



"Teamwork & Communication"



***Model FF
Proportioning Unit
Parts Identification Manual
0942-ID***

April, 1988

Issue 1



GUSMER CORPORATION®

A Subsidiary of Gusmer Machinery Group, Inc.

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NOTICE: This manual contains important information for your GUSMER equipment. Read and retain for future reference.



WARRANTY

GUSMER provides a limited warranty to the original purchaser (Customer) of GUSMER manufactured parts and equipment (Product) against any defects in material or workmanship for a period of one year from the date of shipment from GUSMER facilities.

In the event Product is suspected to be defective in material or workmanship, it must be returned to GUSMER, freight prepaid. If Product is found to be defective in material or workmanship, as determined solely by GUSMER, GUSMER will issue full credit to Customer for the freight charges incurred in returning the defective Product, and either credit will be issued for the replacement cost of the Product or a replacement part will be forwarded no-charge, freight prepaid to Customer.

This warranty shall not apply to Product GUSMER finds to be defective resulting from: installation, use, maintenance, or procedures not accomplished in accordance with our instructions; normal wear; accident; negligence; alterations not authorized in writing by GUSMER; or Product used in conjunction with any other manufacturer's pumping or proportioning equipment. Further, the terms and conditions of this warranty shall not apply to services or repairs made to Product by any third party not authorized in writing by GUSMER. For such Product, a written estimate will be submitted to Customer at a nominal service charge, itemizing the cost for repair. Disposition of Product will be done in accordance with the terms stated on the written estimate.

The warranty provisions applied to product that are not manufactured by GUSMER will be solely in accordance with the warranty provided by the original manufacturer of the product.

GUSMER MAKES NO WARRANTY WHATSOEVER AS TO THE MERCHANTABILITY OF, OR SUITABILITY FOR, ITS PRODUCT TO PERFORM ANY PARTICULAR PURPOSE. CREDIT FOR, OR REPLACEMENT OF, PRODUCT DEFECTIVE IN MATERIAL OR WORKMANSHIP SHALL CONSTITUTE COMPLETE FULFILLMENT OF GUSMER OBLIGATIONS TO CUSTOMER. NO OTHER WARRANTY, EXPRESSED OR IMPLIED ON ANY PRODUCT IT MANUFACTURES AND/OR SELLS, WILL BE RECOGNIZED BY GUSMER UNLESS SAID WARRANTY IS IN WRITING AND APPROVED BY AN OFFICER OF GUSMER.

Under no circumstances shall GUSMER be liable for loss of prospective or speculative profits, or special indirect, incidental or consequential damages. Further, GUSMER shall have no liability for any expenses including, but not limited to personal injury or property damage resulting from failure of performance of the product, use of the product, or application of the material dispensed through the product. Any information provided by GUSMER that is based on data received from a third source, or that pertains to product not manufactured by GUSMER, while believed to be accurate and reliable, is presented without guarantee, warranty, or responsibility of any kind, expressed or implied.

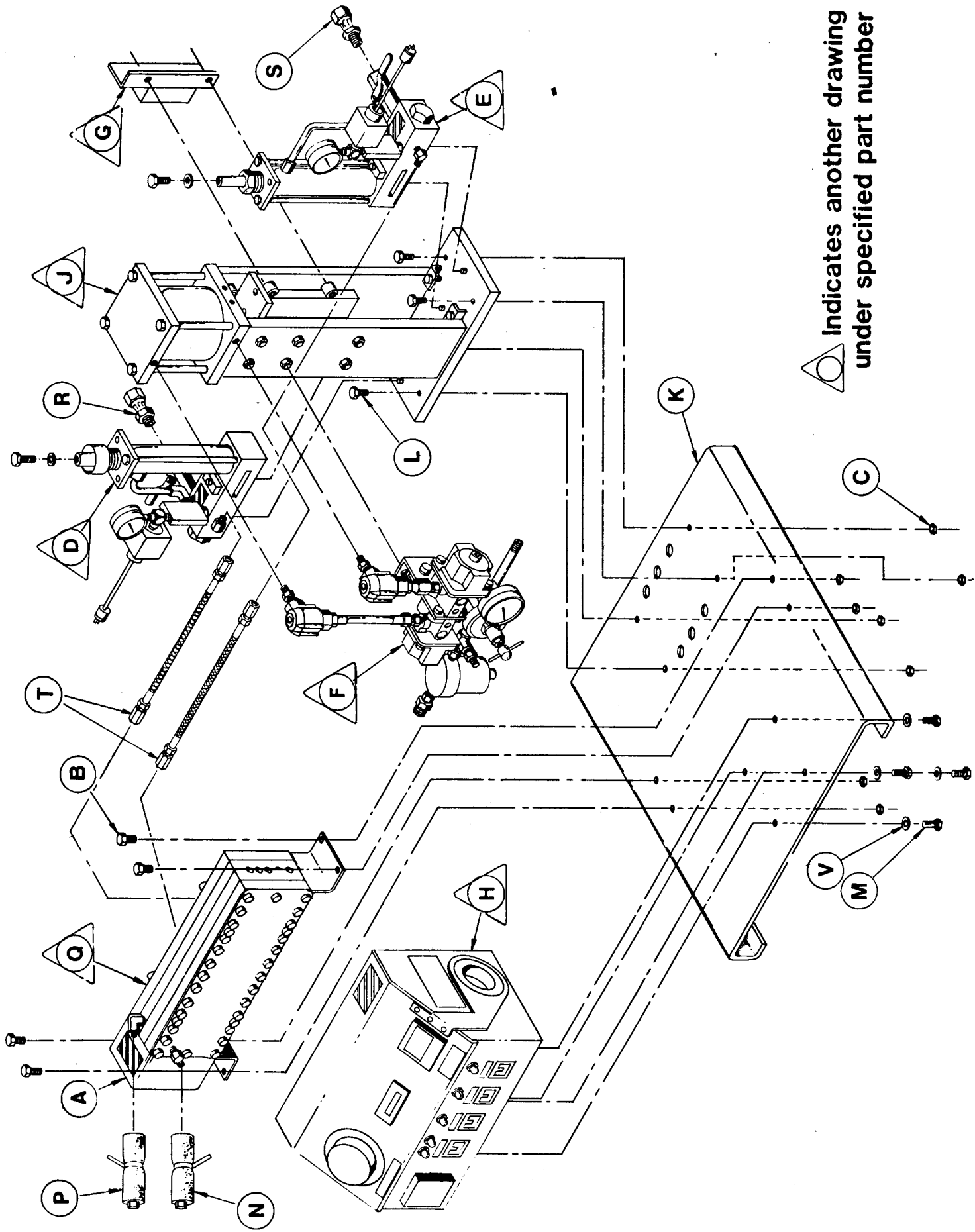
GUSMER through the sale, lease, or rental of Product in no way expresses or implies a license for the use of, nor encourages the infringement of any patents or licenses.

To insure proper validation of your warranty, please complete the warranty card and return it to GUSMER within two weeks of receipt of equipment.

Revised 2/13/98

1025

<u>REFERENCE</u> <u>LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	355B	Thermostat Cover Box	1
B	1701-4	Hex Head Cap Screw	4
C	370-1	Hex Nut	8
D	450B-A	A-Prop Pump Asy	1
E	450B-R	R-Prop Pump Asy	1
F	562B-60	Air Valve Assembly (60 HZ)	1
	562B-50	Air Valve Assembly (50 HZ)	1
	562B-60-DR	Air Valve Assembly (Dual Regulator, 60 HZ)	1
	562B-50-DR	Air Valve Assembly (Dual Regulator, 50 HZ)	1
G	577B	Reversing Switch Assembly	1
H	650B-25-60	Electric Console (5000 Watt, 220V, 60 HZ)	1
	650-220	Electric Console (5000 Watt, 220V, 50 HZ)	1
	650-380	Electric Console (5000 Watt, 3x380V, 50 HZ)	1
J	745	Air Motor Assembly	1
K	750A	Machine Base	1
L	759	Hex Head Cap Screw	4
M	760-3	Hex Head Cap Screw	4
N	1270A-1	R-Isolation Hose Assembly	1
P	1270A-2	A-Isolation Hose Assembly	1
Q	350E-5000	LV Primary Heater Assembly (5000 Watt) Includes A, N, P, T	1
R	OP179-6	Swivel Union	1
S	10420	Swivel Union	1
U	372	Interconnecting Hose	2
V	562-11-3	Flat Washer	4
Not Shown	582A	Air Hose	1

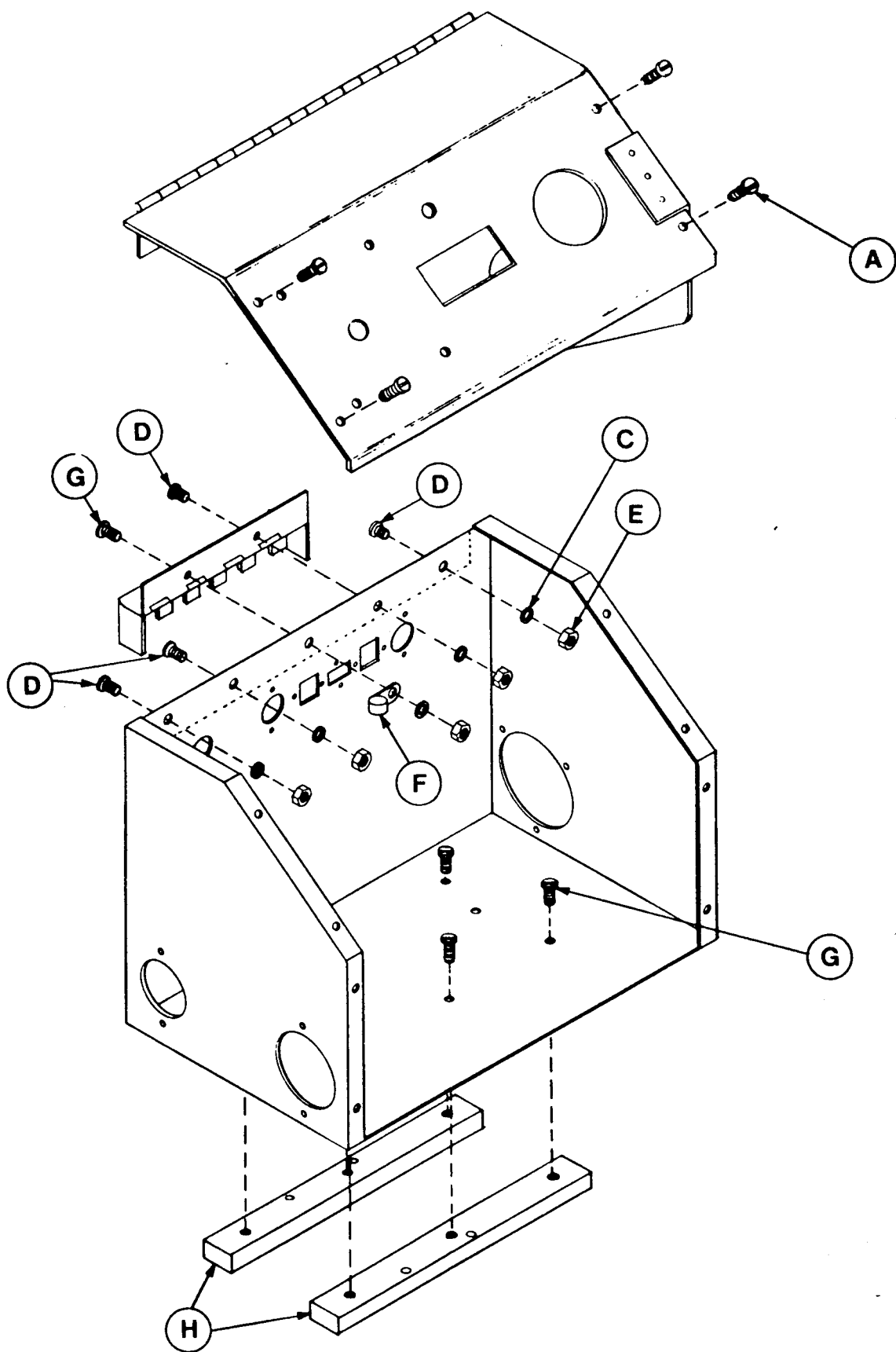


△ Indicates another drawing
 under specified part number

ELECTRIC CONSOLE 1 OF 6

220V 50/60HZ & 3 X 380V 50HZ

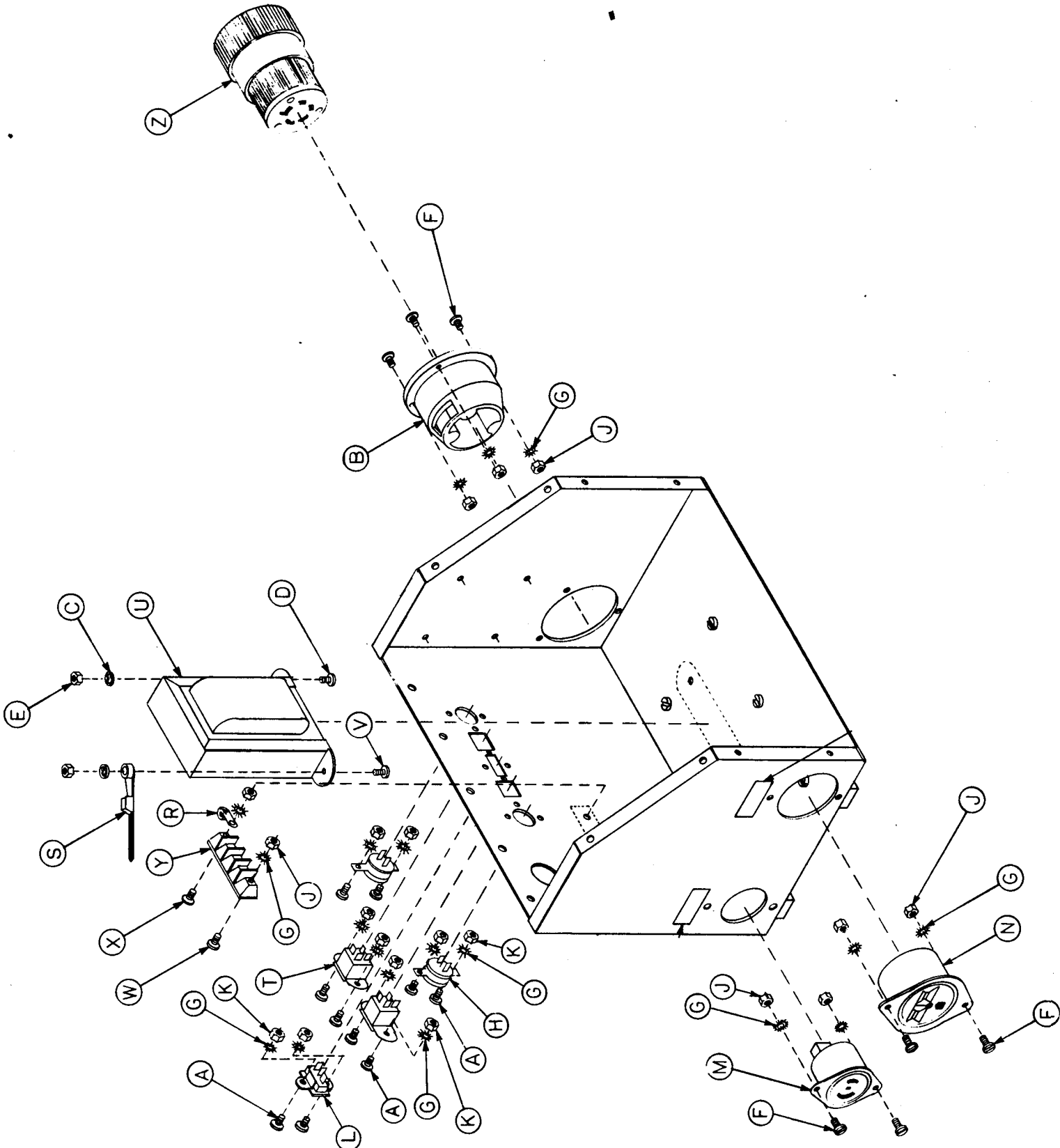
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	368	Binder Head Mach Screw	4
C	651A-10	Lockwasher	5
D	651A-8	Pan Head Machine Screw	4
E	651A-9	Hex Nut	5
F	681A	Cable Clamp	1
G	689-2	Pan Head Machine Screw	7
H	760A-1	Console Mounting Bar	2



ELECTRIC CONSOLE 2 OF 6

220V 50/60HZ & 3 X 380V 50HZ

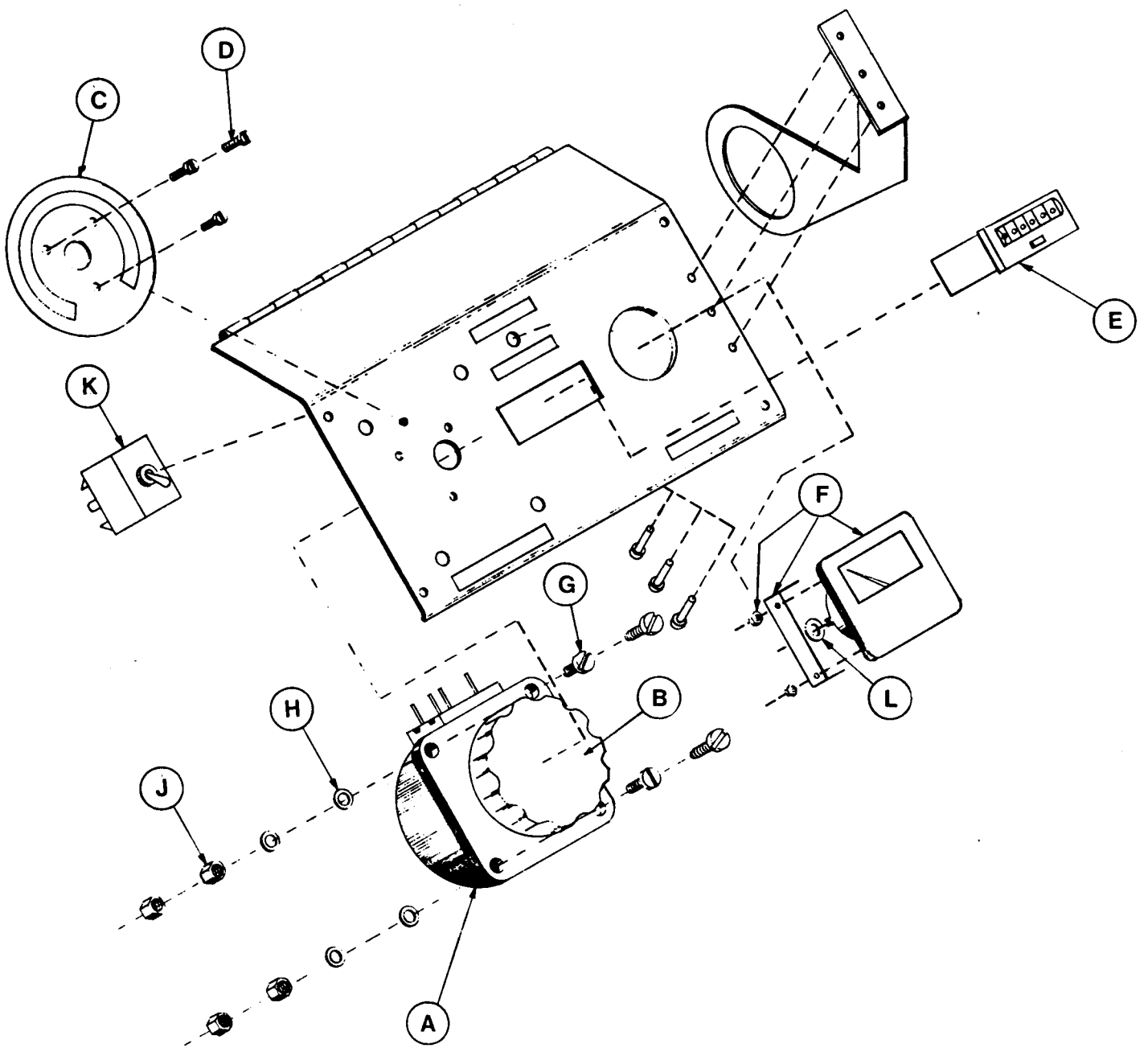
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	368	Binder Head Mach Screw	10
B	6690-28-1-1	Power Cord Plug (380V)	1
	655C-1	Power Cord Plug (220V)	1
C	651A-10	Lockwasher	2
D	651A-8	Pan Head Machine Screw	1
E	651A-9	Hex Nut	2
F	655-2	Pan Head Machine Screw	7
G	655-4	Lockwasher	19
H	668-1	Socket	2
J	668-3	Hex Nut	7
K	668-3-1	Hex Nut	10
L	669-1	Socket	1
M	670A-1	Socket	1
N	671A-1	Socket	1
R	681A	Cable Clamp	1
S	683-1	Cable Tie	1
T	684-1	Socket	2
U	689-1	Transformer	1
V	689-2	Pan Head Machine Screw	1
W	698-2	Pan Head Machine Screw	1
X	698-3	Pan Head Machine Screw	1
Y	6690-20-3-3	Terminal Block	1
Z	6690-28-2-1	Socket (380V)	1



ELECTRIC CONSOLE 3 OF 6

220V 60HZ

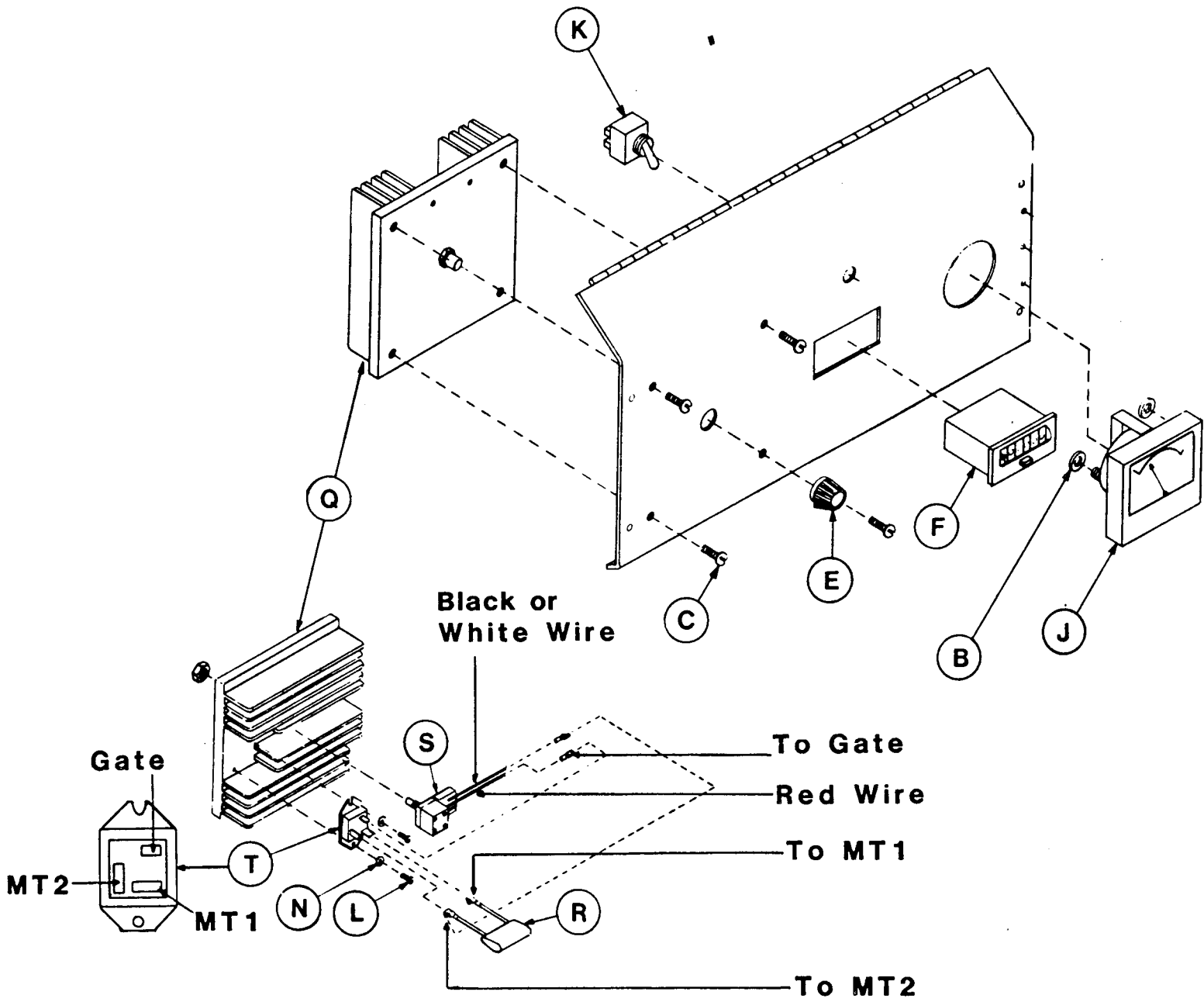
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	665A-1-60	Powerstat (Includes B, C, D) 1	
B	665-1-2	Powerstat Control Knob	1
C	665-5-1	Powerstat Indicator Plate	1
D	368	Binder Head Mach Screw	3
E	9651-6-2	Counter	1
F	664C	Voltmeter (Includes L)	1
G	665A-2	Round Head Machine Screw	4
H	665-4	Lockwasher	4
J	385-4	Hex Nut	4
K	OP304-6	Toggle Switch	1
L	664-8	Brass Washer	2
Not Shown	665-1-1	Powerstat Replacement Brush	1



ELECTRIC CONSOLE 4 OF 6

220V 50HZ & 3 X 380V 50HZ

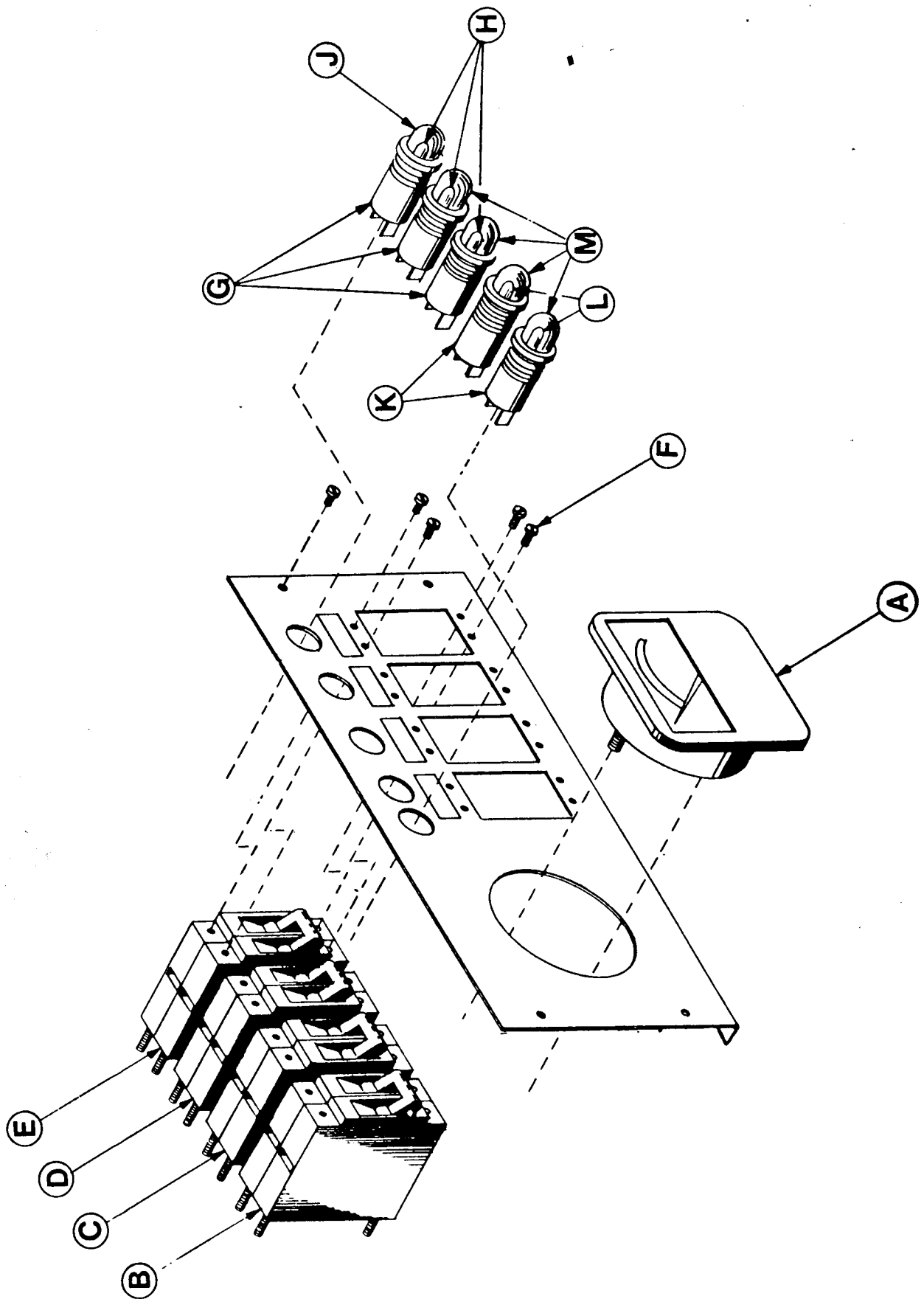
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
B	664-8	Brass Washer	2
C	665A-2	Round Head Machine Screw	4
E	14653	Knob	1
F	9651-6-2	Counter	1
J	664C	Voltmeter (Includes B)	1
K	OP304-6	Toggle Switch	1
L	368	Binder Head Mach Screw	2
N	655-4	Lockwasher	2
Q	1662	Heat Sink	1
R	6690-21-2	Quencharc W/Lugs	1
S	6690-26-1	Phase Control	1
T	6690-8-7	Triac	1



ELECTRIC CONSOLE 5 OF 6

220V 60HZ

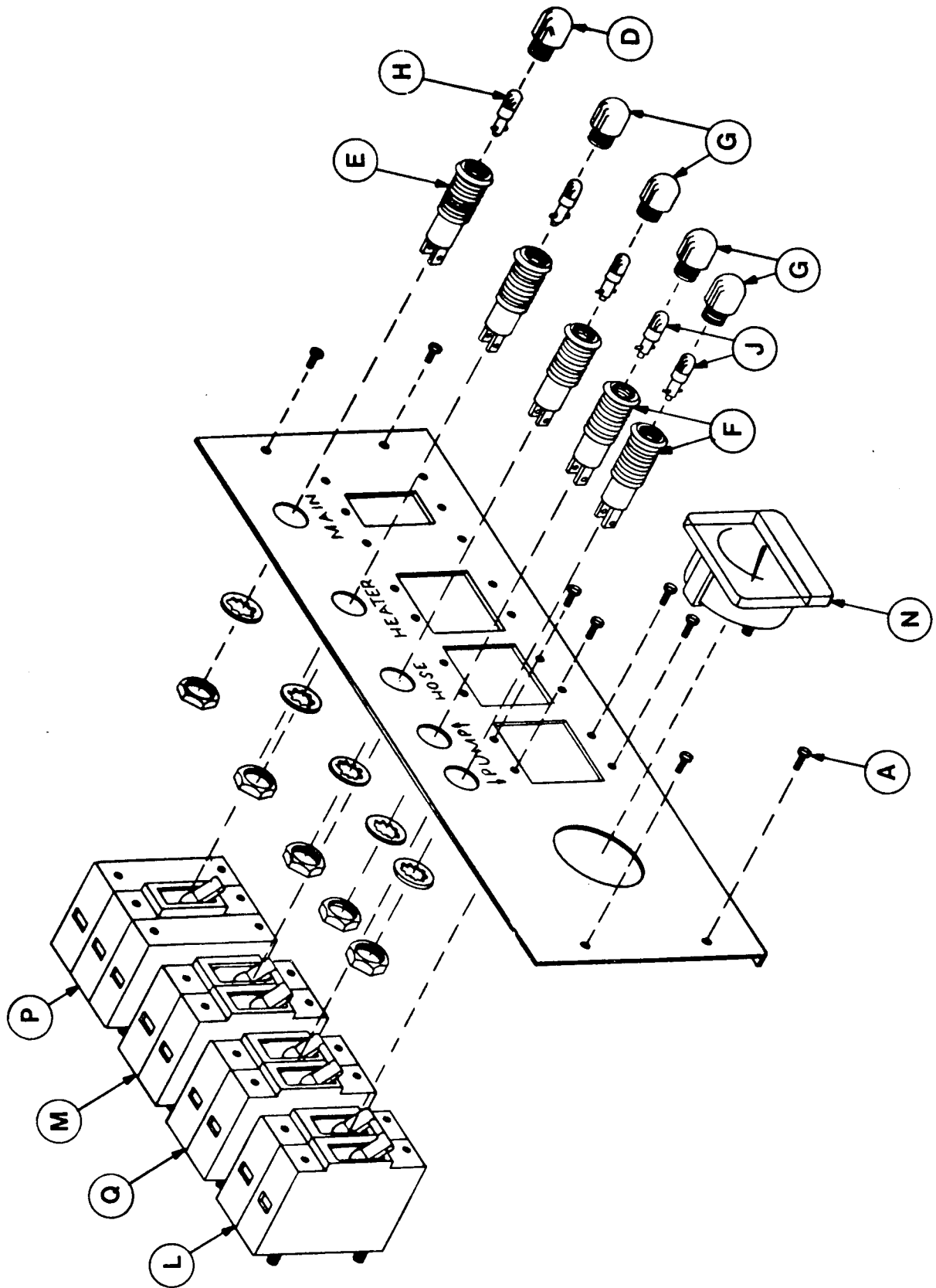
<u>REFERENCE</u>			
<u>LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
A	694	Ammeter	1
B	690-1	3.2/1 AMP Circuit Breaker	1
C	691-1-60	7 AMP Circuit Breaker	1
D	692-1-25	25 AMP Circuit Breaker	1
E	693-1	30 AMP Circuit Breaker	1
F	368	Binder Head Mach Screw	20
G	657A	Neon Light Base	3
H	661	Neon Bulb	3
J	659	Red Lens	1
K	658A	Incandescent Light Base	2
L	662A	Incandescent Bulb	2
M	660	Amber Lens	4
Not Shown	694-1	Ammeter Lens	



ELECTRIC CONSOLE 6 OF 6

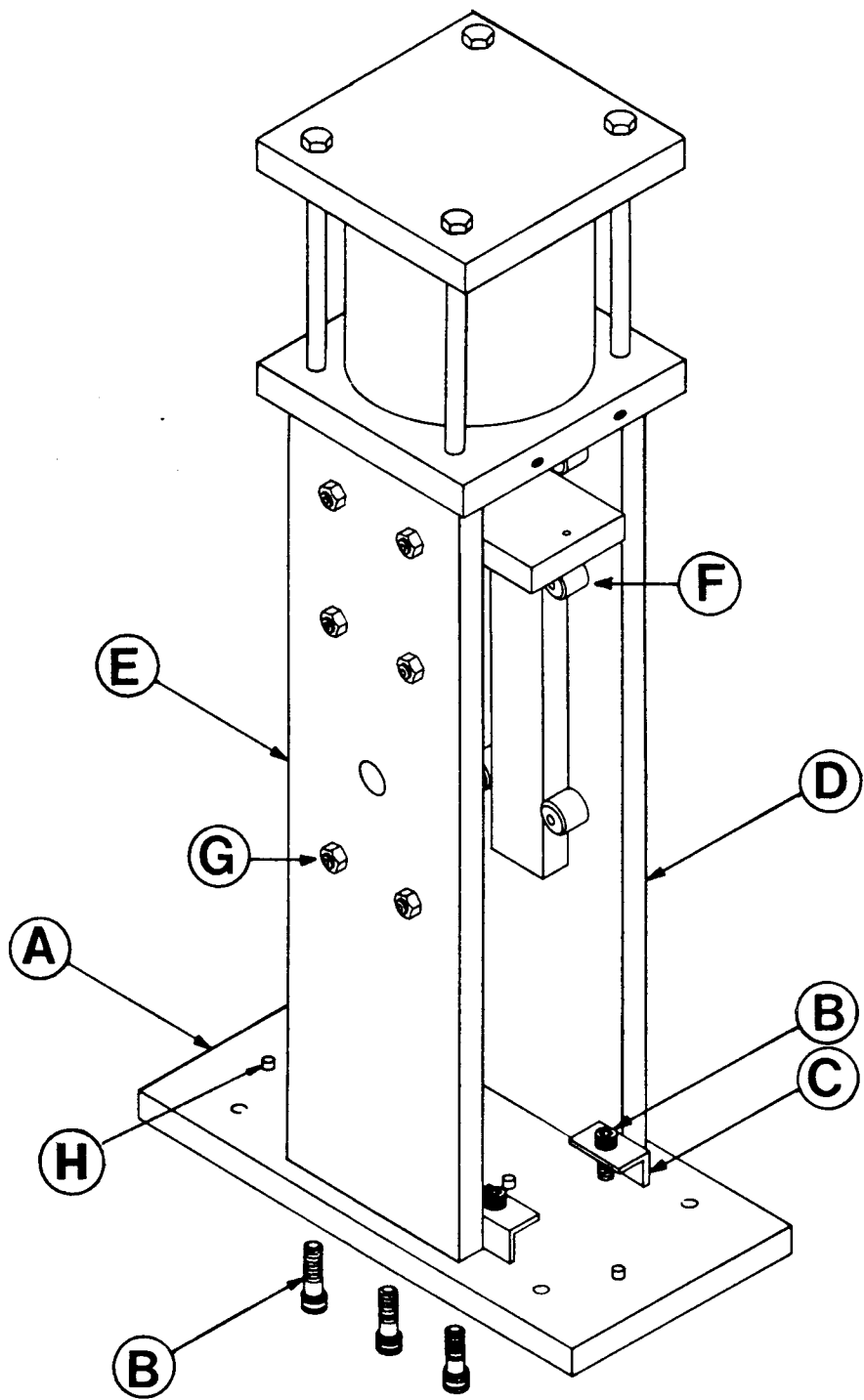
220V 50HZ & 3 X 380V 50HZ

<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
A	368	Binder Head Mach Screw	22
D	656	White Lens	1
E	657A	Neon Light Base	3
F	658A	Incandescent Light Base	2
G	660	Amber Lens	4
H	661	Neon Bulb	3
J	662A	Incandescent Bulb	2
L	690-1	3.2/1 AMP Circuit Breaker	1
M	692-1-25	25 AMP Circuit Breaker	1
N	694	Ammeter	1
P	6690-16-10	Switch	1
Q	6690-25-6	15 AMP Circuit Breaker	1
Not Shown	694-1	Ammeter Lens	



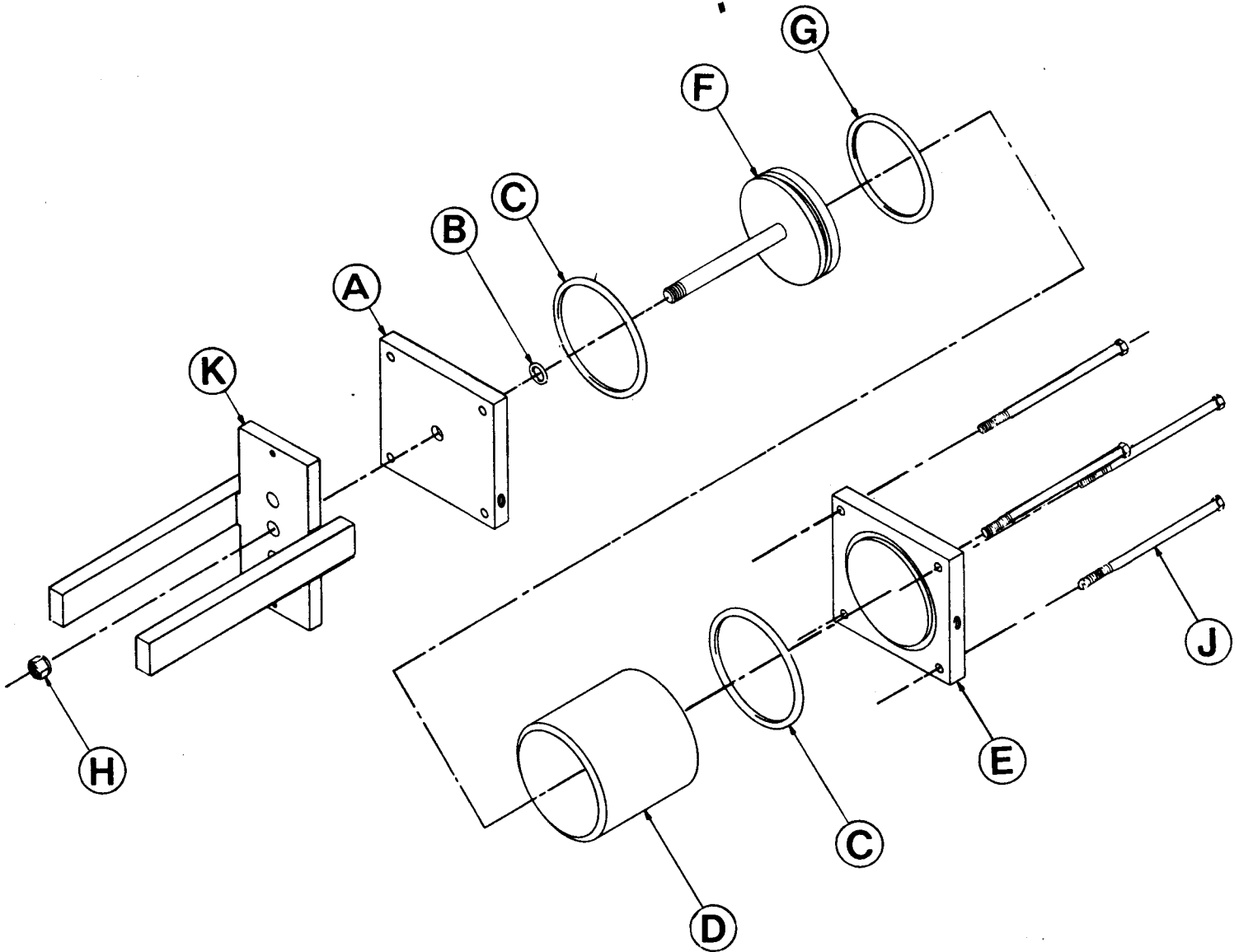
745 1 OF 2

<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	751	Proportioner Base	1
B	754	Socket Head Cap Screw	10
C	765	Pump Mounting Bracket	4
D	753	Proportioner Side Plate Switch Side	1
E	752	Proportioner Side Plate	1
F	755	Guide Roller Bearing	12
G	756	Guide Roller Bearing Nut	12
H	758	Dowel Pin	2



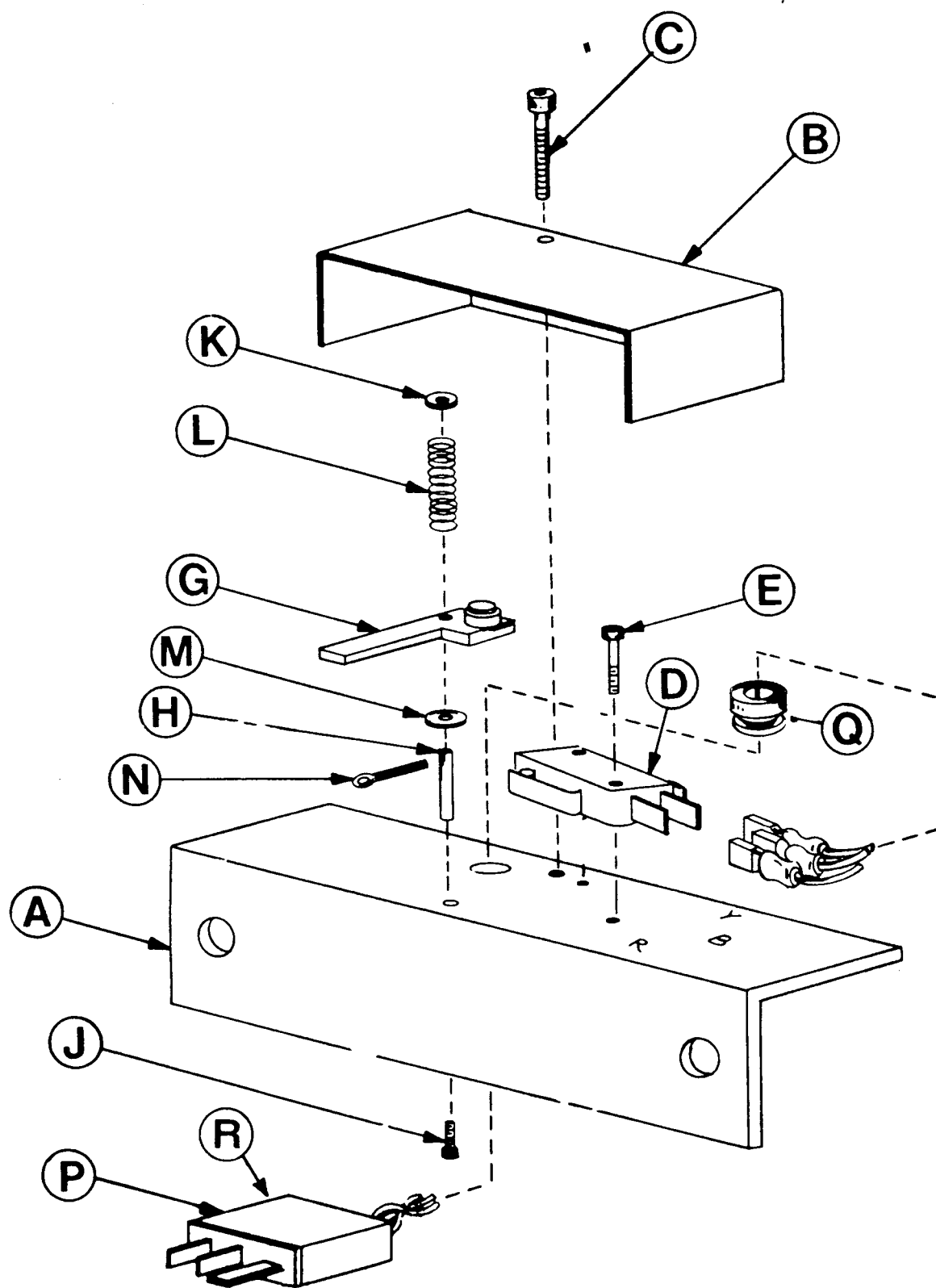
745 2 OF 2

<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
A	746-2	Air Cylinder Bottom Plate	1
B	551	O-Ring	1
C	746-4	O-Ring	2
D	746-1	Air Cylinder	1
E	746-3	Air Cylinder Top Plate	1
F	555	Air Piston	1
G	556	O-Ring	1
H	557	Piston Rod Nut	1
J	558	Tie Bolt	4
K	757A	Pump Yoke	1
Not Shown	553-1	Air Cylinder Rebuilding Kit (Includes B, C, G and Air Cylinder Lubricant)	1
Not Shown	553-2	Air Cylinder Lubricant (1-3/4 oz.)	



577B

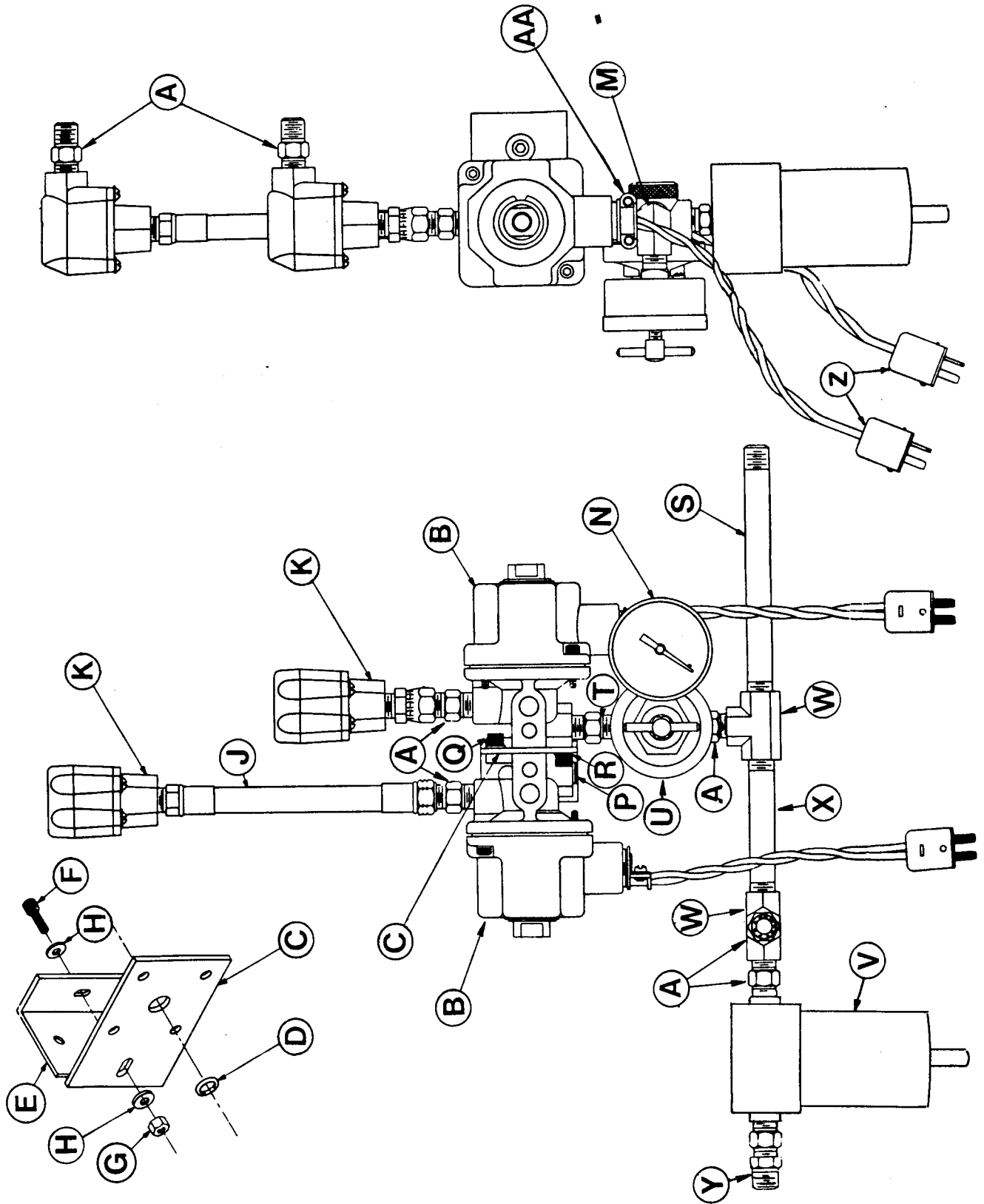
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	577B-1	Reversing Switch Bracket (Includes H,J)	1
B	577-2	Reversing Switch Cover Box	1
C	577-3	Socket Head Cap Screw	1
D	578A	Reversing Switch	1
E	578A-1	Socket Head Cap Screw	1
G	579A-1	Reversing Switch Lever	1
H	579-2	Pivot Arm	1
J	579-3	Socket Head Cap Screw	1
K	579-4	Flat Washer	1
L	579-5	Spring	1
M	579-6	Fiber Washer	1
N	579-7	Cotter Pin	1
P	580B	Reversing Switch Plug and Harness Assembly (Includes R)	1
Q	364	Restraining Bushing	1
R	580-1	Reversing Switch Plug	1



562B-50

562B-60

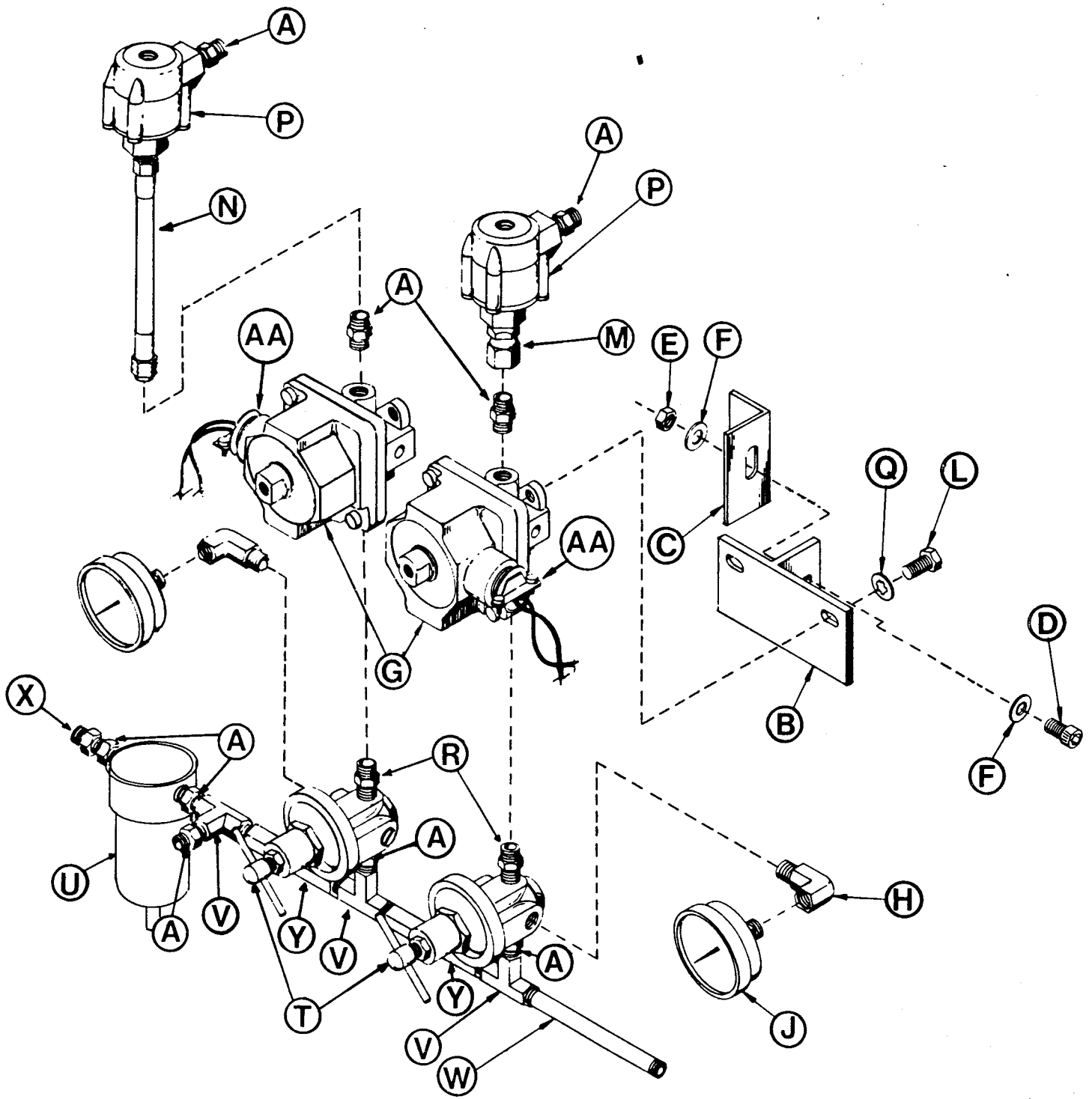
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
A	561	Hex Nipple	8
B	562A-7-50	Air Valve-50 Hertz (Includes Z, AA)	2
	562A-7-60	Air Valve-60 Hertz (Includes Z, AA)	2
C	562-8	Air Valve Mounting Plate	1
D	562-9	O-Ring	1
E	562-10	Air Valve Mounting Bracket	1
F	5512-8	Socket Head Cap Screw	1
G	385-4	Hex Nut	1
H	5512-9	Flat Washer	2
J	562-18	Air Hose	1
K	562-12	Quick Exhaust Valve	2
L	562-15	Swivel Union	1
M	565	Street Elbow	1
N	566	Pressure Guage	1
P	576	Pipe Plug	1
Q	371	Socket Head Cap Screw	4
R	665-4	Lockwasher	4
S	560	Cross Pipe Nipple	1
T	466A	Hex Nipple (Steel)	1
U	564	Pressure Regulator	1
V	571A	Air Cleaner	1
W	573	Pipe Tee	2
X	574	Pipe Nipple	1
Y	581	Reducing Bushing	1
Z	562-13	Electric Plug	1
AA	562-14	Cable Clamp	1
Not Shown	562-12-1	Exhaust Valve Repair Kit	
Not Shown	562-7-3	Air Valve Repair Kit	
Not Shown	562A-7-1-50	24V, 50 Replacement Coil	
Not Shown	562A-7-1-60	24V, 60 Replacement Coil	
Not Shown	564-1	Pres Regulator Diaphragm	
Not Shown	566-1	Pressure Gauge Glass	
Not Shown	571-3	Filter Cartridge	
Not Shown	562-7-3-1	Plunger & Spring Asy	



562B-50-DR

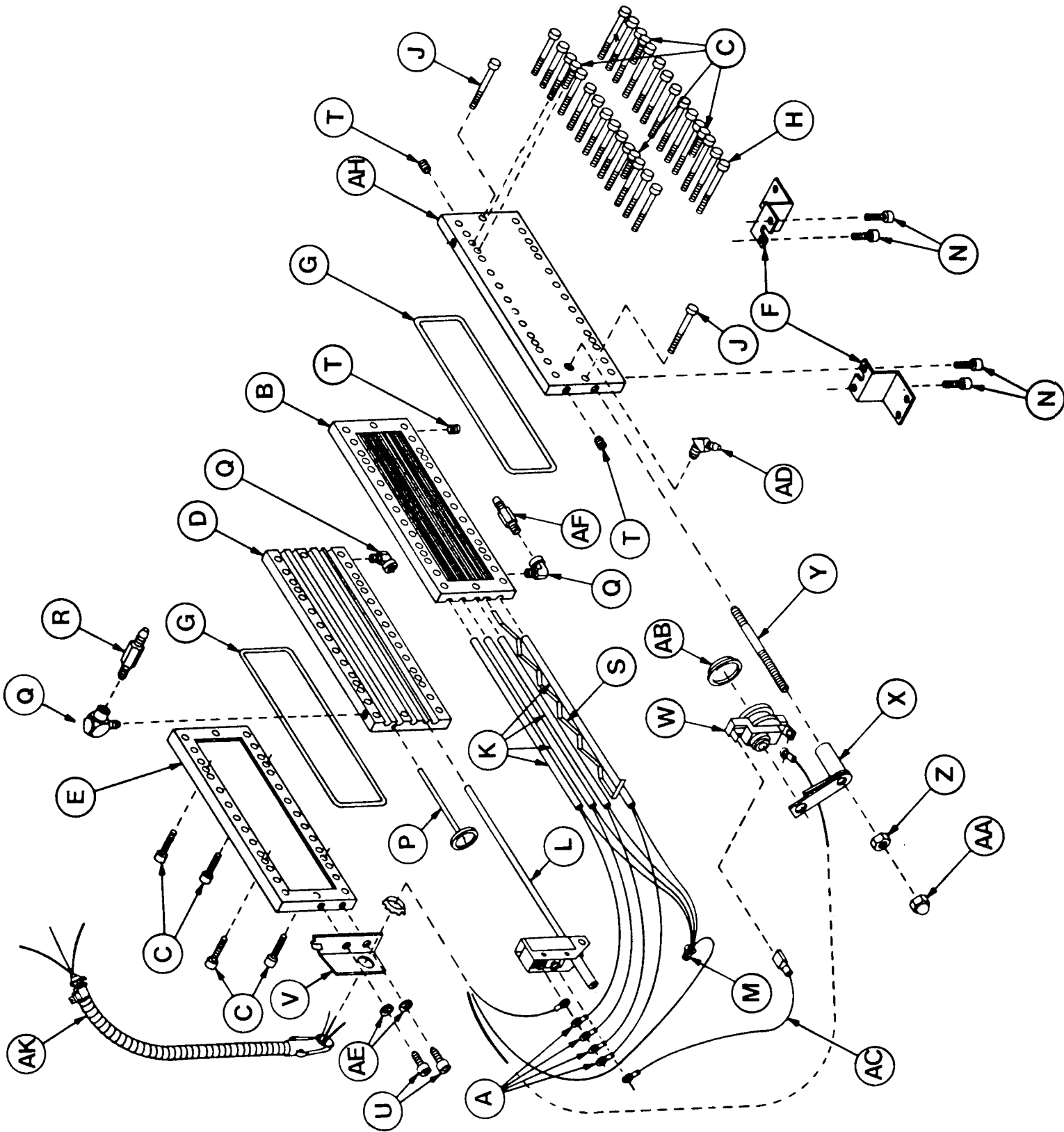
562B-60-DR

<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
A	561	Hex Nipple	9
B	562-8-DR	Air Valve Mounting Plate Dual Regulator	1
C	562-10-DR	Air Valve Mounting Bracket Dual Regulator	1
D	5512-8	Socket Head Cap Screw	1
E	385-4	Hex Nut	1
F	5512-9	Flat Washer	2
G	562-7-60-DR	Dual Regulator Air Valve 60 HZ (Includes Z, AA)	2
	562-7-50-DR	Dual Regulator Air Valve 50 HZ (Includes Z, AA)	2
H	565	Street Elbow	2
J	566	Pressure Gauge	2
L	760-3	Hex Head Cap Screw	2
M	562-15	Swivel Union	1
N	562-18	Air Hose	1
P	562-12	Quick Exhaust Valve	2
Q	665-4	Lockwasher	2
R	466	Hex Nipple (Steel)	2
T	564	Pressure Regulator	2
U	571	Air Cleaner	1
V	573	Pipe Tee	3
W	574	Pipe Nipple	1
X	581	Reducing Bushing	1
Y	8375-1	Hex Nipple	2
AA	562-14	Cable Clamp	2
Not Shown	562-13	Electric Plug	2
Not Shown	562-12 1	Exhaust Valve Repair Kit	
Not Shown	562-7-3	Air Valve Repair Kit	
Not Shown	562-7-1-50	24V, 50 HZ Replacement Coil	
Not Shown	562-7-1-60	24V, 60 HZ Replacement Coil	
Not Shown	564-1	Pres Regulator Diaphragm	
Not Shown	566-1	Pressure Gauge Glass	
Not Shown	571-3	Filter Cartridge	
Not Shown	562-7-3-1	Plunger & Spring Asy	



350E-5000

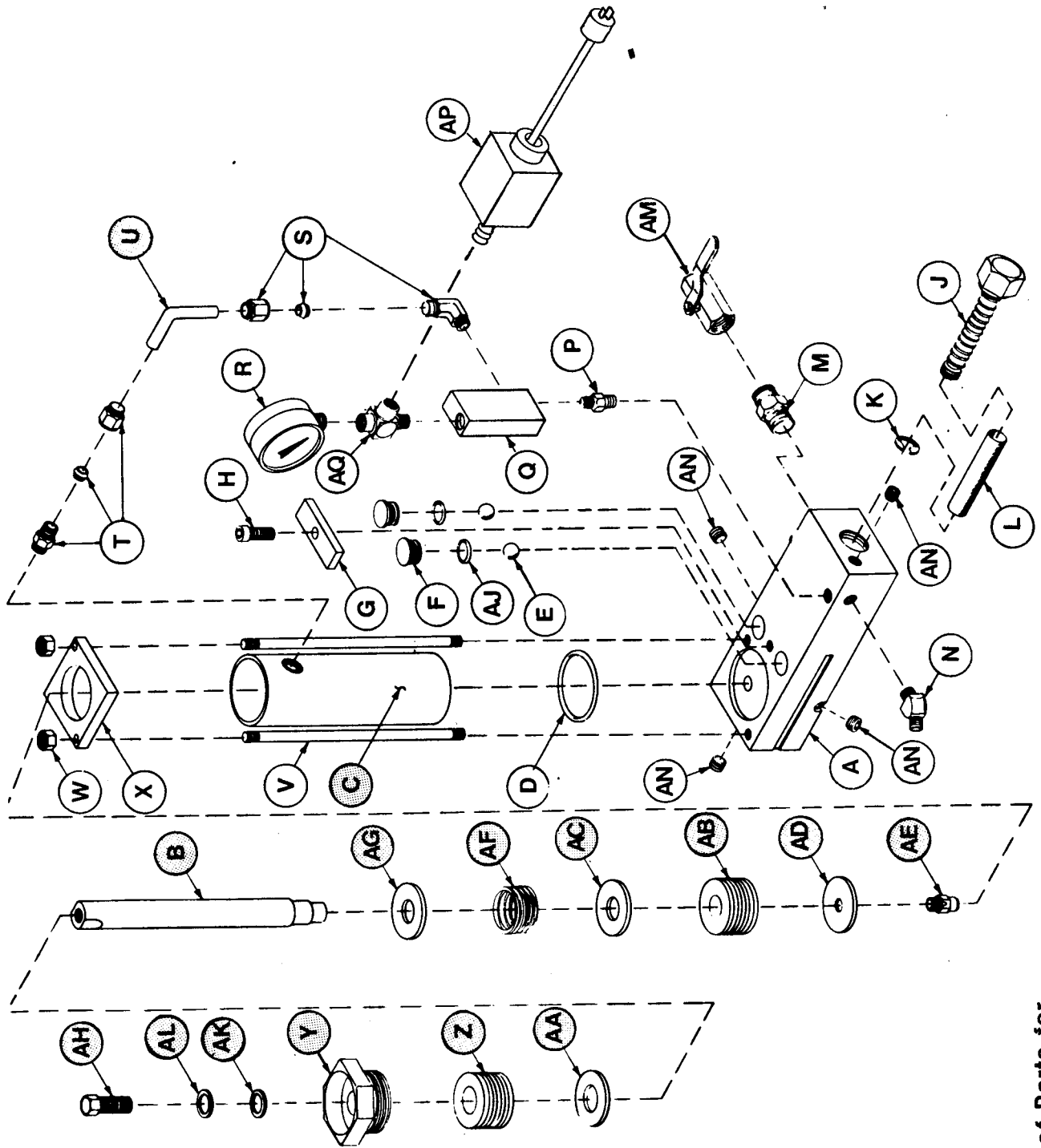
<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
A	297-3	Insulating Lug	4
B	351B	Resin Heating Section	1
C	352A-1	Socket Head Cap Screw	8
D	353B	ISO Heating Section	1
E	354A	ISO Heating Section Cover	1
F	356A	Heater Fastener Bracket	2
G	359	O-Ring	2
H	360-1/4	Socket Head Cap Screw	26
J	360-5/16	Socket Cap Screw	2
K	361-1250	Heating Element-1250 Watt	4
L	362C	Thermostat	1
M	363A	Wire Nut	1
N	371	Socket Head Cap Screw	4
P	374	Dial Thermometer	1
Q	375B-2	Street Elbow	3
R	375C-3	Hose Nipple	1
S	376	Leaf Spring	1
T	377	Pipe Spring	3
U	379-2	Socket Cap Screw	2
V	379A-1	Thermostat Mounting Bracket	1
W	385-1	Thermal Limit Switch	1
X	385-2	Mounting Bracket	1
Y	385-3	Threaded Stud	1
Z	385-4	Hex Nut	1
AA	385-5	Acorn Nut	1
AB	385-6	Heat Transfer Plate	1
AC	385-7A	Wire Harness	1
AD	465	Hose Elbow	1
AE	651A-10	Lockwasher	2
AF	381-2	Nipple	1
AH	352B	Resin Heating Section Cover	1
AK	365A	Heater Wire Harness	1
Not Shown	362C-6	Replacement Thermostat Micro Switch	
Not Shown	355B	Thermostat Cover Box	
Not Shown	372	Interconnecting Hose	
Not Shown	1270A-1	R-Isolation Hose Asy	
Not Shown	1270A-2	A-Isolation Hose Asy	



450B-A-SIZE

450B-R-SIZE

<u>REFERENCE LETTER</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
A	454A-R	R-Pump Base Assembly (Includes E, F, G, H, AJ, AN)	1
	454A-A	A-Pump Base Assembly (Includes E, F, G, H, AJ, AN)	1
B	See Schedule	Pump Piston Rod	1
C	See Schedule	Pump Cylinder	1
D	453	O-Ring	1
E	455	Valve Ball	2
F	457	Valve Cover	2
G	458	Valve Cover Bracket	1
H	459	Socket Head Cap Screw	1
J	460	Screen Screw	1
K	461	Snap Ring	1
L	462	Screen	1
M	463	Pipe Nipple	1
N	465	Hose Elbow	1
P	466A	Hex Nipple (Steel)	1
Q	467	Offset Fitting	1
R	468-11	0-2000 PSI Pressure Gauge	1
S	469	Tube Elbow	1
T	470	Tube Nipple	1
U	See Schedule	Tube Assembly	1
V	472	Tie Rod	2
W	473	Hexnut	2
X	474	Cylinder Top	1
Y	See Schedule	R-Packing Nut	1
		A-Packing Nut w/Lube Cup	1
Z	See Schedule	Packing Set	1
AA	See Schedule	Packing Support Washer	1
AB	See Schedule	Packing Set	1
AC	See Schedule	Packing Support Washer	1
AD	See Schedule	Packing Retainer Washer	1
AE	See Schedule	Packing Retainer Bolt	1
AF	See Schedule	Conical Spring	1
AG	See Schedule	Spring Retainer Washer	1
AH	See Schedule	Hex Head Cap Screw	1
AJ	485	O-Ring	2
AK	See Schedule	Washer	1
AL	See Schedule	Washer	1
AM	487A	Ball Valve	1
AN	377	Pipe Plug	4
AP	468-1-1500	Pressure Switch	1
AQ	6465	Pipe Tee	1
Not Shown	6690-16-12-1	Pressure Switch Diaphragm	1



● See Schedule of Parts for complete part numbers.

SCHEDULE OF PARTS

Ref. Letter	15	19	22	24	30	40	44	48	52	56	60
B	451A-15	451A-19	451A-22	451A-24	451A-30	451A-40	451A-44	451A-48	451A-52	451A-56	451A-60
C	452B-15	452B-19	451B-22	452B-24	452B-30	452B-40	452B-44	452B-48	452B-52	452B-56	452B-60
U	471-15	471-30/19	471-30/19	471-30/19	471-30/19	471-48/40	471-48/40	471-48/19	471-60/52	471-60/52	471-60/52
Y	475-15	475-19	475-22	475-24	475-30	475-40	475-44	475-48	475-52	475-56	475-60
	489-15	489-19	489-22	489-24	489-30	489-40	489-44	489-48	489-52	489-56	489-60
Z	476-15	476-19	476-22	476-24	476-30	476-40	476-44	476-48	476-52	476-56	476-60
AA	477-15	477-19	477-22	477-24	477-30	477-40	477-44	477-48	477-52	477-56	477-60
AB	478-15	478-19	478-22	478-24	478-30	478-40	478-44	478-48	478-52	478-56	478A-60
AC	479-15	479-19	479-22	479-24	479-30	479-40	479-44	479-48	479-52	479-56	479-60
AD	488-15	488-19	488-22	488-24	488-30	488-40	488-44	488-48	488-52	488-56	488-60
AE	480D-22/15	480D-22/15	480D-22/15	480D-30/24	480D-30/24	480-60/40	480D-60/40	480D-60/40	480D-60/40	480D-60/40	480D-60/40
AF	481-15	481-22/15	481-22/19	481-24	481-30	481-44/40	481-44/40	481-60/48	481-60/48	481-60/48	481-60/48
AG	482-15	482-19	482-22	482-24	482-30	482-40	482-44	482-48	482-52	482-56	482-60
AH	483-5/16	483-5/16	483-5/16	483-3/8	483-3/8	483-7/16	483-7/16	483-7/16	483-7/16	483-7/16	483-7/16
AK	486-5/16	486-5/16	486-5/16	486-3/8	486-3/8	486-7/16	486-7/16	486-7/16	486-7/16	486-7/16	486-7/16
AL	486-5/16	486-5/16	486-5/16	486-5/16	486-3/8	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used

Field Number	Field Title	Description
1	Date	Enter date report is submitted.
2	Name	Enter name of person making report.
3	IM Number	Enter the Part number of the Instruction Manual from the title page.
4	Issue Number	Enter the Issue number of the Instruction Manual from the title page. If there is no issue number enter NONE.
5	Date of Issue	Enter the date of issue of the Instruction Manual from the title page. If there is no issue date enter NONE
6	Page Number	Enter the page number containing the discrepancy.
7	Discrepancy	Provide a brief description of discrepancy.

NOTE: You may send a marked copy of the page as an attachment to your submittal.