Installation and Servicing Instructions for Submersible Motors Used in Hazardous Locations

CLASS 1, DIV. 1, GROUP D

Series WGX, WGXH, 4RX, 4VX, 4VHX, and 6VHX

Myers®

Pentair Pump Group

13800A980

WARNING

MOTORS TO BE USED WITH PUMPS HANDLING SEWAGE AND WASTE WATER ONLY. DO NOT USE IN OTHER HAZARDOUS LIQUIDS.

MOTOR REPAIR

MOTORS MUST BE REPAIRED AND SERVICED ONLY AT MYERS AUTHORIZED SERVICE CENTERS OR AT THE MYERS FACTORY. ANY UNAUTHORIZED FIELD REPAIR VOIDS WARRANTY.

GENERAL—Motor construction meets the Underwriters Laboratories requirements for Class I Group D Hazardous service. Figs. 1 and 2 show motor sectional drawings with principal parts called out. Motor chamber and seal chamber are oil filled for heat transfer and for lubrication of bearings and seals. Internal motor connection diagrams are shown in Fig. 3. A high dielectric oil is used and does not require replacement in normal use. Air space is provided above oil level in seal chamber and motor chamber for expansion of the oil on heating. Power lines and control lines are sealed in motor cap with epoxy potting resin.

MOTOR OVERHEAT PROTECTION—Each motor is provided with heat sensor thermostats attached directly to the motor winding. Three phase units use two thermostats in series and single phase units use one thermostat. The thermostats are made by Texas Instrument Co. Model #9700K-36-173 and are set to trip at a motor winding temperature of 230°F (110°C). The max. contact rating is 18 amps at 115 V. AC and 12 amps at 230 V. AC.

The thermostats are connected in series with the coil of a holding relay that will open a set of normally closed contacts which are in series with the motor control contactor when the motor overheats. When the motor is stopped due to an overheated condition it will not start until manually reset by pushing the heat sensor reset button on the front of the control panel.

Complete wiring diagrams Figs. 4, 5, 6, 7 show how heat sensor is connected for both single and three phase pumps and for simplex or duplex systems.

SEAL FAILURE—The oil filled seal chamber is provided with moisture sensing probes to detect water leakage through the lower shaft seal.

Water in the seal chamber energizes a red seal leak warning light at the control panel. This is a warning light only and does not stop motor but indicates that seal has leaked and must be repaired within two to three weeks. If motor is allowed to operate too long after warning, upper seal may leak and allow water to enter motor chamber causing motor failure.

The seal leak warning light can also indicate moisture in the motor chamber as moisture probe wires are exposed in this chamber. In case warning light comes on motor should be stopped immediatley and the motor power lines must be checked for any resistance to ground using an ohmmeter or Megger.

The seal leak test switch tests the seal leak circuit continuity, when pushed the seal leak test bulb should light. If the test bulb does not light it means either the wiring circuitry to the seal leak electrodes in the pump has been broken or the seal leak warning indicator bulb and/or seal leak test bulb has failed.

If resistance is above (one Megohm) the leakage is in seal chamber only. If motor shows below (one Megohm) unit must be removed from service immediately and be serviced at authorized service center.

Connection diagrams for the seal failure probes is shown on Figs. 4, 5, 6, 7.

ELECTRICAL MOTOR CONTROLS—(CAUTION) All electrical controls and motor starting equipment must be as specified in these instructions and must be installed outside the hazardous area unless approved explosion proof controls are used.

Level sensing controls in the sump or hazardous area must be of an approved type for hazardous locations or must be of the intrinsically safe type which requires the use

of special relays to limit current and voltage to approved levels.

MOTOR INSPECTION AND SERVICE - Motor chamber and seal chamber are oil filled for lubrication of the bearings and seals and do not require service. Seal failure signal light indicates water in the seal chamber or motor chamber and should be checked as given above.

Motor should be checked at least 4 times a year for ground leakage and proper amps draw.

In checking motor for grounds, disconnect all line leads from control terminal block and use ohmmeter or Megger to check resistance to ground of each line lead.

If resistance reading is less than one Megohm unit should be removed for service at Myers authorized service center.

Use clamp-on ammeter to check power draw. Max. amps should be within nameplate rating.

THREE PHASE CONTROLS - Any standard 3 phase control equipment can be used if heat sensors and seal failure probes are connected as shown on Figs. 6 and 7 wiring diagrams.

WARNING: Only qualified persons shall conduct services and installations of this pump. The pump must be wired by a qualified electrician, using an approved starter box and switching device.

SINGLE PHASE CONTROLS - Single phase motors are of the capacitor start, capacitor run type so proper start and run capacitors and start relays must be used in the control box. Wiring diagrams Figs. 4 and 5 show proper connections.

CAUTION - All electrical controls must be installed outside the hazardous area unless of an approved type for hazardous locations.

INSTALLATION - Motor must be installed using rigid conduit to meet Class 1 Division 1 requirements of the National Electrical Code.

Conduit must be stainless steel or of coated metal conduit resistant to sewage water.

An explosion proof junction box with approved conduit seal, where conduit leaves the hazardous area, must be used to make power and control connections for motor. Level controls must be of an approved type for hazardous locations or must be of the intrinsically safe type

Intrinsically save controls can be cord connected.

Other approved controls not intrinsically safe must be connected to junction box with conduit or M.I. cable.

WGX SERIES MAXIMUM AMP & WINDING RESISTANCE VALUES

MODEL	HP	SPEED	VOLTS	PHASE	WINDING RESISTANCE IN OHMS			MAX. AMPS
					BLACK TO BLUE	BLACK TO RED	RED TO BLUE	
WGX SERIES	3	3450	230	1	.47	3.14	3.61	36.0
	3	3450	200	3	.72	.72	.72	20.5
	3	3450	230	3	.72	.72	.72	17.8
	3	3450	460	3	2.9	2.9	2.9	8.9
	3	3450	575	3	6.5	6.5	6.5	7.0
	5	3450	230	1	.47	3.14	3.61	43.0
	5	3450	200	3	.72	.72	.72	28.5
	5	3450	230	3	.72	.72	.72	24.8
	5	3450	460	3	2.9	2.9	2.9	12.4
	5	3450	575	3	6.5	6.5	6.5	9.9

WGXH SERIES MAXIMUM AMP & WINDING RESISTANCE VALUES

MODEL	HP	SPEED	VOLTS	PHASE	WINDING RESISTANCE IN OHMS			MAX. AMPS
					BLACK TO BLUE	BLACK TO RED	RED TO BLUE	
WGXH SERIES	3	3450	230	1	.76	5.15	5.91	21
	3	3450	200	3	1.48	1.48	1.48	15
	3	3450	230	3	.98	.98	.98	13
	3	3450	460	3	3.9	3.9	3.9	6.5
	3	3450	575	3	11.4	11.4	11.4	5.2
	5	3450	230	1	.47	3.14	3.61	32
	5	3450	200	3	.72	.72	.72	21.6
	5	3450	230	3	.72	.72	.72	18.8
	5	3450	460	3	2.9	2.9	2.9	9.4
	5	3450	575	3	6.5	6.5	6.5	7.5
	7½	3450	200	3	.72	.72	.72	25.8
	7½	3450	230	3	.72	.72	.72	22.4
	7½	3450	460	3	2.9	2.9	2.9	11.2
	7½	3450	575	3	6.5	6.5	6.5	9

MAXIMUM AMP & WINDING RESISTANCE VALUES

MODEL	HP	SPEED	VOLTS	WINDING RESISTANCE IN OHMS				AMPS
				BLACK PHASE	BLACK TO BLUE	RED TO TO RED	MAX. BLUE	
4RX & 4VX SERIES	3	1750	230	1	.83	2.38	3.21	17.5
	3	1750	200	3	1.29	1.29	1.29	15.5
	3	1750	230	3	1.45	1.45	1.45	13.0
	3	1750	460	3	5.8	5.8	5.8	6.5
	3	1750	575	3	11.15	11.15	11.15	5.2
	5	1750	230	1	.83	2.38	3.21	34.0
	5	1750	200	3	.74	.74	.74	21.6
	5	1750	230	3	.88	.88	.88	18.0
	5	1750	460	3	3.45	3.45	3.45	9.0
	5	1750	575	3	5.69	5.69	5.69	7.2
	7 1/2	1750	200	3	.45	.45	.45	32.2
	7 1/2	1750	230	3	.58	.58	.58	28.0
	7 1/2	1750	460	3	2.34	2.34	2.34	14.0
	7 1/2	1750	575	3	3.68	3.68	3.68	11.2
	1	1150	230	1	2.12	10.1	12.22	9.0
	1	1150	200	3	4.31	4.31	4.31	7.4
	1	1150	230	3	5.36	5.36	5.36	6.4
	1	1150	460	3	21.45	21.45	21.45	3.2
	1	1150	575	3	33.8	33.8	33.8	2.6
	1 1/2	1150	230	1	1.84	8.8	10.64	11.0
	1 1/2	1150	200	3	3.02	3.02	3.02	9.8
	1 1/2	1150	230	3	3.69	3.69	3.69	8.5
	1 1/2	1150	460	3	14.75	14.75	14.75	4.2
	1 1/2	1150	575	3	23.7	23.7	23.7	3.3
	2	1150	230	1	1.17	5.47	6.64	18.0
	2	1150	200	3	2.24	2.24	2.24	12.0
	2	1150	230	3	2.44	2.44	2.44	10.5
	2	1150	460	3	9.75	9.75	9.75	5.2
	2	1150	575	3	18.35	18.35	18.35	4.2
4VHX & 4VHX SERIES	5	1750	200	3	.77	.77	.77	21.0
	5	1750	230	3	1.0	1.0	1.0	18.0
	5	1750	460	3	4.0	4.0	4.0	9.0
	5	1750	575	3	6.28	6.28	6.28	7.2
	7 1/2	1750	200	3	.379	.379	.379	30.0
	7 1/2	1750	230	3	.44	.44	.44	26.0
	7 1/2	1750	460	3	1.95	1.95	1.95	13.0
	7 1/2	1750	575	3	3.08	3.08	3.08	10.0
	10	1750	200	3	.302	.302	.302	40.0
	10	1750	230	3	.4	.4	.4	35.0
	10	1750	460	3	1.6	1.6	1.6	17.5
	10	1750	575	3	2.48	2.48	2.48	14.0
	15	1750	200	3	.241	.241	.241	60.0
	15	1750	230	3	.31	.31	.31	52.0
	15	1750	460	3	1.25	1.25	1.25	26.0
	15	1750	575	3	1.94	1.94	1.94	21.0
	3	1150	200	3	.98	.98	.98	15.9
	3	1150	230	3	1.25	1.25	1.25	13.8
	3	1150	460	3	5.02	5.02	5.02	7.0
	3	1150	575	3	7.64	7.64	7.64	5.5
	5	1150	200	3	.59	.59	.59	24.0
	5	1150	230	3	.82	.82	.82	21.0
	5	1150	460	3	3.27	3.27	3.27	10.5
	5	1150	575	3	5.11	5.11	5.11	8.4

WGH, WGXH, 4RX, & 4VX SERIES

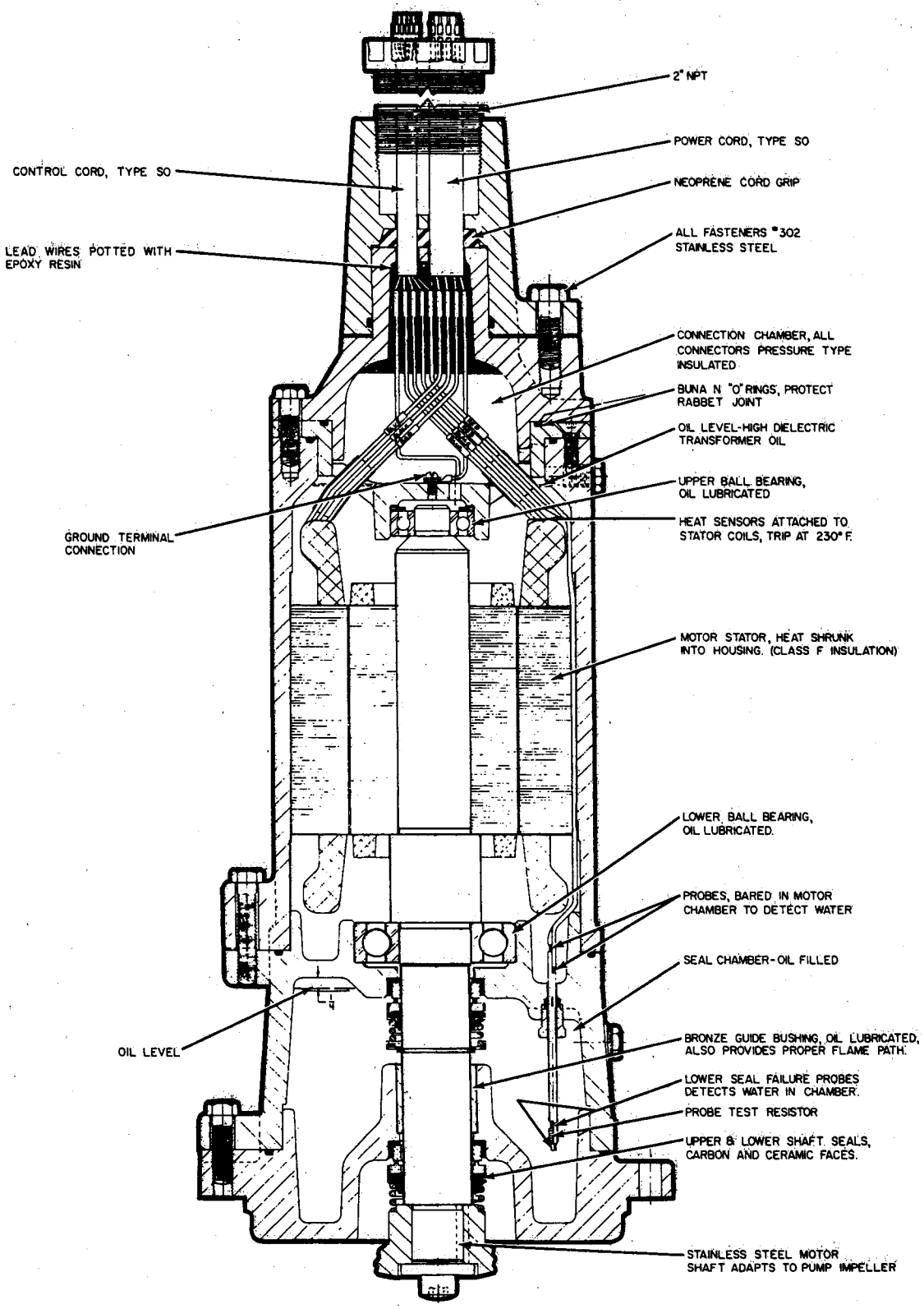


Fig. 1

4VHX & 6VHX SERIES

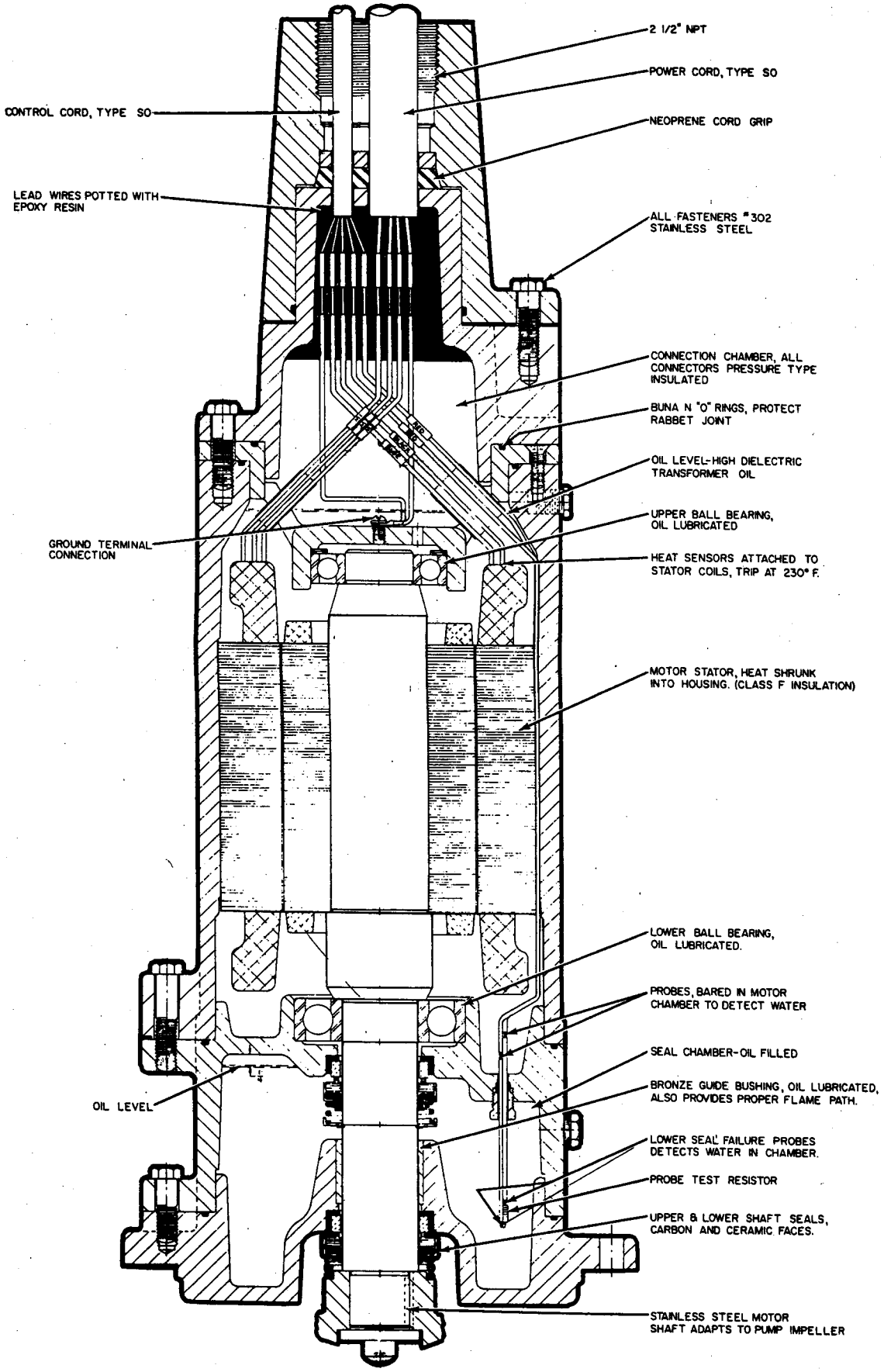
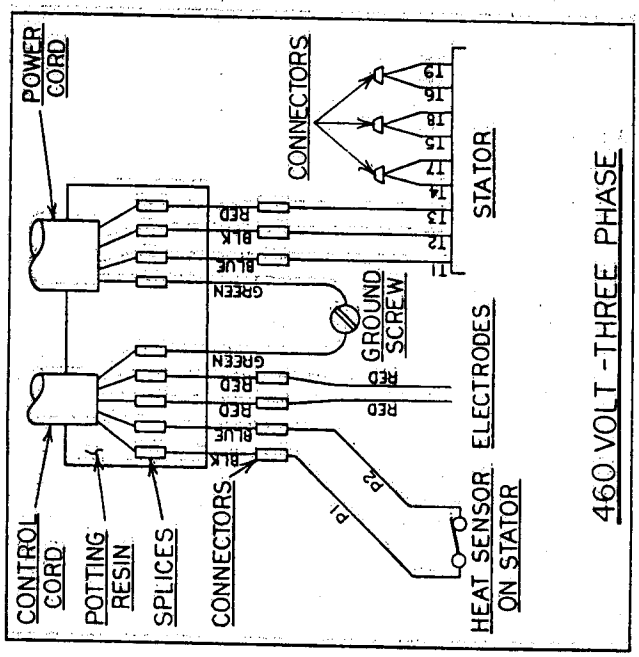
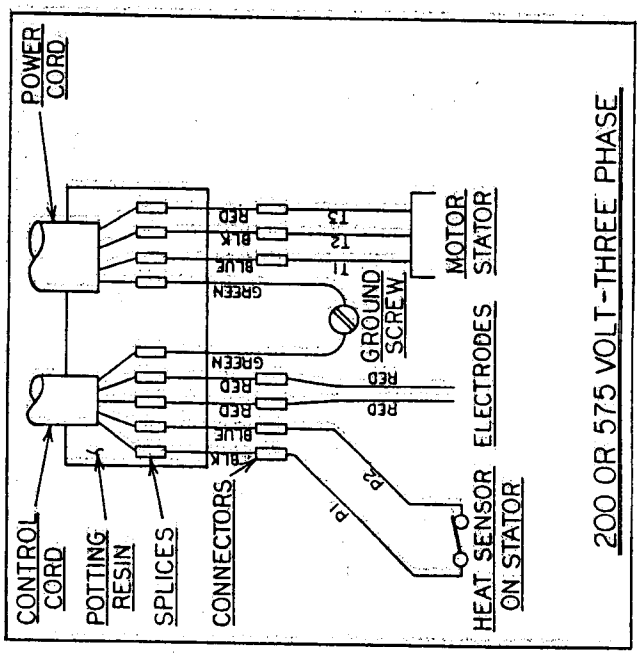
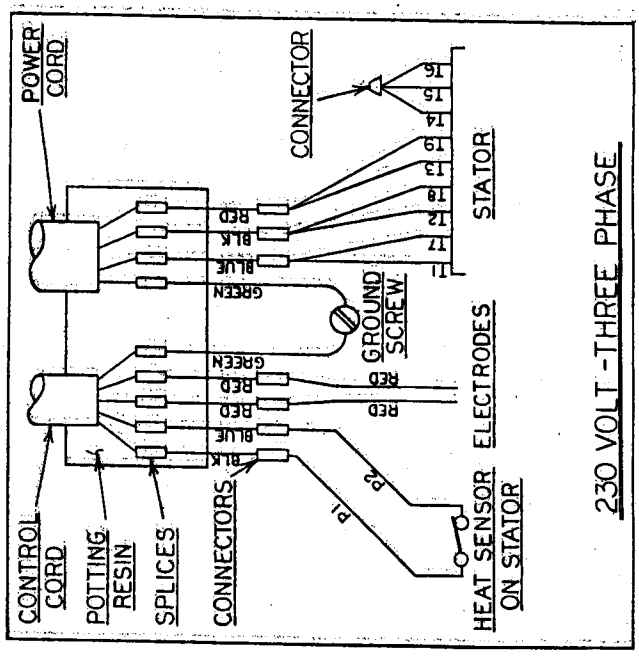


Fig. 2

CONNECTION DIAGRAMS







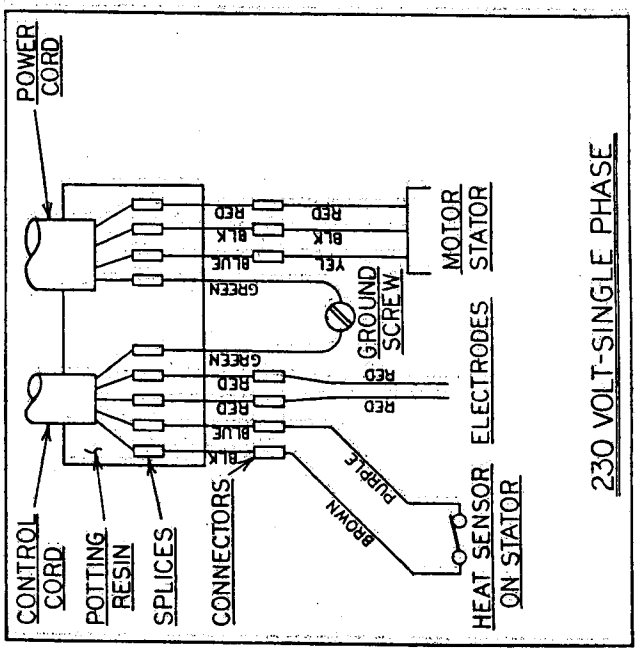
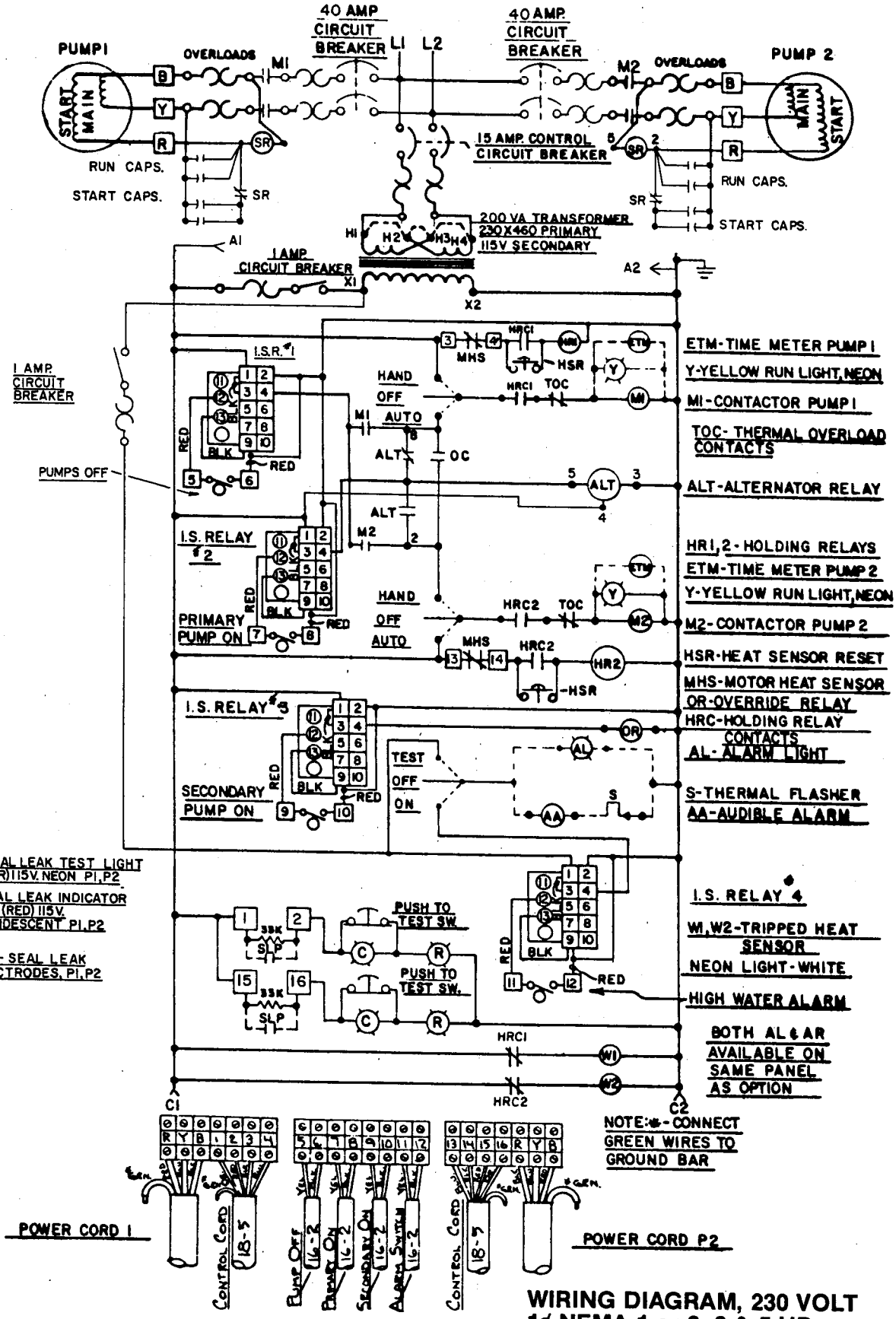
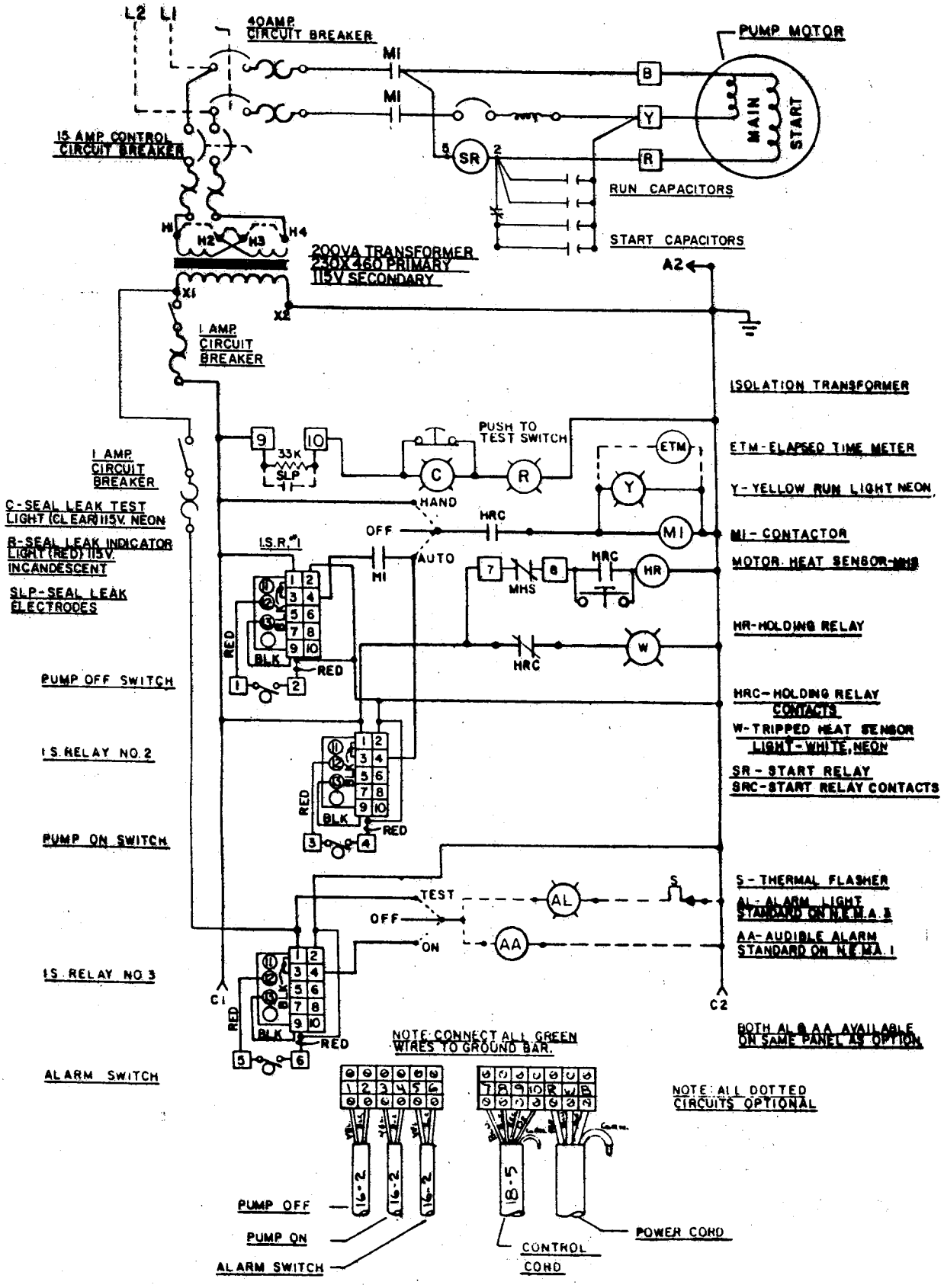


Fig.3



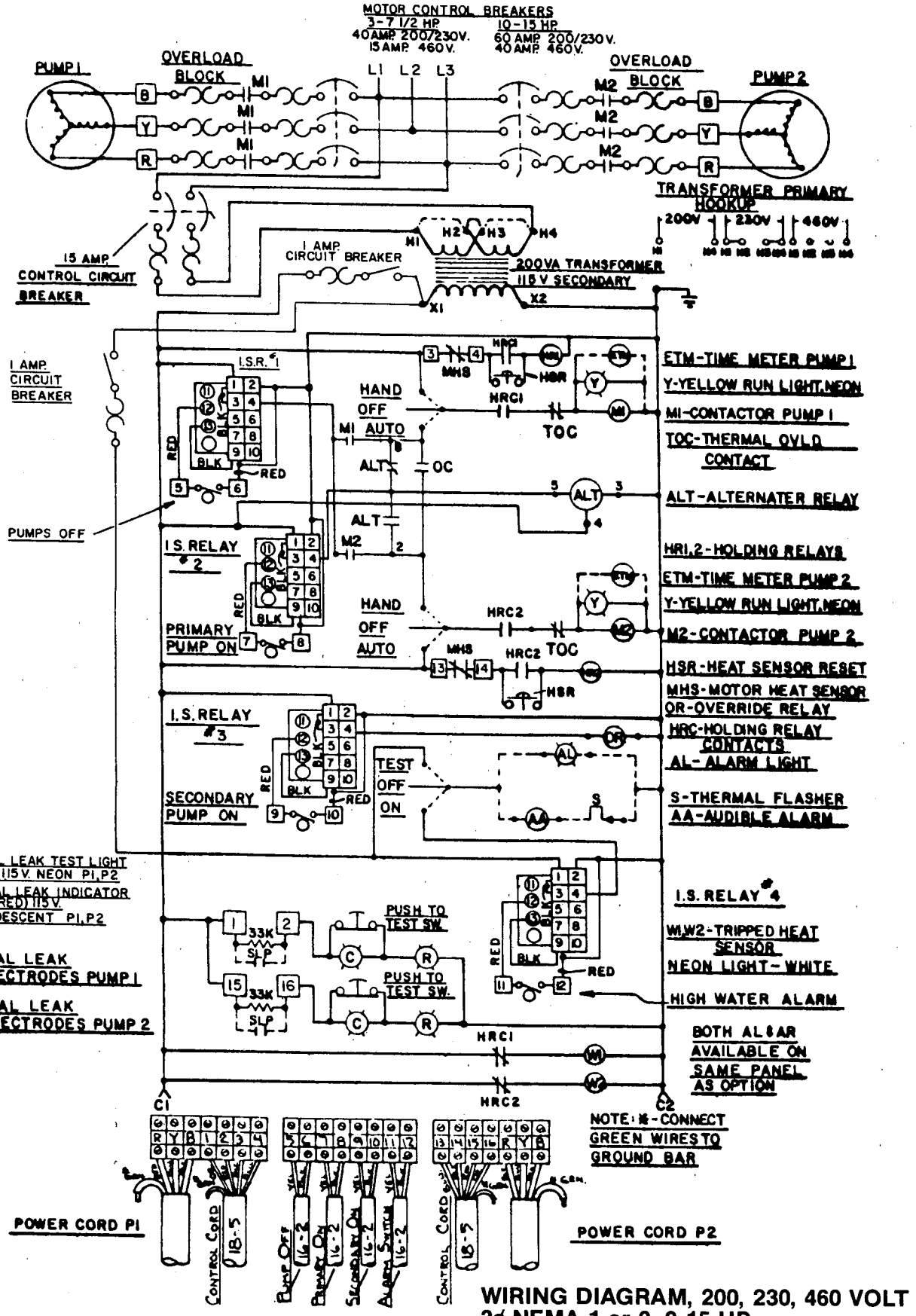
WIRING DIAGRAM, 230 VOLT 1ø NEMA 1 or 3, 3 & 5 HP EXPLOSION PROOF GRINDER WGX, WGXH, 4RX, 4VX, 4VHX, & 6VHX

Fig.4



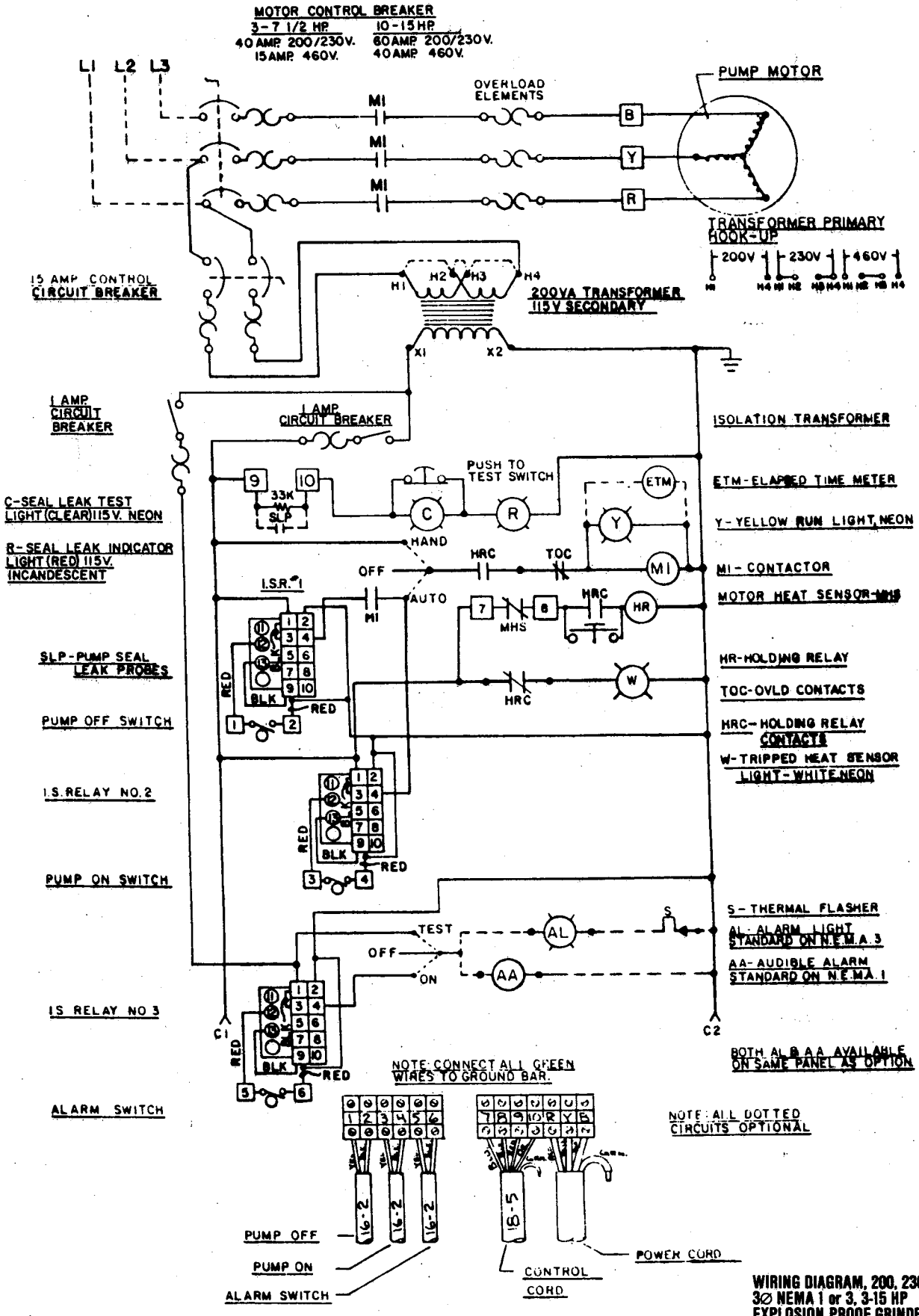
WIRING DIAGRAM, 230 VOLT
1ø NEMA 1 or 3, 3 & 5 HP
EXPLOSION PROOF GRINDER
WGX, WGXH, 4RX, 4VX, 4VHX, & 6VHX

Fig.5



WIRING DIAGRAM, 200, 230, 460 VOLT
3ø NEMA 1 or 3, 3-15 HP
EXPLOSION PROOF GRINDER
WGX, WGXH, 4RX, 4VX, 4VHX & 6VHX

Fig.6



WIRING DIAGRAM, 200, 230 460 VOLT 3Ø NEMA 1 or 3, 3-15 HP EXPLOSION PROOF GRINDER WGX, WGXH, 4RX, 4VX, 4VHX & 6VHX

Fig.7

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