

60-CYCLE BALLASTS

AUXILIARY EQUIPMENT FOR

For Fluorescent Lamps with Miniature Bipin Bases

Lamp Watts	Circuit Voltage	Catalog Number Std. Case	Cat. No. Universal Case	List Price Each	Std. Pkg.	Approx. Size, Inches	Weight, Pounds	Approx. Watts Loss	Approx. Power Factor	Line Current, Amps.	Fig. No.	Case Type
6	6	110-125	58G800	\$ 1.15	20	1¼ x 1¼ x 4¼	1	2	45	0.16	1	F
8	8	110-125	58G616	1.15	20	1¼ x 1¼ x 4¼	1	2.8	45	0.175	1	F
13	13	110-125	59G400	2.25	10	1½ x 2¼ x 7½	2¼	7	45	0.37	2	C
	13	110-125	59G403	3.75	10	1½ x 2¼ x 9½	3	6	95★	0.19	3	C

For Fluorescent Lamps with Medium Bipin Bases

14	14	110-125	58G862	.65	20	1¼ x 1¼ x 4¼	¾	3.6	44	0.37	4	E
	14	110-125	58G864	2.75	10	1½ x 2¼ x 8¾	1½	3.6	85★	0.18	5	C
	2-14	110-125	58G914	1.20	10	1¼ x 1¼ x 6½	1½	7.2	44	0.74	6	E
15	15	110-125	58G670	.65	20	1¼ x 1¼ x 4¼	¾	4.5	55	0.30	4	E
	15	110-125	58G640	2.75	10	1½ x 2¼ x 8¾	1¾	4.5	90★	0.19	5	C
	2-15	110-125	58G691	1.20	10	1¼ x 1¼ x 6½	1½	9	55	0.60	6	E
20	2-15	110-125	58G678	3.90	10	1½ x 2¼ x 14¼	3¼	9	95★	0.35	7	C
	20	110-125	58G671	.65	20	1¼ x 1¼ x 4¼	¾	4.5	55	0.35	4	E
	20	110-125	58G641	2.75	10	1½ x 2¼ x 8¾	1¾	4.5	90★	0.23	5	C
30	2-20	110-125	58G692	1.20	10	1¼ x 1¼ x 6½	1½	9	55	0.70	6	E
	2-20	110-125	58G679	3.90	10	1½ x 2¼ x 14¼	3¼	9	95★	0.45	7	C
	30	199-216	58G673	1.50	10	1¼ x 1¼ x 6½	1½	6	60	0.34	4	E
	220-250	58G672	1.50	10	1½		7	60	0.34	4	E	
30	30	110-125	58G644	4.25	10	1½ x 2¼ x 14¼	3¾	9	90★	0.36	9	C
	30	199-216	58G643	3.40	10	1½ x 2¼ x 10½	2½	6.5	90★	0.23	5	C
	30	220-250	58G642	3.40	10	1½ x 2¼ x 10½	2½	7	90★	0.20	5	C
30	30	110-125	58G674	2.40	10	1½ x 2¼ x 8¾	2½	8.5	55	0.65	8	C
	2-30	110-125	58G980	5.30	10	2½ x 3½ x 9½	7	12.5	95★	0.7	10	A
		199-216	58G981	5.30	10		7	10.0	95★	0.4	10	A
	220-250	58G982	5.30	10	7		10.5	95★	0.35	10	A	
30	2-30	110-125	58G940	6.30	10	1½ x 2¼ x 18¼	6	16	95★	0.7	10	B
		199-216	58G941	6.30	10		5½	10	95★	0.4	10	B
		220-250	58G942	6.30	10		6	12	95★	0.35	10	B
40	40	110-125	58G677	2.40	10	1½ x 2¼ x 8¾	2½	9.5	60	0.85	8	C
	40	199-216	58G676	1.50	10	1¼ x 1¼ x 6½	1½	10	60	0.41	4	E
		220-250	58G675	1.50	10		1½	10.5	60	0.41	4	E
40	40	110-125	58G647	4.25	10	1½ x 2¼ x 14¼	3¾	9.5	95★	0.50	9	C
	40	199-216	58G646	3.40	10	1½ x 2¼ x 10½	2½	8.5	95★	0.29	5	C
	40	220-250	58G645	3.40	10	1½ x 2¼ x 10½	2½	9.5	95★	0.26	5	C
40	2-40	240-280†	58G925	4.25	10	2½ x 3½ x 9½	6	10	90★	0.22	11	A
		110-125	58G983	5.30	10	2½ x 3½ x 9½	7	15.5	95★	0.85	10	A
		199-216	58G984	5.30	10		7	11.5	95★	0.5	7	A
	220-250	58G985	5.30	10	7		12.5	95★	0.43	10	A	
40	2-40	240-280†	58G922	5.30	10	7	15.0	95★	0.4	10	A	
	2-40	110-125	58G943	6.30	10	1½ x 2¼ x 18¼	6	19	95★	0.85	7	B
		199-216	58G944	6.30	10		5½	13	95★	0.5	7	B
	220-250	58G945	6.30	10	6		15	95★	0.43	7	B	
3-40	3-40	110-125	59G276	9.00	4	2½ x 3½ x 14¾	11	23	95★	1.3	12	A
		199-216	59G277	8.25	4		9¾	16	95★	0.7	13	A
		220-250	59G278	8.25	4		9¾	20	95★	0.6	13	A
3-40	3-40	240-280†	58G996	9.00	4	10¼	20	95★	0.6	12	A	
	3-40	199-216	59G489	6.50	10	2½ x 3½ x 9½	7	14	90★	0.7	15	A
	3-40	220-250	59G305*	6.50	10	2½ x 3½ x 9½	7½	15.5	85★	0.64	15	A

For Fluorescent Lamps with Mogul Bipin Bases††

100	100	110-125	58G628	8.00	4	2½ x 3½ x 11¾	10¼	24	90★	1.22	14	A
		199-216	58G629	8.00	4		10¼	30	90★	0.75	14	A
		220-250	58G630	8.00	4		10¼	30	90★	0.65	14	A
		240-280†	58G967	8.00	4		10¼	30	90★	0.5	14	A
2-100	2-100	110-125	58G696	12.00	4	2½ x 3½ x 19¼	14½	32	95★	2.1	16	A
		199-216	58G697	12.00	4		14½	32	95★	1.25	16	A
		220-250	58G698	12.00	4		14½	32	95★	1.1	16	A
		240-280†	58G923	12.00	4		15	35	95★	1.0	16	A
4-100	250-280†	59G265	12.00	4	2½ x 3½ x 19¼	17½	36	95★	1.65	17	A	

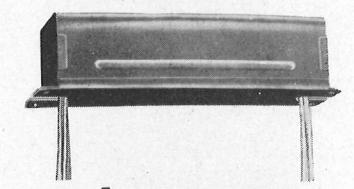
For Circline Fluorescent Lamp with 4-prong Base

32	32	110-125	59G420	3.75	10	1½ x 6	4	11	50	0.67	2**	G
	32	110-125	59G425	6.00	10	1½ x 8	6	9	90★	0.38	3**	G
	2-32	110-125	59G424	7.50	10	1½ x 8	7	16	95★	0.73	10	G
			59G418 (Junction Box)	.20	50	5/8 x 5¼	0.3					G

CASE TYPES



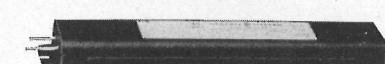
A—Standard Case



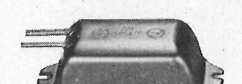
A—Universal Case



B



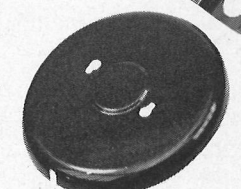
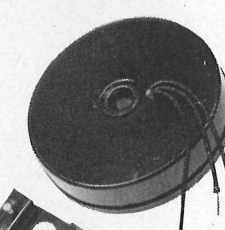
C



E



F§



G

§ With the starter in position (the socket is located in the right-hand end for case type F), the over-all length is approximately 4¾ inches.
 † For Y-connected networks rated 254/440, 265/460 and 277/480 volts. Ballasts are connected line to neutral. In no case use less than 250 volts.

* Leads out bottom only.

†† For the 40-watt T-17 low-brightness lamp use the instant-start ballast (59G373) without starter (see page 4).

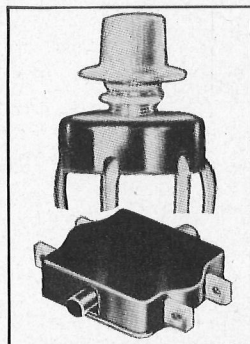
** Except that lead shown as "red" is blue

★ High power factor ballasts are recommended. Where other ballasts are used, the power factor correction capacitors listed on Page 5 are recommended.

PREHEATED-CATHODE CIRCUITS

REPLACEABLE STARTERS

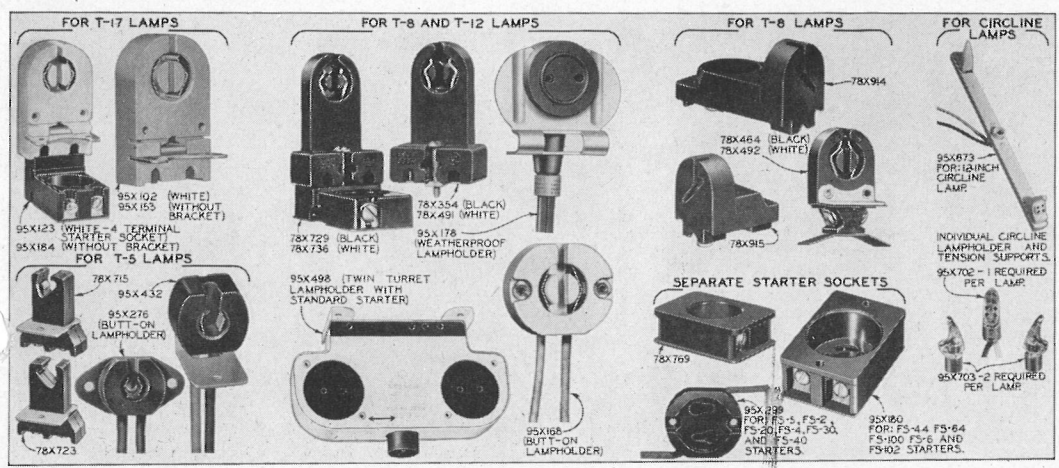
Lamp Size	6-Watt 8-Watt	20-Watt 15-Watt 14-Watt	20-Watt 15-Watt 14-Watt	40-Watt 30-Watt 13-Watt	30-Watt	32-Watt	40-Watt	40-Watt	100-Watt	100-Watt	100-Watt †	100-Watt †
List Price, Each*	\$0.40	\$0.30	\$0.72	\$0.30	\$0.80		\$0.72	\$0.80	\$0.80	\$1.10	\$0.80	\$1.10
Standard Package Quantity.....	50	100	100	100	100	100	100	50	50	100	50	100
Type Switch.....	Glow	Glow	Glow	Glow	Glow	Glow	Glow	Therm'l*	Therm'l*	Glow	Glow	Glow
No. Terminals....	2	2	2	2	2	2	2	4	4	4	2	2



Top — manual starting switch—turn type.
95X266 for 2 lamps \$0.715*
95X292 for 1 lamp .682*
Bottom — 95X708 new push-through manual starting switch for 95X673 circline lamp.

* In standard package quantities. † For 2-terminal 100-watt starter sockets.
* Wattage consumption of thermal switch during lamp operation: FS-44—½ watt; FS-64—1½ watts.

LAMP HOLDERS



LAMP HOLDERS AND ASSEMBLIES

List Price, Each in Std. Pkg. Quantities

78X354	\$0.18	(100)	95X180	\$0.268	(50)
78X464	.22	(100)	95X184	.638	(50)
78X491	.198	(100)	95X186	.651	(50)
78X492	.242	(100)	95X188†	.638	(50)
78X715	.325	(50)	95X206	.638	(50)
78X723	.325	(50)	95X217**	.242	(100)
78X729	.325	(100)	95X276	.18	(100)
78X736	.343	(100)	95X291	.343	(100)
78X769	.145	(100)	95X299*	.18	(100)
78X914	.484	(100)	95X311	.224	(100)
78X915	.264	(100)	95X312	.224	(100)
95X102	.378	(50)	95X432	.277	(50)
95X123	.651	(50)	95X498	1.76	(50)
95X153†	.369	(50)	95X673	1.614	.....
95X168	.25	(100)	95X702	.....	.....
95X178	.66	(100)	95X703	.....	.....

† Same as 95X102 but without bracket.
‡ Same as 95X188 but without bracket.
* Separate starter socket with leads for FS-2, FS-4, FS-5, FS-12, FS-20, FS-30 and FS-40 starters.
** Same as 95X168 except eyelet mounting holes.

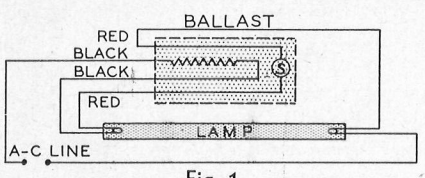


Fig. 1

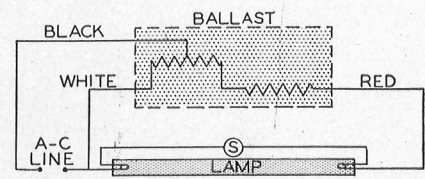


Fig. 2

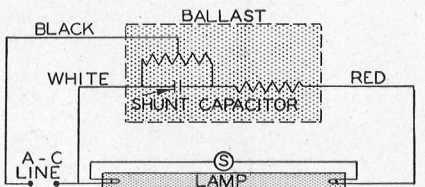


Fig. 3

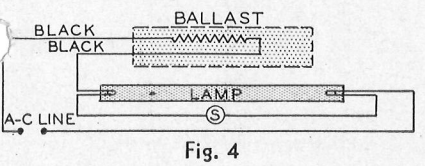


Fig. 4

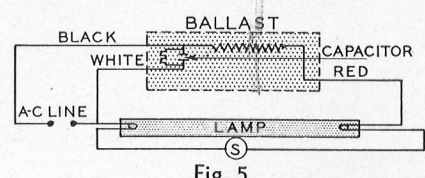


Fig. 5

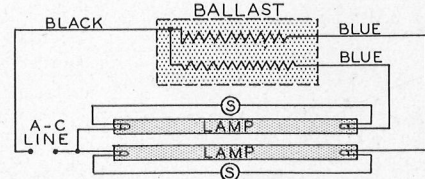


Fig. 6

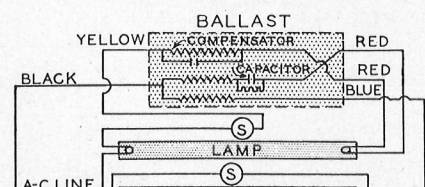


Fig. 7

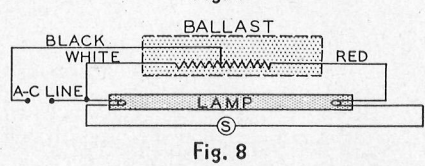


Fig. 8

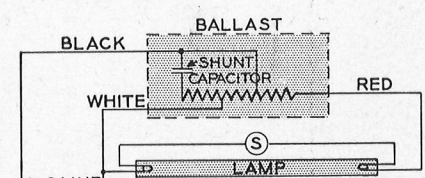


Fig. 9

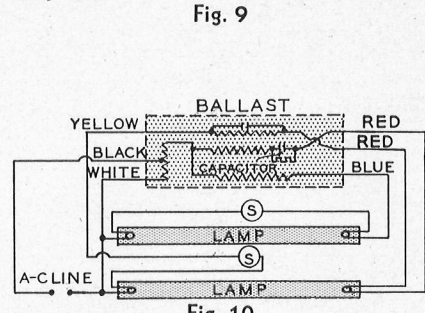


Fig. 10

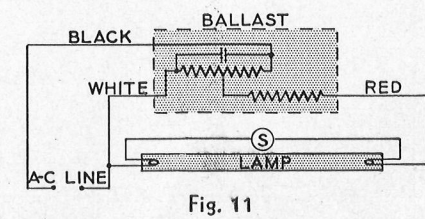


Fig. 11

AUXILIARY EQUIPMENT FOR INSTANT STARTING

60-cycle 110-125-volt Ballasts For* Fluorescent Lamps with Single-pin Bases (Slimline)
No Starters required. Type A Universal Case

NOTE: G-E ballasts for fluorescent lamps are also available for 50-cycle operation though not regularly carried in stock. Special-service ballasts for certain other frequencies are also obtainable. More complete information on ballasts will be found in Publication GEA-3293 and on accessories in 57-312 available from G-E District Sales Offices.

Lampholders for Instant-starting Lamps

40-Watt T-12 or T-17. These lamps have their base pins shorted inside the base shell (Fig. 21) and the primary circuit cutout action is accomplished with ordinary lampholders (See Page 3).

Slimline Lampholders — List price each in Std. Pkg. Quantities.

95X637	\$0.77	(100)
95X638	.77	(100)
95X670	.048	(100)
95X671	.704	(100)
95X672	.814	(100)
95X683	.638	(100)

†† B-Brass terminal on starter socket, where combination lampholder and starter socket assemblies are used, the dotted connections are already made internally (Figs. 16 and 17).

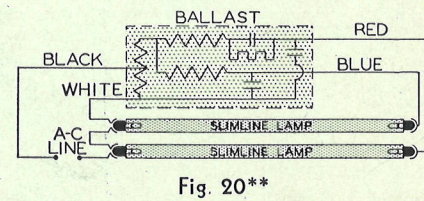
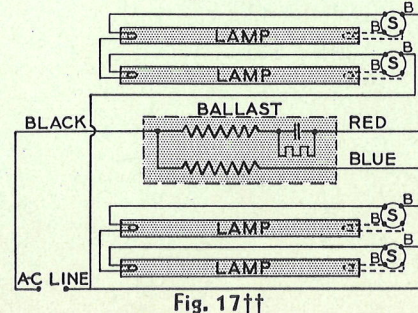
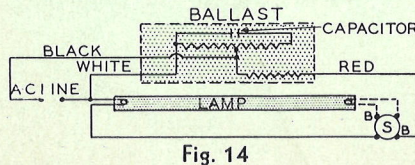
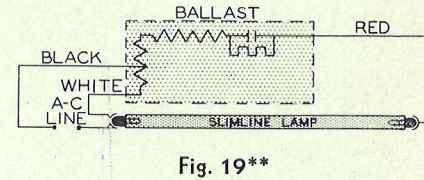
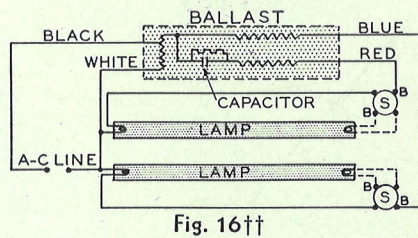
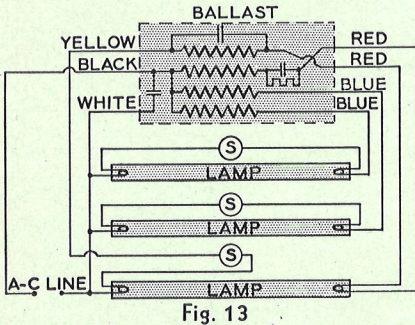
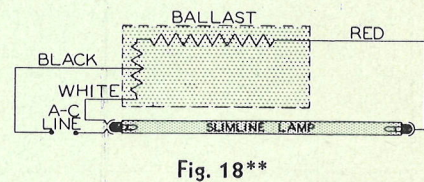
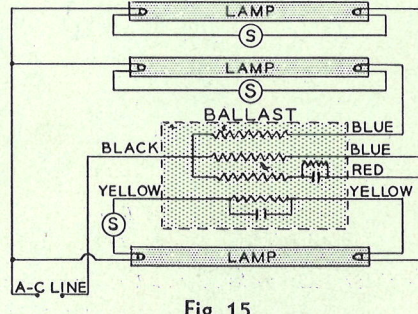
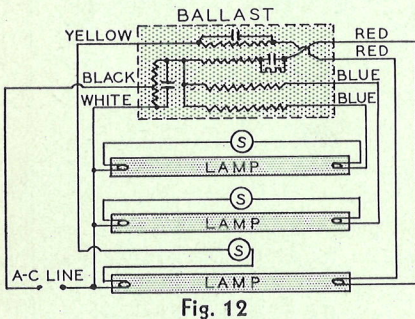
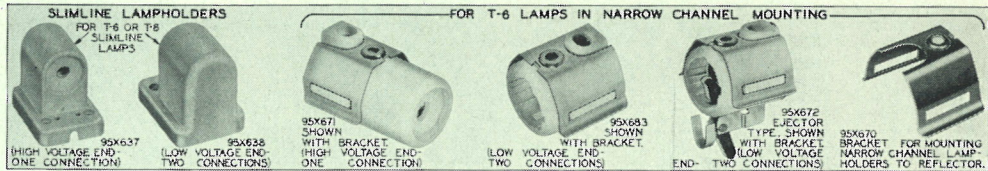
Lamp Size	Lamp Watts	Lamp Current, Amps.	Catalog Number	List Price Each	Std. Pkg.	Approx. Size, Inches	Weight, Pounds	Approx. Watts Loss	Approx. Power Factor	Line Current, Amps.	Wiring Diagram Fig. No.
42T6	16	0.1	59G501	\$ 4.50	10	2½ x 3½ x 9½	6	11	45	0.50	18
	16		59G533	6.75	10	2½ x 3½ x 9½	6	10	95★	0.35	19
	2-16		59G565	7.75	10	2½ x 3½ x 9½	7	11.5	95★	0.40	20
	25	0.2	59G505	5.00	10	2½ x 3½ x 9½	7½	15.5	32	0.90	18
	25		59G537	8.00	4	2½ x 3½ x 11¾	9	17	95★	0.56	19
	2-25		59G569	9.00	4	2½ x 3½ x 11¾	8¾	18	95★	0.65	20
64T6	24	0.1	59G509	5.00	10	2½ x 3½ x 9½	7	12.5	45	0.70	18
	24		59G533	6.75	10	2½ x 3½ x 9½	6	10	95★	0.35	19
	2-24		59G573	8.75	4	2½ x 3½ x 11¾	8½	15	95★	0.60	20
	39	0.2	59G513	5.75	10	2½ x 3½ x 9½	8½	22	40	1.40	18
	39		59G537	8.00	4	2½ x 3½ x 11¾	9	17	95★	0.56	19
	2-39		59G577	10.00	4	2½ x 3½ x 14¼	11	24	95★	1.0	20
72T8	22	0.1	59G509	5.00	10	2½ x 3½ x 9½	7	12.5	45	0.70	18
	22		59G533	6.75	10	2½ x 3½ x 9½	6	10	95★	0.35	19
	2-22		59G573	8.75	4	2½ x 3½ x 11¾	8½	15	95★	0.60	20
	38	0.2	59G513	5.75	10	2½ x 3½ x 9½	8½	22	40	1.40	18
	38		59G537	8.00	4	2½ x 3½ x 11¾	9	17	95★	0.56	19
	2-38		59G577	10.00	4	2½ x 3½ x 14¼	11	24	95★	1.0	20
96T8	29	0.1	59G557	7.50	10	2½ x 3½ x 9½	7	11.5	95★	0.41	19
	2-29		59G589	9.50	4	2½ x 3½ x 11¾	10	16	95★	0.72	20
	51	0.2	59G561	9.00	4	2½ x 3½ x 14¼	10	19.5	95★	0.67	19
	2-51		59G593	11.00	4	2½ x 3½ x 19¼	14	28	95★	1.30	20

Tulamp Ballast for 40-watt Instant-starting Medium or Mogul Bipin Base Lamp

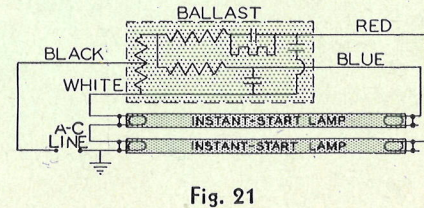
‡	2-40	0.41	59G373†	10.00	4	2½ x 3½ x 14¾	12	28	95★	0.98	21
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* Note that some ballasts may be used for two or more lamp sizes.
‡ For either 48-inch T-12 or 60-inch T-17 40-watt lamp.

† Catalog No. for universal case is 59G383.



** Jacks represent cutout type lampholders.



DIRECT - CURRENT OPERATION

If fluorescent lamps are used on direct-current circuits, special auxiliaries and proper series resistance must be employed. However, d-c operation is inferior to that of normal a-c operation in several respects: (1) the over-all efficiency of light production is much less on d-c circuits because the series resistance consumes about as much wattage as the lamp itself, (2) rated average life is only 80 per cent of the a-c value for 3 burning hours per start, (3) suitable line reversing switches to change polarity with each lamp start should be provided for 30-, 40- and 100-watt lamps and (4) lumen maintenance may be somewhat less favorable. On the other hand, the color of the light and the total light output compare favorably with normal a-c operation and problems of power factor and stroboscopic effect are, of course, eliminated.

Present glow-switch starters are not recommended for d-c operation. The footnotes below indicate the proper starter. Available d-c auxiliary and ballasts are listed at the right.

Auxiliary with Built-in Thermal Switch Type D Case

Lamp Watts	Circuit Voltage	Size, Inches	Case Type	Wt., Lbs.	Catalog No.	List Price Each	Std. Pkg.
14, 15, 20 30*	110-125 220-250	1 3/8 x 1 3/4 x 7 3/8	D	1 1/4	58G562†	\$1.75†	10

Direct-current Ballasts††—Type E Case

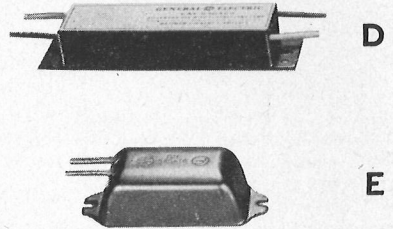
Lamp Watts	Circuit Voltage	Size, Inches	Case Type	Wt., Lbs.	Catalog No.	List Price Each	Std. Pkg.
6, 8, 14, 15, 20 30*, 40*	110-125 220-250	1 3/8 x 1 3/4 x 4 1/4	E	3/4	58G690†	.80†	10
100*	220-250	1 3/8 x 1 3/4 x 6 1/2	E	1 1/2	58G699†	.80†	10

* 30-, 40- and 100-watt lamps require 220-250 volt d-c supply and the use of a line reversing switch.

† Does not include necessary external resistance, which is not made by General Electric.

†† Use proper thermal-switch starter or manual starting switch.

Lamp Watts	D-c Lamp		Watts Loss at Voltage Shown	Resistance Required in Series with G-E Catalog No.						Ohms per Volt†
	Amps.	Volts		58G562*		58G690**		58G699***		
				120 V.	240 V.	120 V.	240 V.	120 V.	240 V.	
6	0.125	48	9	...	...	551	...	...	...	8.0
8	.140	57	9	...	...	425	...	...	...	7.1
14	.34	41	24	200	...	207	...	...	...	2.9
15 (T-8)	.26	58	16	206	...	213	...	...	...	3.8
15 (T-12)	.29	52	20	202	...	209	...	...	...	3.4
20	.31	65	17	145	...	152	...	...	...	3.2
30†	.29	103	40	...	440	...	447	...	...	3.4
32†	.37	86	57	...	...	...	391	...	...	2.7
40†	.35	114	44	...	...	...	335	...	...	2.8
100†	1.27	79	204	...	...	...	...	...	124	0.8



* D-c auxiliary with built-in thermal switch. † Use any double-pole—double-throw line reversing switch.

** Use FS-44 thermal-switch starter for 32- and 40-watt lamps and manual starting switch for 118-volt d-c operation of other lamp sizes with this ballast (G-E catalog No. 95X292 for one lamp, 95X266 for two lamps).

*** Use FS-64 thermal-switch starter.

† If actual line voltage is more than 5 per cent from value listed, the resistance required may be corrected by adding or subtracting the number of ohms indicated for each volt difference. The resistance should be within about 10 per cent of the value shown.

FL CAPACITORS FOR POWER-FACTOR CORRECTION

<p style="text-align: center;">Cross-section 1 1/8" x 2 1/8" 236 Volts, 60 Cycles</p>								Lamp Size	Circuit Volts	Mfd. Needed Per Lamp for 90% PF	Class FL Capacitors Which Will Correct the Indicated Number of Lamps to 85% Power Factor or Better. Data for 60 Cycles.				
											1	2	3	4	5
Key	Cat. No.	Volt-amperes at 60 Cycles			Length	Weight	List Price	15-W T- 8	118	4.2	S	M	L	L	SL
		118v.	208v.	236v.				15-W T-12	118	5.2	S	SM	L	SL	ML
							20-W T-12	118	4.7	S	M	L	L	SL	
							30-W T- 8	118	8.5	M	L	ML	LL	MLL	
S	21F296	25	78	100	5 5/8"	0.68	30-W T- 8	208	2.6	S	S	M	L	L	
M	21F297	39	123	157	7 5/8"	.95	40-W T-12	118	8.7	M	L	ML	LL	MLL	
L	21F298	78	245	314	12 7/8"	1.7	40-W T-12	236	2.6	S	S	M	L	L	

More than one letter means the capacitors are to be connected in parallel, across the line.

EQUIPMENT FOR SUPPRESSION OF RADIO INTERFERENCE

Radio interference from fluorescent lamps is caused by (1) direct radiation from the bulb, (2) direct radiation from the fluorescent power supply lines to the aerial and (3) line feedback from the lamp through the power circuit to the radio. The direct bulb radiation produces negligible interference if the aerial is at least 9 feet from the lamp and disturbance from line radiation and feedback can be minimized by the proper application of line filters at each lamp or fixture.

A simple form of filter is the 3-section capacitor (G-E catalog No. 25F214, List Price \$0.60), and one such unit per fixture (or for each 8 feet of lamps in a cove) will reduce line noise approximately 75 per cent. For the cases where it is desirable to further eliminate line noise, the inductive-capacitor type (G-E No. 67G400, List Price \$2.00) is recommended. This latter filter has a current-carrying capacity of 2 amperes which is about the load of four 40-watt lamps.

GENERAL ELECTRIC FLUORESCENT LAMPS

Dimensions, Electrical Data and Prices—General Line

Lamp Watts (Add auxiliary watts for total)	6	8	13	14	15 (T-8)	15 (T-12)	20	30	40 (T-12)	40 (T-17)	100
Nominal Length, Inches	9	12	21	15	18	18	24	36	48	60	60
Diameter	5/8"	5/8"	5/8"	1 1/2"	1"	1 1/2"	1 1/2"	1"	1 1/2"	2 1/8"	2 1/8"
Bulb	T-5	T-5	T-5	T-12	T-8	T-12	T-12	T-8	T-12	T-17	T-17
Approx. Lamp Amperes	0.145	0.16	0.16	0.37	0.31	0.33	0.36	0.355	0.42	0.40	1.50
Approx. Lamp Volts	48	57	100	41	55	46	59	98	106	110	71
List Price*	\$0.75	\$0.85	\$0.95	\$0.75	\$0.62	\$0.75	\$0.75	\$0.75	\$1.00	\$2.30	\$2.30
Standard Package Quantity	24	24	24	24	24	24	24	24	24	12	12

* Daylight, 4500 White or 3500 White. Soft White is 10¢ list additional for 15-, 20- and 30-watt sizes, 15¢ for 40-watt and 20¢ additional for the 100-watt size. Blue, green and pink are 15¢ list additional for 15-, 20- and 30-watt sizes; 25¢ list additional for gold and red. Comparable list additional for 40-watt size, 25¢ and 35¢.

Lumen Outputs And (Lamp Lumens per Watt)

3500 White	210(35)	330(41)	.....	490(35)	615(41)	600(40)	920(46)	1470(49)	2300(58)	.....	4200(42)
Daylight	186(31)	295(37)	.....	.....	585(39)	540(36)	800(40)	1350(45)	1920(48)	.....	3900(39)
Soft White	.....	.....	.....	.....	480(32)	465(31)	700(35)	1170(39)	1720(43)	.....	3300(33)
4500 White	198(33)	310(39)	545(42)	460(33)	600(40)	570(38)	860(43)	1380(46)	2100(52)	2100(52)	4000(40)

Brightness—Footlamberts And (Candles/Sq. in.)

3500 White	2620(5.8)	2950(6.5)	.....	1410(3.1)	2080(4.6)	1360(3.0)	1450(3.2)	2260(5.0)	1750(3.9)	.....	1850(4.1)
Daylight	2330(5.2)	2640(5.8)	.....	.....	1980(4.4)	1230(2.7)	1260(2.8)	2080(4.6)	1470(3.3)	.....	1710(3.8)
Soft White	.....	.....	.....	.....	1620(3.6)	1060(2.3)	1100(2.4)	1800(4.0)	1310(2.9)	.....	1450(3.2)
4500 White	2470(5.5)	2770(6.1)	2520(5.6)	1310(2.9)	2030(4.5)	1290(2.9)	1360(3.0)	2120(4.7)	1610(3.6)	920(2.0)	1760(3.9)

Additional Lamp Types

Instant-start lamps are available in the 40-watt T-12 size (list price \$1.20) and the 40-watt T-17 size (list price \$2.30), the latter being listed in the instant-start type only. These lamps have the base pins shorted inside the base shell, and can be operated from 40-watt ballasts specifically designed for instant-starting service.

Low-temperature 40-watt T-12 lamp gives reliable starting down to 0°F. It is identified with the letters "LT" on the marking and has a rated life of 1500 hours. List price \$1.10.

4500 White* Slimline Lamps for Multiple Operation

Length & Diam.	Lamp Watts	Lamp Amps.†	Lamp Volts**	Rated Lumens	Rated L.P.W.	Footlamberts and (Candles/Sq. in.)	List Price
42T6	16	0.1	180	880	55	1600 (3.5)	\$1.55
	25	0.2	150	1320	53	2450 (5.4)	
64T6	24	0.1	285	1370	57	1600 (3.5)	1.75
	39	0.2	230	2150	55	2450 (5.4)	
72T8	22	0.1	250	1340	61	1000 (2.2)	2.00
	38	0.2	220	2250	59	1650 (3.6)	
96T8	29	0.1	335	1800	62	1000 (2.2)	2.70
	51	0.2	295	3050	60	1650 (3.6)	

* Slimline lamps are also available in the 3500 White color at list prices quoted above. Soft white is available in 42- and 64-inch lamps at \$1.70 and \$1.90 respectively.

† Will operate in 100-200 milliamperes range. For example, the lumen and wattage values of the 96T8 lamp are 16 and 40 per cent higher at 120 and 150 milliamperes respectively than at 100 milliamperes.

** The recommended minimum starting voltage is 450 for the 42T6, 600 for 64T6 and 72T8 and 750 volts for the 96T8.

Circline Lamps

Development work on three circular fluorescent lamps in diameters of 8 1/4, 12, and 16 inches was previously announced. Data have been established on the 12-inch white CIRCLINE as follows: 32 watts, 1 1/4-inch (T-10) bulb diameter, 12" ± 1/4" outside diameter, 1600 lumens, 50 lumens per watt, .43 lamp amperes, 84 lamp volts, brightness 2040 footlamberts, rated average life 2500 hours, list price \$1.40. The 4-pin base provides for preheating each cathode; the base pins are set at an angle of 45° to the plane of the lamp.

Life Ratings

Lamp	Burning Hours per Start	Rated Average Life, Hours
6-, 8- and 13-watt T-5	3	2500
14-watt T-12	3	2500
15-watt T-8 and T-12	3	2500
20-watt T-12		4000
30-watt T-8		6000
40-watt T-12		6000
All Slimline Lamps	12	3000
100-watt T-17		4500
		6500

Notes on Lamp Data

Circuits—Standard ballasts for all lamps are available for 110-125 volt a-c circuits; 30-, 40- and 100-watt ballasts are also made for higher voltages (see page 2). Two 14-watt lamps can be operated in series on 105-125 volt a-c or d-c circuits with a special 60-volt, 1/2-ampere, S-11 intermediate screw base filament lamp as ballast and the manual starting switch shown on page 3.

Lumen Output and efficiency ratings apply at the end of 100 hours of operation, when measured at 80°F ambient and under specified test conditions.

Brightness values represent the brightness integrated across the lamp diameter in the center of the lamp. One candle/sq. in. = 452 footlamberts.

Rated Life is based on specified test conditions. This includes such factors as operation on a-c circuits at rated voltage and the use of properly designed auxiliary equipment.



Fluorescent lamps are marketed by sales districts of the Lamp Department; ballasts and capacitors 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.