LENNOX Industries Inc.

INSTALLATION INSTRUCTIONS

500,430M

Supersedes 500,273M

Litho U.S.A.

ACCESSORIES

RL-45 RELAY CONTROL CENTER

INSTALLATION INSTRUCTIONS FOR RL-45 RELAY CONTROL CENTER

1-SHIPPING AND PACKING LIST:

Package 1 of 1 Contains:

1-RL-45 relay control center
1-Thermostat (if ordered)
1-Thermostat sub-base (if ordered)
1-Magnetic starter (if ordered)
1-20-S Solenoid (if ordered)
1 or 2-Wire kits (if ordered)
1 to 3-Auxiliary limits with mounting brackets (if ordered)
1-Wiring diagram

II-GENERAL:

This relay control center can be used to interlock up to three heating units with three blowers. System can be piped and wired to operate in any one of the following ways:

A-SINGLE STAGE HEATING - SINGLE STAGE COOLING
B-TWO-STAGE HEATING - SINGLE STAGE COOLING
C-SINGLE STAGE HEATING - TWO-STAGE COOLING
D-TWO-STAGE HEATING - TWO-STAGE COOLING
E-SINGLE STAGE HEATING - TWO-STAGE COOLING WITH CYLINDER UNLOADING
F-TWO-STAGE HEATING - TWO-STAGE COOLING WITH CYLINDER UNLOADING

Be sure the correct items have been ordered, from the Bills of Material in the price book, for the system operation you require.

The blower motor contactor in the relay control center is rated for one 1 hp or two 1/2 hp motors at 120 volts and one 2 hp or three 3/4 hp motors at 230 volts, single phase. If 3 phase or larger motors are used, a magnetic starter must be used.

III-OPERATION:

A-Heating

The heat relay is energized from the thermostat and will energize all three furnaces simultaneously. If furnaces are wired for two-stage operation, a second stage heat relay kit must be installed and wired in the relay control center.

The time delay blower relay is energized on first stage heat demand and will start all blower motors simultaneously in approximately 30 seconds. After end of heat demand, blowers will operate for approximately 90 seconds and then shut off. If thermostat blower switch is placed in the "Cont." position, blowers will operate continuously.

NOTE:The fan controls on the furnaces are not used on this application.

B-Cooling

The condensing units are energized directly from the thermostat on a cooling demand. On two-stage cooling, using two condensing units, the first and second stage cooling bulbs will operate condensing units on demand. If single condensing unit is used with an evaporator solenoid for two-stage cooling (cylinder unloading),a second stage cooling relay must be installed and wired in the relay control center.

On cooling demand, with blower switch on thermostat in "Int." position, the blowers will be automatically energized on first stage call for cooling. If thermostat blower switch is placed in the "Cont." position, blowers will operate continously.

IV-CODE REQUIREMENTS:

This equipment shall be installed and wired according to local codes. Authorities having jurisdiction should be consulted before installation.

V-INSTALL GAS PIPING:

Figure 1 shows a suggested method of piping these units. This figure applies to Landmark units only. Use same principle for other Lennox units, however, some variations in fittings may be necessary.

Size piping in accordance with local codes.

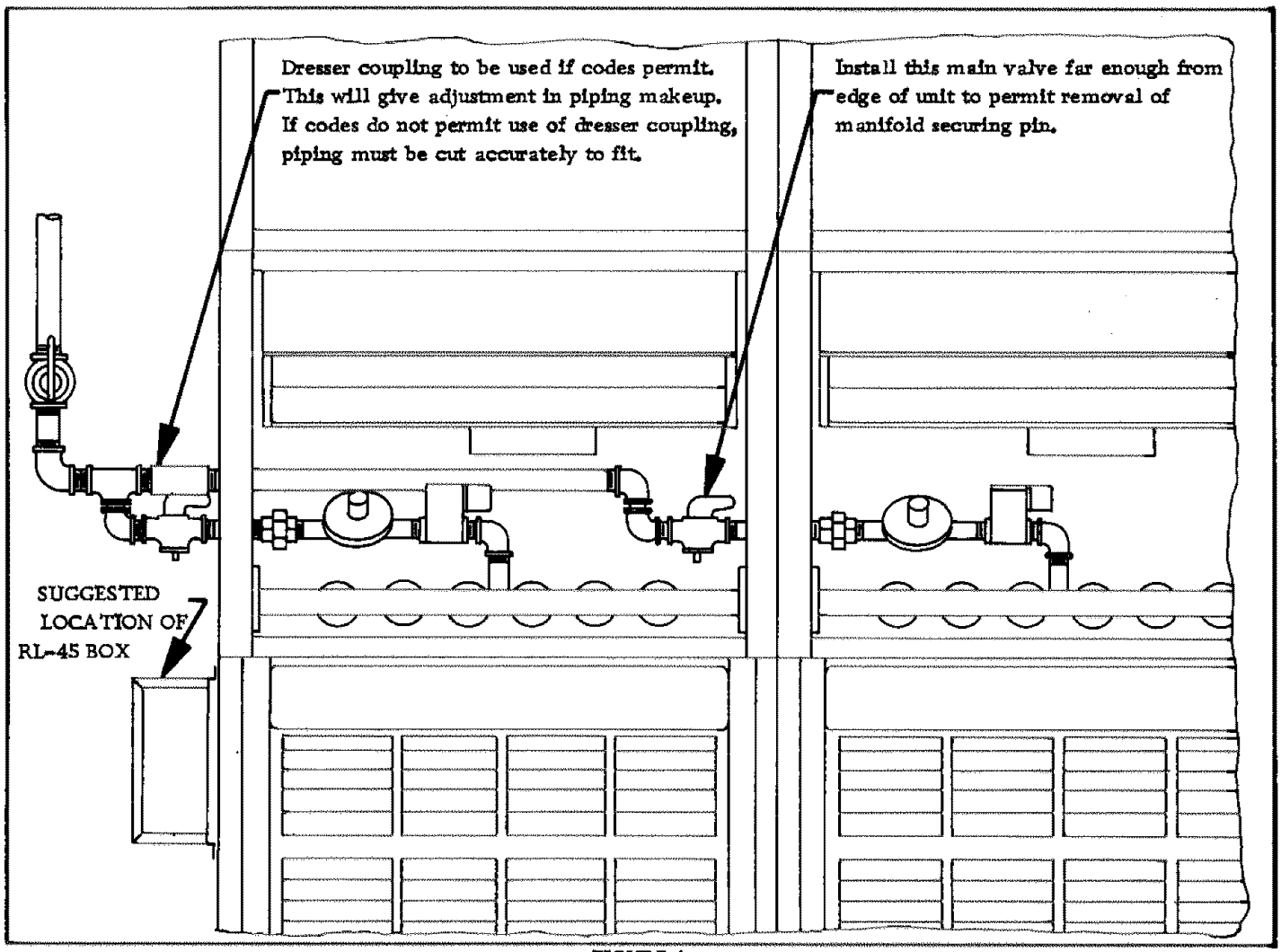


FIGURE 1

VI-INSTALL OIL PIPING:

Instructions for connecting the oil supply are provided in the Oil Burner Installation and Service Manual. Bring oil lines in either side of units.

VII-INSTALL AUXILIARY LIMIT CONTROLS (UP-FLOW UNITS ONLY):

For complete protection on up-flow installations, with multiple interlock, it is necessary to install auxiliary limit controls on the blower of each unit. These limit controls will provide protection from over heating of filters or other components in case of a blower failure such as broken belt, frozen bearings or blower motor.

Locate and install the limit mounting bracket on the blower housing as shown in Figure 2 and 3. Locate these brackets opposite the motor and drives. Secure limit controls to bracket using screws provided.

NOTE:Always install limit on side opposite of motor and drives. Limit control should face front of unit.

VIII-INSTALL RELAY CONTROL CENTER:

If extra relay kits are used, install in relay control center and wire according to wiring diagram provided.

Install relay control center panel on side panel of unit as shown in Figure 1 or any convenient location.

IX-COMPLETE WIRING:

A-Install thermostat (provided) in desired location and complete wiring to thermostat according to wiring diagram provided for this particular installation. Set first stage thermostat heat anticipation at .40 amps. If second stage heating is used, set second stage heat anticipation at .20 amps.

B-Disconnect blower motor leads from furnaces and wire to relay control center according to proper diagram.

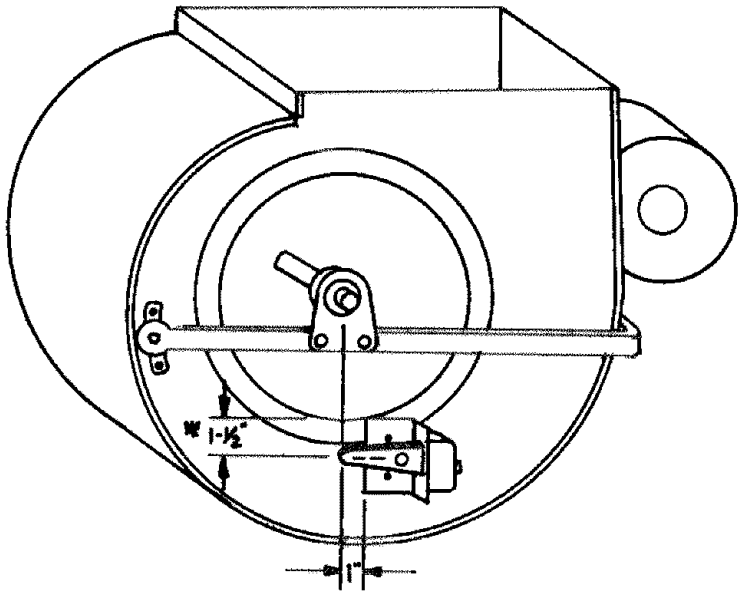
C-Complete low voltage wiring according to wiring diagram.

D-Run power supply wiring to relay control center according to proper diagram. Power supply should be run through a fused disconnect switch located close to relay control center.

E-Complete wiring to condensing units as shown in proper diagram.

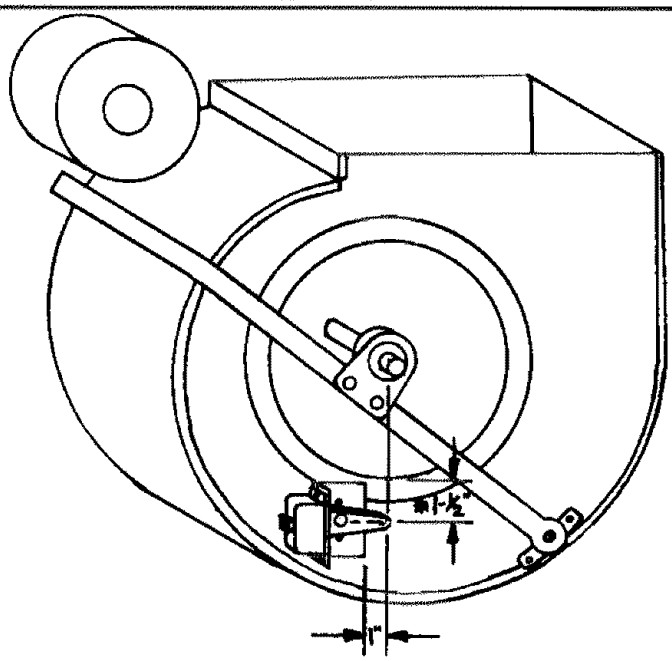
F-Remove or wire nut and tape any unused wires on the furnaces.

G-Remove backing from Kleen-Stik wiring diagram and apply to a clean smooth surface near the unit.



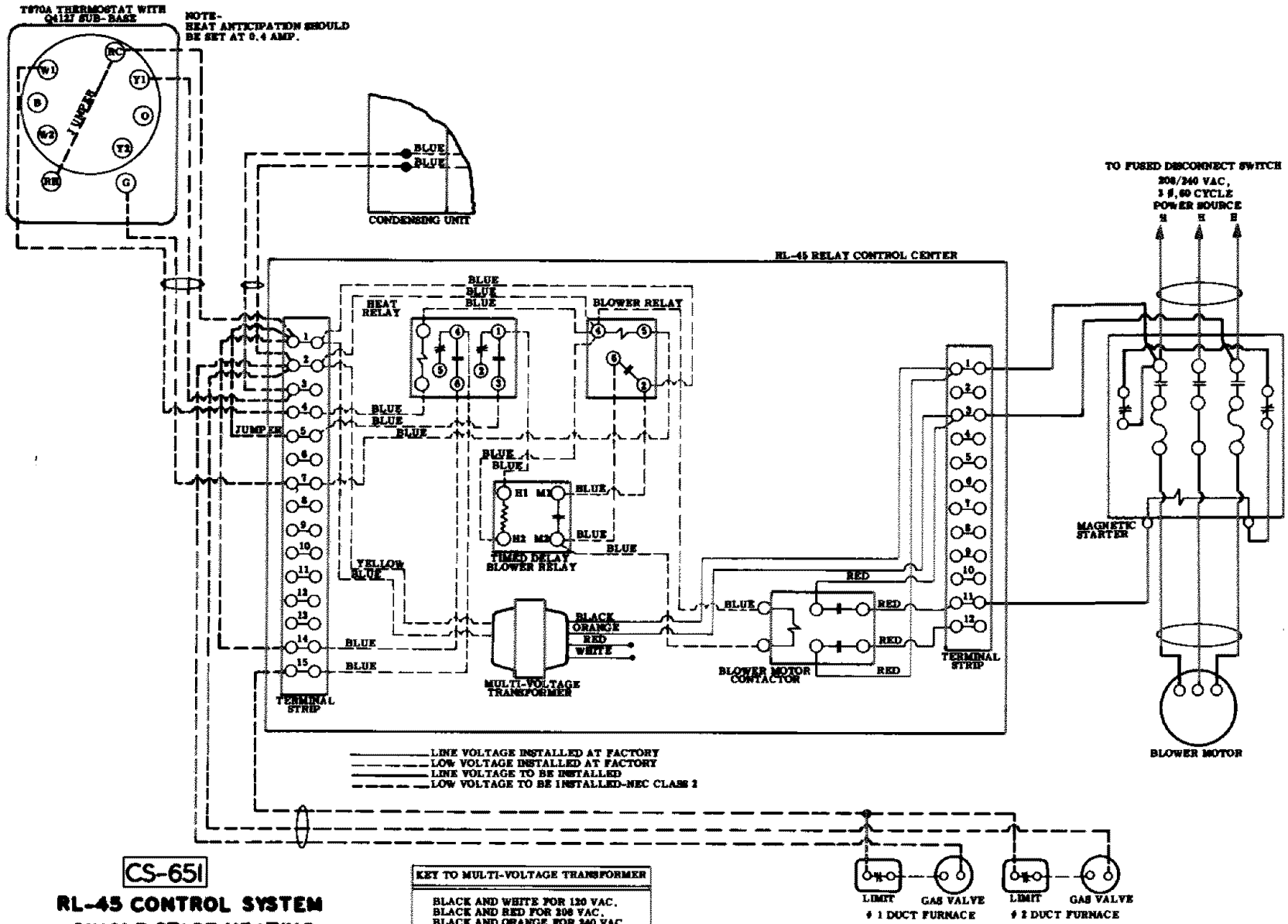
*1-1/2" Dimension is from inside opening of blower housing to center of limit control.

FIGURE 2



*1-1/2" Dimension is from inside opening of blower housing to center of limit control.

FIGURE 3

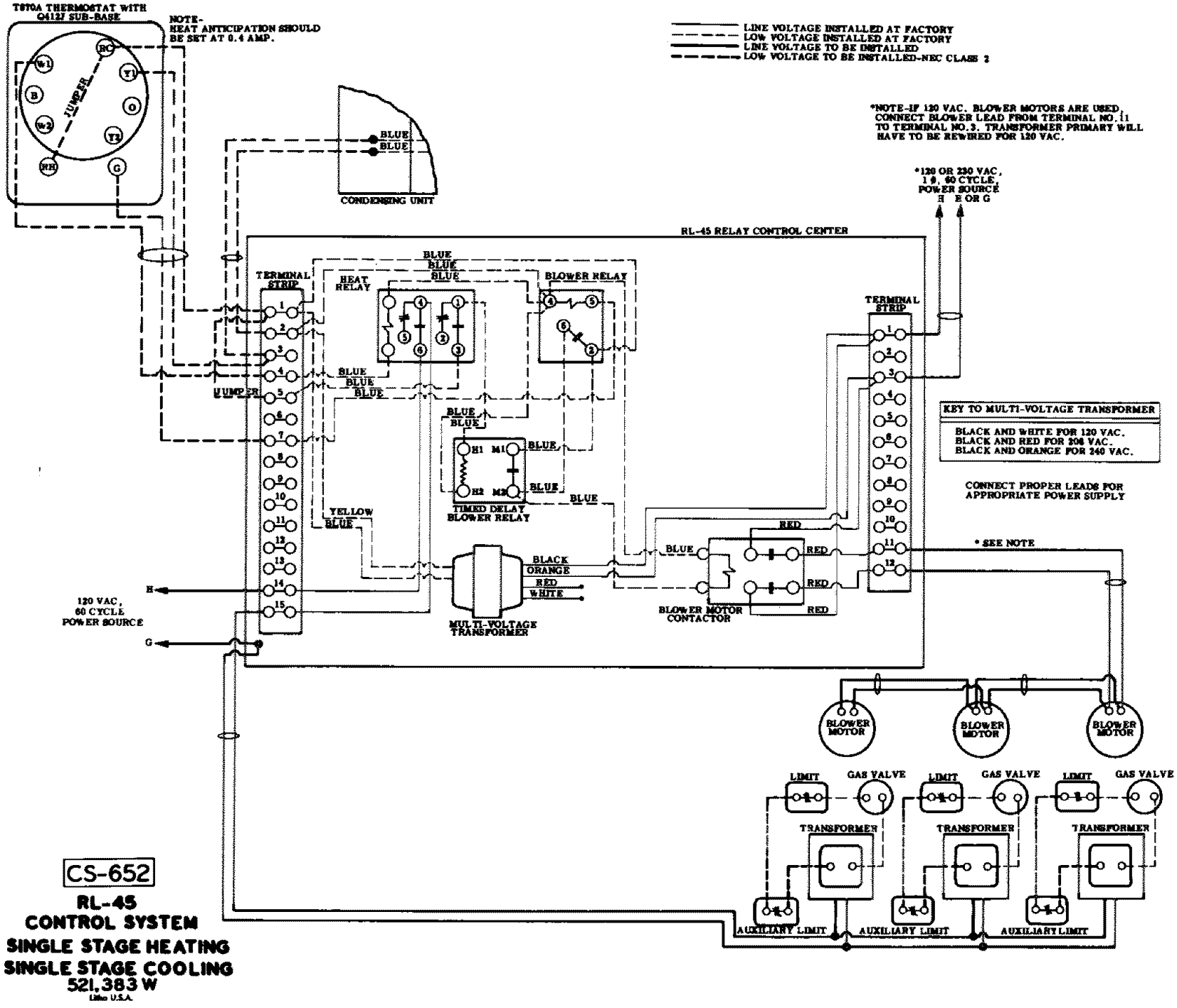


CS-651

RL-45 CONTROL SYSTEM
SINGLE STAGE HEATING
(DUCT HEATERS)
SINGLE STAGE COOLING

521,382 W

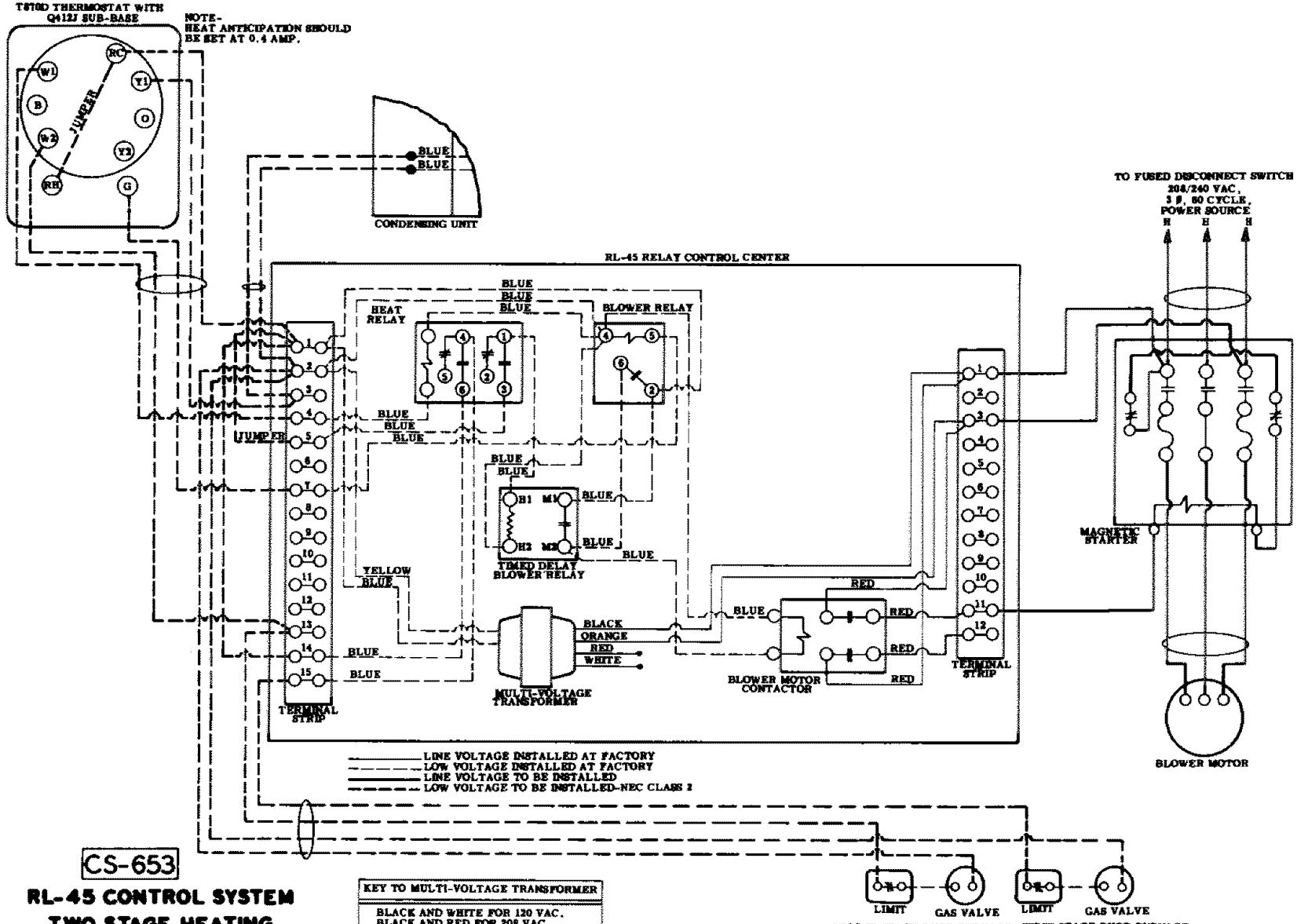
Litho U.S.A.



CS-652

RL-45
CONTROL SYSTEM
SINGLE STAGE HEATING
SINGLE STAGE COOLING
521,383 W

Litho U.S.A.



CS-653

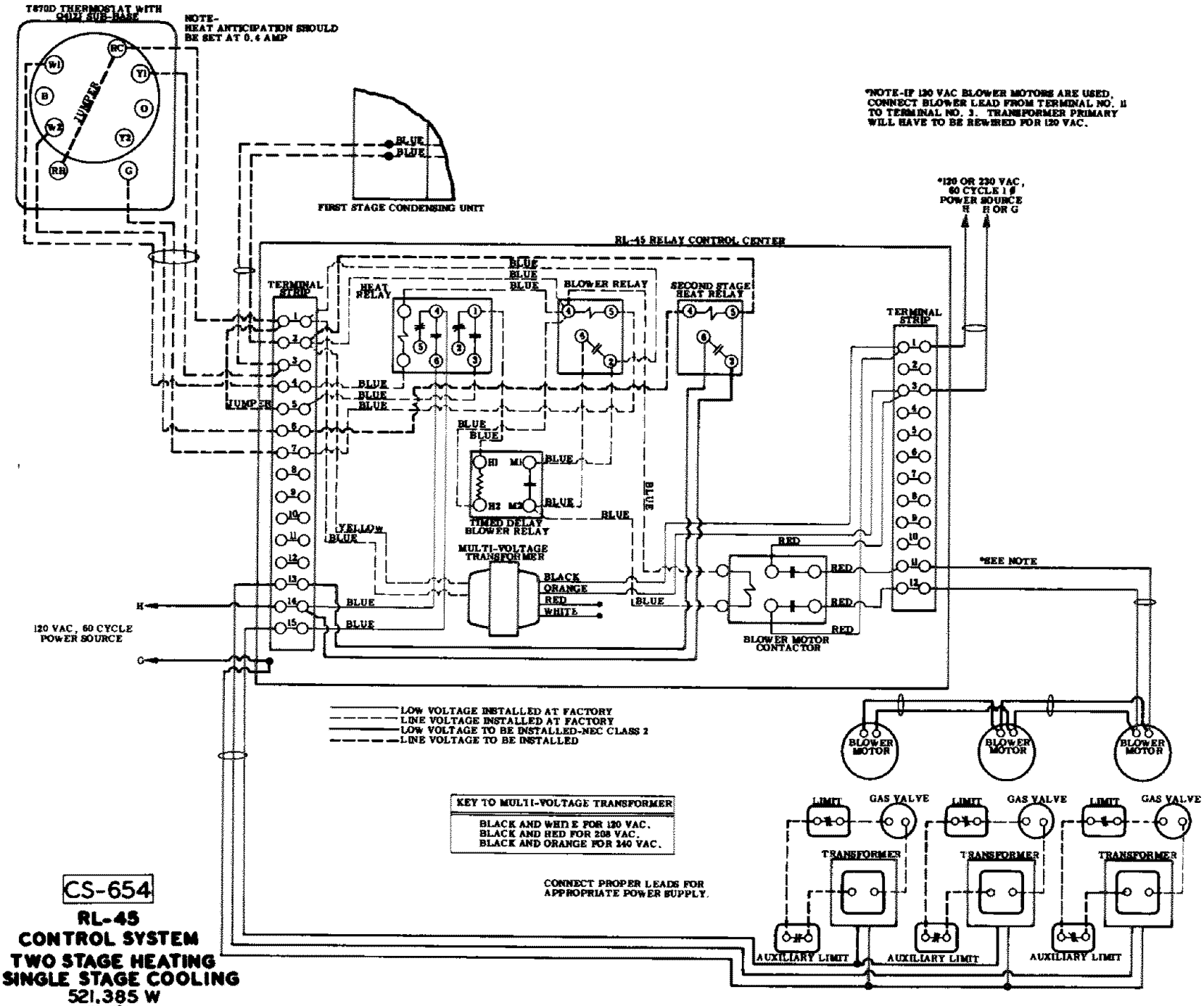
RL-45 CONTROL SYSTEM
TWO STAGE HEATING
(DUCT HEATERS)
SINGLE STAGE COOLING

521,384 W

Litho U.S.A.

KEY TO MULTI-VOLTAGE TRANSFORMER
BLACK AND WHITE FOR 120 VAC. BLACK AND RED FOR 208 VAC. BLACK AND ORANGE FOR 240 VAC.

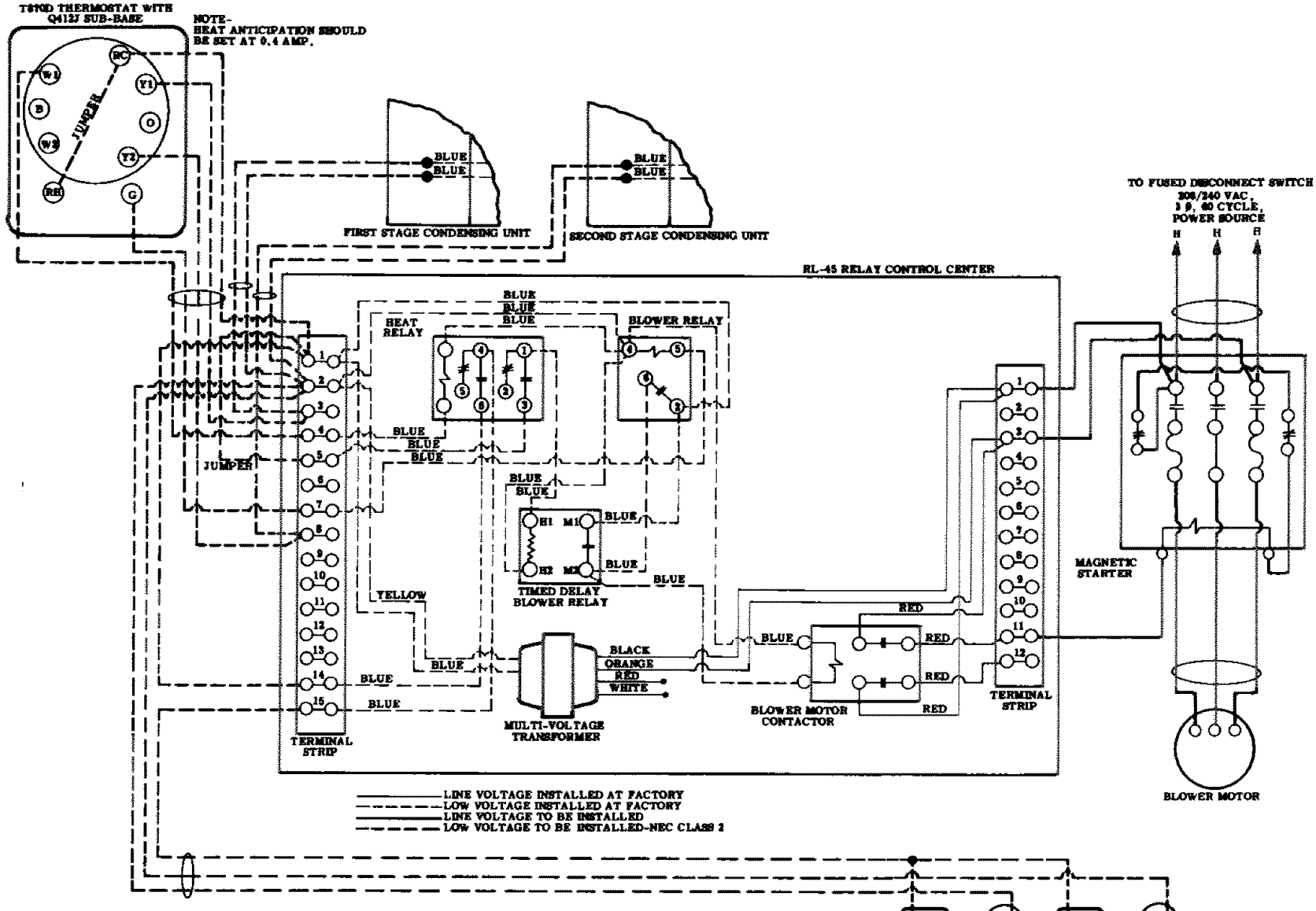
CONNECT PROPER LEADS FOR APPROPRIATE POWER SUPPLY



CS-654

RL-45
CONTROL SYSTEM
TWO STAGE HEATING
SINGLE STAGE COOLING
521.385 W

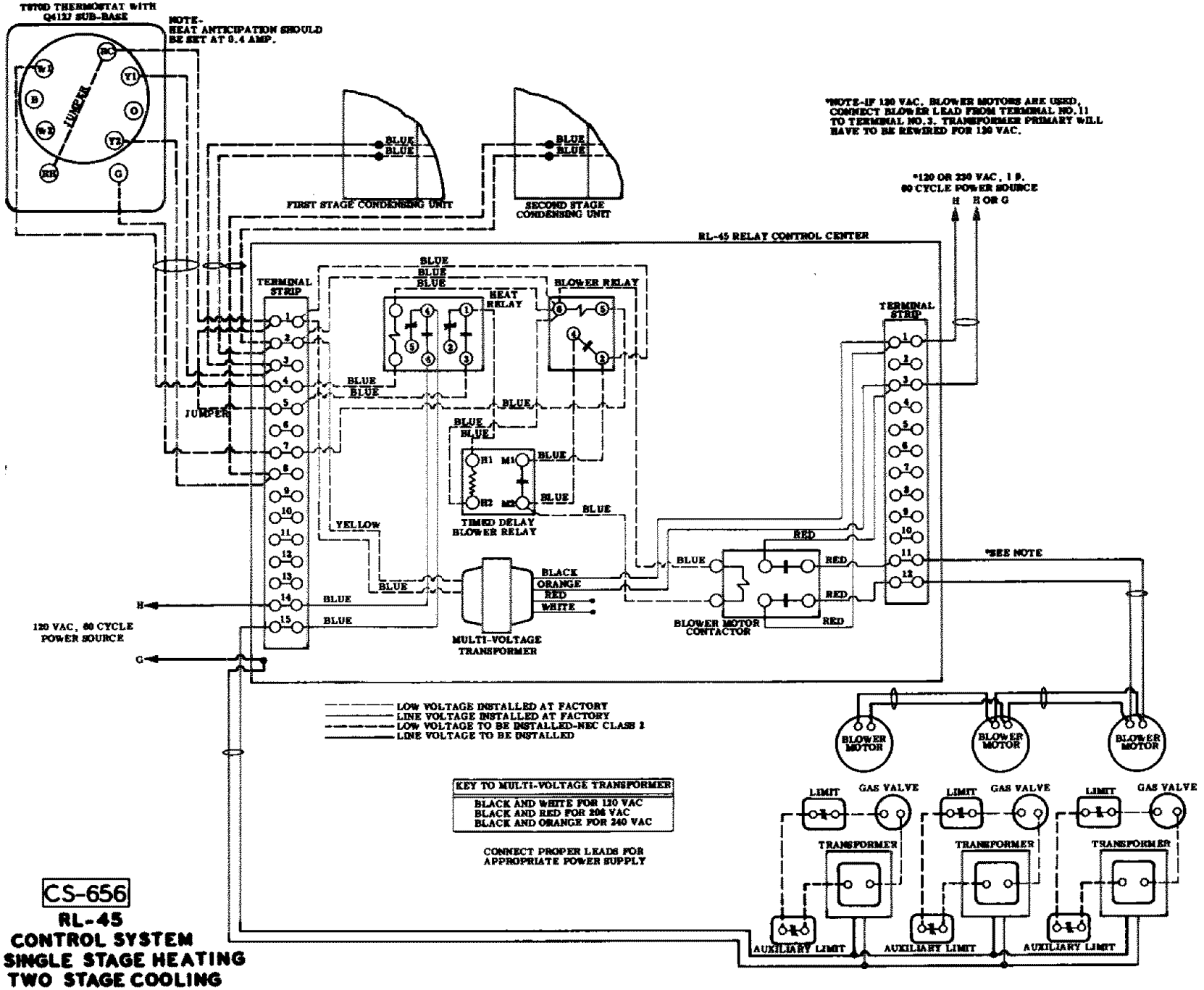
Litho U.S.A.



CS-655

RL-45 CONTROL SYSTEM SINGLE STAGE HEATING (DUCT HEATERS) TWO STAGE COOLING 521,386 W

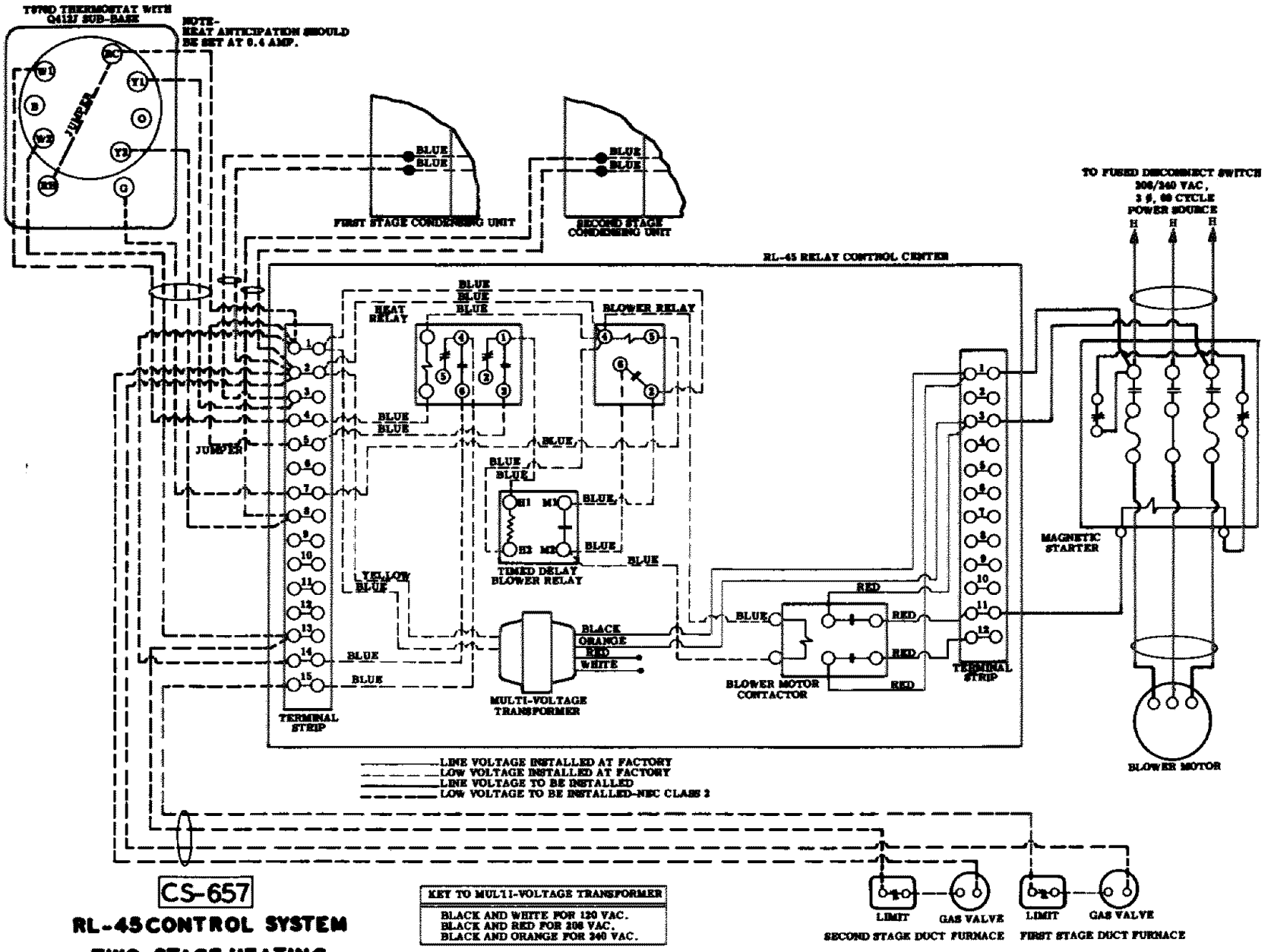
Litho U.S.A.



CS-656

RL-45
CONTROL SYSTEM
SINGLE STAGE HEATING
TWO STAGE COOLING
521,387 W

Litho U.S.A.



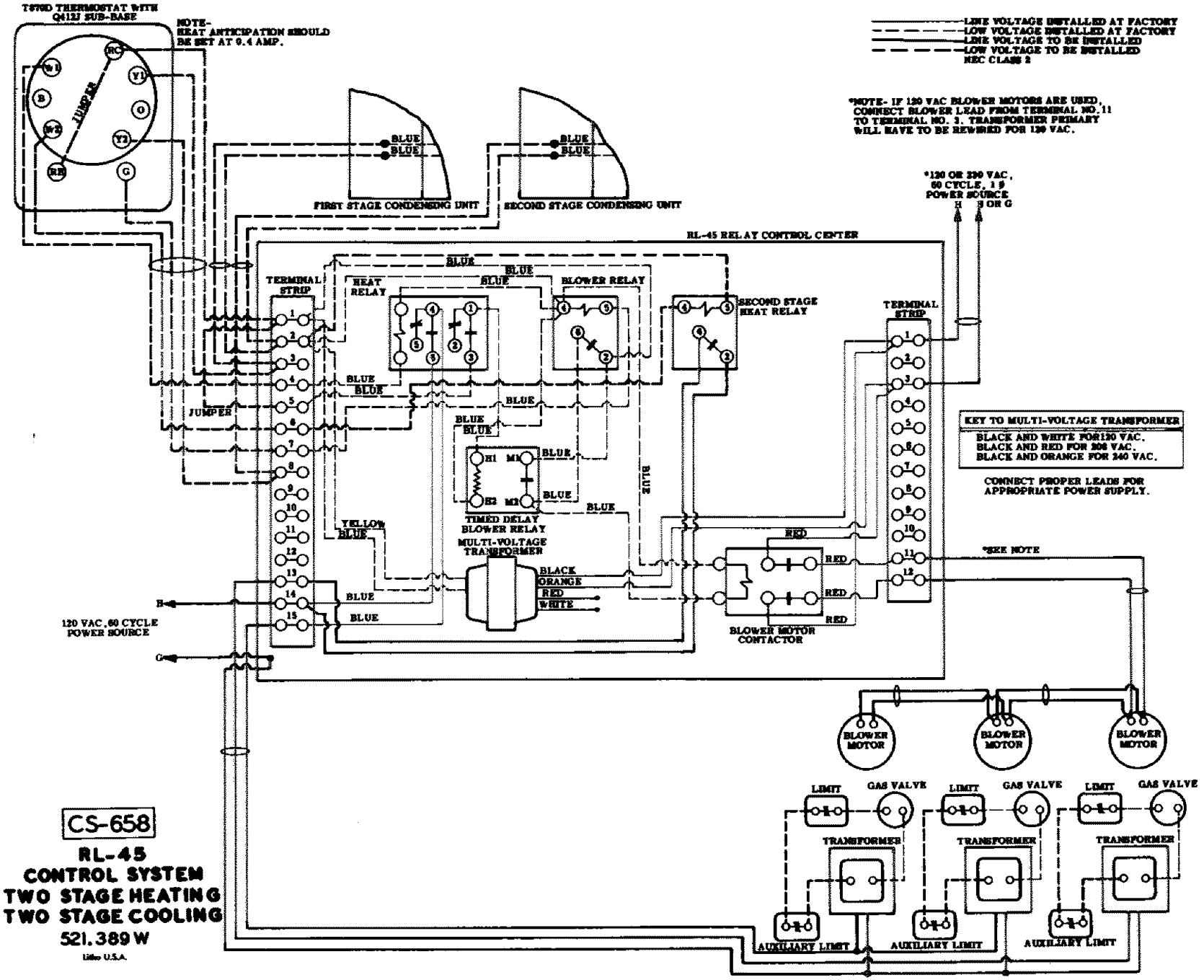
CS-657

RL-45 CONTROL SYSTEM

TWO STAGE HEATING (DUCT HEATERS) TWO STAGE COOLING

521,388 W

Litho U.S.A.

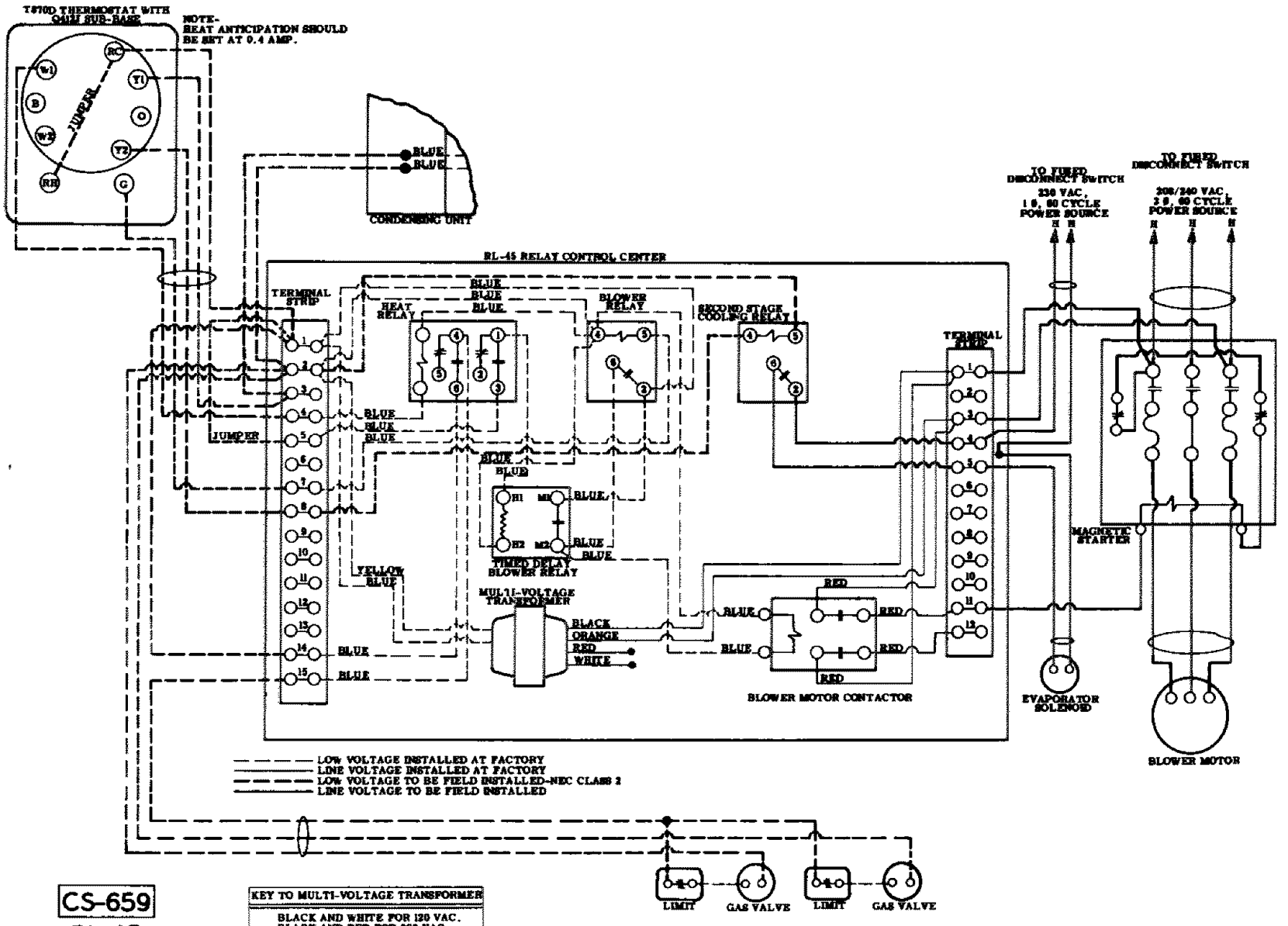


CS-658

RL-45 CONTROL SYSTEM TWO STAGE HEATING TWO STAGE COOLING

521.389 W

Litho U.S.A.



CS-659

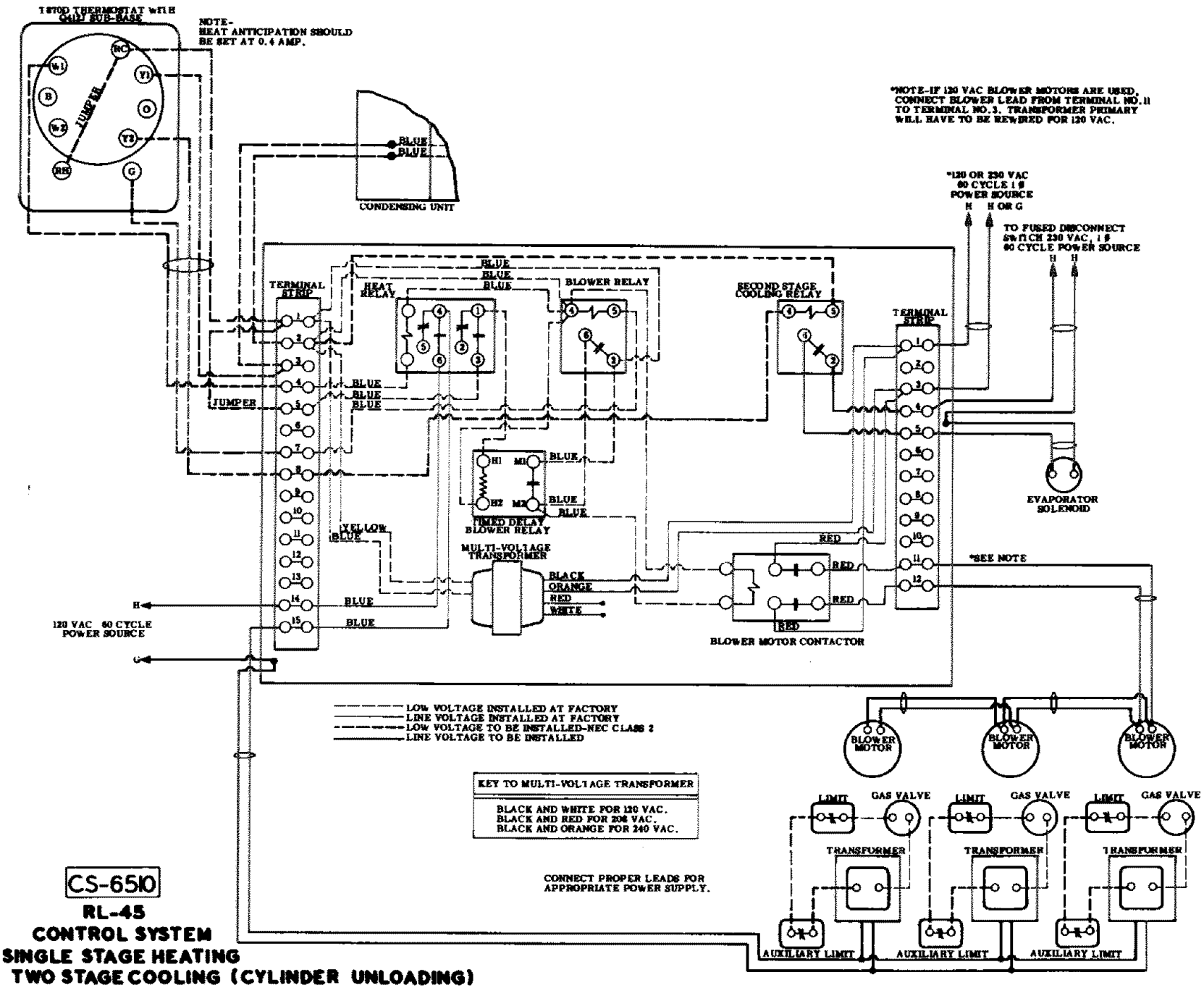
RL-45 CONTROL SYSTEM SINGLE STAGE HEATING (DUCT HEATERS) TWO STAGE COOLING (CYLINDER UNLOADING)

521,390 W

Litho U.S.A.

KEY TO MULTI-VOLTAGE TRANSFORMER
BLACK AND WHITE FOR 120 VAC. BLACK AND RED FOR 208 VAC. BLACK AND ORANGE FOR 240 VAC.

CONNECT PROPER LEADS FOR APPROPRIATE POWER SUPPLY.



CS-6510

RL-45

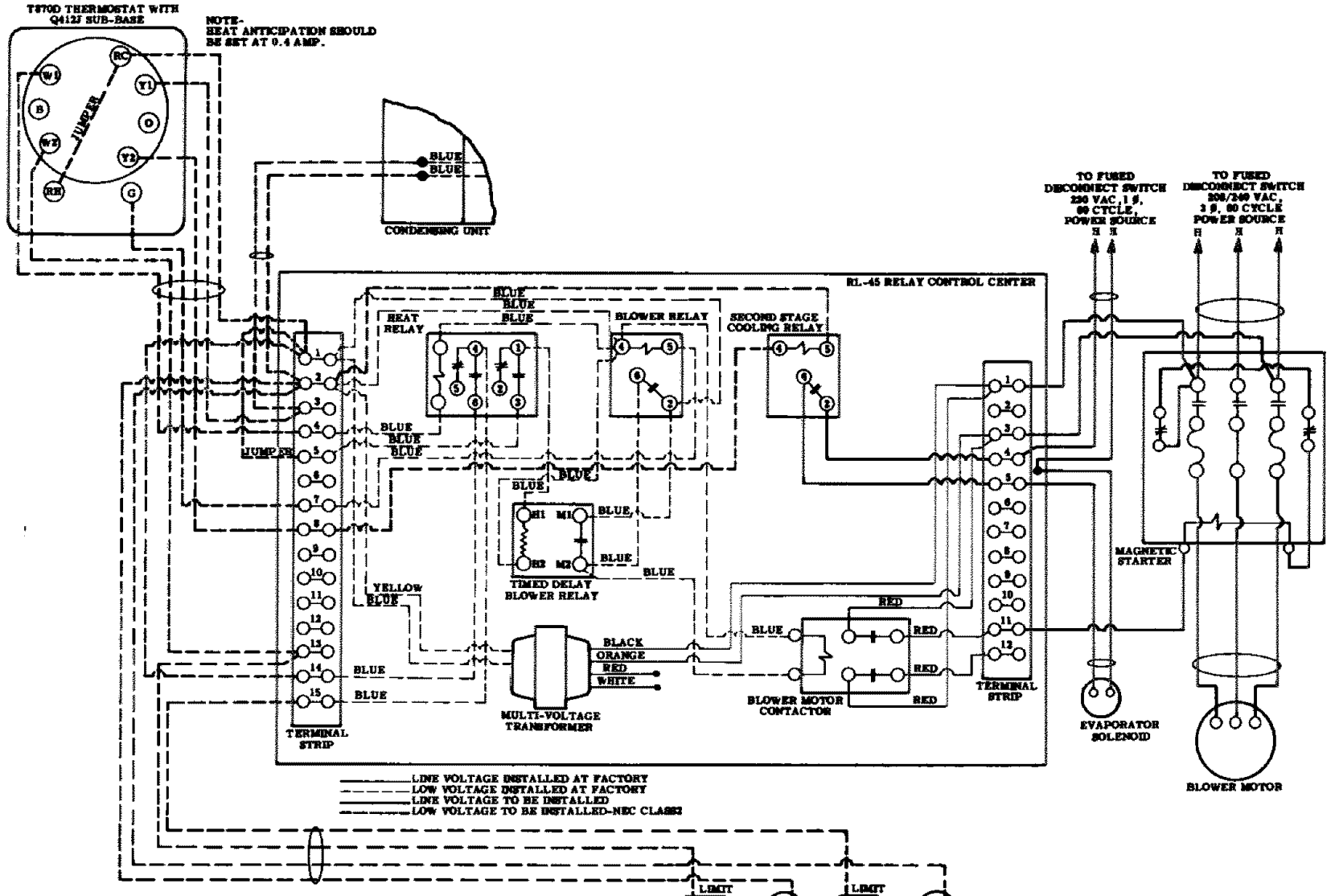
CONTROL SYSTEM

SINGLE STAGE HEATING

TWO STAGE COOLING (CYLINDER UNLOADING)

521,391 W

Litho U.S.A.

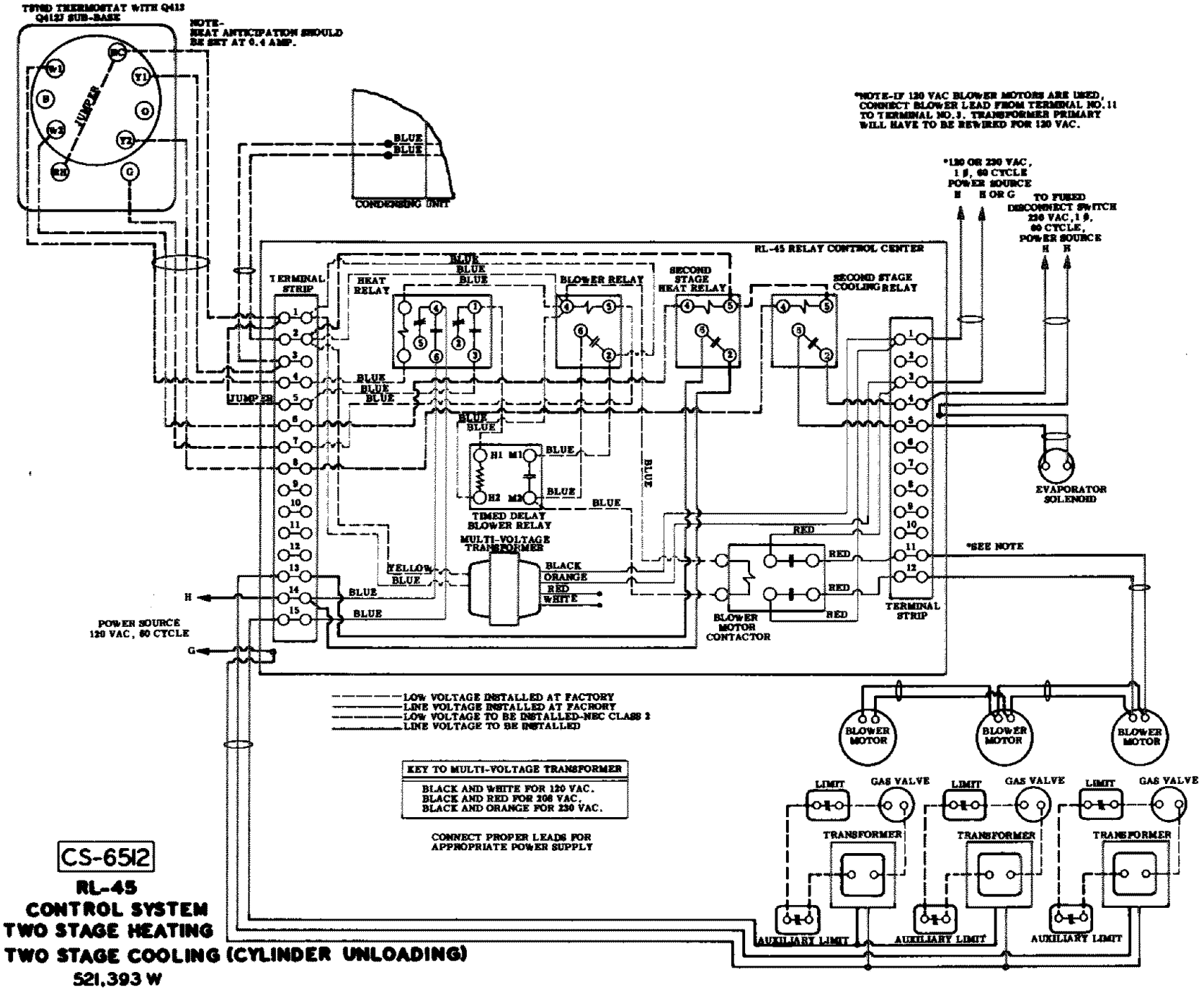


CS-6511

RL-45 CONTROL SYSTEM
TWO STAGE HEATING
(DUCT HEATERS)
TWOSTAGE COOLING
(CYLINDER UNLOADING)

521,392 W

Litho U.S.A.

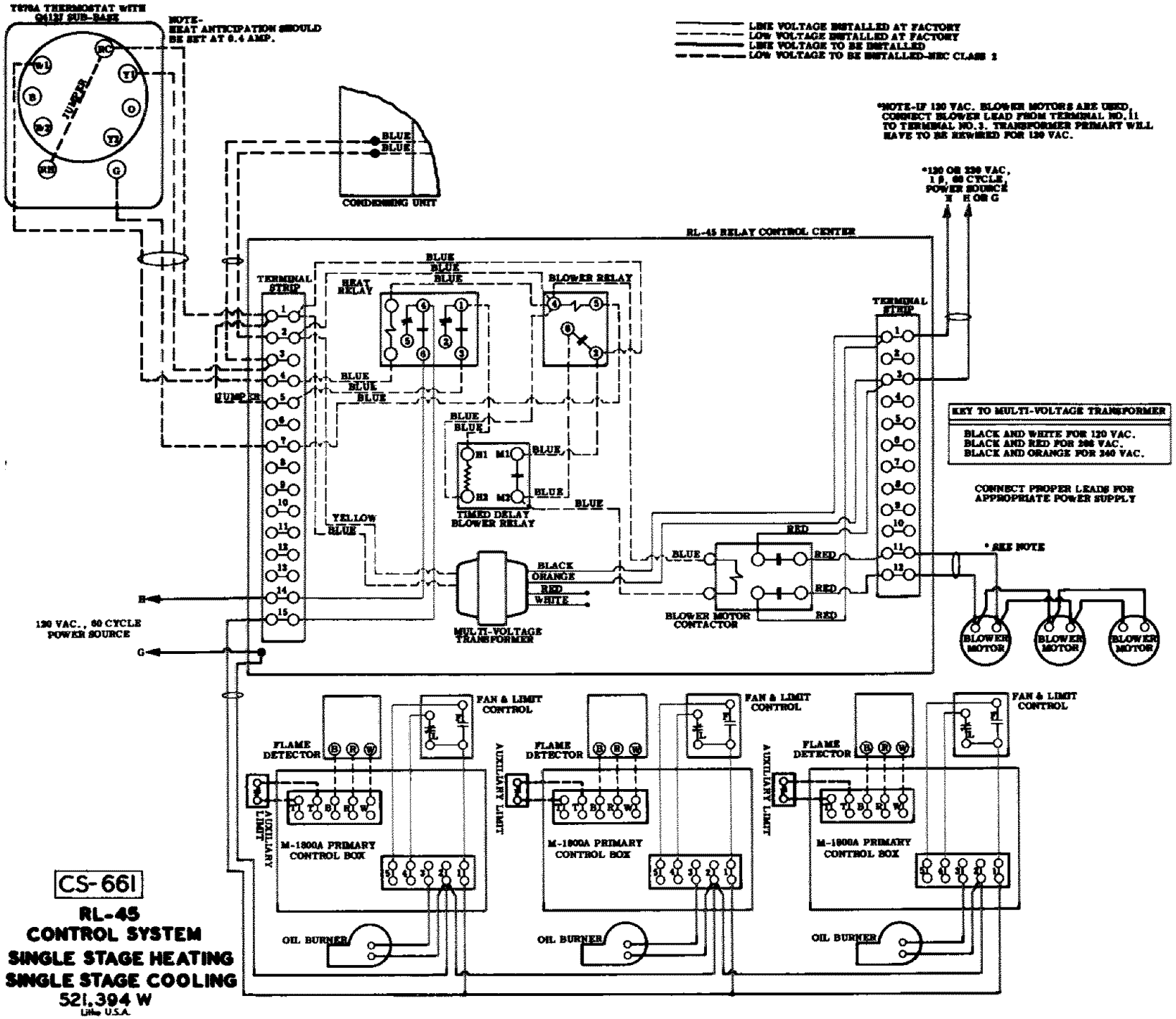


CS-6512

RL-45 CONTROL SYSTEM TWO STAGE HEATING TWO STAGE COOLING (CYLINDER UNLOADING)

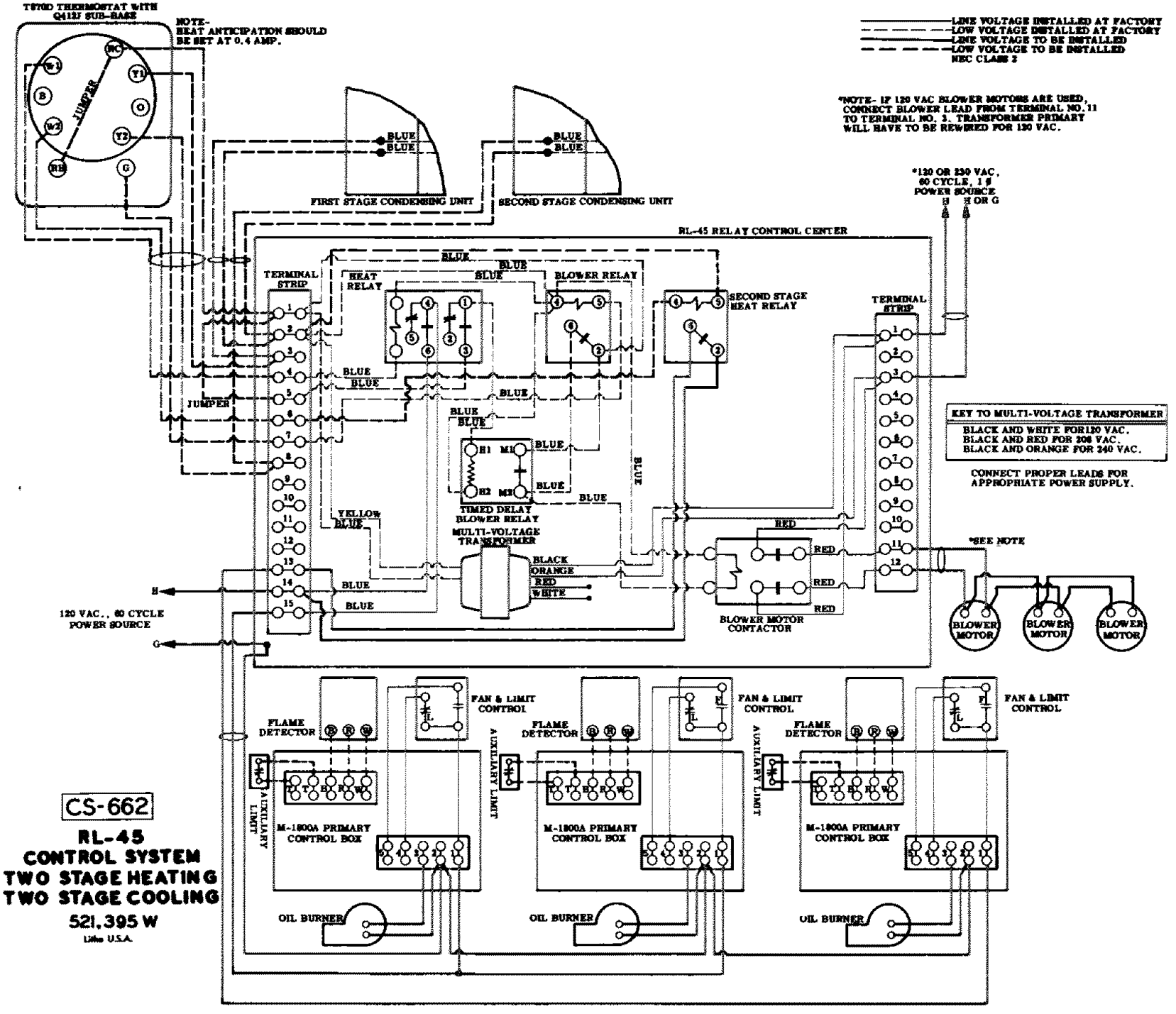
521,393 W

Litho U.S.A.



CS-661

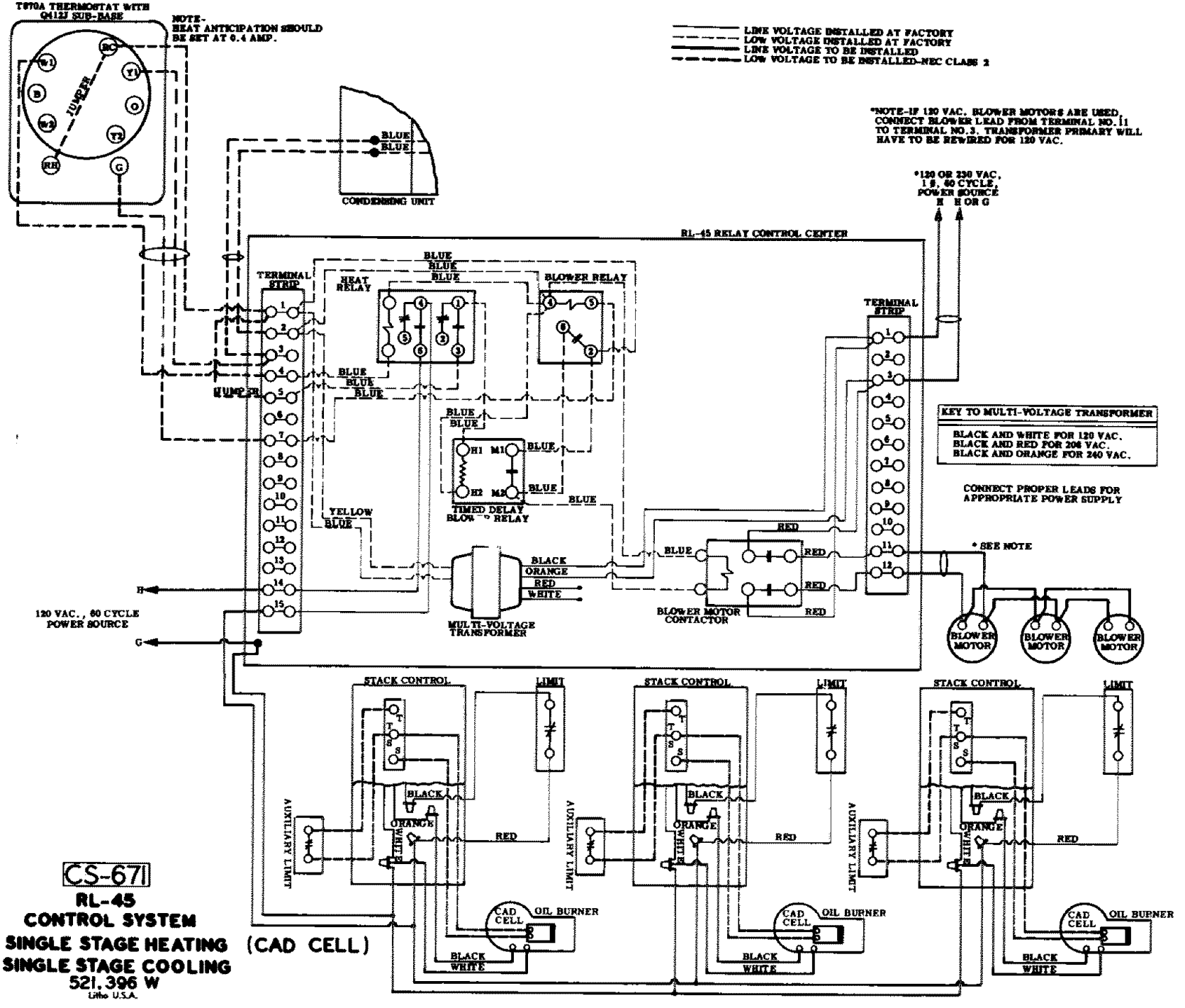
RL-45
CONTROL SYSTEM
SINGLE STAGE HEATING
SINGLE STAGE COOLING
521.394 W
Litho U.S.A.



CS-662

RL-45
CONTROL SYSTEM
TWO STAGE HEATING
TWO STAGE COOLING
521,395 W

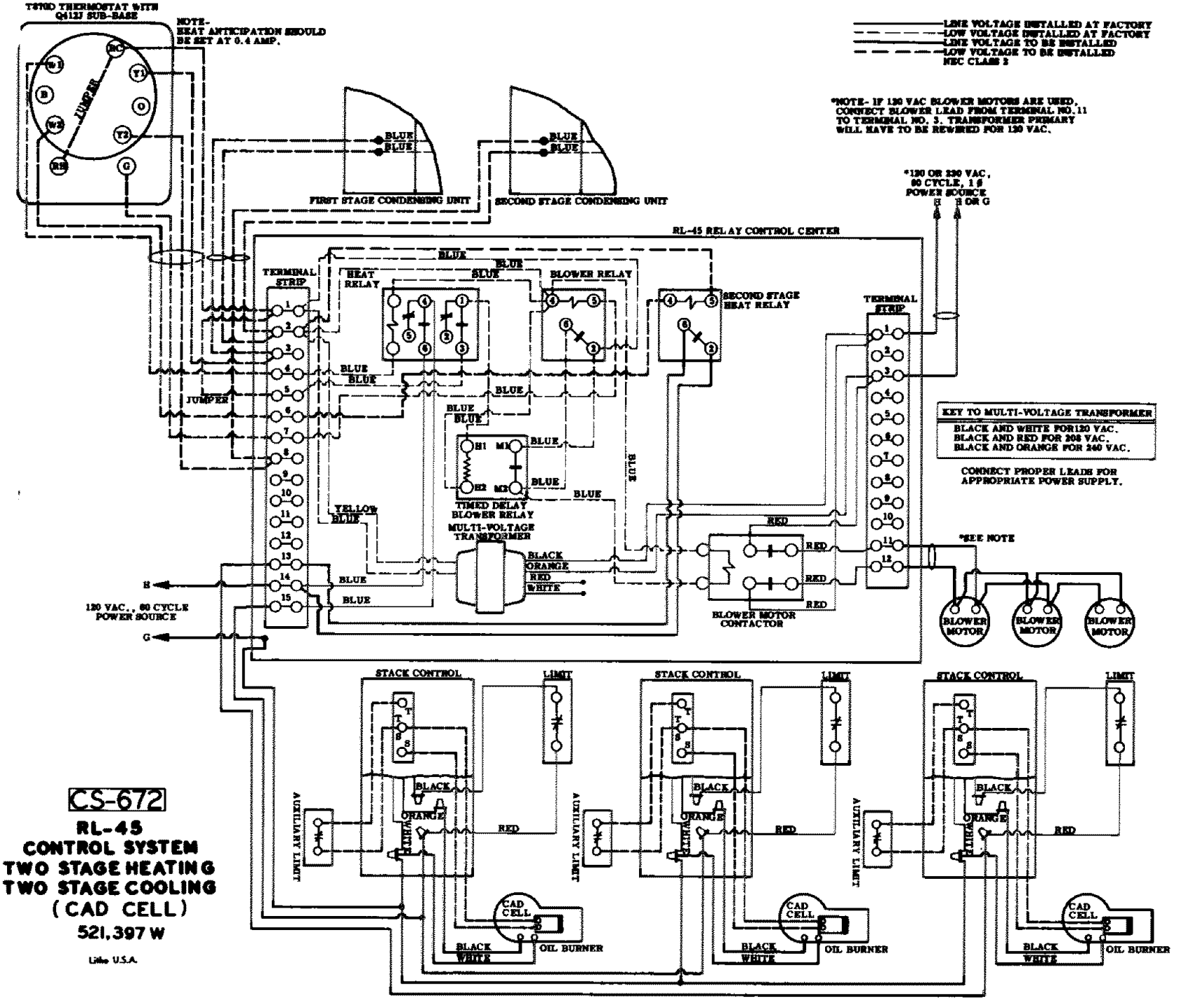
Litho U.S.A.



CS-671

RL-45
CONTROL SYSTEM
SINGLE STAGE HEATING (CAD CELL)
SINGLE STAGE COOLING
521.396 W

Litho U.S.A.



CS-672

RL-45 CONTROL SYSTEM TWO STAGE HEATING TWO STAGE COOLING (CAD CELL) 521,397 W

Litho U.S.A.