Ideal-Standard
Viceroy Mk.2
oil fired boilers

O

commissioning, operating and maintenance instructions

Viceroy Mk.2 oil fired boilers

commissioning, operating and maintenance instructions

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OIL FIRED

OPERATING AND MAINTENANCE INSTRUCTIONS FOR THE VICEROY Mk 2 OIL FIRED BOILER SHOULD BE READ IN CONJUNCTION WITH THE ASSEMBLY AND INSTALLATION INSTRUCTIONS (INCORPORATING THE TECHNICAL DATA SHEET) AND THE RELEVANT BURNER BOOKLET (ENCLOSED WITH THE BURNER)

PRE-COMMISSIONING CHECKS

Before the commencement of commissioning procedure it is essential that the installation be thoroughly checked for completion and special attention should be paid to the following points:-

(1) Ensure presence of water in the system.

(2) Check all required sealing has been efficiently effected.

(3) Oil and electricity connections from the main input sources of supply have been made and tested.

(4) Electricity Supply - ensure Live and Neutral wires have been satisfactorily connected to the correct terminals, as shown in the relevant wiring diagram. Mis-connection or reversal of such terminal connections could present a hazard and be severely detrimental to the efficient operation of the burner.

(5) Earth bonding should be checked with the aid of a "Megger".

(6) Ensure that oil is present at the outlet of the flexible supply pipe where it enters the oil fuel pump.

(7) Ensure oil fuel to be burned is of same class as that for which burner unit has been supplied.

BEFORE OPERATION THE BURNER SHOULD BE CAREFULLY INSPECTED TO ENSURE NO DAMAGE HAS BEEN SUSTAINED DURING TRANSIT, STORAGE OR INSTALLATION.

(8) When a three-phase motor has been supplied with the burner unit, make the main switch and depress the motor contactor for a moment to check the motor rotation. Motor should rotate in an anti-clockwise direction when viewed from cooling fan end. If clockwise rotation is observed, interchange any two phases on incoming mains supply and re-test.

ONLY TURN ON MAIN SWITCH FOR SUFFICIENT TIME TO EFFECT THIS TEST AND SWITCH OFF AGAIN AT MAINS ON TEST COMPLETION.

COMMISSIONING THE BURNER

A. On/Off Operation Oil Burners

Air control at the burner inlet should be set approximately halfway open, and the burner then started. If necessary the oil pump should be bled automatically to remove any trapped air - this operation being effected by the use of the pump bleed port and any requisite adjustment of the bleed screw.

THOROUGHLY CLEAN THE BURNER UNIT AND REMOVE ALL SURPLUS OIL AFTER EFFECTING THIS OPERATION AND BEFORE CONTINUATION OF THE COMMISSIONING PROCEDURE.

Re-start the burner and check the oil pressure is set to the figure quoted in the relevant data table and make any necessary adjustment. Adjust the air control, if necessary, to provide a clean flame and also to give a correct CO_2 level (similarly quoted in the data table) - a sampling point being located in the smokehood for this purpose. Finally check the Smoke Number which should normally be less than 1 and never more than 2.

B. Low Flame Start Oil Burners

Before starting this type of burner remove the wiring connections for the low flame solenoid valve, thus ensuring the burner remains on low flame operation to enable the combustion check to be effected. This operation is carried out as follows:-

(1) BGOB Selectos Burners.

Remove the connection from Terminal 6 on the Landis & Gyr LAB control box and, similarly, from Terminal 7 on the Landis & Gyr LAC control box.

(2) Nu-Way A1/LA5 Burner

Remove link between Terminals 7 and 8 on the burner terminal strip. Having arranged the burner for Low Flame operation it can now be started to effect the combustion check. Bleed the oil pump if required, taking care to remove surplus oil by cleaning the unit after this operation, and ensure the oil pressure is between 6.9 and 8.3 bar (gauge) (100 and 120 lbs/in^2 respectively) for all burner types. This pressure may be adjusted as requisite by means of the hexagonal socket located at the end of the pressure reducing valve. The Low Flame stop on the air control should then be adjusted to give a good and clean flame with a relevant smoke number not exceeding 1. The level of CO_2 for Low Flame operation is NOT IMPORTANT as low flame is only held for a few seconds at the operating start of the burner, and it is more important to have a smooth start and clean flame. Having checked and effected all necessary settings for Low Flame combustion the burner should be switched off and the wiring for the low flame solenoid valve re-connected to the appropriate control box terminals.

After re-starting the burner, it should be found that the re-connection of the low flame solenoid wiring will operate the burner's change to High Flame operation after a period of approximately 15 seconds. Again check the oil pressure, the exact specified pressure being quoted in Tables 1, 2 or 3 shown in the rear section of this book, (relevant to the type of burner supplied), and effect any necessary adjustment at the oil pump. Adjust the High Flame stop on the air control to give the correct combustion characteristic with a Smoke Number of generally less than 1 and never more than 2. A check of the Flue Gas Temperature, compatible with the relevant figures quoted in the Data Sheet, should also be effected by means of an adequately scaled thermometer being inserted through a test port which should be provided at the commencement run of the flue installation for this particular purpose.

Safety and Operational Checks

At the termination of the commissioning procedure it is recommended that the following checks be effected:

PHOTOCELL: Remove the photocell from its housing and cover the viewing face whilst the burner is running - the burner should cease firing within 2 seconds. The control then recycles and attempts to restart the burner but, whilst covered, the photocell is unable to see light and the control will go to Lockout state shortly after the appearance of flame. It should be noted, however, that with the incorporation of certain control boxes, the fan will continue to run during the recycling period before the restart attempt. To continue the check, the photocell should now be exposed to strong light and the reset button on the control box pressed to allow recycling of the control. No attempt to restart should occur until the photocell is returned to its housing, when the burner should then restart normally.

CONTROL THERMOSTATS: To check the control instrumentation the burner should be run continuously for the test period and should change to Low Flame operation at the required temperature. Should this change not be effected, the boiler (High/Low) thermostat setting should be adjusted, taking care not to isolate the boiler from all load. The temperature at which the burner reduces to Low Flame operation should be observed and, if not satisfactory, the boiler thermostat setting should be adjusted. The Limit thermostat should be checked in a similar manner, temporarily raising the setting point of the boiler thermostat higher than that of the limit thermostat. At this point, the high limit warning light, if fitted, should be illuminated when the burner shuts off. The setting of the high limit thermostat may then be adjusted as necessary, and the on/off thermostat restored to its original setting.

OPERATING INSTRUCTIONS

To maintain the efficiency of the boiler/burner unit, the following general recommendations are advised:-

FUEL: Residual oil must be always available at the burner pump, under all circumstances, at a positive pressure of between 0.5 and 10 lbs p.s.i. and maintained at a temperature appropriate to the grade employed.

OPERATING START: The operation of the burner should be commenced by setting the thermostat to a figure higher than the water temperature, and the burner may be stopped by switching off the electricity supply.

LOCKOUT AND RESETTING: The burner may set itself in a 'Safety

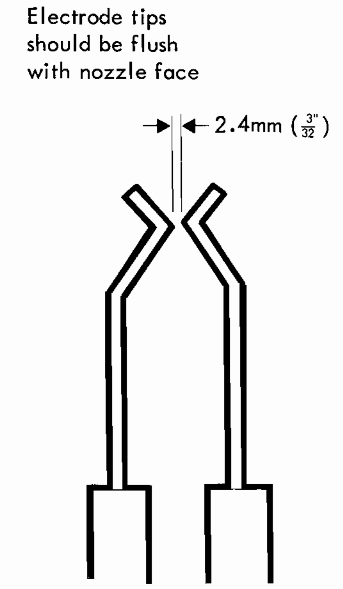


Fig. 17
Position of electrodes
(excluding Oertli burners)

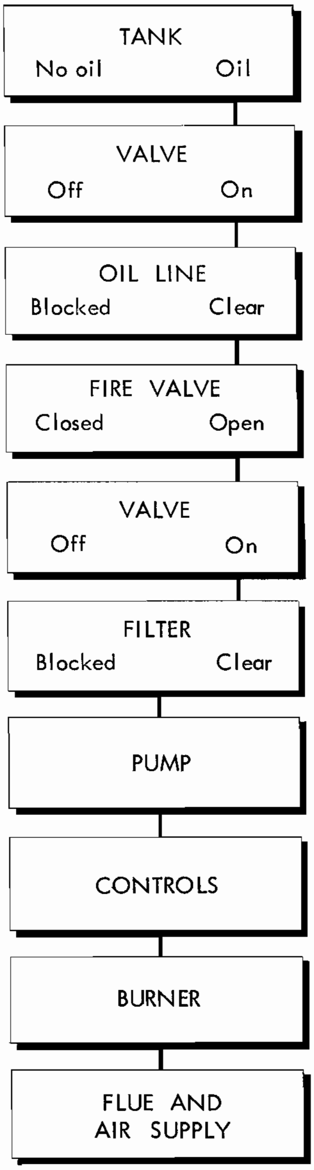


FIGURE 17A Basic check list for pressure jet oil burners

Lockout' position and this will occur if the burner stops through any reason other than operation of temperature or time controls. In such circumstances an attempt to restart the burner may be made by pressing the reset button on the control box. It is recommended that an attempt to reset the control should not be made more than once every 30 minutes. Attempts to restart the burner MUST NOT BE MADE if the combustion chamber is suspected of holding an oil vapour content. Under such an assumption the chamber must be allowed to cool for some 15 minutes after cessation of firing before resetting the control to reactivate the burner from a lockout state.

FLAME: Periodical inspections of the flame should be effected - if a departure from the normal plane of operation is observed, whether horizontally or vertically, and also if a smoky flame is apparent, it is suggested the services of a competent engineer be requisitioned at the earliest opportunity.

FLEXIBLE CONNECTIONS: Ensure, particularly when hinged type burners are installed, that the arrangement of flexible oil tubes between filter and pump is such that distortion will be prevented when the burner is either removed or hinged back for maintenance.

BASIC BURNER FAULT FINDING PROCEDURES

The following conditions may normally be checked and rectified by the boilerhouse attendant or installation engineer but, if such conditions are considered beyond their normal capabilities, the type of prevalent fault should be described in detail when contacting the appointed service/ maintenance engineer:-

1. Failure to start

(a) Check electricity supply is live from mains input and up to the burner, ensuring all external electrical connections are well made and circuits in continuity.

(b) HINGED TYPE BURNERS ONLY - Ensure burner hinge firmly closed, also closure of microswitch effected.

(c) Check that all thermostats, or any other control instrument installed, are 'calling for heat'.

(d) Should the burner be discovered in a lockout state as indicated by illumination of the warning light incorporated in the control box, the reset button should be pressed and the correct restarting sequence awaited.

(e) Should the motor start and no ignition spark be observed, the H/T lead connections require checking and it should be ensured the electrodes and insulators are in a clean state, also that the electrode gap is at its correct setting (refer Fig.17) – Excluding Oertli burners. When Oertli burners selected, refer Fig. 18 for electrode setting. Evidence of any form of carbon bridge or damage at the electrodes should be observed and the electrode insulators should be examined for any form of crack or other damage detrimental to efficient ignition.

2. Fuel Supply

If the motor starts, and ignition spark occurs at the electrodes but oil pressure fails to build up or builds up too slowly and inefficiently for burner flame to be established before lockout conditions occur, the following factors may be suspected:-

(a) Pump may be airlocked and requisite bleeding should be effected.

(b) Progressive oil flow from storage tank to burner requires checking.

(c) Inspect filter for presence of blockage or any form of foreign matter.

(d) Check nozzle for any blockage of oil ways. If an uneven spray is observed it would be advantageous to replace the nozzle, ensuring the replacement be the same specification as the original.

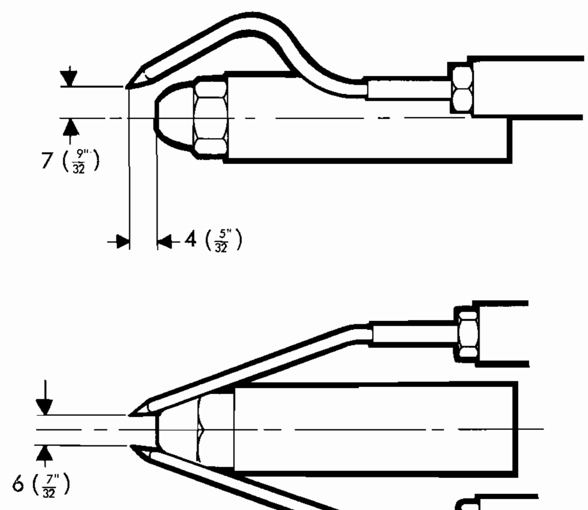


Fig. 18
Electrode Setting -
OERTLI Oil burners

3. Photocell

Inspect for any form of dirt adhesion or damage, particularly to viewing face. Ensure photocell correctly located in operational position.

A SUGGESTED BASIC CHECK LIST AND TROUBLE SHOOTING DIAGRAM FOR PRESSURE JET OIL BURNERS IS AS INDICATED BY FIGURE 17A.

MAINTENANCE

A. BOILER

In order to maintain the high efficiency of the VICEROY Mk. 2 Boiler it is essential the flues be cleaned at regular intervals and certainly recommended before the commencement of a new heating season. Cleanliness of the boiler/burner unit cannot be overemphasised and all heating surfaces, flues and chimney must be kept free from soot, scale and any other product of combustion.

WHEN EFFECTING ANY FORM OF BOILER CLEANING OPERATION THE BURNER SHOULD BE CLOSED DOWN AT THE MAINS ISOLATING SWITCH AND COVERED TO PREVENT THE INGRESS OF ANY FORM OF DUST AND/OR FOREIGN MATTER – SIMILAR PRECAUTIONS ARE ALSO ADVISED DURING PERIODS OF BOILERHOUSE CLEANING, MODIFICATION AND DECORATION.

The procedure for flue cleaning is suggested as follows:-

1. Shut down all electricity supply from the mains isolating switch, and oil from the main inlet supply valve.
2. Remove the front R.H. and L.H. jacket panels by sliding outwards to each side.
3. Lift out the top panels followed by the side panels, which will then permit the removal of the R.H. and L.H. rear panels.
4. Remove all top flue covers from the section shoulders, also the covers on the front and rear sections to permit access to the horizontal flueways.
5. Utilising the brushes provided, clean all boiler heating surfaces.
6. Cleaning access to the combustion chamber may be obtained by removal of the burner, burner mounting plate and front refractory quarl.

On completion of the flue cleaning operation and general cleaning aspects of the boiler relevant to all heating surfaces, flue and chimney, the following additional maintenance checks are strongly recommended:-

1. Check springs at the rear of the boiler tie rods, making readjustment if necessary. (Refer to Fig.4 – Assembly and Installation Instructions).
2. Where no water treatment plant is installed and used, the internal waterways of the boiler sections should be inspected. Isolate the water supply and drain down the boiler, permitting removal of the requisite plugs from the tapped bosses located on the side of the boiler sections. Through the inspection ports thus made available inspect the internal surfaces for any form of scale deposit.

AFTER SUCH INSPECTION EVERY PRECAUTION MUST BE TAKEN TO REPLACE THE BOILER WATER CONTENT BEFORE REFIRING THE BOILER.

B. OIL BURNER UNIT

DUE TO THE DUTIES IMPOSED UPON SUCH UNITS, WHICH ARE IN CONSTANT GENERAL USE THROUGHOUT THE COURSE OF A HEATING SEASON, IT IS RECOMMENDED REGULAR MAINTENANCE BE APPLIED AT SPECIFIED PERIODS, AND CERTAINLY PRIOR TO THE COMMENCEMENT OF A NEW HEATING PERIOD, PREFERABLY BY A COMPETENT AND QUALIFIED ENGINEER POSSIBLY EMPLOYED THROUGH THE MEDIUM OF A MAINTENANCE SERVICE CONTRACT.

The following basic principles are advised for general maintenance practice:-

ENSURE ISOLATING MAINS SWITCH IS IN THE OFF POSITION BEFORE COMMENCING ANY FORM OF BURNER MAINTENANCE OPERATION.

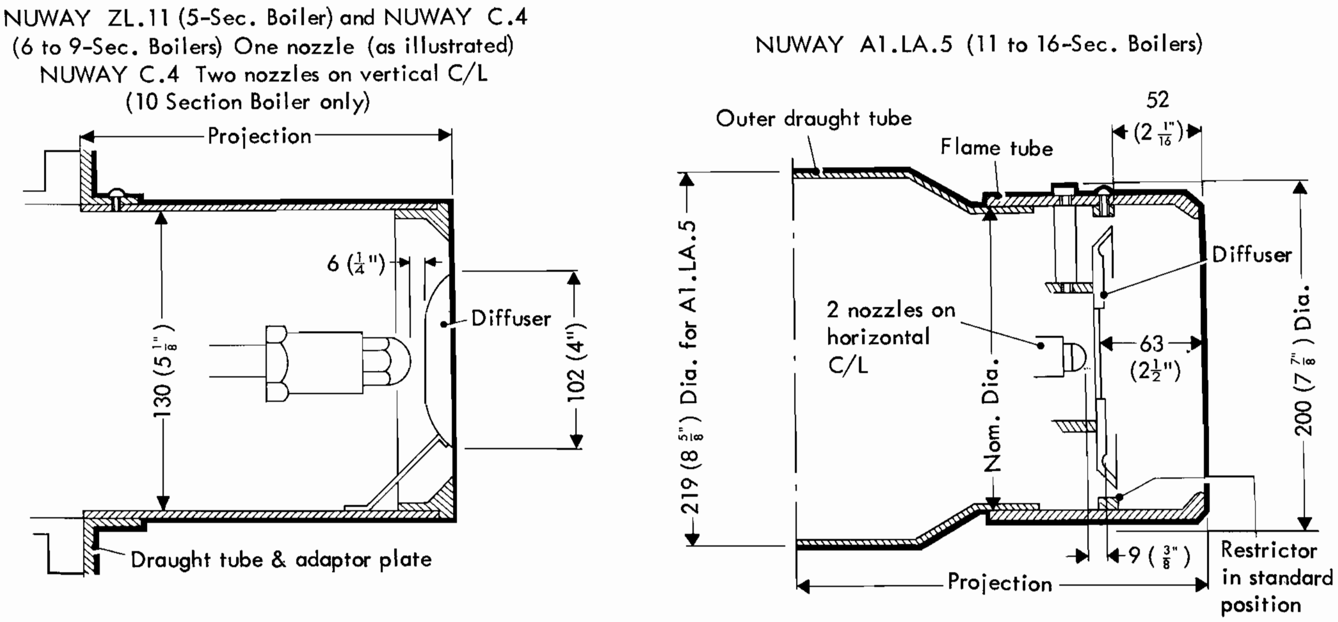
1. Maintain the burner unit in a constantly clean condition, paying attention to both inner and outer surfaces. A clean burner presents a better appearance and also works to better functional capacity.
2. Inspect the flame daily, or as regularly as circumstances permit, watching for any variation from normal shape and appearance. A lop-sided or excessive sparking flame is a certain indication of the requirement for nozzle replacement. Nozzle/s should be replaced after every 2,000 hours of actual firing time. The use of worn nozzles is a false economy.
3. Check that the electrodes and porcelain insulators are clean, undamaged and free from any form of carbon build-up, also that the electrode spark gap is correctly set (Fig. 17) – NuWay and B.G.O.B., (Fig. 18) – Oertli. The complete ignition assembly should be removed from the unit and removal of nozzle/s effected by use of a nozzle spanner. Unscrew inner nozzle cone and clean nozzle body, swirler and cone separately. AVOID SCRATCHING. Flush oil away with solvent, under running tap or by use of an air line. Scrape only when dirt visible – a suggested cleaning aid being paper or cardboard rather than wood, but NEVER USE A METAL TOOL OR ANY ABRASIVE SUBSTANCE. On reassembly of the nozzle care should be taken to keep all parts clean. Similarly, during the partially dismantled state of the burner, cleanliness should be maintained and every precaution taken to ensure no dirt or other foreign matter enters the open oil pipes. The electrodes and porcelain insulators should be cleaned as necessary before rechecking the electrode spark gap setting. After replacing the ignition assembly ensure the transformer bus-bars are contacting terminal studs satisfactorily.
4. Should an oil pressure gauge be fitted, the burner operating pressure should be checked daily, or as regularly as possible, whilst the burner is running and ensure the specified operating oil pressure is constant and correct. A low pressure gauge reading is an indication of some form of restriction of supply and cleaning attention may be necessary in respect of the oil filter.
5. If the filter supplied has a disposable element, renew the cartridge annually. If fitted with a permanent element it is recommended this be washed through with paraffin every six months. The oil strainer inside the body of the pump, and any separate filters between the oil supply tank and burner should be removed and cleaned during the pre-season check, the oil filter cartridge being replaced or cleaned as appropriate.

ALWAYS REMEMBER THE PUMP SHOULD BE BLED AFTER ANY INTERNAL OR ADJACENT MAINTENANCE WORK TO ENSURE REMOVAL OF ANY TRAPPED AIR.

6. Draw off any accumulation of water or sediment in the main oil fuel tank by opening the sludge cock before any new fuel delivery. Endeavour to avoid running the burner whilst the tank is being refilled and, after the tank has been refilled, it is recommended the burner unit be not restarted for a period of approximately 1 hour. At this stage a further precaution should be to ensure the vent pipe is in a clear condition.
7. The burner motor should always be maintained in a clean and dry condition, and a periodic opportunity should be taken to blow out any deposits of dust and/or dirt and to wipe away any surplus oil spreading from the bearing. Lubricate motor as necessary – recommended $\frac{1}{2}$ teaspoonful of best quality oil to each bearing once every 3 months.
8. The viewing face of the photocell unit should be regularly cleaned as requisite. Abrasive cleaning materials must NOT be used. Ensure by careful inspection there is no visible damage, and always make certain the cell is correctly re-positioned in its housing.
9. The impellor should be periodically inspected to ensure cleanliness of blades and freedom from oily deposits.
10. The flexible oil pipes should be periodically checked, particularly after any adjacent maintenance operations to prevent any distortion. Twisting can be checked by releasing one end of the pipe and holding loosely to feel any form of twist or other detrimental distortion.

THE COMPLETE BURNER UNIT SHOULD BE PERIODICALLY CHECKED BY A QUALIFIED MAINTENANCE/SERVICE ENGINEER – PAYING PARTICULAR ATTENTION TO THE IGNITION ASSEMBLY, NOZZLE/S, OIL FILTER, AIR HANDLING PARTS AND ALL SPECIFIED SETTINGS.

Schedule of Illustrations, Tables and Wiring Diagrams



NUWAY ZL.11 (5-Sec. Boiler) and NUWAY C.4 (6 to 9-Sec. Boilers) One nozzle (as illustrated) NUWAY C.4 Two nozzles on vertical C/L (10 Section Boiler only)

NUWAY A1.LA.5 (11 to 16-Sec. Boilers)

Fig. 19
Combustion Head Assemblies NuWay ZL.11 (5-Sec. Boiler)
Nuway C.4 (6 to 10-Sec. Boilers) and Nuway A1.LA.5 (11 to 16-Sec. Boilers)

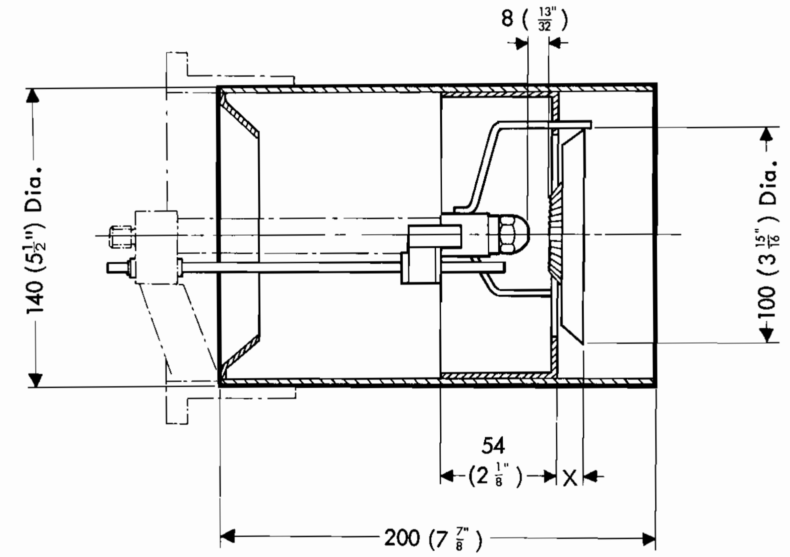


Fig. 20
Combustion Head Assembly - Oertli OE.14U.1 Burner (6 to 11-Sec.Boilers)

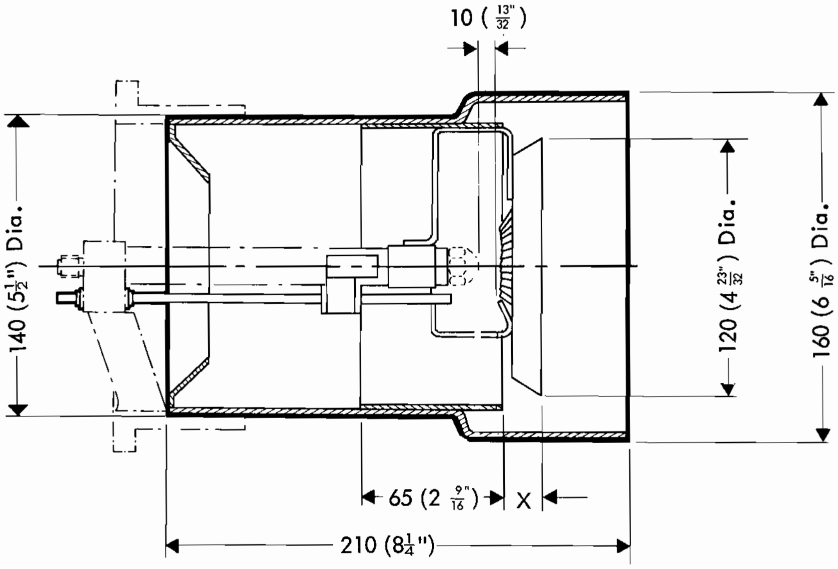


Fig. 21
Combustion Head Assembly - Oertli OE.14 U2 Burner (12 to 16-Sec.Boilers)

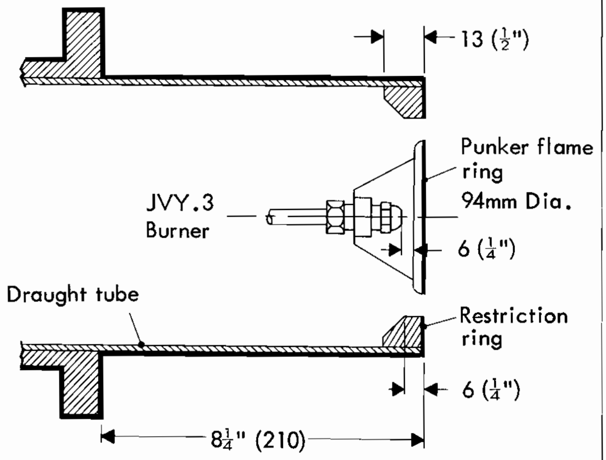


Fig. 22
Combustion Head Assembly B.G.O.B. JVY.3
(5 to 10-Sec. Boilers)

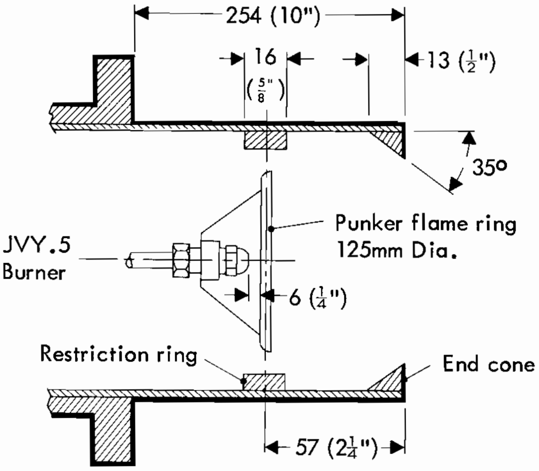


Fig. 23
Combustion Head Assembly B.G.O.B. JVY.5
(11 to 16-Sec. Boilers)

TABLE 1 OIL BURNERS - NUWAY

GENERAL BURNER DATA												
BOILER SIZE No. of Sections	5	6	7	8	9	10	11	12	13	14	15	16
Burner type	ZL.11	C.4++					A1.LA.5					
Operation	ON/OFF						LOW FLAME START					
Nozzle - MONARCH												
Spray pattern	PLP											
Spray angle	80°	45°	45°	45°	45°	60°	60°	60°	60°	60°	60°	60°
Size (U.S. GPH)	3.0	4.5	5.0	5.5	6.5	3.5(2)	2.5(2)	2.5/ 3.0	3.0(2)	3.0/ 3.5	3.5(2)	4.0(2)
Oil pressure lbs/in^2	160	150					350					
Bar (gauge)	11	10.3					24.1					
Normal CO_2 (± 0.5%)	12.5%											
Smoke Number	0 - 1 BACHARACH SCALE											
Restrictor Ring (I.D)												
mm	NOT FITTED						165	165	171	171	171	171
ins	NOT FITTED						$6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{3}{4}$	$6\frac{3}{4}$	$6\frac{3}{4}$	$6\frac{3}{4}$
End Ring (I.D)												
mm	108	108	114	114	121	121	NOT FITTED					
ins	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{3}{4}$	NOT FITTED					

++ NOTE: No Pre-Purge Period

TABLE 2 OIL BURNERS - OERTLI

GENERAL BURNER DATA												
BOILER SIZE No. of Sections	5	6	7	8	9	10	11	12	13	14	15	16
Burner type	Not available	OE.14.U1						OE.14.U2				
Operation		LOW FLAME START										
Nozzle - STEINEN												
Spray pattern		S		SS								
Spray angle		60°	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°
Size (U.S. GPH)		3.0	4.0	4.5	5.0	5.5	6.0	7.0	7.5	8.0	9.0	9.0
Oil pressure lbs/in^2		240	210	220	240	250	260	230	250	250	230	270
Bar (gauge)		16.5	14.4	15.1	16.5	17.2	17.9	15.8	17.2	17.2	15.8	18.6
Normal CO_2 (± 0.5%)		12%										
Smoke Number		0 - 1 BACHARACH SCALE										
Air Control setting		18	24	24	26	26	28	28	28	30	34	36
Dimension 'X' to Flame Ring (Refer Figs.18/19)												
mm		7.9	7.9	14.3	17.5	19.0	29.4	11.1	14.3	19.8	19.8	19.8
ins		$\frac{5}{16}$	$\frac{5}{16}$	$\frac{9}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$1\frac{5}{32}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{25}{32}$	$\frac{25}{32}$	$\frac{25}{32}$

TABLE 3 OIL BURNERS - B.G.O.B.

GENERAL BURNER DATA												
BOILER SIZE No. of Sections	5	6	7	8	9	10	11	12	13	14	15	16
Burner type	← JVY. 3 →						← JVY. 5 →					
Operation	← ON/OFF →		← LOW FLAME START →									
Nozzle - MONARCH												
Spray pattern	← PLP →											
Spray angle	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°	60°
Size (U.S. GPH)	3.0	3.5	4.0	4.5	5.5	6.0	6.0	7.5	8.3	8.3	9.5	9.5
Oil pressure lbs/in^2	160	180	220	230	200	220	240	215	210	250	220	250
Bar (gauge)	11.0	12.4	15.1	15.8	13.8	15.1	16.5	14.8	14.5	17.2	15.2	17.2
Normal CO_2 (± 0.5%)	← 12.0% →											
Smoke Number	← 0 - 1 BACHARACH SCALE →											
Restrictor Ring (I.D)												
mm	← NOT FITTED →						138	138	141	141	144	144
ins	← NOT FITTED →						5 7/16	5 7/16	5 9/16	5 9/16	5 11/16	5 11/16
End Ring (I.D)												
mm	102	102	106	106	106	114	152	152	152	152	152	152
ins	4	4	4 3/16	4 3/16	4 3/16	4 1/2	6	6	6	6	6	6

TABLE 4 ELECTRICAL LOADINGS

Style	Type	Phase	Motor		START	RUN
			HP	Kw	Current amps	Current amps
NUWAY	ZL.11	Single	0.75	0.56	25.0	5.0
		Three	0.75	0.56	7.5	1.8
	C.4	Single	0.75	0.56	30.0	5.0
		Three	0.75	0.56	10.0	1.8
	A1.LA.5	Single	1.5	1.2	61.0	9.5
		Three	1.5	1.2	17.5	2.5
OERTLI	OE.14.U1	Single	1.125	0.9	21.0	5.5
		Three	0.9375	0.75	8.5	1.7
	OE.14.U2	Single	1.125	0.9	21.0	5.5
		Three	0.9375	0.75	8.5	1.7
B.G.O.B.	JVY.3	Single	0.75	0.56	21.0	4.8
		Three	0.75	0.56	5.0	1.5
	JVY.5 **	Three	3.0	2.2	30.0	4.4

** Note: Available for THREE Phase operation only

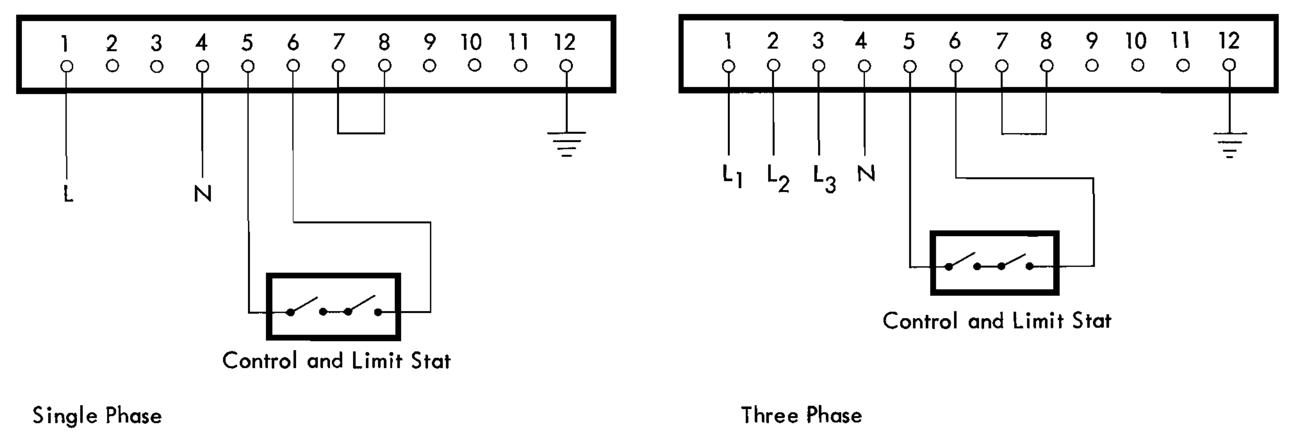


Fig. 24
NUWAY ZL.11 (5-Sec) Single and Three Phase

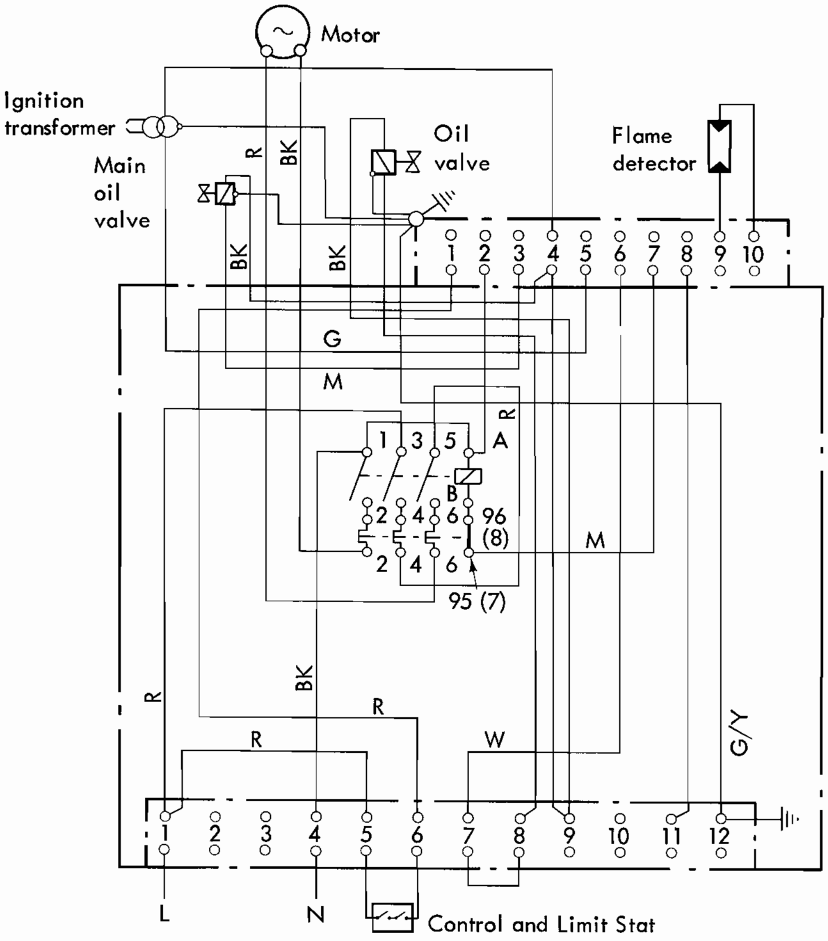


Fig. 25 NUWAY C.4
(6 to 10-Sec.) Single Phase

G/Y - Green/Yellow
R - Red
W - White
BK - Black
M - Mauve
G - Grey

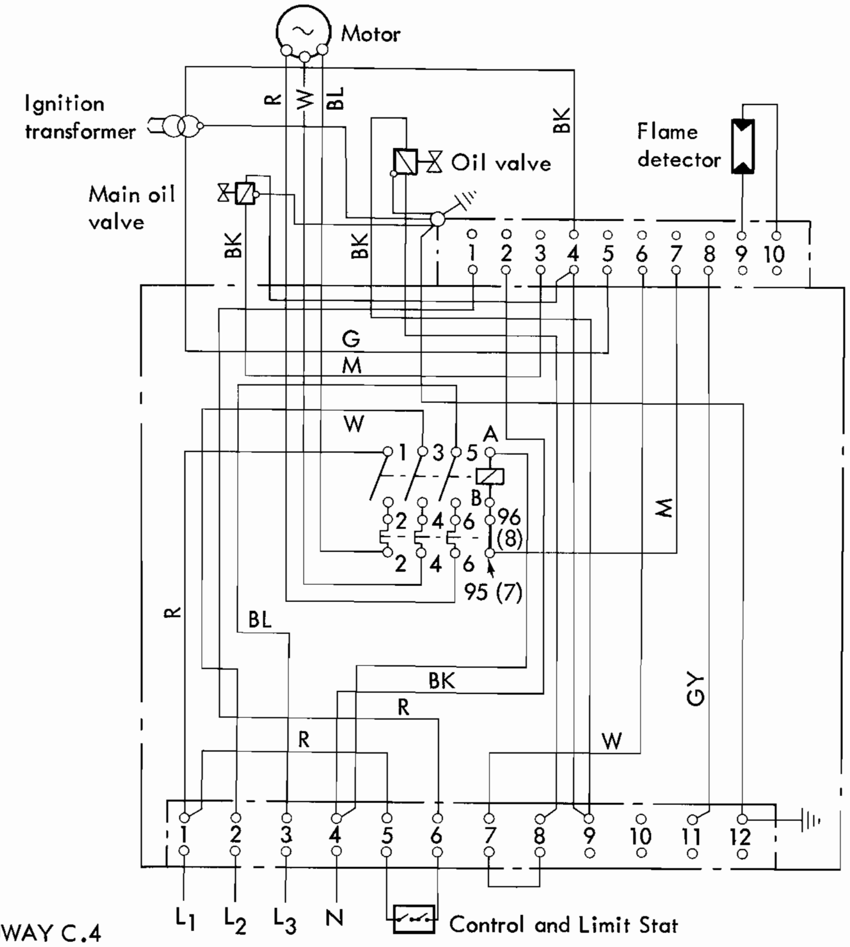


Fig. 26 NUWAY C.4
(6 to 10-Sec) Three Phase

BK - Black
BL - Blue
R - Red
W - White
M - Mauve
GY - Green/Yellow
G - Grey

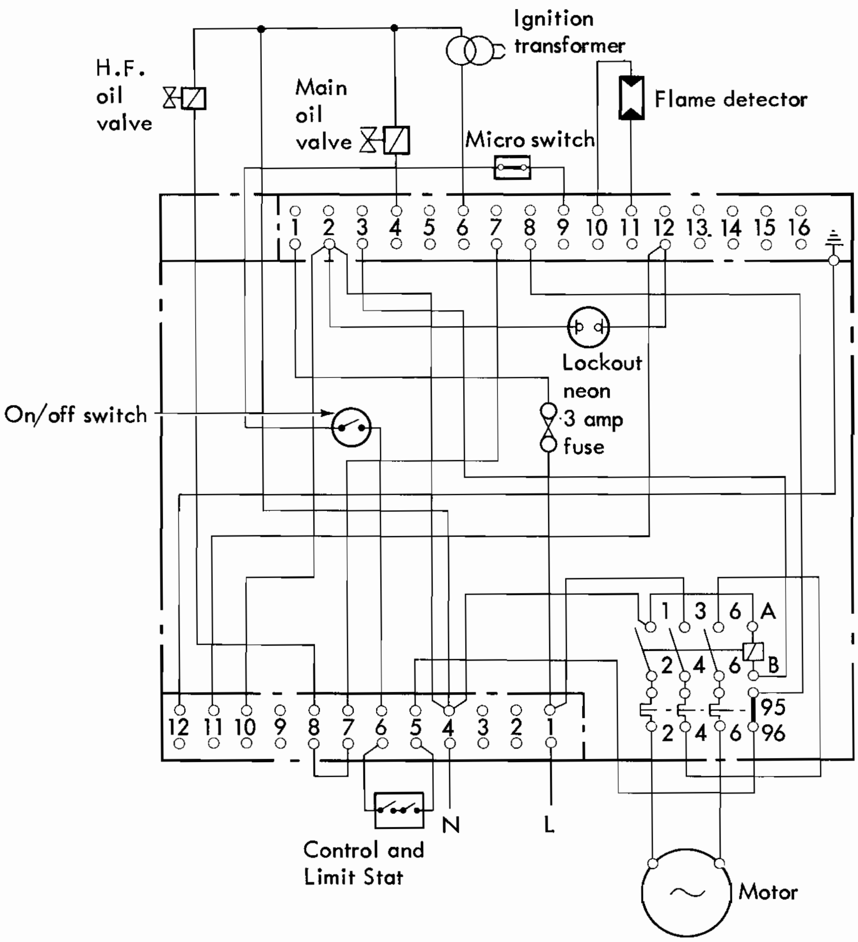


Fig. 27 NUWAY A1.LA.5
(11 to 16-Sec) Single Phase

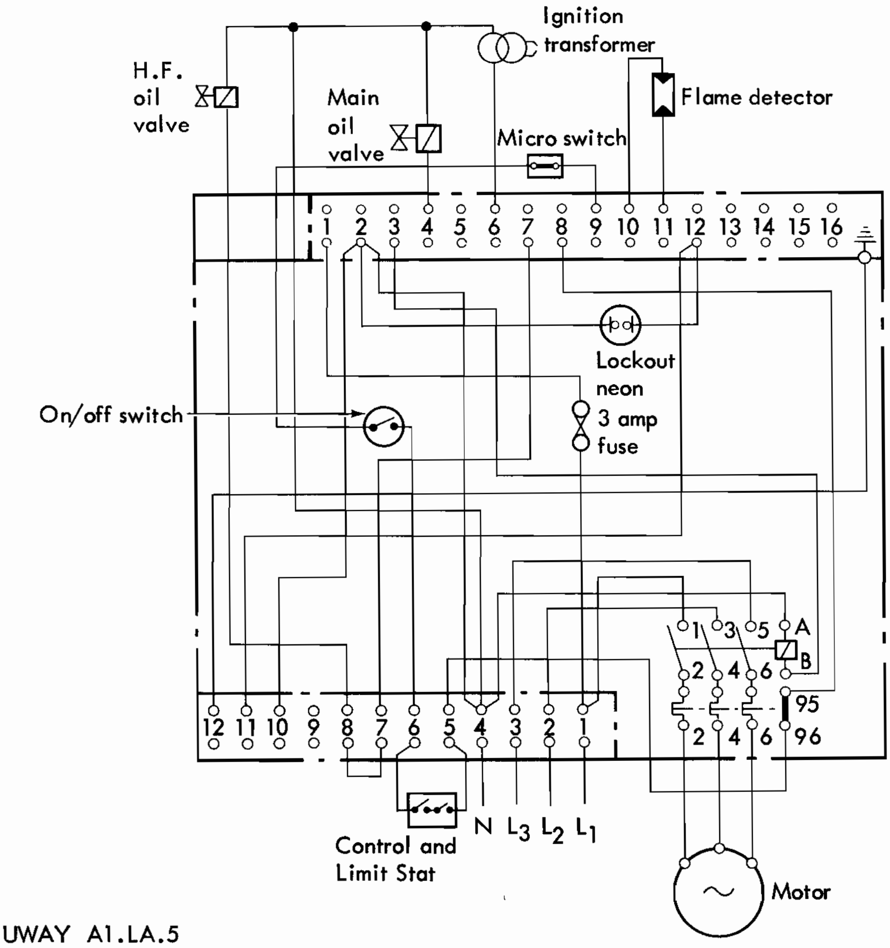
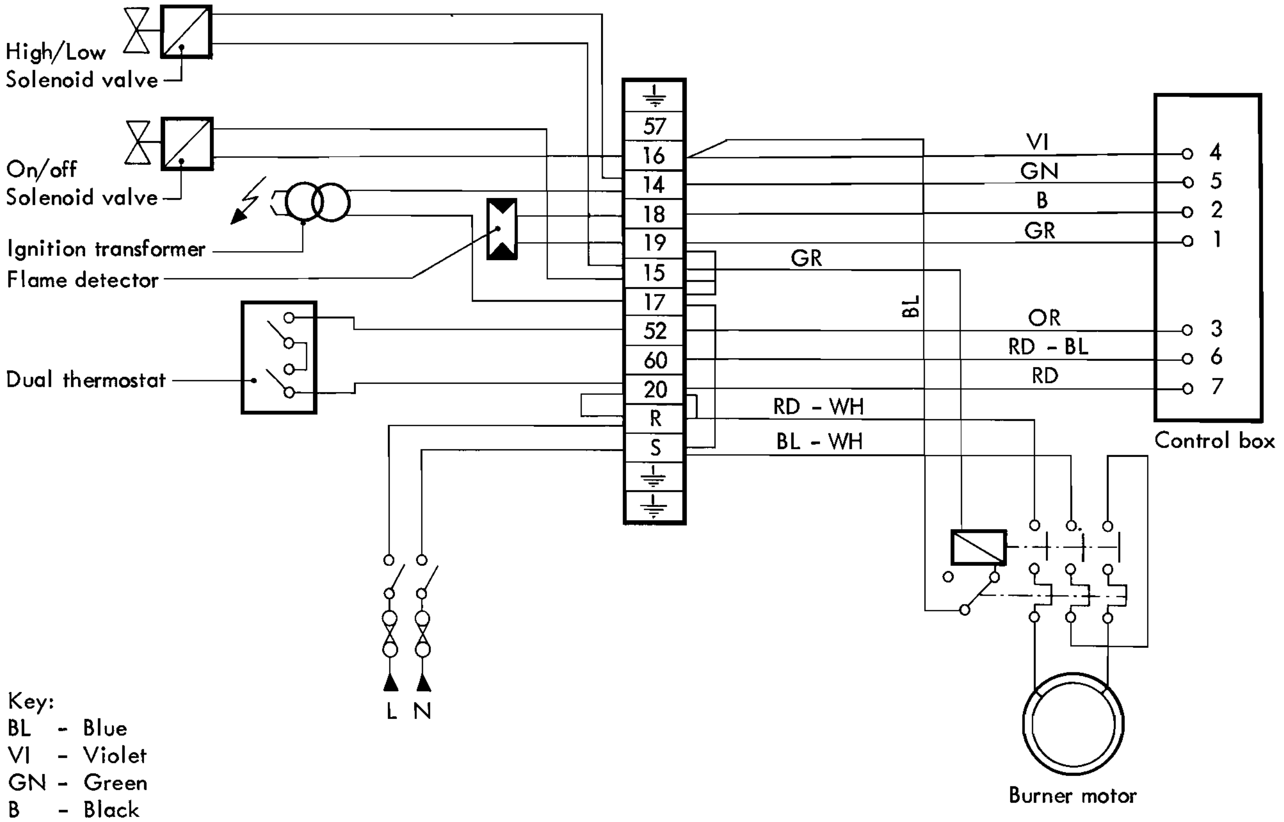
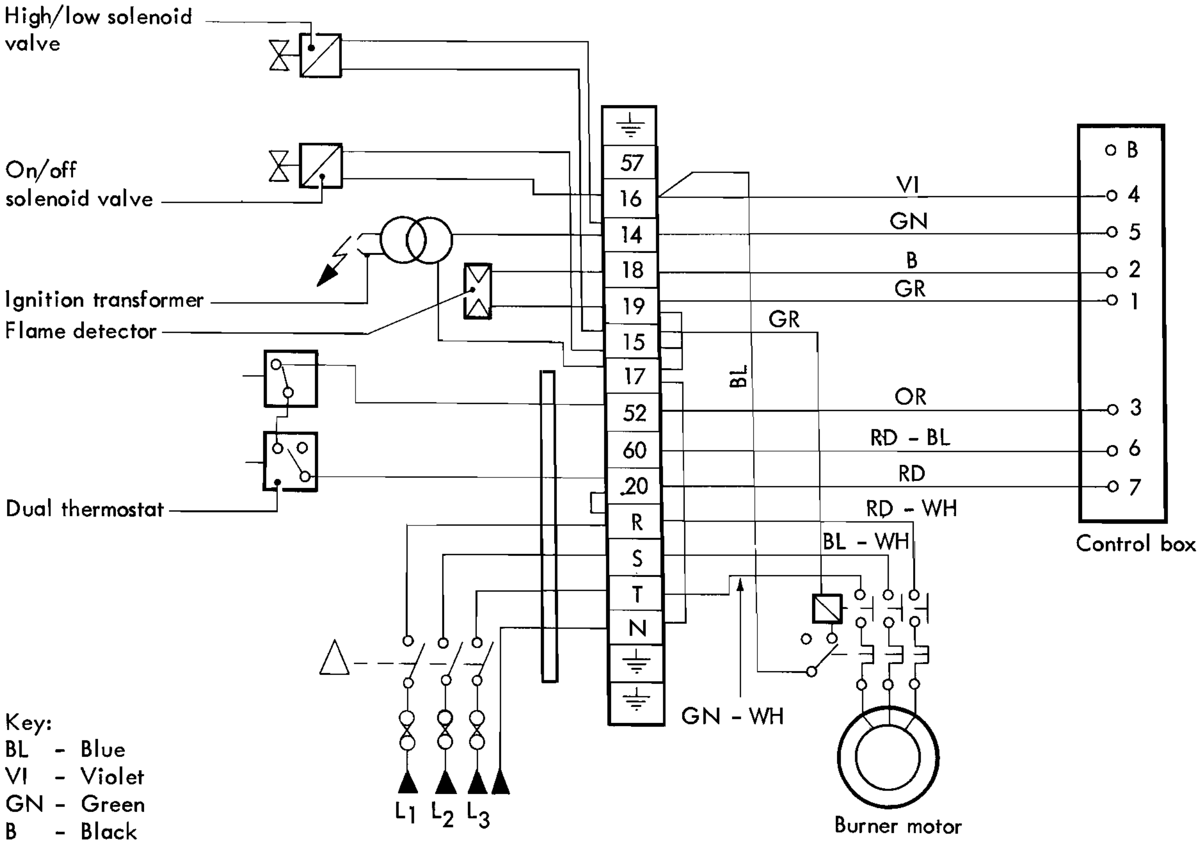


Fig. 28 NUWAY A1.LA.5
(11 to 16-Sec) Three Phase



Key:
BL - Blue
VI - Violet
GN - Green
B - Black
GR - Grey
OR - Orange
RD - Red
WH - White

Fig. 29 OERTLI OE.14U1
Single Phase (6 to 11-Sec)



Key:
BL - Blue
VI - Violet
GN - Green
B - Black
GR - Grey
OR - Orange
RD - Red
WH - White

Fig. 30 OERTLI OE.14.U1
Three Phase (6 to 11-Sec)

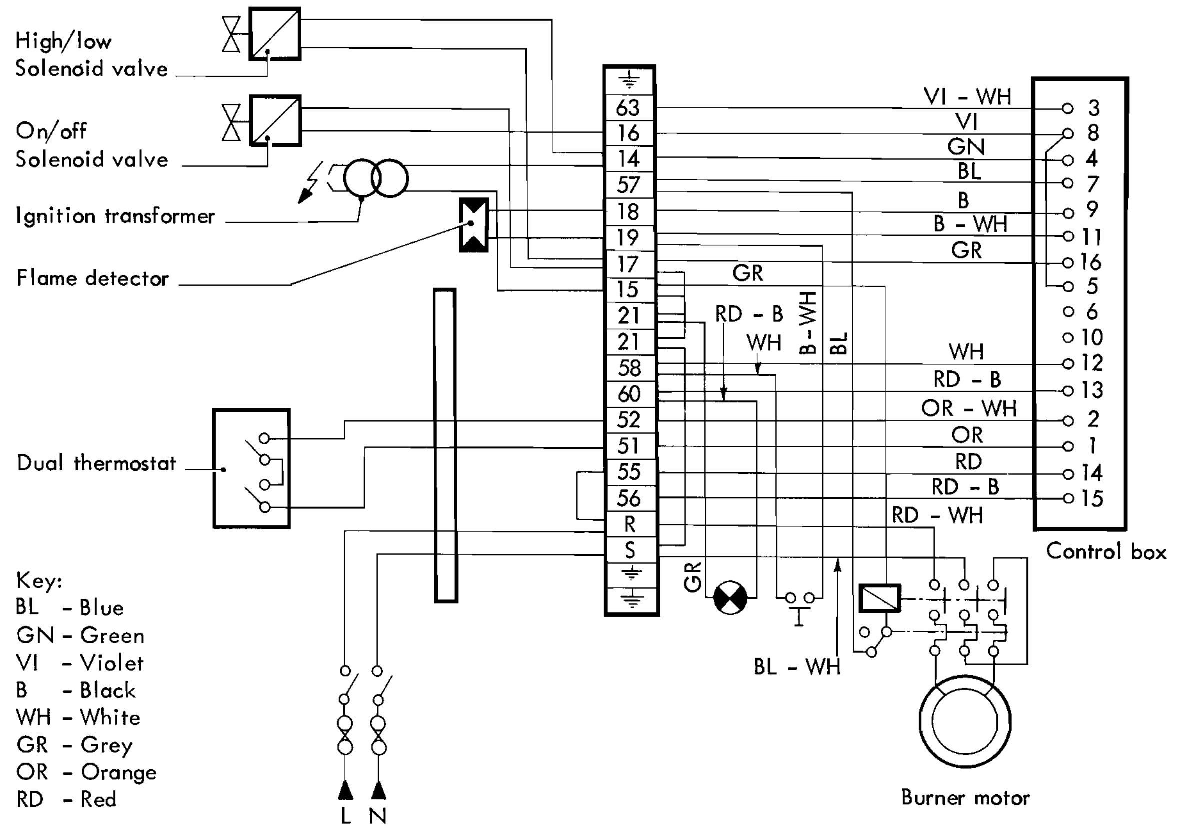


Fig. 31
OERTLI OE.14.U2 (12 to 16-Sec) Single Phase

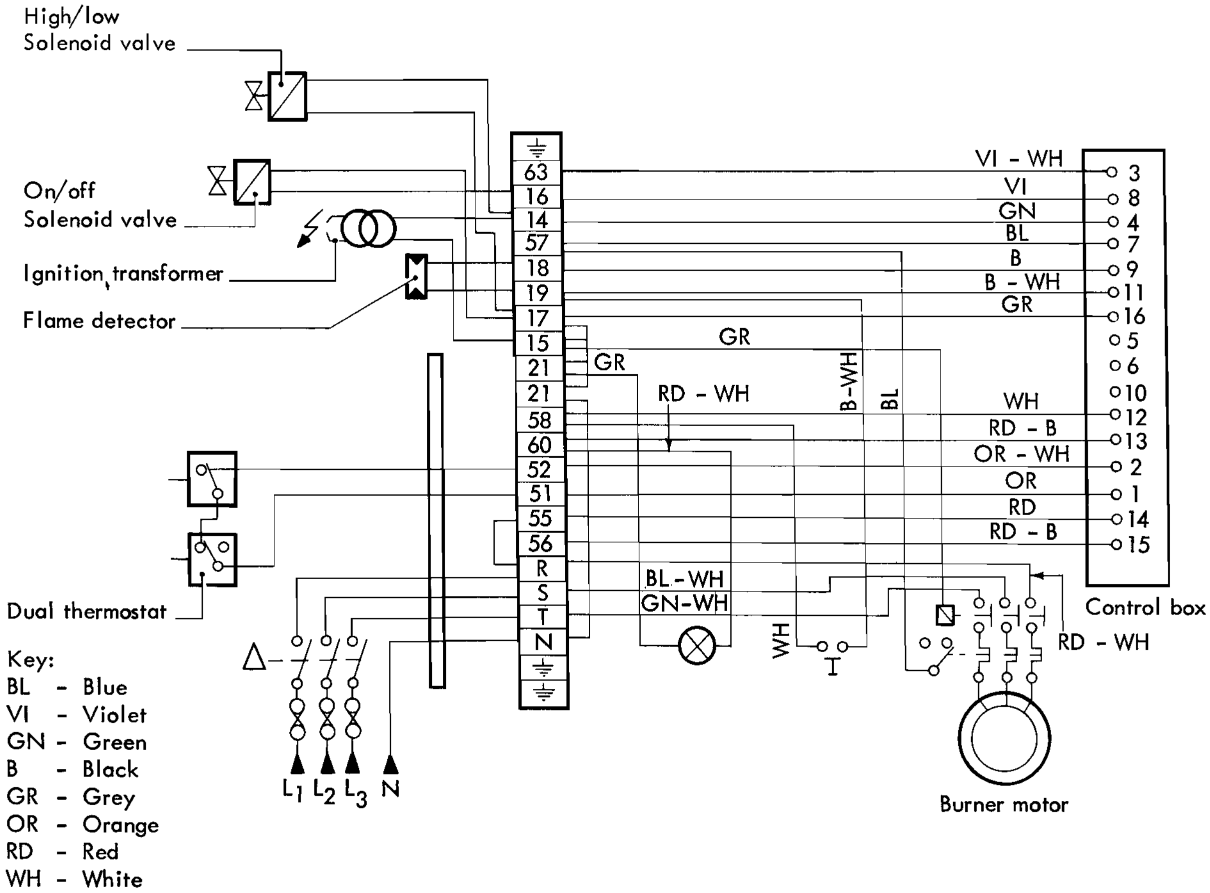


Fig. 32
OERTLI OE.14.U2 (12 to 16-Sec) Three Phase

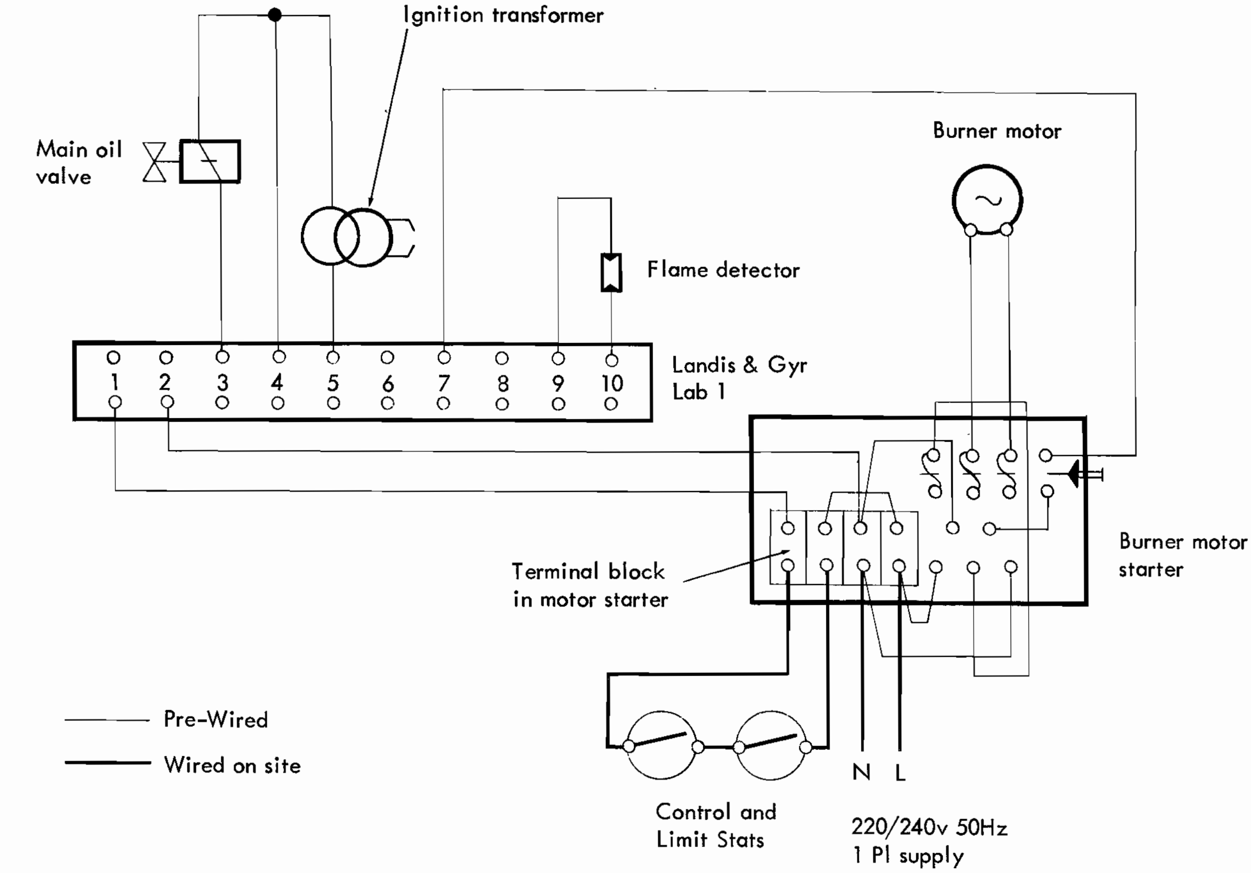


Fig. 33
B.G.O.B. JVY.3 (On/Off) (5 and 6-Sec) Single Phase

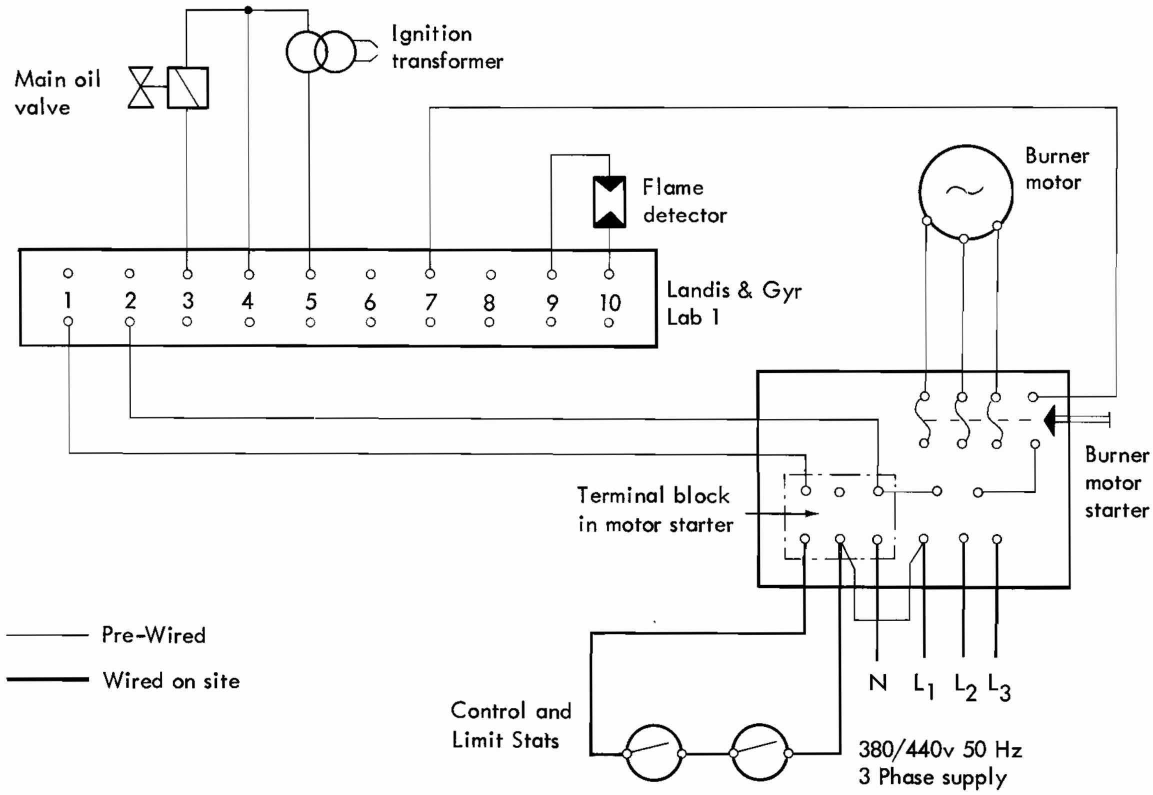


Fig. 34
B.G.O.B. JVY.3 (On/Off)(5 and 6-Sec) Three Phase

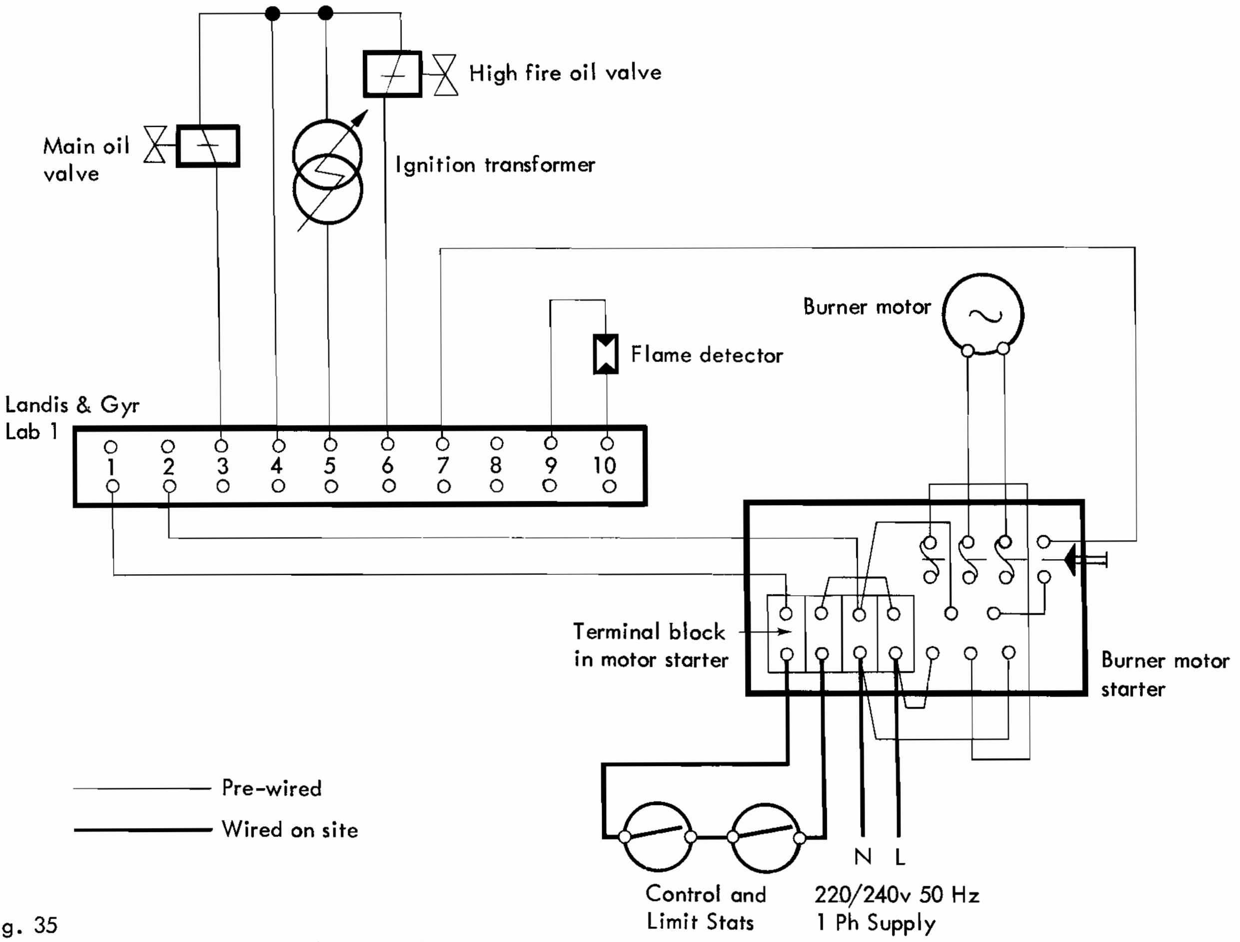


Fig. 35
B.G.O.B. JVY.3 (7 to 10-Sec.) Single Phase

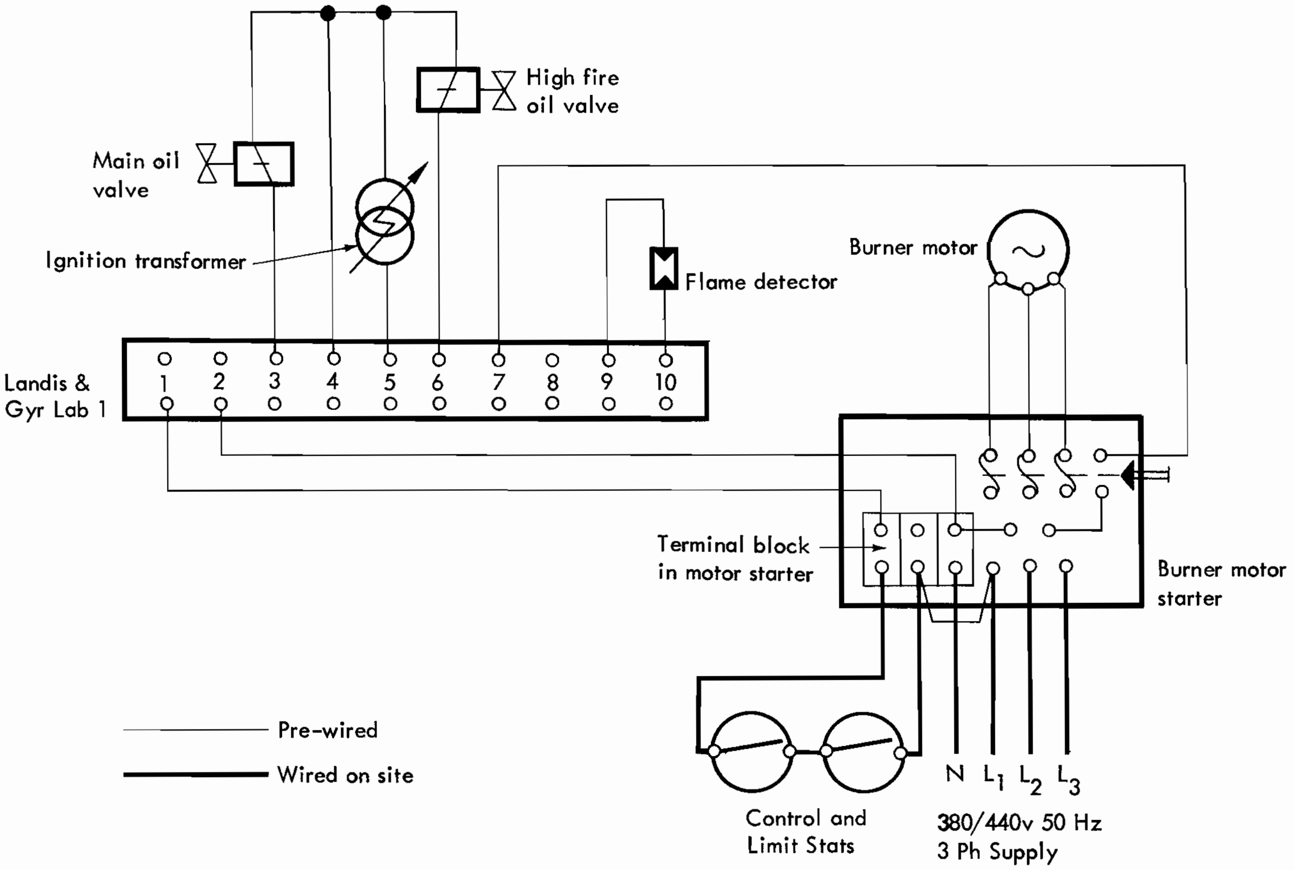


Fig. 36
B.G.O.B. JVY.3 (7 to 10-Sec) Three Phase

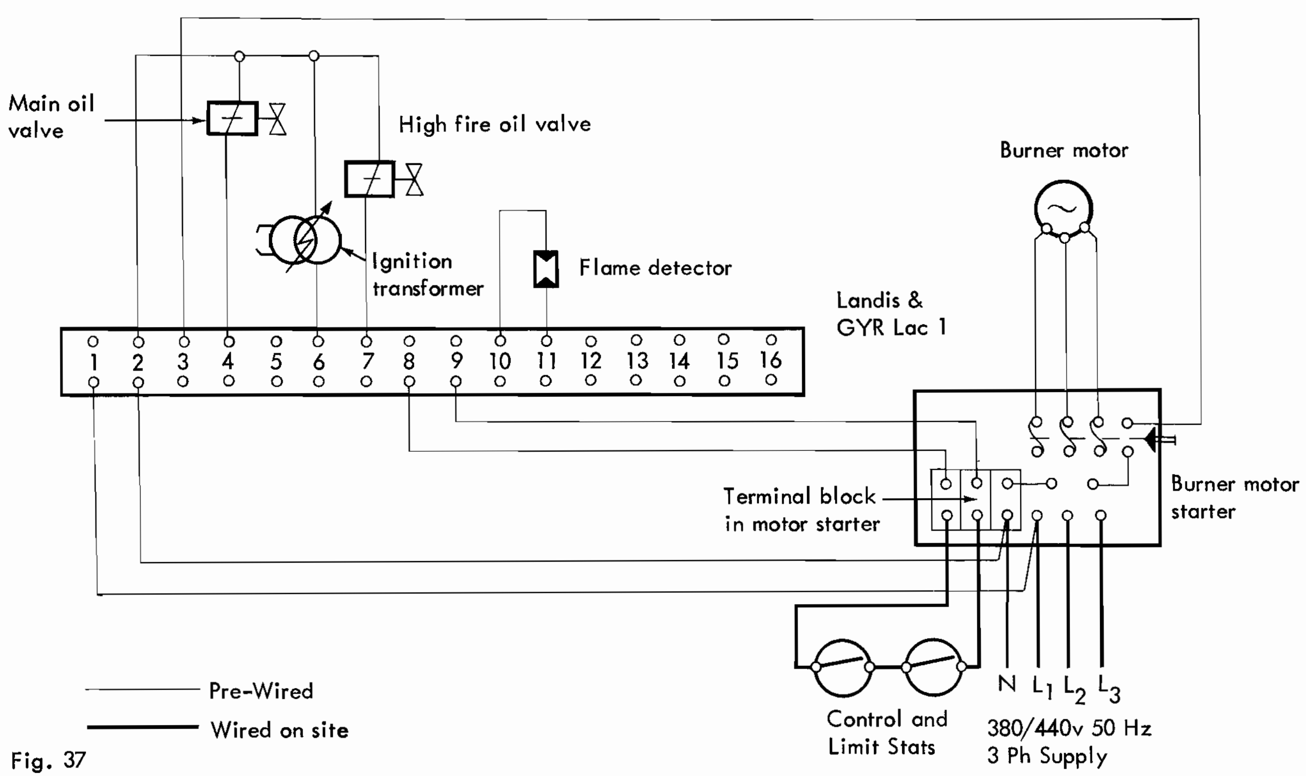


Fig. 37
B.G.O.B. JVY.5 (11 to 16-Sec) Three Phase

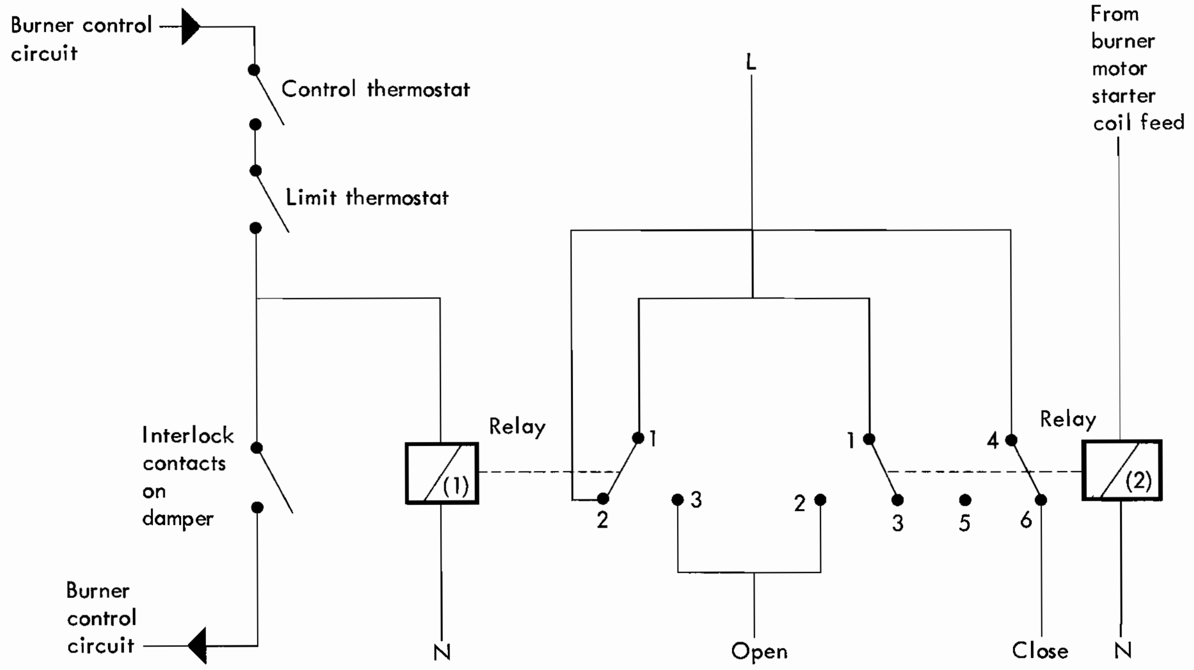


Fig. 38
Wiring for incorporation of Motorised Shut-off Damper (for burners with post-purge).

SYSTEM OPERATION

1. The burner control circuit refers to the terminals on the burner terminal strip where the control and limit thermostats are normally wired in, usually the two thermostats are in series.
2. When control thermostat calls for heat, relay No. 1 is energised.
3. A live supply via contacts 1 and 3 is fed to the opening circuit of the damper. The supply to the close circuit is broken.
4. The damper motors to the open position and the burner control circuit is now completed via the interlock contacts on the damper. Burner now starts.
5. When the burner motor starts relay No. 2 is energised, providing a holding circuit to the damper via contacts 1 and 2 on Relay No. 2.
6. When heating load is satisfied, the control thermostat opens, relay No. 1 is de-energised and burner runs for post-purge.
7. Damper remains open via holding circuit provided by relat No. 2.
8. At the end of the post-purge the burner motor stops, relay No. 2 is de-energised, and contacts 4 and 6 make. A live supply is now provided to close the damper via contacts 1 and 2 on relay No. 1 and contacts 4 and 6 on relay No. 2.

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