Speed Queen

A Raytheon Company

Parts and Service Manual for Stacked and Stand-Alone Drying Tumbler (30 Pound Capacity)

KEEP THIS MANUAL FOR FUTURE REFERENCE

Speed Queen
P.O. Box 990
Ripon, WI 54971-0990

Part No. M409251
10/88

REPLACEMENT PARTS INFORMATION

If replacement parts are required, contact the source from whom you purchased your tumbler or, contact Speed Queen, Shepard Street, P.O. Box 990, Ripon, Wisconsin 54971-0990, for the name and address of the nearest authorized Speed Queen parts distributor.

DOOR ASSEMBLY **430475**
(See Page 12 for parts illustration)

DOOR HANDLE **430117**
(See Page 12 for parts illustration)

LINT DRAWER GRAPHICS (Stacked Model) **430311**
(See Page 7 for parts illustration)

LINT DRAWER GRAPHICS (Stand-alone Model) **430441**
(See Page 8 for parts illustration)

MICRO DOOR AND GRAPHICS ASSEMBLY
Stacked, Right Hand **430422**
Stacked, Left Hand **430421**
Stand-alone .....
(See Page 13 for parts illustration)

MICROPROCESSOR GRAPHICS PANEL
Stacked, Lower **430114**
Stacked, Upper **430115**
Stand-alone **430440**
(See Page 13 for parts illustration)

INFORMATION CONTAINED IN THIS MANUAL IS APPLICABLE TO THESE TUMBLER MODELS.

ST32DG Stacked
ST31SG Stand-alone

© Copyright 1988 Speed Queen
All rights reserved.

IMPORTANT: Warranty is void unless drying tumbler is installed according to instructions in this manual. Compliance with minimum specifications and requirements detailed herein, and with applicable local codes is a MUST. Because of varied requirements, applicable local codes should be thoroughly understood and all pre-installation work arranged for accordingly.

Installation must also conform with American National Standard Z223.1-1984 "National Fuel Gas Code" and Standard ANSI/NFPA 70-1984 "National Electrical Code" in the U.S.A., Standards CAN1-B149.1 or CAN1-B149.2 installation codes for gas burning appliances and equipment in Canada and/or local codes.

⚠ WARNING

FAILURE TO INSTALL, MAINTAIN, AND/OR OPERATE THIS MACHINE ACCORDING TO MANUFACTURER'S INSTRUCTIONS MAY RESULT IN CONDITIONS WHICH CAN PRODUCE BODILY INJURY AND/OR PROPERTY DAMAGE.

NOTE: The WARNING and IMPORTANT instructions appearing in this manual are not meant to cover all possible conditions and situations that may occur. It must be understood that common sense, caution and carefulness are factors which CANNOT be built into this tumbler. These factors MUST BE supplied by the person(s) installing, maintaining or operating the tumbler.

Always contact your dealer, distributor, service agent or the manufacturer on any problems or conditions you do not understand.

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**

CONSIGNES DE SÉCURITÉ

Si vous sentez une odeur de gaz:
1. **Ouvrez les fenêtres**
2. **Ne touchez pas aux interrupteurs électriques**
3. **Eteignez toute flamme nue**
4. **Contactez immédiatement votre compangie de gaz**

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

CONSIGNES DE SÉCURITÉ

Il est interdit d'entreposer ou d'utiliser des liquides inflammables ou dégageant des vapeurs inflammables, à proximité de tout appareil fonctionnant au gaz.

IMPORTANT: Purchaser must consult the local gas supplier for suggested instructions to be followed if the dryer user smells gas. The gas utility instructions plus the warning note directly above must be posted in a prominent location near the dryer for customer use.

IMPORTANT
Rules For Personal Safety
(Save these instructions)

DO NOT ALLOW CHILDREN TO PLAY IN, WITH OR AROUND THIS TUMBLER. SERIOUS INJURY MAY RESULT IF A CHILD SHOULD CRAWL INSIDE AND THE TUMBLER IS STARTED. THIS IS A SAFETY RULE FOR ALL APPLIANCES.

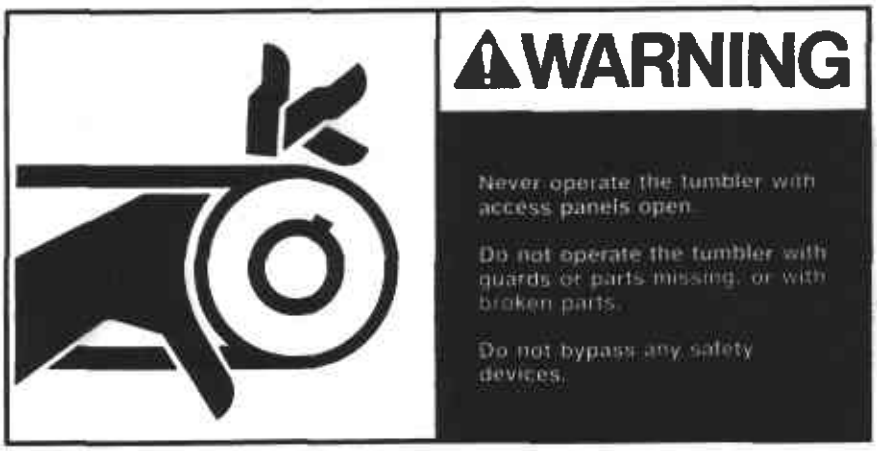
- **Read all instructions before using the tumbler.**
- **Install this tumbler according to these installation instructions. All connections for gas supply, electrical power and grounding must comply with local codes and be made by licensed personnel when required.**
- **To minimize the possibility of electrical shock, make sure the tumbler has been properly grounded in accordance with these installation instructions.**
- **Because of hazards under certain conditions DO NOT USE an extension cord.**
- **ALWAYS disconnect the electrical power to the tumbler before servicing.**
- **To prevent damage which may result in fire or shock hazard, DO NOT expose this tumbler to rain or excessive moisture.**
- **Should your tumbler require service, DO NOT attempt to repair or replace any part or parts of your tumbler. All servicing should be referred to a qualified serviceman.**
- **DO NOT reach into the tumbler if the cylinder is revolving.**
- **Before this tumbler is removed from service or discarded, remove the door to the drying compartment.**
- **Store laundry aids, dry cleaning solvents and disinfectants out of the reach of children (preferably in a locked cabinet) to help prevent poisoning or chemical burns.**
- **DO NOT TUMBLE fiber glass curtains and draperies unless the label says it can be done. If they are dried, wipe out the cylinder with a damp cloth to remove particles of fiber glass.**

- **TO AVOID CREATING A FIRE, SPONTANEOUS COMBUSTION OR EXPLOSION HAZARD:**
  - **KEEP APPLIANCE AREA CLEAN AND FREE FROM COMBUSTIBLE MATERIALS.**
  - **Towels or garments heavily soiled with a cooking residue, machine oils or grease, must be thoroughly washed in hot water using an extra amount of strong heavy duty detergent and a long wash cycle before drying.**
  - **Remove laundry immediately after tumbler stops.**
  - **DO NOT *place anything on top of* the tumbler or drape items over the front of the tumbler.**
  - **DO NOT use flammable dry cleaning solvents, gasoline, kerosene or other flammable cleaners in or near the tumbler.**
  - **DO NOT put fabrics treated with flammable cleaners into the tumbler until they have been thoroughly air dried and then hand washed.**
  - **DO NOT put plastics, anything containing wax or chemicals such as in mops and cleaning cloths, or anything drycleaned at home with a drycleaning solvent in the tumbler.**
  - **DO NOT USE HEAT for drying articles containing foam rubber of similarly textured rubberlike materials.**
- **ALWAYS clean the lint filter daily. A layer of lint in the filter reduces drying efficency and prolongs drying time.**
- **ALWAYS read and follow manufacturer's instructions on packages of laundry and cleaning aids. Heed all warnings or precautions.**

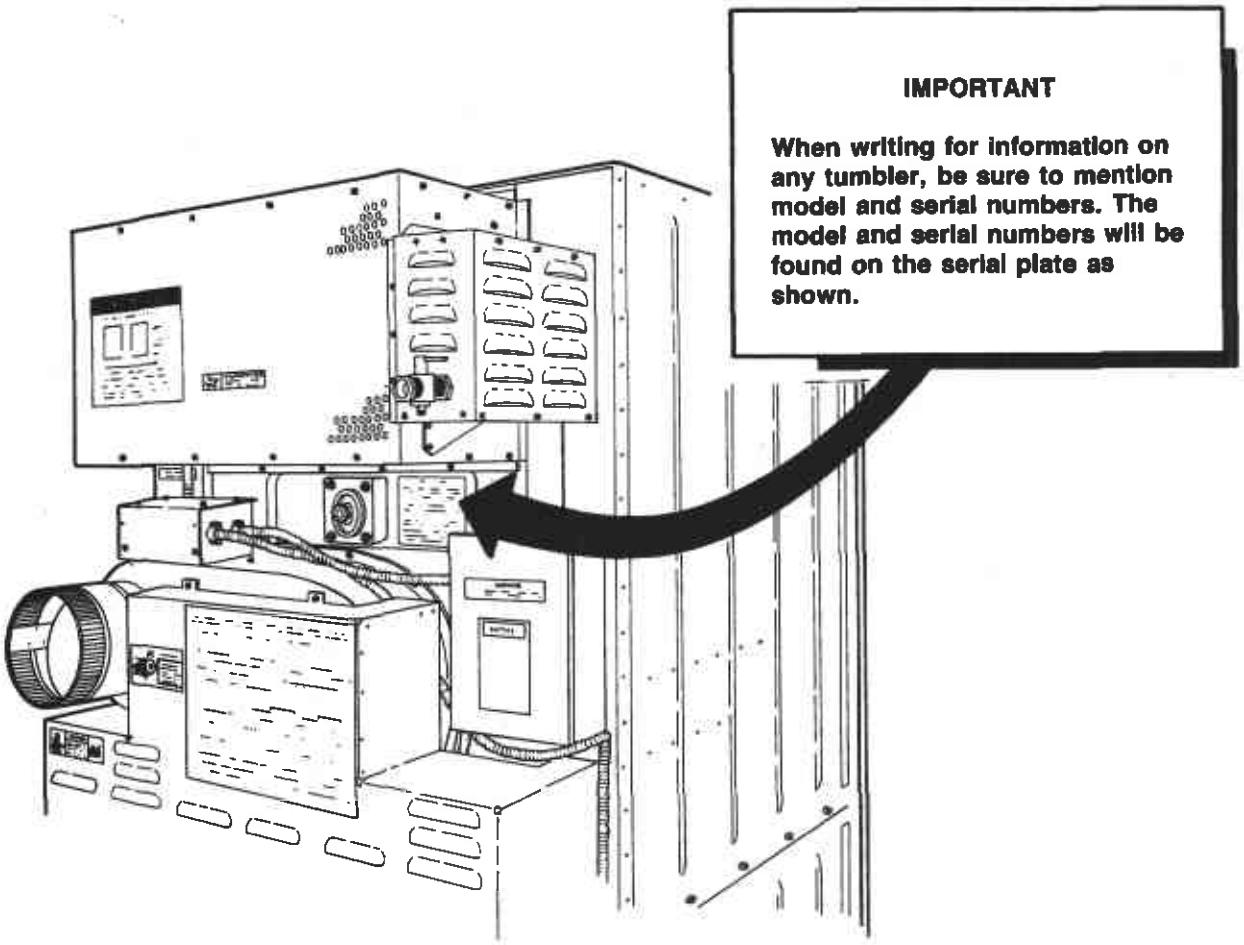
ALWAYS FOLLOW THE FABRIC CARE INSTRUCTIONS SUPPLIED BY THE GARMENT MANUFACTURER.

WARNING

Install lockable door(s) to prevent public access to rear of tumblers.



SERIAL PLATE LOCATION



IMPORTANT

When writing for information on any tumbler, be sure to mention model and serial numbers. The model and serial numbers will be found on the serial plate as shown.

TABLE OF CONTENTS

Replacement Parts Information ..... Inside Cover
Nameplate Information ..... Inside Cover
Important, Rules For Personal Safety 2
Serial Plate Location 4

SECTION I – Parts

Front Panels and Top – Stacked Model 7
Front Panels and Top – Stand-alone Model 8
Cabinet Panels and Supports – Stacked Model, Upper 9
Cabinet Panels and Supports – Stacked Model, Lower 10
Cabinet Panels and Supports – Stand-alone Model 11
Loading Door and Switch Assembly 12
Microprocessor 13
Coin Meters – Single and Dual 14
Coin Drop and Vault 15
Cylinder and Trunnion Assembly 16
Recirculating Ducts and Airflow Switch 17
Fan and Housing Assembly 18
Motor and Guards 19
Stove and Burner Assembly 20
Gas Valve Mounting Brackets and Covers 21
Gas Valve Assembly 22
Junction Box Assembly 23
Wire Harnesses – Stacked Model 24
Wire Harnesses – Stand-alone Model 25
Decals 26, 27

SECTION II – Service Procedures

1. Introduction 29
2. Loading Door Assembly 29
3. Door Hinge 30
4. Door Bar 30
5. Front Panel 30
6. Door Switch 32
7. Service Soon Light 32
8. Microprocessor 32
9. Fuse and Fuse Holder Assembly 32
10. Coin Drop Assembly 34
11. Lint Screen 34
12. Lint Drawer Seal 34
13. Lint Drawer Switch 34
14. Cylinder Rollers 34
15. Cylinder Belt 34
16. Cylinder Idler 36
17. Cylinder and Idler Assembly 36
18. Trunnion Bearing Assembly 36
19. Trunnion Shaft Assembly 36
20. Cylinder Seal 37
21. Roller Shaft 38
22. Air Duct Roller Support Assembly 38
23. Air Duct Roller Support Seal 38
24. Airflow Switch 39
25. Stove High Limit Thermostat, Reset Thermostat and Step Down Thermostat 39
26. Burner System Components 40
27. Temperature Sensor 42
28. Cabinet High Limit Thermostat 42
29. Latch Relays 42
30. Belt Guard and Belt Guard Switch 43
31. Drive Belt 43
32. Drive Idler 44
33. Fan 44
34. Fan Bearing, Shaft and Housing Assembly 45
35. Motor 46
36. Coin Vault 46
37. Jackshaft and Jackshaft Bearings 47

SECTION III – Adjustments

38. Leveling Legs 50
39. Main Gas Burner Air Shutter 50
40. Airflow Switch 50
41. Cylinder Door Switch 51
42. Cylinder Door Strike 51
43. Belt Guard Switch 51
44. Lint Drawer Switch 52
45. Drive Belt Tension 52
46. Cylinder Belt Tension 52

SECTION IV – Service Helps

47. Motor Does Not Start 53
48. Motor Overload Protector Cycles Repeatedly 54
49. Motor Runs But Cylinder Does Not Turn 54
50. Motor Does Not Stop 54
51. Burner Does Not Ignite 55
52. Burner Ignites and Goes Out Repeatedly 56
53. Burner Repeatedly Cycles Into Low Fire 56
54. Burner Does Not Shut Off 57
55. Clothes Do Not Dry 57
56. Tumbler Overheating 58
57. Burners Not Burning Properly 58
58. Cylinder Door Opens During Operation 58

TABLE OF CONTENTS (CONTINUED)

SECTION V – Troubleshooting

59. Tumbler Does Not Start 59
60. Cylinder Turns But No Heat 60
61. Service Soon Light 63
62. Start Light Does Not Come On 64
63. Door Open Light On? 65
64. Unit In Low Fire 67
65. Temperature Sensor Testing 67
66. Normal Operation of Latch Relays 69

SECTION VI – Microprocessor Diagnostic Instructions

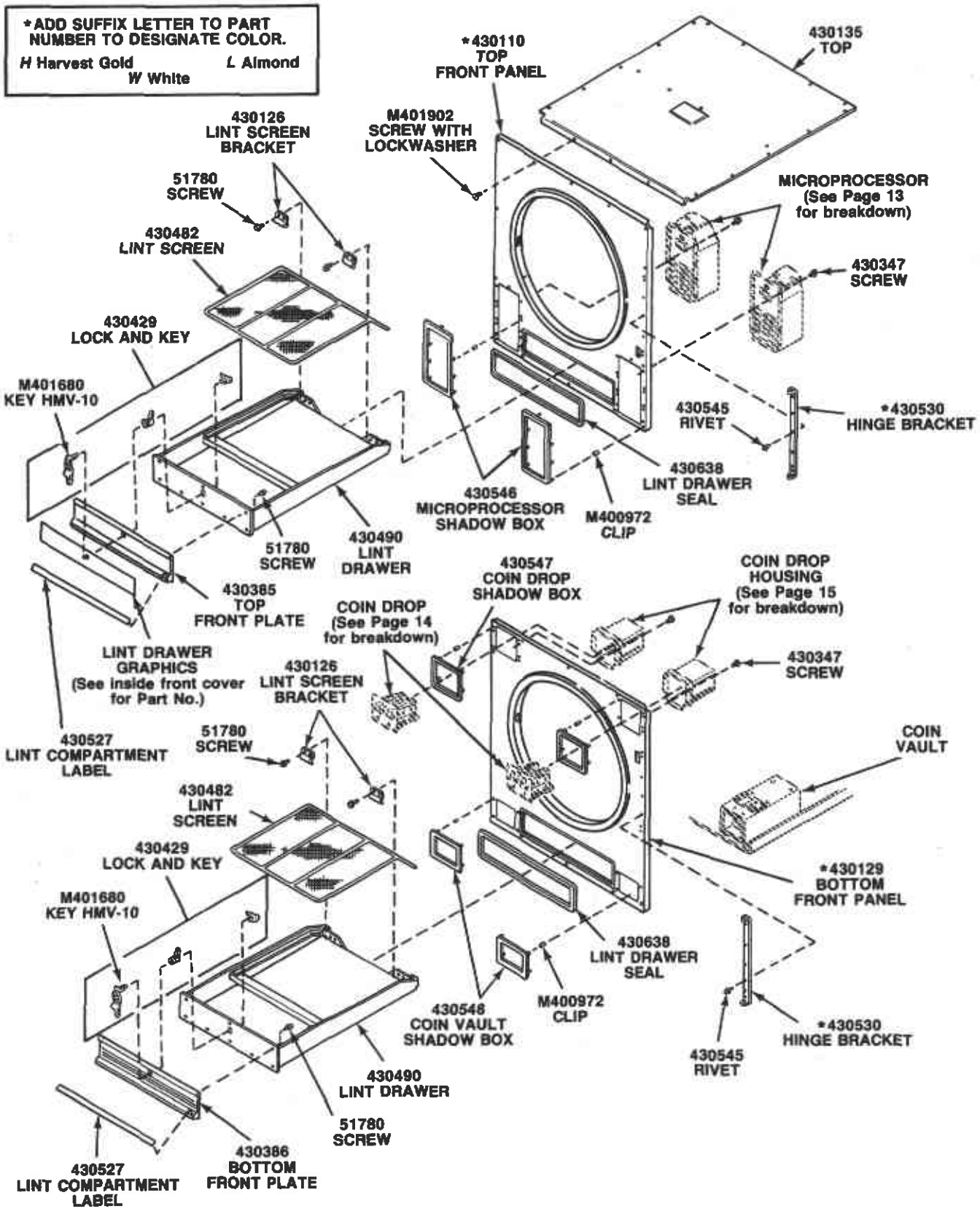
67. Diagnostic Cycle 70
68. Diagnostic Mode 71

SECTION VII – Gas Flow and Gas Valve Operation

69. Ignition System Features 72

SECTION VIII – Special Tools 74

SECTION I
Parts

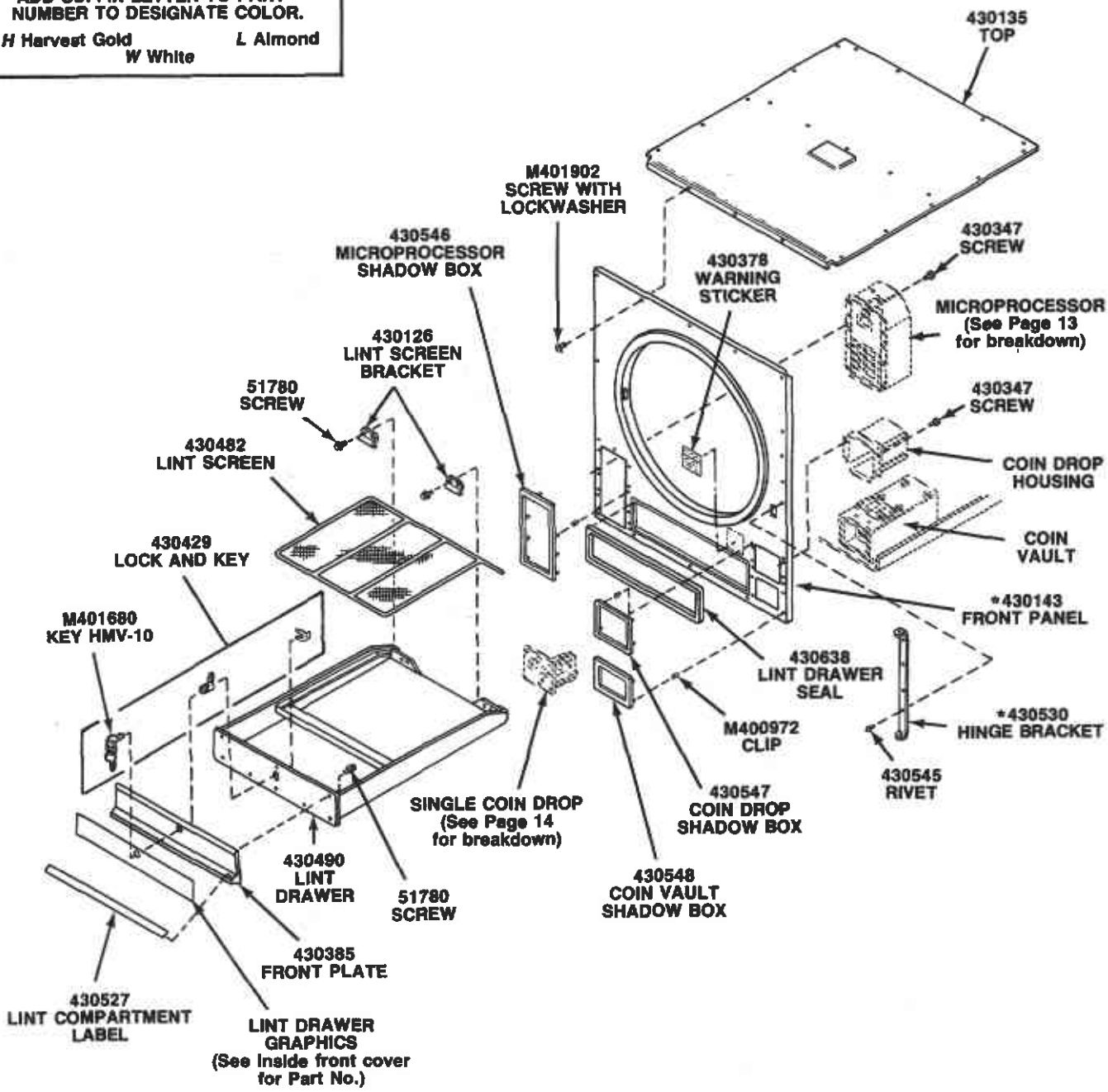


*ASTERISK INDICATES PAINTED PART

FRONT PANELS AND TOP – STACKED MODEL

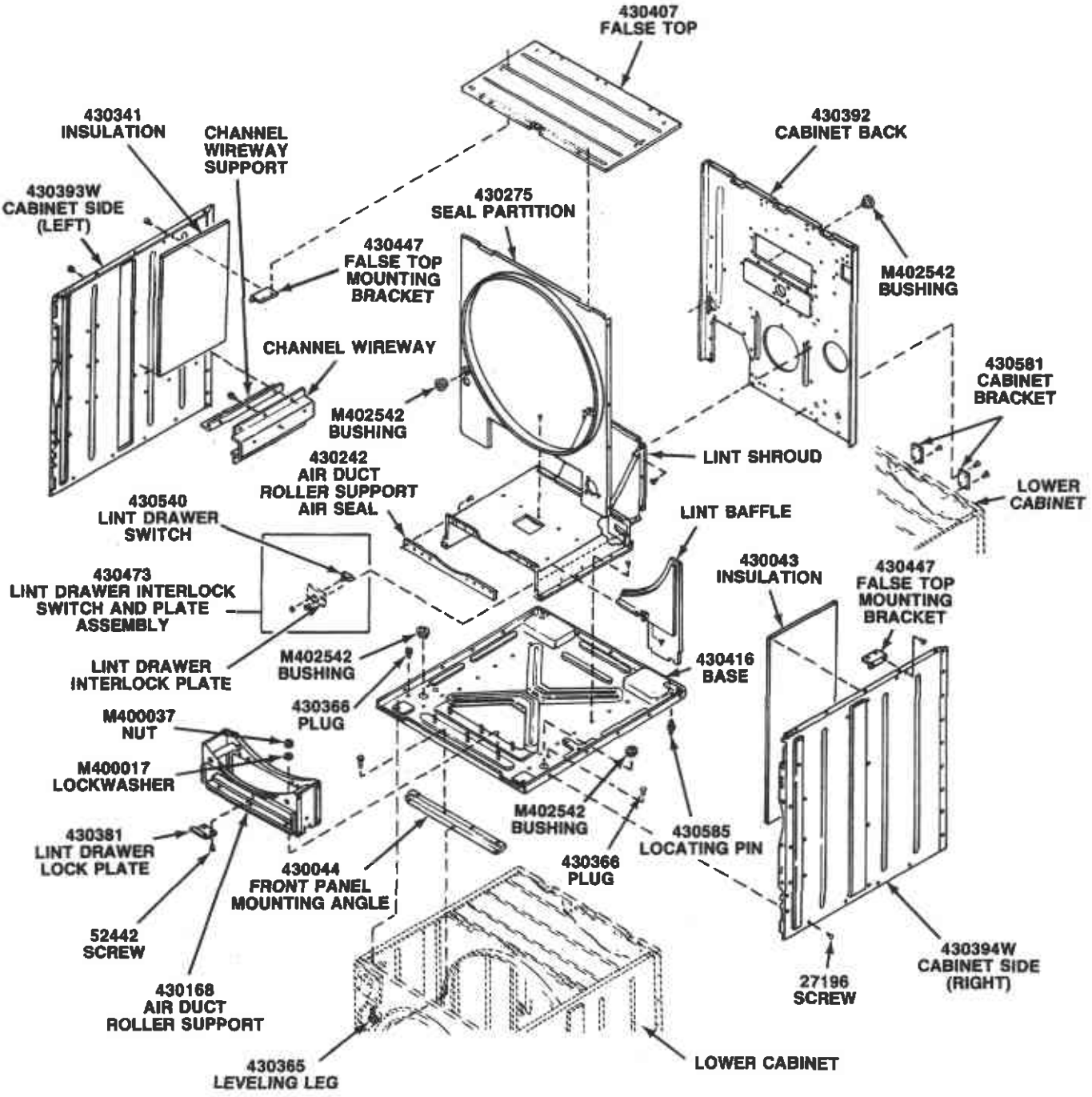
*ADD SUFFIX LETTER TO PART NUMBER TO DESIGNATE COLOR.

H Harvest Gold *L* Almond
W White



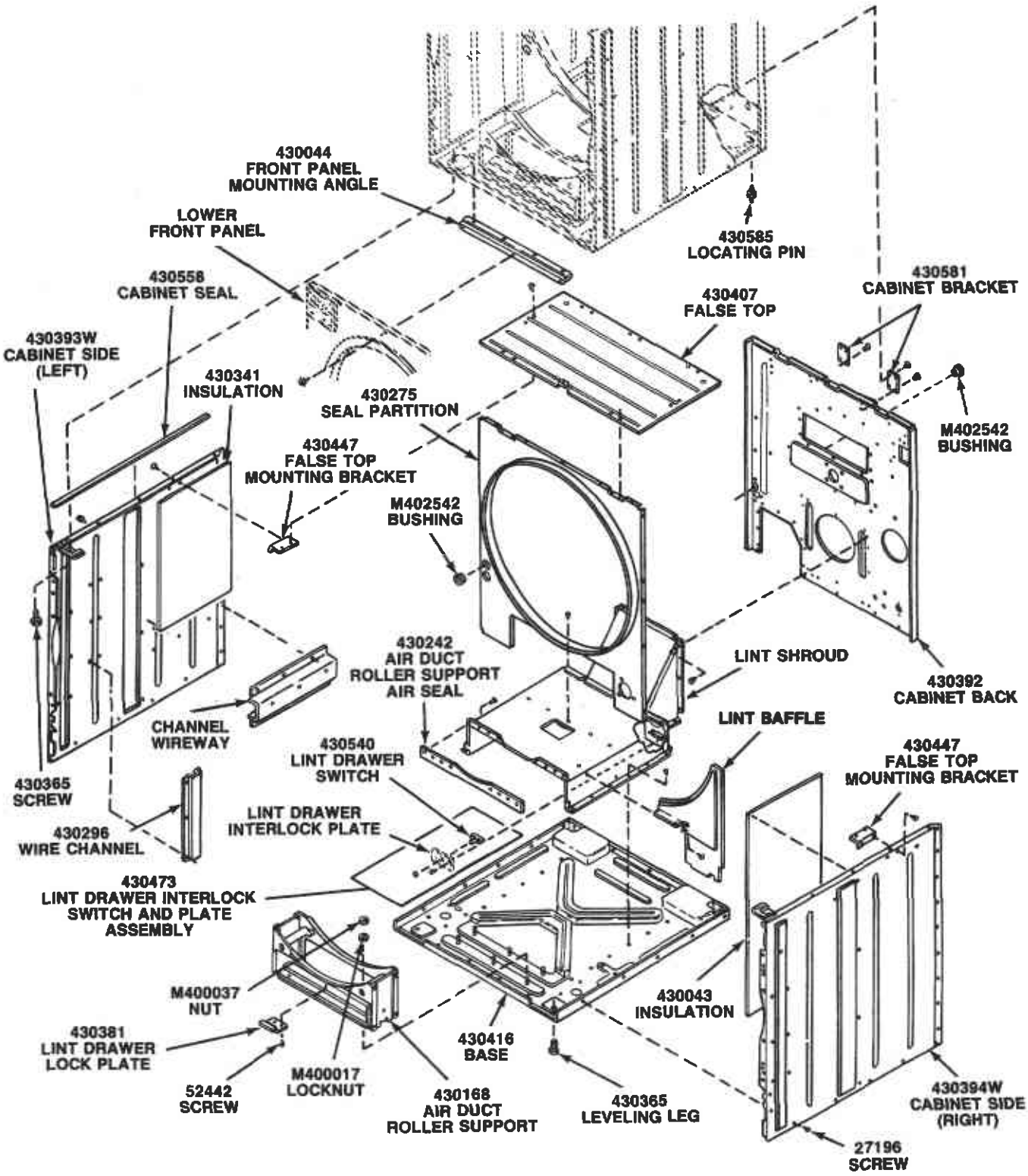
*ASTERISK INDICATES PAINTED PART

FRONT PANEL AND TOP – STAND-ALONE MODEL



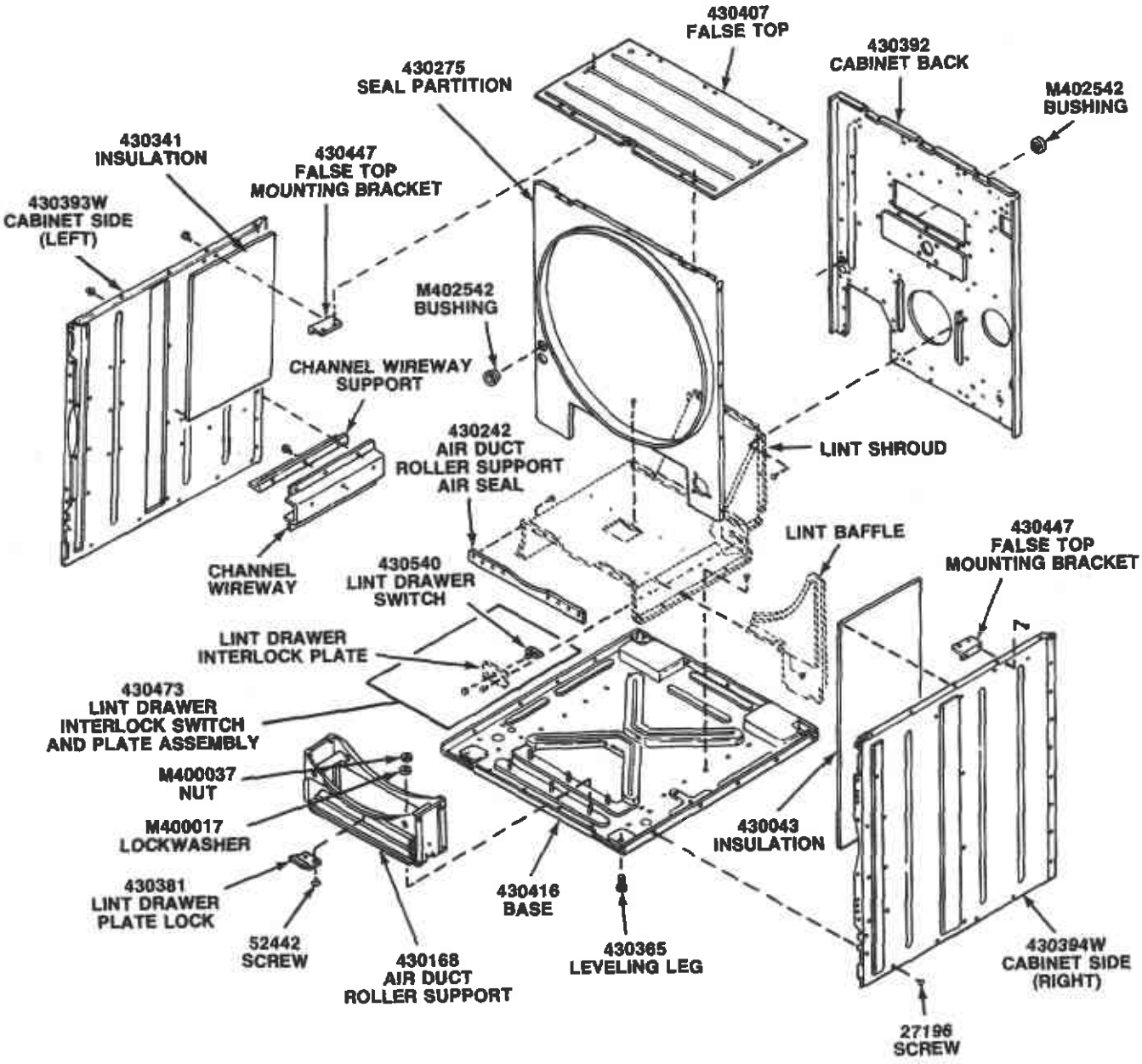
*ASTERISK INDICATES PAINTED PART

CABINET PANELS AND SUPPORTS
STACKED MODEL (UPPER)



*ASTERISK INDICATES PAINTED PART

CABINET PANELS AND SUPPORTS
STACKED MODEL (LOWER)

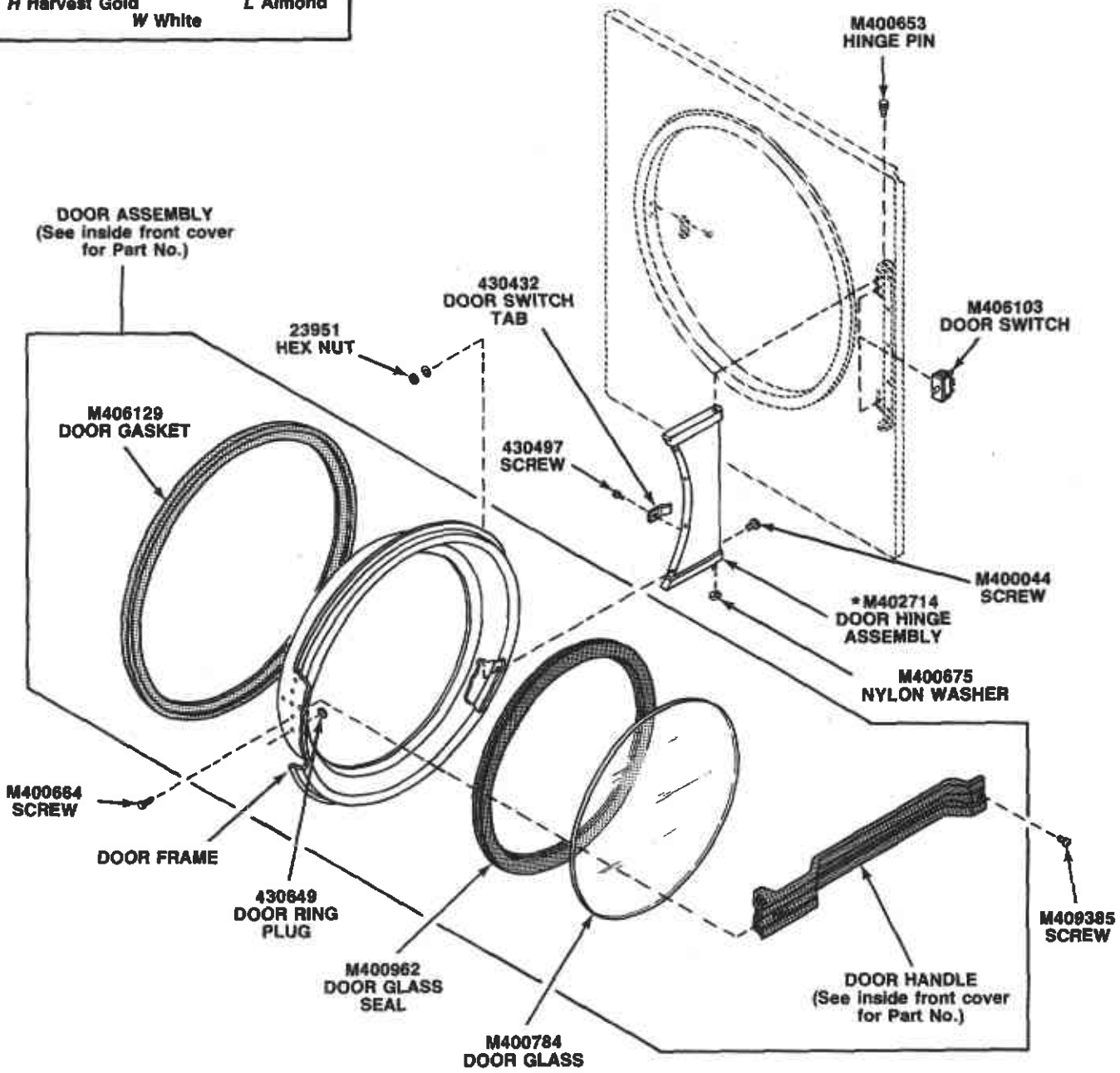


*ASTERISK INDICATES PAINTED PART

CABINET PANELS AND SUPPORTS
STAND-ALONE MODEL

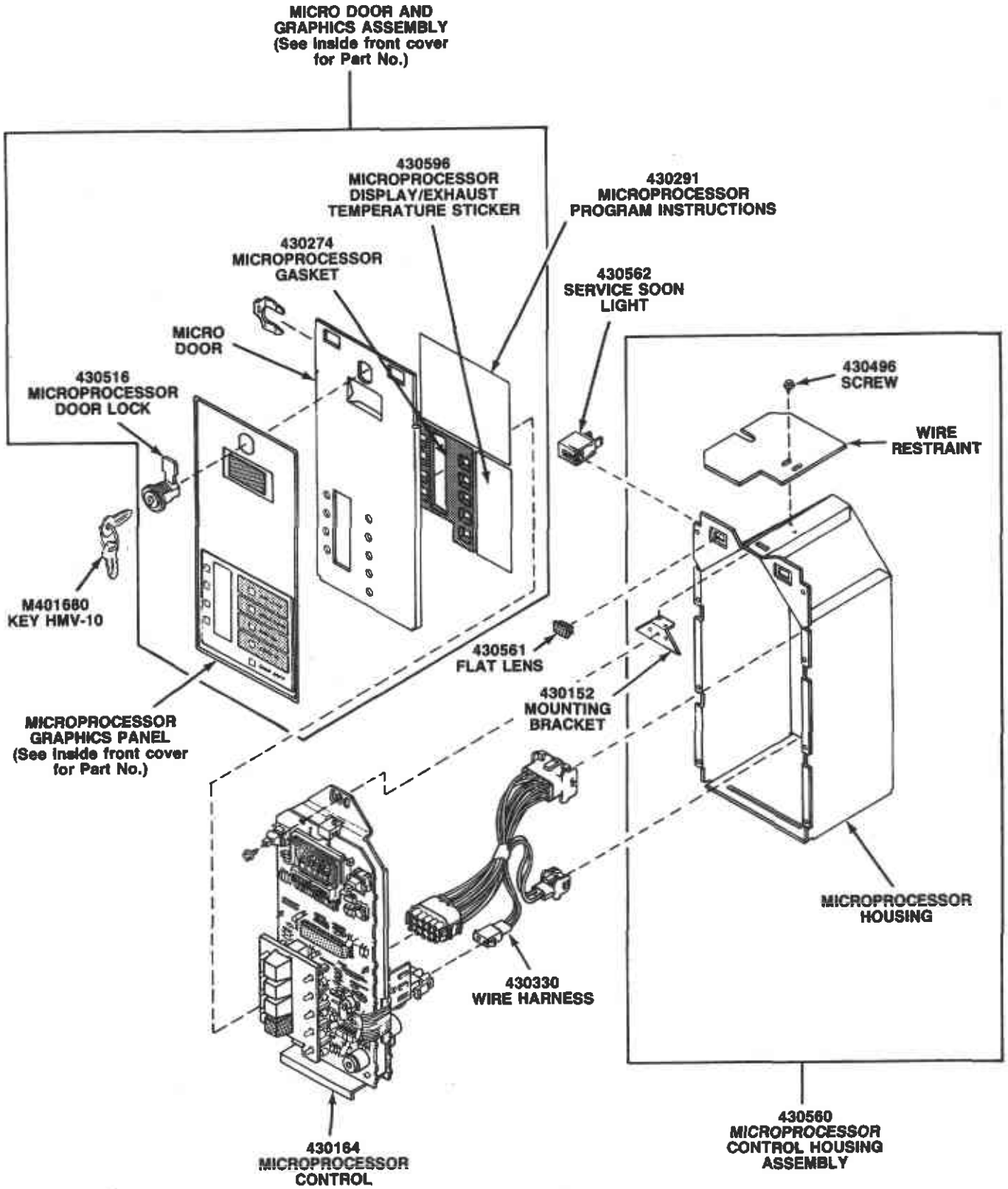
*ADD SUFFIX LETTER TO PART NUMBER TO DESIGNATE COLOR.

H Harvest Gold *L* Almond
W White

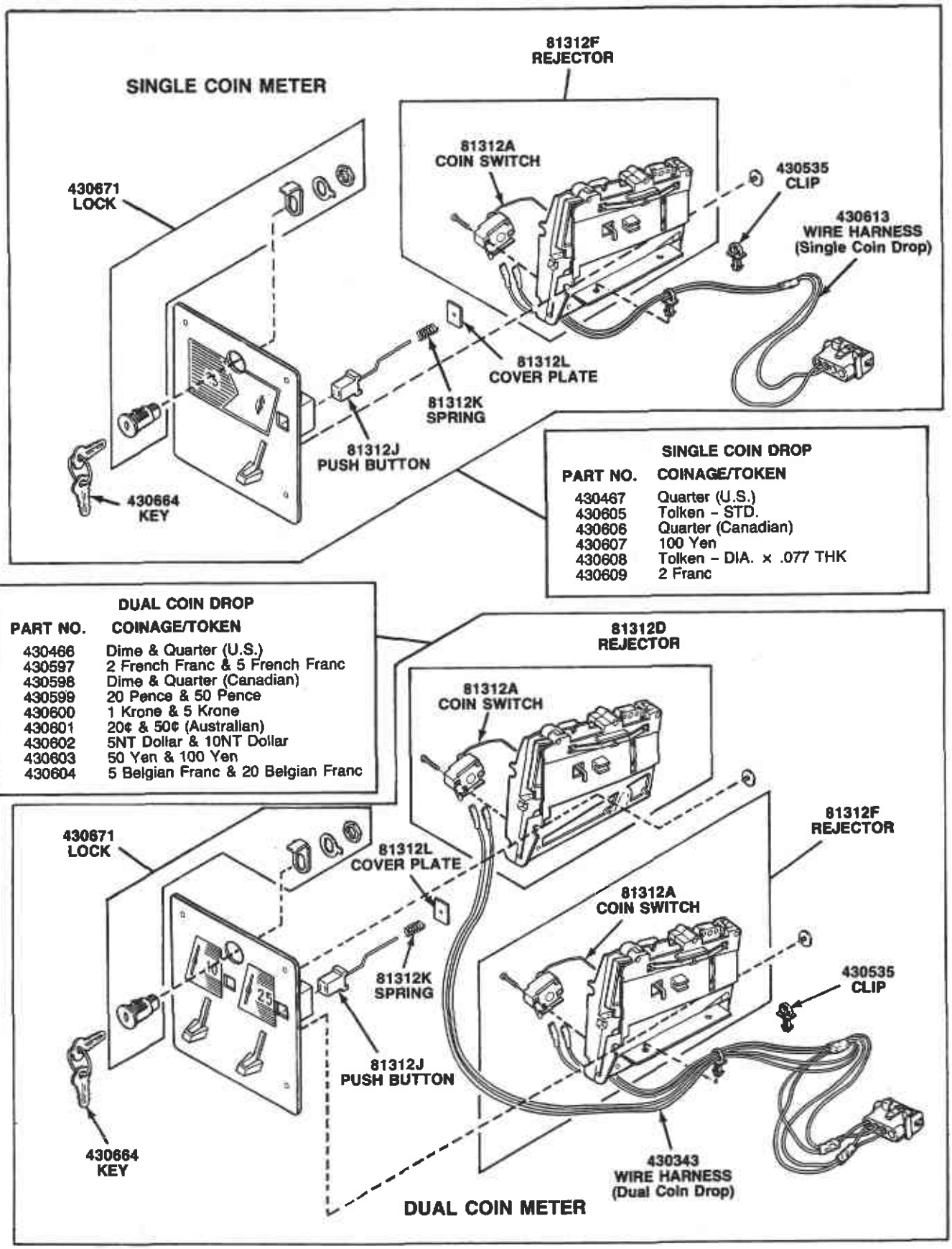


*ASTERISK INDICATES PAINTED PART

LOADING DOOR AND SWITCH ASSEMBLY



MICROPROCESSOR



SINGLE COIN DROP

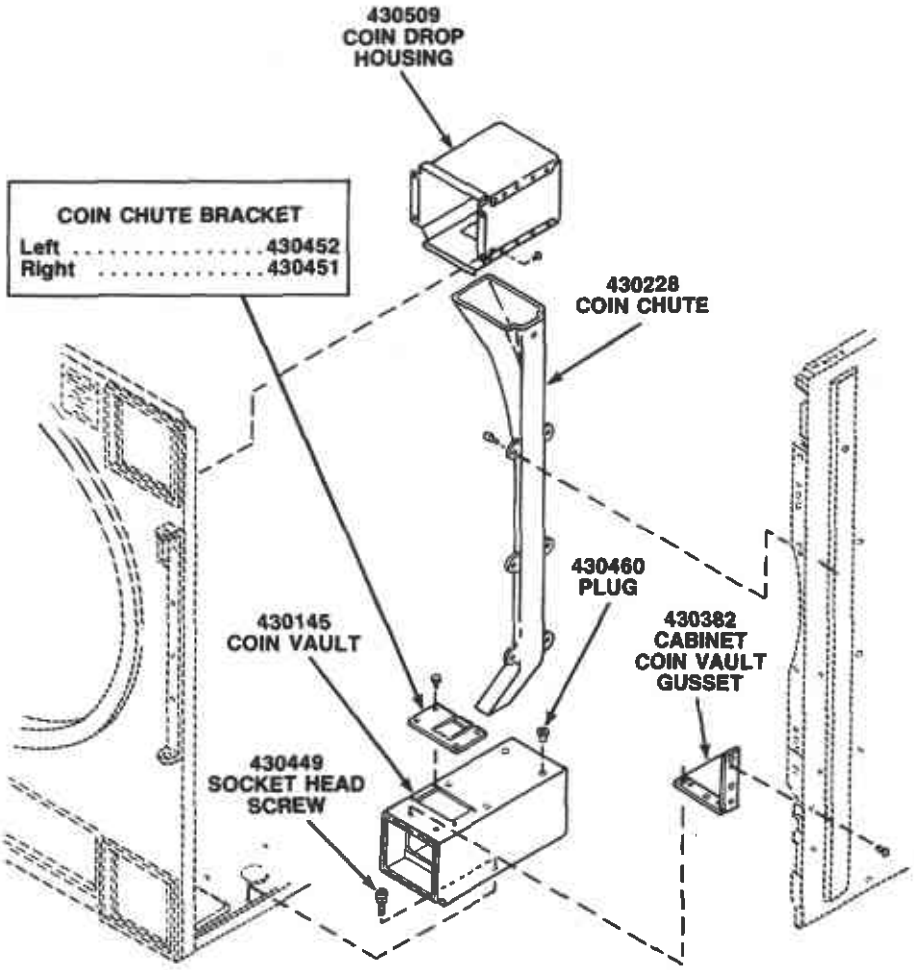
PART NO.	COINAGE/TOKEN
430467	Quarter (U.S.)
430605	Token - STD.
430606	Quarter (Canadian)
430607	100 Yen
430608	Token - DIA. x .077 THK
430609	2 Franc

DUAL COIN DROP

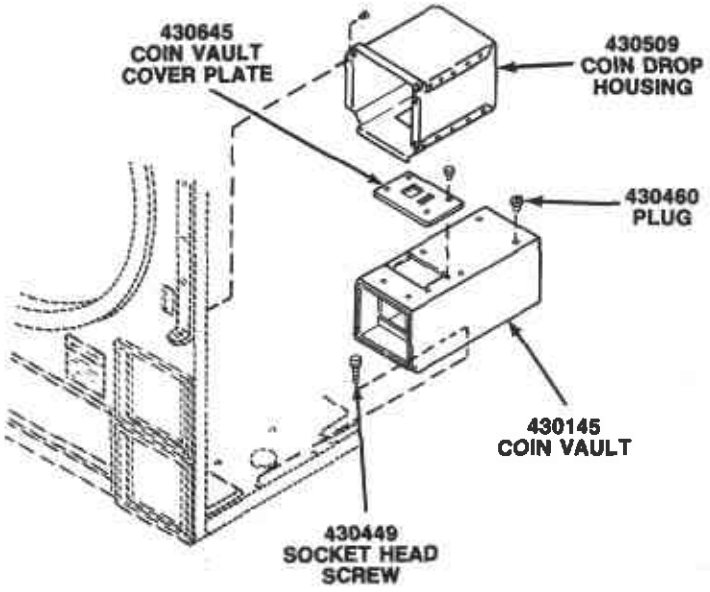
PART NO.	COINAGE/TOKEN
430466	Dime & Quarter (U.S.)
430597	2 French Franc & 5 French Franc
430598	Dime & Quarter (Canadian)
430599	20 Pence & 50 Pence
430600	1 Krone & 5 Krone
430601	20¢ & 50¢ (Australian)
430602	5NT Dollar & 10NT Dollar
430603	50 Yen & 100 Yen
430604	5 Belgian Franc & 20 Belgian Franc

COIN METERS
SINGLE AND DUAL

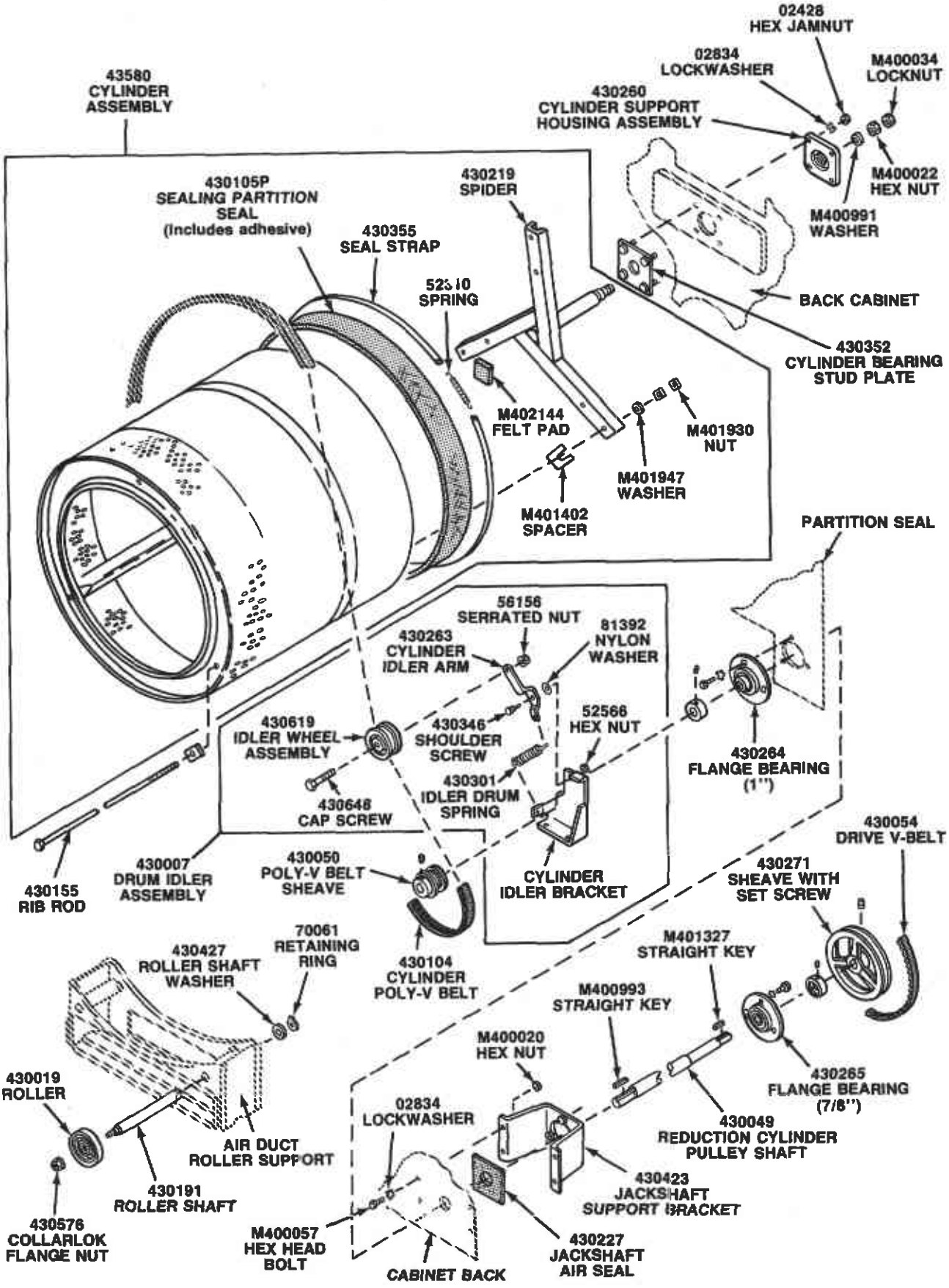
STACKED MODEL



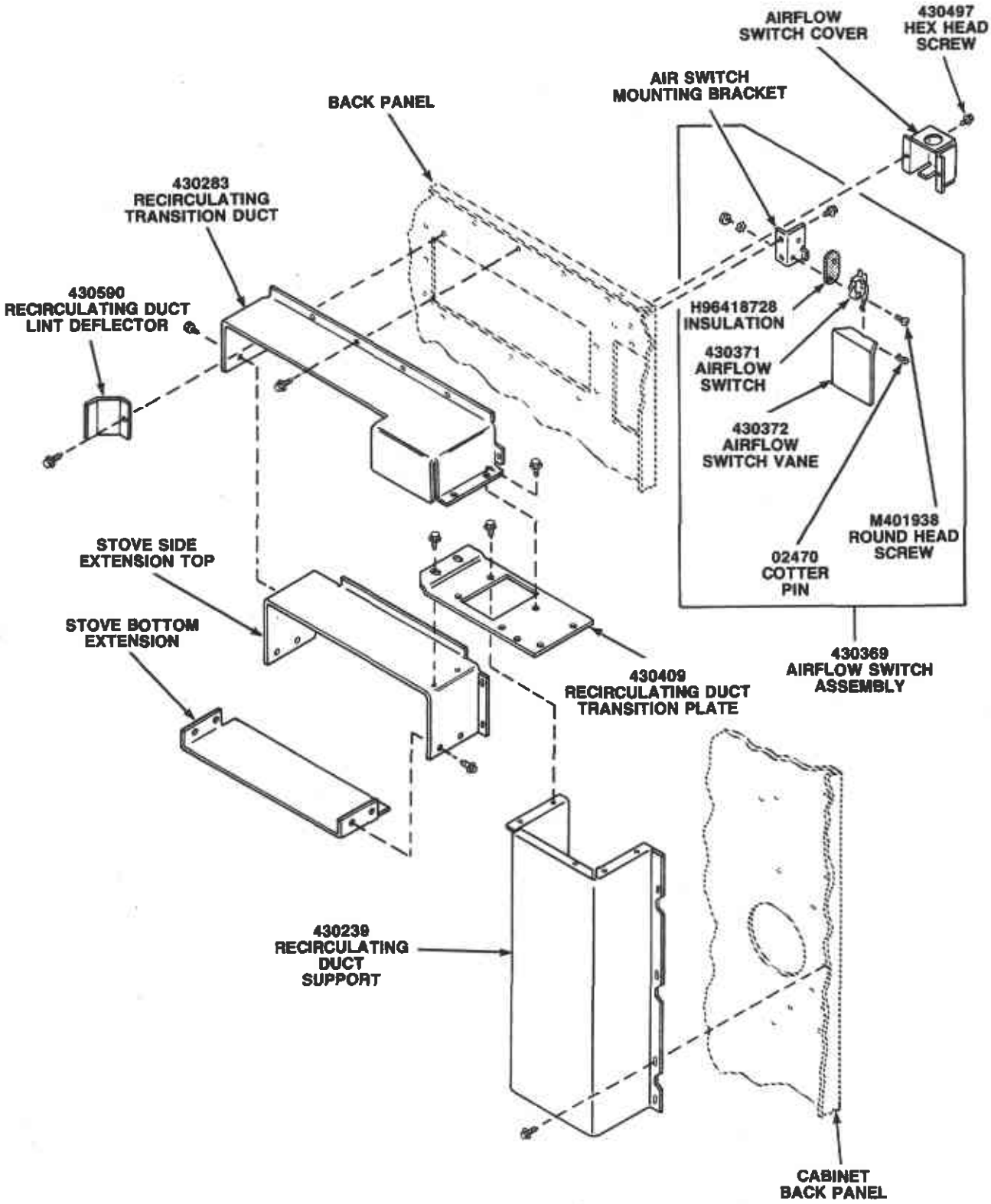
STAND-ALONE MODEL



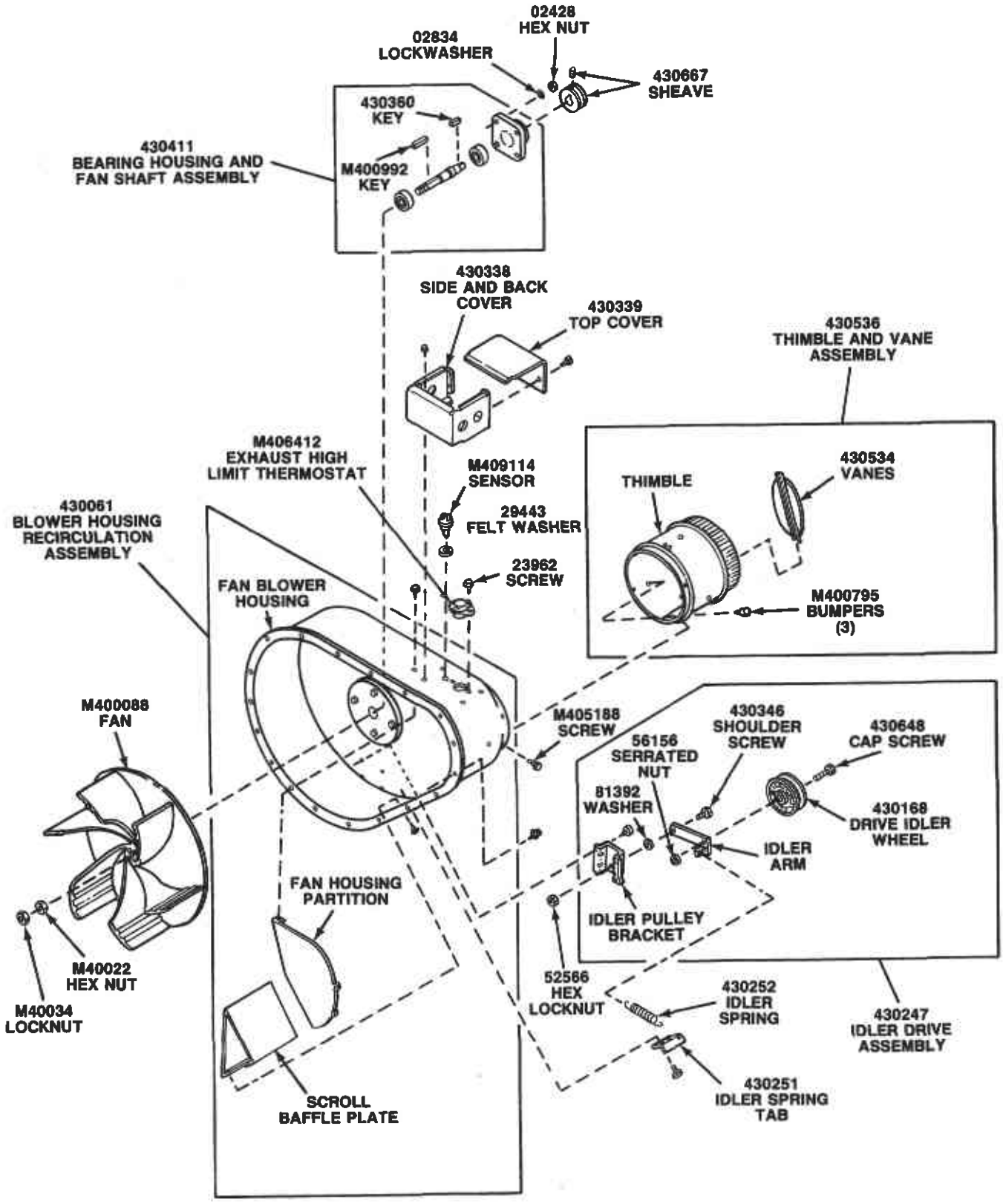
COIN DROP AND VAULT



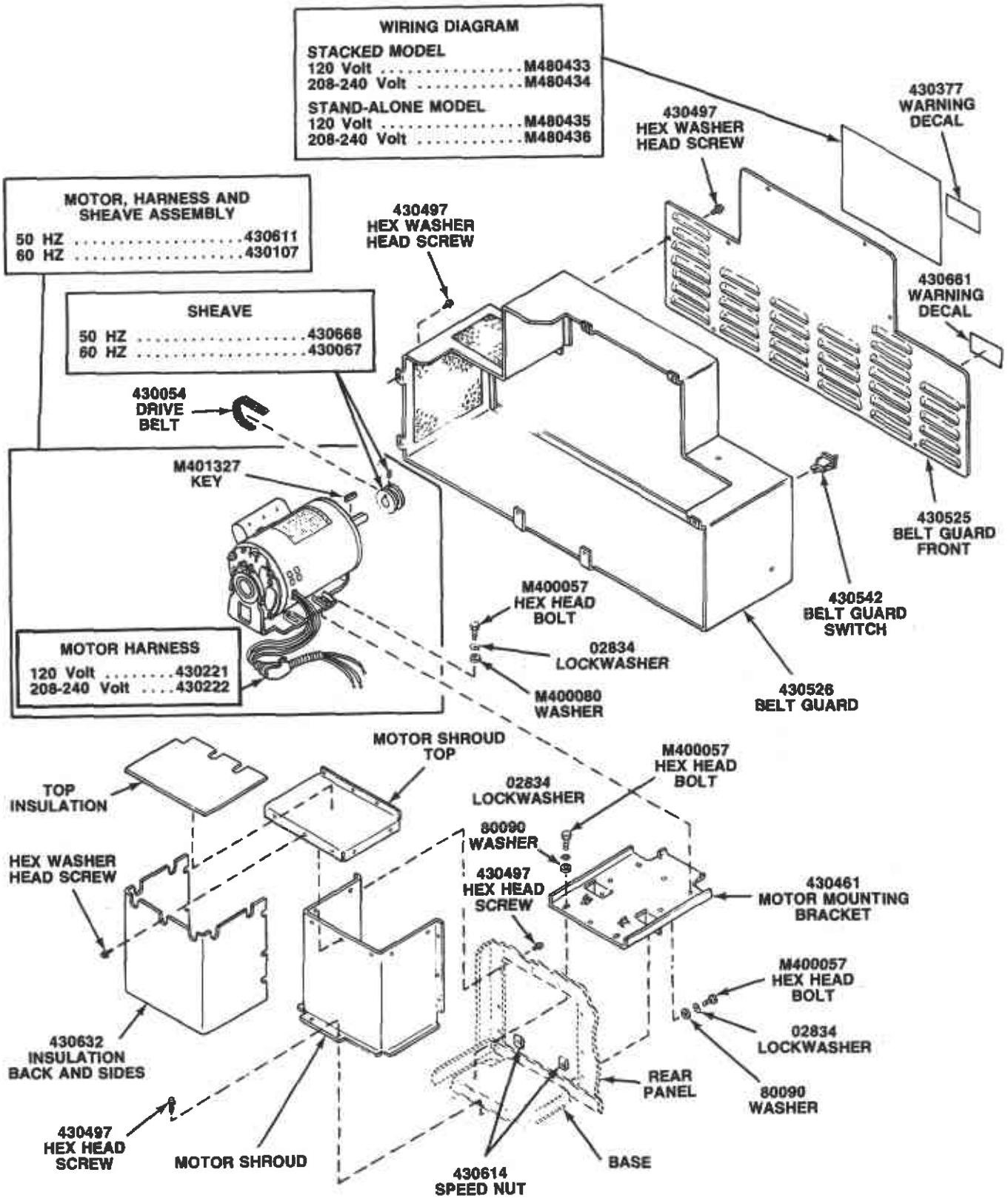
CYLINDER AND TRUNNION ASSEMBLY



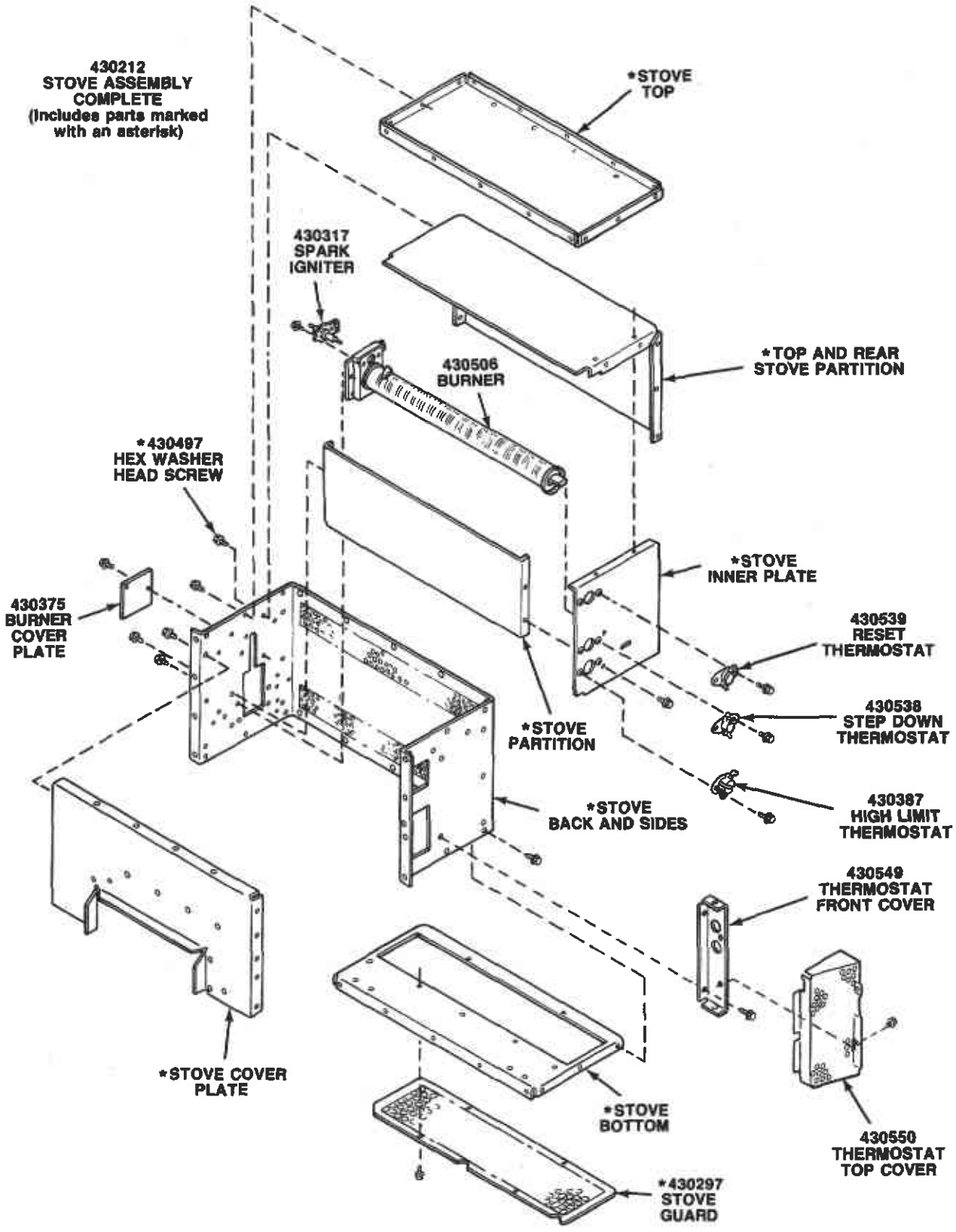
RECIRCULATING DUCTS AND AIRFLOW SWITCH



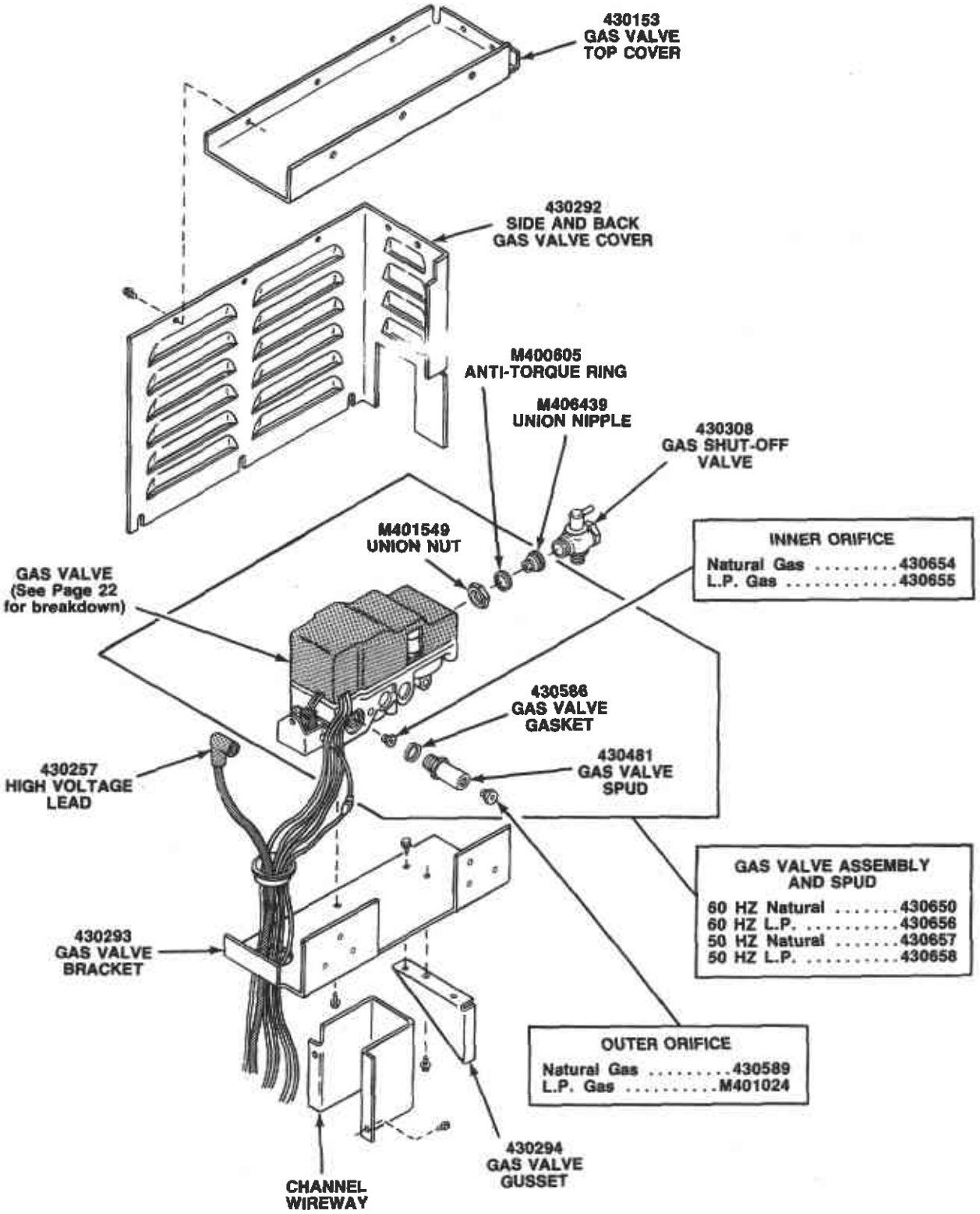
FAN AND HOUSING ASSEMBLY



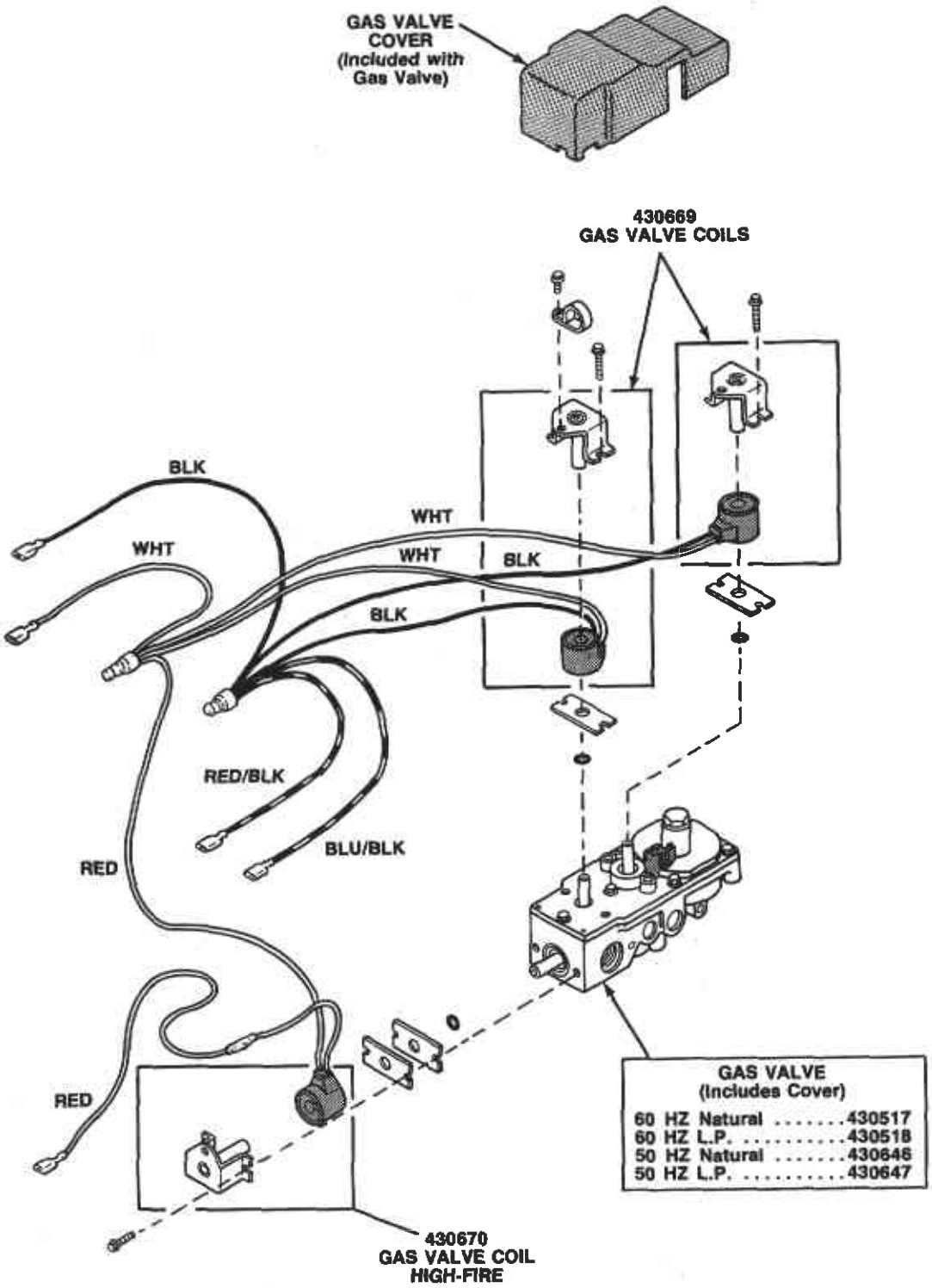
MOTOR, MOUNTS AND GUARDS



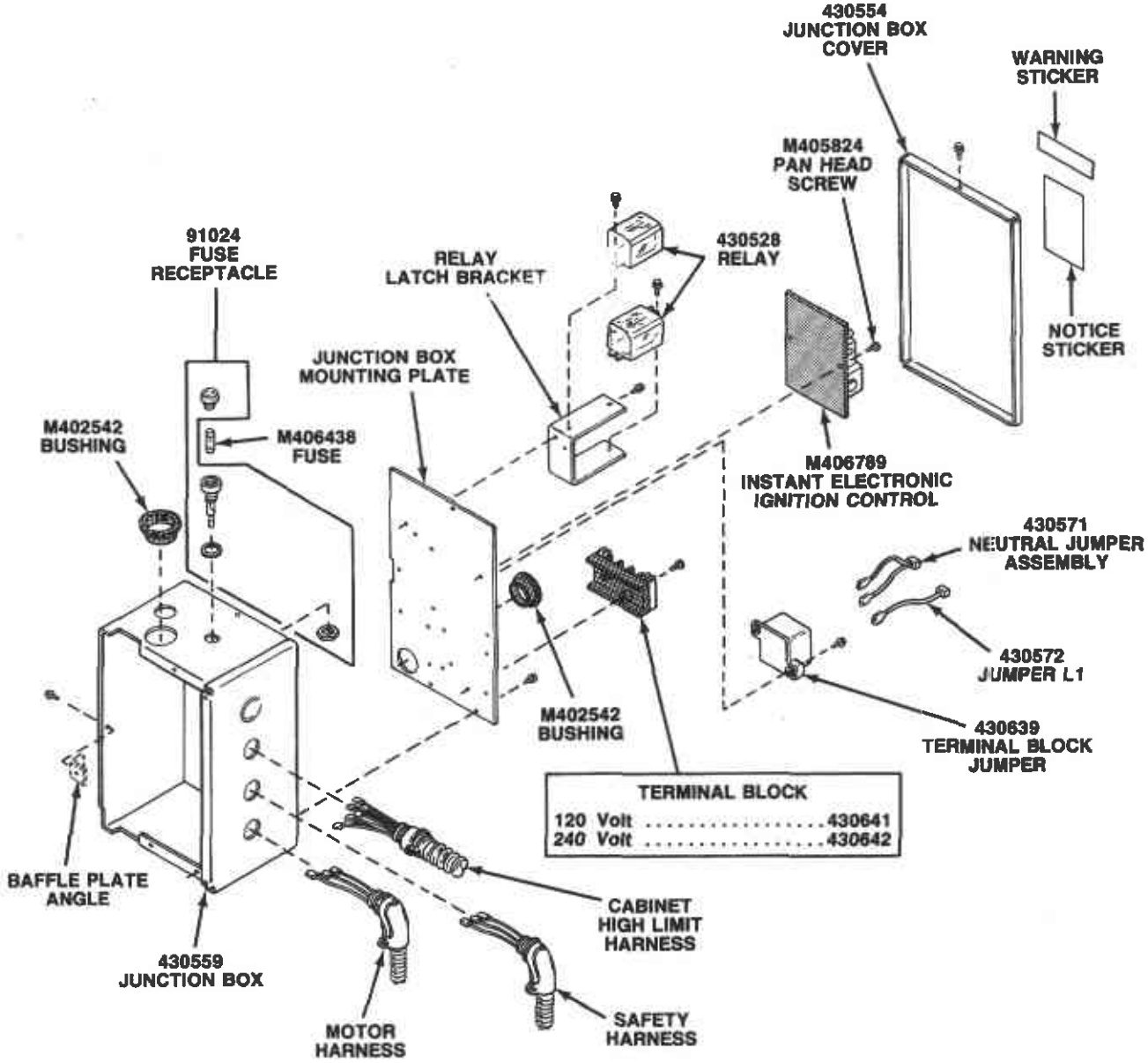
STOVE AND BURNER ASSEMBLY



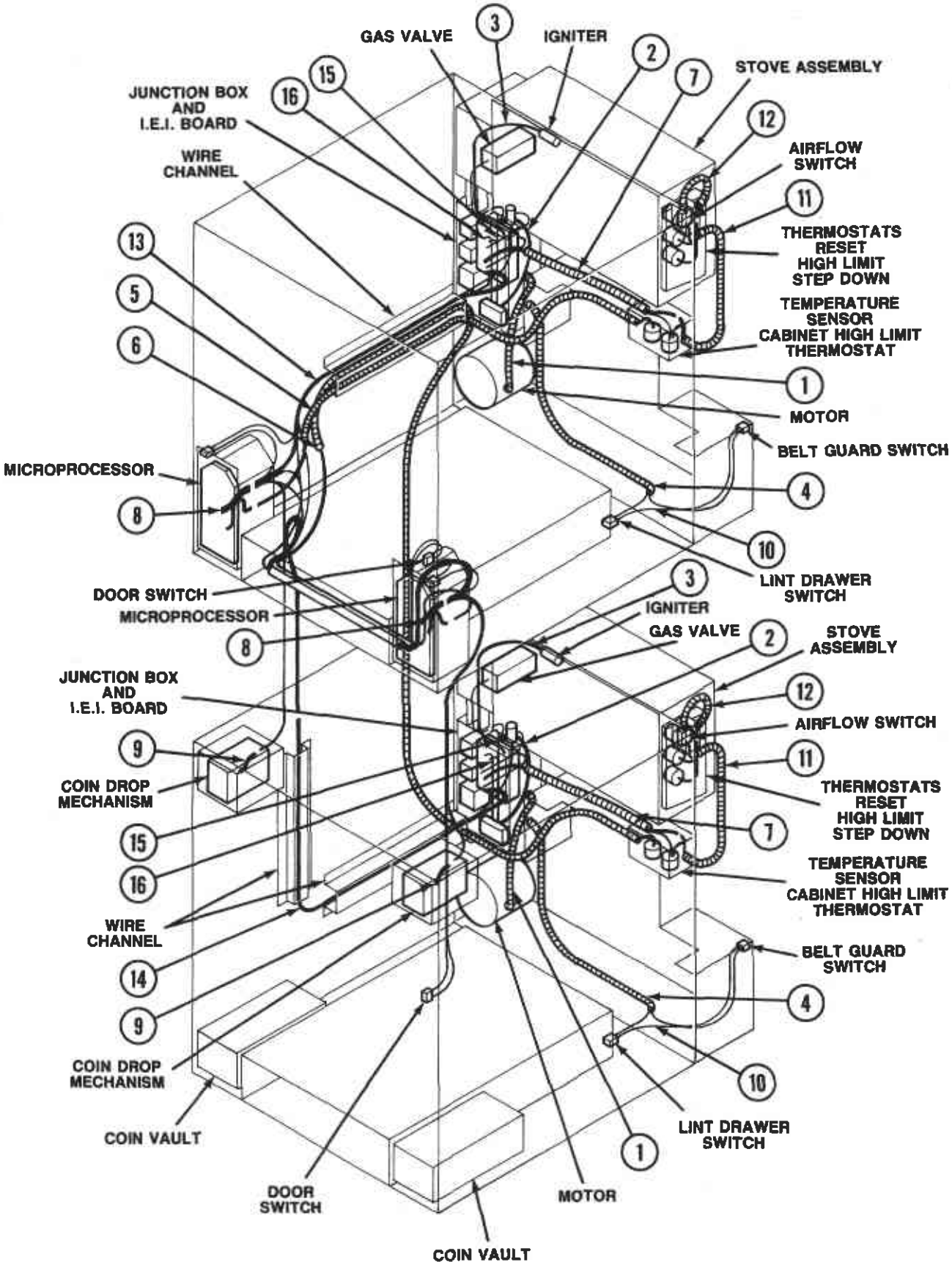
GAS VALVE MOUNTING BRACKETS AND COVERS



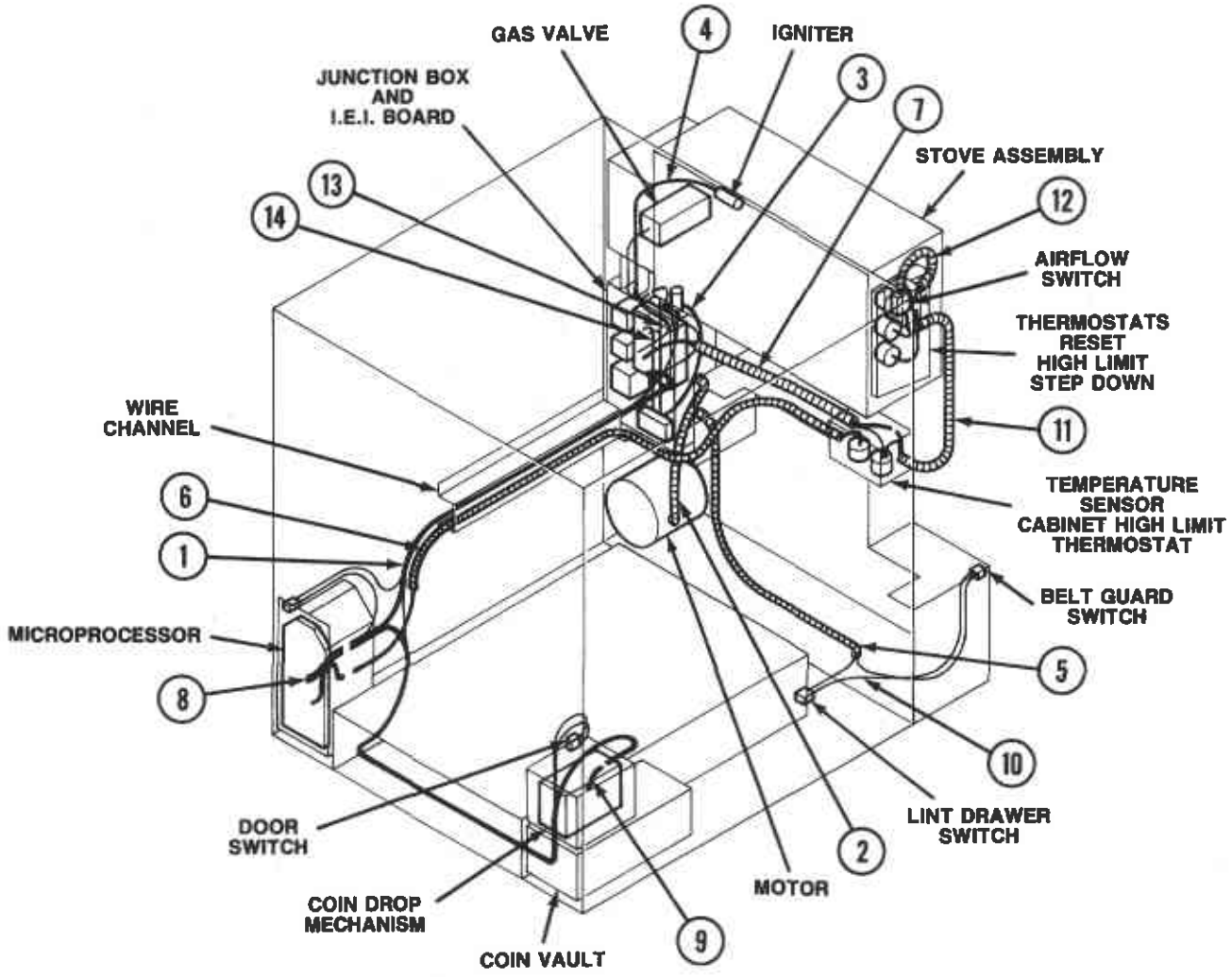
GAS VALVE ASSEMBLY



JUNCTION BOX ASSEMBLY



WIRE HARNESSES – STACKED MODEL



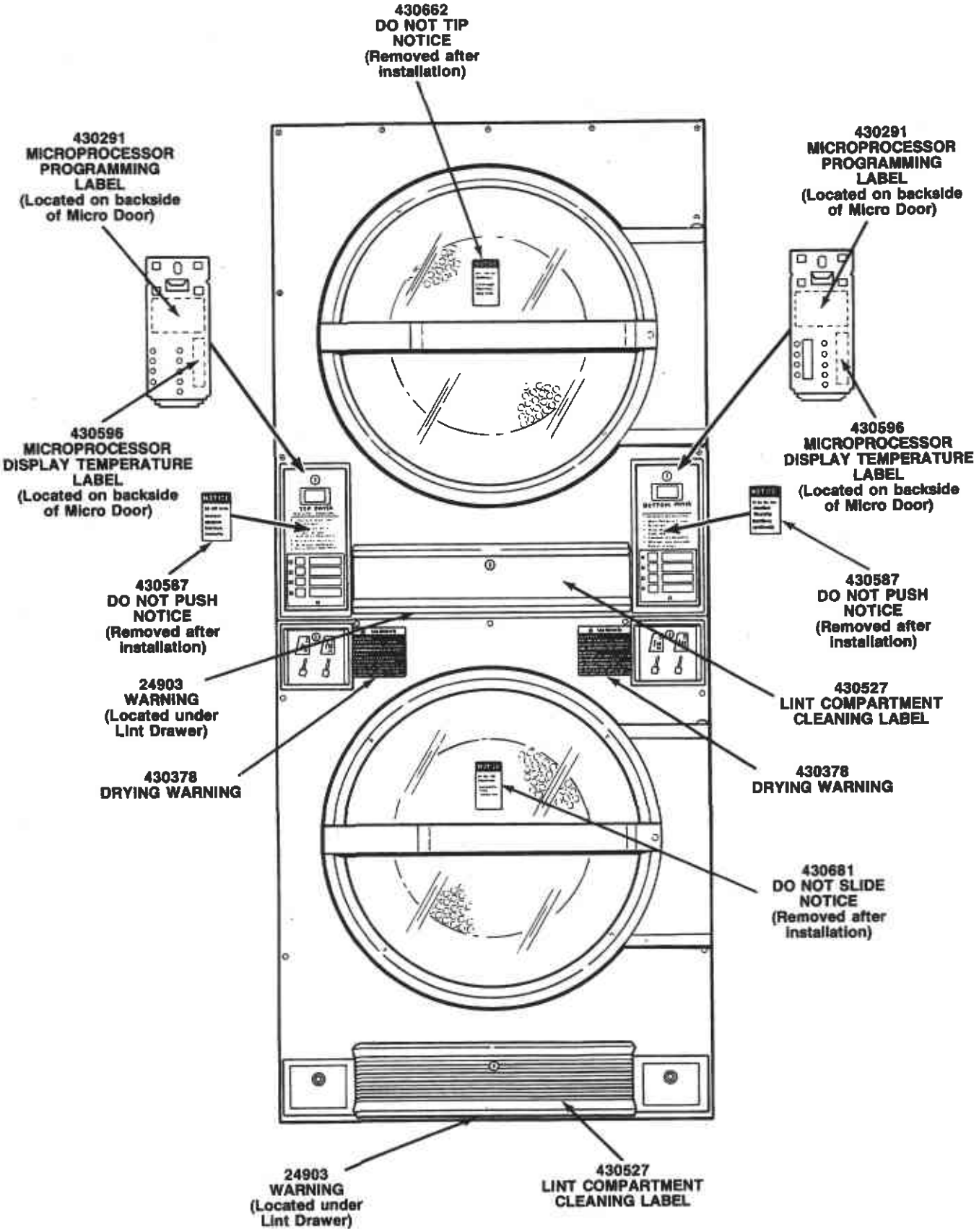
WIRE HARNESSES – STAND-ALONE MODEL

STACKED

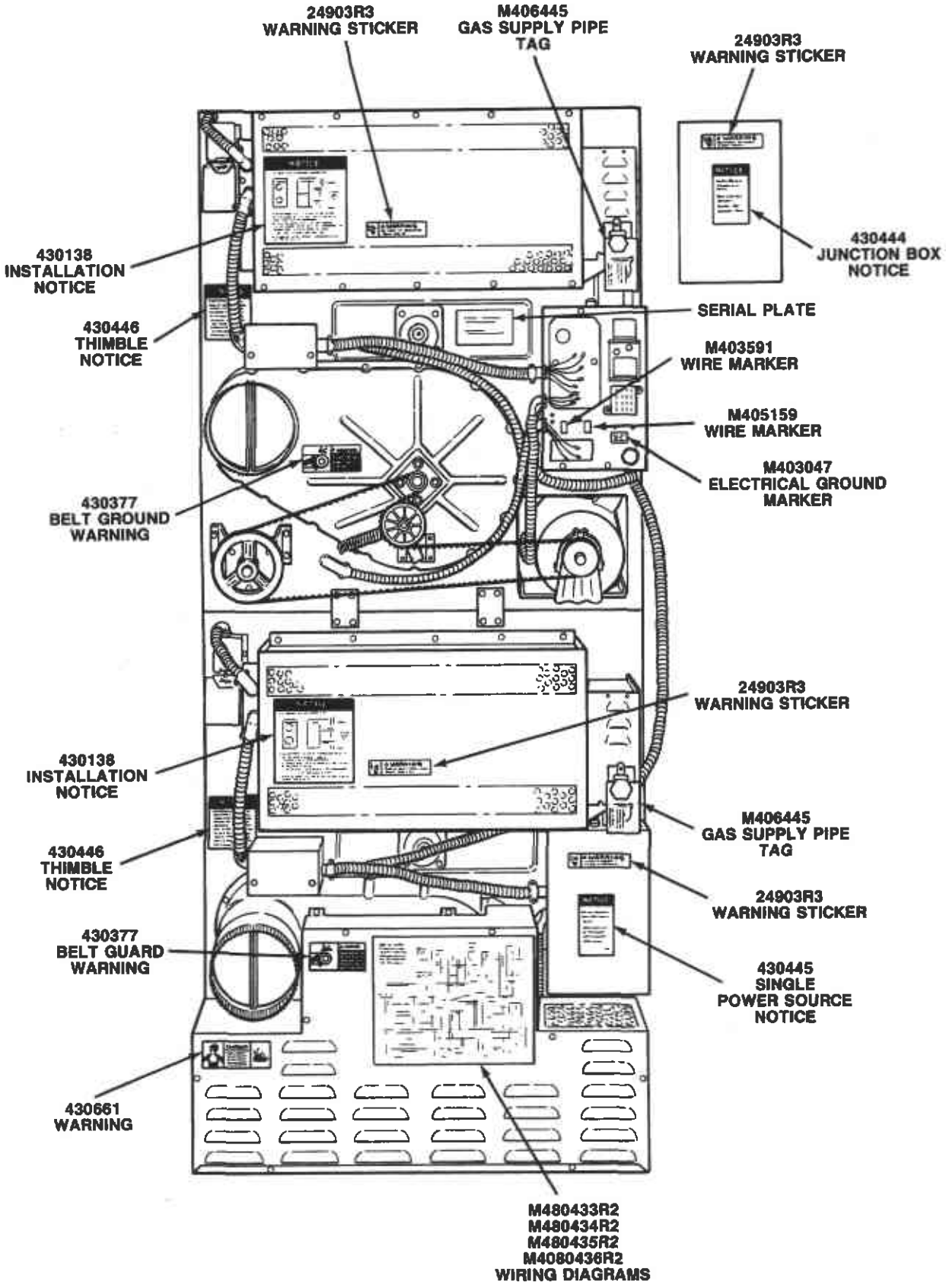
ITEM NO.	PART NO.	HARNESS/JUMPER
1	430221	Motor – 120V 60 & 50 Hz 230V 50 Hz
	430222	Motor – 208-240V 60 Hz
2	430223	I.E.I. Board
3	430257	High Voltage Lead
4	430289	Safety Interlock
5	430303	Sensor Upper
6	430322	Sensor Lower
7	430324	Cabinet High Limit
8	430330	Microprocessor Jumper
9	430343	Coin Drop – Dual
	430613	Coin Drop – Single
10	430353	Belt Guard Jumper Wire
11	430396	Stove High Limit
12	430397	Airflow Switch
13	430564	Main Upper – 208-240V 60 Hz
	430566	Main Upper – 120V 60 Hz
14	430565	Main Lower – 208-240V 60 Hz
	430567	Main Lower – 120V 60 Hz
15	430571	Jumper Wire Neutral to Latch
16	430572	Jumper Wire L1 to Latch

STAND-ALONE

ITEM NO.	PART NO.	HARNESS/JUMPER
1	430216	Main – 120V 60 Hz Main – 208-240V 60 Hz
2	430221	Motor – 120V 60 & 50 Hz 230V 50 Hz
	430222	Motor – 208-240V 60 Hz
3	430223	I.E.I. Board
4	430257	High Voltage Lead
5	430289	Safety Interlock
6	430303	Sensor
7	430324	Cabinet High Limit
8	430330	Microprocessor Jumper
9	430343	Coin Drop – Dual
	430613	Coin Drop – Single
10	430353	Belt Guard Jumper Wire
11	430396	Stove High Limit
12	430397	Airflow Switch
13	430571	Jumper Wire Neutral to Latch
14	430572	Jumper Wire L1 to Latch



DECALS – FRONT


24903R3
WARNING STICKER
M406445
GAS SUPPLY PIPE
TAG
24903R3
WARNING STICKER
430444
JUNCTION BOX
NOTICE
430138
INSTALLATION
NOTICE
SERIAL PLATE
430446
THIMBLE
NOTICE
M403591
WIRE MARKER
M405159
WIRE MARKER
M403047
ELECTRICAL GROUND
MARKER
430377
BELT GROUND
WARNING
24903R3
WARNING STICKER
430138
INSTALLATION
NOTICE
M406445
GAS SUPPLY PIPE
TAG
430446
THIMBLE
NOTICE
24903R3
WARNING STICKER
430377
BELT GUARD
WARNING
430445
SINGLE
POWER SOURCE
NOTICE
430661
WARNING
M480433R2
M480434R2
M480435R2
M4080436R2
WIRING DIAGRAMS

DECALS - REAR

NOTES

SECTION II
Service Procedures

1. INTRODUCTION

IMPORTANT: References made to the left or right hand direction are taken from the operator's position facing the front of the tumbler.

SAFETY WARNINGS and Decals

SAFETY WARNINGS and decals have been provided in key locations to remind you of important precautions for the safe operation and maintenance of your tumbler. Please take the time to review these warnings before proceeding with service work.

All decals have been designed and applied to withstand washing and cleaning. Decals should be checked periodically to be sure they have not been damaged, removed, or painted. Refer to Section I for ordering replacement decals.

Safety Precautions for Servicing Tumblers

The following is a summary of SAFETY WARNINGS:

a. Before servicing, disconnect electrical service to the stack unit or stand-alone model.

b. Shut off supply gas valve(s) before servicing tumbler.

c. Microprocessor door, lint drawer, gas valve cover, thermostat covers, airflow switch cover and junction box covers MUST be reinstalled after inspection or servicing of tumbler is completed.

d. Check all pipe connections for gas leaks with soap suds. DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS!

e. Belt guard front MUST be reinstalled after inspection or servicing of tumbler is completed.

f. Loading door switch MUST be operational before putting tumbler into service.

g. Belt guard switch MUST be operational before putting tumbler into service.

h. Lint drawer switch MUST be operational before putting tumbler into service.

i. Junction box cover MUST be reinstalled after inspection or servicing of tumbler is completed.

2. LOADING DOOR ASSEMBLY *(Figure 1)*

a. Open loading door.
b. While supporting door, remove upper hinge bolt holding door to hinge bracket.

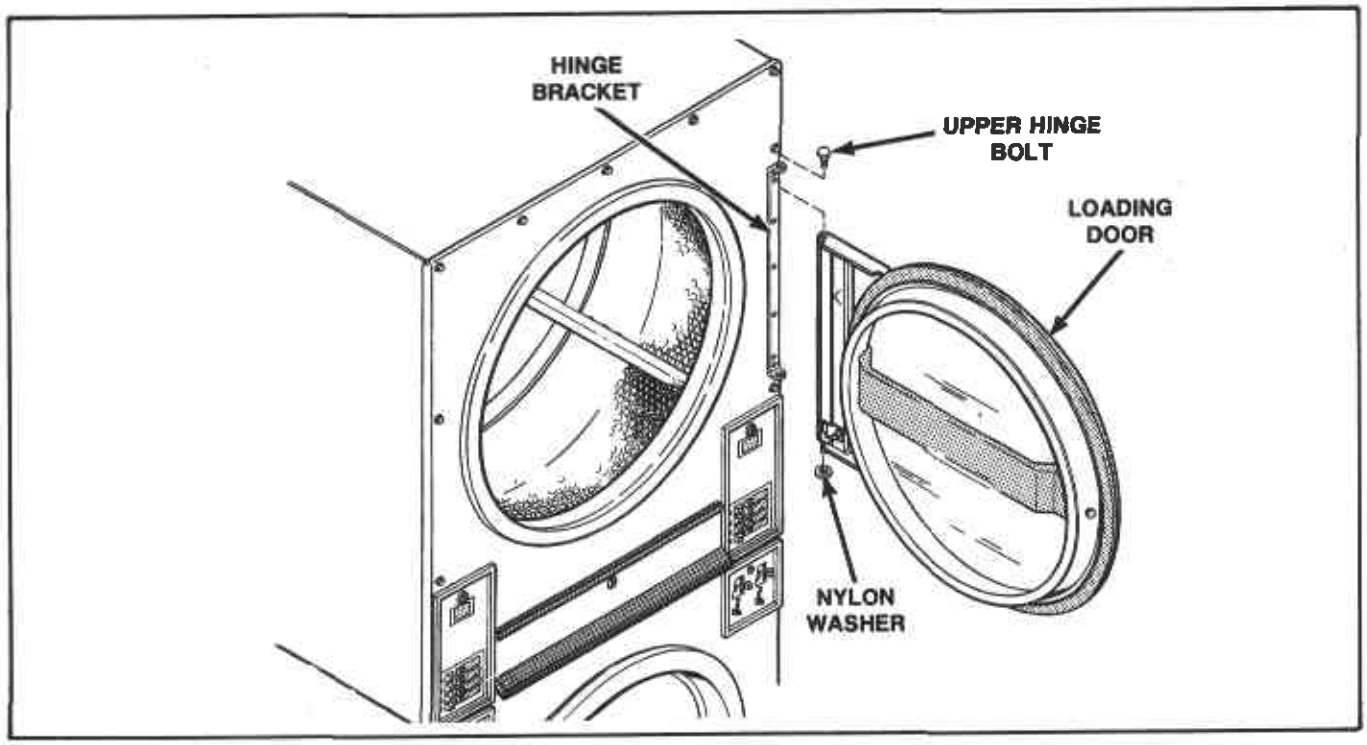


Figure 1

NOTE: Nylon washer must be in place on lower pin when reinstalling loading door.

c. Remove door from bracket.

3. DOOR HINGE *(Figure 2)*

a. Remove loading door assembly, *paragraph 2.*
b. Remove nuts and screws holding hinge to door frame, *Figure 2.*

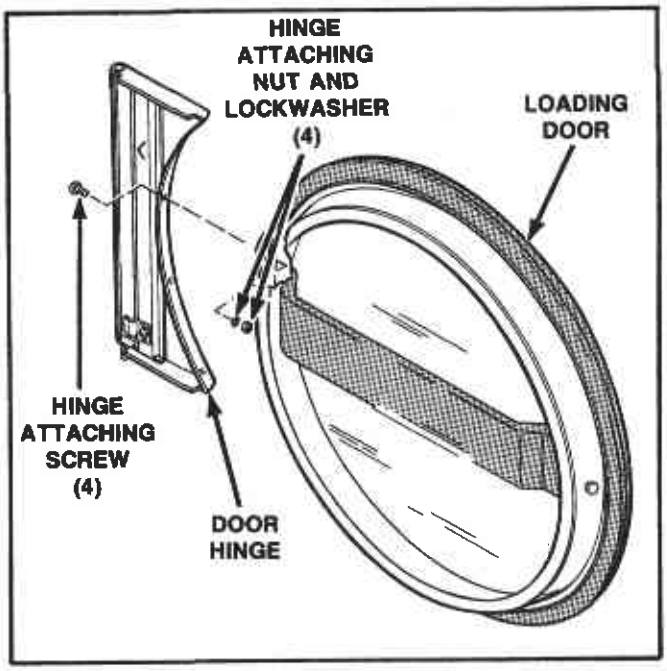


Figure 2

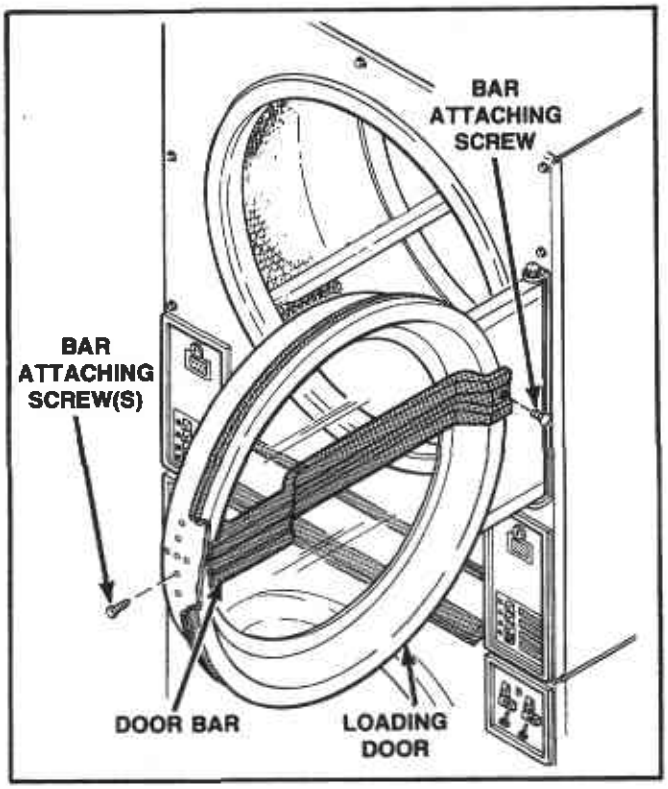


Figure 3

4. DOOR BAR *(Figure 3)*

a. Open loading door.
b. Remove screws holding door to door frame.

5. FRONT PANEL *(Figure 4)*

a. Disconnect electrical service and shut off supply line gas valve.
b. Remove loading door, *paragraph 2.*
c. Unlock and remove lint drawer.
d. Remove screws holding front panel to cabinet.
e. While supporting front panel, tip the top forward slightly and lift up and out far enough to disconnect door switch wires, *Figure 5.*

NOTE: Refer to wiring diagram when rewiring door switch.

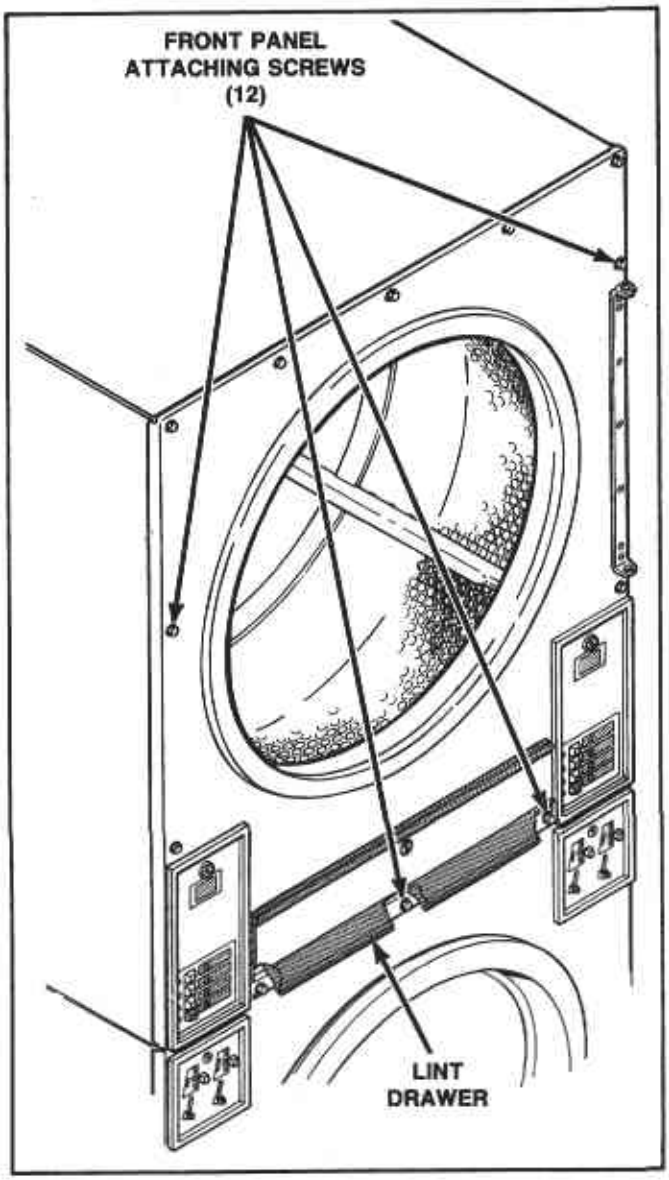


Figure 4

Stacked Model – Upper *(Figure 5)*

f. While supporting front panel, disconnect Service Soon light wires and microprocessor disconnect blocks.

NOTE: Refer to wiring diagram when rewiring Service Soon light wires.

Stacked Model – Lower *(Figure 6)*

f. While supporting front panel, disconnect coin drop wires.

Stand-alone Model *(Figure 7)*

f. While supporting front panel, disconnect coin drop wires and disconnect Service Soon light wires and microprocessor disconnect blocks.

NOTE: Refer to wiring diagram when rewiring Service Soon light wires.

g. Remove front panel.

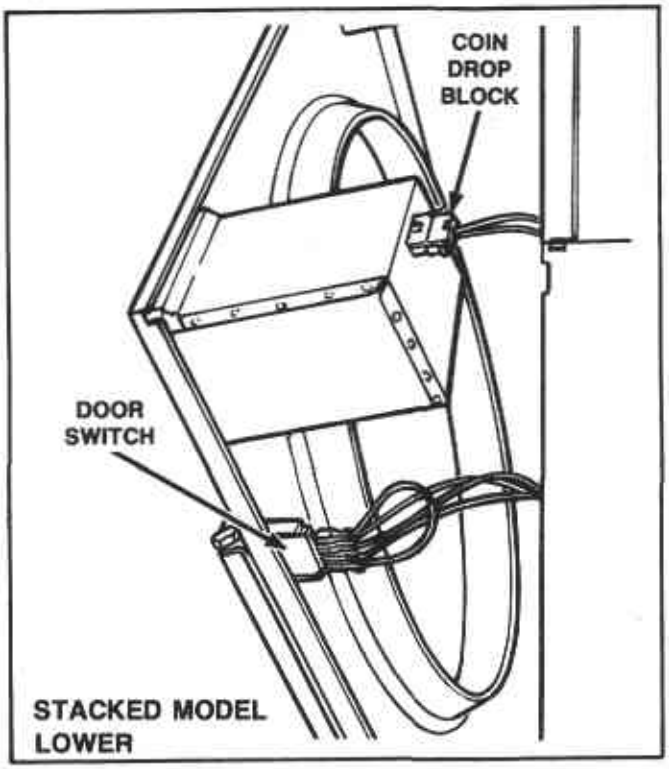


Figure 6

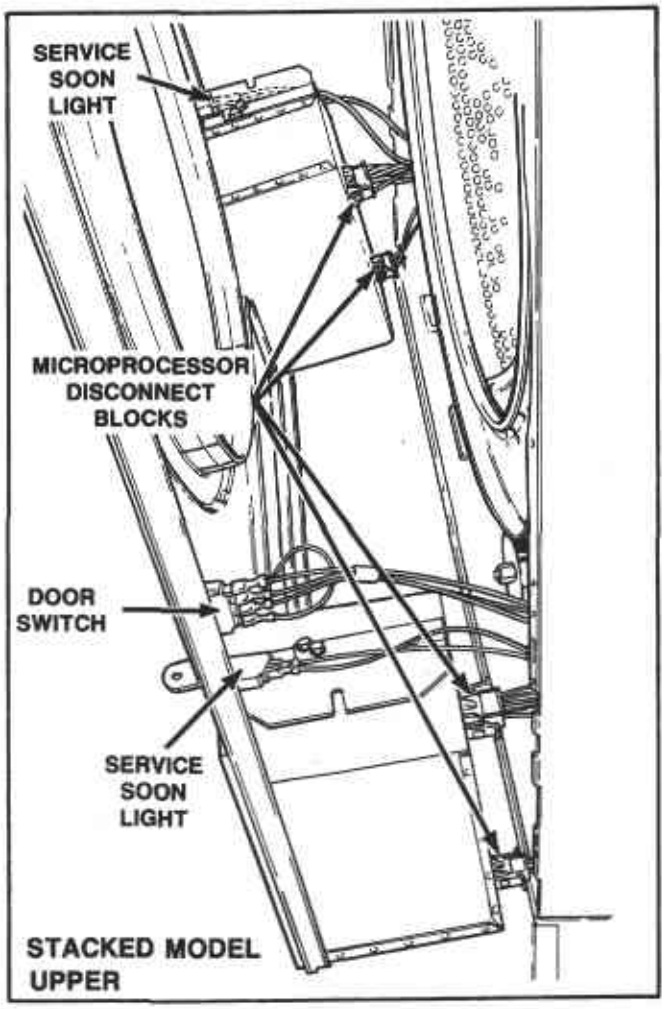


Figure 5

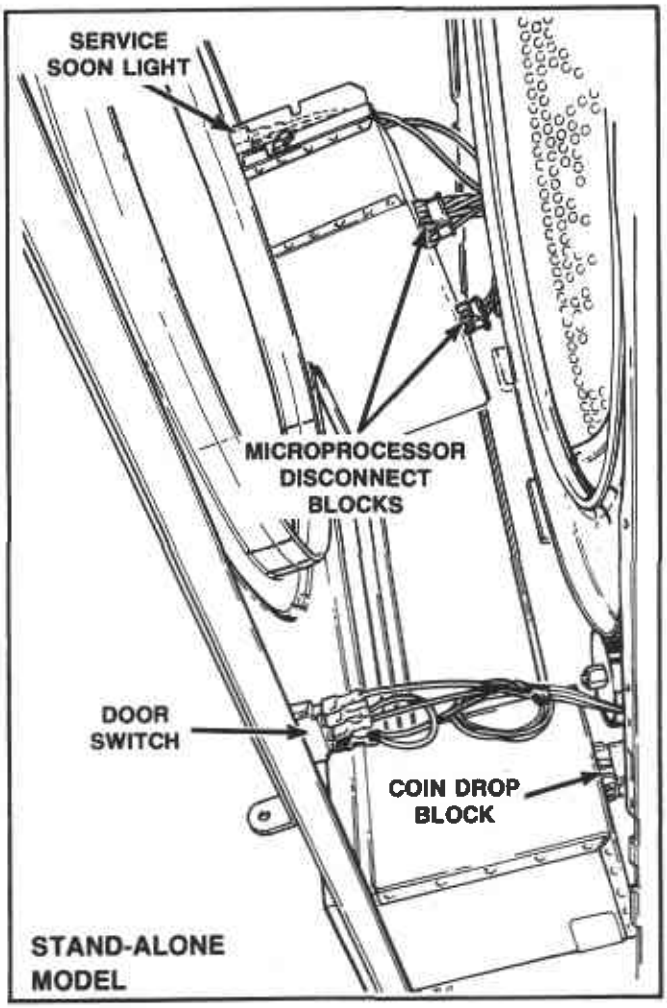


Figure 7

6. DOOR SWITCH *(Figure 8)*

a. Disconnect electrical service to tumbler.
b. Remove front panel, *paragraph 5.*
c. Depress tabs on top and bottom of switch and push switch out through front of panel.

NOTE: Refer to wiring diagram when rewiring door switch.

⚠ WARNING

Door switch MUST be reinstalled after service is completed.

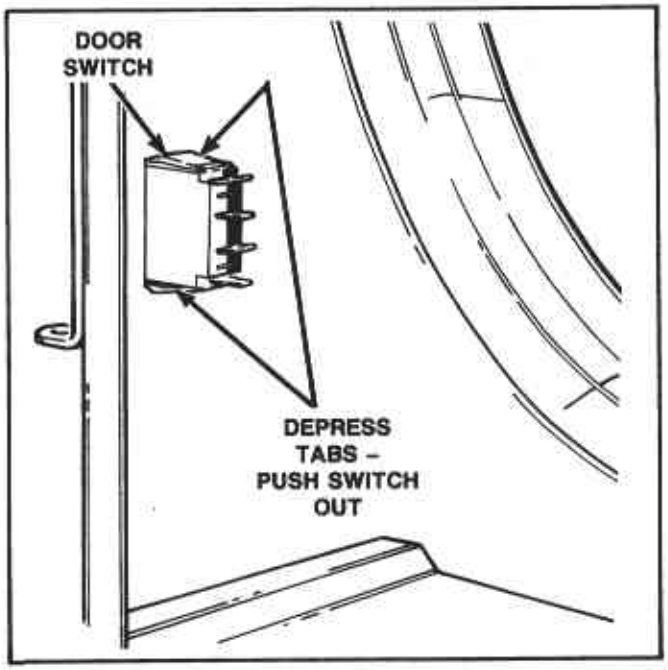


Figure 8

7. SERVICE SOON LIGHT *(Figure 9)*

a. Disconnect electrical service to tumbler.
b. Open upper loading door.
c. While supporting door, remove upper hinge bolt holding door to hinge bracket, *Figure 1.* Remove door.
d. Unlock and remove upper lint drawer.
e. Remove screws holding front panel to cabinet.
f. While supporting front panel, tip the top forward slightly and lift up and out far enough to remove light socket.
g. Remove light socket by sliding sideways towards outside of panel.
h. Remove light by disconnecting wires from terminals.

NOTE: Refer to wiring diagram when rewiring Service Soon light terminals.

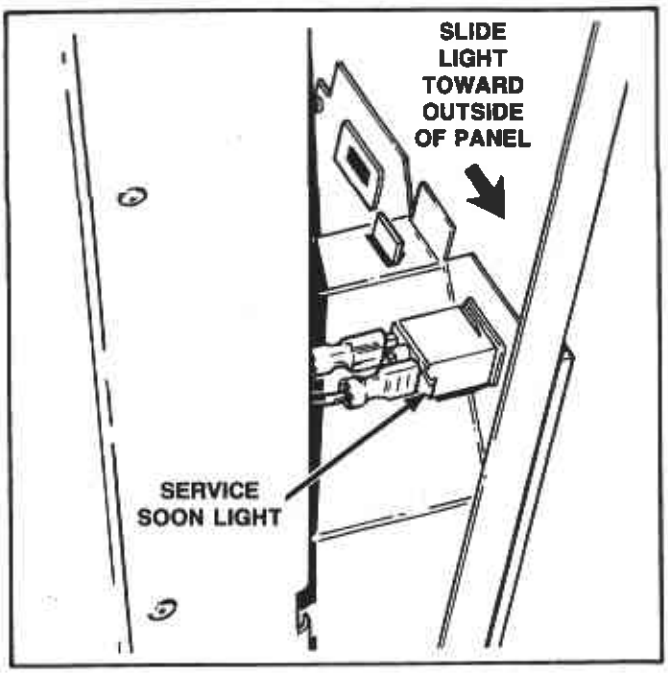


Figure 9

8. MICROPROCESSOR

a. Disconnect electrical service to tumbler.
b. Unlock and remove microprocessor door, *Figure 10.*

IMPORTANT: Microprocessor door MUST be reinstalled after servicing is completed.

c. Remove one screw attaching microprocessor to microprocessor housing bracket.

IMPORTANT: When removing microprocessor, grasp *only* the top metal tab of the unit. DO NOT remove microprocessor by grasping sides. Do not touch circuit boards on the front or back side of microprocessor.

d. Pull microprocessor out of housing and disconnect harness and sensor plugs, *Figure 10.*
e. Place microprocessor in a clean, dry location where it cannot be damaged.

9. FUSE AND FUSE HOLDER ASSEMBLY

a. Disconnect electrical service and shut off supply line gas valve.
b. Fuse holder is located on the top of each junction box at the rear of the machine.
c. Turn fuse cap counterclockwise to remove fuse, *Figure 11.*
d. Remove fuse from fuse cap.

NOTE: Refer to wiring diagram when rewiring fuse.

e. Remove junction box cover, *Figure 11.*
f. Disconnect wires from fuse holder.
g. Remove plastic retaining nut. Remove assembly.

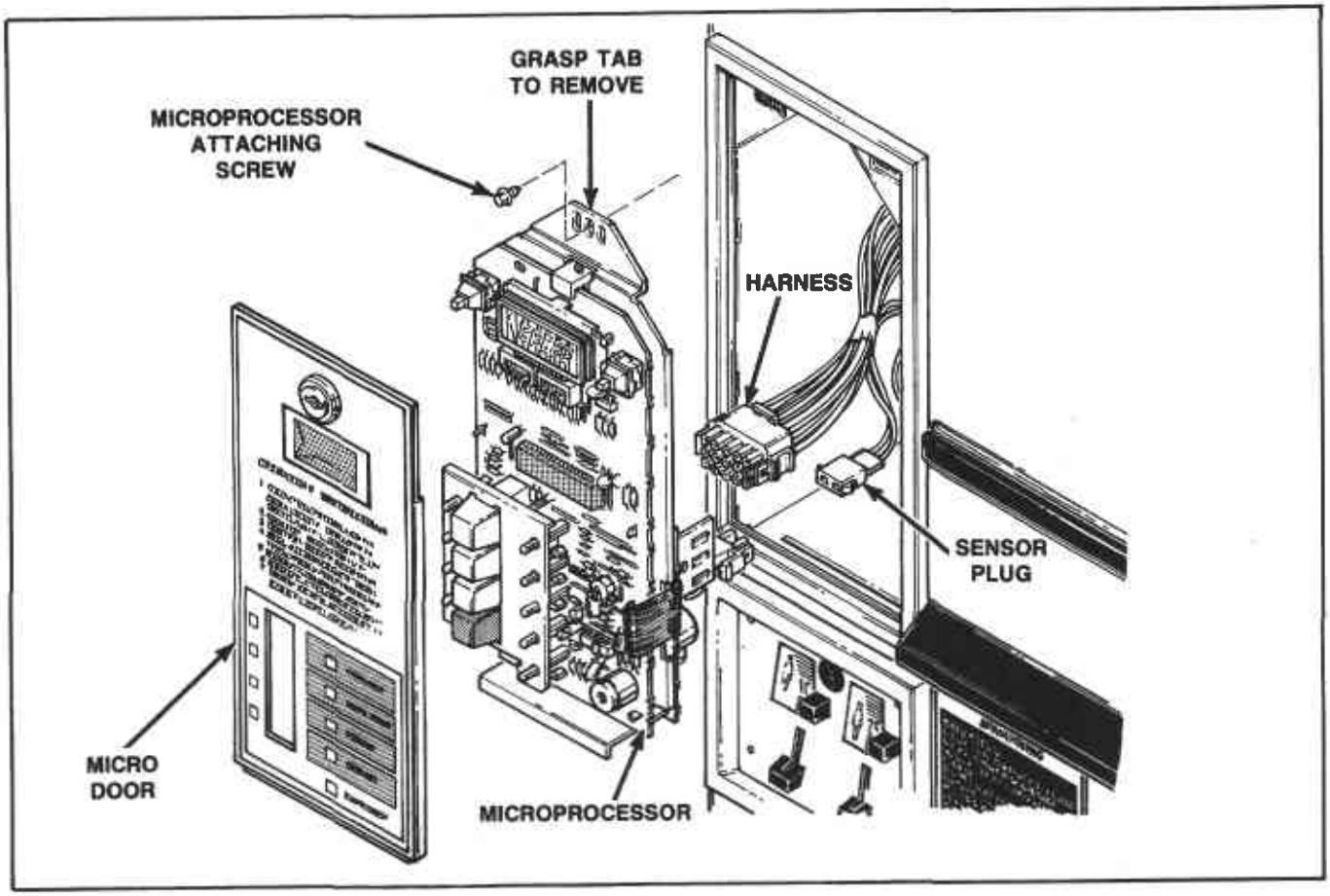


Figure 10

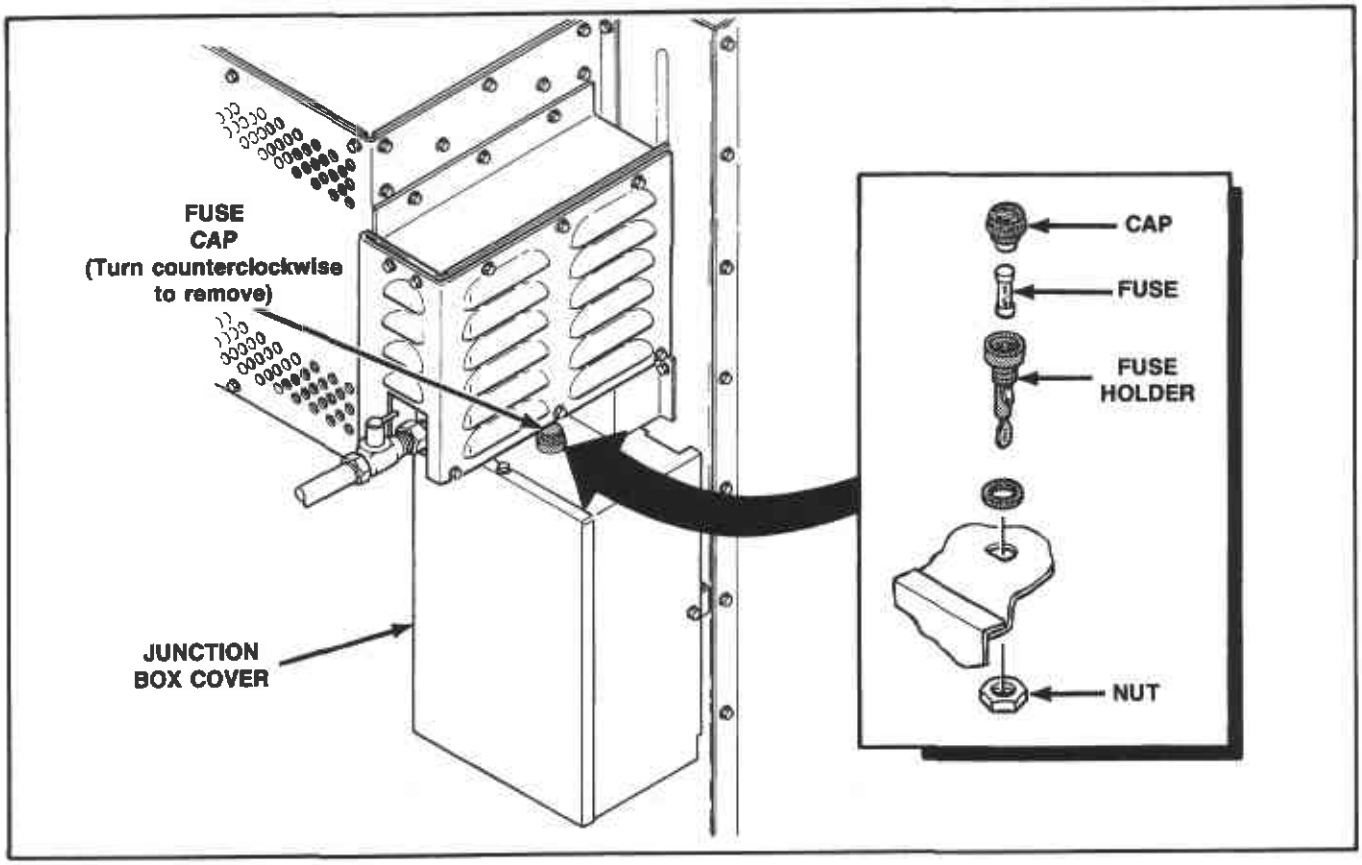


Figure 11

10. COIN DROP ASSEMBLY *(Figure 12)*

a. Disconnect electrical service to tumbler.
b. Unlock coin drop. Remove drop by tipping drop forward and lifting up and out.
c. Disconnect wires to coin drop and ground terminal.

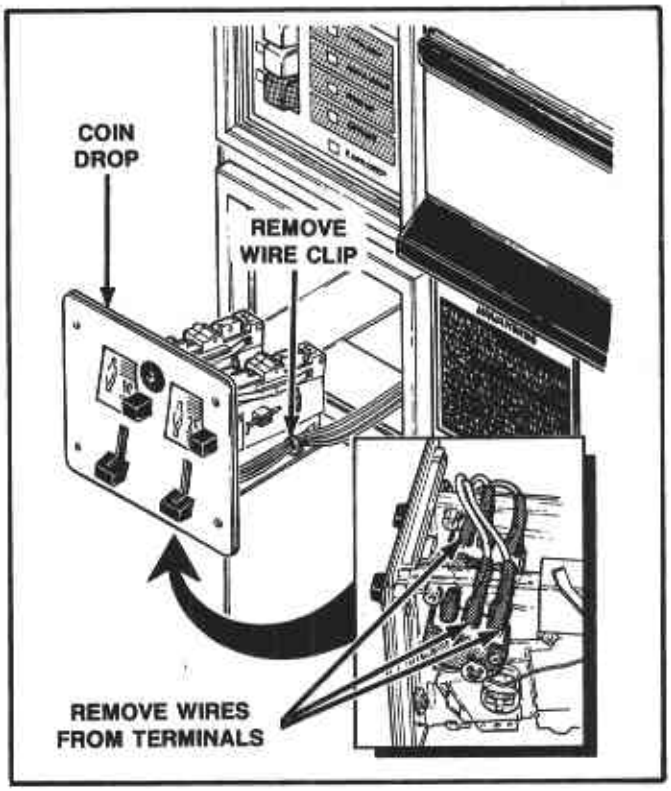


Figure 12

11. LINT SCREEN *(Figure 13)*

a. Disconnect electrical service to tumbler.
b. Unlock and remove lint drawer.
c. Remove lint screen bracket screws and lint screen brackets.
d. Remove lint screen.

12. LINT DRAWER SEAL

a. Disconnect electrical service to tumbler.
b. Unlock and remove lint drawer.
c. Remove damaged or worn seal from front panel.
d. Degrease area where new seal is to be placed.

⚠WARNING

For personal safety use degreaser/ solvent only in a well ventilated area away from any open flames.

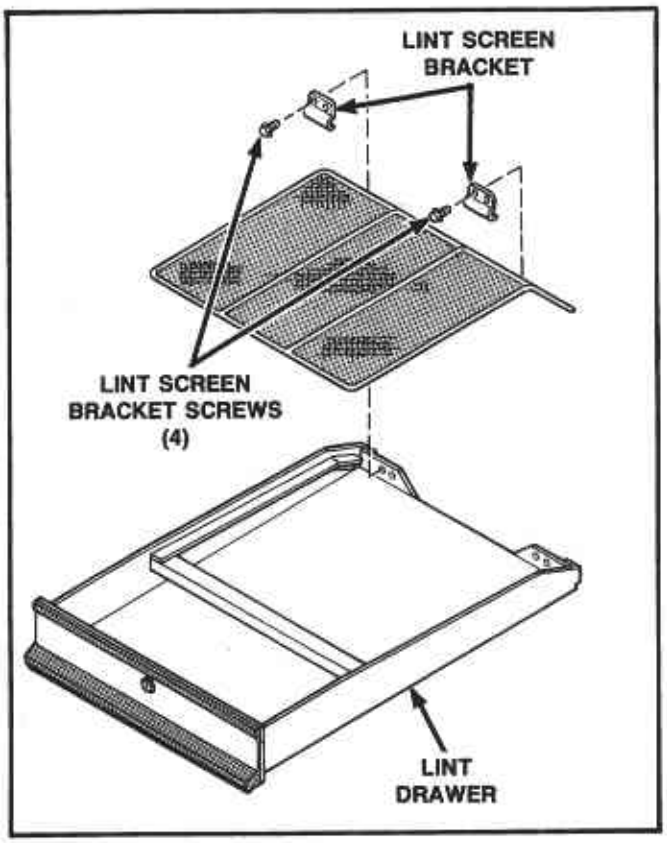


Figure 13

e. When installing new seal, make sure it is placed in depressed front panel area and does not extend into lint drawer opening cavity.

13. LINT DRAWER SWITCH *(Figure 14)*

a. Disconnect electrical service to tumbler.
b. Unlock and remove lint drawer.
c. Remove two screws mounting lint drawer switch plate to rear of lint shroud.
d. Pull lint drawer plate assembly forward.
e. Disconnect wires to switch.
f. Remove nut holding switch to switch plate.
g. Remove switch.

NOTE: Refer to wiring diagram when rewiring lint drawer switch.

14. CYLINDER ROLLERS *(Figure 15)*

a. Disconnect electrical service to tumbler.
b. Remove loading door, *paragraph 2.*
c. Unlock and remove lint drawer.
d. Remove front panel, *paragraph 5.*
e. Remove nuts from end of roller shafts.
f. Lift cylinder up slightly and remove rollers from shafts.

15. CYLINDER BELT *(Figure 15)*

a. Disconnect electrical service to tumbler.
b. Remove loading door, *paragraph 2.*

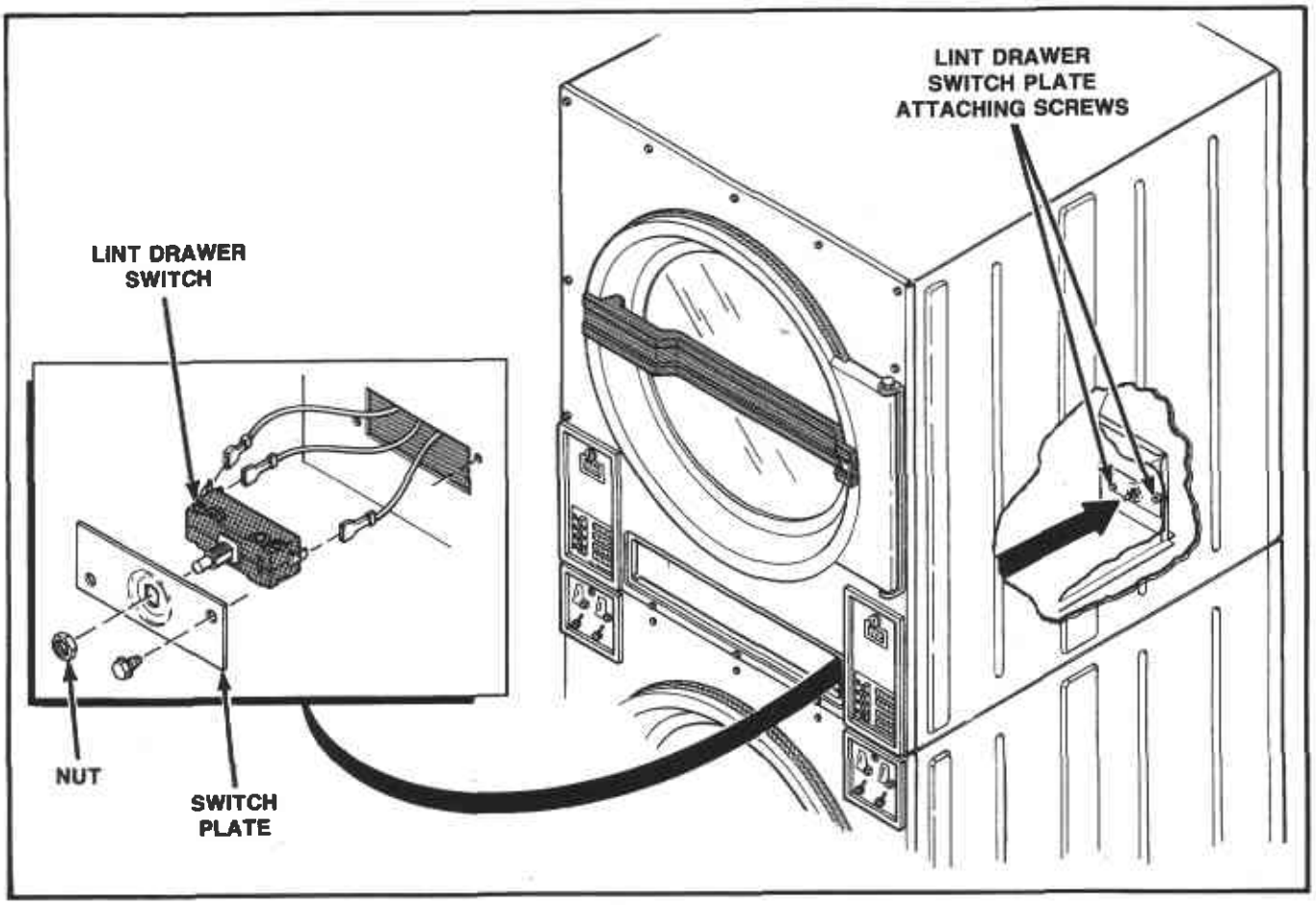


Figure 14

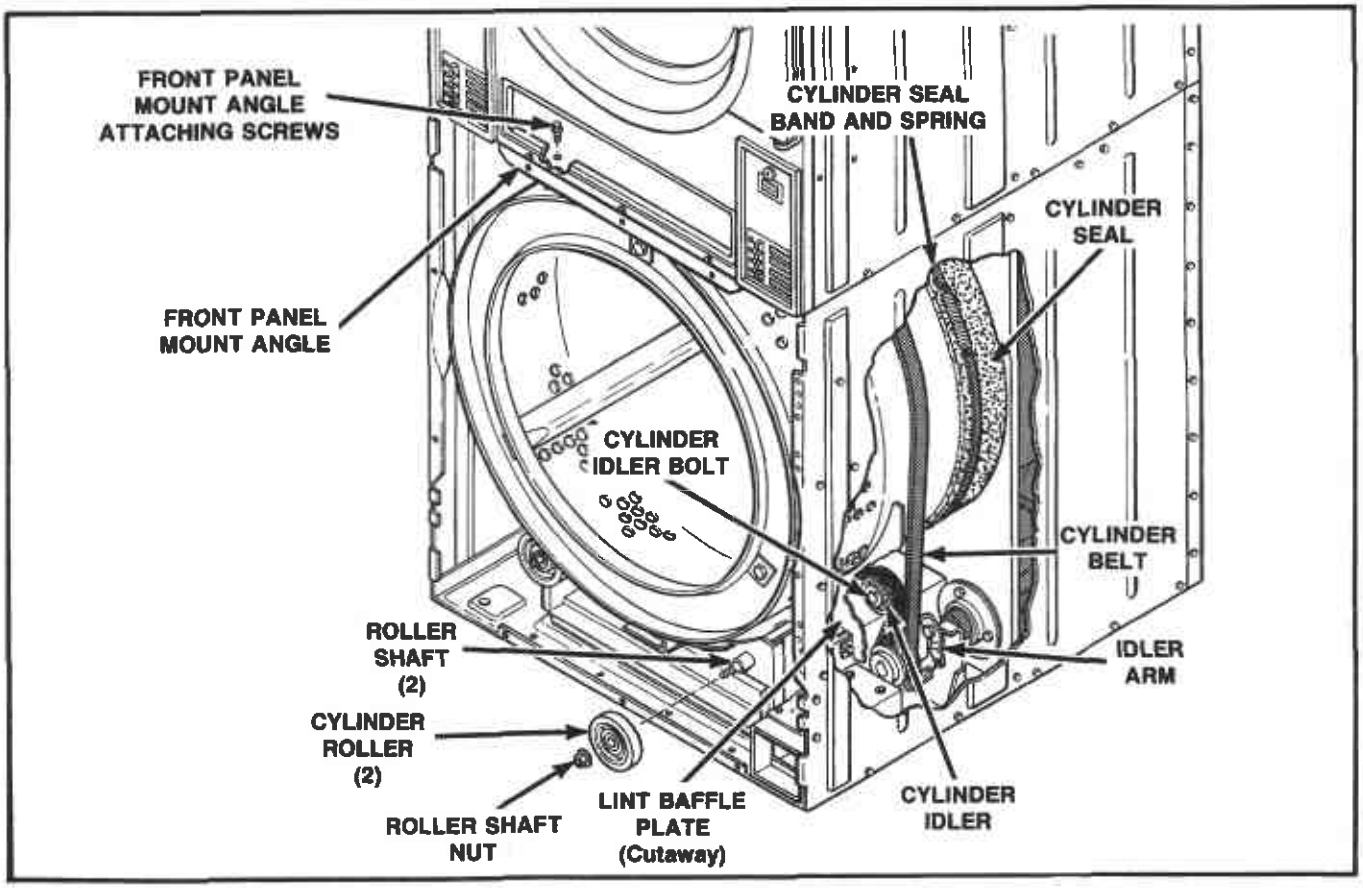


Figure 15

c. Unlock and remove lint drawer.
d. Remove front panel, *paragraph 5.*
e. Remove screws attaching lint baffle plate to lint shroud. Remove lint baffle plate.
f. Disengage belt from idler system by rotating idler arm down.
g. Remove cylinder belt being careful not to pinch it. Lift up cylinder to create a gap between rollers and cylinder to allow belt to pass through.

NOTE: When installing cylinder belt, be sure belt is properly positioned around cylinder and on sheave and idler.

16. CYLINDER IDLER *(Figure 15)*

a. Disconnect electrical service to tumbler.
b. Remove loading door, *paragraph 2.*
c. Unlock and remove lint drawer.
d. Remove front panel, *paragraph 5.*
e. Remove screws attaching lint baffle plate to lint shroud. Remove lint baffle plate.
f. Disengage belt from idler system by rotating idler arm down.
g. Remove bolt holding cylinder idler to idler arm. Remove cylinder idler.

17. CYLINDER AND TRUNNION ASSEMBLY

a. Disconnect electrical service to tumbler.
b. Remove loading door, *paragraph 2.*
c. Unlock and remove lint drawer.
d. Remove front panel, *paragraph 5.*
e. Remove screws attaching lint baffle plate to cabinet. Remove lint baffle plate, *Figure 15.*
f. Run the cylinder belt off idler.
g. Remove upper portion of belt, leaving belt in place on lint shroud.
h. Remove nuts from end of roller shafts.
i. Lift cylinder up slightly and remove rollers from shafts.

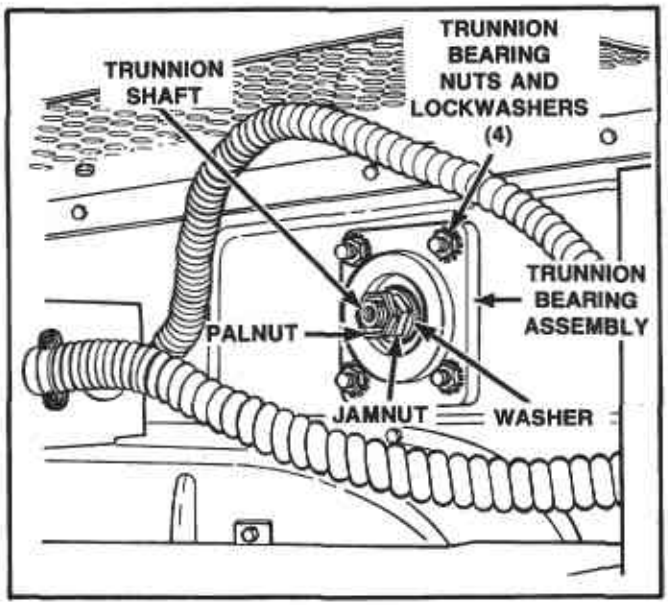


Figure 16

j. Remove palnut, jamnut and washer from end of trunnion shaft located at rear of unit, *Figure 16.*

Lower stacked model only.

Unlock and remove top lint drawer. Remove screws attaching front panel mount angle to top unit base and remove front panel mount angle from bottom unit, *Figure 15.*

k. Remove cylinder and trunnion assembly from unit.

NOTE: When removing cylinder through front of cabinet, spread cabinet slightly so cylinder will clear cabinet sides. Be careful not to pull off cylinder seal when removing cylinder.

IMPORTANT: After reinstalling cylinder and trunnion assembly, make sure band is in place on seal and seal is over seal partition along entire circumference. Test that cylinder turns freely and seal does not bind.

18. TRUNNION BEARING ASSEMBLY *(Figure 16)*

a. Disconnect electrical service to tumbler.
b. Remove palnut, jamnut and washer from end of trunnion shaft.
c. Screw cylinder guide service tool, Part No. 263P4, on trunnion shaft threads to be used as a guide.
d. Remove nuts and lockwashers holding bearing assembly on cabinet back.
e. Remove trunnion bearing assembly.

IMPORTANT: Trunnion bearing assembly is a nonrepairable unit. If worn or damaged replace entire assembly.

NOTE: Upon reassembly, use cylinder guide service tool to position trunnion shaft through bearing bore.

19. TRUNNION SHAFT ASSEMBLY

a. Disconnect electrical service to tumbler.
b. Remove cylinder and trunnion assembly, *paragraph 17.*
c. Remove the three washers and six nuts holding trunnion shaft assembly to rear of cylinder, *Figure 17.*

IMPORTANT: When installing trunnion shaft *assembly on cylinder,* cylinder and shaft must be leveled. Refer to *Figure 18* for an example of how to check the levelness of the shaft and cylinder. Hang shaft and cylinder through the hole and place nut on shaft. While turning cylinder by hand, use a gauge and check the cylinder edge for levelness. If the cylinder is not level, place a shim or shims between the appropriate trunnion bracket, rod and cylinder.

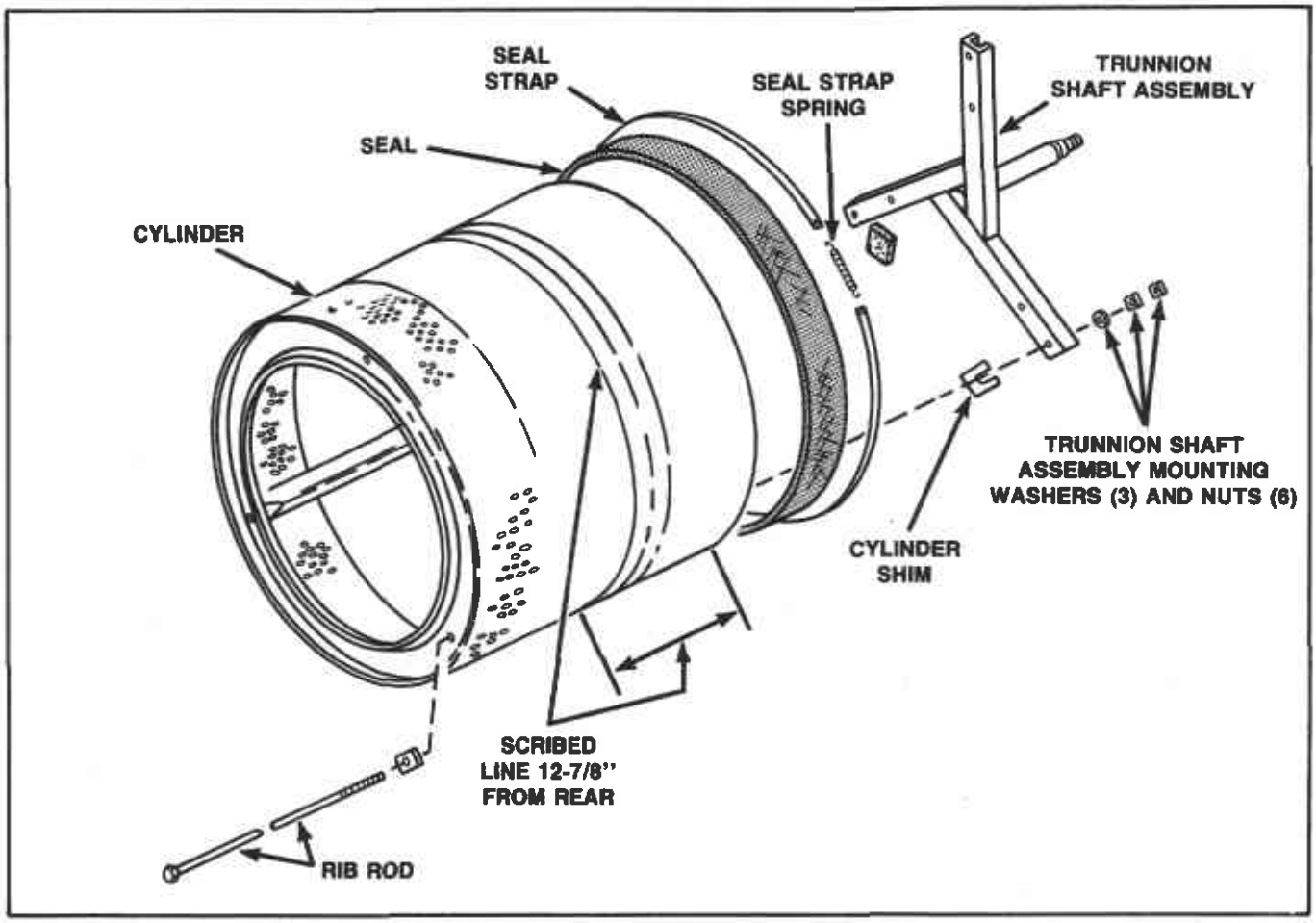


Figure 17

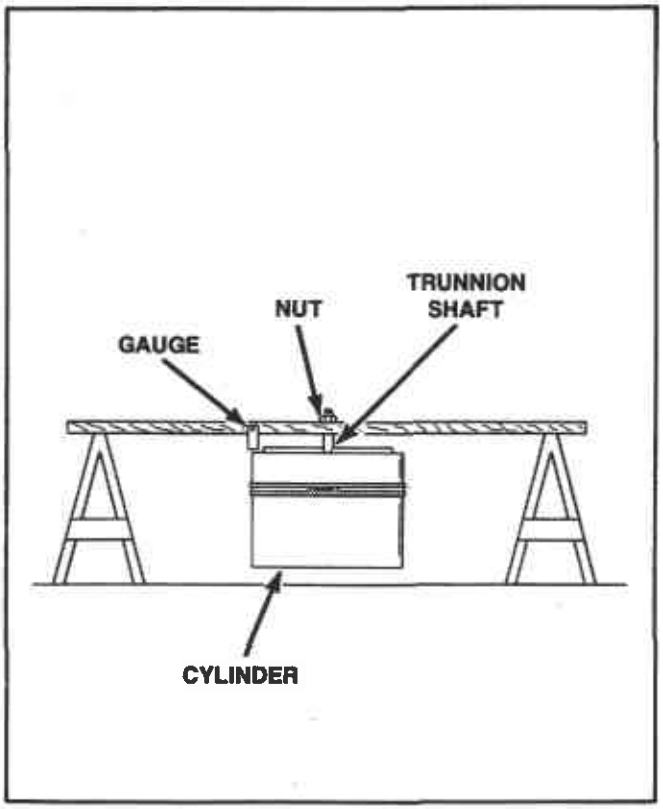


Figure 18

20. CYLINDER SEAL ***(Figure 17)***

a. Remove cylinder and trunnion assembly, *paragraph 17.*
b. Disconnect seal strap spring and remove seal strap.
c. Break seal loose from cylinder. (Seal is held in place with adhesive.)

NOTE: Cylinder should have a scribed line around perimeter of cylinder indicating where leading edge of seal is positioned. If scribed line is not apparent or is hard to recognize, scribe a new line. Line should be 12-7/8" from rear edge of cylinder.

d. Scrape any remaining adhesive from cylinder with a single edge razor blade while applying heat with a hair dryer or hot air gun.
e. With degreaser/solvent, thoroughly clean area to be reglued.

⚠ WARNING

For personal safety use degreaser/ solvent only in a well ventilated area away from any open flames.

f. Position new seal on cylinder with leading edge at scribed line.
g. Obtain a glue gun and load gun with hot melt adhesive sticks provided with cylinder seal.

⚠ WARNING

For personal safety DO NOT let hot glue contact skin. Hot glue may cause burns.

Read and follow glue gun manufacturer's operating instructions before using any glue gun.

IMPORTANT: Use ONLY hot melt adhesive sticks provided with seal. Other adhesives or hot melts will not adhere to cylinder surface or will break down with heat.

h. With nozzle of glue gun slightly under seal leading edge, apply a liberal amount of hot melt around cylinder perimeter following with hand pressure mating seal to cylinder. Hot melt should extend to seal edge or slightly beyond.

21. ROLLER SHAFT *(Figure 19)*

a. Remove cylinder and trunnion assembly, *paragraph 17.*
b. Remove snap ring and washer at back end of shaft.
c. Slide shaft forward out of air duct roller support assembly.

22. AIR DUCT ROLLER SUPPORT ASSEMBLY *(Figure 19)*

a. Remove cylinder and trunnion assembly, *paragraph 17.*
b. Remove screws holding lint shroud to back of air duct roller support assembly.
c. Remove nuts and lockwashers holding air duct roller support to base.
d. Lifting up over the weld studs and pulling forward, remove air duct roller support assembly.
e. Remove snap ring and washer at back end of roller shaft.
f. Slide shaft forward out of air duct roller support assembly.

IMPORTANT: When reinstalling air duct roller support assembly on upper unit, be careful not to pinch main wire harness routed below assembly.

23. AIR DUCT ROLLER SUPPORT SEAL *(Figure 19)*

a. Remove air duct roller support assembly, *paragraph 22.*
b. Detach air duct roller support seal from back of roller support assembly.

IMPORTANT: When reinstalling air duct roller support assembly on upper unit, be careful not to pinch main wire harness routed below assembly.

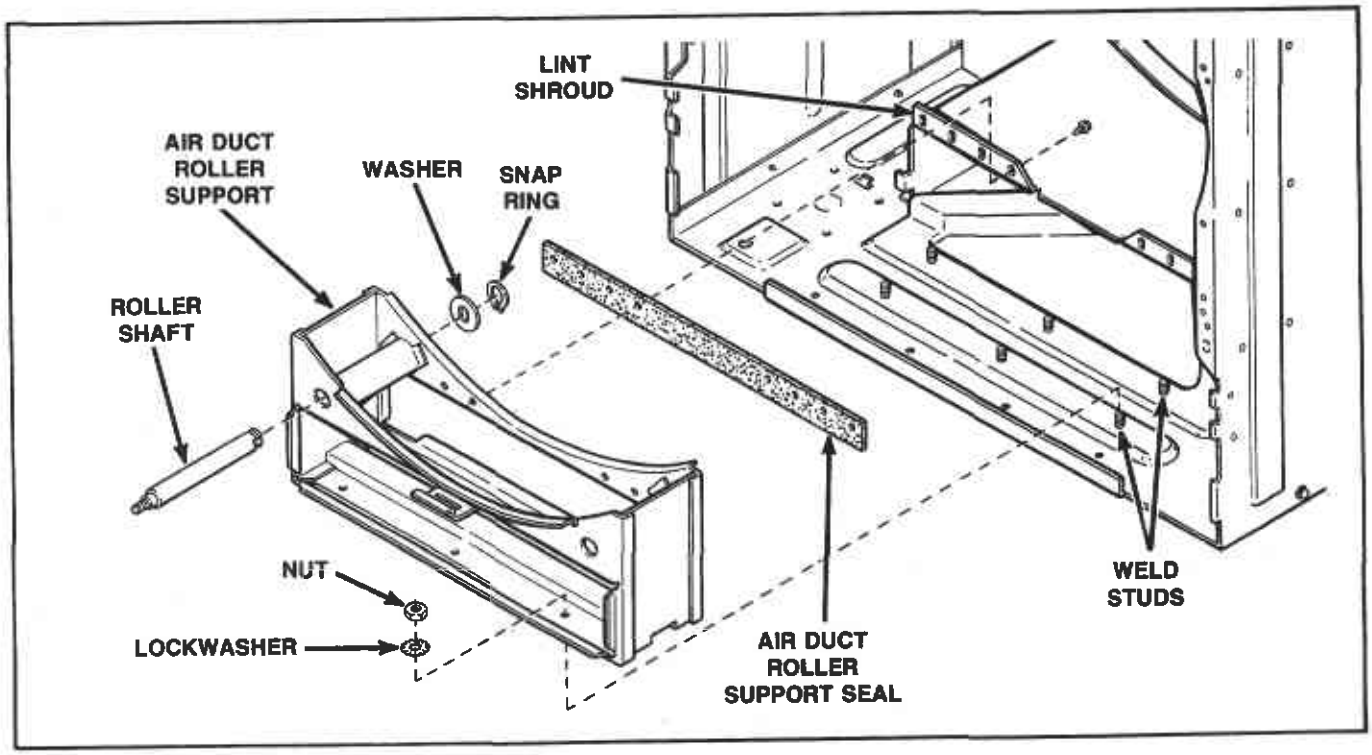


Figure 19

24. AIRFLOW SWITCH *(Figure 20)*

a. Disconnect electrical service to tumbler.
b. Remove airflow switch cover screws. Remove cover.
c. Disconnect wires from switch.

NOTE: Refer to wiring diagram when rewiring switch.

d. Remove screws and nuts holding switch to mounting bracket.

25. STOVE HIGH LIMIT THERMOSTAT, RESET THERMOSTAT AND STEP DOWN THERMOSTAT *(Figure 21)*

a. Disconnect electrical service to tumbler.
b. Remove screws attaching thermostat cover to stove. Remove cover.
c. Disconnect wires from appropriate thermostat.

NOTE: Refer to wiring diagram when rewiring thermostat.

d. Remove screws attaching thermostat to stove.

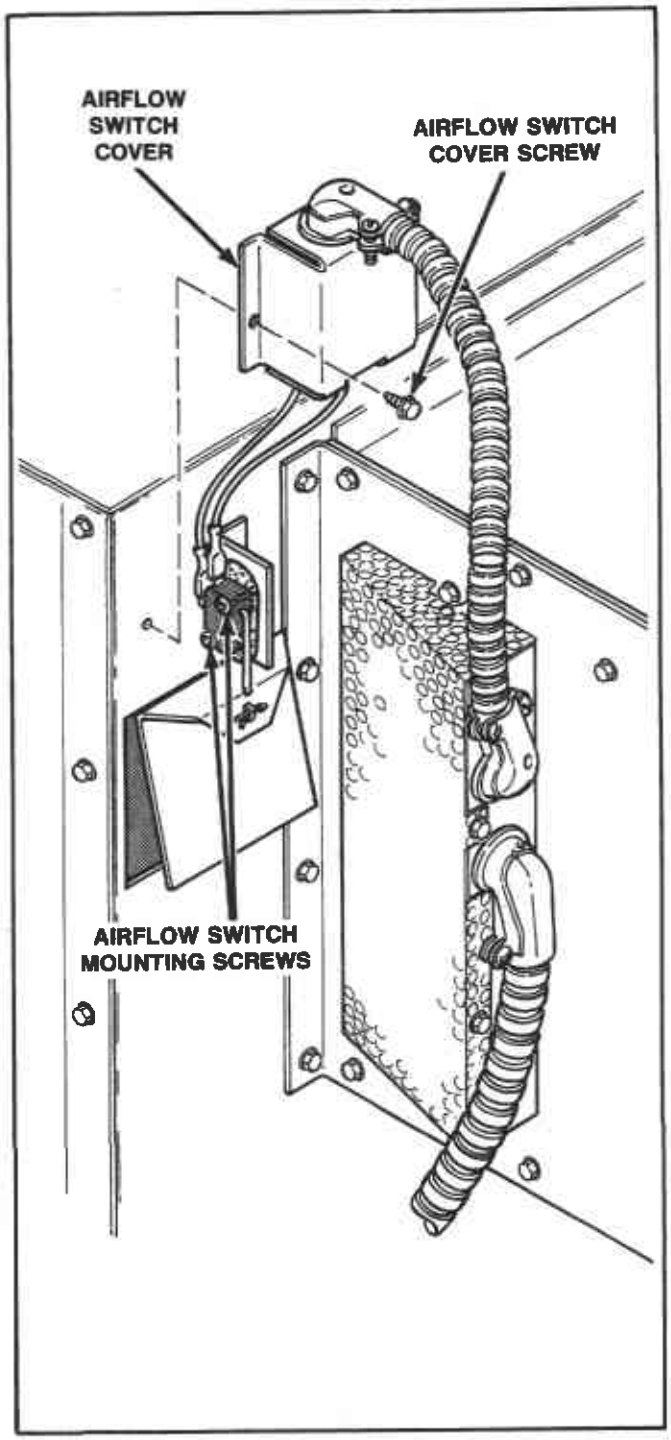


Figure 20

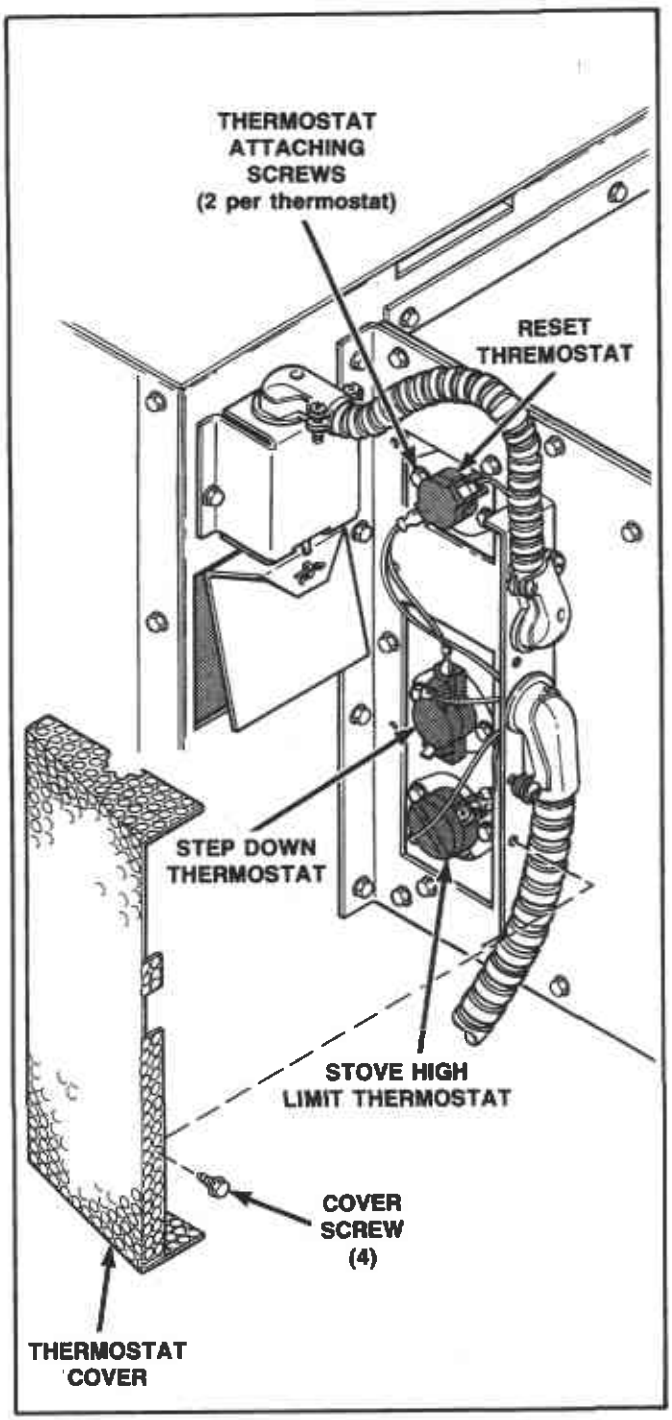


Figure 21

26. BURNER SYSTEM COMPONENTS

Complete Gas Valve Assembly *(Figure 22)*

a. Disconnect electrical service and shut off supply line gas valve.
b. Remove top screws holding gas valve cover to cabinet and stove and loosen bottom screws.
c. Remove gas valve cover.
d. Remove junction box cover screw.
e. Remove junction box cover.
f. Disconnect gas valve wire connections.

NOTE: Refer to wiring diagram when rewiring gas valve.

g. Disconnect gas valve pipe union nut attaching gas shut-off valve to gas valve nipple.
h. Remove screws mounting gas valve to mounting plate.

IMPORTANT: When reinstalling gas valve, purge air and sediment from the gas service line before connecting it loosely to the tumbler. Purge remaining air until odor of gas is detected, then tighten connection. Use pipe compound resistant to action of L.P. gas on all pipe threads.

⚠ WARNING

Check all pipe connections for gas leaks with soap suds. DO NOT USE AN OPEN FLAME TO CHECK FOR GAS LEAKS!

Igniter and Burner Tube Assembly *(Figure 23)*

a. Disconnect electrical service and shut off supply line gas valve.
b. Remove complete gas valve assembly, refer to *gas valve* procedure in this paragraph.
c. Remove screws attaching stove guard to bottom of stove. Remove guard.
d. Disconnect high voltage lead from igniter.
e. Remove screws mounting burner to stove.
f. Remove screws holding plate to side of stove.
g. Remove burner by lifting igniter end up towards top of stove and pulling burner towards gas valve end of stove. Remove burner from bottom of stove.
h. Remove screws mounting igniter to burner.
i. Remove igniter.

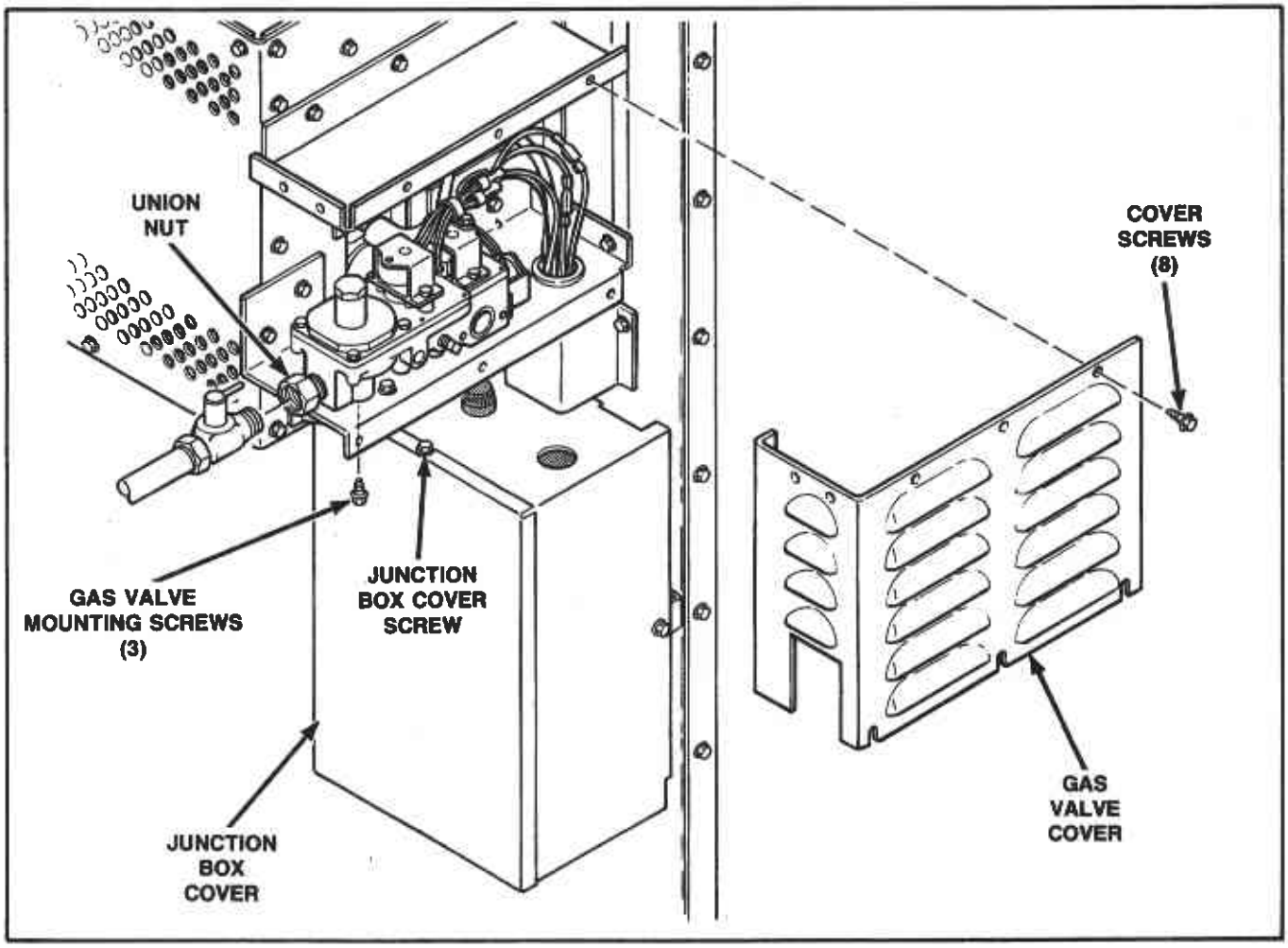


Figure 22

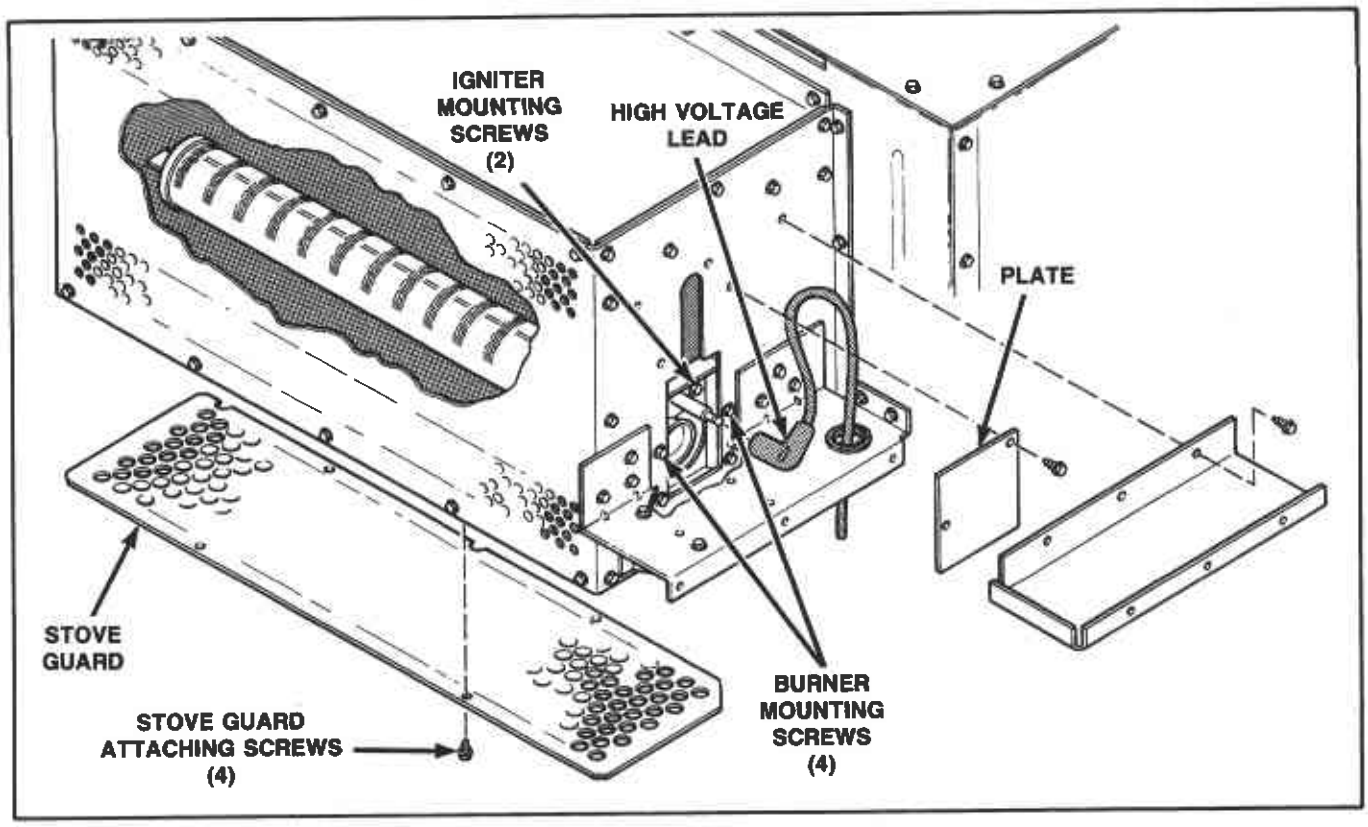


Figure 23

IMPORTANT: When reinstalling igniter on burner, gap between igniter and burner tab should be .125" – .1875" (1/8" to 3/16"), *Figure 24.*

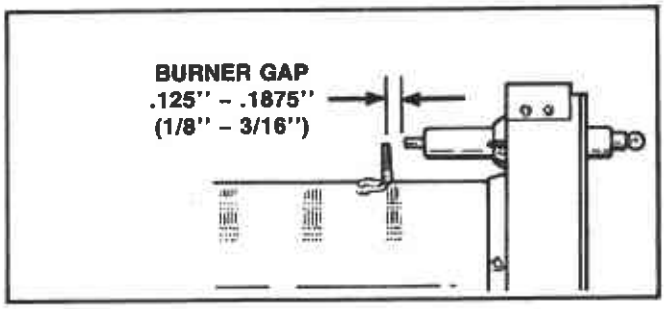


Figure 24

Instant Electronic Ignition *(Figure 25)*

a. Disconnect electrical service and shut off supply line gas valve.
b. Remove screw attaching junction box cover to junction box. Remove cover.
c. Disconnect wire harness.
d. Remove high voltage lead.
e. Remove screws attaching ignition control unit to junction box.
f. Remove ignition control unit.

IMPORTANT: Remove circuit board and plastic back as a unit. Handle ignition control unit by sides of board only. Do not contact circuit boards with hands or metal objects. Place unit in clean, dry area away from work area to avoid damage.

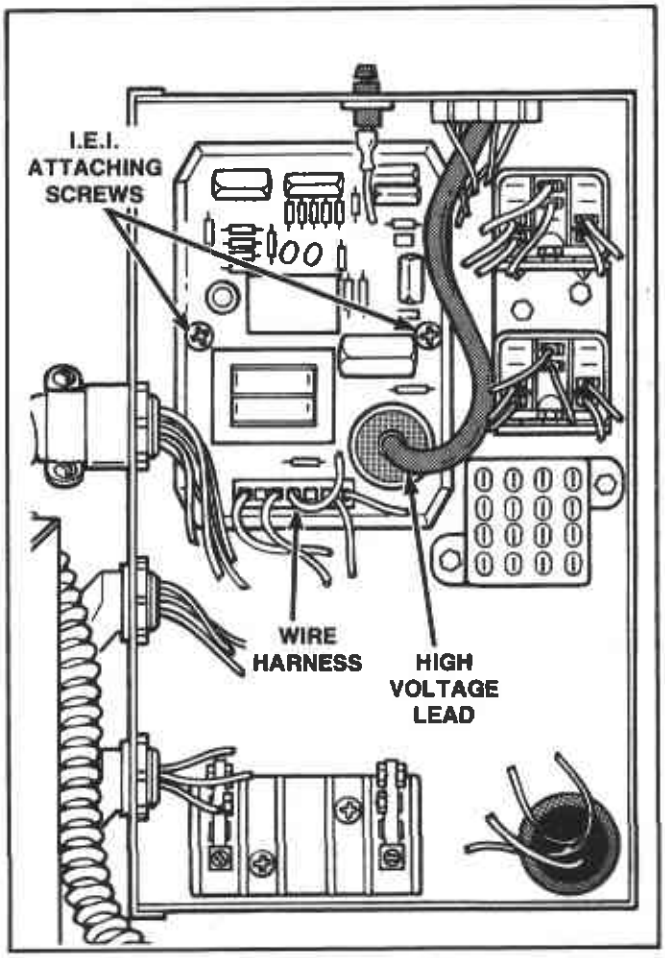


Figure 25

27. TEMPERATURE SENSOR *(Figure 26)*

a. Disconnect electrical service and shut off supply line gas valve.
b. Remove screws attaching fan housing junction box cover.
c. Remove cover from fan housing junction box.
d. Disconnect two wires from temperature sensor terminals.
e. Remove temperature sensor by turning counterclockwise.

NOTE: Refer to wiring diagram when rewiring temperature sensor.

28. CABINET HIGH LIMIT THERMOSTAT *(Figure 26)*

a. Disconnect electrical service and shut off supply line gas valve.
b. Remove two screws attaching fan housing junction box cover.
c. Remove cover from fan housing junction box.
d. Disconnect two wires from thermostat.

NOTE: Refer to wiring diagram when rewiring thermostat.

e. Remove screws holding cabinet high limit thermostat to fan housing. Remove thermostat.

29. LATCH RELAYS *(Figure 27)*

a. Disconnect electrical service to tumbler.
b. Remove screw attaching junction box cover to junction box. Remove cover.
c. Disconnect wires from both latch relay terminals.

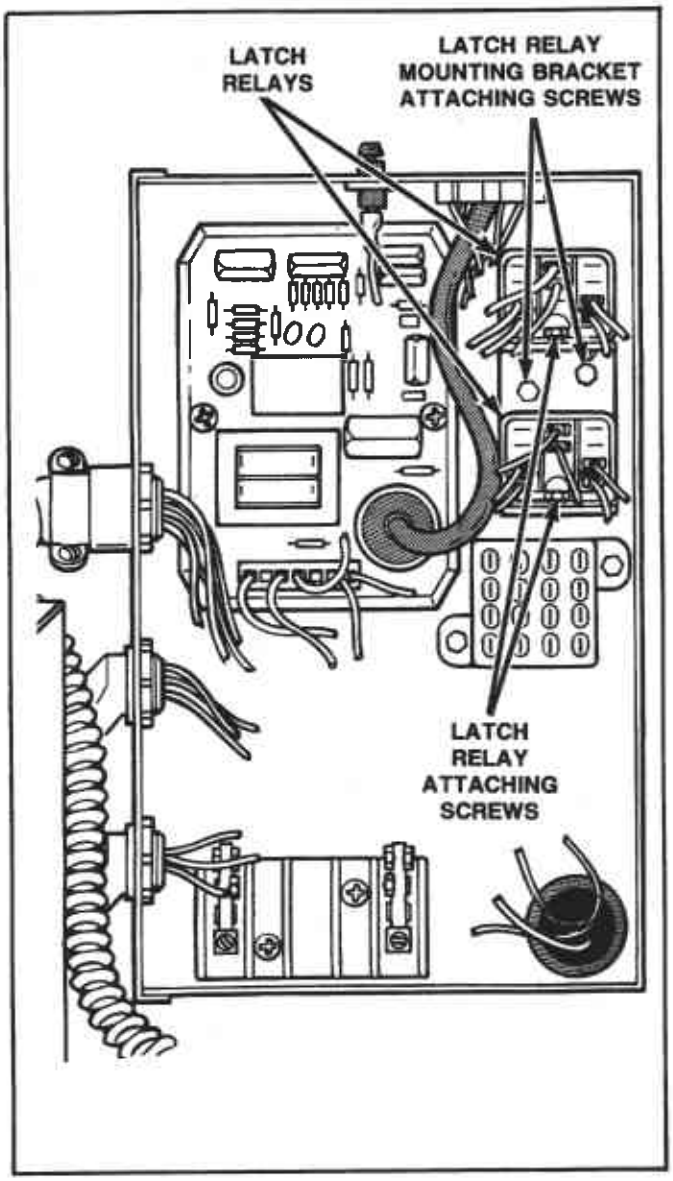


Figure 27

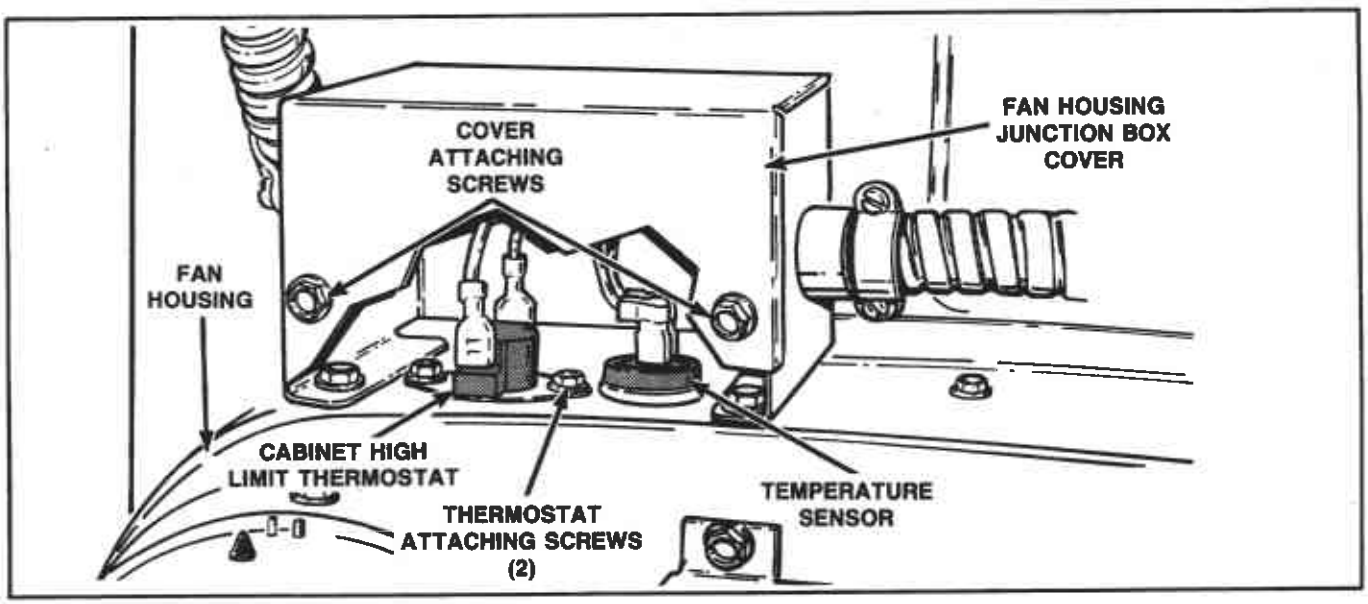


Figure 26

NOTE: Refer to wiring diagram when rewiring latch relay.

d. Remove two screws attaching latch relay mounting bracket to junction box.
e. Remove latch relay mounting bracket with latch relays attached. Remove appropriate relay from mounting bracket.

30. BELT GUARD AND BELT GUARD SWITCH *(Figure 28)*

a. Disconnect electrical service to tumbler.
b. Remove screws attaching belt guard front to belt guard.

⚠ WARNING

For personal safety, belt guard front and belt guard switch MUST be reinstalled after servicing has been completed.

c. Disconnect wires from belt guard switch.

NOTE: Refer to wiring diagram when rewiring belt guard switch.

d. Depress tabs on sides of switch and push switch out through belt guard.
e. Support belt guard and remove attaching screws. Remove belt guard.

31. DRIVE BELT

a. Disconnect electrical service to tumbler.
b. Remove screws holding belt guard front to belt guard, *Figure 28.*

⚠ WARNING

For personal safety, belt guard front MUST be reinstalled after servicing has been completed.

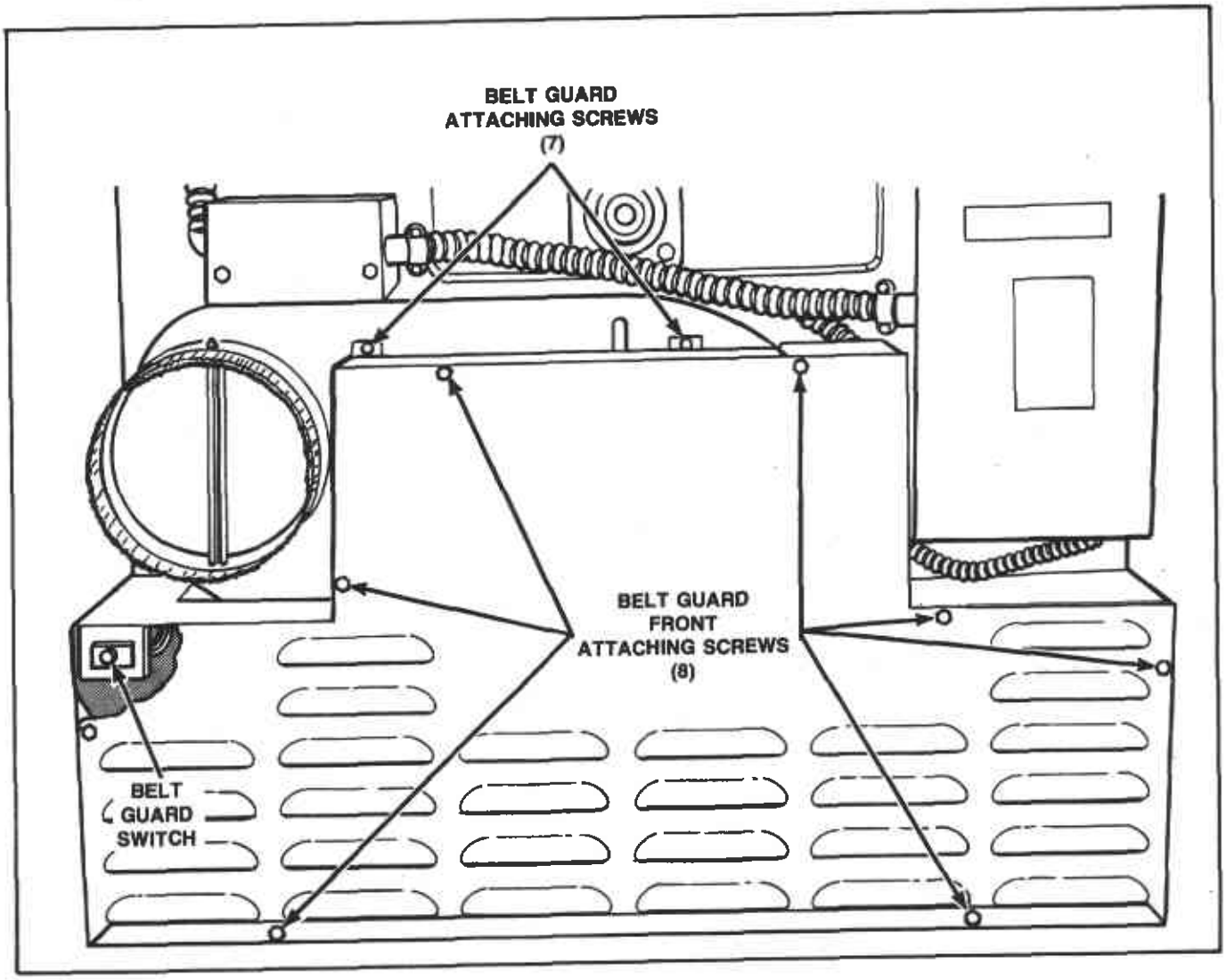


Figure 28

c. Run belt off sheaves and idler, *Figure 29.*

IMPORTANT: Drive belt MUST be replaced with belt No. 430054 for proper tumbler operation.

NOTE: The drive belt tension is automatically set by a spring loaded idler system. There is no adjustment.

d. Reinstall belt guard front.

32. DRIVE IDLER *(Figure 29)*

a. Disconnect electrical service to tumbler.
b. Remove screws holding belt guard front to belt guard.

⚠ WARNING

For personal safety, belt guard front MUST be reinstalled after servicing has *been completed.*

c. Run belt off sheaves and idler.
d. Remove bolt holding drive idler to idler arm.

33. FAN

a. Disconnect electrical service to tumbler.
b. Remove belt guard, *paragraph 30.*
c. Run belt off sheaves and idler, *Figure 29.*
d. Remove screws from fan housing junction box cover and remove cover, *Figure 30.*
e. Disconnect cabinet high limit thermostat and temperature sensor wires.

NOTE: Refer to wiring diagram when rewiring cabinet high limit thermostat and temperature sensor.

f. *Remove screws holding fan housing junction* box to fan housing. Remove fan housing junction box.
g. Remove 17 screws holding fan housing to cabinet back, *Figure 30.*
h. With fan housing assembly off cabinet, hold fan while loosening palnut and jamnut, *Figure 31.*
i. Remove palnut and jamnut from fan shaft. Remove fan.

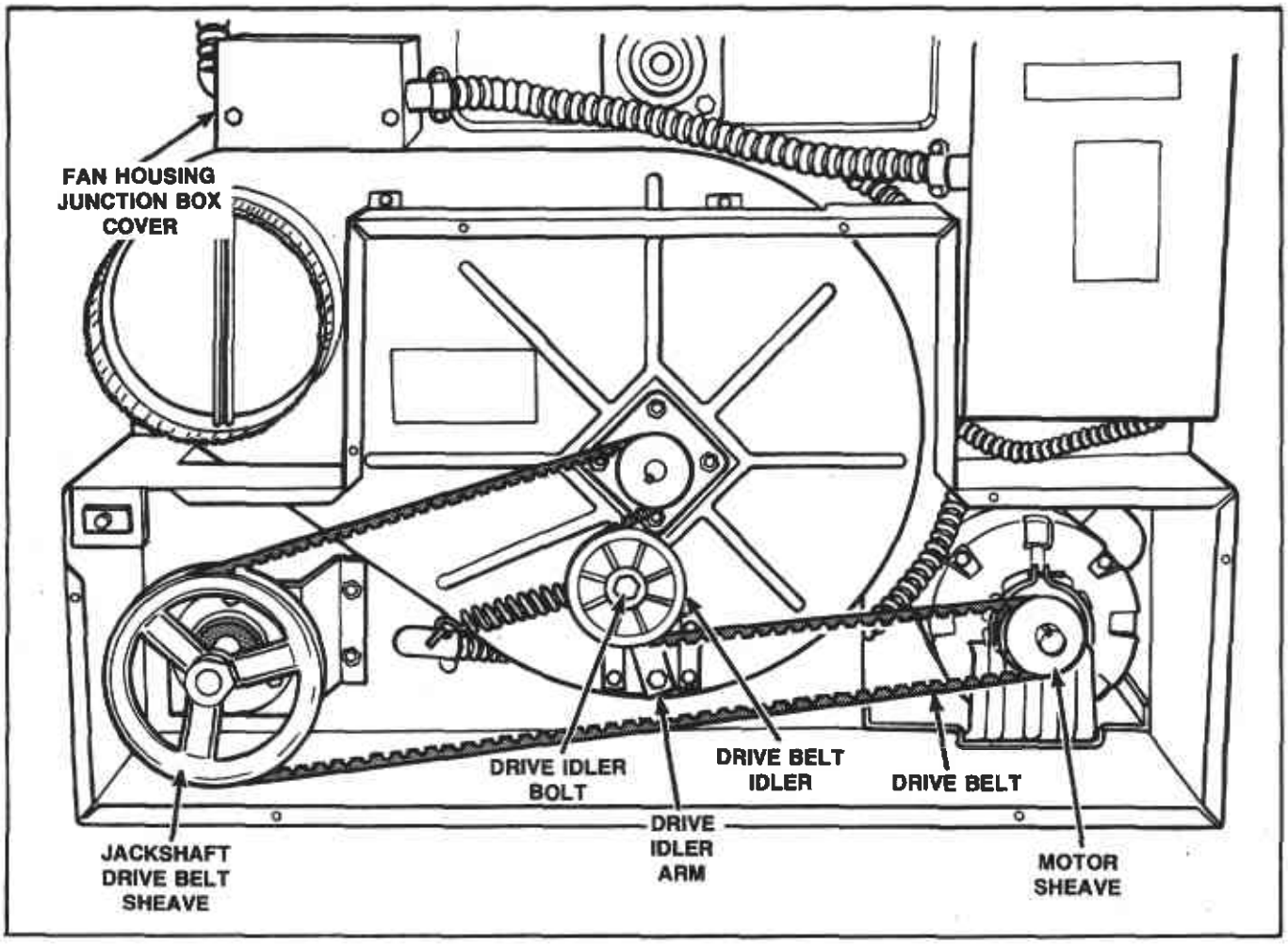


Figure 29

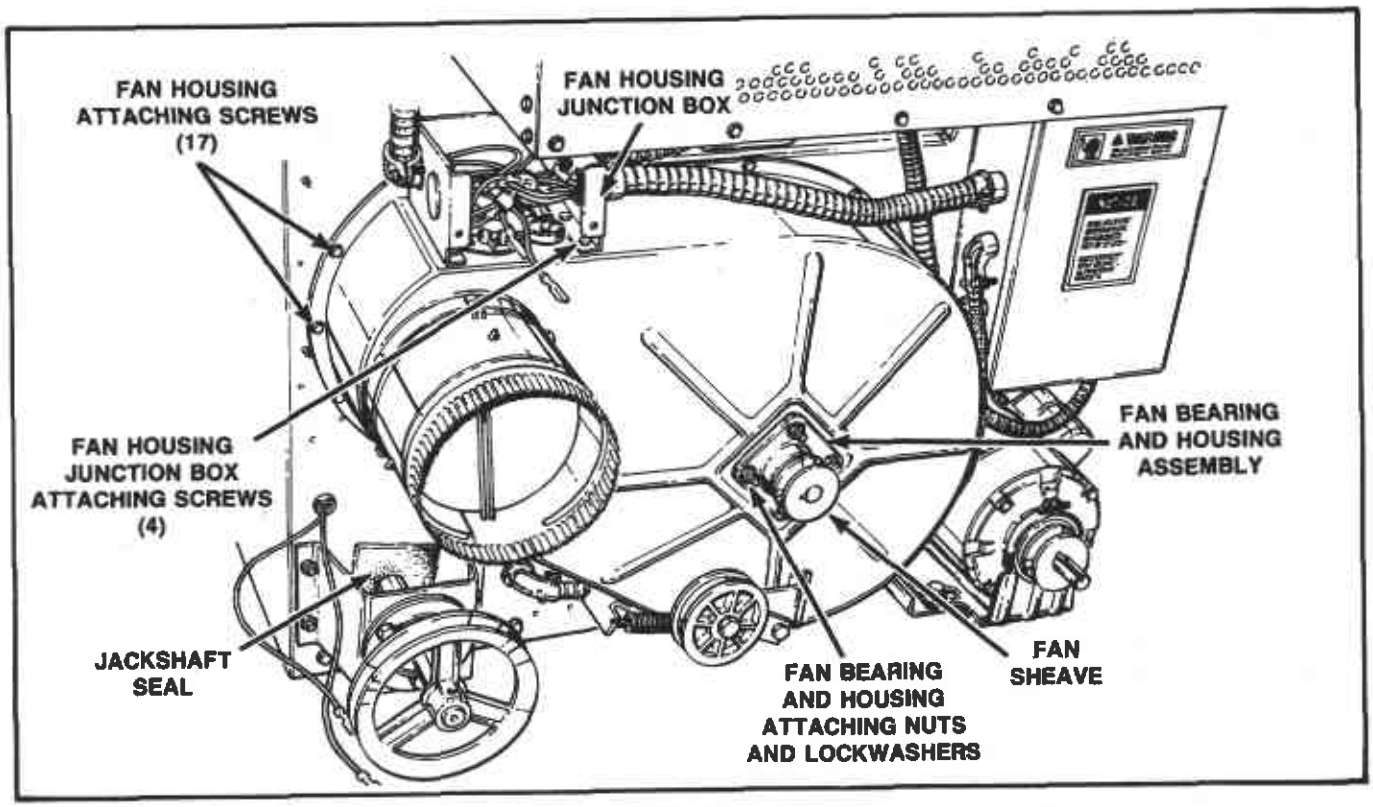


Figure 30

34. FAN BEARING, SHAFT AND HOUSING ASSEMBLY *(Figure 31)*

a. Remove fan, *paragraph 33.*
b. Loosen fan sheave setscrew. Remove fan sheave.
c. Remove nuts, lockwashers and fan bearing, shaft and housing assembly from blower housing.

IMPORTANT: Fan bearing, shaft and housing assembly is a nonrepairable unit. If worn or damaged replace entire assembly.

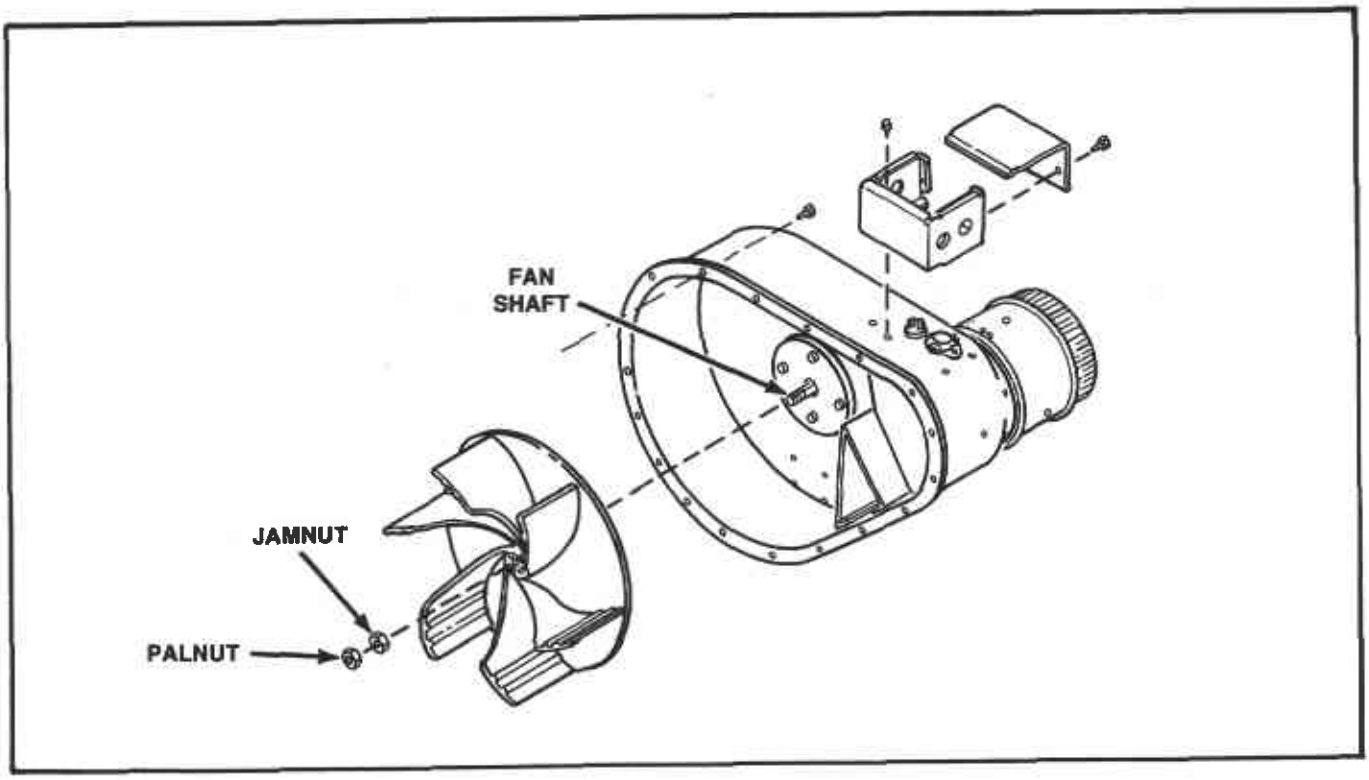


Figure 31

35. MOTOR *(Figure 32)*

a. Disconnect electrical service to tumbler.
b. Remove belt guard, *paragraph 30.*
c. Run drive belt off motor pulley.
d. Remove junction box cover mounting screw. *Remove junction box cover.*
e. Disconnect motor wires in junction box.

NOTE: Refer to wiring diagram when rewiring motor wires.

f. Loosen and remove harness nut attaching motor harness to junction box.
g. Loosen and remove bolts attaching motor to motor mounting bracket.
h. Remove motor from unit with harness attached.
i. Loosen screw on motor wiring cover and slide cover to the side.
j. Disconnect motor harness wires from motor.

NOTE: When installing motor, refer to wiring *diagram when rewiring motor.*

36. COIN VAULT (Lower stacked and stand-alone models only) *(Figure 33)*

a. Disconnect electrical service to tumbler.
b. Remove loading door, *paragraph 2.*
c. Unlock and remove lint drawer.
d. Remove front panel, *paragraph 5.*

Lower stacked model only:

1. Remove screws attaching corner gusset bracket to top of vault. Remove corner gusset.
2. Remove screws attaching coin chute bracket to top of coin vault. Remove coin chute bracket.

e. Remove four plugs on top of coin vault.
f. Remove coin drawer.
g. Remove four socket head cap screws.
h. Slide coin vault forward.

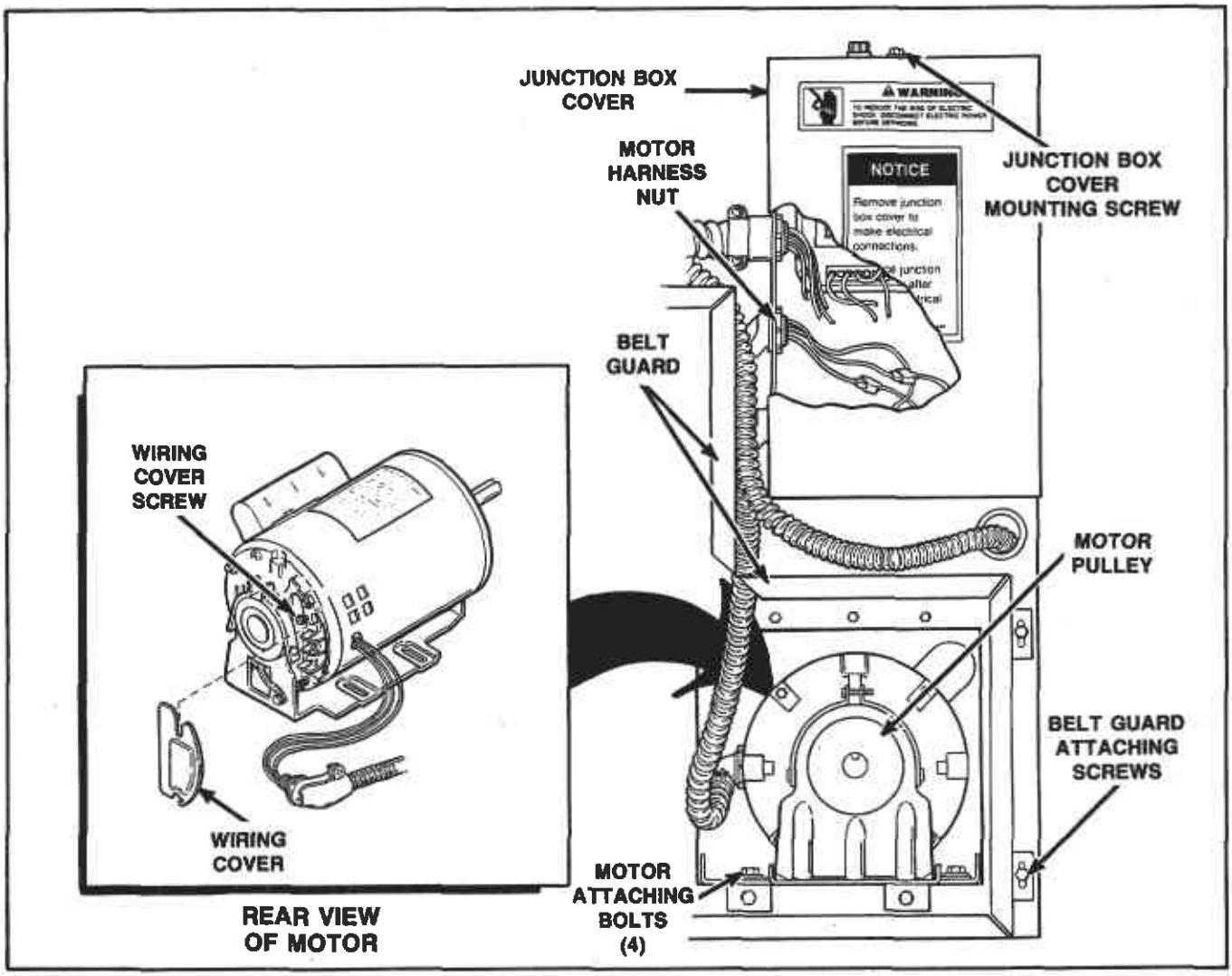


Figure 32

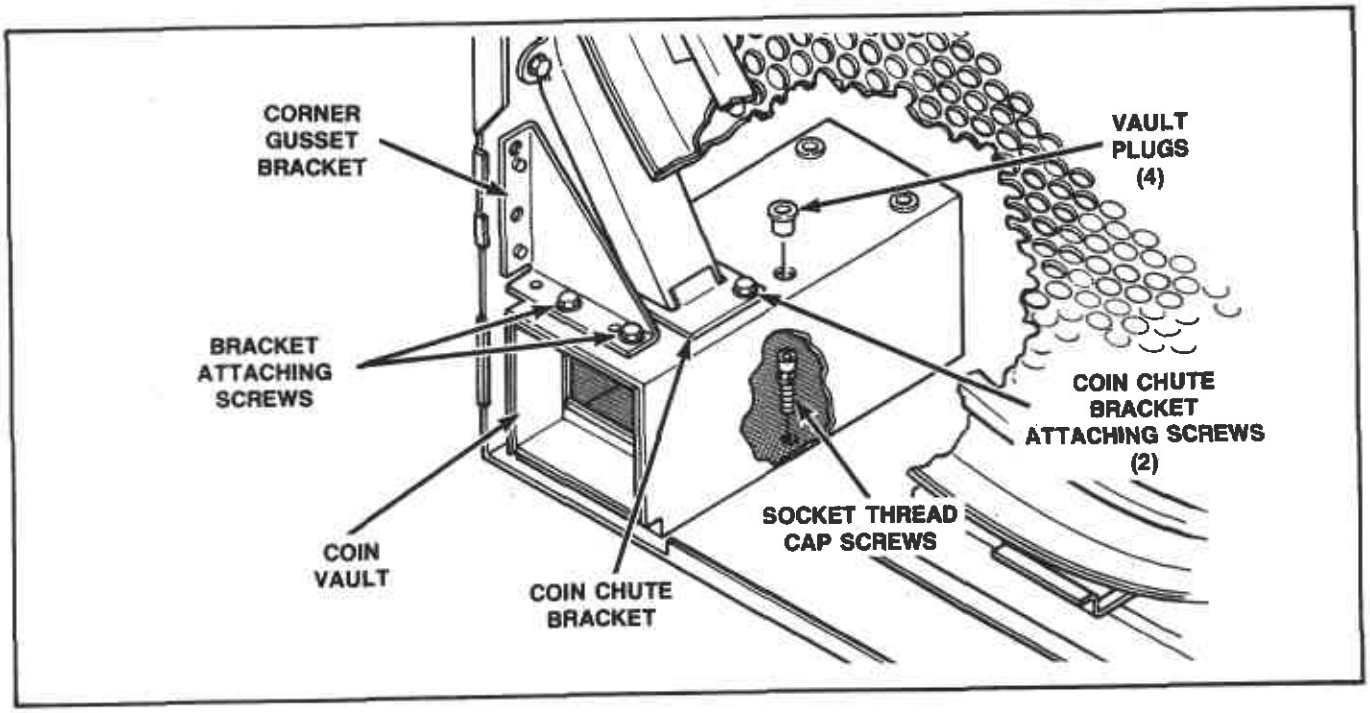


Figure 33

37. JACKSHAFT AND JACKSHAFT BEARINGS

Disassembly:

a. Remove cylinder and trunnion assembly, *paragraph 17.*
b. If jackshaft is to be removed from the front of the machine, remove righthand coin vault on bottom stack units and coin vault on stand-alone units, *paragraph 36.*
c. Remove belt guard front from belt guard, *Figure 28.*
d. Run drive belt off sheaves and idler, *Figure 29.*

If jackshaft is to be removed through the front of the machine:

1. Remove rear jackshaft sheave, *Figure 34.*
2. Loosen rear bearing locking collar setscrew several turns, *Figure 34.*

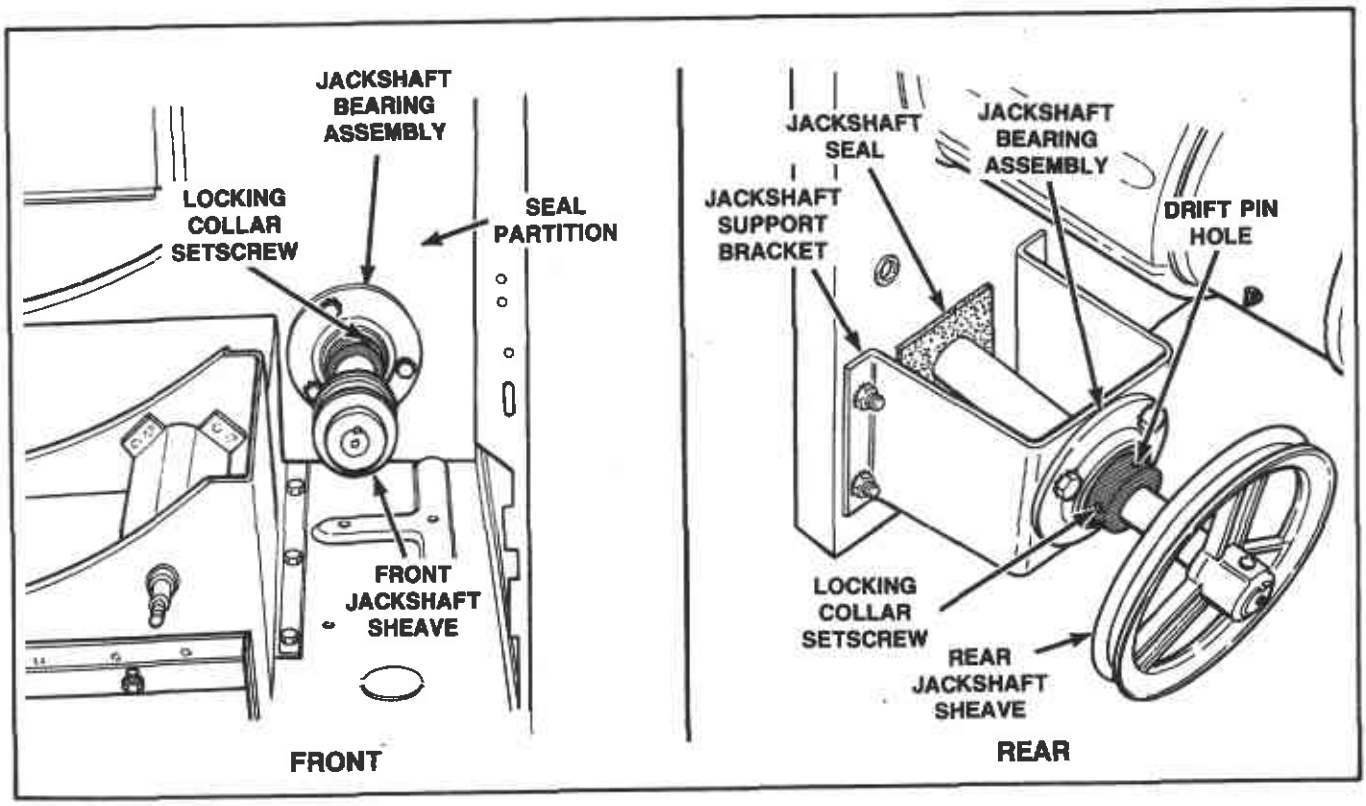


Figure 34

3. Break rear bearing locking collar loose with a drift pin in the collar hole, *Figure 35.*

IMPORTANT: Break loose by striking in the opposite direction of shaft rotation. This is clockwise as viewed from the rear of the machine or counterclockwise as viewed from the front.

4. Remove rear bearing locking collar and file away any burrs caused by locking collar setscrew.
5. Remove bolts holding front bearing assembly to seal partition, *Figure 34.*
6. Slide shaft with front bearing and sheave forward and out of machine.
7. Remove front jackshaft sheave.
8. Loosen front bearing locking collar setscrew several turns.
9. Break front bearing locking collar loose with a drift pin in the collar hole.

IMPORTANT: Break loose by striking in the opposite direction of shaft rotation. This is clockwise as viewed from the rear of the machine or counterclockwise as viewed from the front.

10. Remove front bearing locking collar and file away any burrs caused by locking collar setscrew.
11. Remove front bearing assembly from shaft.

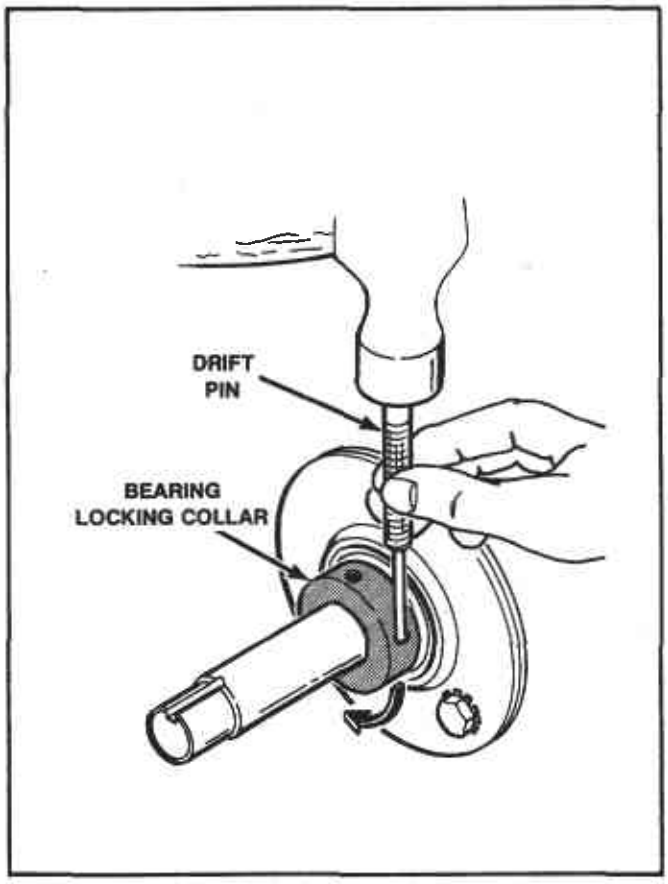


Figure 35

12. Remove rear bearing assembly from jackshaft support bracket, *Figure 34.*
13. Replace jackshaft seal if worn or damaged, *Figure 34.*

If jackshaft is to be removed through the rear of the machine:

1. Remove front jackshaft sheave, *Figure 34.*
2. Loosen front bearing collar setscrew several turns, *Figure 34.*
3. Break front bearing locking collar loose with a drift pin in the collar hole, *Figure 35.*

IMPORTANT: Break loose by striking in the opposite direction of shaft rotation. this is clockwise as viewed from the rear of the machine or counterclockwise as viewed from the front.

4. Remove front bearing locking collar and file away any burrs caused by locking collar setscrew.
5. Remove bolts holding rear bearing assembly to jackshaft support bracket, *Figure 34.*
6. Slide shaft with rear bearing and sheave back and out rear of machine.
7. Remove rear jackshaft sheave.
8. Loosen rear bearing locking collar setscrew several turns.
9. Break rear bearing locking collar loose with a drift pin in the collar hole.

IMPORTANT: Break loose by striking in the opposite direction of shaft rotation. This is clockwise as viewed from the rear of the machine or counterclockwise as viewed from the front.

10. Remove rear bearing locking collar and file away any burrs caused by locking collar setscrew.
11. Remove rear bearing assembly from shaft.
12. Remove front bearing assembly from seal partition, *Figure 34.*
13. Replace jackshaft seal if worn or damaged, *Figure 34.*

Assembly:

a. Install front and rear bearing flange assemblies to their mounting surfaces with locking collars facing outward for each bearing, *Figure 34.*

NOTE: Larger 1" bore bearing mounts on the seal partition and the 7/8" bore bearing mounts on the jackshaft support backet.

IMPORTANT: Flanges must be loose, indicating spherical bearing O.D. is not locked in position. Run mounting bolts through flanges but don't tighten – leave loose 2-3 turns to keep flanges loose to allow for proper bearing alignment.

b. Insert jackshaft through front bearing and bottom out up against rear bearing shaft shoulder.
c. Tighten rear bearing flange down against jackshaft support bracket.
d. With shaft shoulder up against rear bearing, mate the self-locking collar with the cam of the wide inner ring of the rear bearing, *Figure 36.*
e. Press the locking collar against the wide inner ring of the rear bearing and turn in the direction of shaft rotation until tightly engaged. This is counterclockwise as viewed from the rear of the machine.
f. With drift pin in collar hole, strike in direction of shaft rotation to lock.
g. Tighten setscrew in collar.
h. Tighten front bearing flange to the seal partition, *Figure 34.*
i. Lock front bearing collar and setscrew as in "e" through "h", but note direction of shaft rotating and locking direction is now clockwise as viewed from front of machine.
j. Install front and rear sheaves, keys and setscrews.

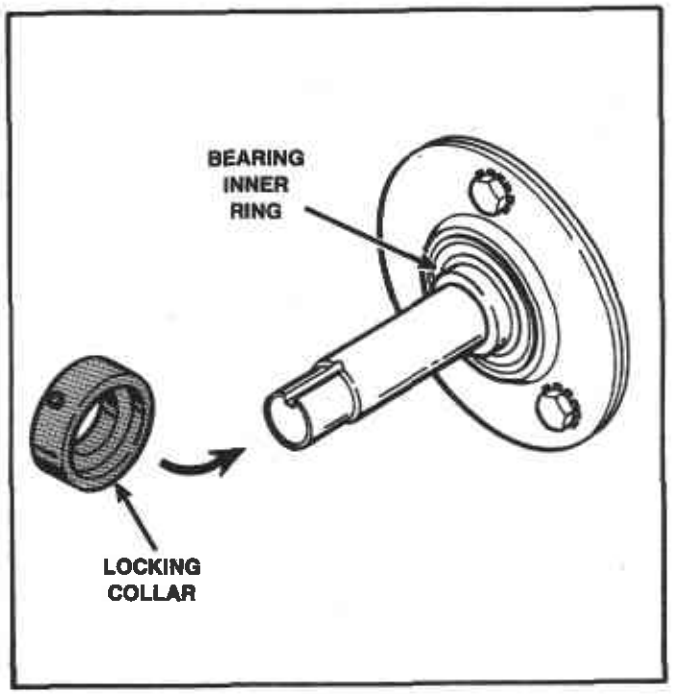


Figure 36

SECTION III
Adjustments

38. LEVELING LEGS

NOTE: Keep the tumbler as close to the floor as possible. All four legs must rest firmly on the floor so weight of tumbler is evenly distributed. Tumbler must not rock.

a. Check the front to rear level by rotating the clothes cylinder until one of the cylinder ribs is at the bottom. Place a level on the rib. *Adjust legs as necessary.*

NOTE: The front of the tumbler should be slightly higher than the rear (approximately 1/8 inch, 3.18 mm). This will prevent the clothes, while tumbling, from wearing on the door glass gasket.

b. Check the side to side level by placing a level on the front and rear of top panel. Adjust legs as necessary.

39. MAIN GAS BURNER AIR SHUTTER

⚠ CAUTION

The burner requires no adjustment for primary air.

40. AIRFLOW SWITCH *(Figure 37)*

The airflow switch is set at the factory for proper operation. However, at installation, airflow must be checked on each switch. If there is a problem, adjust as follows:

⚠ WARNING

Lint drawers, loading doors, coin vaults and microprocessor doors must be in place before attempting to adjust airflow switch.

IMPORTANT: Airflow switch vane must remain closed during operation. If it opens during the drying cycle, this indicates insufficient airflow through the tumbler. If switch remains open, or pops open and closed during the cycle, the heating system will shut off. The cylinder and fan will continue to operate even though the airflow switch is malfunctioning.

⚠ WARNING

Airflow switch operation may be affected by a clogged lint screen, lack of make-up air, or in the customer installed main or collector ducts. These conditions must be checked and necessary corrections made before adjusting airflow switch. Always check airflow at installation.

The airflow switch operation is controlled by bending the vane. Bending the vane either increases or decreases airflow switch sensitivity. The vane should be adjusted so the airflow will force the disc away from the cabinet when the machine door is opened 1-1/2 inches (3.81 cm). Loading door switch must be taped shut during this adjustment. Adjust the airflow switch as follows:

a. Load the tumbler with a dry cotton load.

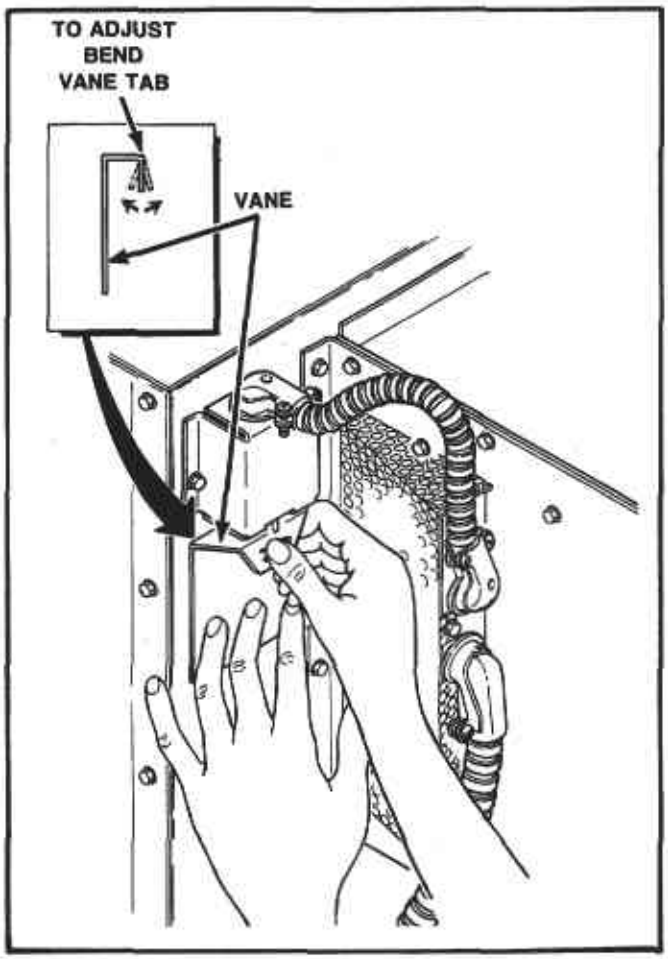


Figure 37

NOTE: Airflow adjustment is much faster to make with one person opening loading door in front and another adjusting the vane in the rear of the tumbler.

b. Start the tumbler. Open loading door 1-1/2 inches (3.81 cm). The airflow vane should move away from the cabinet, opening the switch contacts and shutting off the heat system. This indicates proper operation and proper adjustment.

c. If switch is not opening as described in step "b", it should be adjusted so it is MORE sensitive. Grasp the vane and spread the vane and switch connection apart. Retest by opening loading door and continue spreading the vane until switch operates as described in step "b".

d. If switch opens BEFORE loading door is opened the proper distance, step "b", it should be adjusted so it is LESS sensitive. Squeeze the vane and switch connection together. Retest by opening the loading door and continue squeezing vane connection together until switch operates as described in step "b".

e. Remove tape from the loading door switch.

41. CYLINDER DOOR SWITCH *(Figure 38)*

The door switch should be adjusted so the cylinder stops when door is opened two inches (5.08 cm), plus or minus 1/4 inch (6.35 mm). This switch is a normally open switch and is closed when the door is closed.

a. Close door and start tumbler. Slowly open loading door. Cylinder and heat system should shut off when door is open two inches (5.08 cm) plus or minus 1/4 inch (6.35 mm).

b. Slowly close loading door. When door is two inches (5.08 cm) from being fully closed, the tab on the door should contact the switch plunger and depress it enough to close the switch with an audible "click."

c. If tab does not depress the switch plunger enough to operate the switch, bend tab on loading door OUTWARD and repeat steps "a" and "b".

42. CYLINDER DOOR STRIKE *(Figure 39)*

The door strike must be adjusted so that sufficient tension holds loading door closed against the force of a load tumbling against it. The door is properly adjusted when 8-15 lbs. (35.6-66.7 kg) of pull is required to open door.

To adjust, open door and turn door strike screw in or out as required.

43. BELT GUARD SWITCH

The belt guard switch is a normally open switch and closed when the guard front is in place. No adjustment is necessary.

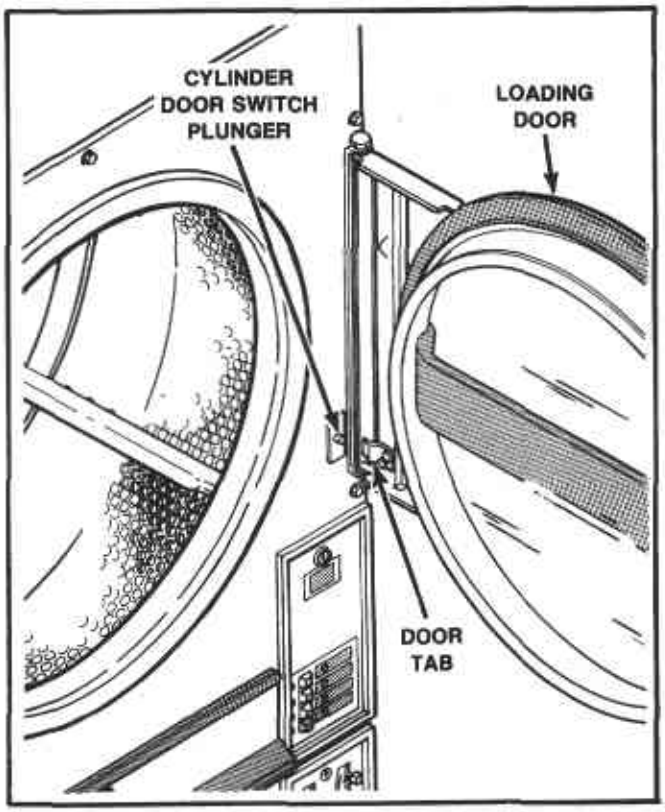


Figure 38

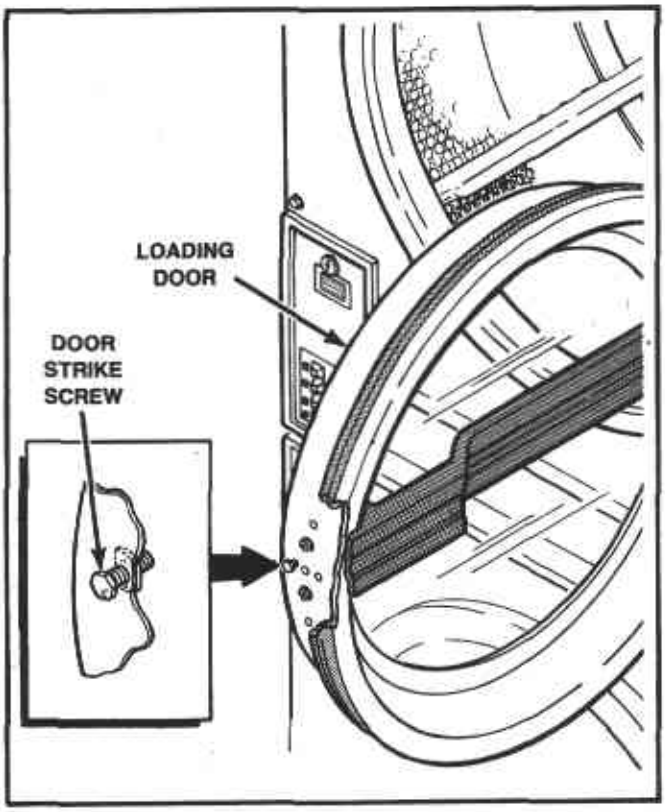


Figure 39

44. LINT DRAWER SWITCH *(Figure 40)*

The lint drawer switch is set so that when the lint drawer is opened 1/2" (1.22 cm) ± 1/4" (6.35 mm), the machine shuts off and tumbling action stops. If the lint drawer is dropped or hit, the switch tab could be bent causing improper operation.

a. With the loading door closed and belt guard front in place, push start button. Unlock the lint drawer and open slowly. The machine should shut off when the door is opened 1/2" (1.22 cm) ± 1/4" (6.35 mm).
b. Slowly close the lint drawer. An audible "click" should be heard at approximately 1/2" (1.22 cm) opening.
c. If lint drawer tab does not contact switch plunger enough to operate the switch, bend the tab BACKWARD and repeat steps "a" and "b".

45. DRIVE BELT TENSION

Correct tension is maintained by a spring loaded idler. No adjustment is necessary.

46. CYLINDER BELT TENSION

Correct tension is maintained by a spring loaded idler. No adjustment is necessary.

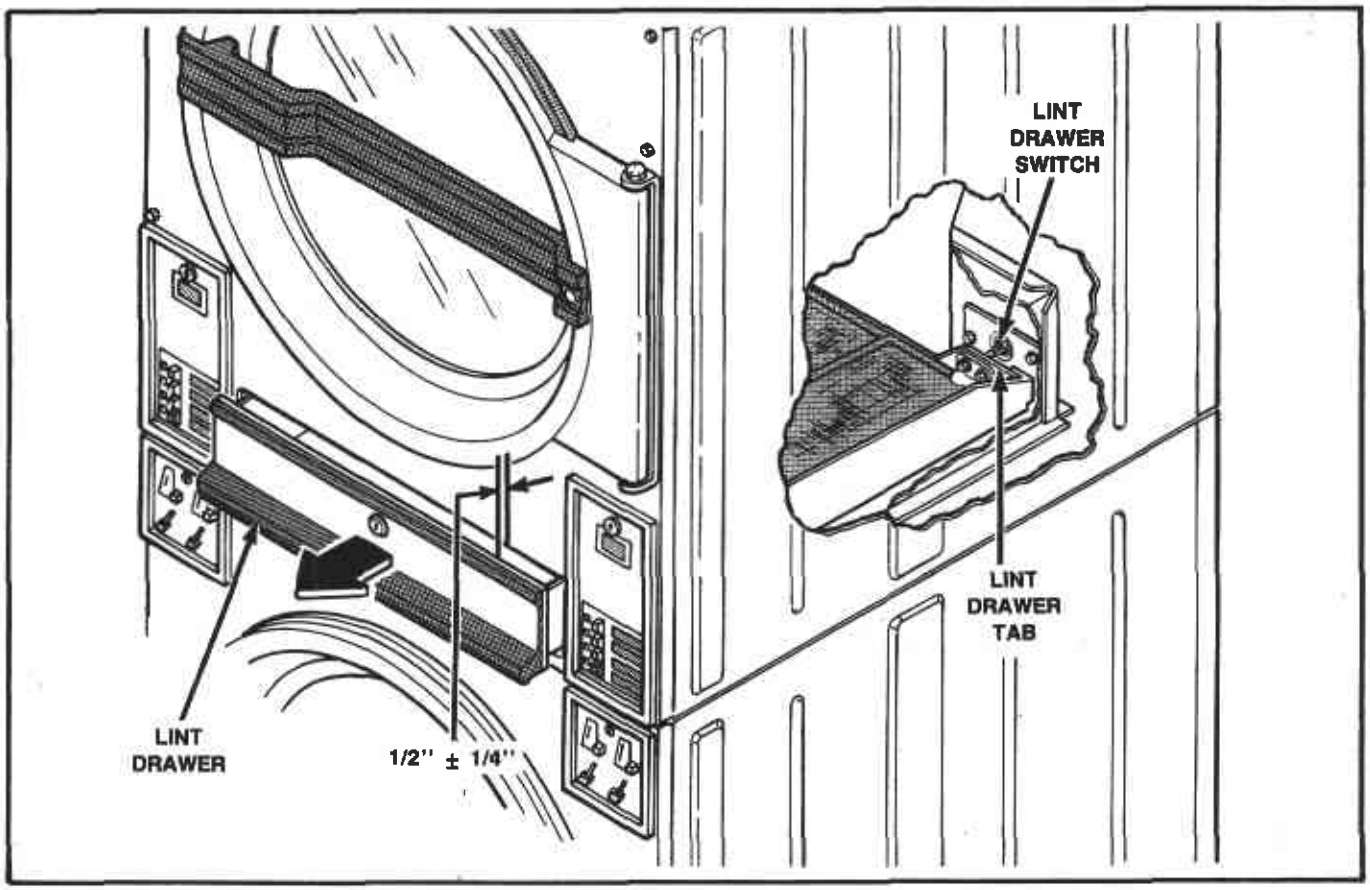


Figure 40

SECTION IV
Service Helps

⚠ WARNING

For safety reasons, disconnect electrical service and close valve in gas supply line before servicing.

IMPORTANT: Refer to appropriate wiring diagram for aid in testing tumbler components.

47. MOTOR DOES NOT START

POSSIBLE CAUSE	TO CORRECT
Electrical power off or circuit breaker or fuse blown.	Check power supply, or replace fuses.
Loading door switch, lint drawer switch or belt guard switch not closed or inoperative switch.	Close door, drawer or replace guard or test switch and replace if inoperative.
Door switch improperly adjusted.	Refer to ADJUSTMENTS section in this manual for door switch adjustment.
Start circuit not complete.	Press start switch button, or test switch and replace if inoperative.
Inoperative motor.	Have motor tested and replace if inoperative.
Improper coins inserted in coin drop.	Check that proper coins are inserted.
Inoperative coin drop.	Test coin drop and replace if inoperative.
Broken, loose, or incorrect wiring.	Refer to wiring diagram located on back of tumbler.
Jackshaft binding in bearings.	Replace bearings.
Fan shaft binding in bearings.	Replace fan shaft and bearing assembly.
Cylinder shaft binding in bearings.	Replace cylinder bearing and housing assembly.
Idler bearings binding.	Replace idler(s).
Stove high limit thermostat is open or inoperative.	Allow unit to cool down and clean lint screen or replace thermostat.
Microprocessor relay inoperative.	Replace microprocessor.

48. MOTOR OVERLOAD PROTECTOR CYCLES REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Incorrect voltage.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for electrical requirements.
Clothes load too large.	Remove part of load.
Clothes cylinder is binding.	Check cylinder for binding.
Inadequate wiring.	Check with local power company to insure that wiring is adequate.
Inadequate make-up air.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for make-up air requirements.
Poor housekeeping.	Clean lint accumulation on and around the motor.
Broken, loose, or incorrect wiring.	Refer to wiring diagram located on back of tumbler.

49. MOTOR RUNS BUT CYLINDER DOES NOT TURN

POSSIBLE CAUSE	TO CORRECT
Motor drive pulley loose and key fallen out.	Replace key and tighten setscrews.
Sheave loose and key fallen out.	Replace key and tighten setscrews.
Broken drive belt.	Replace drive belt.
Broken cylinder belt.	Replace cylinder belt.
Cylinder is binding.	Check cylinder for binding.

50. MOTOR DOES NOT STOP

POSSIBLE CAUSE	TO CORRECT
Inoperative door switch, belt guard switch, lint drawer switch or stove high limit thermostat.	Test switches and thermostat and replace if inoperative.
Inoperative coin drop.	Test coin drop and replace if inoperative.
Incorrect wiring.	Refer to wiring diagram located on back of tumbler.

51. BURNER DOES NOT IGNITE.

POSSIBLE CAUSE	TO CORRECT
Improper or inadequate exhaust system.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for exhaust system requirements.
Blown fuses or tripped circuit breaker in electric supply line.	Check fuses or circuit breaker.
Drying selector set in the "cool-down" portion of cycle.	Reset switch on microprocessor.
Inoperative cabinet high limit thermostat.	Test thermostat and replace if inoperative.
Insufficient gas supply.	Open partially closed gas shut-off valve, or correct low gas pressure. Check manifold pressure and adjust to pressure specified on rating plate. If pressure cannot be obtained, have gas supplier check main pressure.
Incorrect orifices.	Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain proper orifices.
Inoperative airflow switch.	Clean lint compartment after every 8 hour shift. Check damper for foreign objects, lint accumulation, or other causes that may prevent damper from opening. Check ductwork for lint build-up. Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) to insure that ductwork and make-up air openings are sized adequately. Check exhaust outlet. If a screen has been improperly installed on the outlet, it may be clogged with lint or frozen over in winter. Never install a screen over the exhaust outlet. Vacuum within the tumbler drops to .09 inches water column, or less, for normal operation of tumbler, vacuum reading (in water column inches) should range between .15 and .3. Vacuum reading can be made with a vacuum 4-gauge by removing a sheet metal screw in the front panel of tumbler, and inserting the rubber tube of the vacuum gauge into screw opening. Test switch and replace if inoperative.
Airflow switch out of adjustment.	Refer to ADJUSTMENTS section in this manual for airflow switch adjustment.
Lint drawer not closed properly.	Unlock and open lint drawer, close lint drawer on tumbler (insuring a tight fit) then lock.
Broken, loose, or incorrect wiring.	Refer to wiring diagram located on back of tumbler.
Improper igniter to burner tab clearances.	Set gap as described in SERVICE PROCEDURES section, *paragraph 26.*
Valve coils inoperative.	Check valve coils and replace valve if necessary.
Blown fuse on tumbler.	Check fuse and replace if necessary.

(continued)

51. BURNER DOES NOT IGNITE (CONT'D.)

POSSIBLE CAUSE	TO CORRECT
Gas shut-off valve closed.	Open shut-off valve.
Green wire from IEI board not connected to ground terminal.	Connect green wire to terminal.
Inoperative IEI control.	Replace IEI control.
Inoperative motor switch.	Replace motor.
IEI control in safety lockout.	Reset IEI control by opening and closing tumbler door.

52. BURNER IGNITES AND GOES OUT REPEATEDLY

POSSIBLE CAUSE	TO CORRECT
Insufficient gas pressure.	Check gas supply and pressure.
Inoperative cabinet high limit thermostat.	Test thermostat and replace if inoperative.
Improper or inadequate exhaust system.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for exhaust requirements.
Improper orifices.	Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain and install proper orifices.
Broken, loose, or incorrect wiring.	Refer to wiring diagram located on back of tumbler.
Excessive igniter to burner clearance.	Set gap as described in SERVICE PROCEDURES section, *paragraph 26.*

53. BURNER REPEATEDLY CYCLES INTO LOW FIRE

POSSIBLE CAUSE	TO CORRECT
External exhaust system is longer than recommended.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for exhaust system requirements.
Clogged lint screen.	Clean screen. Lint screen and compartment should be cleaned after every 8 hour shift.
Lint in internal tumbler ductwork.	Disassemble tumbler ductwork and clean.
Lint in external exhaust system.	Disassemble exhaust system and clean.
Stepdown thermostat cycling at too low a temperature.	Replace thermostat.
Inoperative latch relays.	Replace latch relays.

54. BURNER DOES NOT SHUT OFF

POSSIBLE CAUSE	TO CORRECT
Motor does not stop.	Refer to *paragraph 50.*
Impurities on gas valve seat, preventing valve from closing.	Replace gas valve.
Incorrect wiring.	Refer to wiring diagram located on back of tumbler.

55. CLOTHES DO NOT DRY

POSSIBLE CAUSE	TO CORRECT
Burner does not ignite.	Refer to *paragraph 51.*
Too much water in articles being dried.	Remove excess water.
Clothes load too large.	Remove part of load. Thirty pounds dry weight (cotton load) is maximum load.
Improper or inadequate exhaust system.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for exhaust recommendations.
Burner shuts off prematurely.	Refer to *paragraph 52.*
Drying selector improperly set.	Set selector for higher setting.
Incorrect voltage.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for electrical requirements.
Inadequate make-up air.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for make-up air requirements.
Clogged lint screen.	Clean lint screen.
Unit is in low fire condition.	Clean lint screen and check exhaust system. Check stepdown thermostat and replace if necessary. Check latch relays and replace if necessary. Check unit's wiring.
Exhaust thimble binding.	Adjust thimble vanes so they turn freely.

56. TUMBLER OVERHEATING

POSSIBLE CAUSE	TO CORRECT
Incorrect main burner orifices.	Replace orifices.
Gas pressure too high.	Adjust gas pressure as specified on rating plate.
Inadequate make-up air.	Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for make-up air requirements.
Lint accumulation.	Remove lint.
Restricted or inadequate exhaust system.	Remove obstruction or lint build up from exhaust ductwork. Refer to INSTALLATION INSTRUCTIONS (supplied with tumbler) for exhaust system requirements.
Inoperative temperature sensor.	Check wiring to ensure temperature sensor is connected. Replace temperature sensor if necessary.
Exhaust thimble binding.	Adjust vanes so they turn freely.

57. BURNERS NOT BURNING PROPERLY

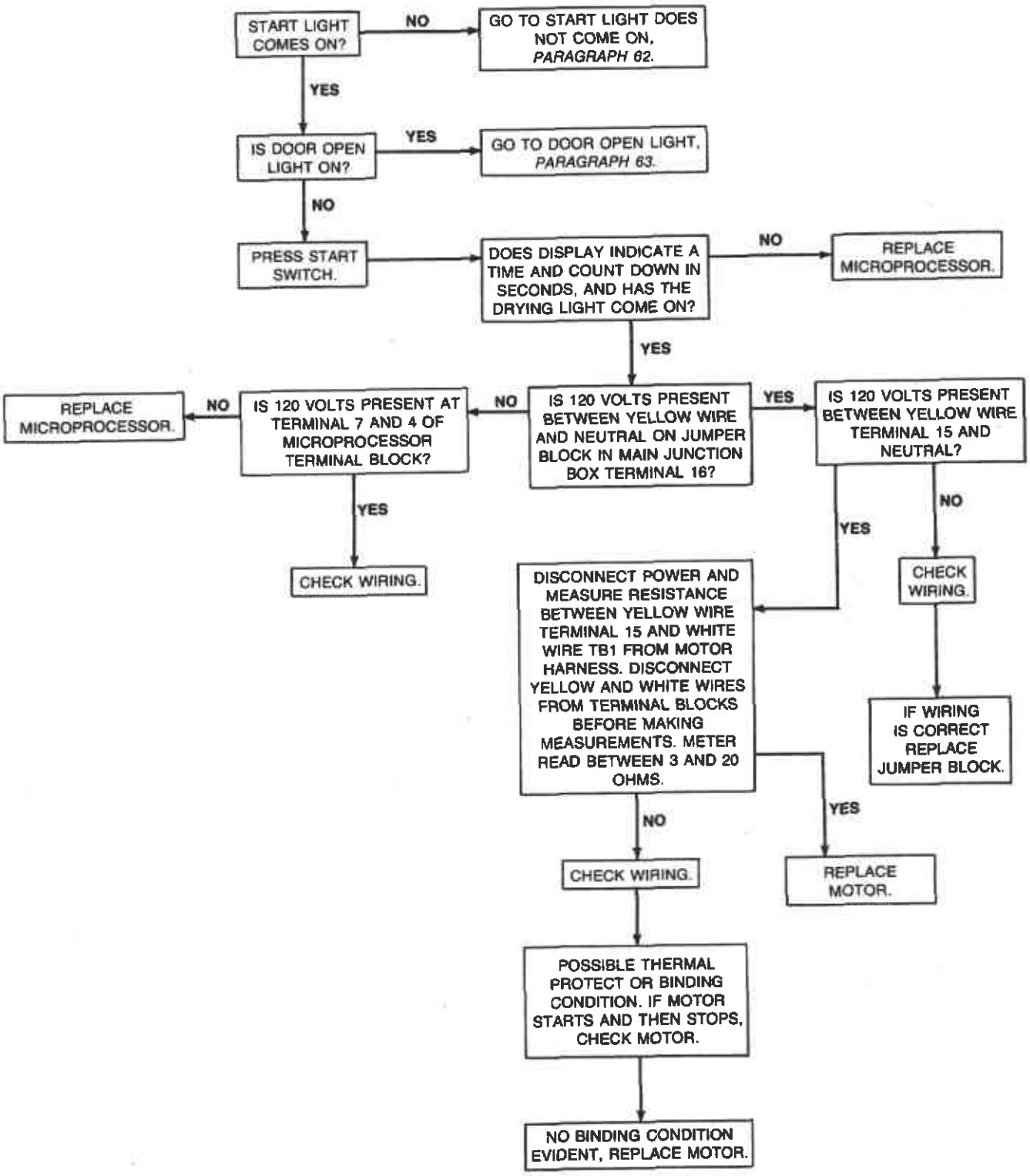
POSSIBLE CAUSE	TO CORRECT
Dirt in burners.	Disassemble burners and blow out the dirt.
Gas pressure too high.	Check rating plate on back of tumbler for correct gas pressure.
Incorrect orifices.	Tumbler is equipped for type of gas specified on rating plate. If orifices are different from that specified on rating plate, obtain and install proper orifices.
Restricted or blocked exhaust duct.	Disassemble and clean exhaust system.
Airflow switch not functioning properly.	Replace airflow switch.

58. CYLINDER DOOR OPENS DURING OPERATION

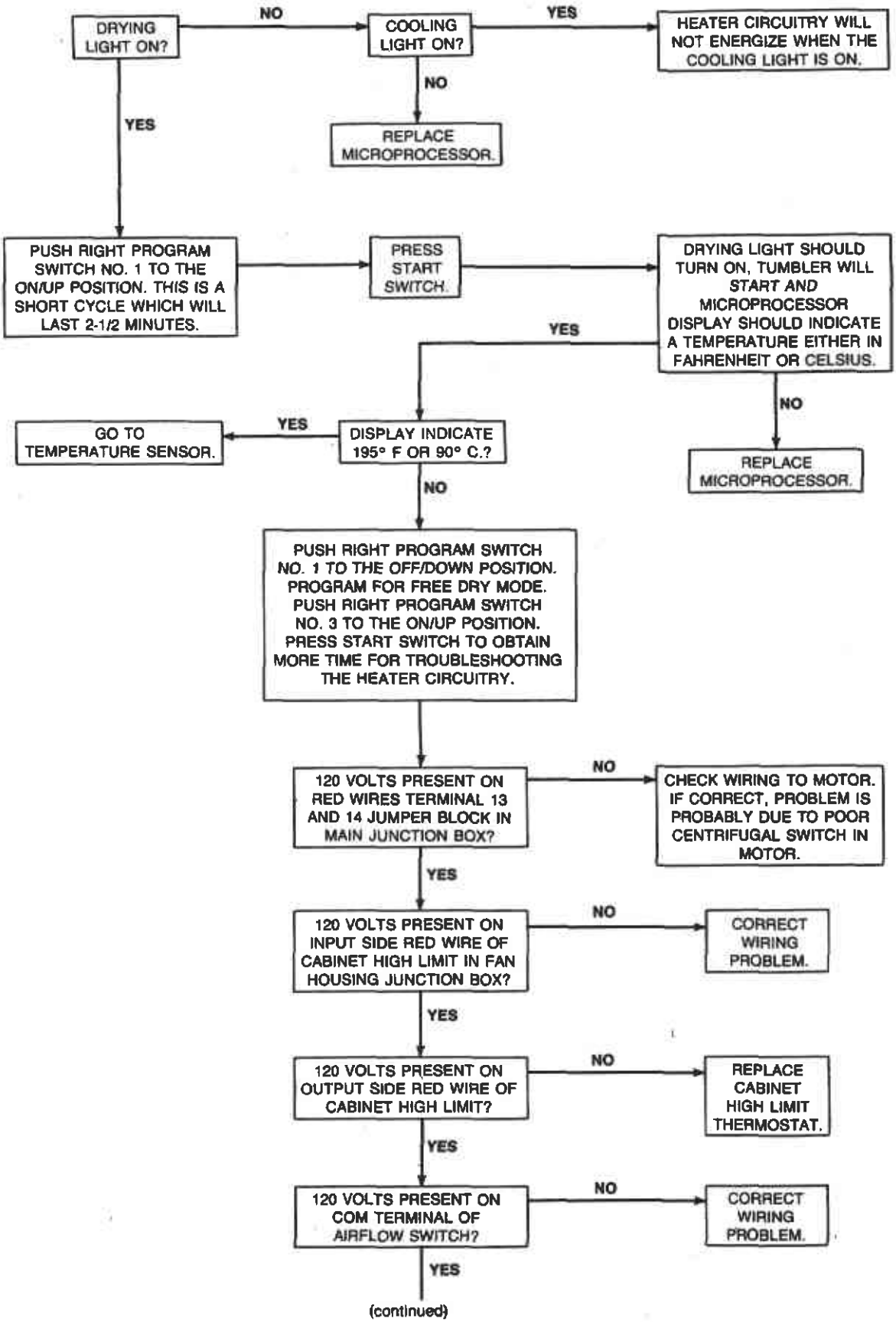
POSSIBLE CAUSE	TO CORRECT
Door strike improperly adjusted.	Refer to ADJUSTMENTS section in this manual for door strike adjustment.
Tumbler improperly leveled.	Refer to ADJUSTMENTS section in this manual for level leg adjustment.

SECTION V
Troubleshooting

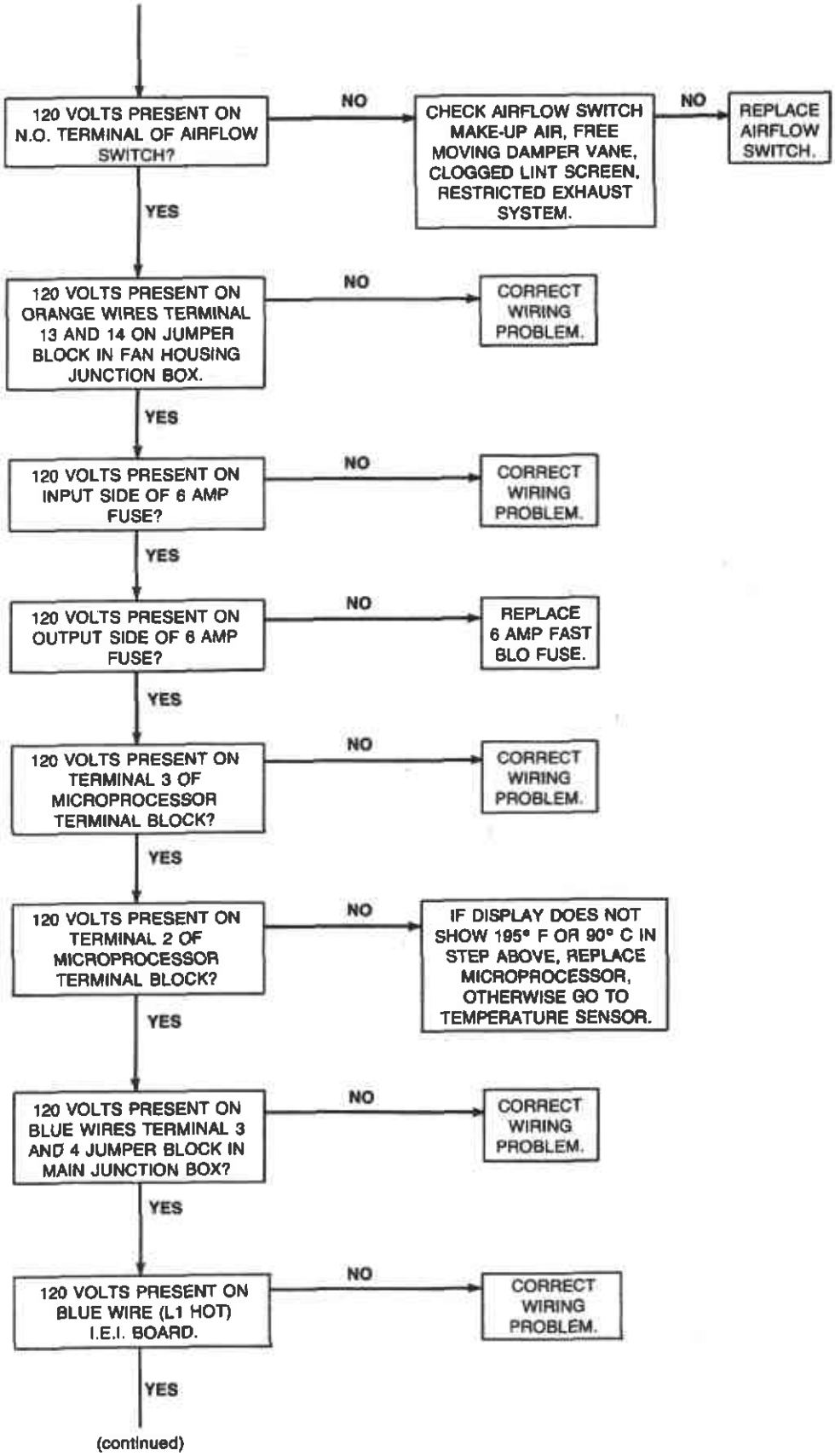
59. TUMBLER DOES NOT START



60. CYLINDER TURNS BUT NO HEAT

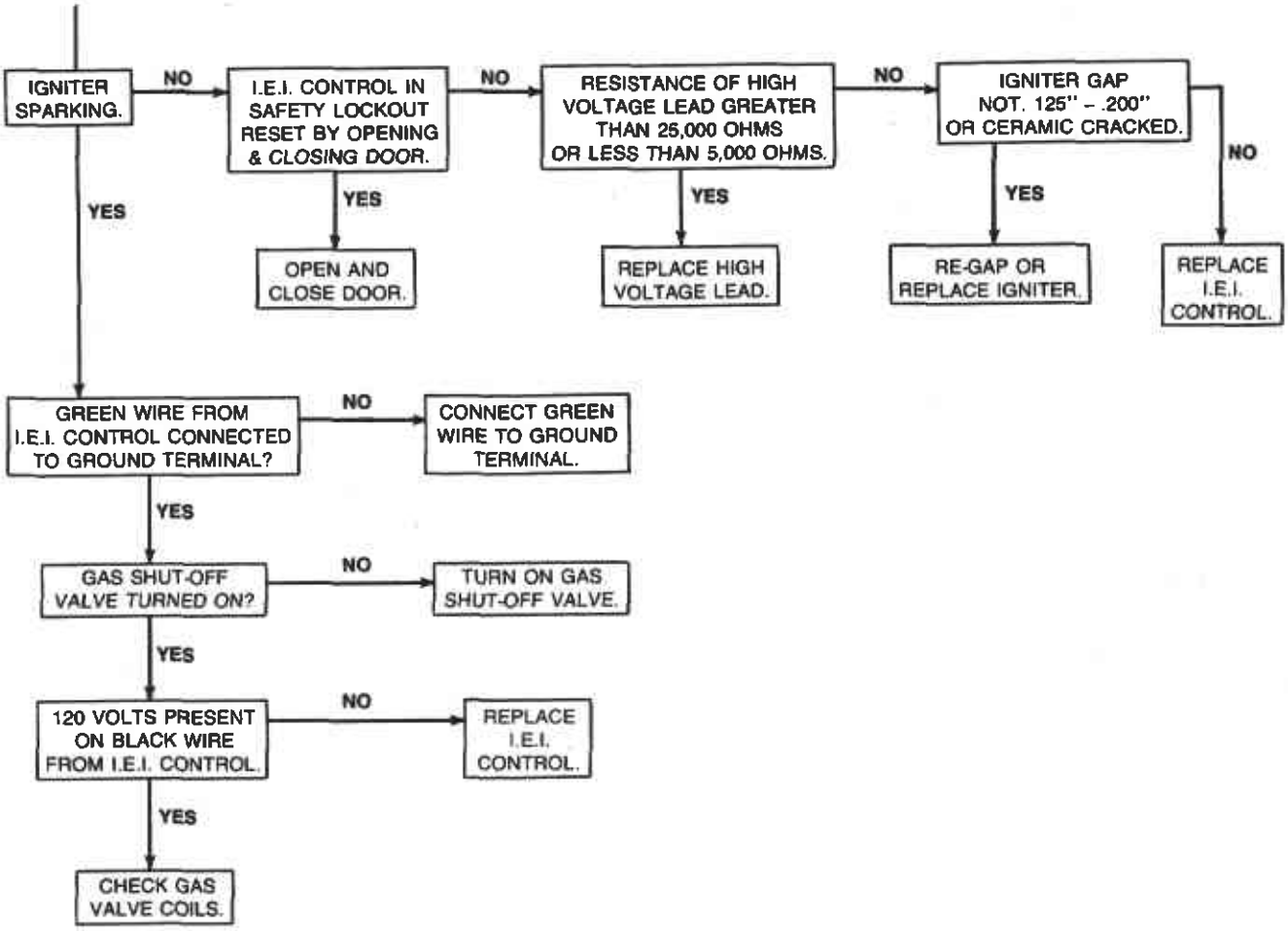


60. CYLINDER TURNS BUT NO HEAT (CONT'D)

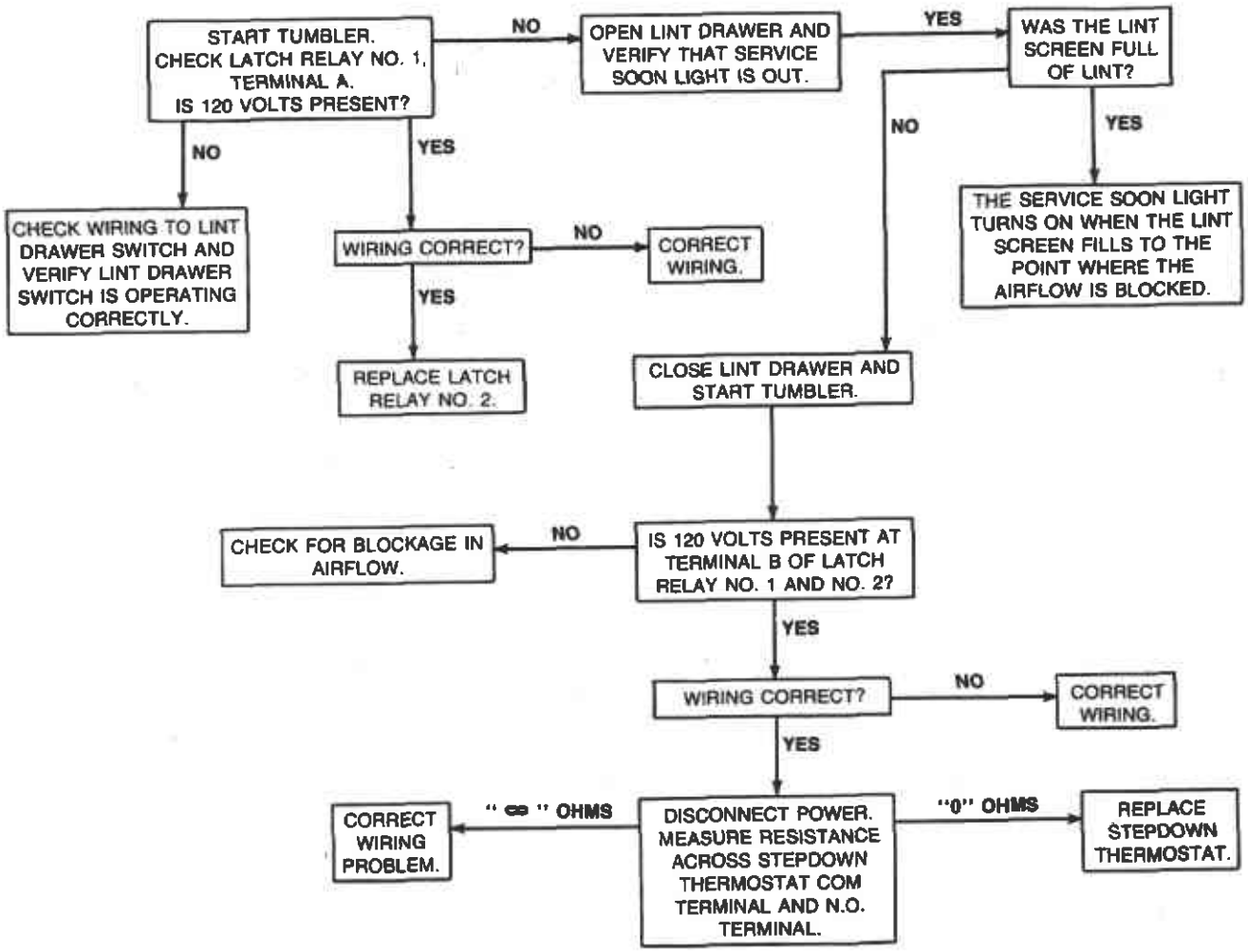


(continued)

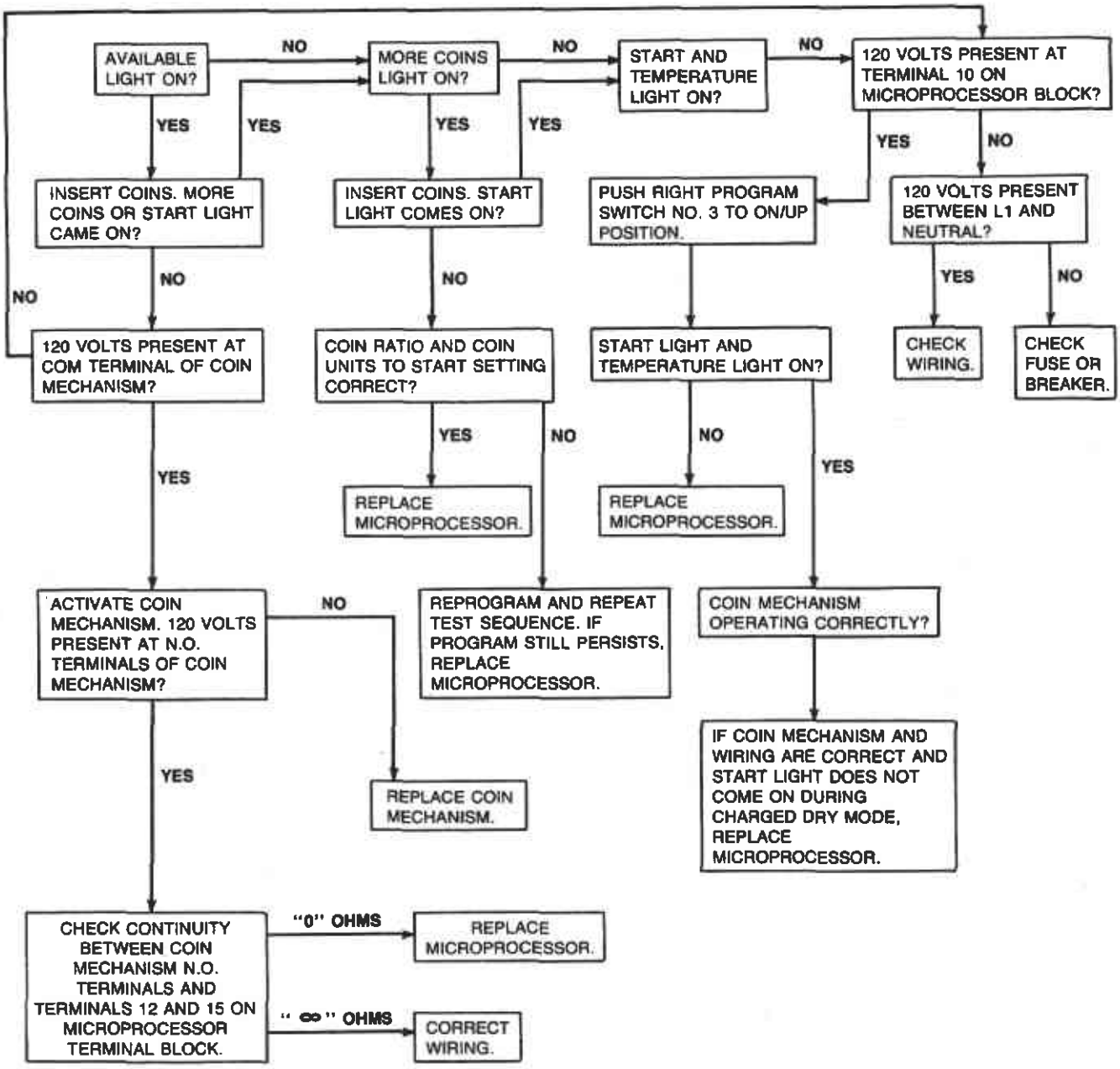
60. CYLINDER TURNS BUT NO HEAT (CONT'D)



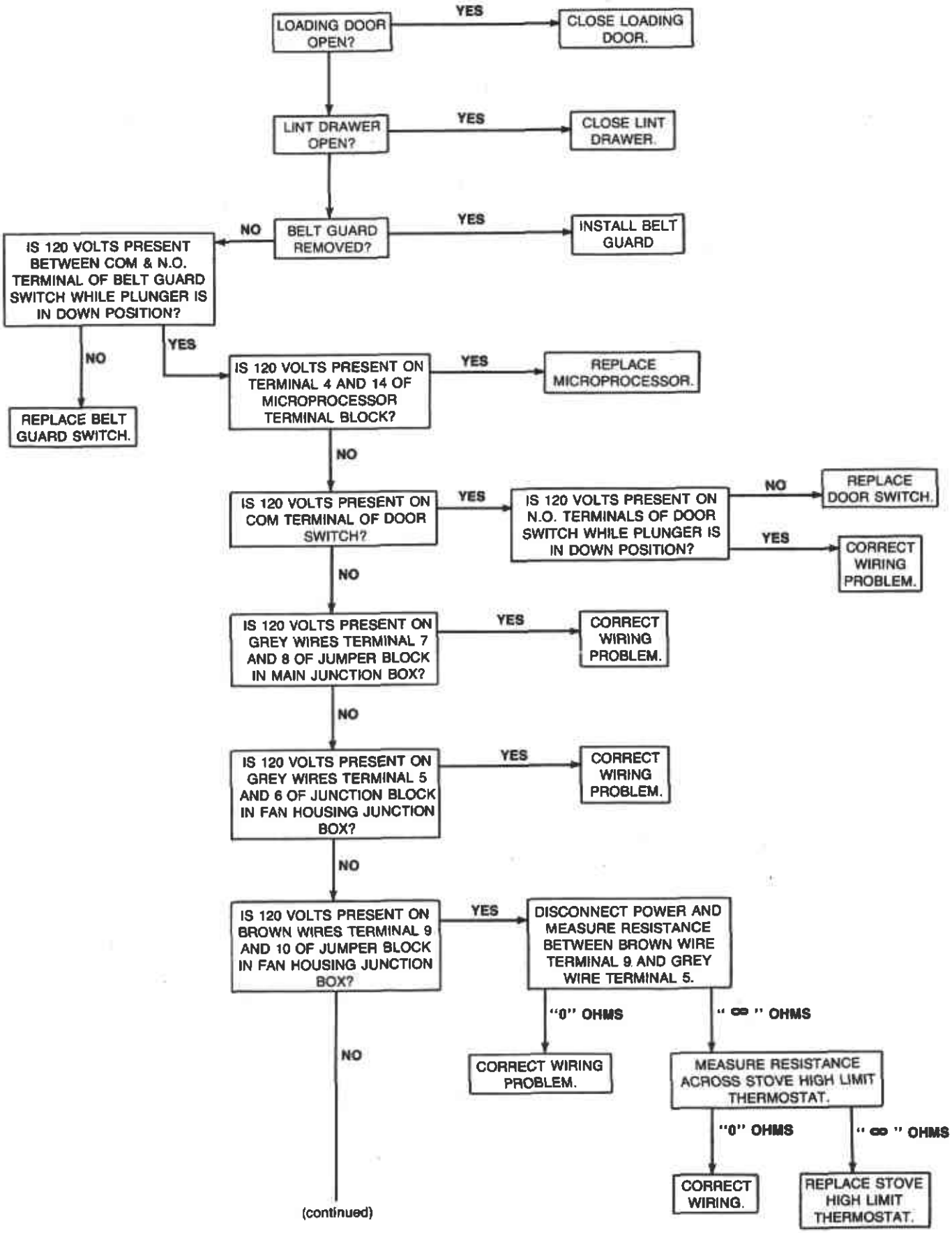
61. SERVICE SOON LIGHT



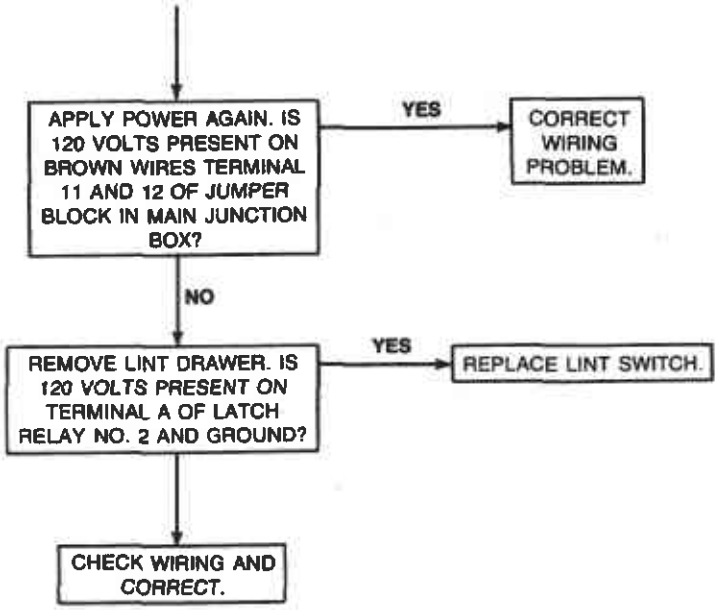
62. START LIGHT DOES NOT COME ON



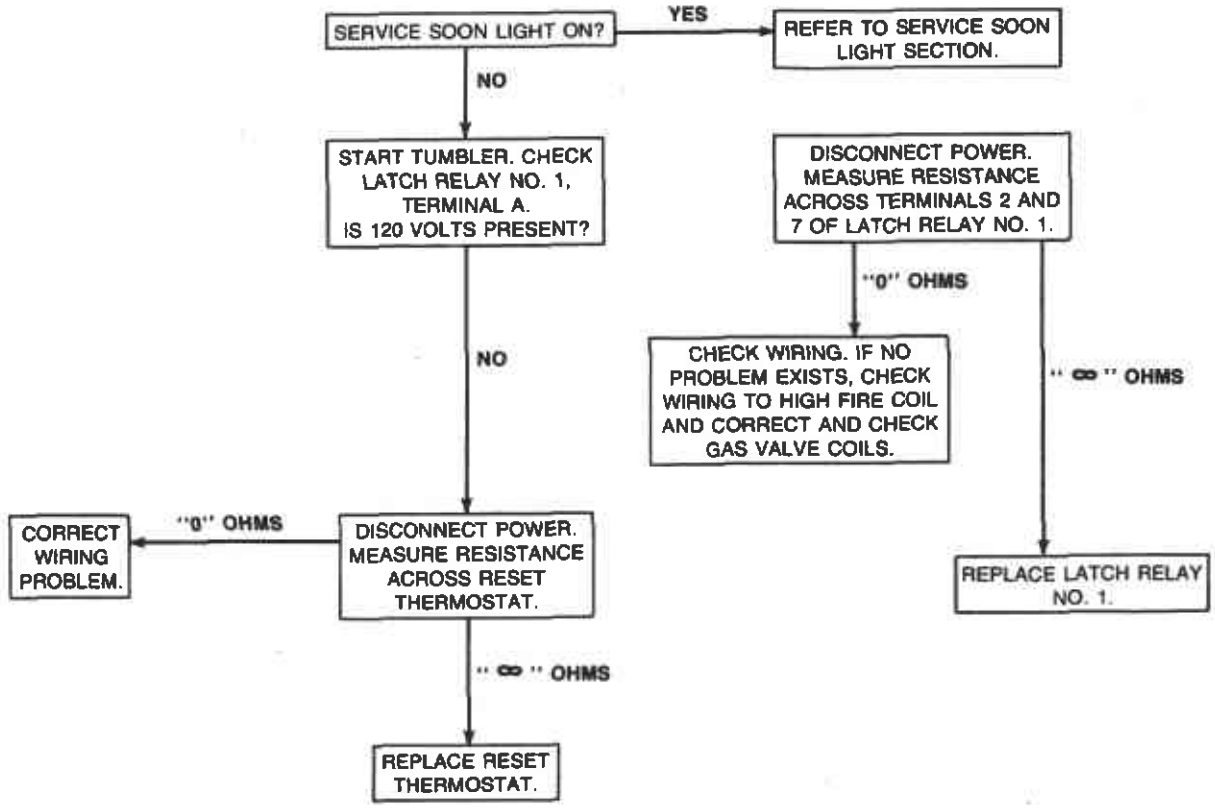
63. DOOR OPEN LIGHT ON?



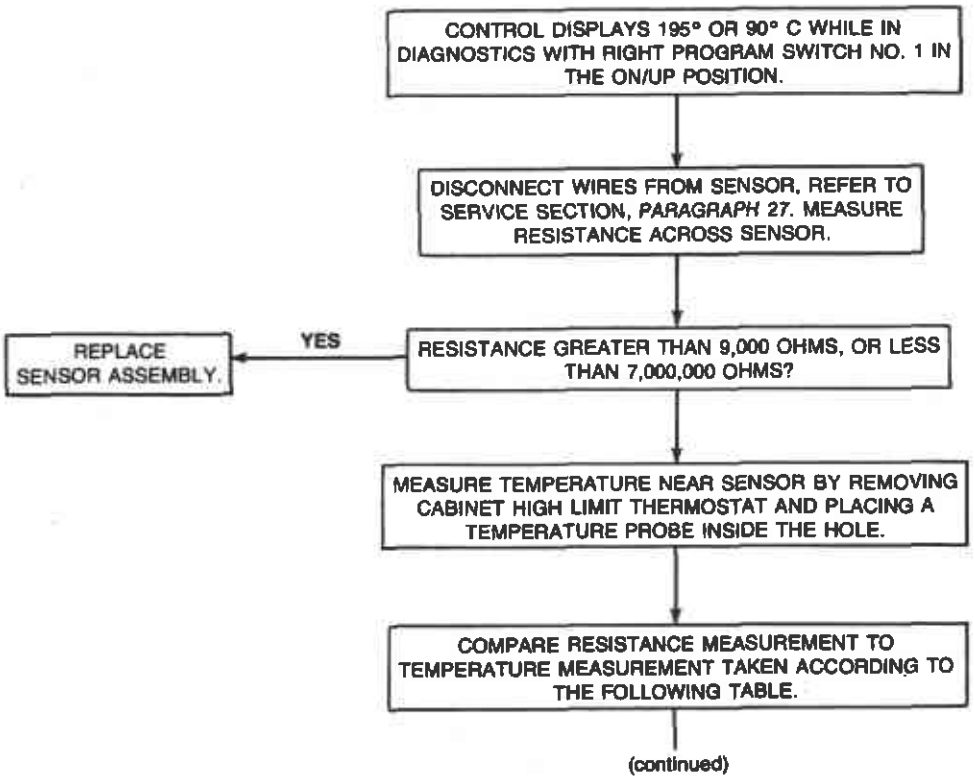
63. DOOR OPEN LIGHT ON? (CONT'D)



64. UNIT IN LOW FIRE



65. TEMPERATURE SENSOR TESTING



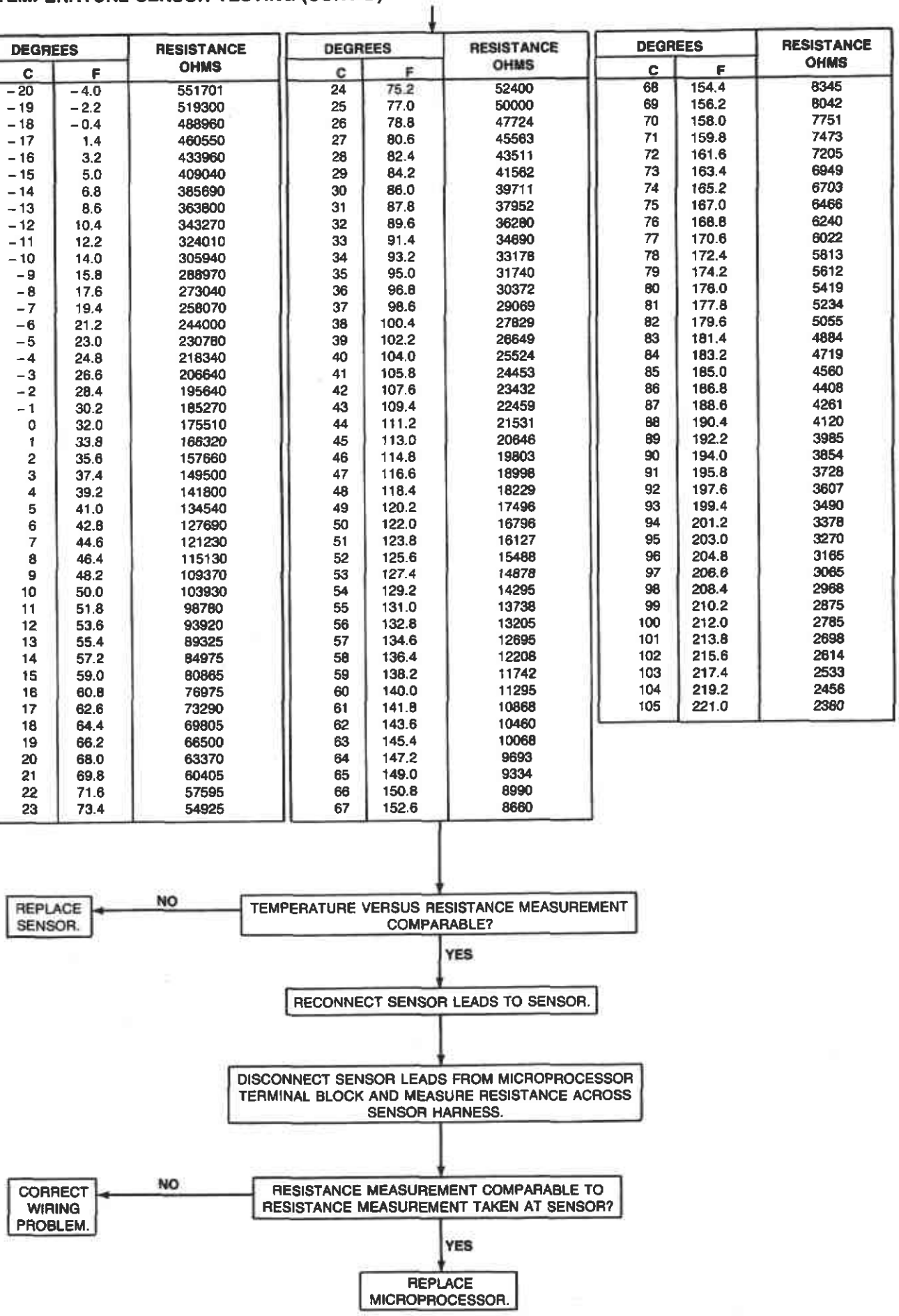
(continued)

65. TEMPERATURE SENSOR TESTING (CONT'D)

DEGREES C	DEGREES F	RESISTANCE OHMS
-20	-4.0	551701
-19	-2.2	519300
-18	-0.4	488960
-17	1.4	460550
-16	3.2	433960
-15	5.0	409040
-14	6.8	385690
-13	8.6	363800
-12	10.4	343270
-11	12.2	324010
-10	14.0	305940
-9	15.8	288970
-8	17.6	273040
-7	19.4	258070
-6	21.2	244000
-5	23.0	230780
-4	24.8	218340
-3	26.6	206640
-2	28.4	195640
-1	30.2	185270
0	32.0	175510
1	33.8	166320
2	35.6	157660
3	37.4	149500
4	39.2	141800
5	41.0	134540
6	42.8	127690
7	44.6	121230
8	46.4	115130
9	48.2	109370
10	50.0	103930
11	51.8	98780
12	53.6	93920
13	55.4	89325
14	57.2	84975
15	59.0	80865
16	60.8	76975
17	62.6	73290
18	64.4	69805
19	66.2	66500
20	68.0	63370
21	69.8	60405
22	71.6	57595
23	73.4	54925

DEGREES C	DEGREES F	RESISTANCE OHMS
24	75.2	52400
25	77.0	50000
26	78.8	47724
27	80.6	45563
28	82.4	43511
29	84.2	41562
30	86.0	39711
31	87.8	37952
32	89.6	36280
33	91.4	34690
34	93.2	33178
35	95.0	31740
36	96.8	30372
37	98.6	29069
38	100.4	27829
39	102.2	26649
40	104.0	25524
41	105.8	24453
42	107.6	23432
43	109.4	22459
44	111.2	21531
45	113.0	20646
46	114.8	19803
47	116.6	18998
48	118.4	18229
49	120.2	17496
50	122.0	16796
51	123.8	16127
52	125.6	15488
53	127.4	14878
54	129.2	14295
55	131.0	13738
56	132.8	13205
57	134.6	12695
58	136.4	12208
59	138.2	11742
60	140.0	11295
61	141.8	10868
62	143.6	10460
63	145.4	10068
64	147.2	9693
65	149.0	9334
66	150.8	8990
67	152.6	8660

DEGREES C	DEGREES F	RESISTANCE OHMS
68	154.4	8345
69	156.2	8042
70	158.0	7751
71	159.8	7473
72	161.6	7205
73	163.4	6949
74	165.2	6703
75	167.0	6466
76	168.8	6240
77	170.6	6022
78	172.4	5813
79	174.2	5612
80	176.0	5419
81	177.8	5234
82	179.6	5055
83	181.4	4884
84	183.2	4719
85	185.0	4560
86	186.8	4408
87	188.6	4261
88	190.4	4120
89	192.2	3985
90	194.0	3854
91	195.8	3728
92	197.6	3607
93	199.4	3490
94	201.2	3378
95	203.0	3270
96	204.8	3165
97	206.6	3065
98	208.4	2968
99	210.2	2875
100	212.0	2785
101	213.8	2698
102	215.6	2614
103	217.4	2533
104	219.2	2456
105	221.0	2380



66. NORMAL OPERATION OF LATCH RELAYS

When the dryer is running and the heater circuit is energized, the reset thermostat supplies power to the unlatch coil terminal A of relay No. 1. This in turn closes the N.C. (normally closed) contacts of relay No. 1. The N.C. contact closed on relay No. 1 connects supply power to the high fire coil, thus the unit will be in a high BTU state.

The dryer will continue to turn the heat on and off based on the temperature selection and information given to the microprocessor by the temperature sensor. This operation continues for several drying cycles until the lint screen fills to a point where airflow becomes restricted.

When the airflow is sufficiently blocked, heat builds up in the stove and the reset thermostat contacts open. This disconnects power to the unlatch coil of relay No. 1. This does not effect the BTU output until the heat closes the stepdown thermostat's N.O. (normally open) contacts. A closed stepdown thermostat supplies power to both B latch coil terminals on relays No. 1 and No. 2. Power applied to latch relay coil No. 1 opens the N.C. contacts, disconnecting power to the high fire coil and reducing the BTU output.

Power applied to the latch relay coil No. 2 closes the N.O. contacts of relay No. 2, supplying power to the Service Soon light. The dryer continues its drying cycle in low fire and will complete its cycle.

The Service Soon light remains on until the lint screen is removed, which then supplies power to the lint switch terminal and the N.C. terminals to unlatch coil terminal A of relay No. 2. Power supplied to the Com (common) unlatch coil of relay No. 2 opens the N.O. contacts of relay No. 2, disconnecting power to the Service Soon light.

On the next drying cycle, if the lint screen has not been removed and cleaned as described, the Service Soon light remains energized and the drying cycle restarts.

When the stepdown thermostat cools down, its contacts open again and the reset thermostat contacts close. In this state the high fire coil energizes until the heat builds to a point where the stepdown thermostat closes, thus starting the low fire mode. This has no effect on the Service Soon light, which is still latched into the "ON" position. This cycle continues until enough accumulated lint in the lint screen blocks the airflow, bringing the stove temperature to a point where the stove high limit thermostat opens its contacts and disconnects power to the motor and door input circuitry. This shuts down the motor and heater circuitry. At that point, the Door Open and Service Soon lights are on, and the dryer is not able to start until the stove high limit thermostat cools down and turns off the door open input. The dryer is able to be started, but will again shut down.

Thus, if the Door Open light and Service Soon light are on at the same time without the door open, this is a good indication that the stove high limit thermostat has opened due to a full lint screen.

SECTION VI
Microprocessor Diagnostic Instructions

NOTE: Electrical power to the tumbler must be on. For any diagnosis to occur, all of the left program switches MUST BE in the DOWN position. The tumbler must not be running and the display must be clear.

If you wish to check the program of the *microprocessor*, use the Diagnostic Cycle and/or the Diagnostic Mode. The Diagnostic Cycle is an accelerated test cycle. The Diagnostic Mode checks the push buttons, beeper, and the program code on the display.

67. DIAGNOSTIC CYCLE

NOTE: Use the plastic programming stylus (supplied with tumbler) or equivalent when sliding the program switch lever up or down.

IMPORTANT: DO NOT touch circuit boards on the front or back side of microprocessor.

a. Unlock and remove microprocessor door, *Figure 10.*
b. Slide right program switch lever number 1 up, *Figure 41,* leave all the other right program switches down. The START and PERM PRESS lights will be lit and PCO3 will appear on the display.
c. Press the START button (this will put the *tumbler into an accelerated test cycle).* START light will go out, motor relay closes. DRYING and PERM PRESS lights will be lit and the display will show the room or tumbler cabinet temperature.
d. Heater relay closes causing the burner to come on, display will show rising temperature. Burner will operate for two minutes, or until the programmed PERM PRESS temperature is reached, plus five (5) degrees.

NOTE: If the temperature displayed during this test reads 195, the temperature sensor circuit is not functioning correctly. Check to *be sure that all* the connections to the temperature sensor and the microprocessor control unit are correct. If these *seem correct, check temperature sensor and* control unit, and replace if necessary.

e. Heater relay will open, DRYING light will go out. COOLING and PERM PRESS lights will be lit.
f. After an additional fifty (50) seconds the COOLING light will go out, motor relay will open, START light will be lit and PCO3 will again appear on the display.
g. Slide right program switch number 1 down for normal operation.

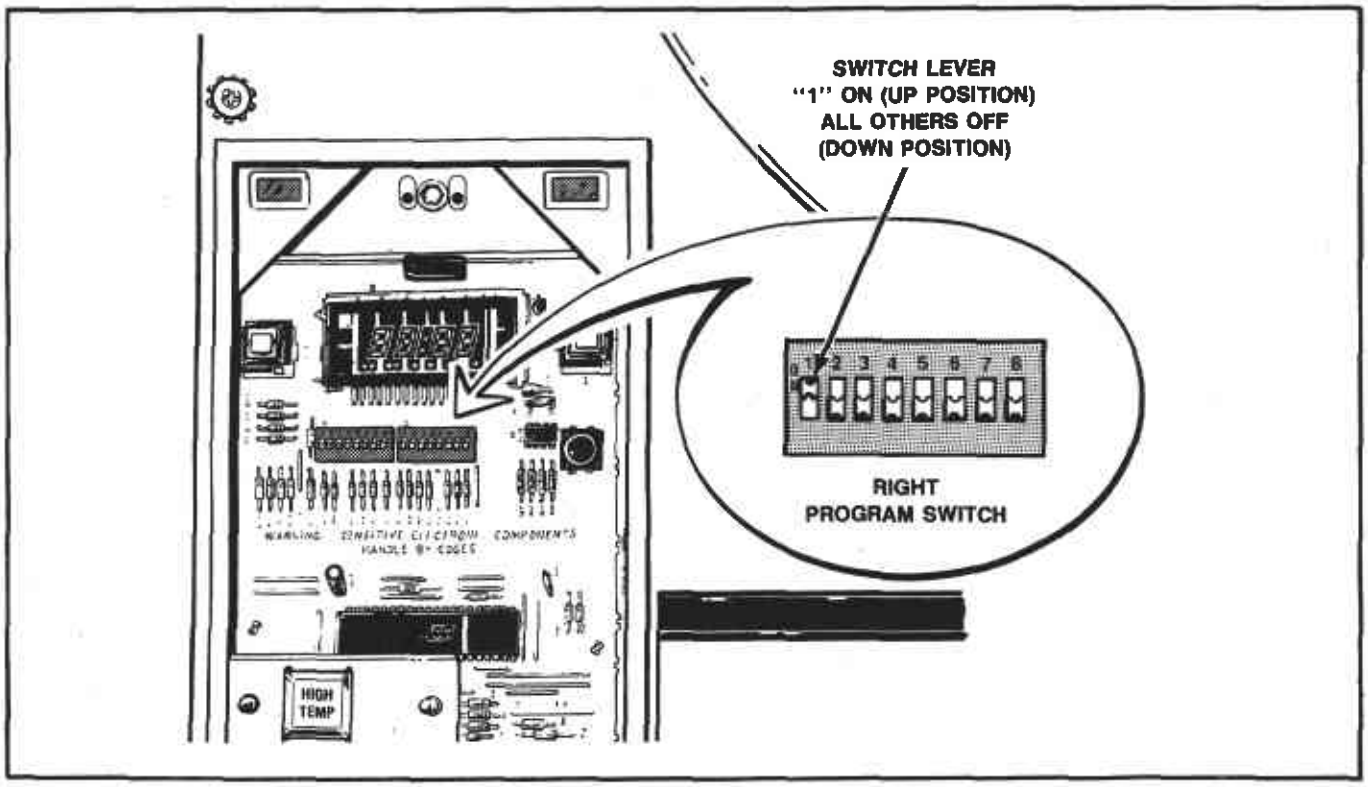


Figure 41

68. DIAGNOSTIC MODE

NOTE: Use the plastic programming stylus (supplied with tumbler) or equivalent when sliding the program switch lever up or down.

a. Unlock and remove microprocessor door, *Figure 10.*

b. Slide the right program switch levers 1, 4, and 6 up, *Figure 42.* All the other switches must be down. This mode allows you to check out the push buttons, beeper, and program code on the display.

NOTE: When the tumbler control is programmed into this mode, the display will show the programming code PCO3.

c. One by one, press the HIGH TEMP, PERM PRESS, LOW TEMP, and START buttons in. You will hear a short "beep" after each button is pressed and the corresponding light will be lit.

d. Slide the right program switch number 4 down and slide right program switch number 7 up, *Figure 43.* Switches 1, 6, and 7 must be up and all other switches must be down.

NOTE: When the tumbler control is programmed into this mode and with the door open, all segments and decimal points in the display will be lit, showing 88:88, and all the lights on the control panel will be lit.

e. Slide the right program switches 1, 6, and 7 down to clear display. AVAILABLE and DOOR OPEN lights will be lit. Close door and DOOR OPEN light will go out.

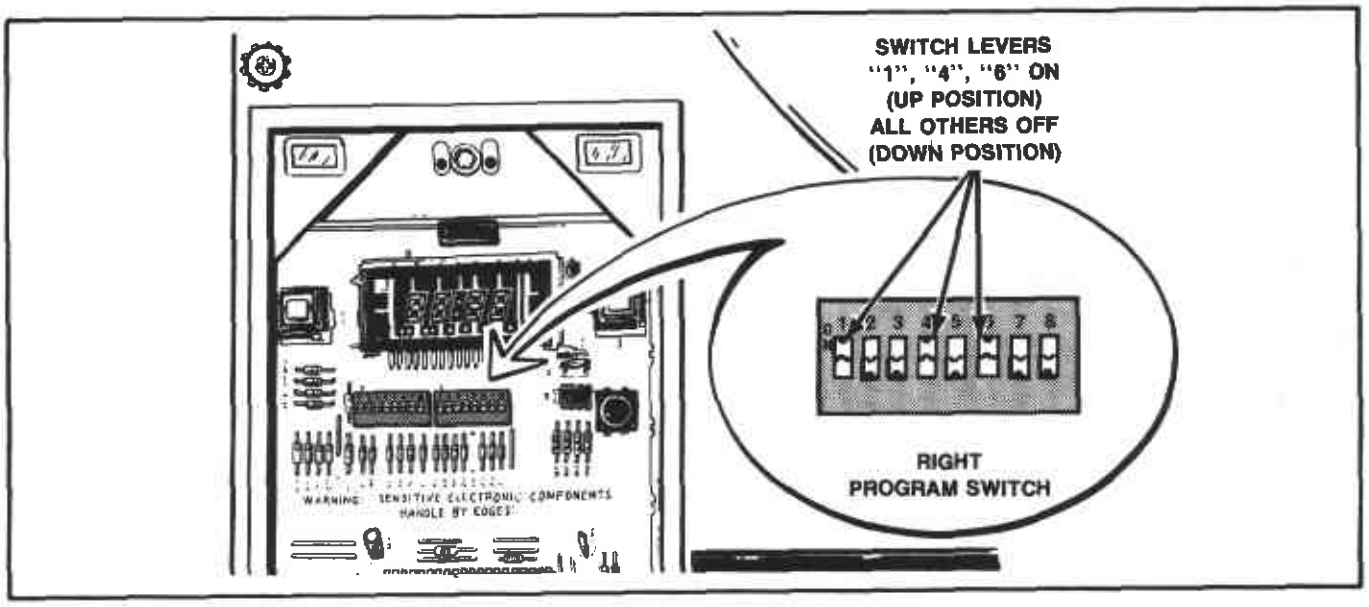


Figure 42

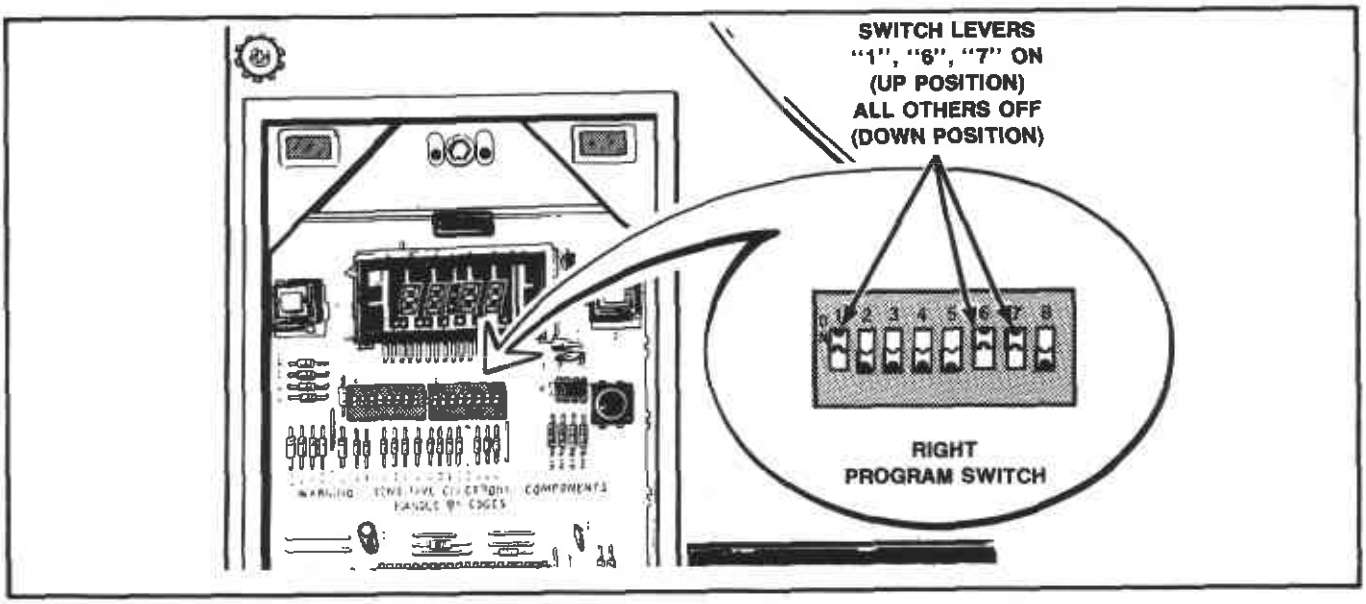


Figure 43

SECTION VII
Gas Flow and Gas Valve Operation

69. IGNITION SYSTEM FEATURES

Momentary Power Interruption

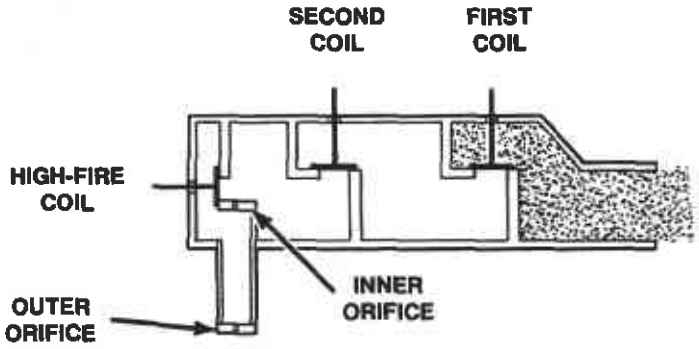
Upon power resumption, press START.

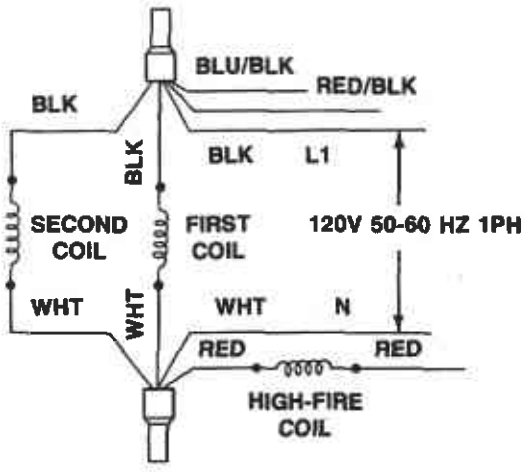
Flame Failure

In case of flame failure, the I.E.I. will lock out. To resume operation, open the door, close the door and press START.

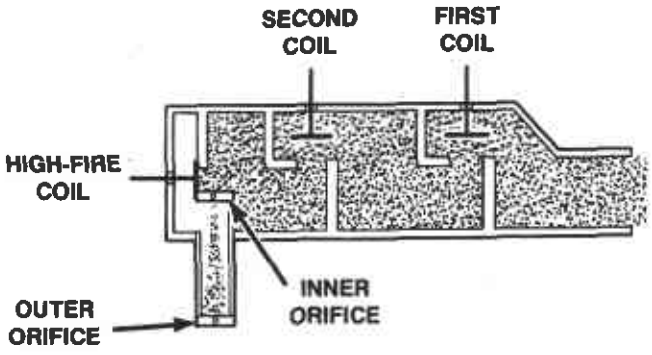
Ignition Failure

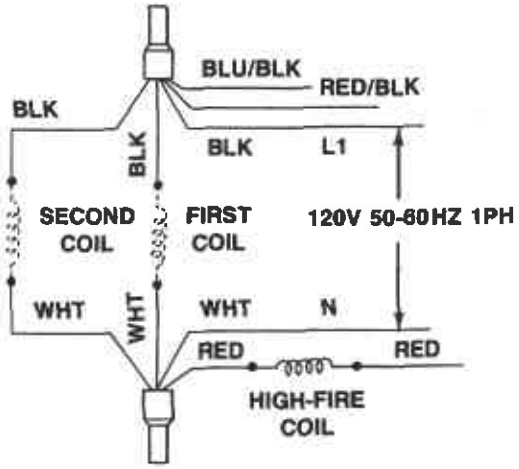
If flame is not established within 15 seconds, the *I.E.I. will lock out. To resume operation, open* the door, close the door and press START.



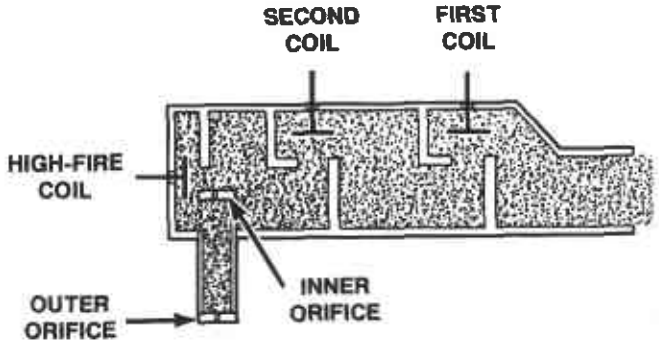


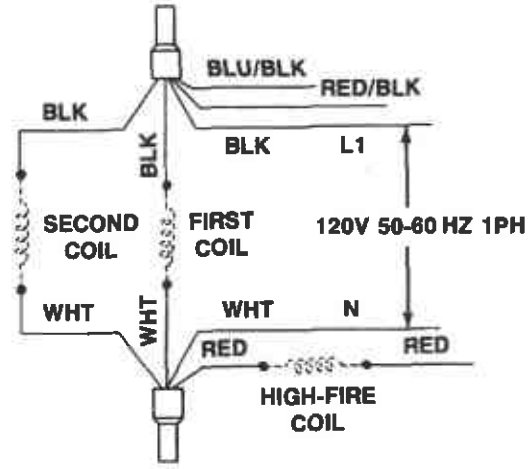
PREIGNITION





LOW-FIRE





HIGH-FIRE

INFORMATION FOR HANDY REFERENCE

Date Purchased _____

Model No. _____ Serial No. _____

Dealer's Name _____

NOTICE: For your own convenience and protection, record the above information and retain your sales slip for this appliance. The model and serial numbers will be found on the serial plate located at the rear of the tumbler, see Page 5.