

Westinghouse

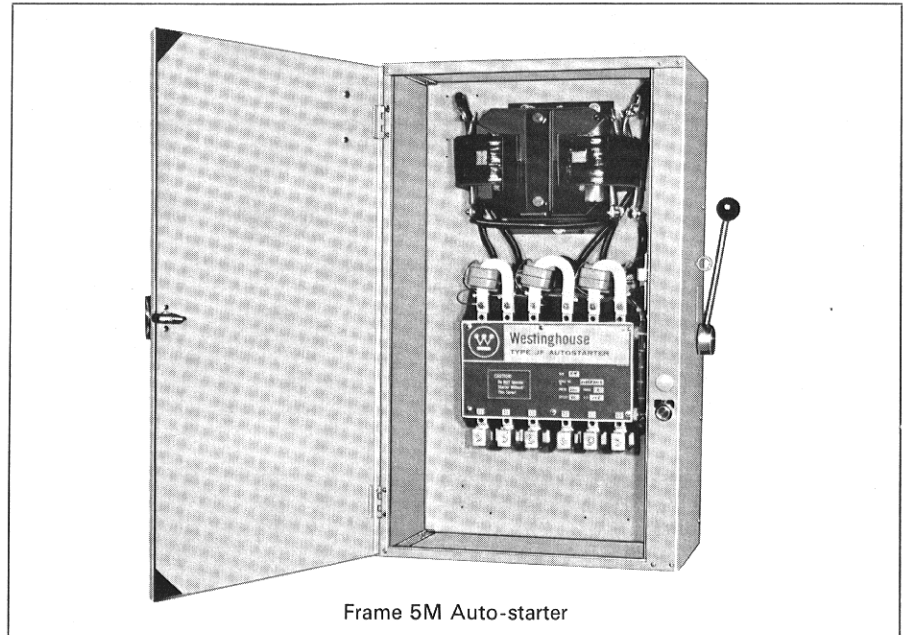


Type JF Auto-starters

208 to 550 Volts, 3 Phase, 60 Hertz
Frames 4, 5, 5M, 5MM

Ordering Information

- Name the part and give its style number.
- Give the complete nameplate reading.
- State method of shipment desired.
- Send all orders or correspondence to nearest sales office of the company.



Frame 5M Auto-starter

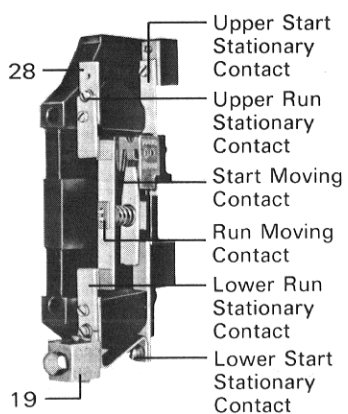
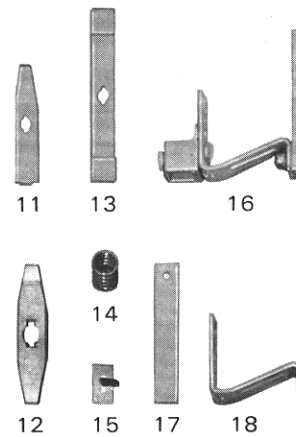
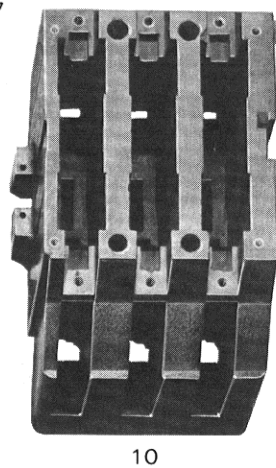
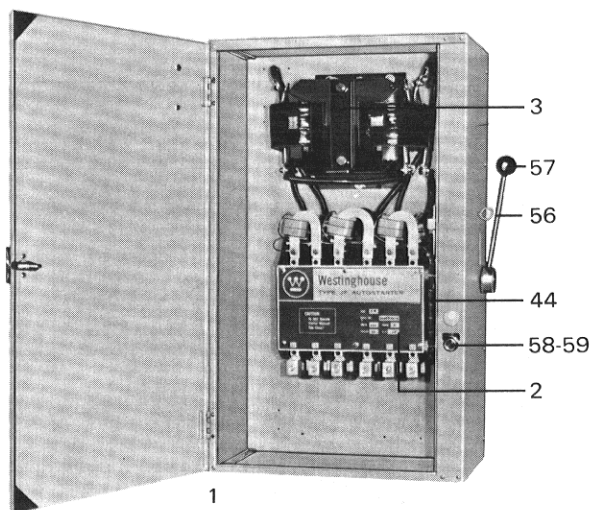
Horse-Power	Voltage	Style Number		
		Autostarter-Complete	Auto-Transformer	Solenoid
Frame 4				
50	208/220	2051A58G01	1747 007	416C160G03
50	208/220	2065A27G01	1747 007	416C160G03
100	440	2051A59G01	553D123G48	416C160G05
100	440	2065A28G01	553D123G48	416C160G05
100	550	2051A78G01	553D123G57	416C160G07
100	550	2065A31G01	553D123G57	416C160G07
Frame 5				
75	208/220	2051A60G01	553D123G39	416C160G03
75	208/220	2065A29G01	553D123G39	416C160G03
150	440	2051A61G01	553D124G48	416C160G05
150	440	2065A30G01	553D123G48	416C160G05
Frame 5M				
125	208/220	2047A80G01	553D124G39	416C160G03
125	208/220	2065A32G01	553D123G39	416C160G03
250	440	2047A82G01	553D125G39	416C160G05
250	440	2065A34G01	553D125G42	416C160G05
250	550	2047A84G01	3428D79G32	416C160G07
250	550	2065A36G01	553D125G39	416C160G07
Frame 5MM				
150	208/220	2047A81G01	553D124G39	416C160G03
150	208/220	2065A33G01	553D123G39	416C160G03
150	208/220	2047A87G01 @	553D124G39	416C160G03
300	440	2047A83G01	3428D79G31	416C160G05
300	440	2065A35G01	3428D79G31	416C160G05
300	550	2047A85G01	3428D79G32	416C160G07
300	550	2065A37G01	3428D79G32	416C160G07

Note: All starters are instantaneous release unless indicated otherwise.

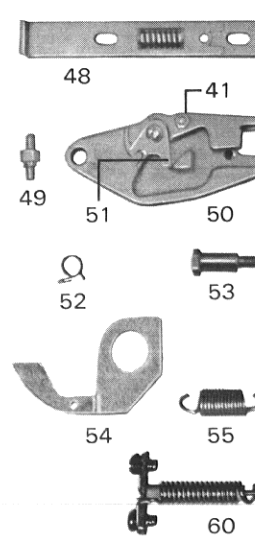
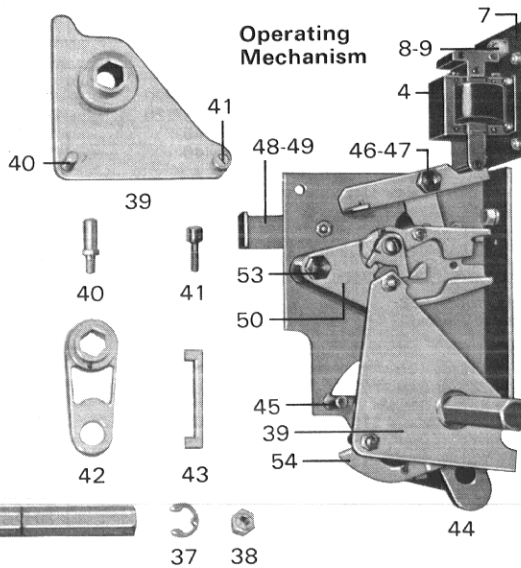
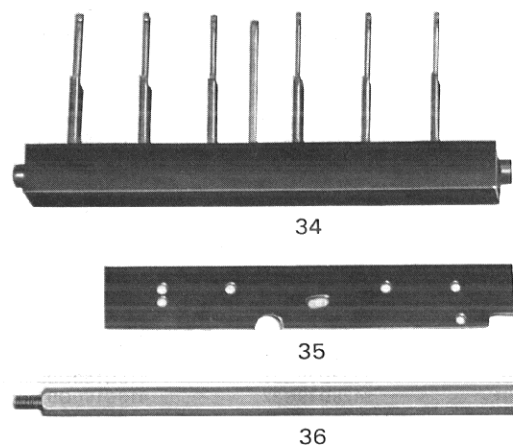
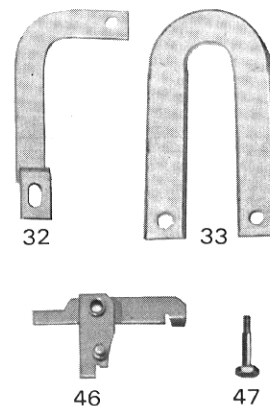
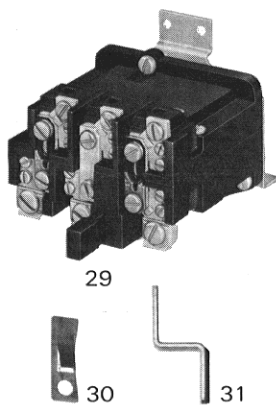
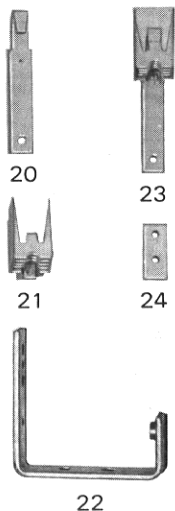
All starters in the S#2065A series have the third overload relay protection mounted in the center two poles.

@ Time delay under-voltage application.

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Cutaway Showing Contact Arrangement for Frames 4 and 5



Type JF Auto-starters

208 to 550 Volt, 3 Phase, 60 Hertz
Frames 4, 5, 5M, 5MM

Ref. No.	Description of Part	Style Number			No. Used
		Frame 4	Frame 5	Frames 5M and 5MM	
1	Auto-starter (without relay heaters)	See page 1	See page 1	See page 1	1
2	Switch cover	200P037H01	200P037H01	200P037H01	1
3	Auto-transformer	See page 1	See page 1	See page 1	1
4	Solenoid complete	See page 1	See page 1	See page 1	1
5	Solenoid coil	See page 4	See page 4	See page 4	1
6	Solenoid plunger guide	197A758H01	197A758H01	197A758H01	2
⑦	Roll pin 1/2 x 1 1/4	Std. hdwr.	Std. hdwr.	Std. hdwr.	1
7	Solenoid mounting plate	416C157H04	416C157H04	416C157H04	1
8	Eccentric for solenoid adjustment	416C155H06	416C155H06	416C155H06	1
9	Retaining ring	27D7260H07	27D7260H07	27D7260H07	1
10	Base	1747 092	1747 092	3354D91G01	2
11	Start moving contact	296B878H02	296B878H02		6
12	Start moving contact			660C401G01	6
13	Run moving contact	1747 094	1747 094	660C401G02	6
14	Moving contact spring	197A754H02	197A754H02	197A754H02	6
15	Moving contact retainer	755B009H01	755B009H01	755B009H01	6
16	Lower start stationary contact	15C4843G03	15C4843G04		6
17	Start contact	1747 108	1747 108		6
18	Contact support	15C4843H08	15C4843H08		6
19	Terminal	296B876G01	296B875G01		6
①	Lower start stationary contact				6
20	Stationary contact			660C401G04	6
21	Arc grid			296B881G01	6
22	Contact support			660C400G01	6
①	Terminal			485B971G01	③
23	Upper start stationary contact	296B881G02	296B881G02		6
20	Stationary contact	296B878H01	296B878H01	660C401G04	6
21	Arc grid	296B881G01	296B881G01	296B881G01	6
24	Upper start contact support	197A750H01	197A750H01	197A750H01	6
25	Upper and lower run stationary contact	1747 096	1747 096		12
26	Upper and lower run stationary contact			660C401G03	12
27	Fastener	1781 354	1781 354	31D4124G11	12
①	Cap screw 1/4-20 x 1" socket head			Std. hdwr.	24
①	Cap screw 1/4-20 x 1/2" socket head			Std. hdwr.	6
28	Upper run contact support	1754 866	1754 866	660C400G02	6
29	AN-41A overload relay	372D880G09			2
29	AN-12P overload relay		5662D74G14	5662D74G14	1
①	GCI current transformer 400/5 amp. (frame 5-5M) earlier design		666C603H06	666C603H06	2
①	GCO current transformer 400/5 amp. (frame 5-5M)		655C285H04	655C285H04	2
①	GCI current transformer 600/5 amp. (frame 5MM) earlier design			666C603H08	2
①	GCO current transformer 600/5 amp. (frame 5MM)			655C286H06	2
30	Retainer clip for above		489B008H02	489B008H02	2
31	Connector to overload relay, poles 1-5	670C673H04			2
32	Connector to overload relay, poles 2-6	670C673H05			2
33	Connector to current transformer (frame 5-5M)		667C254H01	667C254H01	2
33	Connector to current transformer (frame 5MM)			667C254H03	2
①	Overload relay kit (3rd relay) (frame 4-5-5M)	3466D42G02	3466D43G03	3466D43G03	1
①	Overload relay kit (3rd relay) (frame 5MM)			2044A15G02	1
29	AN-41A overload relay	372D880G09			1
29	AN-12P overload relay		5662D74G14	5662D74G14	1
①	GCO current transformer (frame 5-5M)		655C285H04	655C285H04	1
①	GCO current transformer (frame 5MM)			655C286H06	1
30	Retainer clip for above		489B008H02	489B008H02	1
31	Connector to overload relay (pole 3)	670C673H04			1
①	Cable to overload relay (pole 4)	2043A49G01			1
33	Connector to current transformer (frame 5-5M)		667C254H02	667C254H02	1
33	Connector to current transformer (frame 5MM)			667C254H04	1
34	Crossbar	416C173G01	416C173G01	416C173G01	1
35	Switchbase insulation	1747 162	1747 162	1747 162	1
36	Operating shaft	296B886H02	296B886H02	296B886H02	1
37	Retaining ring	27D7260H08	27D7260H08	27D7260H08	1
38	Locknut	18D8358H27	18D8358H27	18D8358H27	1
39	Operating lever	296B885G01	296B885G01	296B885G01	1
40	Centering pin	416C151H01	416C151H01	416C151H01	1

Parts indented are included in the part under which they are indented.

① Not illustrated.

② Plunger guides should be replaced each time the coil is replaced.

③ Six for frames 5M, twelve for frames 5MM.

④ When ordering switch cover specify complete nameplate reading.

⑤ Earlier design autostarters had the overload relay and current transformers mounted on a bracket above the poles of the starter. Present starters have the overload relay mounted to the right of the poles and the current transformers mounted on the pole connector as shown in illustration.

Type JF Auto-starters

208 to 550 Volt, 3 Phase, 60 Hertz
Frames 4, 5, 5M, 5MM

Ref. No.	Description of Part	Style Number			No. Used	Solenoid Rating Volts	Style Number	
		Frame 4	Frame 5	Frames 5M and 5MM			Solenoid Complete	Solenoid Coil
41	Cam follower	197A759H01	197A759H01	197A759H01	1	220	416C160G03	296B892G02
42	Crossbar drive lever, left	1747 084	1747 084	1747 084	1	440	416C160G05	296B892G04
42	Crossbar drive lever, right	38A6141H10	38A6141H10	38A6141H10	1	550	416C160G07	296B892G06
43	Crossbar guide wearing plate	1747 164	1747 164	1747 164	1			
44	Operating mechanism, instantaneous release	550D406G02	550D406G05	550D406G05	1			
44	Operating mechanism, time delay	550D406G07	550D406G07	550D406G07	1			
45	Eccentric pin	416C151H06	416C151H06	416C151H06	1			
46	Tee lever	296B877G01	296B877G01	296B877G01	1			
47	Tee lever pin	416C151H03	416C151H03	416C151H03	1			
48	Push rod	296B882G01	296B882G02	296B882G02	1			
48	Push rod, time delay	296B882G04	296B882G04	296B882G04	1			
49	Push rod pin	416C151H04	416C151H04	416C151H04	2			
50	Inertia latch	550D406G01	550D406G01	550D406G01	1			
51	Auxiliary latch	416C157H05	416C157H05	416C157H05	1			
①	Latch bushing	416C155H01	416C155H01	416C155H01	1			
41	Cam follower	197A759H01	197A759H01	197A759H01	1			
52	Torsion spring	197A756H01	197A756H01	197A756H01	1			
53	Inertia latch pivot pin	416C151H02	416C151H02	416C151H02	1			
①	Time delay under-voltage assembly				1			
①	Resistor, 1000 Ohm		443A334H16	443A334H16	1			
①	Resistor, 10,000 Ohm		443A329H25	443A329H25	1			
①	Capacitor, 400 Mfd		454A839H07	454A839H07	1			
①	Diode, 1N4822		454A844H07	454A844H07	1			
54	Centering lever	296B880H01	296B880H01	296B880H01	2			
55	Centering spring	197A755H01	197A755H01	197A755H01	1			
56	Operating handle	416C175G06	416C175G06	416C175G06	1			
57	Knob for operating handle	1624 145	1624 145	1624 145	1			
58	OT pushbutton operator	371D950G02	371D950G02	371D950G02	1			
59	OT contact block	373D003G02	373D003G02	373D003G02	1			
60	Overload relay heater	②	②	②	2			
①	Contact kit	③ 550D409G11	550D409G11	3354D90G06	1			

Parts indented are included in the part under which they are indented.

① Not illustrated.

② When ordering relay heaters specify code marking stamped on heater or refer to heater table.

③ Contact kit consists of one complete set of contacts, arc grids and springs for starter; kits for frames 5M and 5MM include mounting hardware.

Heater Selection Tables

- Tables apply to enclosed type JF autostarters used with motors rated 40°C rise.
- For 50°C or 55°C rise motors, select heaters approximately one size smaller but always with a rating higher than the full load current.
- When motor room temperature exceeds starter room temperature, assume a decreased motor current of 1% for each degree C difference in temperature.
- When starter room temperature exceeds motor room temperature assume an increased motor current of 1% for each degree C difference in temperature.

Full Load Current of Motor (Amps)	Heater Catalog Number	Heater Style Number
125% Overload Protection		

Size 4 Starter with AN Relay (3 Heaters)

96 to 105	H90	504C972G20
106 to 116	H91	504C972G21
117 to 127	H92	504C972G22
128 to 135	H93	504C972G23

Size 5 and 5M Starters with AN Relay and 400/5 Current Transformer

69 to 74	H16	503C553G16
75 to 82	H17	503C553G17
83 to 90	H18	503C553G18
91 to 100	H19	503C553G19
101 to 110	H20	503C553G20
111 to 121	H21	503C553G21
122 to 132	H22	503C553G22
133 to 145	H23	503C553G23
146 to 159	H24	503C553G24
160 to 175	H25	503C553G25
176 to 191	H26	503C553G26
192 to 210	H27	503C553G27
211 to 231	H28	503C553G28
232 to 253	H29	503C553G29
254 to 277	H30	503C553G30
278 to 301	H31	503C553G31
302 to 329	H32	503C553G32
330 to 364	H33	503C553G33

Size 5MM Starter with AN Relay and 600/5 Current Transformer

199 to 217	H23	503C553G23
218 to 239	H24	503C553G24
240 to 263	H25	503C553G25
264 to 287	H26	503C553G26
288 to 316	H27	503C553G27
317 to 347	H28	503C553G28
348 to 380	H29	503C553G29