

GENERAL ELECTRIC FLUORESCENT LAMPS

Dimensions, Electrical Data and Prices—General Line

Lamp Watts*	6	8	13	14	15 (T-8)	15 (T-12)	20	30	40 (T-12)	40 (T-17)	100
Nominal Length	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
Lamp Amperes†	0.145	0.16	0.16	0.395	0.31	0.33	0.36	0.355	0.42	0.40	1.50
Lamp Volts†	48	57	100	38	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
Std. Pkg. Qty.	24	24	24	24	24	24	24	24	24	12	12

* Add auxiliary watts for total.

† Approximate. Values for the 14-watt d-c lamp are 0.35 ampere and 40 volts.

** 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)	585(45)	490(35)	615(41)	600(40)	920(46)	1470(49)	2300(58)	.....	4200(42)
Daylight	186(31)	295(37)	520(40)	435(31)	585(39)	540(36)	800(40)	1350(45)	1920(48)	.....	3900(39)
Soft White	.....	.....	.....	380(27)	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)

* The light outputs of 30-watt colored lamps are approximately as follows (4500 white = 100): blue 55, green 163, pink 54, gold 67, red 9. These percentages can also be used to estimate the light output of other sizes of colored lamps.

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

3500 White	2620(5.8)	2950(6.5)	2700(6.0)	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)	2400(5.3)	1260(2.8)	1980(4.4)	1230(2.7)	1260(2.8)	2080(4.6)	1470(3.3)	.....	1710(3.8)
Soft White	.....	.....	.....	1110(2.5)	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*

Nominal Length, Inches	Diam. Inches	Bulb	Lamp Current, Ma.	Lamp Watts**	Lamp Volts	Rec. Min. Starting Voltage	List Price*	Std. Pkg. Qty.	Rated Lumens and (L.P.W.)	Footlamberts and (Candles/Sq. In.)
42	3/4	T-6	100	16	180	450	\$1.55	24	880(55)	1600(3.5)
			120	18	175				990(55)	1800(4.0)
			200	25	150				1320(53)	2450(5.4)
			300	33	130				1620(49)	3000(6.6)
64	3/4	T-6	100	24	280	600	1.75	24	1370(57)	1600(3.5)
			120	27.5	270				1570(57)	1800(4.0)
			200	39	230				2150(55)	2450(5.4)
			300	51	200				2600(51)	3000(6.6)
72	1	T-8	100	22	245	600	2.00	12	1340(61)	1000(2.2)
			120	26	240				1590(61)	1200(2.6)
			200	38	220				2250(59)	1650(3.6)
			300	51	200				2850(56)	2150(4.7)
96	1	T-8	100	29	330	750	2.70	12	1800(62)	1000(2.2)
			120	34	320				2100(62)	1200(2.6)
			200	51	295				3050(60)	1650(3.6)
			300	69	265				3950(57)	2150(4.7)

* Slimline lamps are also available in the 3500 White color at the list prices quoted above. Lumen outputs are approximately 5 per cent higher than 4500 White. Soft White slimline lamps are available in the 42- and 64-inch sizes at \$1.70 and \$1.90 list respectively. The color of slimline lamps is centered at 200 milliamperes.

** Add auxiliary watts for total.

60-CYCLE BALLASTS FOR GENERAL LINE FLUORESCENT LAMPS

For Fluorescent Lamps with Miniature Bipin Bases and Circuits using Starters

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	58G818	.....	\$ 0.90	20	1¼ x 1¼ x 4¼	¾	2	45	0.16	1 E
8	8	110-125	58G649	.....	.90	20	1¼ x 1¼ x 4¼	¾	2.8	45	0.175	1 E
13	13	110-125	59G400	.....	2.25	10	1¾ x 2¼ x 7½	2¼	7	45	0.37	2 C
	13	110-125	59G403	.....	3.75	10	1¾ x 2¼ x 9½	3	6	95★	0.19	2 C

For Fluorescent Lamps with Medium Bipin Bases and Circuits using Starters

14	14	110-125	58G86265	20	1¼ x 1¼ x 4¼	¾	3.6	44	0.395	1 E
	14	110-125	58G864	2.75	10	1¾ x 2¼ x 8¾	1½	3.6	85★	0.18	2 C
	2-14	110-125	58G914	1.20	10	1¼ x 1¼ x 6½	1½	7.2	44	0.79	3 E
15	15	110-125	58G67065	20	1¼ x 1¼ x 4¼	¾	4.5	55	0.315	1 E
	15	110-125	58G640	2.75	10	1¾ x 2¼ x 8¾	1¾	4.5	90★	0.19	2 C
	2-15	110-125	58G691	1.20	10	1¼ x 1¼ x 6½	1½	9	55	0.63	3 E
20	2-15	110-125	58G678	3.90	10	1¾ x 2¼ x 14¼	3¼	9	95★	0.35	4 C
	3-15	110-125	59G369	1.85	10	1¾ x 2¼ x 8¾	2½	13.5	55	0.945	5 C
	20	110-125	58G67165	20	1¼ x 1¼ x 4¼	¾	4.5	55	0.365	1 E
30	20	110-125	58G641	2.75	10	1¾ x 2¼ x 8¾	1¾	4.5	90★	0.23	2 C
	2-20	110-125	58G692	1.20	10	1¼ x 1¼ x 6½	1½	9	55	0.73	3 E
	2-20	110-125	58G679	3.90	10	1¾ x 2¼ x 14¼	3¼	9	95★	0.45	4 C
40	3-20	110-125	59G347	1.85	10	1¾ x 2¼ x 8¾	2½	13.5	55	1.095	5 C
	30	199-216	58G673	1.50	10	1¼ x 1¼ x 6½	1½	6	60	0.355	1 E
		220-250	58G672	1.50	10		1½	7	60	0.355	1 E
30	110-125	58G644	.....	4.25	10	1¾ x 2¼ x 14¼	3¾	9	90★	0.36	2 C
	199-216	58G643	.....	3.40	10	1¾ x 2¼ x 10½	2½	6.5	90★	0.23	2 C
	220-250	58G642	.....	3.40	10	1¾ x 2¼ x 10½	2½	7	90★	0.20	2 C
40	30	110-125	58G674	2.40	10	1¾ x 2¼ x 8¾	2½	8.5	55	0.65	2 C
	2-30	110-125	58G980	59G480	5.30	10	2¾ x 3½ x 9½	7	12.5	95★	0.7	6 A
		199-216	58G981	59G481	5.30	10		7	10.0	95★	0.4	6 A
220-250		58G982	59G482	5.30	10	7		10.5	95★	0.35	6 A	
40	110-125	58G940	.....	6.30	10	1¾ x 2¼ x 18¼	6	16	95★	0.7	6 B
	199-216	58G941	.....	6.30	10		5½	10	95★	0.4	4 B
	220-250	58G942	.....	6.30	10		6	12	95★	0.35	6 B
40	110-125	58G677	.....	2.40	10	1¾ x 2¼ x 8¾	2½	9.5	60	0.85	2 C
	40	199-216	58G676	1.50	10	1¼ x 1¼ x 6½	1½	10	60	0.42	1 E
		220-250	58G675	1.50	10		1½	10.5	60	0.42	1 E
40	110-125	58G647	.....	4.25	10	1¾ x 2¼ x 14¼	3¾	9.5	95★	0.50	2 C
	199-216	58G646	.....	3.40	10	1¾ x 2¼ x 10½	2½	8.5	95★	0.29	2 C
	220-250	58G645	.....	3.40	10	1¾ x 2¼ x 10½	2½	9.5	95★	0.26	2 C
40	240-280†	58G925	.....	4.25	10	2¾ x 3½ x 9½	6	10	90★	0.22	2 A
	2-40	110-125	58G983	59G483	5.30	10	2¾ x 3½ x 9½	7	15.5	95★	0.85	6 A
		199-216	58G984	59G484	5.30	10		7	11.5	95★	0.5	6 A
220-250		58G985	59G485	5.30	10	7		12.5	95★	0.43	6 A	
240-280†		58G922	59G486	5.30	10	7		15.0	95★	0.4	6 A	
40	110-125	58G943	.....	6.30	10	1¾ x 2¼ x 18¼	6	19	95★	0.85	6 B
	199-216	58G944	.....	6.30	10		5½	13	95★	0.5	4 B
	220-250	58G945	.....	6.30	10		6	15	95★	0.43	4 B
40	110-125	59G276	59G487	9.00	4	2¾ x 3½ x 14¾	11	23	95★	1.3	7 A	
	199-216	59G277	59G488	8.25	4		9¾	16	95★	0.7	7 A	
	220-250	59G278	59G490	8.25	4		9¾	20	95★	0.6	7 A	
	240-280†	58G996	59G492	9.00	4		10¼	20	95★	0.6	7 A	
40	199-216	.....	59G489	6.50	10	2¾ x 3½ x 9½	7	14	90★	0.7	8 A
40	220-250	.....	59G305*	6.50	10	2¾ x 3½ x 9½	7½	15.5	85★	0.64	8 A

For Fluorescent Lamps with Mogul Bipin Bases and Circuits using Starters

100	100	110-125	58G628	.....	8.00	4	2¾ x 3½ x 14¾	10¼	24	90★	1.22	9 A
		199-216	58G629	.....	8.00	4		10¼	30	90★	0.75	9 A
		220-250	58G630	.....	8.00	4		10¼	30	90★	0.65	9 A
		240-280†	58G967	.....	8.00	4		10¼	30	90★	0.5	9 A
100	2-100	110-125	58G696	59G296*	12.00	4	2¾ x 3½ x 19¼	14½	32	95★	2.1	10 A
		199-216	58G697	59G297*	12.00	4		14½	32	95★	1.25	10 A
		220-250	58G698	59G298*	12.00	4		14½	32	95★	1.1	10 A
		240-280†	58G923	59G299*	12.00	4		15	35	95★	1.0	10 A
4-100‡	250-280†	59G265	59G266*	12.00	4	2¾ x 3½ x 19¼	17½	36	95★	1.65	11 A	

For Instant Starting Fluorescent Lamps — No Starters Required**

40	2-40	110-125	59G373	59G383	10.00	4	2¾ x 3½ x 14¾	12	28	95★	0.98	12 A
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* Leads out bottom only.

† For Y-connected networks rated 254/440, 265/460 and 277/480 volts. Ballasts are connected line to neutral.

‡ Use FS-64 thermal-switch starters.

** For either 48-inch T-12 or 60-inch T-17 40-watt lamp.

60-CYCLE BALLASTS FOR SLIMLINE FLUORESCENT LAMPS

No Starters Required. Ballasts have Type A Universal Cases.* 110-125 Volts

Lamp Size	Lamp Watts	Lamp Current, ma.	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	100	59G501	\$ 4.50	10	2 3/8 x 3 1/8 x 9 1/2	6	11	45	0.50	13
	16		59G533	6.75	10	2 3/8 x 3 1/8 x 9 1/2	6	10	95★	0.35	14
	2-16		59G565	7.75	10	2 3/8 x 3 1/8 x 9 1/2	7	11.5	95★	0.40	15
	25	200	59G505	5.00	10	2 3/8 x 3 1/8 x 9 1/2	7 1/2	15.5	32	0.90	13
	25		59G537	8.00	4	2 3/8 x 3 1/8 x 11 3/4	9	17	95★	0.56	14
	2-25		59G569	9.00	4	2 3/8 x 3 1/8 x 11 3/4	8 3/4	18	95★	0.65	15
64T6	24	100	59G509	5.00	10	2 3/8 x 3 1/8 x 9 1/2	7	12.5	45	0.70	13
	24		59G533	6.75	10	2 3/8 x 3 1/8 x 9 1/2	6	10	95★	0.35	14
	2-24		59G573	8.75	4	2 3/8 x 3 1/8 x 11 3/4	8 1/2	15	95★	0.60	15
	39	200	59G513	5.75	10	2 3/8 x 3 1/8 x 9 1/2	8 1/2	22	40	1.40	13
	39		59G537	8.00	4	2 3/8 x 3 1/8 x 11 3/4	9	17	95★	0.56	14
	2-39		59G577	10.00	4	2 3/8 x 3 1/8 x 14 1/4	11	24	95★	1.0	15
72T8	22	100	59G509	5.00	10	2 3/8 x 3 1/8 x 9 1/2	7	12.5	45	0.70	13
	22		59G533	6.75	10	2 3/8 x 3 1/8 x 9 1/2	6	10	95★	0.35	14
	2-22		59G573	8.75	4	2 3/8 x 3 1/8 x 11 3/4	8 1/2	15	95★	0.60	15
	38	200	59G513	5.75	10	2 3/8 x 3 1/8 x 9 1/2	8 1/2	22	40	1.40	13
	38		59G537	8.00	4	2 3/8 x 3 1/8 x 11 3/4	9	17	95★	0.56	14
	2-38		59G577	10.00	4	2 3/8 x 3 1/8 x 14 1/4	11	24	95★	1.0	15
96T8	29	100	59G557	7.50	10	2 3/8 x 3 1/8 x 9 1/2	7	11.5	95★	0.41	14
	2-29		59G589	9.50	4	2 3/8 x 3 1/8 x 11 3/4	10	16	95★	0.72	15
	51		59G561	9.00	4	2 3/8 x 3 1/8 x 14 1/4	10	19.5	95★	0.67	14
	2-51	200	59G593	11.00	4	2 3/8 x 3 1/8 x 19 1/4	14	28	95★	1.30	15

* Note that some ballasts may be used for two or more lamp sizes.

Ballasts for Operating Slimline Lamps at Other Currents

General Electric ballasts for operation of Slimline lamps at 120 and 300 milliamperes are now being designed. Present schedules indicate that they will become available during the fourth quarter of 1947. These ratings, together with the existing 200-ma. design, will cover the more popular range of illumination levels.

60-CYCLE BALLASTS FOR CIRCLINE FLUORESCENT LAMPS

Lamp Watts	Circuit Voltage	Catalog Number	List Price Each	Std. Pkg.	Approx. Size, Inches	Weight, Pounds	Approx. Watts Loss	Approx. Power Factor	Line Current, Amps.	Fig. No.	Case Type	
22	22	110-125	59G419	\$0.90	20	1 1/4 x 2 x 4 3/4	1 1/4	4.5	50	0.39	16	E
	22	110-125	59G428	3.50	10	1 3/8 x 2 1/4 x 8 3/4	2	4.5	90★	0.25	17*	C
	1-22	110-125	59G429	6.00	10	1 3/8 x 8	6 1/2	14	95★	0.63	18	F
	1-32											
32	1-22	110-125	59G443	6.00	10	2 3/8 x 3 1/8 x 9 1/2	6 1/2	14	95★	0.60	18	A
	1-32											
	32	110-125	59G420	2.50	10	1 3/8 x 6	4	8.5	50	0.67	17	F
	32	110-125	59G440	2.50	10	1 1/4 x 2 1/4 x 8 3/4	3	8.5	50	0.67	17	C
	32	110-125	59G425	4.75	10	1 3/8 x 8	6	8	90★	0.38	17	F
	2-32	110-125	59G424	6.00	10	1 3/8 x 8	7	16	95★	0.73	19	F
	2-32	110-125	59G442	6.00	10	2 3/8 x 3 1/8 x 9 1/2	6 1/2	16	95★	0.73	19	A
	59G418†	.20	50	5/8 x 5 3/4	0.3
.....	.....	.....	59G441‡	.50	50	1 1/4 x 2 x 9 1/4	0.12	.....	.....	.....	.....	.....

* Except that blue wire comes out of the other end of the ballast.

† Cat. No. 59G418 is a junction box for all ballasts of circular construction.

‡ Cat. No. 59G441 is an adaptor mounting for 59G440 only. The adaptor is designed to become a structural part of the table-lamp stem.

DIRECT-CURRENT OPERATION

Lamp Watts	D-c Lamp		Watts Loss at Voltage Shown	Ohms in Series with			Ohms per Volt†	D-C Ballasts		
	Amps.	Volts		58G690*		58G699**		Cat. No.	58G690	58G699
				120 V.	240 V.	240 V.				
6	0.125	48	9	551	...	...	8.0	Lamp Watts 110-125V.	6, 8, 14, 15, 20	.....
8	.140	57	9	425	...	...	7.1			
14††	.35	40	24	207	...	...	2.9			
15 (T-8)	.26	58	16	213	...	...	3.8	220-250V.	30‡, 40‡	100‡
15 (T-12)	.29	52	20	209	...	...	3.4			
20	.31	65	17	152	...	...	3.2	Size, inches	1 1/2 x 1 3/4 x 4 1/4	1 3/2 x 1 3/4 x 6 1/2
30‡	.29	103	40	...	447	...	3.4			
32‡	.37	86	57	...	391	...	2.7	Case Type	E	E
40‡	.35	114	44	...	335	...	2.8	Weight, lbs.	3/4	1 1/2
100‡	1.27	79	204	...	...	124	0.8	List Price	\$0.80‡‡	0.80‡‡

* 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. See Fig. 20).

** Use FS-64 thermal-switch starter (See Fig. 20).

† 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.

†† Lamp volts and current shown are for the 14-watt d-c lamp.

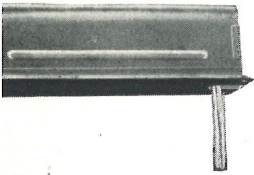
‡ Use any double-pole — double-throw line reversing switch. A 220-250 volt d-c supply is necessary for 30-, 40- and 100-watt lamps.

‡‡ Does not include necessary external resistor, which is not made by General Electric.

CASE TYPES



A—Standard Case



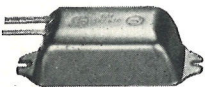
A—Universal Case



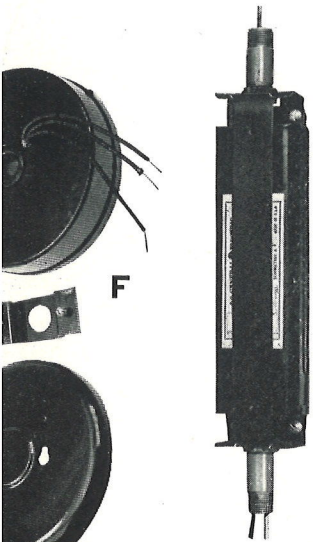
B



C



E




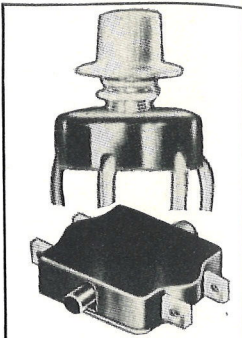
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59G440 with 59G441 Adaptor Mounting
59G418 Junction Box

power factor ballasts are recommended. Where other ballasts are the power factor correction factors listed on Page 7 are recommended.

REPLACEABLE STARTERS AND MANUAL STARTING SWITCHES

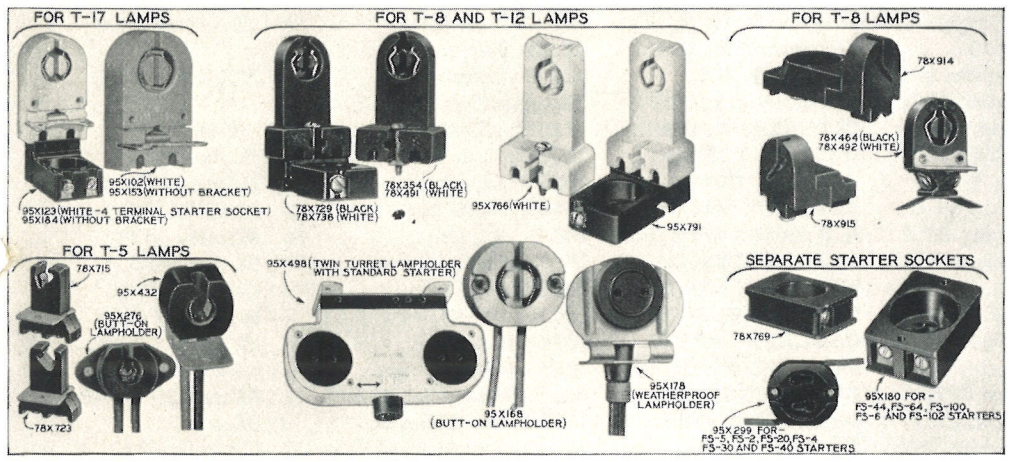
Lamp Size	 FLUORESCENT STARTERS											
	6-Watt 8-Watt	20-Watt 15-Watt 14-Watt	20-Watt 15-Watt 14-Watt	40-Watt 30-Watt 13-Watt	30-Watt	32-Watt	40-Watt	40-Watt	100-Watt	100-Watt	100-Watt	100-Watt
List Price, Each*	\$0.40	\$0.26	\$0.72	\$0.26	\$0.80	\$0.30	\$0.72	\$0.80	\$0.80	\$1.10	\$0.80	\$1.10
Standard 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 circine channel. \$0.60
 *In Std. Pkg. Quantities

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

LAMPHOLDERS FOR GENERAL LINE FLUORESCENT LAMPS



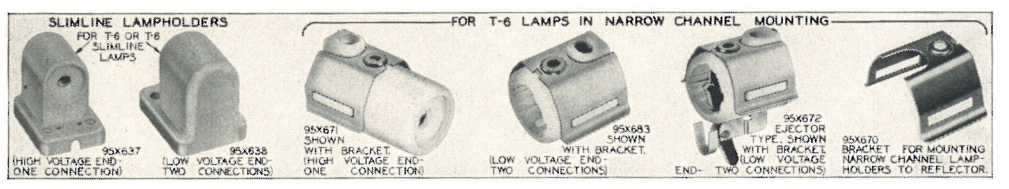
LAMPHOLDERS AND ASSEMBLIES

List Price, Each in Std. Pkg. Quantities

78X354	\$0.14	(100)	95X180	\$0.268	(50)
78X464	.18	(100)	95X184	.638	(50)
78X491	.16	(100)	95X186	.651	(50)
78X492	.20	(100)	95X188†	.638	(50)
78X715	.325	(50)	95X206	.638	(50)
78X723	.325	(50)	95X217**	.20	(100)
78X729	.28	(100)	95X276	.14	(100)
78X736	.30	(100)	95X291	.30	(100)
78X769	.14	(100)	95X299*	.16	(100)
78X914	.484	(100)	95X312	.19	(100)
78X915	.264	(100)	95X432	.16	(50)
95X102	.378	(50)	95X498	1.26	(50)
95X123	.651	(50)	95X766	.16	(100)
95X153†	.369	(50)	95X791	.30	(100)
95X168	.21	(100)	95X836‡	.30	(100)
95X178	.66	(100)			

† Same as 95X102 but without bracket.
 †† Same as 95X186 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.
 ‡ Same as 95X791 but with reversed starter socket.

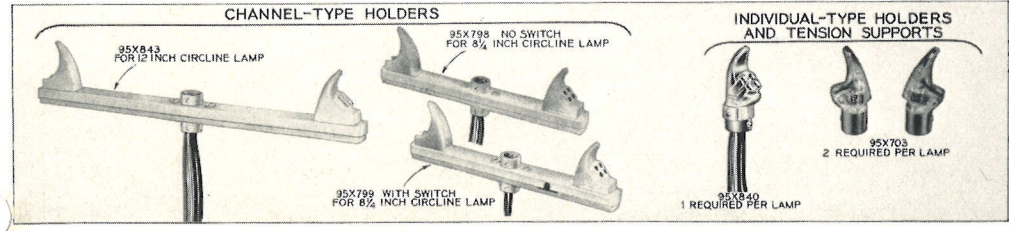
LAMPHOLDERS FOR SLIMLINE FLUORESCENT LAMPS



95X637	\$0.77	(100)
95X638	.77	(100)
95X670	.048	(100)
95X671	.704	(100)
95X672	.814	(100)
95X683	.638	(100)
95X787*	.60	(100)
95X789*	.68	(100)

* Butt-on type.

LAMPHOLDERS FOR CIRCLINE FLUORESCENT LAMPS



95X843*	\$1.614	(100)
95X857*	2.215	(100)
95X840	.652	(150)
95X703	.254	(500)
95X841**	1.16	(250)
95X798	1.614	(100)
95X799	2.215	(100)

* Cat. No. with built-in switch is 95X857.
 ** Set of three (one 95X840, two 95X703).

WIRING DIAGRAMS

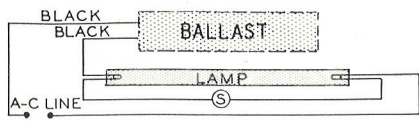


Fig. 1

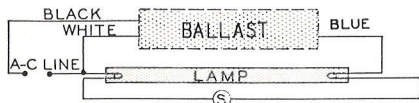


Fig. 2

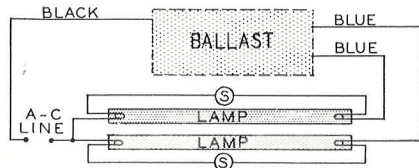


Fig. 3

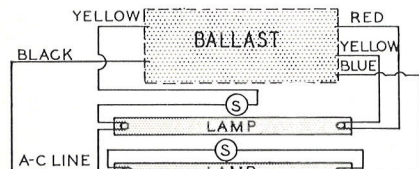


Fig. 4

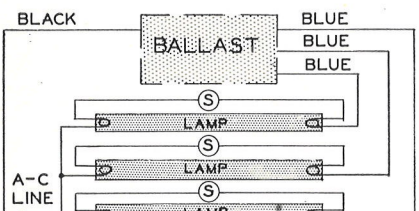


Fig. 5

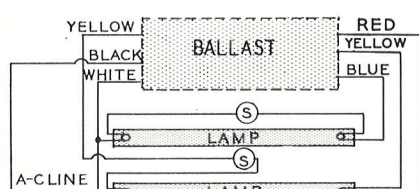


Fig. 6

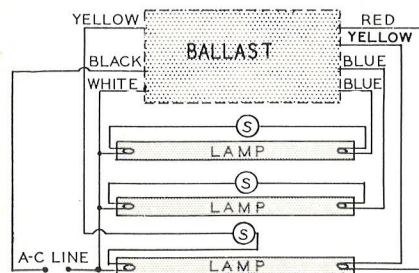


Fig. 7

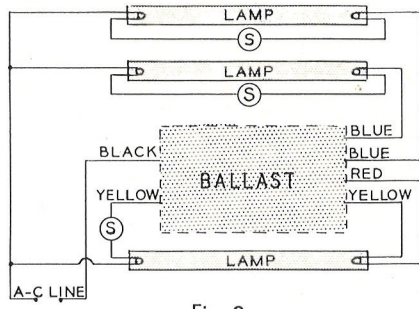


Fig. 8

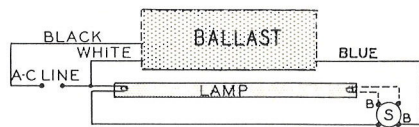


Fig. 9††

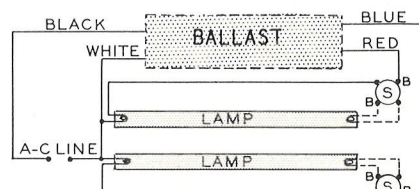


Fig. 10††

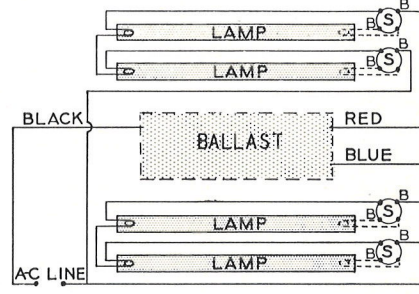


Fig. 11††

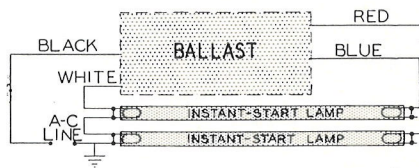


Fig. 12

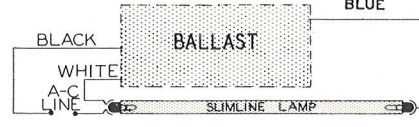


Fig. 13



Fig. 14

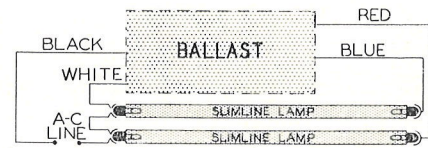


Fig. 15

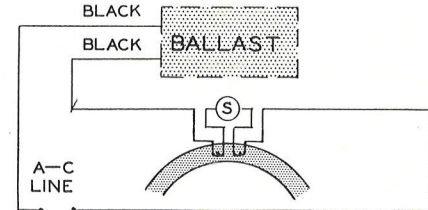


Fig. 16

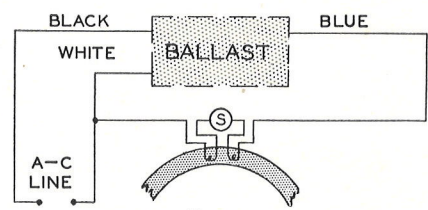


Fig. 17

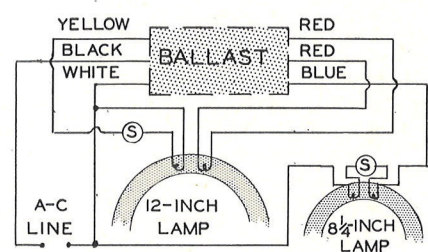


Fig. 18

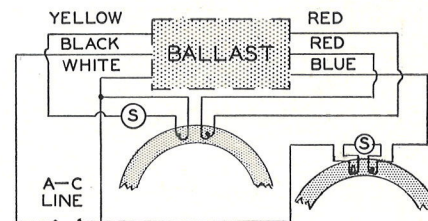


Fig. 19

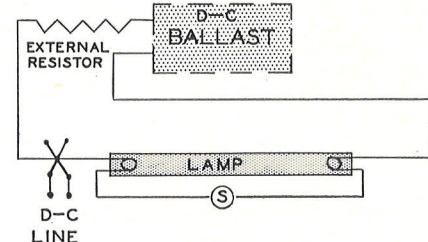


Fig. 20

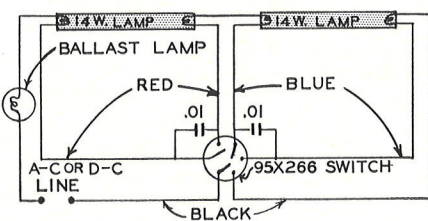


Fig. 21 Two-in-series 14-watt circuit with filament-lamp ballast.

†† B-Brass terminal on starter socket, where combination lampholder and starter socket assemblies are used, the dotted connections are already made internally (Figs. 9, 10 and 11).

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 3500 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 \$1.75.

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. Either FS-12 automatic starters or manual starting switches can be employed.

Fluorescent-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
32-watt Circline Lamps	3	2500
15-watt T-8 and T-12	3 6 12	2500 4000 6000
20-watt T-12		
30-watt T-8		
40-watt T-12		
All Slimline Lamps	3 6 12	3000 4500 6500
100-watt T-17		

NOTES ON LAMP DATA

Line Voltages — Standard ballasts for all fluorescent lamps are available for 110-125-volt a-c circuits; 30-, 40- and 100-watt ballasts are also made for higher voltages as shown on page 3. Fluorescent lamps are not purchased for any specified line voltage.

Frequency — Fluorescent lamps can be operated on 50-cycle systems if ballasts designed for that service are employed, as well as certain other frequencies for which special service ballasts are obtainable. More complete information on ballasts will be found in publication GEA-3293 available from G-E Apparatus Department district sales offices.

Instant-starting Lamps — 40-watt T-12 and T-17 instant-starting lamps have their base pins shorted inside the base shell and the primary-circuit cutout action is accomplished with ordinary lampholders. For more complete information on lampholders and starters see publication 57-312 obtainable from district sales offices of the G-E Appliance and Merchandise Department.

Lumen Output and efficiency ratings apply at the end of 100


hours operation, where measured at 80°F ambient temperature and under specified test conditions.

Brightness values represent the 100-hour brightness integrated across the lamp diameter in the center of the lamp. One candle/sq. in. = 452 footlamberts.

14-watt Lamp Circuits — In addition to operation from standard ballasts listed on page 3, two 14-watt lamps can be used in series on 110-125-volt a-c circuits, and on well-regulated 115-125-volt d-c systems with a 60-volt, 1/2-ampere S-II filament lamp as ballast. For lower d-c line voltages a special ballast lamp must be provided. The circuit employs a manual starting switch (G-E Catalog No. 95X266 — see Page 5) connected as shown in Fig. 21.

Rated Life is based on specified test conditions, including the operation on a-c circuits at rated voltage and the use of properly designed auxiliary equipment. On d-c systems, the rated average life is only 80 per cent of the a-c value for 3 burning hours per start.

FL CAPACITORS FOR POWER-FACTOR CORRECTION

 Cross-section 1 1/8" x 2 1/8" 236 Volts, 60 Cycles							Lamp Size	Circuit Volts	Mfd. Needed Per Lamp for 90% PF	Class FL Capacitors Which Will Correct the Indicated Number of Lamps to Approximately 90% Power Factor. Data for 60 Cycles.**				
										1	2	3	4	5
				15-W T- 8	118	4.2	S	M	L	SL	ML			
				15-W T-12	118	5.2	S	SM	L	ML	SML			
				20-W T-12	118	4.7	S	SM	L	ML	SSL			
				30-W T- 8	118	8.5	M	SL	ML	LL	LLL			
				30-W T- 8	208	2.6	S	S	M	L	L			
				40-W T-12	118	8.7	M	SL	ML	LL	LLL			
				40-W T-12	236	2.6	S	S	M	L	L			

* FL Capacitor for correcting low power factor 32-watt circline ballasts to 90 per cent. Can only be used on 118-volt circuits. The 21F306 is supplied with a bracket dimensioned to mount the capacitor on the lamp-stem conduit.
 ** 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 available in two designs. G-E Catalog No. 25F980 (list price \$0.53) should

be used in portable fixtures where it is impractical to ground the frame of the unit. Catalog No. 25F214 (List price \$0.60) is applicable for permanently wired and grounded fixtures and one such filter per fixture (or for each 8 feet of lamps in a cove) will reduce line noise approximately 75 per cent.

For cases where it is desirable to further eliminate line noise, the inductive-capacitor type (G-E Catalog No. 59G635, list price \$2.00) is recommended. This filter has a current-carrying capacity of 2 amperes which is about the load of four 40-watt fluorescent lamps.

LAMP DEPARTMENT
GENERAL  ELECTRIC
COMPANY

SALES DISTRICTS
 (To Obtain Sales and Technical Information)

CITY

(Zone)		
187 Spring St., N. W.	3	WAlnut 9767
50 High St.	10	HANcock 1680
901 Genesee Bldg.	2	CLeveland 3400
516 Johnston Bldg.	2	4-8614
231 So. LaSalle St.	4	DEArborn 4712
36 E. Fourth St.	2	DUnbar 2460
1320 Williamson Bldg.	14	CHerry 1010
1801 North Lamar St.	2	Central 7711
1863 Wazee St.	2	MAin 6141
1400 Book Tower	26	CHerry 6910
200 East 16th Ave.	16	NORclay 3568
601 West Fifth St.	13	MiChigan 8851
500 Stinson Blvd.	13	GRanville 7286
570 Lexington Ave.	22	Wick. 2-6300
1614 Campbell St.	7	HIghgate 4-7340
1405 Locust St.	2	KIngsley 5-3336
535 Smithfield St.	22	GRant 3272
1238 N. W. Glisan St.	9	BEacon 2101
710 No. Twelfth Blvd.	1	CHestnut 8920

ATLANTA, GA.
BOSTON, MASS.
BUFFALO, N. Y.
CHARLOTTE, N. C.
CHICAGO, ILL.
CINCINNATI, OHIO
CLEVELAND, OHIO
DALLAS, TEXAS
DENVER, COLO.
DETROIT, MICH.
N. KANSAS CITY, MO.
LOS ANGELES, CALIF.
MINNEAPOLIS, MINN.
NEW YORK, N. Y.
OAKLAND, CALIF.
PHILADELPHIA, PA.
PITTSBURGH, PA.
PORTLAND, ORE.
ST. LOUIS, MO.

SERVICE DISTRICTS
 (To Order Lamps and to Obtain Shipping
 and Accounting Information. Local Ware-
 house Stocks maintained at these Points)

(Zone)		
488 Glenn St., S. W.	—	WAlnut 9769
27 Burlington Ave.	15	COM'wealth 0215
901 Genesee Bldg.	2	CLeveland 3400
Atlanta Service District		
431 W. Pershing Rd.	9	BOUlevard 7100
Cleveland Service District		
1133 E. 152nd St.	10	LIberty 1700
1801 No. Lamar St.	2	Central 7711
1863 Wazee St.	2	MAin 6141
1448 Wabash Ave.	16	RAndolph 9650
200 E. 16th Ave.	16	NORclay 3568
1855 Industrial St.	21	TUcker 2463
500 Stinson Blvd.	13	GRanville 7286
133 Boyd St. (Newark, N. J.)	3	BIgelow 3-4500
1614 Campbell St.	7	HIghgate 4-7340
32nd and Walnut Sts.	4	EVERgreen 6-9600
601 E. General Robinson St.	12	FAirfax 9973-4-5
1238 N. W. Glisan St.	9	BEacon 2101
710 No. Twelfth Blvd.	1	CHestnut 8920

GENERAL OFFICES, NELA PARK, CLEVELAND 12, OHIO



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.