked to the locked position. The stop that prevents the latch handle from unlocking above 600 degrees Fahrenheit is connected to a bi-metal coil. The bi-metal coil is in contact with the top of the oven liner and senses oven liner temperature. As the oven heats, the oven liner temperature causes the coil of the bi-metal to expand and turn the stop on the latch mechanism. When the oven temperature is about 600 degrees, the stop has rotated far enough to prevent the latch handle from moving. After the clean cycle is completed, the oven cools down and the bi-metal contracts, rotating the stop away from the latch arm. When

the oven temperature is below 550 degrees, the stop has rotated away and the latch may be unlocked.

Adjustment: None

Possible ways of failure:

1. Latch mechanism cannot be locked.
 - a. Disconnect power, and remove the latch cover from the burner box.
 - b. Check for any foreign objects binding the mechanism.
 - c. Replace the latch mechanism.
2. Latch mechanism cannot be unlocked.
 - a. Disconnect power, and remove the latch cover from the burner box.
 - b. Check for any foreign objects binding the mechanism.
 - c. Replace the latch mechanism.

IGNITION MODULE (System B)

Purpose: To provide high voltage for the top burners and oven igniters.

How it works:

Whenever the range is plugged in, line to neutral voltage is applied to the LIVE and NEUTRAL terminals of module. Internally, voltage is applied to a charging network, a full-wave rectifier, and an oscillation circuit formed by the primary winding of the transformer and capacitor that uses an SCR as a trigger. The charging network is two circuits, one for the oven, and one for the top burners. Until either a top burner switch or the oven thermostat switch is closed, the charging circuit charges a capacitor through a resistor on one half the cycle, and then tries to discharge through that resistor, two other resistors and a neon light, on the other half cycle. Because the neon light will not fire until a voltage potential of over 60 volts is present, the charging circuit will only discharge 2 to 3 times a second. The gate voltage for the SCR is tapped off between the two other resistors, and the discharge voltage/current is not high enough to fire the SCR. When one of the switches is closed, a capacitor is connected in parallel with the charging resistor, which increases the discharge voltage/current enough to fire the SCR. In the oven igniter circuit a discharge path is provided for the charging capacitor through the pilot flame. Therefore when the pilot flame completes the circuit the SCR stops firing. An oscillation circuit is used to pulse the

transformer. When the SCR closes it allows the capacitor in the oscillation circuit to discharge through the primary winding of the transformer. The transformer steps up the voltage and the two windings of the secondary provide high voltage to both the top burner igniters and the oven igniter at the same time.

Adjustment : None.

Possible ways of failure:

1. Top burner igniters will not spark.
 - a. Turn each of the top burners to the lite position. If the igniters spark when any of the valves are turned to the lite position, either a top burner switch, or a wire to a switch is open. If the igniters do not spark with all the valves turned to the lite position, go to b.
 - b. Turn off the gas to the range and turn the oven thermostat to 300 degrees. If the oven igniter and the top burner igniters spark, replace the module. If the oven igniter does not spark, check input voltage to the module. If the oven igniter sparks but the top burner igniters do not, check the top burner igniters for continuity and shorts to chassis. If the igniters check good, replace the module.
2. Oven igniter will not spark.
 - a. Turn a top burner valve to the lite position. If the top burner igniters do not spark, check the input voltage to the module. If the top burner igniters spark but the oven igniter does not, go to step b. If the top burner igniters and the oven burner igniter spark, check the thermostat switch circuit. If it checks good, replace the module.
 - b. Turn the gas off to the range, disconnect power, and remove the wire from the output terminal REIG. Reconnect power, set the thermostat to 300 degrees and listen to the module. If a snapping sound is heard, replace the oven igniter. If the snapping sound is not heard, replace the module.
3. Top burner and oven igniters spark when the top valves and oven thermostat are in the off position.
 - a. Top burner valve switches or thermostat switch are shorted.
4. Oven igniter does not stop sparking after oven pilot is ignited.
 - a. Check grounding of the range.
 - b. Check pilot size and position of the igniter tip. The igniter tip must be in the pilot flame.

- c. Replace the module.

NOTE: If the oven pilot is too small, clean the pilot head orifice. If the pilot remains small, replace the thermostat.

IGNITION MODULE (System C)

Purpose: To provide high voltage for the top burner igniters.

Note: The module provides power for the top burner igniters only.

How it works:

Whenever a top burner valve is turned to the lite position, the switch on the valve stem closes and provides power to the module. Power is applied to the module at terminals L and N. Internally, power is applied to a rectifier charging circuit that pulses a step up transformer two to three times a second. The secondary of the transformer is connected to the two output terminals of the module.

Adjustment: None

Possible ways of failure:

1. Igniters not sparking.
 - a. Disconnect power, turn the gas off to the range, remove the shield from the rear of the range that covers the module, and reconnect power.
 - b. Connect a voltmeter across the L and N terminals of the module and turn a top valve to the lite position. If the meter reads zero, check the top burner switch and the wiring to it. If the meter 120 VAC, go to c.
 - c. Listen for a snapping sound from the module. If a snapping sound is heard, the igniter circuit is open. If the snapping sound is not heard, go to d.
 - d. Disconnect power, and remove the wires from the output side of the module. Reconnect power and listen for a snapping noise. If a snapping sound is heard, the igniter is shorted to ground. If a snapping sound is not heard, replace the module.
2. Igniters spark with the valve in the off position.
 - a. Disconnect power, turn the gas off to the range, and remove the shield from the front of the range that covers the valve switches.
 - b. Disconnect the wires from the four top burner switches and reconnect power. If the igniters do not spark, check for a shorted switch. If the igniters

continue to spark, replace the module.

IGNITION MODULE (Systems D & E)

Purpose: To provide high voltage for the top burners igniters.

Note: The module provides power for the top burner igniters only.

How it works:

Whenever a top burner valve is turned to the lite position, the switch on the valve stem closes and provides power to the module. Power is applied to the module at terminals L and N. Internally, power is applied to a rectifier charging circuit, that pulses a step up transformer two to three times a second. The secondary of the transformer has two windings, one for each set of top burner igniters.

Note: With two outputs, one set of igniters can spark without the other set sparking.

Adjustment: None.

Possible ways of failure:

1. Igniters not sparking.
 - a. Disconnect power, turn the gas off to the range, remove the shield from the rear of the range that covers the module, and reconnect power.
 - b. Connect a voltmeter across the L and N terminals of the module and turn a top valve to the lite position. If the meter reads zero, check the top burner switch and the wiring to it. If the meter reads 120 VAC, go to c.
 - c. Disconnect power, and remove the wires from the output side of the module. Check each of the output windings with an ohmmeter; they should read .5 ohms. If an infinity reading is obtained, replace the module.
 - d. Reconnect power, and listen for a snapping sound from the module. If a snapping sound is heard, the igniter circuit is open. If the snapping sound is not heard, replace the module.
2. Igniters spark with the valve in the off position.
 - a. Disconnect power, turn the gas off to the range, and remove the shield from the front of the range that covers the valve switches.
 - b. Disconnect the wires from the four top burner switches and reconnect power. If the igniters do not spark, check for a shorted switch. If the igniters continue to spark, replace the module.

3. One set of igniters do not spark.
 - a. Disconnect power, turn the gas off to the range, and remove the shield from the rear of the range that covers the module.
 - b. Exchange the wires from one output winding with the other output winding and reconnect power. If the same set of igniters spark, check the other set of igniters. If the other set of igniters spark, replace the module.

OVEN IGNITER (System B)

Purpose: To ignite the oven pilot.

How it works:

The pencil oven igniter is made up of a high voltage lead connected to a nichrome wire igniter encased in ceramic tube. The tip of the igniter is positioned 1/8 inch from the gas outlet of the pilot head so that the tip will be in the pilot flame. When power is applied by the module and if the pilot flame is not present, an arc occurs between the igniter tip and the pilot head to ignite the gas. Once the pilot is ignited, the gas flame lowers the resistance between the igniter tip and the pilot head, telling the module to stop providing power.

Adjustment: None

Possible ways of failure:

1. The oven igniter will not spark.
 - a. Turn a top burner valve to the lite position and observe the top igniters and the oven igniter. If both the top igniters and the oven igniter spark, the thermostat switch or module is defective. If the top burner igniters and the oven igniter do not spark, check the input to the module and the module. If the top igniter sparks but the oven igniter does not, go to step b.
 - b. Disconnect power and remove the shield from the rear of the range that covers the module.
 - c. Remove the wire from the REIG terminal on the output side of the module and reconnect power.
 - d. Set the thermostat to 350 degrees and listen to the module. If a snapping sound is heard, replace the igniter. If a snapping sound is not heard, replace the module.

OVEN IGNITER (Systems C, D, & E)

Purpose: To ignite the oven or broiler burner

How it works:

The silicon carbide oven igniter uses the characteristics of its material to provide the temperature needed to safely ignite the oven burner. When electrical power is applied to the silicon carbide, two things happen. One, the temperature of the material increases and two, the resistance of the material decreases. By placing a current sensitive safety valve electrically in series with the oven igniter, the safety valve opens when the igniter is above a certain temperature. This combination used in the oven circuit is designed to have the safety valve open when the oven igniter is 1800 degrees F. or above, and the current in the circuit is 3.2 amps.

Possible ways of failure:

1. Oven igniter does not glow.
 - a. Remove power and disconnect the igniter at the igniter disconnect plug.
 - b. Connect an ohmmeter across the terminals of the igniter plug. If the meter reads less than 1000 ohms, check the other components in the oven circuit for an open. If the meter reads over 1000 ohms, replace the igniter.
2. Oven igniter glows, but the safety valve does not open.
 - a. Connect an ammeter to the oven circuit. If the meter reads 3.2 amps or higher, check the gas pressure for gas at the safety valve and the safety valve itself. If the meter reads less than 3.2 amps and the line voltage is over 100 VAC, replace the igniter.

PRESSURE REGULATOR (All Systems)

Purpose: To control the gas pressure in the range.

Operating limits:

- a. Input 4.5 to 15 inches of water column.
- b. Output 4 or 10 inches.

How it works:

The pressure regulator acts as an automatically adjusting orifice, to maintain a preset gas pressure in the manifold pipe. This is accomplished by using a rubber diaphragm to compare the gas pressure in the manifold pipe to the pressure of the regulator spring. Attached to and moving with the diaphragm, is a tapered plunger. The plunger extends into the lower cavity through a tapered hole in the wall between the middle and lower cavities. When the gas pressure in the manifold pipe exceeds the spring pressure,

the plunger raises and seals with the cavity wall. When the pressure in the manifold pipe is reduced by opening an outlet, the spring pressure on the diaphragm forces the plunger down. This allows gas to flow into the manifold pipe to replace the gas that was let out. As long as gas flows from the manifold, the opening created by the plunger should equal that of the outlet.

Adjustment: Conversion between natural and LP gas. To convert the regulator from one type of gas to another, remove the regulator cap and turn the spacer to put more or less pressure on the spring. Since LP uses 10 inches and natural 4 inches, spring pressure must be greater on LP.

Note: Pressure regulators for some models contain the manual shutoff valve for the oven.

Possible ways of failure:

1. Incorrect gas pressure at the valves.
 - a. Check input pressure. If the input pressure is between 4.5 and 15 inches, replace the regulator.
2. Incorrect gas pressure under flow.
 - a. Check input pressure under flow. Should be between 4.5 and 15 inches.
 - b. Check for any restriction between measuring point and regulator.
 - c. Replace the regulator.
3. Pilot outage.
 - a. Check output pressure under changing gas flow. If the pressure drops and bounces back more than .2 inch, replace the regulator.

OVEN SAFETY VALVE (Systems A & B)

Purpose: To control gas to the oven burner.

How it works:

The safety valve is opened and closed by the expansion and contraction of an internal bellows. The bellows is connected to and shares fluid with, the safety valve thermal bulb. The thermal bulb is inserted into the end of the pilot head. When the oven thermostat calls for heat in the oven, it increases the amount of gas supplied to the pilot head. The increased gas at the pilot head forces the pilot flame out and the pilot head directs it onto the safety valve bulb. The heat of the pilot flame expands the fluid in the thermal bulb, enlarging the bellows in the safety valve, and forcing

the valve open with a snap action. When the heat in the oven satisfies the thermostat, it reduces the amount of gas supplied to the pilot head. The smaller pilot flame cannot reach the safety valve thermal bulb to heat it, therefore the fluid in the bulb cools and contracts, closing the valve.

Adjustment:

The orifice size for the oven burner gas is adjusted by turning the spud on the safety valve. By tightening the spud, the orifice size is reduced.

Possible ways of failure:

1. Safety valve will not open.
 - a. Check if the oven pilot flame is heating the safety valve bulb. If the flame is not heating the safety valve bulb, check the oven thermostat and pilot head. If the flame is heating the safety valve bulb, replace the safety valve.
2. Safety valve will not close.
 - a. Check if the oven pilot flame is heating the safety valve bulb. If the flame is heating the safety valve bulb, check the oven thermostat and gas pressure. If the flame is not heating the safety valve bulb, replace the safety valve.
2. Improper flame on oven burner.
 - a. Check adjustment of the safety valve spud.
 - b. Check alignment between the safety valve and oven burner.

Note: The safety valve spud must inject into the center of the burner. If the safety valve is tipped, the gas will not draw enough air into the burner.

OVEN SAFETY VALVE (System C)

Purpose: To control gas to the oven burner.

How it works:

The safety valve is an electrically operated valve, that uses current flow through an internal heater wrapped around a bi-metal strip to control the gas flow to the oven burner. One end of the bi-metal is riveted to the top plate of the valve; the other end has a rubber seat attached to it that covers the gas outlet of the valve. At room temperature the spring force of the bi-metal presses the rubber seat against the gas outlet. When current flows through the heater, heat is applied to the bi-metal strip. The amount of heat necessary to warp the bi-metal enough to open the valve requires a minimum of 3.2 amps of current flow in the circuit. The

reason the valve is designed not to open below 3.2 amps is to insure the temperature of the oven igniter is above 1800 degrees F. before the valve opens.

Possible ways of failure:

1. Oven burner will not operate.
 - a. Set the oven thermostat to 350 degrees, and observe the oven igniter. If the igniter glows, go to step c. If the oven igniter does not glow, go to step b.
 - b. Disconnect power, remove the wires from the safety valve, and connect an ohmmeter across the safety valve terminals. If the meter reads about one ohm, the problem is in another component of the oven circuit. If the meter reads infinity, replace the safety valve.
 - c. Connect an ampmeter to the oven circuit. If the meter reads less than 3.2 amps, replace the oven igniter. If the meter reads over 3.2 amps, check the manual shutoff valve. If the valve is closed, open the valve. If the valve is open, check the gas pressure without flow. If the pressure is over 15 inches of water column, replace the pressure regulator. If the pressure is less than 15 inches of water column, replace the valve.
2. Oven burner will not turn off.
 - a. Observe the oven igniter. If the igniter is glowing, check the thermostat and the electrical polarity of the range. If the igniter is not glowing, replace the safety valve.

OVEN SAFETY VALVE (Systems D & E)

Purpose: To control gas to the oven and broil burners.

How it works:

The dual safety valve has one gas input and two gas outlets, one for the bake burner and one for the broil burner. It uses two identical electrically operated devices, one for each outlet, to control the gas flow. The devices are made up of an electric heater coil wrapped around a bi-metal strip. One end of the bi-metal is riveted to the plate of the valve, the other end has a rubber seat attached to it that covers a gas outlet. At room temperature the spring force of the bi-metal presses the rubber seat against the gas outlet. When current flows through the heater, heat is applied to the bi-metal strip. The amount of heat necessary to warp the bi-metal enough to open the valve requires a minimum of 3.2 amps of current flow in the circuit. The reason the valve is designed not to open below 3.2 amps is to insure the temperature of the oven igniter is above 1800 degrees F. before the valve opens.

Note: Only one burner in the oven may be in operation at one time.

Possible ways of failure:

1. Broil burner operates, but the bake burner will not come on.
 - a. Turn the selector switch to bake, set the oven thermostat to 350 degrees, and observe the bake igniter. If the igniter glows, go to step c. If the igniter does not glow, go to step b.
 - b. Disconnect power, remove the wires from the bake side of the safety valve, and connect an ohmmeter across the terminals of the safety valve. If the meter reads about one ohm, the problem is in another component of the bake circuit. If the meter reads infinity, replace the safety valve.
 - c. Connect an ampmeter to the bake circuit. If the meter reads less than 3.2 amps, replace the bake igniter. If the meter reads over 3.2 amps, replace the safety valve.
2. Bake burner operates but the broil burner will not come on.
 - a. Turn the selector switch to broil, set the oven thermostat to 350 degrees, and observe the broil igniter. If the igniter glows, go to step c. If the igniter does not glow, go to step b.
 - b. Disconnect power, remove the wires from the broil side of the safety valve, and connect an ohmmeter across the terminals of the safety valve. If the meter reads about one ohm, the problem is in another component of the broil circuit. If the meter reads infinity, replace the safety valve.
 - c. Connect an ampmeter to the broil circuit. If the meter reads less than 3.2 amps, replace the broil igniter. If the meter reads over 3.2 amps, replace the safety valve.
3. Neither the bake or broil will operate.
 - a. Turn the selector switch to bake, set the oven thermostat to 350 degrees, and observe the bake igniter. Turn the selector switch to broil and observe the broil igniter. If neither of the igniters glow, go to step b. If one of the igniters glow, go to step c. If both igniters glow, go to step d.
 - b. Disconnect power and remove the wires from both sides of the safety valve. Check each side of the valve with an ohmmeter. If the meter reads about one ohm on each side of the safety valve, the problem is in another component. If the meter

reads infinity on either side of the safety valve, replace the safety valve.

4. Bake burner will not turn off.
 - a. Observe the bake igniter. If the igniter is glowing, check the selector switch, thermostat, and the electrical polarity of the range. If the igniter is not glowing, replace the safety valve.
5. Broil burner will not turn off.
 - a. Observe the broil igniter. If the igniter is glowing, check the selector switch, thermostat, and the electrical polarity of the range. If the igniter is not glowing, replace the safety valve.

CONTACTS	4 POSITION SELECTOR SWITCH			
	OFF	BAKE	TIME BAKE	BROIL
T1 TO S			X	
L TO S		X		X
F TO BR				X
F TO BA		X	X	

Adjustment: None

Possible ways of failure:

1. Oven will not operate in bake.
 - a. Disconnect power, remove backguard glass, and loosen control mounting panel.
 - b. Set the selector switch to bake, remove the wires from terminals BA and F, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, go to c.
 - c. Reconnect the wires to terminals BA and F. Disconnect the wires from terminals S and L and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, the switch is good.
2. Oven does not operate in time bake.
 - a. Disconnect power, remove backguard glass, and loosen control mounting panel.
 - b. Set the selector switch to time bake, remove the wires from terminals BA and F, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero go to c.
 - c. Reconnect the wires to terminals BA and F. Disconnect the wires from terminals S and T1, and connect an ohmmeter across them. If the meter reads infinity replace the switch. If the meter reads zero, the switch is good.
4. Oven will not operate in broil.
 - a. Disconnect power, remove backguard glass, and loosen control mounting panel.
 - b. Set the selector switch to broil, remove the wires from terminals F and BR, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, go to c.

SELECTOR SWITCH (System C)

Purpose: To select oven function.

How it works:

The selector switch is electrically in series with the oven thermostat and in parallel with the clock contacts. When the selector switch is in manual, its contacts are closed applying line voltage to the thermostat. When the selector switch is in time bake, its contacts are open leaving the only path for current flow to the thermostat through the clock contacts.

Adjustment: None

Possible ways of failure:

1. Oven will not operate in manual.
 - a. Disconnect power, remove backguard glass, and loosen control mounting panel.
 - b. Set the selector switch to manual and remove the wires from terminals 1 and 2, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, the switch is good.

SELECTOR SWITCH (System D)

Purpose: To select oven function.

How it works:

The selector switch is a rotary switch with multiple contacts. The switch dial is marked OFF, BAKE, TIME BAKE, and BROIL. The contacts are closed as shown in the chart.

- c. Reconnect the wires to terminals F and BR. Disconnect the wires from terminals S and L and connect an ohmmeter across them. If the meter reads infinity replace the switch. If the meter reads zero the switch is good.

SELECTOR SWITCH (System E)

Purpose: To select oven function

How it works:

The selector switch is a rotary switch with multiple contacts. The switch dial is marked OFF, BAKE, TIME BAKE, CLEAN and BROIL. The contacts are shown in the chart.

CONTACTS	5 POSITION SELECTOR SWITCH				
	OFF	BAKE	TIME BAKE	BROIL	CLEAN
B TO F		X	X		
B TO BR				X	
CL TO F					X
S TO T1			X		
S TO BA		X		X	

Adjustment: None

1. Oven will not operate in bake.
 - a. Disconnect power, remove the backguard panel and loosen control mounting panel.
 - b. Set the selector switch to bake, remove the wires from the terminals B and F, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, go to c.
 - c. Reconnect the wires to terminals B and F. Disconnect the wires from terminals S and BA and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, the switch is good.
2. Oven does not operate in time bake.
 - a. Disconnect power, remove backguard panel, and loosen control mounting panel
 - b. Set the selector switch to time bake, remove the wires from terminals B and F, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, go to c.

- c. Reconnect the wires to terminals B and F. Disconnect the wires from terminals S and T1 and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, the switch is good.

3. Oven will not operate in clean.
 - a. Disconnect power, remove backguard panel, and loosen control mounting panel.
 - b. Set the selector switch to clean, remove the wires from terminals CL and F, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, the switch is good.
4. Oven will not operate in broil.
 - a. Disconnect power, remove backguard glass, and loosen control mounting panel.
 - b. Set the selector switch to broil, remove the wires from terminals B and BR, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, go to set c.
 - c. Reconnect the wires to terminals B and BR. Disconnect the wires from terminals S and BA, and connect an ohmmeter across them. If the meter reads infinity, replace the switch. If the meter reads zero, the switch is good.

THERMOSTAT (System A)

Purpose: The thermostat has two functions.

1. It works as a manual shutoff valve for the oven.
2. It controls the temperature in the oven.

How it works:

The core of the thermostat acts as a manual shutoff valve for the oven. When the thermostat stem is in the off position, the core of the thermostat allows only standing pilot gas through the thermostat. When the thermostat stem is rotated from the off position, the core allows gas to the bellows chamber of the thermostat. The thermostat bellows is connected to and shares fluid with, the thermostat sensing bulb in the oven. When the stem of the thermostat is rotated, the bellows chamber opens, allowing secondary pilot gas to flow to the pilot head and oven burner gas to flow to the safety valve.

The thermostat controls the temperature in the oven by controlling the amount of gas to the pilot head. When a

temperature is set on the thermostat, secondary pilot gas is sent to the pilot head to be ignited by the oven pilot. With both the standing pilot and secondary pilot gas present at the pilot head, the pilot flame is large enough to reach and heat the safety valve thermal bulb, causing the safety valve to open. When the safety valve opens, gas flows into the oven burner to be ignited by the pilot and provide heat in the oven. As the temperature in the oven increases, the fluid in the thermostat sensing bulb expands. The expanding fluid causes the bellows inside the thermostat to enlarge. When the temperature in the oven reaches approximately 20 degrees above the temperature set on the thermostat dial, the expanding bellows prevents the secondary pilot gas from going to the pilot head. This reduces the size of the pilot flame so that it no longer reaches the safety valve thermal bulb, allowing the bulb to cool and causing the safety valve to shut off. When a temperature higher than 400 degrees is set on the thermostat and as the temperature in the oven reaches the thermostat dial setting, the thermostat reduces the amount of gas to the safety valve, which in turn, reduces the size of the flame on the oven burner.

Adjustment:

1. Pilot gas selection.

- a. The pilot selector key is located on the front of the thermostat and may be accessed by removing the thermostat knob. The key is used to select the orifice size for the primary pilot gas. Three positions are marked on the front of the thermostat for the setting of the selector key; OFF which prevents any gas from flowing to the pilot head; NAT for when the range is installed on natural gas; and LP for when the range is installed on liquefied petroleum gas.

2. Oven calibration.

- a. The calibration of the oven may be changed by turning the small common screw in the center of the thermostat stem. When the screw is rotated counterclockwise the temperature of the oven is increased. When the screw is turned clockwise the temperature is decreased. Rotating the screw 1/8th of a turn will change the oven temperature approximately 65 degrees. To check oven calibration, place a good mercury thermometer or a lead thermocouple in the center of the oven. Set the thermostat dial for 350 degrees and allow the oven burner to cycle three times. Then average the temperatures at which the oven burner cycled off and the temperature at which the oven burner cycled on. The average temperature should be 350 degrees plus or minus 15 degrees.

Possible ways of failure:

1. Off in calibration.
 - a. Check calibration as described in adjustments. If the average temperature is off less than 130 degrees, adjust the calibration screw. If the average temperature is off more 130 degrees, replace the thermostat.
2. Oven burner will not come on.
 - a. Check the oven pilot. If the oven pilot does not increase in size when the thermostat is turned on, replace the thermostat. If the oven pilot increases but not enough to heat the safety valve thermal bulb:
 - Clean the oven pilot head orifice.
 - Check the thermostat adapter and pilot tube for a restriction.
 - Replace the thermostat.
3. Oven burner will not turn off.
 - a. Check the oven pilot. If the pilot is large enough to heat the safety valve thermal bulb:
 - Check the gas pressure.
 - Check the selector key of the thermostat for correct setting.
 - If the pressure is not over 15 inches of water column, replace the thermostat.
4. Oven pilot goes out.
 - a. Check the gas pressure with all burners turned on high. It should be four inches of water column on natural gas and ten inches of water column on LP.
 - b. Clean pilot head orifice.
 - c. Check for floor or wall openings that might allow drafts.
 - d. Check for a gap between the oven back and oven bottom that would allow a draft to be created by opening and closing the oven door.
 - e. Check the pilot tube for any restrictions.
 - f. Replace the thermostat.
5. Oven burner cycles rapidly.
 - a. Clean orifice in pilot head.

- b. Check gas pressure to the range under changes in flow.
- c. Check the thermostat adapter that threads into the manifold pipe for pipe dope.

THERMOSTAT (System B)

Purpose: The thermostat has three functions.

1. It controls electrical power to the oven section of the igniter module.
2. It works as a manual shutoff valve for the oven.
3. It controls the temperature in the oven.

How it works:

The core of the thermostat acts as a manual shutoff valve for the oven. When the thermostat stem is in the off position, the core of the thermostat is turned so it prevents any gas from entering the thermostat. When the thermostat stem is rotated from the off position, the core turns allowing gas to the bellows chamber and the pilot orifice in the thermostat. The thermostat bellows is connected to and shares fluid with, the thermostat sensing bulb in the oven. When the stem of the thermostat is rotated, the bellows chamber opens allowing primary and secondary pilot gas to flow into the pilot head and oven burner gas to flow to the safety valve.

The oven pilot ignition switch is mounted to the front of the thermostat. When the thermostat stem is rotated from the off position, the contacts of the pilot ignition switch are closed. Power is present at the igniter module any time the range is plugged in, and the ignition switch provides a closed circuit for the gate of the modules SCR anytime the thermostat is not in the off position.

The thermostat controls the temperature in the oven by controlling the amount of gas to the pilot head. When a temperature is set on the thermostat, both primary and secondary pilot gas are sent to the pilot head to be ignited by the spark ignition. With both gas supplies present, the pilot flame is large enough to reach and heat the safety valve thermal bulb, causing the safety valve to open. When the safety valve opens, gas flows into the oven burner to be ignited by the pilot and provide heat in the oven. As the temperature in the oven increases, the fluid in the thermostat sensing bulb expands. The expanding fluid causes the bellows inside the thermostat to enlarge. When the temperature in the oven reaches approximately 20 degrees above the temperature set on the thermostat dial the expanding bellows prevent the secondary pilot gas from going to the pilot head. This reduces the size of the pilot flame so that it no longer reaches the safety valve thermal bulb and allows the bulb to cool, causing the safety valve

to shut off. When a temperature higher than 400 degrees is set on the thermostat and as the temperature in the oven reaches the thermostat dial setting, the thermostat reduces the amount gas to the safety valve to reduce the size of the flame on the oven burner.

Adjustment:

1. Pilot gas selection.
 - a. The pilot selector key is located on the front of the thermostat and may be accessed by removing the thermostat knob. The key is used to select the orifice size for the primary gas pilot. Three positions are marked on the front of the thermostat for the setting of the selector key; OFF which prevents any gas from flowing to the pilot head; NAT for when the range is installed on natural gas; and LP for when the range is installed on liquefied petroleum gas.
2. Oven calibration.
 - a. The calibration of the oven may be changed by turning the small common screw in the center of the thermostat stem. When the screw is rotated counterclockwise the temperature of the oven is increased. When the screw is turned clockwise the temperature is decreased. The rotation of the screw 1/8th of a turn will change the oven temperature approximately 65 degrees. To check oven calibration, place a good mercury thermometer or a lead thermocouple in the center of the oven and set the thermostat dial for 350 degrees. Allow the oven burner to cycle three times, then average the temperature at which the oven burner cycled off and the temperature at which the oven burner cycled on. The average temperature should be 350 degrees plus or minus 15 degrees.

Possible ways of failure:

1. Off in calibration.
 - a. Check calibration as described in adjustments. If the average temperature is off less than 130 degrees, adjust the calibration screw. If the average temperature is off more 130 degrees, replace the thermostat.
2. Oven burner will not come on.
 - a. Check the oven pilot. If the oven pilot does not increase in size when the thermostat is turned on, replace the thermostat. If the oven pilot increases, but not enough to heat the safety valve thermal bulb:
 - Clean the oven pilot head orifice.

- Check the thermostat adapter and pilot tube for a restriction.
- Replace the thermostat.

3. Oven burner will not turn off.

- a. Check the oven pilot. If the pilot is large enough to heat the safety valve thermal bulb, check the gas pressure. If the pressure is not over 15 inches of water column, replace the thermostat. If the pilot is not heating the bulb, replace the safety valve.

4. Oven burner cycles rapidly.

- a. Clean orifice in pilot head.
- b. Check gas pressure to the range under changes in flow.
- c. Check the thermostat adapter that threads in the manifold pipe for restriction by pipe dope.
- d. Replace the thermostat.

THERMOSTAT (System C)

Purpose: Controls the oven temperature.

How it works:

The thermostat controls the oven temperature by opening and closing the electric circuit to the oven. The spring loaded contacts of the thermostat are controlled by the pressure of the thermostat bellows. The bellows are connected to, and shares fluid with the thermostat sensing bulb located in the oven. When the stem of the thermostat is rotated from the off position, pressure that is holding the contacts open is removed and the contacts snap closed. The bellows now must expand to force the contacts open. The higher the temperature set on the dial the more the bellows must expand to open the contacts.

With the contacts of the thermostat closed, current flows through the oven igniter and safety valve causing the safety valve to open. With the safety valve open, gas flows into the oven burner to be ignited by the igniter. As the temperature in the oven increases, the fluid in the thermostat sensing bulb expands. The expanding fluid causes the bellows inside the thermostat to expand. When the temperature in the oven reaches approximately 20 degrees above the temperature set on the thermostat dial, the expanding bellows opens the thermostat contacts and causes the safety valve to close. When the temperature in the oven drops approximately 20 degrees below the dial setting, the fluid in the sensing bulb has contracted enough to remove sufficient pressure from the contacts to allow them to close and causes the safety valve to open.

Adjustment:

1. Oven calibration.

- a. The calibration of the oven may be changed by turning the small common screw in the center of the thermostat stem. When the screw is rotated counterclockwise the temperature of the oven is increased. When the screw is turned clockwise, the temperature is decreased. The rotation of the screw 1/8th of a turn will change the oven temperature approximately 65 degrees. To check oven calibration, place a good mercury thermometer or a load thermocouple in the center of the oven. Set the thermostat dial for 350 degrees, and allow the oven burner to cycle three times. Then average the temperatures at which the oven burner cycles off and the temperature at which the oven burner cycles on. The average temperature should be 350 degrees plus or minus 15 degrees.

Possible ways of failure:

1. Off in calibration.

- a. Check calibration as described in adjustments. If the average temperature is off less than 130 degrees, adjust the calibration screw. If the average temperature is off more 130 degrees, replace the thermostat.

2. Oven burner will not come on.

- a. With the thermostat in the off position, connect a voltmeter between the input terminal of the thermostat and neutral. If the meter reads zero, the wire from the range terminal block is open or the polarity to the range is reversed. If the meter reads 120 VAC, go to b.
- b. With the thermostat set at 350 degrees, connect a voltmeter between the output terminal of the thermostat and neutral. If the meter reads 120 VAC, the thermostat is good. If the meter reads zero, the thermostat is defective.

3. Oven burner will not turn off with the thermostat set in the off position.

- a. Remove electrical power from the range. If the oven burner does not turn off, the safety valve is defective. If the burner turns off, go to b.
- b. With the thermostat in the off position, connect a voltmeter between the input terminal of the thermostat and neutral. If the meter reads zero, the polarity to the range is reversed. If the meter reads 120 VAC, go to c.

- c. Disconnect power from the range, remove the wire from the output terminal of the thermostat, and reconnect power. If the burner operates, there is a short in the range. If the burner does not operate, replace the thermostat.

4. Oven burner will not turn off when a temperature is set.

- a. If the oven burner does not operate with the thermostat in the off position but will not turn off above the set temperature, replace the thermostat.

THERMOSTAT (Systems D & E)

Purpose: Controls the oven temperature.

How it works:

The thermostat controls the oven temperature by opening and closing the electric circuit to the oven. The spring loaded contacts of the thermostat are controlled by the pressure of the thermostat bellows. The bellows are connected to, and shares fluid with the thermostat sensing bulb located in the oven. When the stem of the thermostat is rotated from the off position, pressure that is holding the contacts open is removed and the contacts close. The bellows now must expand to force the contacts open. The higher the temperature set on the dial the more the bellows must expand to open the contacts.

With the contacts of the thermostat closed, current flows through the oven igniter and safety valve, opening the safety valve. With the safety valve open, gas flows into the oven burner to be ignited by the igniter. As the temperature in the oven increases, the fluid in the thermostat sensing bulb expands. The expanding fluid causes the bellows inside the thermostat to expand. When the temperature in the oven reaches approximately 20 degrees above the temperature set on the thermostat dial, the expanding bellows open the thermostat contacts and causes the safety valve to close. When the temperature in the oven drops approximately 20 degrees below the dial setting, the fluid in the sensing bulb has contracted enough to remove sufficient pressure from the contacts to allow them to close and causes the safety valve to open.

Adjustment:

1. Oven calibration.

- a. The calibration of the oven may be changed by turning the small common screw in the center of the thermostat stem. When the screw is rotated counterclockwise, the temperature of the oven is increased. When the screw is turned clockwise, the temperature is decreased. The rotation of the

screw 1/8th of a turn will change the oven temperature approximately 50 degrees. To check oven calibration, place a good mercury thermometer or a load thermocouple in the center of the oven. Set the thermostat dial for 350 degrees and allow the oven burner to cycle three times. Then average the temperatures at which the oven burner cycled off and the temperature at which the oven burner cycled on. The average temperature should be 350 degrees plus or minus 15 degrees.

Possible ways of failure:

1. Off in calibration.

- a. Check calibration as described in adjustments. If the average temperature is off less than 100 degrees, adjust the calibration screw. If the average temperature is off more 100 degrees, replace the thermostat.

2. Oven burner will not come on.

- a. Disconnect power, remove the rear panel of the backguard, and reconnect power. With the thermostat in the off position, connect a voltmeter between the input terminal of the thermostat and neutral. If the meter reads zero, the circuit is open before the thermostat or the polarity to the range is reversed. If the meter reads 120 VAC, go to b.
- b. With the thermostat set at 350 degrees, connect a voltmeter between the output terminal of the thermostat and neutral. If the meter reads 120 VAC, the thermostat is good. If the meter reads zero, the thermostat is defective.

3. Oven burner will not turn off with the thermostat set in the off position.

- a. Remove electrical power from the range. If the oven burner does not turn off, the safety valve is defective. If the burner turns off go to b.
- b. With the thermostat in the off position connect a voltmeter between the input terminal of the thermostat and neutral. If the meter reads zero, the polarity to the range is reversed. If the meter reads 120 VAC, go to c.

- c. Disconnect power from the range, remove the wire from the output terminal of the thermostat, and reconnect power. If the burner operates, there is a short in the range. If the burner does not operate, replace the thermostat.

4. Oven burner will not turn off when a temperature is set.

- a. If the oven burner does not operate with the

thermostat in the off position but will not turn off above the set temperature, replace the thermostat.

CLEAN THERMOSTAT (System E)

Purpose: The thermostat has two functions.

1. Controls the oven temperature in the clean operation.
2. Controls the lock light in the clean operation.

How it works:

The thermostat has two sets of fixed temperature contacts. A set of internal contacts that cycle at 905 degrees F. \pm 20 degrees that controls the oven temperature in clean. A set of contacts in a switch mounted to the rear of the thermostat that cycle the lock light at 525 degrees F. \pm 20 degrees. The clean contacts control the clean temperature in the oven by opening and closing the electric circuit to the oven. The spring loaded contacts of the thermostat are controlled by the pressure of the thermostat bellows. The bellows are connected to, and shares fluid with the thermostat sensing bulb located in the oven. The contacts are normally closed under 905 degrees. When the temperature in the oven goes above 905 degrees the bellows force the contacts open. The lock light switch is mounted to the rear of the thermostat and is controlled by the thermostat bellows. The switch is a single pole, double throw switch with three terminals marked COM., N.C., and N.O. Power is applied to terminal COM. from the latch switch, with nothing connected to terminal N.C., and the lock light connect to terminal N.O. Below 525 degrees terminals COM. to N.C. are closed, above 525 degrees the thermostat bellows forces the switch to close terminals COM. to N.O., providing power to the lock light. When the clean cycle is over and as the temperature drops below 525 degrees, the switch opens contacts COM. to N.O. removing power from the lock light.

NOTE: The locking of the door latch to prevent it from opening is controlled by a bi-metal on the latch mechanism, not the clean thermostat.

NOTE: Early production had the lock indicator light connected to terminal NC.

Adjustment: None

Possible ways of failure:

1. Oven burner will not come on in clean.
 - a. Disconnect power, remove the rear shield from the backguard, and reconnect power.
 - b. Set oven to clean and connect a voltmeter be-

tween the terminals of the cycling contacts on clean thermostat. If the meter reads zero, something else in the circuit is open. If the meter reads 120 VAC, replace the clean thermostat.

2. Oven does not get hot enough to clean.
 - a. Set the oven to clean for two hours and observe the oven burner. If the oven burner has cycled off before one hour into the clean cycle, replace the clean thermostat. If the burner does not cycle off in the first hour, the gas input to the burner is too low.
3. Lock light does not come on.
 - a. Disconnect power, remove the rear shield from the backguard, and reconnect power.
 - b. Set oven to clean, allow the oven to heat above 550 degrees, and connect a voltmeter between terminals COM. and N.O. on the clean thermostat. If the meter reads zero, something else in the circuit is open. If the meter reads 120 VAC, replace the clean thermostat.

NOTE: Early production had the lock indicator light connected to terminal NC.

4. Lock light will not go off.
 - a. Disconnect power and remove the rear shield from the backguard.
 - b. Remove the wires from terminals COM and N.O. and connect an ohmmeter across them. With the oven temperature below 500 degrees, if the meter reads zero replace the thermostat. If the meter reads infinity, the wire to the light is shorted.

TOP BURNER VALVES (110° Rotation)

Purpose: Controls gas flow to the top burners.

How it works:

The top burner valve is a barrel and core, grease sealed, locking type valve. Before the stem can be turned, it must be pushed in to unlock the valve. The valve is made up of a hollow core, pressed into the barrel of the valve by a spring, and sealed with grease. Gas flows from the manifold pipe into the rear of the valve and enters into the hollow core. When the stem of the valve is rotated, the core rotates with it. When the core is rotated so that the hole in the side of the core matches the hole in the barrel of the valve, gas is allowed to flow from the valve to the mixer elbow. The amount of gas that is allowed to flow from the valve is controlled by how much of the hole in the core is

allowed to match the hole in the barrel.

Adjustment: None.

Possible ways of failure:

1. Gas leak at the valve.
 - a. Check to see if either the knob or valve stem is rubbing the control panel. If so, align the manifold pipe before replacing the valve. If the alignment is good, replace the valve.

Note: Any type of side pressure on the valve stem will cause the valve to leak.

2. The valve stem is hard to turn or cannot be turned.
 - a. Check to see if the control panel is preventing the stem from being pushed in. If so, adjust the manifold pipe. If not, replace the valve.
3. Valve lock release has failed.
 - a. Replace the valve.
4. Valve is not greased.
 - a. Replace the valve.

TOP BURNER VALVES (210° Rotation)

Purpose: Controls gas flow to the top burners.

How it works:

The top burner valve is a barrel and core, grease sealed, locking type valve. Before the stem can be turned, it must be pushed in to unlock the valve. The valve is made up of a hollow core, pressed into the barrel of the valve by a spring, and sealed with grease. Gas flows from the manifold pipe into the rear of the valve and enters into the hollow core. The core has three holes in its side, one large and two small holes. When the stem of the valve is rotated the core rotates with it. As the core is rotated, gas is allowed to flow from the large hole into the mixer elbow.

When the core is rotated 90 angular degrees, the large hole in the core matches the hole in the barrel allowing maximum gas flow. When the core is rotated passed 90 degrees the gas flow is reduced. When the core is rotated the full 210 degrees, the two small holes are aligned with the hole in the barrel and the only path for gas to flow from the core is through the two small holes. The amount of gas that flows through the two small holes, called the minimum flame, is controlled by an adjustment screw located in the center of the valve stem. The adjustment of the minimum flame should be made at the time the range is installed.

Adjustment: Minimum flame.

Possible ways of failure:

1. Gas leak at the valve.
 - a. Check to see if either the knob or valve stem is rubbing the control panel. If so, align the manifold pipe before replacing the valve. If the alignment is good, replace the valve.

Note: Any type of side pressure on the valve stem will cause the valve to leak.

2. The valve stem is hard to turn or cannot be turned.
 - a. Check to see if the control panel is preventing the stem from being pushed in. If so, adjust the manifold pipe. If not, replace the valve.
3. Valve lock release has failed.
 - a. Replace the valve.
4. Valve is not greased.
 - a. Replace the valve.
5. Minimum flame to high.
 - a. Make a minimum flame adjustment.
6. Burner flame goes out when valve stem is fully rotated.
 - a. Make a minimum flame adjustment.

SECTION E - DISASSEMBLY, ADJUSTMENT, AND REPLACEMENT OF PARTS

BACKGUARD DISASSEMBLY

CONTROL PANEL LOW BROILER MODELS

For backguard disassembly refer to figure E1.

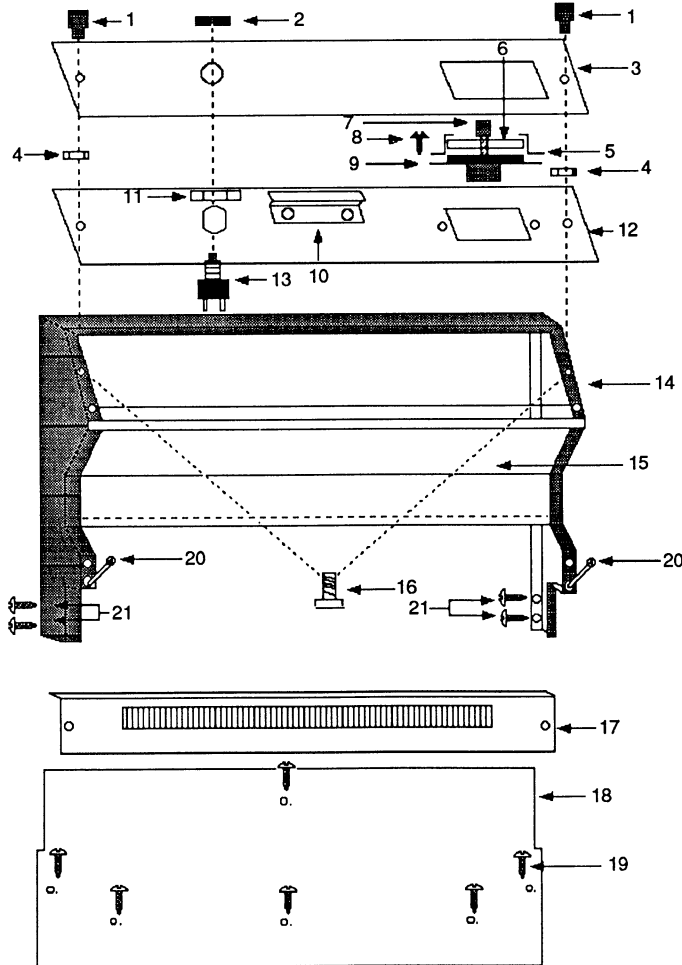


Figure E1

Reference number	Part name
1	Decor Nuts
2	Light Switch Bezel
3	Control Panel
4	Mounting Panel Nuts
5	Clock Glass Brackets
6	Clock Glass
7	Clock Knob
8	Clock Screws
9	Clock
10	Control Panel Bracket
11	Light Switch Nut

12	Mounting Panel
13	Oven light switch
14	Backguard Wrapper
15	Splasher Panel
16	Mounting Bolts
17	Vent Trim
18	Back Panel
19	Back Panel Screws
20	Backguard Locking Screws
21	Bodysides To Backguard Screws

Caution: Before disassembling the backguard remove electrical power from the range.

Control Panel Removal: (Ref. #3)

1. Remove the two decor nuts. (Ref. #1)
2. Remove the light switch bezel. (Ref. #2)
3. Lift up on the control panel to disengage the top lip of the control panel from the control panel bracket. (Ref. #10)

Clock Removal: (Ref. #6)

1. Remove the control panel. (Ref. #3)
 2. Remove the clock knob. (Ref. #7)
- Note: Clock knob pushes on.
3. Remove the two clock screws, (Ref. #8) that hold the clock glass bracket, (Ref. #5) and the clock (Ref. # 9) to the mounting panel. (Ref. #12)
 4. Remove the clock glass. (Ref. #6)
 5. Lift the clock, (Ref. #9) and disconnect the wires from it.

Mounting Panel Removal: (Ref. #12)

1. Remove the control panel. (Ref. #3)
2. Remove the two mounting panel nuts. (Ref. #4)
3. Remove the clock. (Ref. #9)
4. Remove the light switch nut. (Ref. #11)
5. Lift the mounting panel off. (Ref. #12)

Light Switch Removal: (Ref. #13)

1. Remove the mounting panel. (Ref. #12)
2. Disconnect the wires from the light switch.

- | | |
|----|-------------------|
| 10 | Selector Switch |
| 11 | Oven light Switch |
| 12 | Backguard Light |

Back Panel Removal: (Ref. #18)

1. Pull the range away from the wall.
2. Remove the backpanel screws. (Ref. #19)
3. Drop down back panel and remove.

Backguard Wrapper Removal: (Ref. #14)

1. Remove the back panel. (Ref. #18)
2. Disconnect the wires from the clock and light switch.
3. Remove the backguard locking screws (Ref. #20) and the bodyside to backguard screws. (Ref. #21)
4. Lift the backguard up, and remove it from the range.

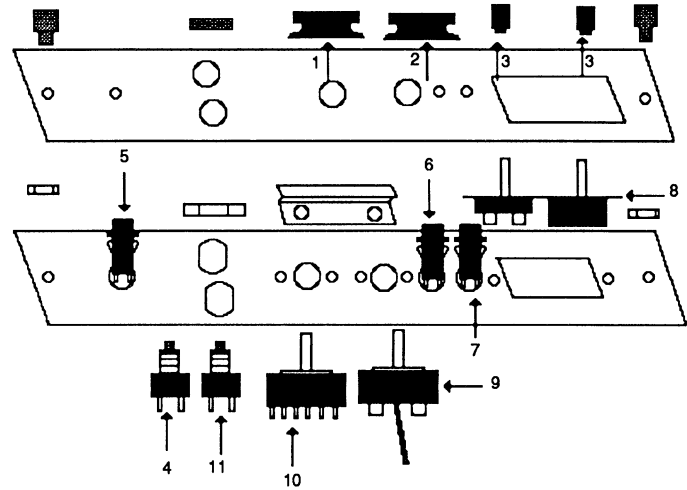


Figure E2

5. Remove the mounting panel. (Ref # 12)

6. Remove the two screws from the vent trim.

7. Spread the sides of the wrapper and remove the splasher panel. (Ref #15)

Splasher Panel Removal: (Ref #15)

1. Remove the backguard wrapper. (Ref #14)

Vent Trim Removal: (Ref #17)

1. Remove the backguard wrapper. (Ref #14)

CONTROL PANEL HIGH BROILER MODELS

Note: Refer to control panel low broiler model for removal of parts not found in self clean control panel.

For backguard disassembly refer to Figure E2.

Reference number	Part name
1	Selector Switch Knob
2	Thermostat Knob
3	Clock Knob
4	Oven Light Switch
5	Oven Indicator Light
6	Lock Indicator Light
7	Clean Indicator Light
8	Clock
9	Thermostat

Thermostat Knob, Selector Switch Knob, And Clock Knob Removal: (Ref. #1, #2, #3)

1. These knobs pull off.

Clean, Lock and Oven Indicator Lights. (Ref #5, #6, #7)

1. Remove power from the range.
2. Remove the control panel, and mounting plate.
3. Remove the two wires from the light through the mounting panel.
4. Push in on the tabs on the side of the light and remove.

Clock Removal: (Ref. #8)

1. Disconnect power from the range.
2. Remove the control panel.
3. Remove the two screws holding the clock to the mounting panel.
4. Mark and remove the wires.

Thermostat Removal: (Ref. #9)

1. Disconnect power from the range.
2. Pull the range away from the wall and remove the back panel covering the thermostat bulb.
3. Unsnap the thermostat bulb from inside the oven, and

Note: Since the top burner switches are in parallel, it is unlikely that all four switches would fail at the same time.

10. Reconnect the wires to the MANUAL and COMMON terminals and apply power to the range. Turn one of the top burner valves to the LITE position and listen to the module. If a snapping sound is heard and the igniters are not arcing, one of the high voltage leads to the igniters is open. If a snapping sound is not heard, go to 11.
11. Disconnect power, and remove the two wires from the MAN terminals. Reconnect power and listen for the snapping sound. If the snapping sound is heard, one of the high voltage leads to the igniters is shorted to chassis. If the snapping sound is not heard, replace the module.

System C:

1. Check for spark at the top burner igniters. If the igniters are sparking, go to 2. If the igniters are not sparking, go to 6.
2. Check the gas pressure with all burners turned on. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.
3. Clean the burner head charge ports and climber ports.
4. Check the alignment of the flash tube assemblies.
5. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not, straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

6. Disconnect power, turn off the gas to the range, remove the panel in the rear of the range that covers the module, and reconnect power.

Caution: Do not attempt to measure the high voltage output of the module.

7. Turn one top burner valve to LITE and connect an AC voltmeter across the input terminals of the module. If the meter reads zero, check the wiring to and from the top burner switches, and the top burner switches. If the meter reads 120 VAC, go to 8.

Note: Since the top burner switches are in parallel, it is unlikely that all four switches would fail at the same time.

8. Listen to the module. If a snapping sound is heard and the igniters are not arcing, one of the high voltage leads to the igniters is open. If a snapping sound is not heard, go to 9.
9. Disconnect power and remove the two wires from the output terminals. Reconnect power and listen for the snapping sound. If the snapping sound is heard, one of the high voltage leads to the igniters is shorted to chassis. If the snapping sound is not heard, replace the module.

Systems D, E:

1. Check for a spark at the top burner igniters. If the igniters are sparking, go to 2. If the igniters are not sparking, go to 6.

Note: With four igniters it is possible to have two that work and two that do not work.

2. Check the gas pressure with all burners turned on. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.
3. Clean the burner head charge ports and climber ports.
4. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not, straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

5. Disconnect power, turn off the gas to the range, remove the panel in the rear of the range that covers the module, and reconnect power.

Caution: Do not attempt to measure the high voltage output of the module.

6. Turn one top burner valve to LITE and connect an AC voltmeter across the input terminals of the module. If the meter reads zero, check the wiring to and from the top burner switches, and the top burner switches. If the meter reads 120 VAC, go to 8.

Note: Since the top burner switches are in parallel, it is unlikely that all four switches would fail at the same time.

7. If one set of igniters are working, disconnect power and reverse the leads on the output side of the module. Reconnect power. If the same set of igniters still work, one of the leads to the set of igniters that are not

pull it out the back of the range.

4. Remove the control panel and mounting plate from the backguard.
5. Disconnect the two screws holding the thermostat to the mounting panel.
6. Pull the thermostat from the backguard.

Selector Switch Removal: (Ref.#10)

1. Disconnect power from the range.
2. Remove the control panel and the mounting panel .
3. Mark and disconnect the wire to the selector switch.
4. Remove the two Screws holding the selector switch to the mounting panel.

Oven Light, and Backguard Light Switch Removal: (Ref. #4, #12)

1. Disconnect power from the range.
2. Remove the control panel, and the mounting panel.
3. Disconnect wires from the switch.
4. Remove the nut holding the switch to the mounting panel.

Clean Thermostat Removal:

1. Disconnect power from the range.
2. Pull the range from the wall and remove the back panel covering the thermobulb.
3. Disconnect the clean thermobulb from inside the oven.
4. Remove the back panel from the backguard.
5. Remove the wires from the clean thermostat.
6. Remove the screw holding the clean thermostat to the vent trim.
7. Pull the thermobulb from the oven.

Main Top Removal:

1. Lift the main top and disengage the lift and lock rods.
2. Disconnect the igniter from the flash tube brackets by removing one screw from each.
3. Remove the igniter wires from the clips on top.

4. Remove the brackets that hold the top at the rear by removing one screw from each bracket. (See Figure E3)

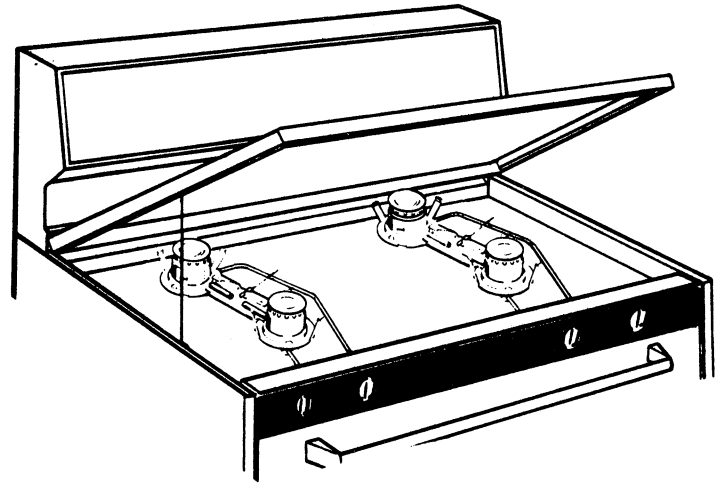


Figure E3

Control Panel Removal:

1. Disconnect power from the range.
2. Lift the main top.
3. Remove the three screws holding the control panel to the burner box.
4. Open the oven door.
5. Remove the three screws holding the control panel to the range chassis. (See Figure E4)

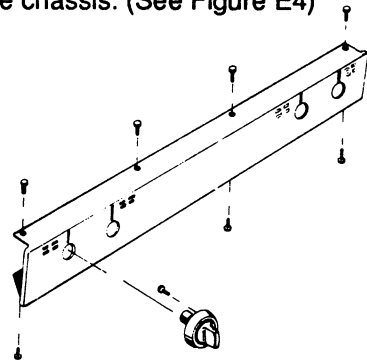


Figure E4

Burner Box Removal:

1. Remove the main top.
2. Remove the screws holding the burner box to the control panel, bodysides, range back, and manifold pipe.
3. Disconnect the top burner elbow mixers by removing the nut from each one.

- Lift the burner box from the range.

Top Valve Removal:

- Turn gas off to the range.
- Remove the control panel.
- Remove the burner box.
- Disconnect the burner tube from the valve.
- Turn the valve out of the manifold pipe.

Thermostat Removal: (Systems A and B)

- Turn gas off to the range.
- Remove the burner box.
- Disconnect the tubes from the thermostat.
- Remove the thermobulb from the oven.
- Remove the two bolts holding the thermostat to the manifold pipe.

Note: When reinstalling be sure the O-ring on the thermostat is in place.

Top Pilot Tubes Removal: (Systems A and B)

- Turn off the gas to the range.
- Remove the burner box.
- Disconnect the pilot tubes from the pilot filter.

Manifold Pipe Removal:

- Turn off gas to the range.
- Remove the burner box.
- Remove the top burner valves. On Systems A and B remove the thermostat and pilot tubes. (See Figure E5)

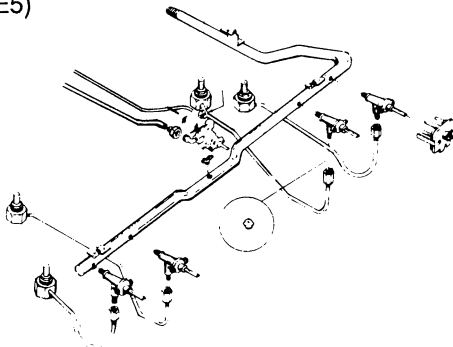


Figure E5

Oven Door Disassembly:

- Remove the door from the range by removing the two screws holding the inner door liner to the door cams.
- Remove the door handle screws, and the door handle.
- If the door has an enamel outer panel, remove the three screws at the bottom of the door. If the outer panel is glass, remove the screws from the outer trim.
- The outer panel may now be removed showing the screws holding the inner glass or panel. (See Figure E6)

Note: The door seal is held to the inner door panel by spring clips. It can be installed, but not removed if it is to be reused without disassembling the door.

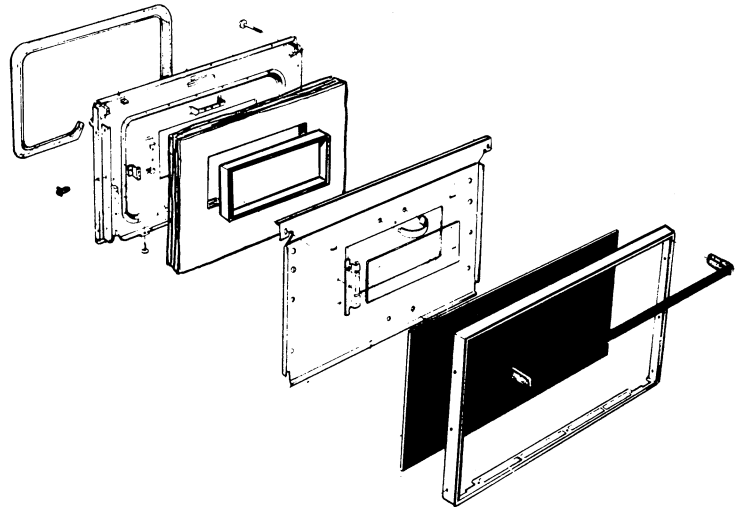


Figure E6

Pressure Regulator Removal:

- Pull the range from the wall and turn the gas off.
- Disconnect the tubing from the pressure regulator.
- Remove the two screws holding the pressure regulator bracket to the back panel.
- Remove the two screws holding the pressure regulator to the bracket.

Broiler Carriage Removal:

- Pull the broiler drawer out, lift up, and slide out.

Safety Valve Removal: (Systems A and B)

- Turn gas off to the range.

2. Remove the Broiler carriage.
3. Disconnect safety valve bulb from pilot.
4. Disconnect gas tubing from the valve.
5. Remove the screw holding the valve to the chassis.

Safety Valve Removal: (System C)

1. Turn gas off to the range.
2. Disconnect power from the range.
3. Remove the broiler carriage.
4. Disconnect gas tubing from the valve.
5. Remove the screw holding the valve to the bracket.

Safety Valve Removal: (Systems D and E)

1. Turn gas off to the range.
2. Disconnect power from the range.
3. Remove the front panel.
4. Disconnect gas tubing from the valve.
5. Remove the screw holding the valve to the bracket.

Bodyside Removal:

Caution: Do not remove both bodysides at the same time.

1. Remove power and turn the gas supply off to the range.
2. Remove the oven door.
3. Remove the broiler drawer, storage drawer, or lower panel depending on the model.
4. Remove the five screws from the front of the bodyside and one screw from the inside rear of the compartment area. (See Figure E7)

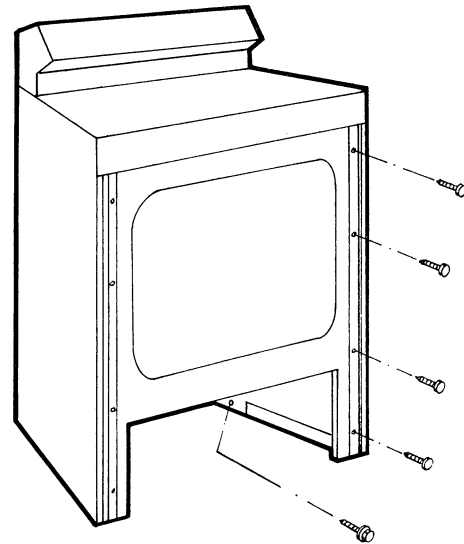


Figure E7

5. Raise the main top, and disengage the lift and lock rod from the bodyside that is to be replaced.
6. Remove the three screws, and the top guide. (See Figure E8)

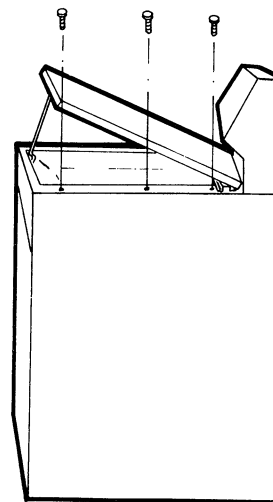


Figure E8

7. Remove the seven screws from the rear of the bodyside. (See Figure E9)

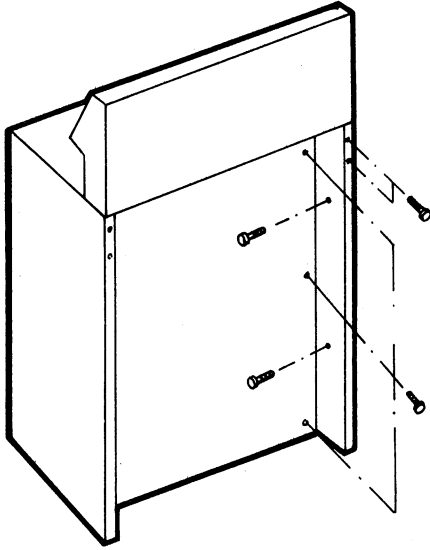


Figure E9

9. Slide the bodyside down until it disengages the control panel post and pull the bodyside from the range. (See Figure E10)

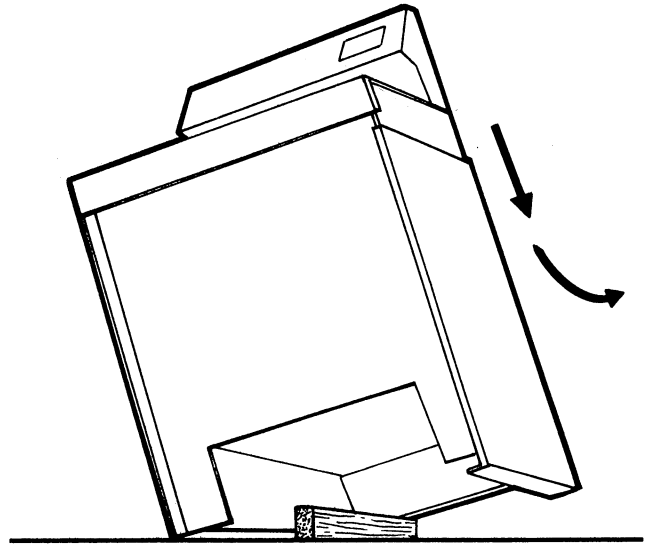


Figure E10

8. Tilt the range so the bodyside to be removed is four inches off the floor, and block the range up in that position. (A two by four may be used for this.)

10. Transfer the leveling legs from the removed bodyside, and reverse the procedure to install the new panel.

SECTION F - TROUBLESHOOTING

Five different range systems will be described in this section. For information on a certain system read the information preceded by the code letter for that system:

System A - Standing pilot models.

System B - Spark ignition top burners and oven burner models.

System C - Spark ignition top burners and silicon carbide oven igniter models

System D - Separate bake and broil burners (non self clean) models.

System E - Separate bake and broil burners (self clean) models.

Note: For testing of individual part refer to Section E.

TOP BURNERS

Problem: Improper flame

All Systems:

1. Check the spud on mixer elbow to be sure it is adjusted for type of gas supplied to the range. If not, make the adjustment.
2. Check the gas pressure with all the burners turned on. If the range is installed on natural gas the pressure should be 4 inches. If installed on LP the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.
3. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

Problem: Top burner or burners slow to ignite, or not igniting

System A:

1. Check top burner pilots.
2. Check the gas pressure with all the burners turned on. If the range is installed on natural gas the pressure should be 4 inches. If installed on LP the pressure should be 10 inches. If the pressure is incorrect test the pressure regulator.

3. Clean the burner head charge ports and climber ports.
4. Check the alignment of the flash tube assemblies.
5. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not, straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

System B:

1. Check for spark at the top burner igniters. If the igniters are sparking, go to 2. If the igniters are not sparking, go to 6.
2. Check the gas pressure with all burners turned on. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.

3. Clean the burner head charge ports and climber ports.
4. Check the alignment of the flash tube assemblies.
5. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not, straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

6. Disconnect power, remove the panel in the rear of the range that covers the module, and reconnect power.

Caution: Do not attempt to measure the high voltage output of the module.

7. With an AC voltmeter, check for input voltage between the LIVE and NEUTRAL terminals of the module. If the meter reads zero, check the wires from the range terminal block to the module. If the meter reads 120 VAC, go to 8.
8. Disconnect power, turn off the gas to the range, and disconnect the wires from terminals MANUAL and COMMON of the module.
9. Turn one of the top burner valves to the LITE position and connect an ohmmeter across the disconnected wires. If the meter reads infinity, check top burner switch that was turned on and the wiring to it. If the meter reads zero, go to 10.

Note: Since the top burner switches are in parallel, it is unlikely that all four switches would fail at the same time.

10. Reconnect the wires to the MANUAL and COMMON terminals and apply power to the range. Turn one of the top burner valves to the LITE position and listen to the module. If a snapping sound is heard and the igniters are not arcing, one of the high voltage leads to the igniters is open. If a snapping sound is not heard, go to 11.
11. Disconnect power, and remove the two wires from the MAN terminals. Reconnect power and listen for the snapping sound. If the snapping sound is heard, one of the high voltage leads to the igniters is shorted to chassis. If the snapping sound is not heard, replace the module.

System C:

1. Check for spark at the top burner igniters. If the igniters are sparking, go to 2. If the igniters are not sparking, go to 6.
2. Check the gas pressure with all burners turned on. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.
3. Clean the burner head charge ports and climber ports.
4. Check the alignment of the flash tube assemblies.
5. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not, straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

6. Disconnect power, turn off the gas to the range, remove the panel in the rear of the range that covers the module, and reconnect power.

Caution: Do not attempt to measure the high voltage output of the module.

7. Turn one top burner valve to LITE and connect an AC voltmeter across the input terminals of the module. If the meter reads zero, check the wiring to and from the top burner switches, and the top burner switches. If the meter reads 120 VAC, go to 8.

Note: Since the top burner switches are in parallel, it is unlikely that all four switches would fail at the same time.

8. Listen to the module. If a snapping sound is heard and the igniters are not arcing, one of the high voltage leads to the igniters is open. If a snapping sound is not heard, go to 9.
9. Disconnect power and remove the two wires from the output terminals. Reconnect power and listen for the snapping sound. If the snapping sound is heard, one of the high voltage leads to the igniters is shorted to chassis. If the snapping sound is not heard, replace the module.

Systems D, E:

1. Check for a spark at the top burner igniters. If the igniters are sparking, go to 2. If the igniters are not sparking, go to 6.

Note: With four igniters it is possible to have two that work and two that do not work.

2. Check the gas pressure with all burners turned on. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.
3. Clean the burner head charge ports and climber ports.
4. Check the spud and mixer pin to see if they are injecting gas into the center of the burner opening. If not, straighten the spud or pin. If straight, replace the burner.

Note: It will be necessary to remove the spud to check the mixer pin.

5. Disconnect power, turn off the gas to the range, remove the panel in the rear of the range that covers the module, and reconnect power.

Caution: Do not attempt to measure the high voltage output of the module.

6. Turn one top burner valve to LITE and connect an AC voltmeter across the input terminals of the module. If the meter reads zero, check the wiring to and from the top burner switches, and the top burner switches. If the meter reads 120 VAC, go to 8.

Note: Since the top burner switches are in parallel, it is unlikely that all four switches would fail at the same time.

7. If one set of igniters are working, disconnect power and reverse the leads on the output side of the module. Reconnect power. If the same set of igniters still work, one of the leads to the set of igniters that are not

working is open or shorted to chassis. If the other set of igniters work, replace the module.

8. If neither set of igniters work, disconnect power and remove the four leads from the output side of the module. Reconnect power and listen to the module. If a snapping sound is heard, the igniter leads are shorted to chassis. If the module does not make a snapping noise, replace the module.

Problem: Top burner valves are hard to turn.

All Systems:

1. The top burner valves are lock type valves. Check to see if the valve knob is hitting the control panel. If the knobs are hitting, adjust the manifold pipe. If the knob is not hitting, replace the valve.

TOP PILOTS

System A:

Problem: Top pilots sooting.

1. The top pilot flame is too large. Adjust pilot flame at pilot filter.

Problem: Top pilots going out.

1. Check the size of the pilot flame, it should be 1/8 inch above the pilot cage.
2. Check the holes in the pilot cage, they should be at a right angle to the flash tube.
3. Check the gas pressure under flow and under change. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.
4. Replace the pilot tubes.

Problem: One pilot larger than the other.

1. Replace the pilot tube assembly.

OVEN

Problem: Oven pilot going out.

System A:

1. Check gas pressure to the range under maximum flow

and under changes in flow. If the range is installed on natural gas, the pressure should be 4 inches. If installed on LP, the pressure should be 10 inches. If the pressure is incorrect, test the pressure regulator.

2. Check pilot shield.
3. Clean pilot head orifice.
4. Replace the pilot head.
5. Replace the thermostat if steps 1,2, and 3 have not solved the problem.

Problem: Oven igniter does not spark.

System B:

1. Disconnect power, remove the panel in the rear of the range that covers the module, and reconnect power.

Caution: Do not attempt to measure the high voltage output of the module.

2. With an AC voltmeter, check for input voltage between the LIVE and NEUTRAL terminals of the module. If the meter reads zero, check the wires from the range terminal block to the module. If the meter reads 120 VAC, go to 3.

Note: Since the same module is used for the top burner igniters and they work, the module has power to it.

3. Remove power and disconnect the wires from terminals REIG and COMMON on the input of the module.
4. Turn the thermostat to 350 degrees and connect an ohmmeter across the disconnected wires. If the meter reads infinity, the thermostat switch or its wiring is open. If the meter reads zero, go to 5.
5. Reconnect the wires to the REIG and COMMON terminals and apply power to the range. Listen to the module, if a snapping sound is heard and the igniter is not arcing, the high voltage lead to the igniter is open. If a snapping sound is not heard, go to 6.
6. Disconnect power and remove the wire from terminal REIG on the output side. Reconnect power and listen for the snapping sound. If the snapping sound is heard, the high voltage leads to the igniter are shorted to chassis. If the sound is not heard, replace the module.

Problem: Oven igniter sparks, but the oven pilot does not light.

System B:

1. Check the pilot key on the front of the thermostat to be sure it set to the type of gas being supplied to the range.
2. Clean the pilot head orifice.
3. Check the oven thermostat.
4. Check the pilot tube for a restriction.

Problem: Oven burner cycles rapidly once temperature is reached.

Systems A, B:

1. Clean the pilot head orifice.
2. Replace the thermostat.

Problem: Oven burner will not come on.

Systems A, B:

1. Turn the thermostat to 350 degrees and observe the oven pilot flame.
2. If the pilot flame enlarges and heats the safety valve bulb, test the safety valve.
3. If the pilot flame enlarges, but does not reach the safety valve bulb, clean the pilot head orifice.
4. If the pilot flame does not enlarge, test the thermostat.

System C;

Manual

Note: The oven circuit is electrically a series circuit.

1. Turn the selector switch to MANUAL, set the thermostat to 350 degrees, and observe the oven indicator light. If the light does not glow, go to 2. If the light glows, go to 8.
2. Disconnect power, remove back panel of the backguard, and reconnect power.
3. Connect an AC voltmeter between terminal 2 of the selector switch and neutral. If the meter reads zero, the wire from the terminal block to terminal 2 of the selector switch is open. If the meter reads 120 VAC, go to 4.
4. Connect an AC voltmeter between terminal 4 of the selector switch and neutral. If the meter reads zero the selector switch is defective. If the meter reads 120 VAC, go to 5.

5. Connect an AC voltmeter between the input terminal of the thermostat and neutral. If the meter reads zero, the wire from the selector switch to the thermostat is open. If the meter reads 120 VAC, go to 6.
6. Connect an AC voltmeter between the output terminal of the thermostat and neutral. If the meter reads zero, the thermostat is defective. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the input side of the oven fuse and neutral. If the meter reads zero, the wire from the thermostat to the fuse and oven indicator light is open. If the meter reads 120 VAC, the indicator light and another part in the circuit is defective. Replace the indicator light and go to 8.
8. Observe the oven igniter. If the igniter is glowing, go to 14. If the igniter is not glowing, go to 9.
9. Connect an AC voltmeter between the output side of the oven fuse and neutral. If the meter reads zero, the fuse is open. If the meter reads 120 VAC, go to 10.

Note: If the fuse is open, this indicates a shorted oven igniter or a wire shorted to chassis.

10. Connect an AC voltmeter between the input side of the oven igniter and neutral. If the meter reads zero, the wire from the fuse to the igniter is open. If the meter reads 120 VAC, go to 11.
11. Connect an AC voltmeter between the output side of the oven igniter and neutral. If the meter reads zero, the igniter is open. If the meter reads 120 VAC, go to 12.
12. Connect an AC voltmeter between the input side of the oven safety valve and neutral. If the meter reads zero, the wire between the oven igniter and oven safety valve is open. If the meter reads 120 VAC, go to 13.
13. Connect an AC voltmeter between the output side of the oven safety valve and neutral. If the meter reads zero, the safety valve is open. If the meter read 120 VAC, the neutral wire from the safety valve is open.
14. Check the manual shut off valve. If the valve is closed, open it. If the valve is open, go to 15.
15. Check current flow in the circuit. If less than 3.2 amps, replace the igniter. If more than 3.2 amps, go to 16.
16. Check gas pressure at a top burner. If the reading is not 4 inches on natural or 10 inches on LP, check the pressure regulator. If the pressure checks good, replace the safety valve.

Time bake

1. If the oven works in manual but not in TIME BAKE, the clock contacts or the wiring to the contacts are open.

System D:

Bake

Note: The oven circuit is electrically a series circuit.

1. Turn the selector switch to BAKE, set the thermostat to 350 degrees, and observe the oven indicator light. If the light does not glow, go to 2. If the light glows, go to 10.
2. Disconnect power, remove the storage drawer or dummy panel, and check the 5 amp fuse for continuity. If the fuse is open, check for a shorted bake igniter, broil igniter, oven indicator light, or a wire shorted to chassis. If the fuse is good, go to 3.
3. Reconnect power and connect an AC voltmeter between the input side of the fuse and neutral. If the meter reads zero, the wire from the terminal block to the fuse is open. If the meter reads 120 VAC, go to 4.
4. Disconnect power, remove back panel of the back-guard, and reconnect power.
5. Connect an AC voltmeter between terminal L of the selector switch and neutral. If the meter reads zero, the wire from the fuse to terminal L of the selector switch is open. If the meter reads 120 VAC, go to 6.
6. Connect an AC voltmeter between terminal S of the selector switch and neutral. If the meter reads zero the selector switch is defective. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the input terminal of the thermostat and neutral. If the meter reads zero, the wire from the selector switch is open. If the meter reads 120 VAC, go to 8.
8. Connect an AC voltmeter between the output terminal of the thermostat and neutral. If the meter reads zero, the thermostat is defective. If the meter reads 120 VAC, go to 9.
9. Connect an AC voltmeter between terminal F of the selector switch and neutral. If the meter reads zero, the wire to terminal F and oven indicator light is open. If the meter reads 120 VAC, the indicator light and another part in the circuit is defective. Replace the indicator light and go to 10.
10. Observe the bake igniter. If the igniter is glowing, go to 16. If the igniter is not glowing, go to 11.

11. Connect an AC voltmeter between terminal BA of the selector switch and neutral. If the meter reads zero, the selector switch is open. If the meter reads 120 VAC, go to 12.
12. Connect an AC voltmeter between the input side of the bake igniter and neutral. If the meter reads zero, the wire from terminal BA to the igniter is open. If the meter reads 120 VAC, go to 13.
13. Connect an AC voltmeter between the output side of the bake igniter and neutral. If the meter reads zero, the igniter is open. If the meter reads 120 VAC, go to 14.
14. Connect an AC voltmeter between the input of the bake side of the oven safety valve and neutral. If the meter reads zero, the wire between the oven igniter and oven safety valve is open. If the meter reads 120 VAC, go to 15.
15. Connect an AC voltmeter between the output of the bake side of the oven safety valve and neutral. If the meter reads zero, the safety valve is open. If the meter reads 120 VAC, the neutral wire from the safety valve to neutral is open.
16. Check the manual shut off valve. If the valve is closed, open it. If the valve is open, go to 17.
17. Check current flow in the circuit. If less than 3.2 amps, replace the igniter. If more than 3.2 amps, go to 18.
18. Check gas pressure at a top burner. If the reading is not 4 inches on natural or 10 inches on LP, check the pressure regulator. If the pressure checks good, replace the safety valve.

Time bake

1. If the oven works in BAKE, but not in TIME BAKE, the clock contacts or the selector switch contacts T1 to S are open.

Broil

1. If the oven works in BAKE but not in BROIL, observe the broil igniter. If the igniter is glowing, go to 8. If the igniter is not glowing, go to 2.
2. Disconnect power, remove back panel of the back-guard, and reconnect power.
3. Connect an AC voltmeter between terminal BR of the selector switch and neutral. If the meter reads zero, the selector switch is open. If the meter reads 120 VAC, go to 4.
4. Connect an AC voltmeter between the input side of the

broil igniter and neutral. If the meter reads zero, the wire from terminal BR to the igniter is open. If the meter reads 120 VAC, go to 5.

5. Connect an AC voltmeter between the output side of the broil igniter and neutral. If the meter reads zero, the igniter is open. If the meter reads 120 VAC, go to 6.
6. Connect an AC voltmeter between the input side of the broil of the safety valve and neutral. If the meter reads zero, the wire between the broil igniter and safety valve is open. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the output side of the broil side of the safety valve and neutral. If the meter reads zero, the safety valve is open. If the meter read 120 VAC, the neutral wire from the safety valve is open.
8. Check current flow in the circuit. If less than 3.2 amps, replace the igniter. If more than 3.2 amps, replace the safety valve.
7. Disconnect power, remove back panel of the back-guard, and reconnect power.
8. Connect an AC voltmeter between the terminal S of the selector switch and neutral. If the meter reads zero, the wire from the latch switch to terminal S of the selector switch is open. If the meter reads 120 VAC, go to 9.
9. Connect an AC voltmeter between terminal BA of the selector switch and neutral. If the meter reads zero, the selector switch is open. If the meter reads 120 VAC, go to 10.
10. Connect an AC voltmeter between the input side of the bake thermostat and neutral. If the meter reads zero, the wire from the selector switch to the thermostat and oven indicator light is open. If the meter reads 120 VAC, the indicator light and another part in the circuit is defective. Replace the indicator light and go to 11.
11. Observe the oven igniter. If the igniter is glowing, go to 19. If the igniter is not glowing, go to 12.

System E:

Bake

Note: The oven circuit is electrically a series circuit.

1. Turn the selector switch to BAKE, set the thermostat to 350 degrees, and observe the oven indicator light. If the light does not glow, go to 2. If the light glows, go to 11.
2. Disconnect power, remove the storage drawer or dummy panel, and check the 5 amp fuse for continuity. If the fuse is open, check for a shorted bake igniter, broil igniter, oven indicator light, clean indicator light, lock indicator light, or a wire shorted to chassis. If the fuse is good, go to 3.
3. Reconnect power and connect an AC voltmeter between the input side of the fuse and neutral. If the meter reads zero, the wire from the terminal block to the fuse is open. If the meter reads 120 VAC, go to 4.
4. Disconnect power, remove the latch mechanism cover, and reconnect power.
5. Connect an AC voltmeter between terminal COM of the latch switch and neutral. If the meter reads zero, the wire from the fuse to terminal COM of the latch switch is open. If the meter reads 120 VAC, go to 6.
6. Connect an AC voltmeter between terminal NC of the latch switch and neutral. If the meter reads zero with the door unlocked, the latch switch is defective. If the meter reads 120 VAC, go to 7.
12. Connect an AC voltmeter between the output side of the bake thermostat and neutral. If the meter reads zero, the thermostat is open. If the meter reads 120 VAC, go to 13.
13. Connect an AC voltmeter between terminal B of the selector switch and neutral. If the meter reads zero, the wire from the thermostat to terminal B of the selector switch is open. If the meter reads 120 VAC, go to 14.
14. Connect an AC voltmeter between terminal F of the selector switch and neutral. If the meter reads zero, the selector switch is open. If the meter reads 120 VAC, go to 15.
15. Connect an AC voltmeter between the input side of the bake igniter and neutral. If the meter reads zero, the wire from terminal F to the igniter is open. If the meter reads 120 VAC, go to 16.
16. Connect an AC voltmeter between the output side of the bake igniter and neutral. If the meter reads zero, the igniter is open. If the meter reads 120 VAC, go to 17.
17. Connect an AC voltmeter between the input of the bake side of the oven safety valve and neutral. If the meter reads zero, the wire between the bake igniter and oven safety valve is open. If the meter reads 120 VAC, go to 18.
18. Connect an AC voltmeter between the output of the bake side of the oven safety valve and neutral. If the meter reads zero, the safety valve is open. If the meter read 120 VAC, the neutral wire from the safety valve is open.

19. Check the manual shut off valve. If the valve is closed, open it. If the valve is open, go to 20.
20. Check current flow in the circuit. If less than 3.2 amps, replace the igniter. If more than 3.2 amps, go to 21.
21. Check gas pressure at a top burner. If the reading is not 4 inches on natural or 10 inches on LP, check the pressure regulator. If the pressure checks good, replace the safety valve.

Time bake

If the oven works in BAKE, but not in TIME BAKE the clock contacts or the selector switch contacts S to T1 are open.

Broil

1. If the oven works in BAKE but not in BROIL, observe the broil igniter. If the igniter is glowing, go to 8. If the igniter is not glowing, go to 2.
2. Disconnect power, remove back panel of the back-guard, and reconnect power.
3. Connect an AC voltmeter between terminal BR of the selector switch and neutral. If the meter reads zero, the selector switch is open. If the meter reads 120 VAC, go to 4.
4. Connect an AC voltmeter between the input side of the broil igniter and neutral. If the meter reads zero, the wire from terminal BR to the igniter is open. If the meter reads 120 VAC, go to 5.
5. Connect an AC voltmeter between the output side of the broil igniter and neutral. If the meter reads zero, the igniter is open. If the meter reads 120 VAC, go to 6.
6. Connect an AC voltmeter between the input side of the broil side of the safety valve and neutral. If the meter reads zero, the wire between the broil igniter and safety valve is open. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the output side of the broil side of the safety valve and neutral. If the meter reads zero, the safety valve is open. If the meter reads 120 VAC, the neutral wire from the safety valve is open.
8. Check current flow in the circuit. If less than 3.2 amps, replace the broil igniter. If more than 3.2 amps, replace the safety valve.

Clean

1. If the oven works in BAKE but not in CLEAN, observe the clean indicator light. If the light is glowing, go to 8.

If the light is not glowing, go to 2.

2. Disconnect power, remove the latch mechanism cover, and reconnect power.
3. Connect an AC voltmeter between terminal NO of the latch switch and neutral. If the meter reads zero, with the door locked the latch switch is defective. If the meter reads 120 VAC, go to 4.
4. Disconnect power, remove back panel of the back-guard, and reconnect power.
5. Connect an AC voltmeter between the terminal 1 of the clock and neutral. If the meter reads zero, the wire from the latch switch to terminal 1 of the clock is open. If the meter reads 120 VAC, go to 6.
6. Connect an AC voltmeter between the terminal 2 of the clock and neutral. If the meter reads zero, the clock contacts are open. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the input side of the clean thermostat and neutral. If the meter reads zero, the wire from the clock to the thermostat and clean indicator light is open. If the meter reads 120 VAC, the indicator light and another part in the circuit is defective. Replace the indicator light and go to 8.
8. Connect an AC voltmeter between the output side of the clean thermostat and neutral. If the meter reads zero, the thermostat is open. If the meter reads 120 VAC, go to 9.
9. Connect an AC voltmeter between terminal CL of the selector switch and neutral. If the meter reads zero, the wire from the thermostat to terminal CL of the selector switch is open. If the meter reads 120 VAC, go to 10.
10. Connect an AC voltmeter between terminal F of the selector switch and neutral. If the meter reads zero, the selector switch is open.

Note: All other components are used in Bake. If the clean cycle still does not operate, refer to Bake testing.

Problem: Lock indicator light not coming on above 600 degrees.

1. Connect an AC voltmeter between the input side of the lock contacts of the clean thermostat and neutral. If the meter reads zero, the wire from the latch switch terminal NO is open. If the meter reads 120 VAC, go to 2.
2. Connect an AC voltmeter between the output side of the lock contacts of the clean thermostat and neutral. If the meter reads zero, the the lock contacts of the

clean thermostat is open. If the meter reads 120 VAC, lock light is defective.

Problem: Oven is off in calibration.

All Systems:

1. Turn the oven temperature to 350 degrees and allow the oven to cycle.
2. Check the temperature in the center of the oven at the highest point of the cycle and the lowest point of the cycle. Average the two temperatures.
3. If the average temperature differs over 10 degrees from the dial setting, calibrate the oven by using the adjustable dial or skirt. To adjust, loosen the two screws holding the center of the dial or skirt. With the skirt or dial installed on the thermostat, turn the skirt or dial to match the average temperature in the oven and re-tighten the screws.

Problem: Oven burner flame does not cycle off.

Systems A, B:

1. Turn the thermostat to 300 degrees and observe the oven pilot flame after the oven temperature is above 350 degrees.
2. If the pilot flame cycles back to a standing pilot, replace the safety valve.
3. If the pilot flame does not cycle back, test the gas pressure to the range.
4. If the gas pressure is correct, replace the thermostat.

Systems C, D, E:

1. Remove electrical power from the range. If the burner does not cycle off, the safety valve is defective. If the burner cycles off, go to 2.
2. Check polarity to the range. If the polarity is incorrect, check the range wiring for a short to chassis. If the polarity is correct, go to 3.
3. Allow the oven to heat to 300 degrees, disconnect power, and open the backguard to obtain access to the bake thermostat. Set the thermostat to 200 degrees and remove the wires from the thermostat.
4. Connect an ohmmeter across the terminals of the thermostat. If the meter reads continuity, the thermostat is defective. If the meter reads infinity, the range is miswired or the wiring from the thermostat is shorted.

Note: On self clean models the selector switch may also be shorted.

Problem: Bake or broil burner sooting.

All Systems:

1. Check if the range is set up for the type of gas supply to the range.
2. Check air adjustment on the oven burner.
3. Check gas pressure.
4. Check the burner spud for a straight injection of gas into the bake or broil burner. If the valve spud is tipped, the burner will not draw in proper air.

Note: Once the burner is sooted, it should be replaced, because it is almost impossible to clean completely.

CLOCK

Problem: Clock does not run.

All Systems:

1. Check for the shaft rubbing the control panel glass.
2. Check for line to neutral voltage at the clock terminals. If voltage is present, replace the clock. If voltage is not present, check wiring to clock.

Problem: Noisy clock motor.

All Systems:

1. Remove the clock from the range and test it on the bench.
2. If the clock is still noisy, replace the clock.
3. If the clock is not noisy on the bench, check the range for any metal that is near the magnetic field of the clock.

OVEN LIGHT

Problem: Oven light does not work.

1. Remove oven light bulb and test it for continuity. If the meter reads infinity, the bulb is defective. If the meter shows continuity, reinstall the light bulb and go to 2.
2. Disconnect power, open the backguard to obtain access to the light switch (make sure none of the wire terminals are shorted to chassis), and reconnect power.

3. Connect an AC voltmeter between the input terminal of the light switch and neutral. If the meter reads zero, the wire from the terminal block to the switch is open. If the meter reads 120 VAC, go to 4.
4. Turn the switch on and connect an AC voltmeter between the output terminal of the light switch and neutral. If the meter reads zero, the switch is open. If the meter reads 120 VAC, go to 5.
5. Disconnect power, remove the back panel to obtain access to the light socket, and reconnect power.
6. Connect an AC voltmeter between the center terminal of the light socket and neutral. If the meter reads zero, the wire from the light switch to the socket is open. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the outside terminal of the light socket and neutral. If the meter reads zero, the socket is defective. If the meter reads 120 VAC, the neutral line is open.

WORK LIGHT

Problem: Work light will not operate

Systems B, C, D, E:

1. Disconnect power, open the backguard to obtain access to the light switch, light bulb, and ballast, (make sure none of wiring terminals are shorted to chassis), and reconnect power.
2. Remove oven light bulb and test both filaments for continuity. If the meter reads infinity for either filament, the bulb is defective. If the meter shows continuity, reinstall the light bulb and go to 3.

Note: If the ends of the bulb are black check the ballast for a short and the range for miswiring before replacing the bulb.

3. Connect an AC voltmeter between the input terminal of the off/on section of the light switch and neutral. If the meter reads zero, the wire from the range terminal block to the switch is open. If the meter reads 120 VAC, go to 4.
4. Turn the switch on and connect an AC voltmeter between the output terminal of the off/on section of the light switch and neutral. If the meter reads zero, the switch is open. If the meter reads 120 VAC, go to 4.
5. Connect an AC voltmeter between the input terminal of

the ballast and neutral. If the meter reads zero, the wire from the switch to the ballast is open. If the meter reads 120 VAC, go to 6.

6. Connect an AC voltmeter between the output terminal of the ballast and neutral. If the meter reads zero, the ballast is open. If the meter reads 120 VAC, go to 7.
7. Connect an AC voltmeter between the input terminal of the light socket and neutral. If the meter reads zero, the wire from the ballast to the socket is open. If the meter reads 120 VAC, go to 8.
8. Connect an AC voltmeter between the input terminal of the start section of the switch and neutral. If the meter reads zero, the light socket or the wire from the light socket is open. If the meter reads 120 VAC, go to 9.
9. Connect an AC voltmeter between the output terminal of the start section of the switch and neutral. Depress the switch. If the meter reads zero, the switch socket is open. If the meter reads 120 VAC, the other light socket or the neutral wire is open.

OVEN DOOR

Problem: Oven door low on one side

All Systems:

1. Remove oven door.
2. At the end of each oven door hinge is an adjustment screw, loosen the one on the low side of the door. (See Figure F1)

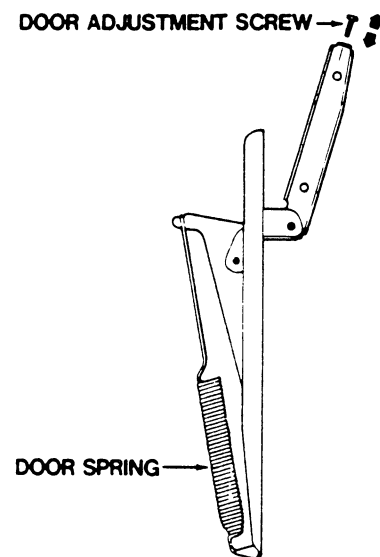


Figure F1

NOTES

WCI PARTS &
SERVICE
DIVISION