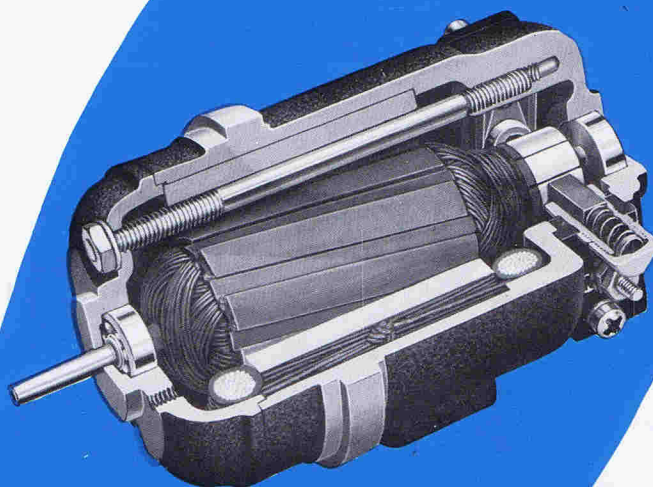


ELINCO



COMMUTATOR

MOTORS

Holliday-Hathaway Co., Inc.
390 PLANDOME ROAD
MANHASSET, L. I., NEW YORK
Tel: Manhasset 7-7300

ELECTRIC INDICATOR COMPANY, INC.
SPRINGDALE, CONN., U.S.A.



PRECISION EQUIPMENT

"ELINCO" was founded 28 years ago by engineers who recognized the need for more precise indicating equipment than was then available. The organization has since grown and expanded until it now embraces nearly all fields of fractional horsepower instrument type motors and generators.

ARMED FORCES USE "ELINCO"

Tens of thousands of the company's units received wide usage by the military services throughout World War II, on shore, ship and aircraft, and in nearly every corner of the globe.

RESEARCH AND DEVELOPMENT

"ELINCO'S" aggressive post-war research and development, with an ever-increasing emphasis on commercial business, resulted in still further expansion. As a result, the company now occupies a new modern, single-story structure in Springdale, northern suburb of Stamford, Connecticut.

SATISFIED CUSTOMERS

So strong has been the company's financial structure, that it has been able consistently to finance its own expansion, without recourse to outside borrowing. Primarily responsible for this agreeable situation have been mutually profitable operations with satisfied customers comprising hundreds of small companies along with many of America's largest and best known corporations.

PRODUCTION ABILITY

Few companies are better equipped, in terms of background or present facilities, to tackle engineering and production problems in the fields of automatic controls, control equipment, instruments and feed-back systems, in fact, wherever precise accuracy or measurement, severe operating conditions or highly specialized applications are required.

LEADERSHIP

An acknowledged leader in this field for more than a quarter of a century, "ELINCO" continues to solicit additional problems, old or new, relating to fractional horsepower instrument type motors and generators.

ELECTRIC INDICATOR COMPANY, INC., SPRINGDALE, CONN.

ELINCO

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ELINCO COMMUTATOR MOTORS

"ELINCO" Commutator Motors are precision built to the highest standards. Every unit is custom tailored and tested to meet individual customer specifications. Component parts of the motor are accurately sized and fitted, bearing bores are held to .0001. The concentricity between bearing bores and the bore of the laminations give uniform air gap, high efficiency and quiet operation. Every unit is dynamically balanced, every commutator diamond turned and brushes adjusted to give long brush life. Motor parts are given rigid inspection through every stage of manufacture and final 100% tests assure uniformity of the finished product.

Commutator Motors are available as D.C. Permanent Magnet, D.C. Shunt, Governor Motors or Series A.C.-D.C. Universal Motors.

GENERAL ELECTRICAL CHARACTERISTICS

HORSEPOWER RATINGS FOR FULL LOAD

"CB" Frame	1/1000 to 1/35 HP
"B", "F", "BG" and "FG" Frames	1/1000 to 1/35 HP
"FB" and "FBG" Frames	1/500 to 1/20 HP
"ASC" and "ASCG" Frames	1/80 to 1/10 HP
"ALC" and "ALCG" Frames	1/50 to 1/6 HP

SPEED RATINGS FOR FULL LOAD

Standard speed ranges are from 1200 RPM to 10,000 RPM. For special application, motors can be designed for speeds up to 15,000 RPM.

NOTE: For each frame size, lower horsepower ratings would correspond to the lower speeds.

VOLTAGE RANGES

For the "CB", "B", "F" and "FB" Frames, ranges are from 6 volts to 115 volts. Range for the "A" Frame is from 6 volts to 230 volts. Any "ELINCO" D.C. Commutator Motor can be built for governor control.

BRUSHES

"CB", "B", "F" and "FB" Frames use 3/16 in. square type brushes, silver graphite with heat treated beryllium copper springs. The "A" Frame uses 3/16 in. x 1/4 in. brushes, silver graphite with heat treated beryllium copper springs.

WINDINGS

Units can be wound to meet a wide variety of other specifications. If none of the standard units meet your requirements, send us your specifications.

TYPICAL PERFORMANCE CURVES

PERMANENT MAGNET MOTORS

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"CB", "B" and "F" Frames — Curve No. 202	page 16
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"FB" Frame — — — Curve No. 219	page 17

SHUNT MOTORS

"B" and "F" Frames — — Curve No. 307	page 17
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SERIES MOTORS

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UNIVERSAL MOTORS

"B" and "F" Frame — — Curve No. 310	page 19
"FB" Frame — — — Curve No. 224	page 18
"ASC" Frame — — — Curve No. 236	page 18

SEPARATELY EXCITED SHUNT MOTORS

"ASC" Frame — — — Curve No. 308	page 19
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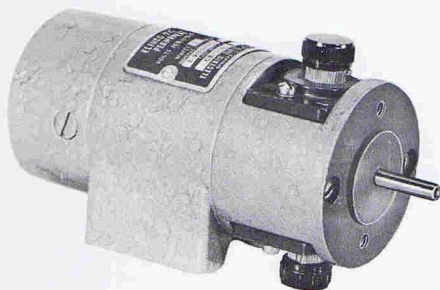
D.C. SHUNT MOTORS

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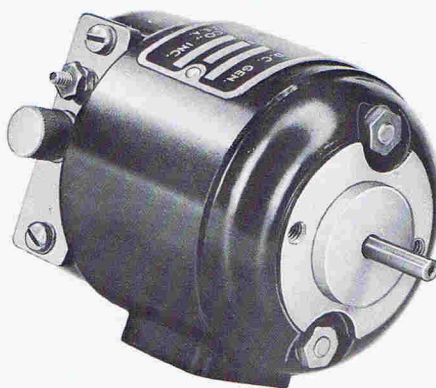
SPLIT FIELD SERIES WOUND MOTORS

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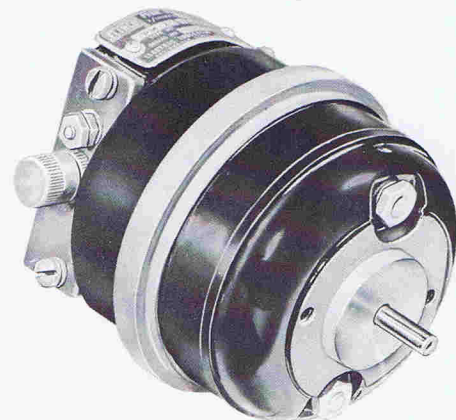
ELINCO COMMUTATOR MOTORS



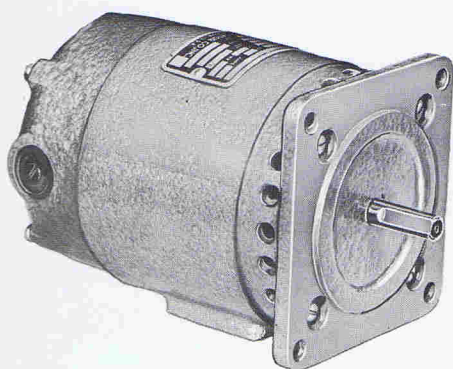
"CB" FRAME
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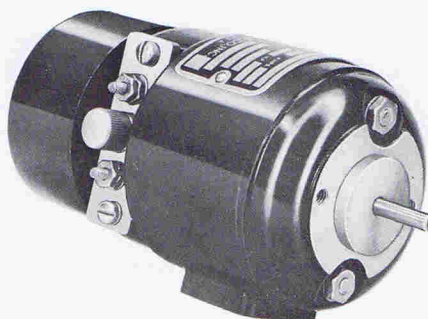
"B" FRAME
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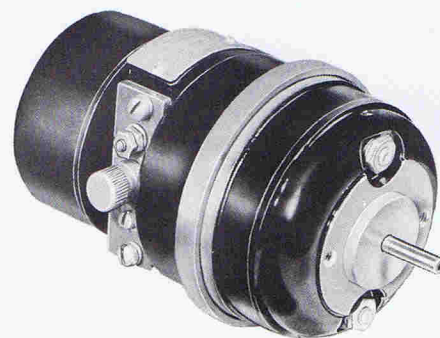
"F" FRAME
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"ASCJR" & "ALCJR" FRAMES
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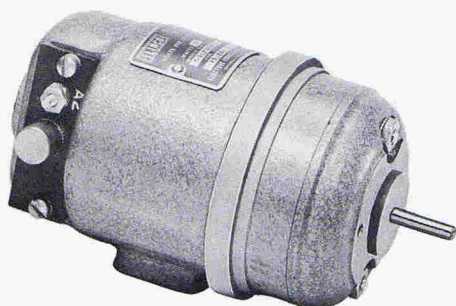
"BG" FRAME
SEE PRINT **A-3730** PAGE **22**



"FG" FRAME
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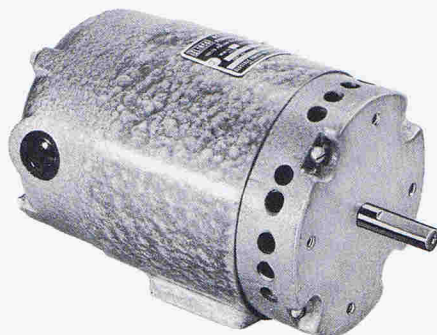
ELINCO

ELINCO COMMUTATOR MOTORS



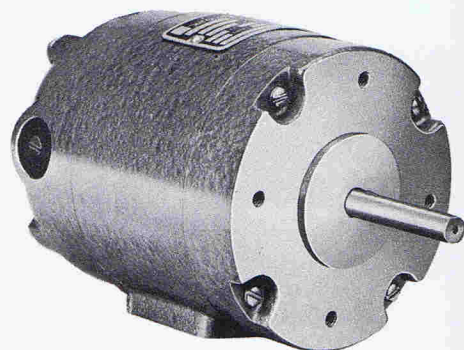
"FB" FRAME

SEE PRINT **A-2539** PAGE **20**



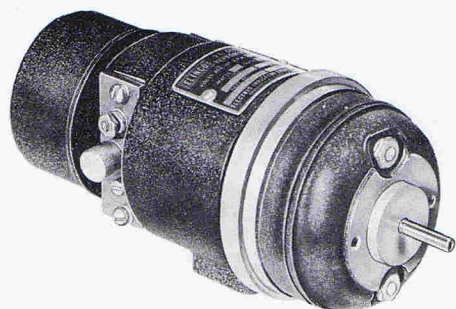
"ASCNR" & "ALCNR" FRAMES

SEE PRINT **A-3722** PAGE **21**



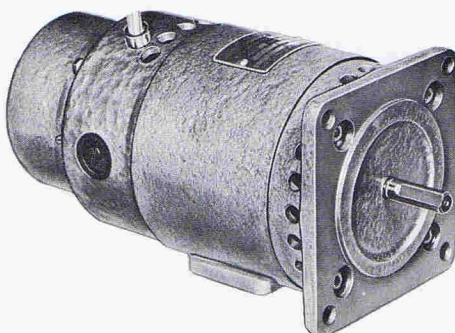
"ASCFE" & "ALCFE" FRAMES

SEE PRINT **A-3722** PAGE **21**



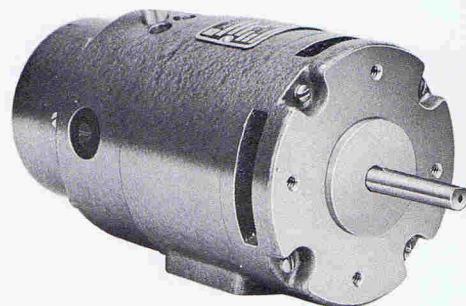
"FBG" FRAME

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**"ASCJRG" & "ALCJRG"
FRAMES**

SEE PRINT **A-3729** PAGE **23**



**"ASCFRG" & "ALCFRG"
FRAMES**

SEE PRINT **A-3792** PAGE **23**

SHAFTS

Stainless steel shafts as dimensioned are standard, but may be furnished to other dimensions, preferably in $\frac{1}{8}$ " increments, or with special features (spline, slot, flat or double end shafts, etc.). Special features or dimensions can be supplied.
NOTE: "CB" units can not be furnished with double end shafts.

SPECIAL TREATMENTS

Humidity	High Temperature	Special shafts
Stainless steel bearings	Fungus	Special mountings
Altitude	Shock requirements	

FRAME OUTLINE AND MOUNTING DATA

Print A-2539, Page 20

- Figure 1 — "CB" frame, horizontal brushes, base or face mounting
- Figure 2 — "CB" frame, vertical brushes, base or face mounting
- Figure 3 — "B" frame, base mounting
- Figure 4 — "F" frame, flange mounting
- Figure 5 — "FB" frame, base or flange mounting

Print A-3722, Page 21

- Figure 1 — "ASC" and "ALC" frames, base mounting
- Figure 2 — "ASCJR" and "ALCJR" frames, base or flange mounting
- Figure 3 — "ASCNR" and "ALCNR" frames, base or face mounting
- Figure 4 — "ASCFR" and "ALCFR" frames, face or base mounting

Print A-3730, Governor Motors, Page 22

- Figure 1 — "BG" frame, base mounting
- Figure 2 — "FG" frame, flange mounting
- Figure 3 — "FBG" frame, flange or base mounting

Print A-3729, Governor Motors, Page 23 (Split Ring Governors)

- Figure 1 — "ASCG" and "ALCG" frames, base mounting
- Figure 2 — "ASCGJR" and "ALCGJR" frames, base or flange mounting
- Figure 3 — "ASCGNR" and "ALCGNR" frames, base or face mounting
- Figure 4 — "ASCGFR" and "ALCGFR" frames, face or base mounting

Print A-3728, Governor Motors, Page 24 (Concentric Ring Governors)

- Figure 1 — "ASCG" and "ALCG" frames, base mounting
- Figure 2 — "ASCGJR" and "ALCGJR" frames, base or flange mounting
- Figure 3 — "ASCGNR" and "ALCGNR" frames, base or face mounting
- Figure 4 — "ASCGFR" and "ALCGFR" frames, face or base mounting

AMBIENT TEMPERATURE

Standard units designed to operate from -40° to $+55^{\circ}\text{C}$. Many units specially designed for higher ambients with Class A insulation. For high operating temperatures special units can be wound with Class H insulation and silicon grease in bearings.

FINISH

Anodize per Army-Navy specifications, dichromate seal, finished with baked synthetic enamel. "B", "F" and "FB" frames in black enamel. "A" frame in blue mottletone. Army olive drab, navy gray or dull black enamel are also available. Other colors may be furnished on request.

FRAME MATERIAL

Cast Aluminum

STATOR

Wound with double-formex and impregnated per Army-Navy specifications.

BEARINGS

Double Shielded ball bearings, factory greased per MIL specifications.

WEIGHT

"B" Frame 18.5 oz.
"F" Frame 18.5 oz.
"CB" Frame 20 oz.

"FB" Frame 32 oz.
"BG" Frame 21.5 oz.
"FG" Frame 21.5 oz.

"FBG" Frame 34 oz.
"ASC" Frame 3.25 lbs.
"ASCG" Frame 3.5 lbs.

"ALC" Frame 4.5 lbs.
"ALCG" Frame 4.75 lbs.

VENTILATION

All standard "ASC" and "ALC" frames are provided with internal cooling fans. Totally enclosed "ASC" and "ALC" units can be supplied at reduced horsepower rating.
"CB", "B", "F" and "FB" frames are all supplied in enclosed frames.

ARMATURE MOMENT OF INERTIA

"CB", "B" or "F" Frame — .521 oz. in.² or 95 gram CM²
"FB" Frame — 1.01 oz. in.² or 185 gram CM²
"ASC" Frame — 3.0 oz. in.² or 545 gram CM²
"ALC" Frame — 4.2 oz. in.² or 770 gram CM²

PERMANENT MAGNET D.C. MOTORS

Permanent magnet motors have shunt characteristics. They are often used where armature speed control is desired and it is preferable not to have another constant D.C. source to supply D.C. excitation. For a constant torque load on these motors, the motor speed will vary proportionally to the armature voltage. These motors should not be used in reversing applications where the plugging operations might tend to weaken the field and finally demagnetize the magnet. All "ELINCO" motors are designed to be reversible except where noted.

"CB" FRAME SEE PRINT A-2539 PAGE 20

Motor Type No.	HP	RPM Full Load	Volts	Full Load Amps.	No Load Speed	Locked Torque Oz. In.	Frame Figure Numbers Page 20
42	1/1000	1400	115	.02	1800	3.0	1 & 2
233	1/200	2000	75	.1	3000	6.0	1 & 2
549	1/200	2000	32	.25	3400	6.0	1 & 2
134	1/150	2000	27.5	.36	3100	5.0	1 & 2
214	1/150	3200	115	.08	4300	10	1 & 2
619	1/100	3200	115	.08	4300	10	1 & 2
77	1/100	2800	115	.12	4250	12	1 & 2
29	1/100	2800	115	.12	4250	9	1 & 2
27	1/100	2800	115	.12	4250	9	1 & 2
326	1/100	2800	115	.12	4250	10	1 & 2
219	1/100	3200	24	1.0	6000	6	1 & 2
75	1/100	2800	14	1.5	5000	8	1 & 2
218	1/100	2800	12	2.0	6000	7	1 & 2
514	1/100	6000	4.5	7.00	10000	6.5	1 & 2
521	1/50	8000	28	.9	9600	16	1 & 2
105	1/50	5000	25	1.15	6700	14	1 & 2
597	1/35	7000	24	1.25	8000	20	1 & 2

"B" or "F" FRAMES SEE PRINT **A-2593** PAGE **20**

Motor Type No.	HP	RPM Full Load	Volts	Full Load Amps.	No Load Speed	Locked Torque Oz. In.	Frame Figure Numbers Page 20
499	1/6000	1080	12	.05	1200	2.5	3 & 4
107	1/1500	800	18	.05	1200	2.5	3 & 4
171	1/1000	1600	24	.13	3000	4.5	3 & 4
41	1/800	1200	115	.06	1800	3.5	3 & 4
395	1/750	700	6	.27	1000	3.5	3 & 4
130	1/500	2200	26.5	.15	2600	4.0	3 & 4
246	1/400	1600	48	.14	3000	6.0	3 & 4
126	1/350	1000	115	.4	1700	4.5	3 & 4
178	1/350	1600	6	1.2	3800	5.5	3 & 4
98	1/350	2000	6	1.05	2680	6.5	3 & 4
113	1/300	1800	6	1.0	2500	7.0	3 & 4
12	1/300	1600	6	2.0	4200	4.0	3 & 4
573	1/250	2000	115	.04	2600	14.0	3 & 4
806	1/250	1800	24	.2	2600	7.0	3 & 4
145	1/250	1500	6	1.5	2500	7.0	3 & 4
120	1/200	2100	24	.4	4200	3.8	3 & 4
235	1/150	4000	24	.75	6500	5.5	3 & 4
14	1/150	1700	24	.75	3800	7.0	3 & 4
348	1/125	2700	6	2.4	4200	9.5	3 & 4
*35	1/100	3200	115	.13	4850	8.0	3 & 4
245	1/100	3200	24	1.0	6000	9.0	3 & 4
39	1/75	4800	110	.18	6200	12.0	3 & 4
38	1/75	3400	110	.18	5300	10.0	3 & 4
390	1/75	3350	6	8.0	7000	11.0	3 & 4
70	1/1800	600	6	.22	950	2.5	3 & 4
70	1/400	1250	12	.4	2100	6.0	3 & 4
70	1/60	6000	36	.5	7000	18	3 & 4
13	1/60	4200	12	2.2	6300	13.0	3 & 4
116	1/75	3800	6	3.2	5200	15	3 & 4
501	1/40	6500	80	.45	9600	12.0	3 & 4
631	1/35	9000	80	15	11500	16.0	3 & 4

*For Performance Curves Nos. 202, 203 & 218, See Pages 16 & 17

"FB" FRAME SEE PRINT **A-2539** PAGE **20**

Motor Type No.	HP	RPM Full Load	Volts	Full Load Amps.	No Load Speed	Locked Torque Oz. In.	Frame Figure Number Page 20
55	1/200	1800	115	.06	2100	20.0	5
570	1/200	3000	200	.02	3700	34	5
565	1/150	3000	12	1.0	5100	14	5
236	1/100	3300	6	2.5	4000	16.0	5
271	1/90	1800	24	1.0	4200	16.0	5
462	1/90	600	24	1.35	1500	16.0	5
95	1/75	3000	115	.16	3800	30.0	5
182	1/50	2600	12	2.1	3600	32.0	5
183	1/50	3500	90	.25	4300	20.0	5
186	1/50	3600	24	1.0	4800	20.0	5
362	1/50	3600	12	3.0	5000	32.0	5
†139	1/35	2500	115	.4	4400	20.0	5

†For Performance Curve No. 219, See Page 17

ELINCO

"ASC" FRAME SEE PRINT **A-3722** PAGE **21**

Motor Type No.	HP	RPM Full Load	Volts	Full Load Amps.	No Load Speed	Locked Torque Oz. In.	Frame Figure Numbers Page 21
429	1/150	1200	75	.36	1800	28.0	1, 2, 3 & 4
560	1/100	1900	115	.15	2700	20.0	1, 2, 3 & 4
588	1/75	2500	115	.2	3500	24.0	1, 2, 3 & 4
282	1/25	5500	6	13.5	7000	25.0	1, 2, 3 & 4
520	1/18	10000	115	.85	14000	38.0	1, 2, 3 & 4
635	1/18	10000	80	1.2	14000	38.0	1, 2, 3 & 4
605	1/18	10000	80	1.2	12000	37.0	1, 2, 3 & 4
589	1/17	5000	85	1.0	6000	37.0	1, 2, 3 & 4

D. C. SHUNT MOTORS

D.C. Shunt Motors maintain a speed that is quite constant over a wide range of load variations. They have high starting torque, lend themselves to speed control either through use of a rheostat for field or armature control; or, if desired, by separately exciting the field and using variations in armature voltage for speed control. In addition, they can be wound as split field motors to reverse rotation by field control. D.C. Shunt Motors are normally supplied with four (4) leads unless rotation is specified. Therefore, any of the listed Shunt Motors can be used as separately excited Shunt Motors in servo and control circuits.

"B" or "F" FRAMES SEE PRINT **A-2539** PAGE **20**

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 20
63	18	1/2500	24	800	400	.3	86	286	3 & 4
140	18	1/600	115	2300	1700	.03	1635	1450	3 & 4
97	9	1/200	6	6000	3300	3.5	9.8	.6	3 & 4
26	9	1/200	24	4200	3500	.60	185	22	3 & 4
177	18	1/200	115	3850	3200	.11	1670	400	3 & 4
88	18	1/175	115	6800	6000	.15	2540	163	3 & 4
92	18	1/150	220	6000	5000	.12	5120	610	3 & 4
78	9	1/125	6	5400	3500	3.0	6.5	1	3 & 4
163	18	1/125	115	5200	4000	.13	2350	290	3 & 4
584	18	1/85	115	4500	3600	.2	1044	199	3 & 4
167	18	1/75	115	8400	6000	.225	2000	150	3 & 4
613	18	1/50	27.5	7500	5200	1.15	117	12	3 & 4
774	9	1/40	12	7000	5500	2.5	18	1.3	3 & 4

‡For Performance Curve No. 307, See Page 17

"FB" FRAME SEE PRINT **A-2539** PAGE **20**

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 20
112	18	1/150	115	2990	2400	.16	1440	300	5
§127	18	1/125	115	4200	3700	.13	2160	185	5
150	9	1/100	6	4000	3500	3.1	7	4	5
110	18	1/75	90	3600	3000	.25	613	120	5
123	18	1/70	115	5000	3600	.20	1800	162	5
264	18	1/60	115	9600	9000	.20	1230	29	5
90	9	1/50	12	7600	6000	4.0	26	1.6	5

§For Performance Curve No. 217, See Page 17

ELECTRIC INDICATOR COMPANY, INC., SPRINGDALE, CONN.

"FB" FRAME INTERMITTENT DUTY

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 20
695	18	1/8	27	9000	7000	6	30	1.5	5

"ASC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 21
82	12	1/80	24	3000	2200	1.2	60.5	12	1, 2, 3 & 4
164	24	1/75	100	3600	3000	.25	1330	49	1, 2, 3 & 4
206	24	1/50	115	3800	3600	.40	1040	35	1, 2, 3 & 4
283	24	1/40	110	2800	1725	.50	1190	100	1, 2, 3 & 4
680	24	1/25	230/115	6400	6000	.50	5240/1310	11.5	1, 2, 3 & 4
199	24	1/25	115	5400	5000	.48	1040	110	1, 2, 3 & 4
265	24	1/25	115	9600	9400	.60	1045	9	1, 2, 3 & 4

"ALC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 21
878	24	1/40	240	1450	1200	.25	2260	525	1, 2, 3 & 4
678	12	1/35	115	1600	1200	.6	990	130	1, 2, 3 & 4
664	24	1/30	28	2250	1800	1.6	85	4.9	1, 2, 3 & 4
681	12	1/25	30	2300	2000	1.3	63	5.1	1, 2, 3 & 4
872	24	1/25	125	5300	5000	.42	1377	17.0	1, 2, 3 & 4
644	24	1/25	115	5500	5000	.45	1692	24.1	1, 2, 3 & 4
727	12	1/20	24	5400	5000	2.5	70	2	1, 2, 3 & 4
176	24	1/15	24	4100	3500	3.2	37	2.1	1, 2, 3 & 4
587	24	1/15	110	4400	4200	1.0	890	20	1, 2, 3 & 4
172	24	1/15	115	4200	3500	.65	940	28	1, 2, 3 & 4
820	24	1/10	30	6400	6000	3.7	60	4.0	1, 2, 3 & 4
636	24	1/8	115	4500	4000	1.2	1281	26.5	1, 2, 3 & 4
496	12	1/6	24	6900	6000	8.5	56	.6	1, 2, 3 & 4
794	24	1/4	115	8500	8000	2.4	950	4.3	1, 2, 3 & 4

||For Performance Curve No. 309, See Page 19

"ALC" FRAME INTERMITTENT DUTY

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 21
655	24	1/10	28	2700	1800	7.0	60	2.6	1, 2, 3 & 4
803	24	1/10	12	4250	3600	10.2	8.8	.5	1, 2, 3 & 4

SEPARATELY EXCITED SHUNT MOTORS

"B" or "F" FRAMES SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM No Load	RPM Full Load	Full Load Field Amps.	Full Load Arm. Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 20
64	18	1/170	27.5	80	3700	3100	.3	.125	87.5	125	3 & 4
93	18	1/170	100	80	4200	3300	.09	.125	1040	120	3 & 4
406	18	1/100	28	115	3850	3100	.24	.108	98	285	3 & 4
151	18	1/100	24	75	5500	4500	.17	.16	136	105	3 & 4

"FB" FRAME SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM No Load	RPM Full Load	Full Load Field Amps.	Full Load Arm. Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 20
383	18	1/100	27.5	115	4200	3500	.20	.09	138	150	5
108	18	1/100	100	80	5700	5000	.06	.150	1420	55	5

"ASC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM No Load	RPM Full Load	Full Load Field Amps.	Full Load Arm. Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 21
249	24	1/650	70	46	1800	1500	.04	.2	750	33	1, 2, 3 & 4
189	24	1/25	300	250	4600	4200	.05	.2	3820	300	1, 2, 3 & 4
¶680	24	1/25	230	115	6400	6000	.04	.5	2620	11.5	1, 2, 3 & 4
329	24	1/25	24	300	4000	3600	.24	.15	98	300	1, 2, 3 & 4
488	24	1/17	110	85	5350	5000	.10	.8	1000	5.7	1, 2, 3 & 4

¶For Performance Curve No. 308, See Page 19

"ALC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM No Load	RPM Full Load	Full Load Field Amps.	Full Load Arm. Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 21
405	12	1/90	100	24	8350	7500	.05	2.0	2200	1.2	1, 2, 3 & 4
702	24	1/15	220	115	3800	3000	.09	.55	1274	115	1, 2, 3 & 4
810	24	1/10	110	120	4200	3600	.12	.85	910	18	1, 2, 3 & 4
621	24	1/10	80	250	4100	3700	.132	.4	535	126	1, 2, 3 & 4
662	24	1/10	80	250	5400	5000	.13	1.5	600	63	1, 2, 3 & 4
340	24	1/10	135	104	6150	5500	.025	.35	4620	23	1, 2, 3 & 4
717	24	1/7	27	80	11500	10000	.4	1.4	60	2	1, 2, 3 & 4

SPLIT FIELD SHUNT MOTORS

"B" or "F" FRAMES SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM	Full Load Field Amps.	Full Load Arm. Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 20
36	18	No Load	100	100	6000	.09	.11	4.5	3 & 4
168	18	1/500	115	115	2800	.08	.095	3.5	3 & 4
372	18	1/350	80	80	1800	.08	.155	5	3 & 4
901	18	1/250	28	28	1800	.25	.25	5	3 & 4
471	18	1/170	40	27.5	3000	.06	.45	4	3 & 4
859	18	1/100	110	220	6000	.07	.05	9	3 & 4

"FB" FRAME SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM	Full Load Field Amps.	Full Load Arm. Amps.	Locked Torque Oz. In.	Frame Figure Number Page 20
202	9	1/300	110	6	1800	.05	3.5	3	5

"ALC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Field Volts	Arm. Volts	RPM	Full Load Field Amps.	Full Load Arm. Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 21
713	24	1/25	32	115	2400	.14	.44	24	1, 2, 3 & 4
415	24	1/10	135	104	5500	.02	1.5	48	1, 2, 3 & 4



"Our Engineers Can Solve Your Problems Too"

ELINCO

SERIES MOTORS

Series Motors can be used on both A.C. and D.C. The speed of a series motor varies inversely with load. Motors classified as Universal will operate successfully on both A.C. and D.C. up to the frequency at which they are rated, but they will be universal only over a limited speed and torque range. Some D.C. split field series are used as servo and torque motors where simple switching for reversible motor is desired. On 60 cycles it is possible to get speeds over 3600 RPM by use of a commutator motor, and it is possible to get considerable power from a small frame size in this type of motor.

"B" or "F" FRAMES SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 20
45	9	—	115	2700	—	.036	2.0	3 & 4
#129	9	1/475	24	6500	1600	1.5	3.5 Int. Duty	3 & 4

#For Performance Curve No. 310, See Page 19

"FB" FRAME SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Number Page 20
517	9	1/100	6	9600	3300	4.0	10.0	5
**57	18	1/100	115	13600	8500	.15	14.0	5
††152	9	1/40	6	13100	8000	4.0	11.0	5

**For Performance Curve No. 224, See Page 18

††For Performance Curve for Motor Type No. 152, See Curve 228, Page 19

"ASC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 20 & 21
242	12	1/100	6	4500	3000	4.0	14.0	1, 2, 3 & 4

"ALC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 21
379	12	1/50	28	7500	3800	1.2	21.0	1, 2, 3 & 4
435	12	1/12	28	11500	6000	3.8	28.0	1, 2, 3 & 4
‡‡494	24	1/10	115	13500	6000	1.1	56.0	1, 2, 3 & 4

‡‡For Performance Curve for Motor Type No. 494, See Curve 311, Page 18

SPLIT FIELD SERIES MOTORS

"B" or "F" FRAMES SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 20
228	18	1/1000	65	5800	3000	.1	1.5	3 & 4
874	18	1/400	40	6700	2600	.21	3	3 & 4
50	18	1/400	115	6700	2600	.08	3	3 & 4
566	18	1/250	24	7000	3000	.70	3.5	3 & 4
391	9	1/200	24	8300	3000	.6	4.0	3 & 4
40	9	1/200	110	6400	2500	.125	6	3 & 4
83	9	1/175	6	11800	3000	2.9	5	3 & 4
354	18	1/100	150	14000	6800	.12	8	3 & 4
37	18	1/75	115	13000	3600	.25	7	3 & 4

"FB" FRAME SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Number Page 20
648	18	Torque	100	5800	3600	.4	16	5
125	18	1/3000	115	2600	700	.025	1	5
133	9	1/450	24	7200	2200	.27	3	5
30	18	1/250	150	8000	4000	.06	4.5	5
46	9	1/75	115	8200	7000	.17	15	5
709	18	1/75	115	11000	3600	.15		5
56	9	1/70	24	12500	3600	1.15	14	5
622	9	1/70	6	12500	3600	4.6	14	5
66	18	1/70	60	11000	3600	.58	14	5

"ASC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 21
223	24	1/25	115	10500	6200	.63	21	1, 2, 3 & 4
665	24	Torque	28	2950	0	.65	21	1, 2, 3 & 4

"ALC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM No Load	RPM Full Load	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 21
718	12	1/20	24	9600	5000	2.8	40	1, 2, 3 & 4
278	24	1/12	220	12000	8000	.5	30	1, 2, 3 & 4

UNIVERSAL COMMUTATOR MOTORS D.C. TO 60 CYCLES

"B" or "F" FRAMES SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 20
737	18	1/200	115	4000	.15	3 & 4
240	18	1/50	115	8000	.4	3 & 4

"FB" FRAME SEE PRINT A-2539 PAGE 20

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Number Page 20
57	18	1/100	115	8500	.17	5
517	9	1/100	6	3300	4.0	5
153	18	1/130	115	10000	.45 Intermittent	5

"ASC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 21
301	24	1/20	115	6000	.7	1, 2, 3, 4
221	24	1/20	115	7000	.9	1, 2, 3, 4
192	24	1/15	115	8000	.95	1, 2, 3, 4
913	24	1/10	115	12000	1.2	1, 2, 3, 4

"ALC" FRAME SEE PRINT A-3722 PAGE 21

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 21
443	24	1/15	115	5400	1.1	1, 2, 3, 4
370	24	1/10	115	7000	1.30	1, 2, 3, 4
§§173	24	1/8	115	7000	2.2	1, 2, 3, 4
531	24	1/8	115	6000	2.0*	1, 2, 3, 4
200	24	1/6	115	12500	3.0	1, 2, 3, 4

*Rotation — Clockwise from shaft end.

§§For Performance Curve No. 236, See Page 18

"B" or "F" FRAMES SEE PRINT **A-2539** PAGE **20**

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 20
220	18	1/400	115	3600	.070	3 & 4
284	18	1/250	115	3600	.11	3 & 4
239	18	1/100	115	10000	.170	3 & 4

|||For Performance Curve No. 268, See Page 18

"ASC" FRAME SEE PRINT **A-3722** PAGE **21**

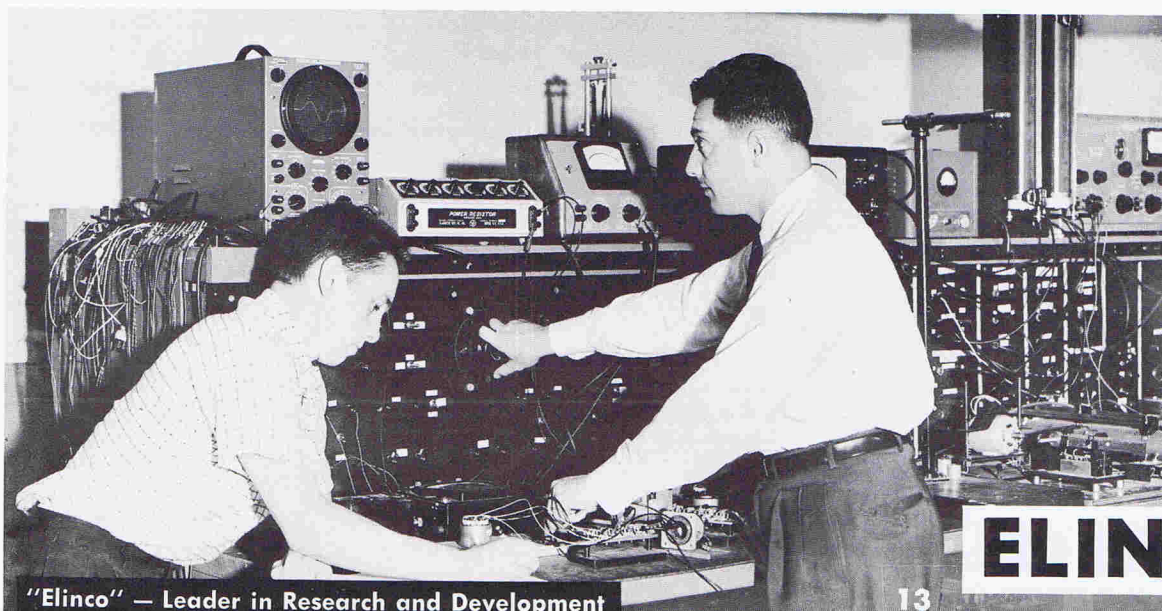
Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 21
223	24	1/25	115	6000	.65	1, 2, 3, 4

"ALC" FRAME SEE PRINT **A-3722** PAGE **21**

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 21
238	24	1/7	115	7000	1.8	1, 2, 3, 4

EXAMPLE OF SPECIAL MOTORS – TWO SPEED BY FIELD SELECTION

Motor Type No.	Comm. Bars	HP	Volts	RPM Full Load	Full Load Amps.	Frame Figure Numbers Page 21
212	24	1/20	115	8000	.65 Full Field	1, 2, 3, 4
		1/12	115	11500	.70 Half Field	
679	24	1/50	115	3000	1.0 Full Field	1, 2, 3, 4
		1/10		15000	.70 Half Field	



ELINCO

"Elinco" — Leader in Research and Development

GOVERNOR MOTORS

Governor motors are made as D.C. shunt motors or as series A.C.-D.C. motors. In the case of D.C. shunt motors the governor enables the motor to maintain constant speed over a wide range of load & voltage variations. In the case of AC/DC series universal motors, the governor limits the no load speed and enables the motor to operate at the same speed on both AC & DC. The governor also permits maintaining constant speed over a wide range of load & voltage variations.

GOVERNORS: All D.C. units are supplied with split ring governors, which, in effect, reverse the polarity on the governor brushes every half revolution, thus giving equal life on both the governor brushes. Frames available with this type of governor per drawing A-3729.

A.C. or universal units are available with concentric ring governors

per drawing A-3728. While many of the universal units have been supplied with split ring governors, some of the more recent units have concentric ring governors, which give somewhat smoother operation by eliminating some of the vibration at the expense of a longer frame length.

ACCURACY: All governor motors are guaranteed to maintain speed to $\pm 1\%$ over normal voltage and load variations. At higher speeds this accuracy increases to $\pm \frac{1}{4}$ of 1%.

ROTATION: Standard governor motors are manufactured for clockwise rotation facing shaft extension. Units are available for counter clockwise rotation when specified on purchase order.

PERMANENT MAGNET D.C. GOVERNOR MOTORS

"BG" or "FG" FRAMES SEE PRINT **A-3730** PAGE **22**

Motor Type No.	HP	RPM	Volts	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Numbers Page 22
171	1/1000	1600	24	.13	4.5	1 & 2
246	1/400	1600	48	.14	6.0	1 & 2
178	1/350	1600	6	1.2	5.5	1 & 2
145	1/250	1500	6	1.5	7.0	1 & 2
235	1/150	4000	24	.75	5.5	1 & 2
116	1/150	4500	6	1.9	15	1 & 2

"FBG" FRAME SEE PRINT **A-3730** PAGE **22**

Motor Type No.	HP	RPM	Volts	Full Load Amps.	Locked Torque Oz. In.	Frame Figure Number Page 22
271	1/90	1800	24	1.0	16.0	3

D. C. SHUNT GOVERNOR MOTORS

"BG" or "FG" FRAMES SEE PRINT **A-3730** PAGE **22**

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 22
272	9	1/250	24	1800	.6	140	16.0	1 & 2
51	9	1/175	6	4000	2.9	10.4	.4	1 & 2
52	9	1/175	12	4000	1.5	38	1.6	1 & 2
61	9	1/150	27.5	4000	1.3	140	13	1 & 2
61-A	9	1/150	27.5	6000	1.3	140	13	1 & 2
88	18	1/125	110	4000	.28	2540	163	1 & 2
92	18	1/125	220	4000	.15	5120	610	1 & 2
148	9	1/75	24	4000	1.7	90	4.4	1 & 2
826	18	1/70	6	3600	3.9	4	.3	1 & 2
827	18	1/50	6	4000	4.6	4.6	.3	1 & 2
204	9	1/50	24	5750	.8	140	13	1 & 2

INTERMITTENT DUTY

785	18	1/40	12	3600	6.7	18.1	1.16	1 & 2
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"FBG" FRAME SEE PRINT **A-3730** PAGE **22**

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 22
497	18	1/150	18	3000	.85	84	2.5	3

"ASCG" FRAME SEE PRINT **A-3729** PAGE **23**

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 23
222	12	1/100	12	1200	3.0	9	1.8	1, 2, 3, 4
254	12	1/100	24	1200	1.3	36	7.1	1, 2, 3, 4
255	12	1/50	6	2400	11.5	1.1	.08	1, 2, 3, 4
345	12	1/50	12	2400	4.0	4.2	3.2	1, 2, 3, 4
237	12	1/50	27.5	6000	5.0	9	3.2	1, 2, 3, 4

"ALCG" FRAME SEE PRINT **A-3729** PAGE **23**

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 23
277	12	1/30	12	2700	6.8	9.6	.33	1, 2, 3, 4
752	24	1/30	24	2000	3.0	40	7	1, 2, 3, 4
800	12	1/30	12	4000	4.5	18.8	.20	1, 2, 3, 4
587	24	1/15	115	4000	.80	890	19.5	1, 2, 3, 4
684	12	1/8	28	5000	7.5	.57	.44	1, 2, 3, 4
253	24	1/6	115	8800	2	2.7	4.4	1, 2, 3, 4

D. C. SERIES GOVERNOR MOTORS**"BG" or "FG" FRAMES** SEE PRINT **A-3730** PAGE **22**

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 22
433	18	1/500	115	3000	.4	75	170	1 & 2
319	9	1/85	24	3600	1.3	2.0	425	1 & 2

"ALCG" FRAME SEE PRINT **A-3729** PAGE **23**

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Number Page 23
526	12	1/12	12	3800	20	.75	.03	1, 2, 3, 4
730	24	1/12	48	3800	3	2.5	1.5	1, 2, 3, 4
734	24	1/12	125	4800	1.1	15.5	7.3	1, 2, 3, 4
211	12	1/8	12	6000	25	.75	.03	1, 2, 3, 4
227	12	1/8	24	6000	9.7	4.5	.150	1, 2, 3, 4
509	12	1/8	27	7500	7.5	4.5	.120	1, 2, 3, 4
456	12	1/8	24	8800	11	.67	.150	1, 2, 3, 4

"BG" or "FG" FRAMES SEE PRINT A-3730 PAGE 22

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Field Resis. Ohms	Arm. Resis. Ohms	Frame Figure Numbers Page 22
433	18	1/500	115	3000	.4	75	170	1 & 2

"ALCG" FRAME SEE PRINT A-3729 PAGE 23 SPLIT RING GOVERNORS

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Frame Figure Numbers Page 23
313	24	1/40	115	1800	1.2	1, 2, 3, 4
251	24	1/15	115	7000	1.5	1, 2, 3, 4
335	24	1/15	115	7200	1.35	1, 2, 3, 4
606	24	1/8	115	5000	1.8*	1, 2, 3, 4
344	24	1/8	115	6000	3.0	1, 2, 3, 4

*Rotation — Clockwise from shaft end.

"ASCG" FRAME SEE PRINT A-3728 PAGE 24 CONCENTRIC RING GOVERNORS

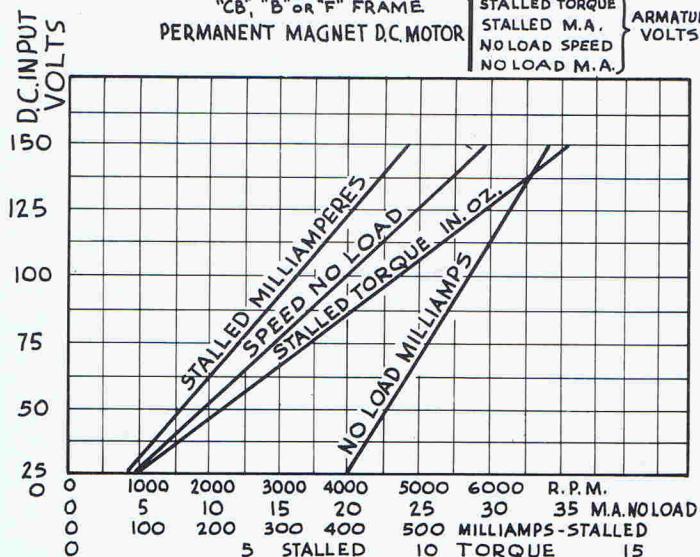
Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Frame Figure Numbers Page 23
661	24	1/8	115	5000	2.3	1, 2, 3, 4
972	24	1/6	115	5000	3.5	1, 2, 3, 4

"ALCG" FRAME SEE PRINT A-3728 PAGE 24

Motor Type No.	Comm. Bars	HP	Volts	RPM	Full Load Amps.	Frame Figure Numbers Page 24
502	24	1/5	115	8960	2.9	1, 2, 3, 4

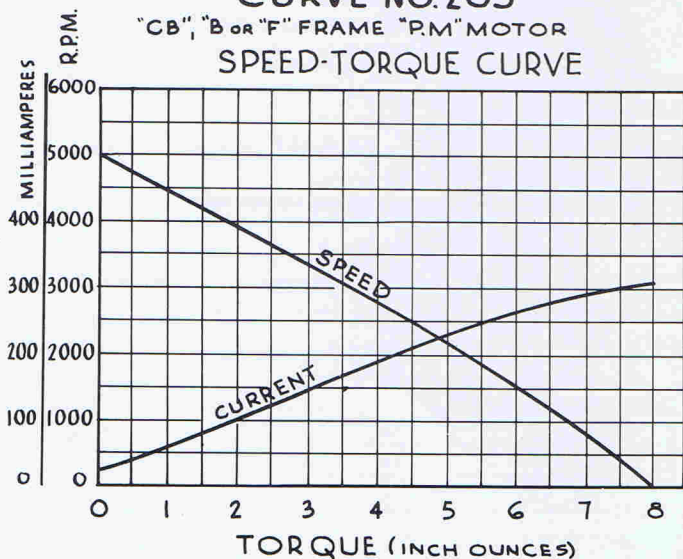
ELINCO TYPE 35 — "B" OR "F" FRAME
PERMANENT MAGNET D.C. MOTOR
115 VOLTS, 3200 R.P.M., .13 AMPS., 1/100 H.P.

CURVE NO. 202
"CB", "B" or "F" FRAME
PERMANENT MAGNET D.C. MOTOR
TYPICAL DATA FOR USE WITH SERVO MOTORS
STALLED TORQUE
STALLED M.A.
NO LOAD SPEED
NO LOAD M.A.
ARMATURE VOLTS



ELINCO TYPE 35 — "B" OR "F" FRAME
PERMANENT MAGNET D.C. MOTOR
115 VOLTS, 3200 R.P.M., .13 AMPS., 1/100 H.P.

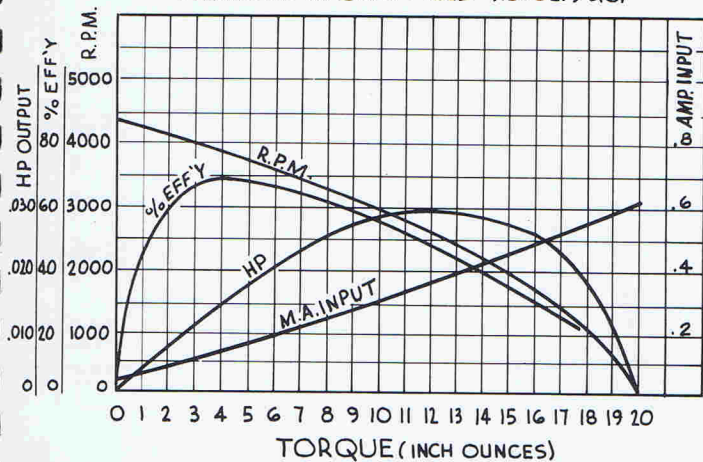
CURVE NO. 203
"CB", "B" or "F" FRAME "P.M." MOTOR
SPEED-TORQUE CURVE



TYPICAL PERFORMANCE CURVES

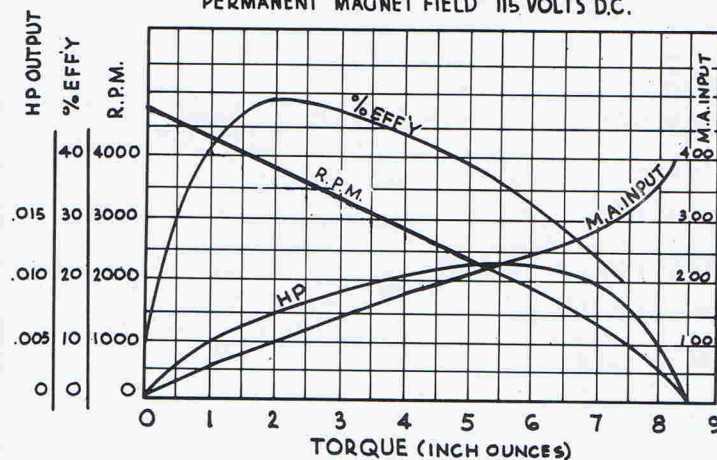
ELINCO TYPE 139 — "FB" FRAME
PERMANENT MAGNET D.C. MOTOR
115 VOLTS, 2500 R.P.M., .4 AMPS., 1/35 H.P.

CURVE NO. 219
"FB" FRAME MOTOR
PERMANENT MAGNET FIELD 115VOLTS D.C.



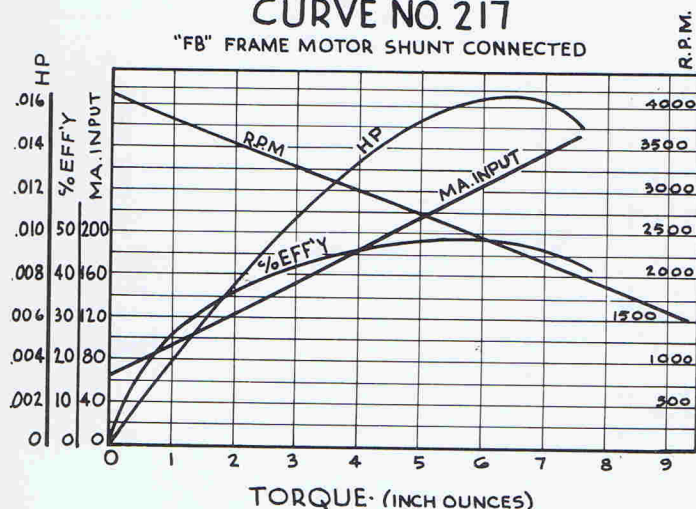
ELINCO TYPE 35 — "B" OR "F" FRAME
PERMANENT MAGNET D.C. MOTOR
115 VOLTS, 3200 R.P.M., .13 AMPS., 1/100 H.P.

CURVE NO. 218
"CB", "B" OR "F" FRAME MOTOR
PERMANENT MAGNET FIELD 115 VOLTS D.C.



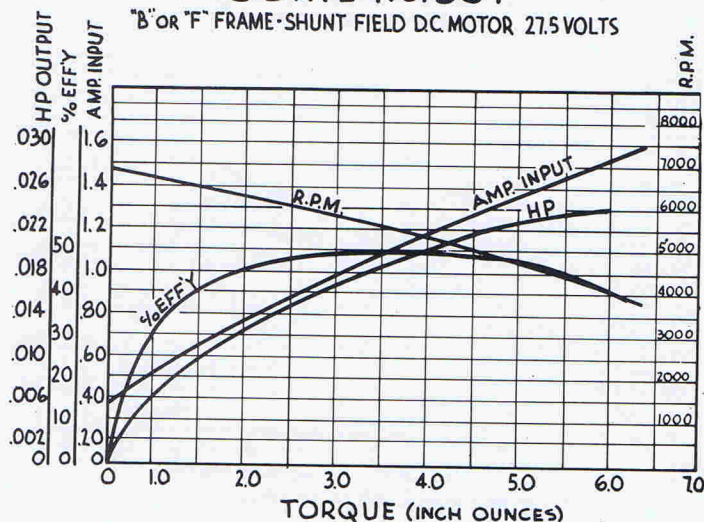
ELINCO TYPE 127 — "FB" FRAME
SHUNT WOUND D.C. MOTOR
115 VOLTS, 3700 R.P.M., .13 AMPS., 1/125 H.P.

CURVE NO. 217
"FB" FRAME MOTOR SHUNT CONNECTED



ELINCO TYPE 613 — "B" OR "F" FRAME
SHUNT WOUND D.C. MOTOR
27.5 VOLTS, 5200 R.P.M., 1.15 AMPS., 1/50 H.P.

CURVE NO. 307
"B" OR "F" FRAME SHUNT FIELD D.C. MOTOR 27.5 VOLTS

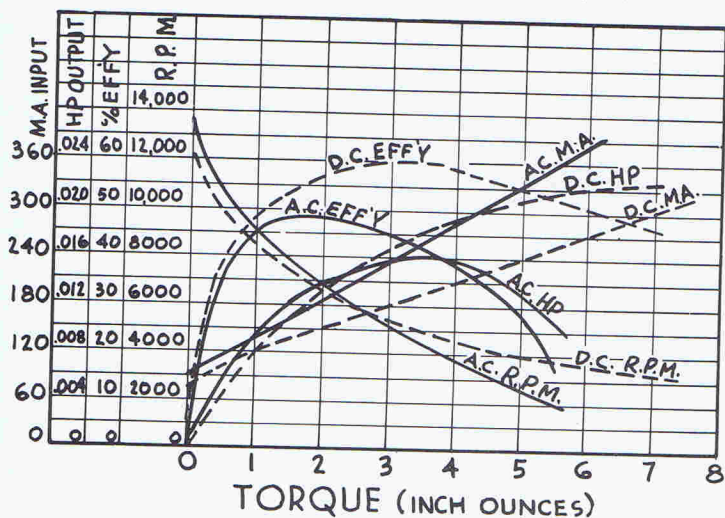


ELINCO

TYPICAL PERFORMANCE CURVES

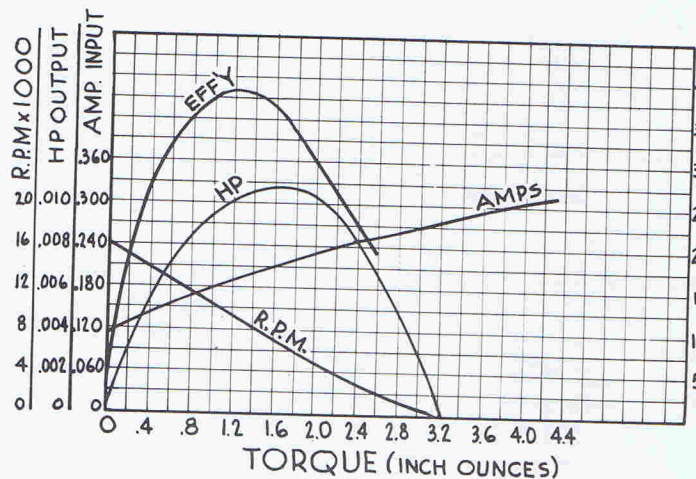
ELINCO TYPE 57 — "FB" FRAME
UNIVERSAL MOTOR
115 VOLTS, 8500 R.P.M., .17 AMPS., 1/100 H.P.

CURVE NO. 224
"FB" FRAME - SERIES MOTOR
115 VOLTS - 60 CYCLES A.C.



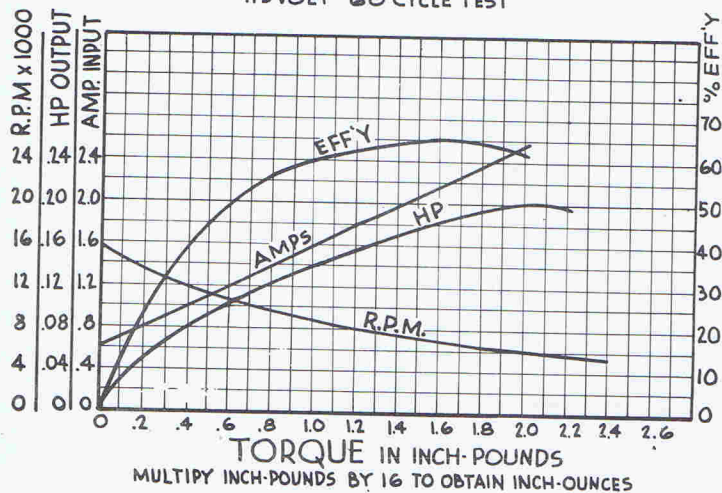
ELINCO TYPE 239 — "B" FRAME
UNIVERSAL MOTOR
115 VOLTS, 10,000 R.P.M., .17 AMPS., 1/100 H.P.

CURVE NO. 268
"B" OR "F" FRAME - UNIVERSAL MOTOR



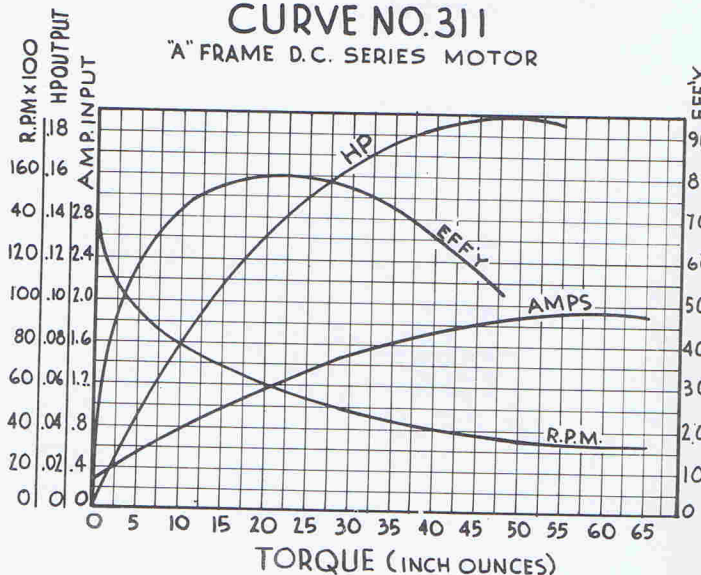
ELINCO TYPE 173 — "ALC" FRAME
UNIVERSAL MOTOR
115 VOLTS, 7000 R.P.M., 2.2 AMPS., 1/8 H.P.

CURVE NO. 236
"ALC" FRAME SERIES MOTOR FOR 115 VOLT A.C.-D.C.
115 VOLT 60 CYCLE TEST



ELINCO TYPE 494 — "ASC" FRAME
D.C. SERIES MOTOR
115 VOLTS, 6000 R.P.M., 1.1 AMPS., 1/10 H.P.

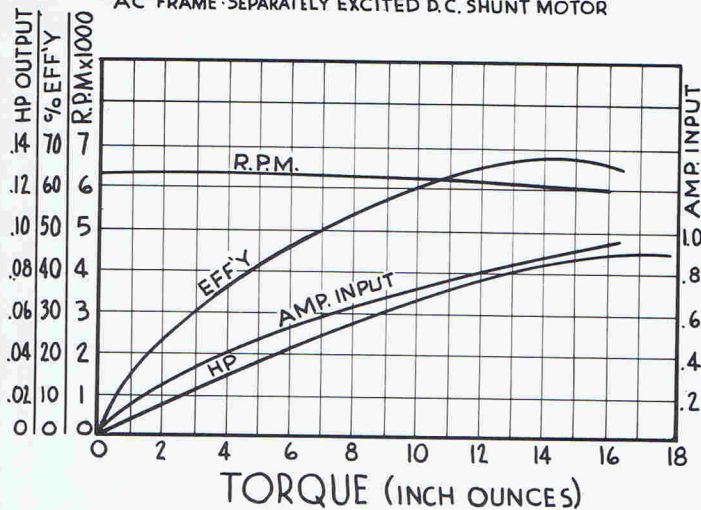
CURVE NO. 311
"A" FRAME D.C. SERIES MOTOR



ELINCO TYPE 680 — "ASC" FRAME
SEPARATELY EXCITED SHUNT MOTOR
115 ARMATURE VOLTS, 230/115 FIELD VOLTS,
6000 R.P.M., 1/25 H.P.

CURVE NO. 308

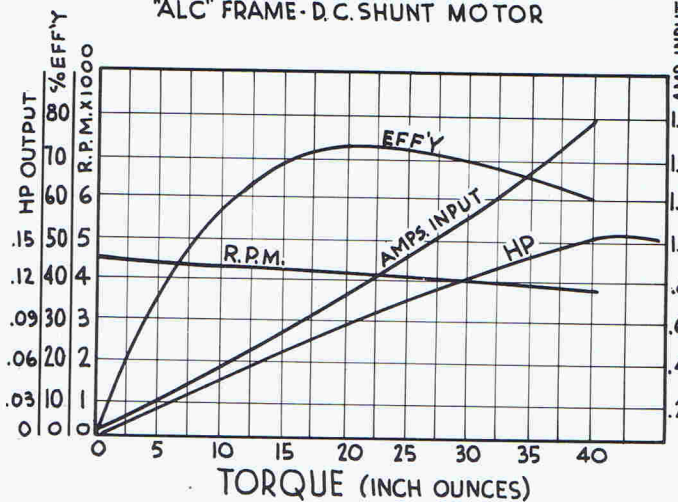
"AC" FRAME - SEPARATELY EXCITED D.C. SHUNT MOTOR



ELINCO TYPE 636 — "ALC" FRAME
D.C. SHUNT MOTOR
115 VOLTS, 4000 R.P.M., 1.2 AMPS., 1/8 H.P.

CURVE NO. 309

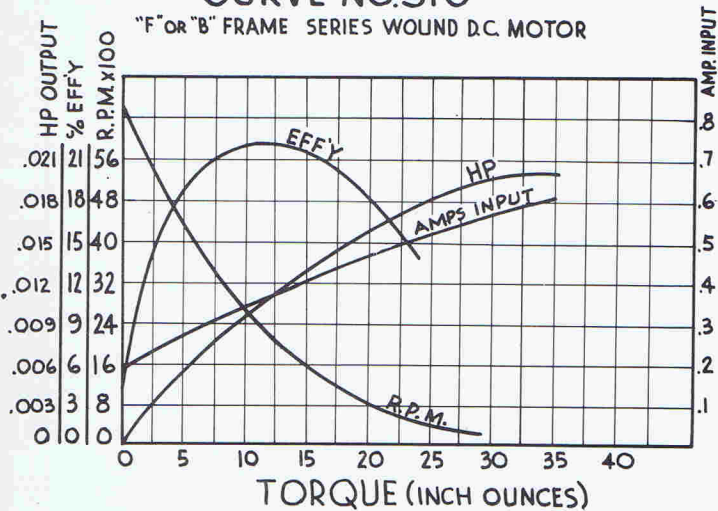
"ALC" FRAME - D.C. SHUNT MOTOR



ELINCO TYPE 129 — "B" OR "F" FRAME
SERIES WOUND D.C. MOTOR
24 VOLTS, 1600 R.P.M., 1.5 AMPS., 1/475 H.P.

CURVE NO. 310

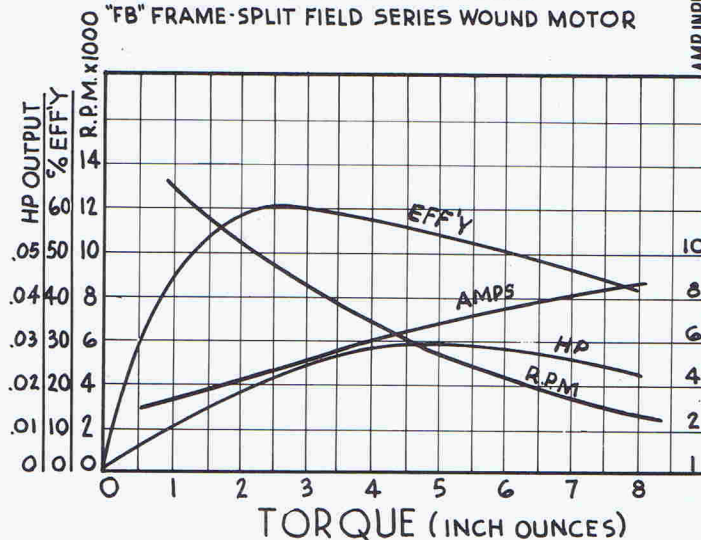
"F" OR "B" FRAME SERIES WOUND D.C. MOTOR



ELINCO TYPE 152 — "FB" FRAME
SPLIT FIELD SERIES WOUND MOTOR
6 VOLTS, 8000 R.P.M., 4.0 AMPS., 1/40 H.P.

CURVE NO. 228

"FB" FRAME - SPLIT FIELD SERIES WOUND MOTOR



ELECTRIC INDICATOR COMPANY INC SPRINGDALE CONN

HOUSING & END CAPS ARE CAST ALUMINUM ANODIZED AFTER MACHINING.
 ALL DIAMETERS MARKED "C" ARE CONCENTRIC TO SHAFT WITHIN .005 T.I.R..
 ALL SURFACES MARKED "P" ARE PERPENDICULAR TO SHAFT WITHIN .005 T.I.R..
 ALL SURFACES MARKED "F" ARE NOT PAINTED.
 DECIMAL DIMENSIONS HAVE A TOLERANCE OF $\pm .005$ UNLESS OTHERWISE NOTED.
 FRACTIONAL DIMENSIONS WITHOUT TOLERANCE ARE FOR REFERENCE ONLY.
 ADD SUFFIX "D" TO FRAME DESIGNATION IF DOUBLE END SHAFT IS REQUIRED.
 ADD SUFFIX "E" TO FRAME DESIGNATION IF TOTALLY ENCLOSED UNIT IS REQUIRED.
 NUMBER & LENGTH OF LEADS WILL VARY WITH TYPE OF UNIT. ALL ARE NYLON JACKETED & FLEXIBLE.
 UNLESS OTHERWISE ORDERED UNITS WILL BE PAINTED BLUE MOTTLE TONE.

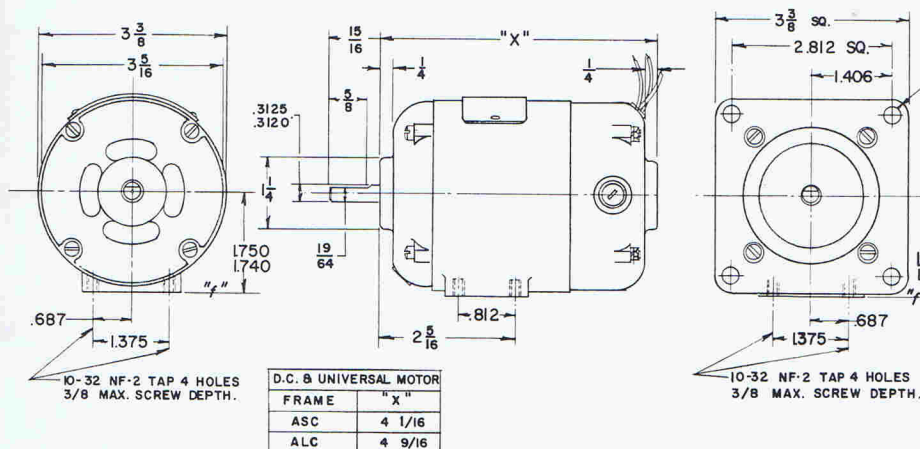


FIGURE ONE

NOTE: "ELINCO" RESERVES THE RIGHT
 TO MAKE MINOR MODIFICATIONS THAT
 DO NOT AFFECT MOUNTING DIMENSIONS.

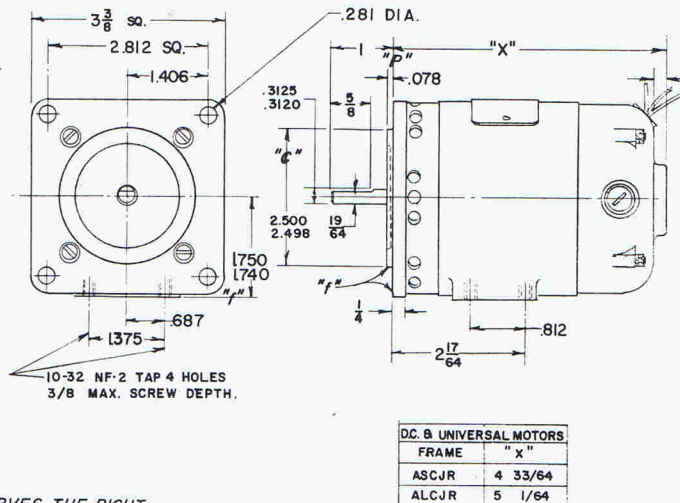


FIGURE TWO

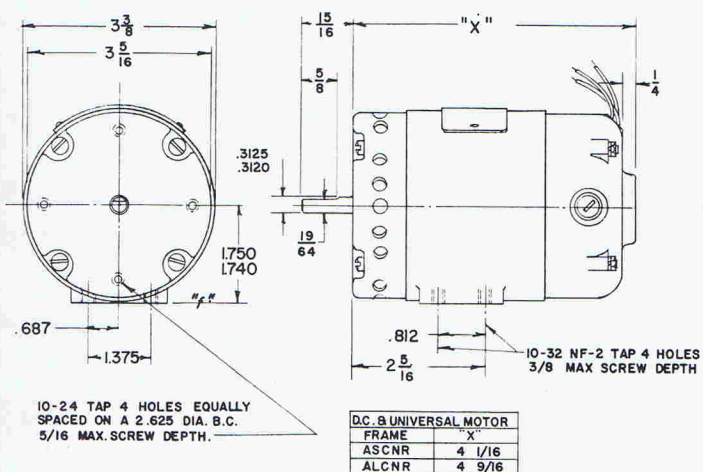


FIGURE THREE

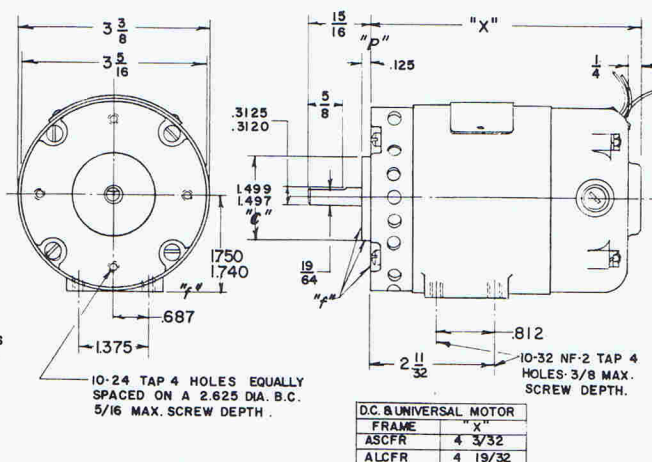


FIGURE FOUR

ELECTRIC INDICATOR CO., INC..
 SPRINGDALE, CONN., U.S.A.

ELINCO

FRAME DIMENSIONS

A-3730

HOUSING & END CAPS ARE CAST ALUMINUM ANODIZED AFTER MACHINING.

ALL DIAMETERS MARKED "C" ARE CONCENTRIC TO SHAFT WITHIN .005 T.I.R.

ALL SURFACES MARKED "P" ARE PERPENDICULAR TO SHAFT WITHIN .005 T.I.R.

ALL SURFACES MARKED "f" ARE NOT PAINTED.

DECIMAL DIMENSIONS HAVE A TOLERANCE OF $\pm .005$ UNLESS OTHERWISE NOTED.

FRACTIONAL DIMENSIONS WITHOUT TOLERANCE ARE FOR REFERENCE ONLY.

TERMINAL BOARDS WILL VARY WITH TYPE OF UNIT ORDERED.

NYLON JACKETED FLEXIBLE LEADS PROVIDED INSTEAD OF STUDS IF SPECIFIED.

ALL UNITS MAY BE FACE MOUNTED.

"ELINCO" RESERVES THE RIGHT TO MAKE MINOR MODIFICATIONS THAT DO NOT AFFECT MOUNTING DIMENSIONS.

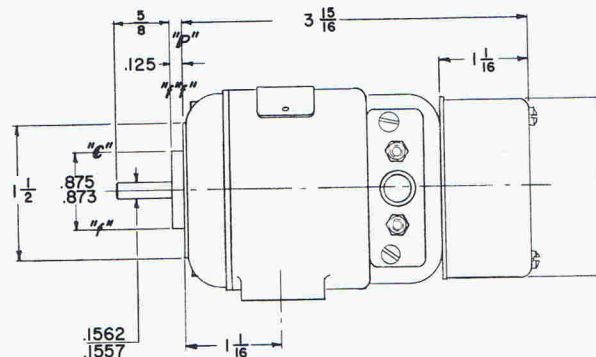
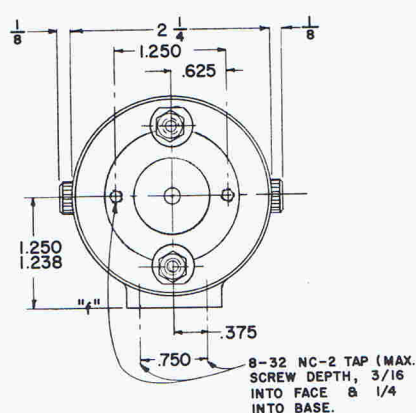


FIGURE ONE, "BG" FRAME (BASE MOUNTED)
(SQUARE BRUSH)

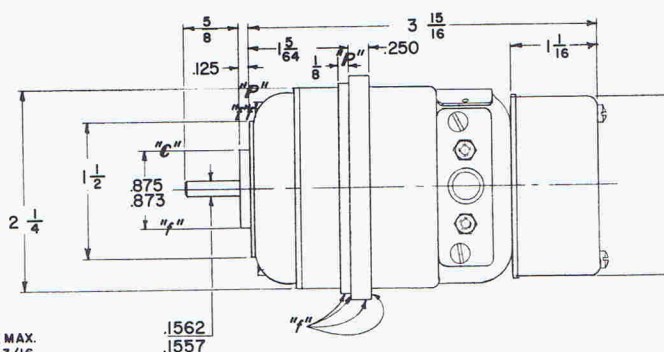
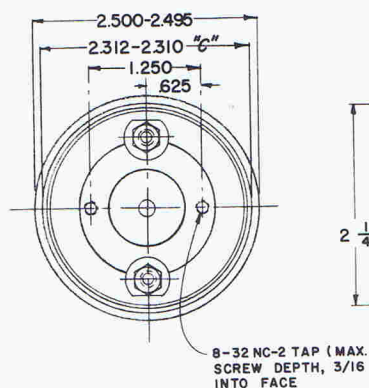


FIGURE TWO, "FG" FRAME (FLANGE MOUNTED)
(SQUARE BRUSH)

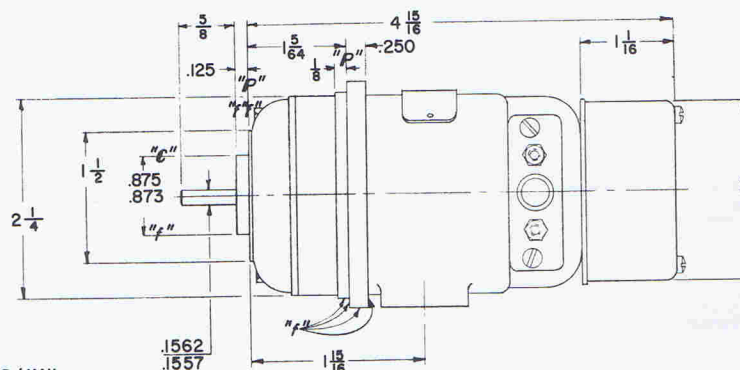
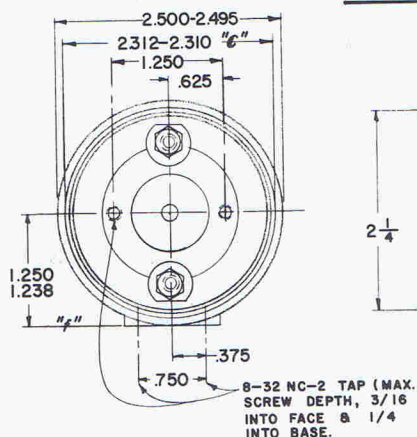


FIGURE THREE, "FBG" FRAME (FLANGE / BASE MOUNTED)
(SQUARE BRUSH)

ELECTRIC INDICATOR CO., INC.
SPRINGDALE, CONN., U.S.A.

HOUSING & END CAPS ARE CAST ALUMINUM ANODIZED AFTER MACHINING.

ALL DIAMETERS MARKED "C" ARE CONCENTRIC TO SHAFT WITHIN .005 T.I.R.

ALL SURFACES MARKED "P" ARE PERPENDICULAR TO SHAFT WITHIN .005 T.I.R.

ALL SURFACES MARKED "f" ARE NOT PAINTED.

DECIMAL DIMENSIONS HAVE A TOLERANCE OF $\pm .005$ UNLESS OTHERWISE NOTED.

FRACTIONAL DIMENSIONS WITHOUT TOLERANCE ARE FOR REFERENCE ONLY.

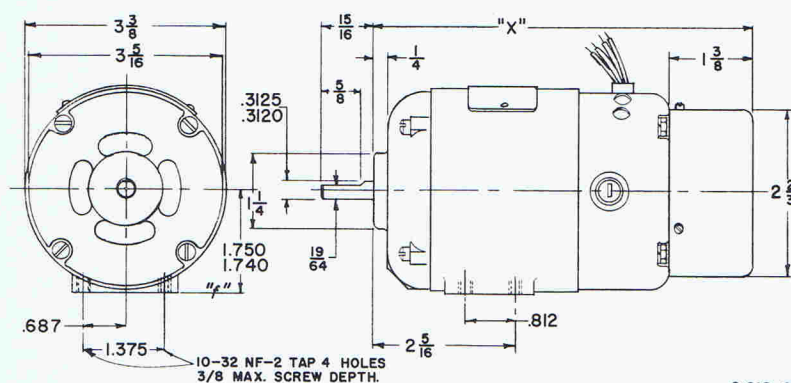
ADD SUFFIX "D" TO FRAME DESIGNATION IF DOUBLE END SHAFT IS REQUIRED.

ADD SUFFIX "E" TO FRAME DESIGNATION IF TOTALLY ENCLOSED UNIT IS REQUIRED.

NUMBER & LENGTH OF LEADS WILL VARY WITH TYPE OF UNIT. ALL ARE NYLON JACKETED & FLEXIBLE.

FRAMES SHOWN ARE FOR SPLIT RING GOVERNORS ONLY.

"ELINCO" RESERVES THE RIGHT TO MAKE MINOR MODIFICATIONS THAT DO NOT AFFECT MOUNTING DIMENSIONS.

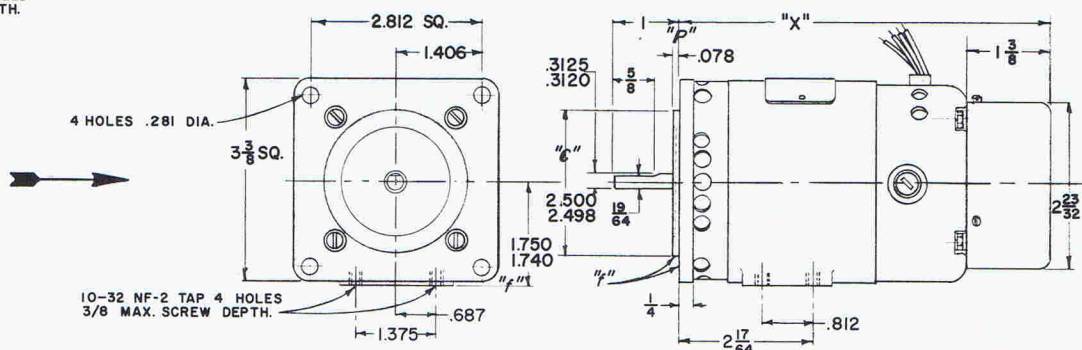


SPLIT GOVERNOR	RING MOTOR
FRAME	"X"
ASCG	5 7/8
ALCG	6 3/8

FIGURE ONE

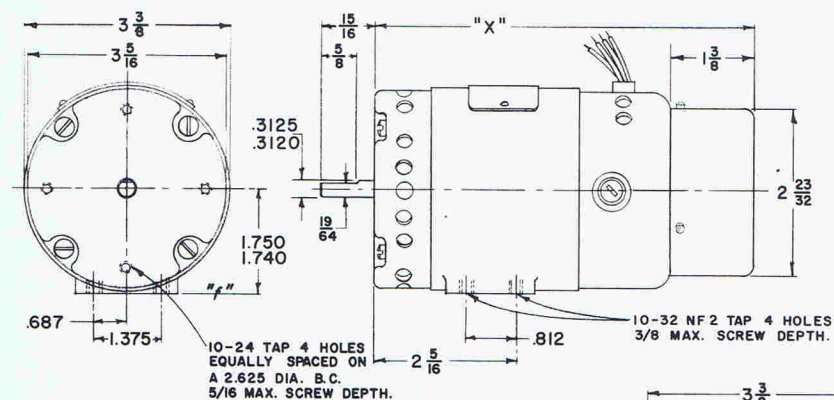
SPLIT RING GOVERNOR MOTOR	
FRAME	"X"
ASCGJR	5 27/32
ALCGJR	6 11/32

FIGURE TWO



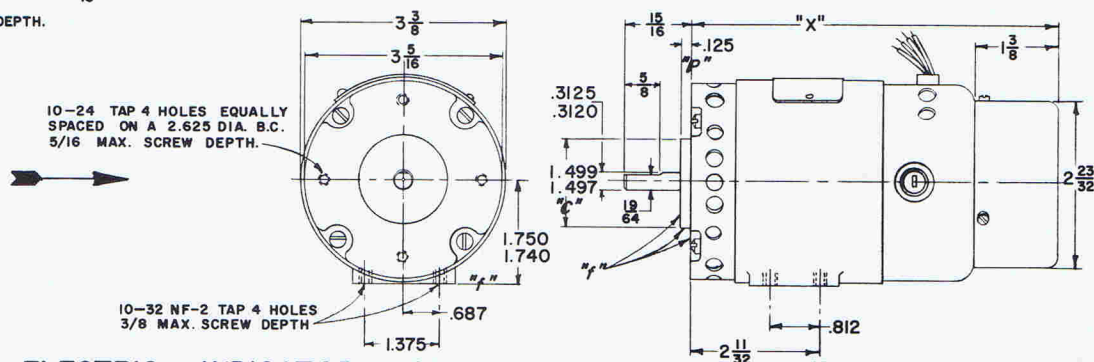
SPLIT GOVERNOR	RING MOTOR
FRAME	"X"
ASCGNR	5 7/8
ALCGNR	6 3/8

FIGURE THREE



SPLIT RING GOVERNOR MOTOR	
FRAME	"X"
ASCGFR	5 29/32
ALCGFR	6 13/32

FIGURE FOUR



ELECTRIC INDICATOR CO., INC.
SPRINGDALE, CONN., U.S.A.

ELINCO

FRAME DIMENSIONS

HOUSING & END CAPS ARE CAST ALUMINUM ANODIZED AFTER MACHINING.
ALL DIAMETERS MARKED "C" ARE CONCENTRIC TO SHAFT WITHIN .005 T.I.R.
ALL SURFACES MARKED "P" ARE PERPENDICULAR TO SHAFT WITHIN .005 T.I.R.
ALL SURFACES MARKED "F" ARE NOT PAINTED.

A-3728

DECIMAL DIMENSIONS HAVE A TOLERANCE OF $\pm .005$ UNLESS OTHERWISE NOTED.
FRACTIONAL DIMENSIONS WITHOUT TOLERANCE ARE FOR REFERENCE ONLY.

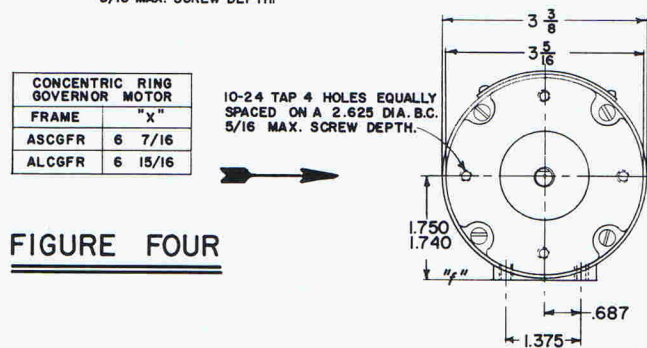
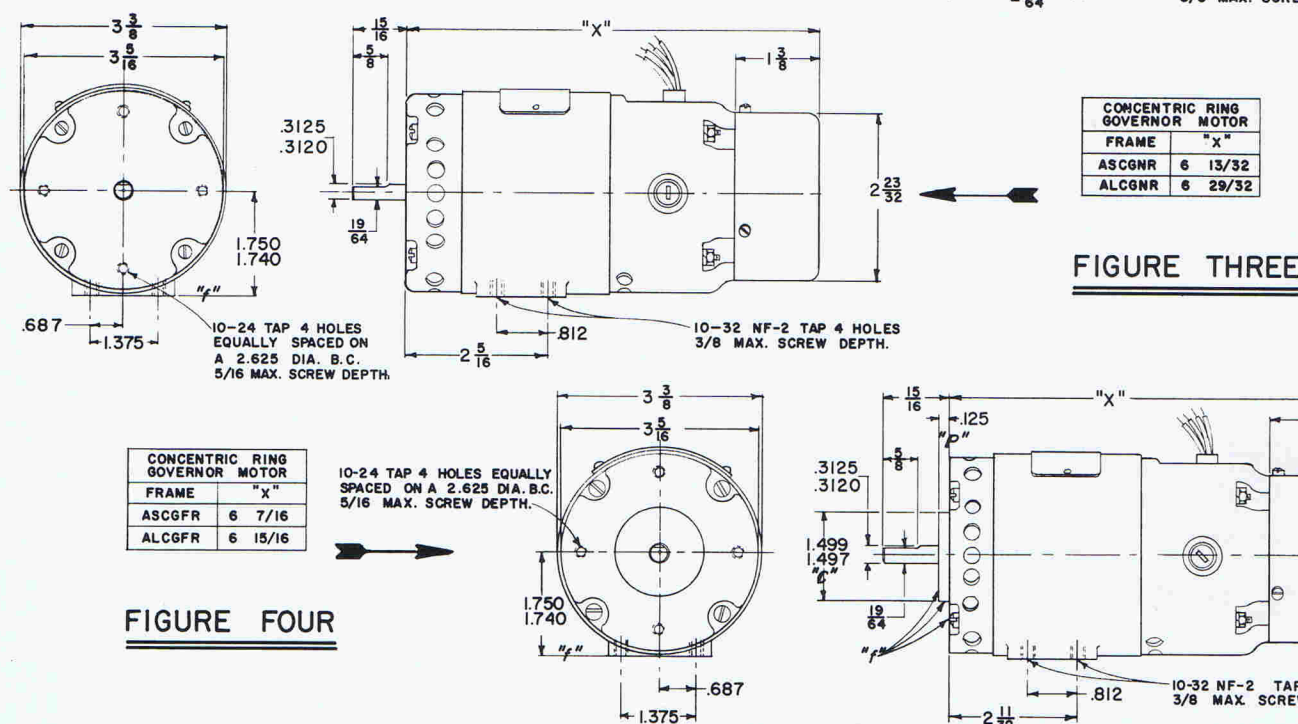
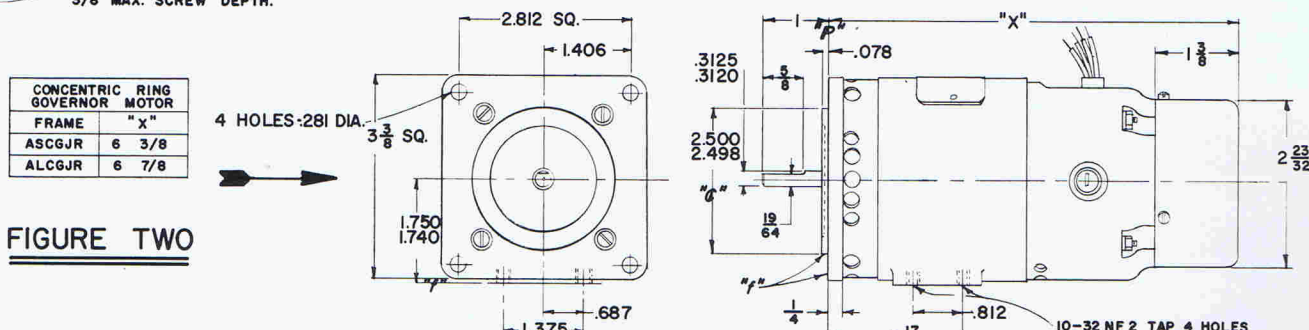
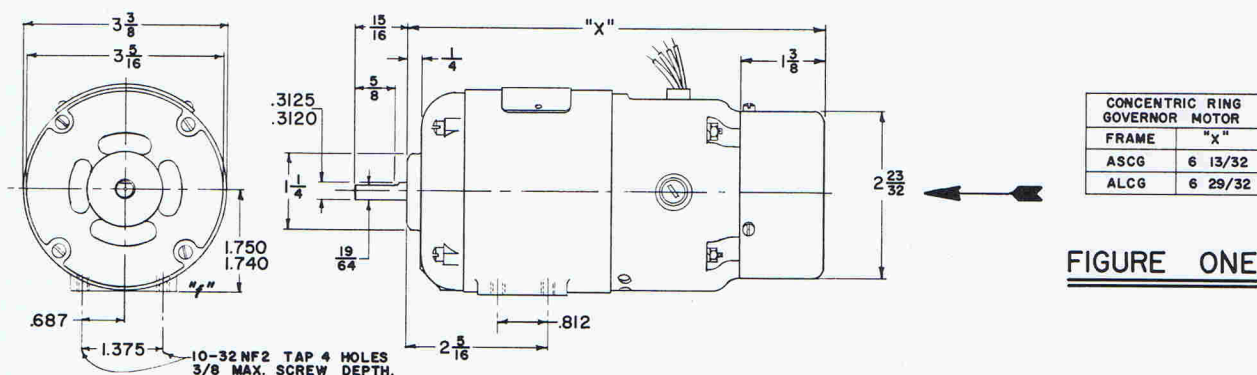
ADD SUFFIX "D" TO FRAME DESIGNATION IF DOUBLE END SHAFT IS REQUIRED.

ADD SUFFIX "E" TO FRAME DESIGNATION IF TOTALLY ENCLOSED UNIT IS REQUIRED.

NUMBER & LENGTH OF LEADS WILL VARY WITH TYPE OF UNIT. ALL ARE NYLON JACKETED & FLEXIBLE.

FRAMES SHOWN ARE FOR CONCENTRIC RING GOVERNORS ONLY.

"ELINCO" RESERVES THE RIGHT TO MAKE MINOR MODIFICATIONS THAT DO NOT AFFECT MOUNTING DIMENSIONS.



ELECTRIC INDICATOR CO., INC.
SPRINGDALE, CONN., U.S.A.

ELINCO DESIGNATION SYSTEM

Frame descriptions:

Frame sizes are designated by any one of the following:

Permanent Magnet and Direct Current Motors:

"B" "F" "FB" "CB" "ASC" "ALC"

Governor Motors: Direct Current

"BG" "FG" "FBG". Also see "ASCG" & "ALCG" (as shown on drawing A-3729)

Governor Motors: Alternating Current

"ASCG" "ALCG" (as shown on drawing A-3728)

End bells:

The letter or letters following the frame and type designations indicate the end bell style. "B" "FB" "CB" (drawing A-2539) "BG" "FG" "FBG" (drawing A-3730) are available only as standard frames. Standard "A" frame commutator motors are "ASC" and "ALC" as shown in fig. 1 of drawing A-3722. Standard alternating current governor controlled "A" frame commutator motors are "ASCG" and "ALCG" as shown in fig. 1 of drawing A-3728. Standard direct current governor controlled "A" frame commutator motors are "ASCG" and "ALCG" as shown in fig. 1 of drawing A-3729. NOTE THAT IN THE "A" FRAMES THE ALTERNATING CURRENT GOVERNOR CONTROLLED COMMUTATOR MOTORS ARE OF A DIFFERENT OVERALL LENGTH THAN THE DIRECT CURRENT GOVERNOR CONTROLLED MOTORS. In addition to the standard frames all "A" frames can be furnished as flange or face mounted units. "J" indicates a square flange mounting end bell with axial ventilation. "JR" indicates a square flange mounting end bell with radial ventilation. "FR" indicates face mounted with precision boss for critical mounting (gear boxes, etc.) and radial ventilation. "NR" indicates face mounting for not so critical mounting (blower or fan shroud) and radial ventilation.

Example: 1.

FRAME
COMMUTATOR TYPE
FRONT END BELL
SHAFT EXTENSION
AL C G JR N 752 712
GOVERNOR CONTROLLED TYPE
REAR END BELL
ELECTRICAL DATA

Example: 2.

ALCJRN-876-712 This would be identical to example 1 except that it would not be governor controlled.

Suffix letter "E"

Denotes totally enclosed unit. Example: "ALCJNE".

Suffix letter "D"

Denotes double end shaft extension. Example: "ASCJND".

Electrical specifications:

This number describes complete electrical specifications of the motor such as H.P., R.P.M., Voltage Frequency, etc.

Shaft extensions:

The shaft extensions shown in this catalogue are standard. If a shaft extension of different length or diameter is required ELINCO will assign a number which will completely identify the extension for future reference. It is preferable to order non standard shafts in lengths of $\frac{1}{8}$ " increments i.e., $\frac{7}{8}$ ", 1", 1 $\frac{1}{8}$ ", etc.

Example:

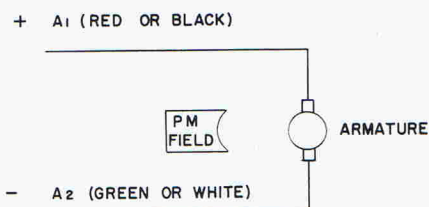
"ASCG-752" (standard shaft)

"ASCG-752-713" (special shaft)

STANDARD CONNECTION DIAGRAMS

D.C. PERMANENT MAGNET MOTOR

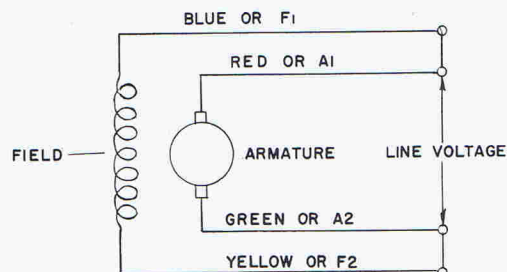
1



CLOCKWISE ROTATION FACING SHAFT END WITH POLARITY INDICATED. TO REVERSE ROTATION REVERSE POLARITY.

D.C. SHUNT MOTOR

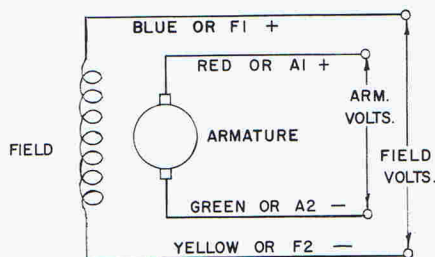
2



CLOCKWISE ROTATION FACING SHAFT END. TO REVERSE ROTATION INTERCHANGE BLUE & YELLOW LEADS.

SEPARATELY EXCITED D.C. SHUNT MOTOR

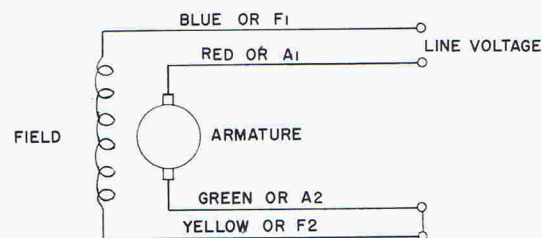
3



CLOCKWISE ROTATION FACING SHAFT END WITH POLARITY INDICATED. TO REVERSE ROTATION, REVERSE POLARITY ON EITHER FIELD OR ARMATURE.

D.C. SERIES OR UNIVERSAL MOTOR

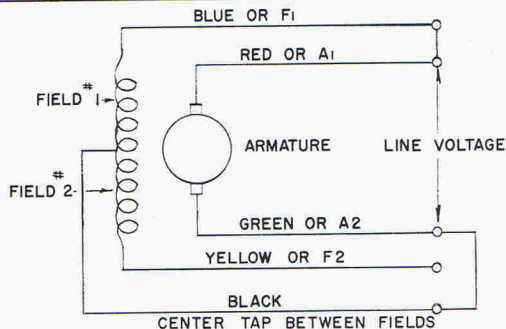
4



CLOCKWISE ROTATION FACING SHAFT END. TO REVERSE ROTATION INTERCHANGE BLUE & YELLOW LEADS.

D.C. SPLIT FIELD SHUNT MOTOR

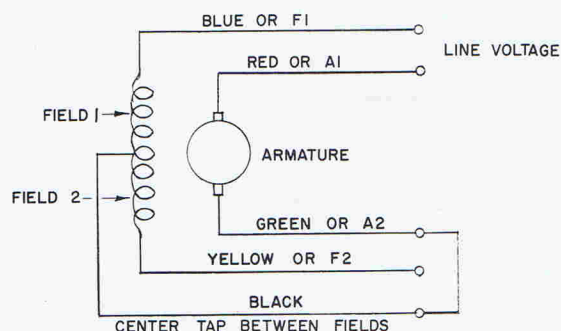
5



CLOCKWISE ROTATION FACING SHAFT END. TO REVERSE ROTATION INTERCHANGE BLUE & YELLOW LEADS

D.C. SPLIT FIELD OR SPLIT FIELD UNIVERSAL MOTOR

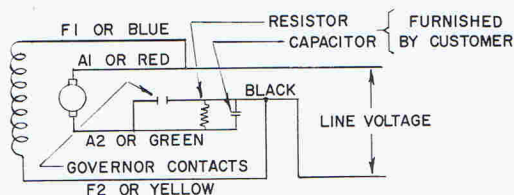
6



CLOCKWISE ROTATION FACING SHAFT END. TO REVERSE ROTATION INTERCHANGE BLUE & YELLOW LEADS

SHUNT GOVERNOR MOTOR

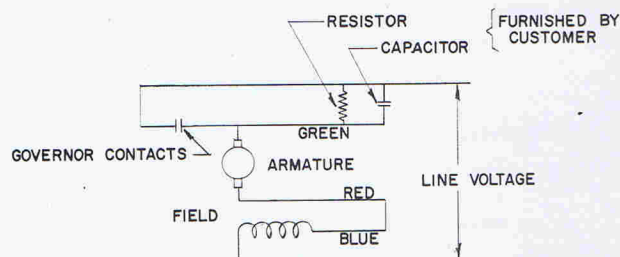
7



CLOCKWISE ROTATION FACING SHAFT END. TO REVERSE ROTATION INTERCHANGE BLUE & YELLOW LEADS.
CAUTION: GOVERNORS OPERATE IN ONE DIRECTION ONLY. DIRECTION REQUIRED MUST BE SPECIFIED ON PURCHASE ORDER.
ALL "ASC" & "ALC" FRAME MOTORS HAVE COLOR CODED LEADS.
"B", "F", "FB" & "CB" CAN HAVE COLOR CODED LEADS OR TERMINAL SCREWS MARKED A1, A2, F1, F2, ETC..

SERIES GOVERNOR MOTOR

8



. . . MORE ELINCO PRECISION BUILT PRODUCTS AVAILABLE

AC AND DC GENERATORS

Catalogue EI-1 describes in detail over 170 precision built AC and DC generators in the following classifications:

- DC Permanent Magnet Tachometer Generators
- DC Wound Field Generators
- DC Speed-Squared Generators
- DC Dual Field Generators
- AC Permanent Magnet Generators
- AC Sine Wave Generators

INDUCTION AND TORQUE MOTORS

Catalogue EI-3 describes 60 and 400 cycle induction motors in single, two and three phases. They are also available in odd frequencies, dual speed and dual voltages.

This catalogue also describes single phase induction brake motors, as well as a wide variety of torque motors.

SYNCHRONOUS MOTORS

Hysteresis and salient pole induction synchronous motors are described in catalogue EI-4. Ratings are from 1/750 to 1/10 HP at speeds from 300 to 24000 RPM, frequencies from 30 to 400 cycles, voltages up to 440 volts, 1, 2 or 3 phase. Frame sizes are available from 2¼ in. in diameter by 2½ in. long, to 4¾ in. in diameter by 8½ in. long. Face, flange or base mountings can be supplied. All types can be supplied with ball bearings, some with sleeve bearings.

SELF-SYNCHRONOUS Cat. EI-5

- Self-synchronous motors
- Rotating self-synchronous motors
- Differential motors
- One and three phase rotating transformers
- Phase shifting rotary transformers

OTHER UNITS

- Low inertia AC induction servo motors
- AC induction generators
- AC motor driven induction generators
- AC motor generator sets
- DC motor generator sets
- Blower motors

ELINCO ENGINEERING FACILITIES

. . . are available to you

"ELINCO" continues to build its engineering and development facilities by steadily increasing its engineering and research staff.

"ELINCO" maintains a constant development program, and during the past year designed 75 new electrical rotary units to meet difficult military and commercial specifications.

"ELINCO" with its engineering staff and facilities is available to your development engineers. We can help you solve the toughest problems of heat, humidity, vibration, shock, torque, acceleration, weight, mounting and special design. We have over twenty-five years of experience in the precision sub-fractional electrical rotary equipment field. Let us design units tailored to your special requirements. Send complete electrical and mechanical requirements to

ELECTRIC INDICATOR COMPANY INC.
CAMP AVENUE, SPRINGDALE, CONNECTICUT

The logo consists of the word "ELINCO" in a bold, sans-serif font, enclosed within a rectangular border.

WRITE FOR DETAILS

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FAIRCHILD ENGINE AND AIRPLANE CORP.
HUGHES AIRCRAFT CO.
LINK AVIATION, INC.
GLENN L. MARTIN CO.
MCDONNELL AIRCRAFT CORP.
NORTH AMERICAN AVIATION, INC.
PAN AMERICAN WORLD AIRWAYS, INC.
PRATT & WHITNEY AIRCRAFT
UNITED AIR LINES

ELINCO

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HAZELTINE ELECTRONICS CORPORATION
HEILAND RESEARCH CORPORATION
INDUSTRIAL CONTROL COMPANY
INTERNATIONAL BUSINESS MACHINES
CORP.
KOLLSMAN INSTRUMENT CORP.
LEUPOLD INSTRUMENT COMPANY
W. L. MAXSON CORP.
MINNEAPOLIS-HONEYWELL
REGULATOR CO.
NORDEN INSTRUMENTS, INC.
PERKIN-ELMER CORPORATION
RAYTHEON MANUFACTURING CO.
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SPERRY CORPORATION
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STANDARD OIL COMPANY, NEW JERSEY
SUN OIL COMPANY
SHELL OIL COMPANY
TEXAS COMPANY

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COLLINS RADIO CO.
ALLEN B. DU MONT LABORATORIES INC.
INTERNATIONAL TELEPHONE & TELEGRAPH
CORPORATION
PHILCO CORPORATION
RADIO CORPORATION OF AMERICA
STROMBERG-CARLSON CO.
WESTERN ELECTRIC COMPANY, INC.

GOVERNMENT AGENCIES

CITIES, TOWNS, COUNTIES, STATES, AIR
FORCE, ARMY, COAST GUARD, NAVY
AND OTHER GOVERNMENT AGENCIES.

INDUSTRIALS, UTILITIES, ETC.

ALLIS-CHALMERS MANUFACTURING
COMPANY
AMERICAN MACHINE AND FOUNDRY
COMPANY
ARMA CORPORATION
AVCO MANUFACTURING CORPORATION
BAUSCH & LOMB OPTICAL COMPANY
BELL & HOWELL COMPANY
BULOVA WATCH COMPANY
CATERPILLAR TRACTOR COMPANY
CINCINNATI MILLING MACHINE COMPANY
DETROIT EDISON COMPANY
DICTAPHONE CORPORATION
EDO CORPORATION
FORD MOTOR COMPANY
GENERAL MOTORS CORPORATION
B. F. GOODRICH COMPANY
GOODYEAR TIRE & RUBBER COMPANY
INTERNATIONAL HARVESTER COMPANY
I-T-E CIRCUIT BREAKER COMPANY
LONG ISLAND LIGHTING COMPANY
MELPAR, INC.
METROPOLITAN LIFE INSURANCE CO.
MINNESOTA MINING AND
MANUFACTURING CO.
NEW YORK, NEW HAVEN AND
HARTFORD RAILROAD CO.
PACKARD MOTOR COMPANY
PILLSBURY MILLS, INC.
PITNEY-BOWES INC.
PROCTER & GAMBLE COMPANY
REMINGTON ARMS CO., INC.
ST. LOUIS WATER COMPANY
UNITED STATES STEEL COMPANY
VIRGINIA ELECTRIC POWER COMPANY
WESTINGHOUSE AIR BRAKES COMPANY
WOLLENSAK OPTICAL COMPANY
WOODWARD GOVERNOR COMPANY

UNIVERSITIES

BROOKLYN POLYTECHNIC INSTITUTE
UNIVERSITY OF CALIFORNIA
CALIFORNIA INSTITUTE OF TECHNOLOGY
UNIVERSITY OF CHICAGO
COLUMBIA UNIVERSITY
JOHNS HOPKINS
MASSACHUSETTS INSTITUTE OF
TECHNOLOGY
PRINCETON UNIVERSITY
UNIVERSITY OF ROCHESTER
STEVENS INSTITUTE OF TECHNOLOGY

ELECTRIC INDICATOR COMPANY, INC., SPRINGDALE, CONN.

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