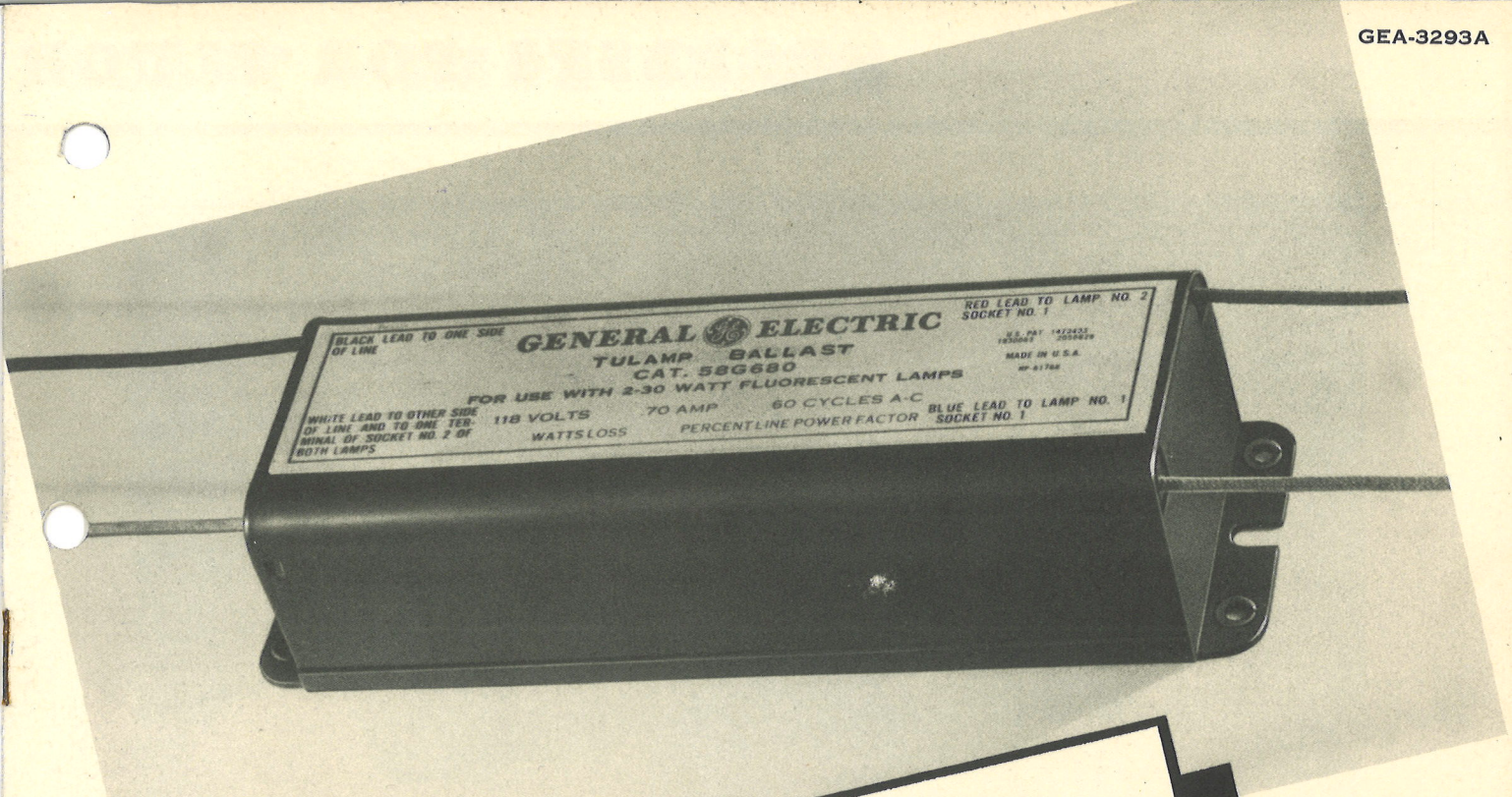

Ballasts
FOR FLUORESCENT MAZDA LAMPS

For Use Where Starters
Are Installed Separately

GENERAL ELECTRIC

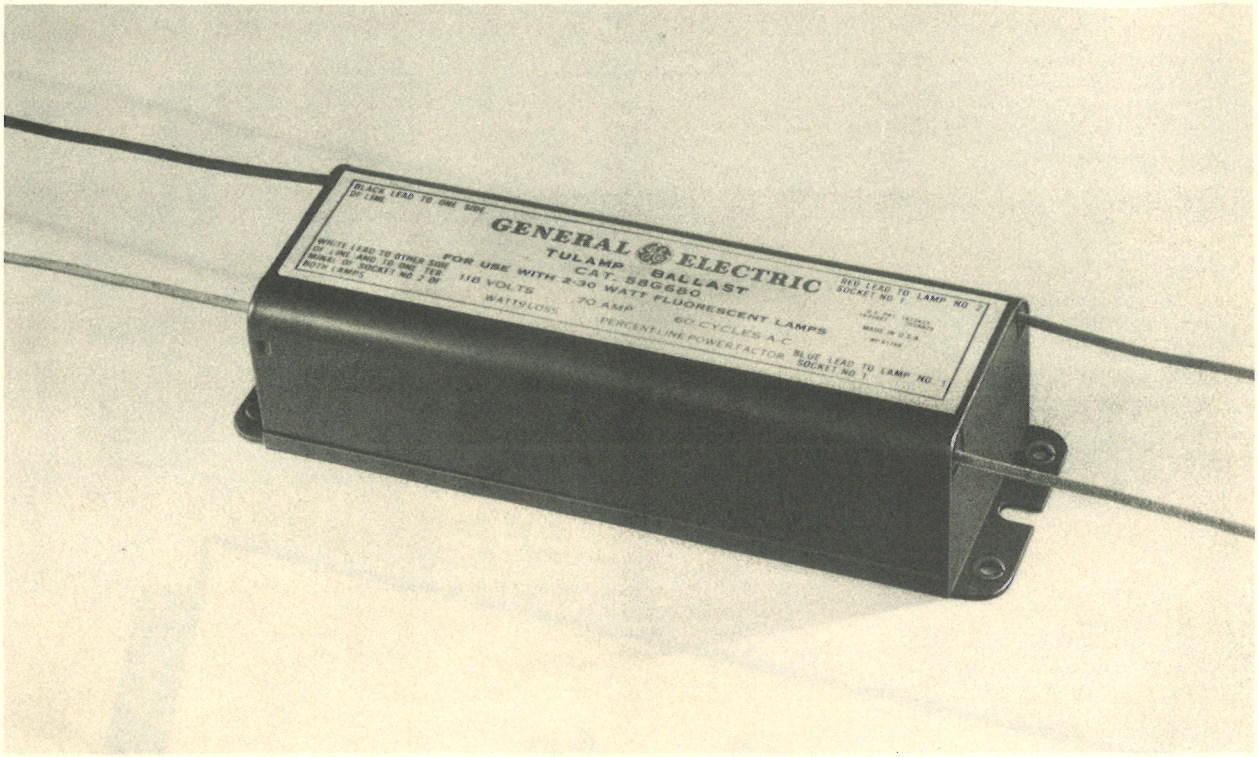

Fig. 1. Typical Tulamp-type ballast, 30 and 40 watts, 110-125, 199-216, and 220-250 volts

GENERAL ELECTRIC'S new Tulamp ballasts now make it possible to obtain all of the advantages of fluorescent lighting, combined with high power-factor operation and the practical elimination of stroboscopic effects. They meet the requirements of all state and local regulatory bodies as to power-factor.

The new line also includes ballasts for single-lamp operation, without power-factor improvement.

These new designs of ballasts are smaller in size, operate more quietly, and have improved voltage regulation. Their application is made possible by the development of new separately-mounted starting devices.

The new starters, starter sockets, and lamp holders are listed and described in General Electric Merchandise Department Bulletin, WDF-94.

HIGH POWER-FACTOR TULAMP TYPE

High power-factor Tulamp ballasts make use of the "split-phase" principle in which one lamp is ballasted by reactance only and the other lamp by reactance and capacitance in series. The lagging power-factor of the reactance branch offsets the leading power-factor of the capacitance branch, resulting in an over-all power-factor of above 95 per cent. The phase displacement of the currents in the two branches results in a materially reduced stroboscopic effect when the lamps are mounted adjacent to one another in pairs.

The new 15- and 20-watt, 110–125 volt, 50- and 60-cycle Tulamp ballasts (See Fig. 3) are contained in oval steel cases, shorter than those of the self-contained switch design, but otherwise identical in appearance and cross sectional dimensions. These 15- and 20-watt Tulamp units will also fit in any standard wireway.

Fluorescent lighting is most economically obtained with the larger-sized lamps. Thirty- and 40-watt lamps permit fixture manufacturers to build multiunit fixtures for commercial and industrial applications with higher levels of illumination, lower first cost for given levels of illumination, and materially broadened market for fluorescent lighting equipment.

It was found that the physical size of these larger fixtures was such that a more economical design of

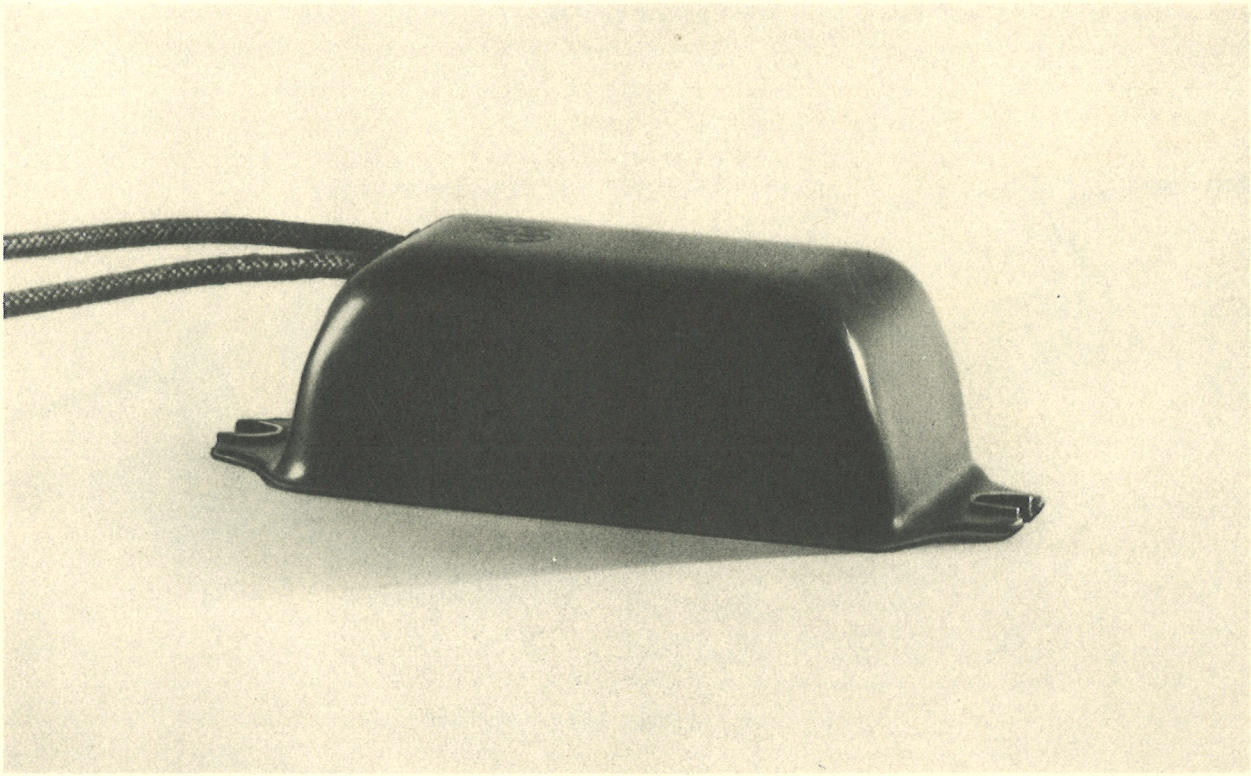

Fig. 2. Typical single-lamp type ballast, 15 and 20 watts, 110-125 volts, and 30 and 40 watts, 199-216 and 220-250 volts

ballast with a larger cross section could be used, and that they would provide several very definite advantages. These advantages are:

1. Low-cost single unit to operate two lamps.
2. Self-contained capacitor for power-factor improvement.
3. Minimized stroboscopic effect through phase displacement.
4. Better voltage regulation.
5. Quiet operation.
6. Separately mounted lamp starter, permitting replacement of a damaged or worn-out starter without dismantling the fixture.

For this purpose General Electric has designed new ballasts, without switches, for operating two 30-watt and two 40-watt lamps from supply voltages of 110–125, 199–216, and 220–250 volts, 60 cycles, and 110–125 and 220–250 volts, 50 cycles. These ballasts consist of an autotransformer winding and two reactor windings mounted on a single core. As in our other Tulamp designs, a capacitor is connected in series with one reactor winding, providing an over-all power-factor of above 95 per cent and a materially reduced stroboscopic effect. These ballasts are assembled in compound in a rectangular steel housing (see Fig. 1).

SINGLE-LAMP TYPE

The 15- and 20-watt, 110–125 volts, 50 and 60 cycles, the 30- and 40-watt, 220–250 volts, 50 and 60 cycles, and 199–216 volts, 60-cycle, single-lamp ballasts consist of simple series reactors compounded into drawn-steel cases. The rounded ends and top and shorter over-all length permit mounting in a smaller space, and provide a greater cooling area. These ballasts will fit any standard wireway.

The 30- and 40-watt, 110–125-volt, 50- and 60-cycle single-lamp ballasts (see Fig. 3) are high-reactance autotransformers contained in oval steel cases of identically the same cross section and appearance as the self-contained switch design, but with shorter over-all dimensions.

Fig. 3. Typical Tulamp-type ballast, 15 and 20 watts, 110-125 volts, and single-lamp type ballast, 30 and 40 watts, 110-125 volts

INSTALLATION OF BALLASTS

To obtain the most desirable and satisfactory operation from fluorescent MAZDA lamps, the following precautions should be taken when installing these ballasts:

Impressed Voltage

All ballasts are designed to deliver rated watts to the lamp at the nominal voltage stamped on the ballast. Deviation from these values will cause the lamp to deliver other than its rated output. It is recommended that the impressed potential be maintained within the following limits:

Nominal Voltage	Lowest Permissible Voltage	Highest Permissible Voltage
118	110	125
208	199	216
236	220	250

Frequency

The frequency of the circuit to which the ballast is connected must be that specified on the ballast.

Ventilation

It is vital that the housing in which the ballast is mounted be suitably ventilated to dissipate heat which results from the losses in the ballasts during operation. Ambient temperatures around the ballast during normal operation should not exceed 50 C.

Noise

Hum originates from the magnetic action in the ballast core and coil elements and is aggravated when these vibrations are transmitted to the supporting frame or metallic wiring channel. By mounting ballasts on soft rubber, Celotex, or similar nonrigid material between the ballast and the metallic mounting frame, hum will be reduced to a negligible amount.

Power-factor Improvement

Information on capacitors for power-factor improvement of these single-lamp ballasts is contained in Bulletin GEA-2526. Ask your G-E representative for a copy or write to General Electric, Schenectady, N. Y.

MECHANICAL AND ELECTRICAL DATA

Circuit Voltage	Lamp Watts	Cat. No. of Ballast	Approximate Dimensions in Inches	Approx Net Wt in Lbs	† Approx Watts Loss	Approx Power-factor Per Cent	OUTLINE		Wiring Diagram Fig. No.
							Fig. No.	Item	
HIGH POWER-FACTOR TULAMP TYPE—60 CYCLES									
110–125	(2) 15	58G678	1 7/32 x 2 1/4 x 14 1/4	3 3/8	9	95–100	5	21	9
110–125	(2) 20	58G679	1 7/32 x 2 1/4 x 14 1/4	3 3/8	9	95–100	5	22	9
110–125	(2) 30	58G680	2 3/8 x 3 1/8 x 9 1/2	7	14 1/2	95–100	6	23	10
199–216	(2) 30	58G681	2 3/8 x 3 1/8 x 9 1/2	6 3/4	12	95–100	6	24	10
220–250	(2) 30	58G682	2 3/8 x 3 1/8 x 9 1/2	6 3/4	12 1/2	95–100	6	25	10
110–125	(2) 40	58G683	2 3/8 x 3 1/8 x 9 1/2	7	17 1/2	95–100	6	26	10
199–216	(2) 40	58G684	2 3/8 x 3 1/8 x 9 1/2	6 3/4	13 1/2	95–100	6	27	10
220–250	(2) 40	58G685	2 3/8 x 3 1/8 x 9 1/2	6 3/4	14 1/2	95–100	6	28	10
HIGH POWER-FACTOR TULAMP TYPE—50 CYCLES									
110–125	(2) 15	58G578	1 7/32 x 2 1/4 x 17 1/2	3 3/4	10	95–100	5	7	9
110–125	(2) 20	58G579	1 7/32 x 2 1/4 x 17 1/2	3 3/4	10	95–100	5	8	9
110–125	(2) 30	58G580	2 5/8 x 3 1/8 x 9 1/2	7 3/4	15	95–100	6	9	10
220–250	(2) 30	58G582	2 5/8 x 3 1/8 x 9 1/2	7 1/4	13	95–100	6	10	10
110–125	(2) 40	58G583	2 5/8 x 3 1/8 x 9 1/2	7 3/4	18 1/2	95–100	6	11	10
220–250	(2) 40	58G585	2 5/8 x 3 1/8 x 9 1/2	7 1/4	15	95–100	6	12	10
SINGLE LAMP TYPE—60 CYCLES									
110–125	15	58G670	1 7/32 x 1 3/4 x 4 1/4	3/4	4 1/2	55	4	13	7
110–125	20	58G671	1 7/32 x 1 3/4 x 4 1/4	3/4	4 1/2	55	4	14	7
220–250	30	58G672	1 7/32 x 1 3/4 x 6 1/2	1 1/2	9	60	4	15	7
199–216	30	58G673	1 7/32 x 1 3/4 x 6 1/2	1 1/2	9	60	4	16	7
110–125	30	58G674	1 7/32 x 2 1/4 x 8 3/4	2 1/4	10	55	5	17	8
220–250	40	58G675	1 7/32 x 1 3/4 x 6 1/2	1 1/2	13	60	4	18	7
199–216	40	58G676	1 7/32 x 1 3/4 x 6 1/2	1 1/2	12	60	4	19	7
110–125	40	58G677	1 7/32 x 2 1/4 x 8 3/4	2 1/4	13	60	5	20	8
SINGLE LAMP TYPE—50 CYCLES									
110–125	15	58G570	1 7/32 x 1 3/4 x 6 1/2	1 1/2	6 1/2	55	4	1	7
110–125	20	58G571	1 7/32 x 1 3/4 x 6 1/2	1 1/2	7 1/2	55	4	2	7
220–250	30	58G572	1 7/32 x 1 3/4 x 8 3/4	2 1/4	13 1/2	60	4	3	7
110–125	30	58G574	1 7/32 x 2 1/4 x 8 3/4	2 3/8	15	55	5	4	8
220–250	40	58G575	1 7/32 x 1 3/4 x 8 3/4	2 1/4	15 1/2	60	4	5	7
110–125	40	58G577	1 7/32 x 2 1/4 x 10 3/4	2 3/4	19	60	5	6	8
STARTING COMPENSATOR REQUIRED WITH EACH 30- AND 40-WATT TULAMP BALLAST									
—	—	58G600	1 7/32 x 1 3/4 x 4 1/4	3/4	....	....	4	29	10

All of the above ballasts are listed by the Underwriters' Laboratories.
† Losses are given at rated lamp watts input.

Fluorescent MAZDA lamps are marketed by sales divisions of the Lamp Department, ballasts by G-E district sales offices, and starters, starter sockets, and lampholders by the Appliance and Merchandise Department. All are obtainable through the usual wholesale and retail outlets.

OUTLINE DIMENSIONS

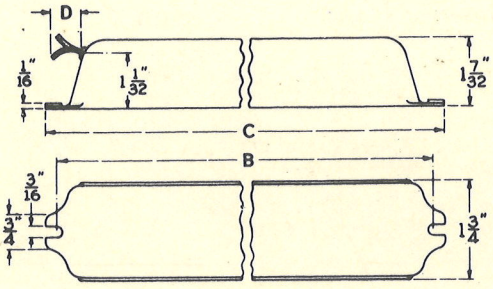

Fig. 4

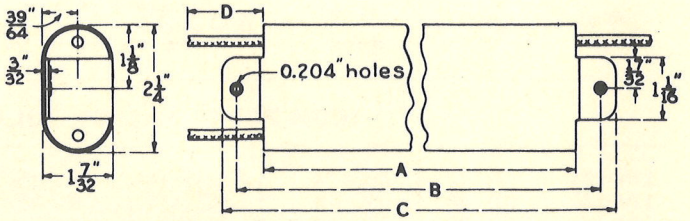

Fig. 5

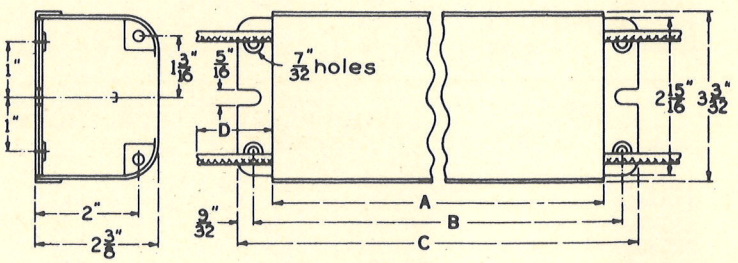

Fig. 6

Increase height ¼" for 50-cycle units

Fig. No.	Item No.	Cat. No.	Lamp Watts	Circuit Voltage	Cycles	APPROX DIMENSIONS IN INCHES			
						Over Case	Over Mounting Holes	Over-all	Leads (Shortest Lead)
						A	B	C	D
4	1	58G570	15	110–125	50	—	6 1/8	6 1/2	7 1/2
4	2	58G571	20	110–125	50	—	6 1/8	6 1/2	10 1/2
4	3	58G572	30	220–250	50	—	8 3/8	8 3/4	16
5	4	58G574	30	110–125	50	7 1/2	8 3/16	8 3/4	15 1/4
4	5	58G575	40	220–250	50	—	8 3/8	8 3/4	21
5	6	58G577	40	110–125	50	9 7/16	10 1/8	10 11/16	21
5	7	58G578	(2) 15	110–125	50	16 1/4	16 15/16	17 1/2	11
5	8	58G579	(2) 20	110–125	50	16 1/4	16 15/16	17 1/2	17
6	9	58G580	(2) 30	110–125	50	8 3/8	8 15/16	9 1/2	30
6	10	58G582	(2) 30	220–250	50	8 3/8	8 15/16	9 1/2	30
6	11	58G583	(2) 40	110–125	50	8 3/8	8 15/16	9 1/2	30
6	12	58G585	(2) 40	220–250	50	8 3/8	8 15/16	9 1/2	30
4	13	58G670	15	110–125	60	—	3 7/8	4 1/4	8 1/2
4	14	58G671	20	110–125	60	—	3 7/8	4 1/4	11 1/2
4	15	58G672	30	220–250	60	—	6 1/8	6 1/2	17
4	16	58G673	30	199–216	60	—	6 1/8	6 1/2	17
5	17	58G674	30	110–125	60	7 1/2	8 3/16	8 3/4	15 1/4
4	18	58G675	40	220–250	60	—	6 1/8	6 1/2	23
4	19	58G676	40	199–216	60	—	6 1/8	6 1/2	23
5	20	58G677	40	110–125	60	7 1/2	8 3/16	8 3/4	21
5	21	58G678	(2) 15	110–125	60	13	13 11/16	14 1/4	14 1/2
5	22	58G679	(2) 20	110–125	60	13	13 11/16	14 1/4	20 1/2
6	23	58G680	(2) 30	110–125	60	8 3/8	8 15/16	9 1/2	30
6	24	58G681	(2) 30	199–216	60	8 3/8	8 15/16	9 1/2	30
6	25	58G682	(2) 30	220–250	60	8 3/8	8 15/16	9 1/2	30
6	26	58G683	(2) 40	110–125	60	8 3/8	8 15/16	9 1/2	30
6	27	58G684	(2) 40	199–216	60	8 3/8	8 15/16	9 1/2	30
6	28	58G685	(2) 40	220–250	60	8 3/8	8 15/16	9 1/2	30
4	29	58G600	—	—	—	—	3 7/8	4 1/4	30

WIRING DIAGRAMS

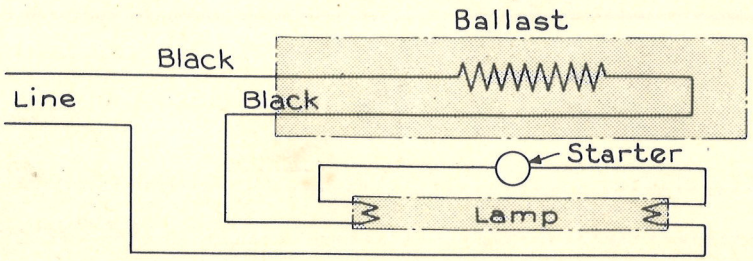

Fig. 7. Diagram of connections for single-lamp type ballasts, 15 and 20 watts, 110-125 volts, and 30 and 40 watts, 199-216 and 220-250 volts. (Series reactor design)

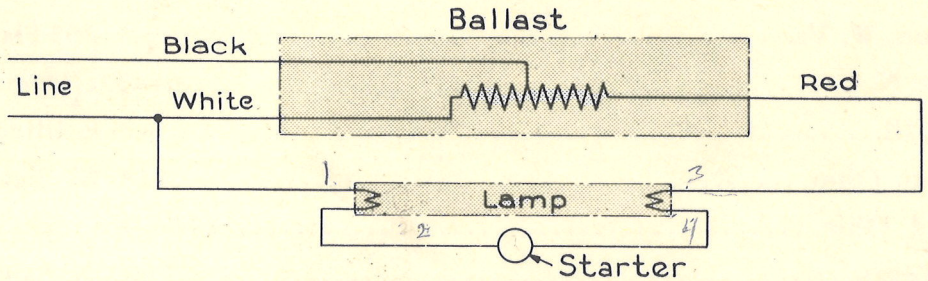

Fig. 8. Diagram of connections for single-lamp type ballasts, 30 and 40 watts, 110-125 volts. (High reactance autotransformer design)

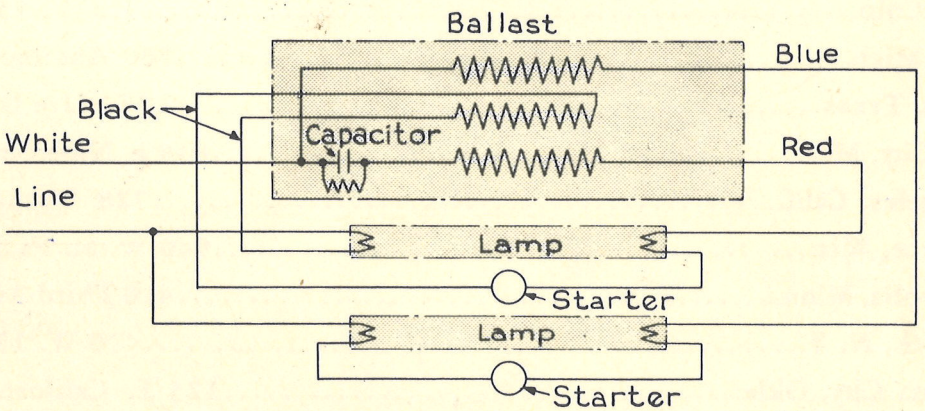

Fig. 9. Diagram of connections for Tulamp-type ballasts, 15 and 20 watts, 110-125 volts. (Series reactor-capacitor design, including integral starting compensator)

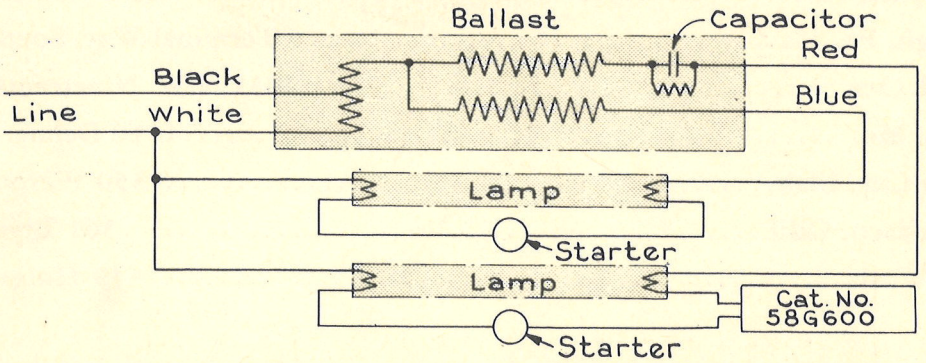

Fig. 10. Diagram of connections for Tulamp-type ballasts, 30 and 40 watts, 110-125, 199-216, and 220-250 volts. (Autotransformer-reactor-capacitor design, showing separate starting compensator)

Ballasts Listed in This Bulletin May Be Obtained at Any of the Following GENERAL ELECTRIC WAREHOUSES

Location	Address
Atlanta, Ga.	490 Glen St., S.W.
Boston, Mass.	150 Causeway St.
Buffalo, N. Y.	318 Urban St.
Butte, Mont.	827 S. Montana St.
Charleston, W. Va.	263 Slack St.
Charlotte, N. C.	421 Penman St.
Chicago, Ill.	509 E. Illinois St.
Cincinnati, Ohio	215 W. Third St.
Cleveland, Ohio	4966 Woodland Ave.
Dallas, Texas	1801 N. Lamar St.
Davenport, Iowa	511 Pershing Ave.
Denver, Colo.	2311 15th St.
Detroit, Mich.	700 Antoinette St.
Houston, Texas	1312 Live Oak St.
Kansas City, Mo.	819 E. Nineteenth St.
Los Angeles, Calif.	728 Turner St.
Milwaukee, Wis.	940 W. St. Paul Ave.
Minneapolis, Minn.	410 Third Ave., N.
New York, N. Y.	416 W. 13th St.
Oklahoma City, Okla.	125 E. California St.
Omaha, Nebr.	814 Harney St.
Philadelphia, Pa.	429 N. Seventh St.
Pittsburgh, Pa.	16 Terminal Way, South Side
Portland, Ore.	2031 N.W. Nineteenth Ave.
St. Louis, Mo.	1110 Delmar Blvd.
Salt Lake City, Utah	350 Pierpont St.
San Francisco, Calif.	361 Bryant St.
Seattle, Wash.	440 Holgate St.

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