EATON | Cutler-Hammer

Motor Control Center
Type Series 2100/5 Star

Renewal Parts

Supersedes RPD Supplement 8991c
pages 1-28, dated May 1998

MCC Type	Dates	Cutler-Hammer Renewal Parts Publication
F2100 Advantage™ Series 2100	1995 – 1992 – 1987 – 95	RP04304001E RP04304002E RP04304003E
5 Star Freedom Unitrol F10 Unitrol	1975 – 87 1988 – 94 1972 – 89	RP04304003E RP04304004E RP04304005E
Type W 9800 Unitrol 11-300	1965 – 75 1956 – 74 1935 – 65	RP04304006E RP04304007E RP04304008E

F2100 *Advantage* *Series 2100/ 5 Star* *Freedom Unitrol* *F10 Unitrol* *Type W* *9800 Unitrol* *11-300*

Identifying Motor Control Center Types

In most cases, it is possible to identify MCC design by handle type. Starter type, bucket width and door width can assist in identification.

Table 1. Identifying Motor Control Center Types

MCC Type	Type of Handle Mechanism	Original MCC Starter Type	Bucket Width Inches (mm)	Door Width Inches (mm)	Original Manufacturer ①	Starter Type (Installed in New Unit)
F2100 ②	Lever	Freedom Series	13-3/4 (349.3)	15-5/8 (397.0)	Cutler-Hammer 1994 to Present	Freedom
Advantage ②	Lever	Advantage	13-3/4 (349.3)	15-5/8 (397.0)	Westinghouse until 1994 Cutler-Hammer 1994 to Present	Advantage
Series 2100 ②	Lever	A200	13-3/4 (349.3)	15-5/8 (397.0)	Westinghouse until 1994 Cutler-Hammer 1994 to Present	A200
5 Star ②	Lever	A200	13-3/4 (349.3)	15-5/8 (397.0)	Westinghouse 1975 – 1987	A200
Freedom Unitrol	Slider	Freedom Series	13-7/8 (352.5)	15-1/2 (393.7)	Cutler-Hammer 1988 – 1994	Freedom
F10 Unitrol	Slider and Lever	Citation	14 (355.6)	14-3/4 (374.7) w/ Wireway 19-1/2 (495.3) w/o Wireway	Cutler-Hammer 1972 – 1989	Freedom
Type W	Slider	A200 or 11-200	11-3/4 (298.5)	13-3/8 (339.9)	Westinghouse 1965 – 1975	A200
9800 Unitrol	Rotary ③	3 Star/Citation	16-1/8 (409.7)	19-3/8 (492.3)	Cutler-Hammer 1956 – 1974	Freedom
11-300	Rotary	11-200 Lifeline Type N/A200	15-3/4 (400.1)	20 (508.0)	Westinghouse 1950 – 1965	A200

① MCC types were sometimes produced outside the time spans shown. This was due to the overlap of production when a new design was adopted.
② The unit "wrappers" are mechanically identical for these designs.
③ 9800 originally was supplied with Rotary. New replacement units are manufactured with slider handle mechanism.

Identification by Original Handle Mechanism

F2100, Advantage, Series 2100/5 Star

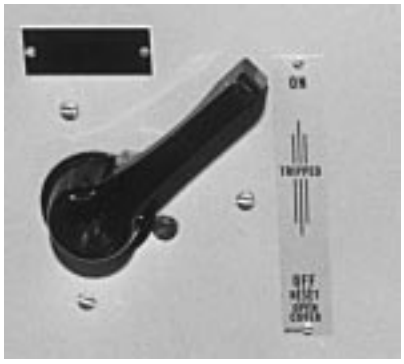
Freedom Unitrol

F10 Unitrol Slider 9800 Unitrol

F10 Unitrol Lever and 9800 Unitrol

Type W

9800 Unitrol



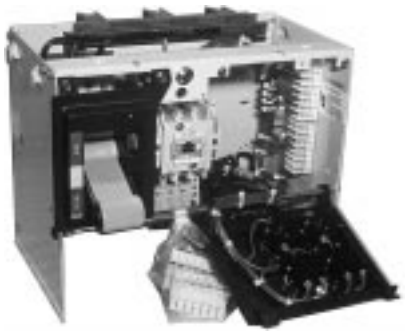
11-300

Procedure for Identifying Motor Control Center Types

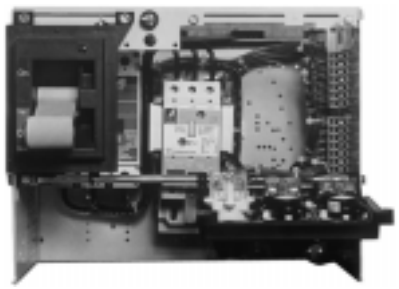
In the event that the nameplate is missing, it is possible to identify the MCC design by the type of handle mechanism, starter type, bucket width and door width.

Table 2. Identifying Motor Control Center Types

MCC Type	Type of Handle Mechanism	Starter Type	Bucket Width Inches (mm)	Door Width Inches (mm)	Cutler-Hammer Renewal Parts Publication
F2100 Advantage Series 2100	Lever Lever Lever	Freedom Series Advantage A200	13-3/4 (349.3) 13-3/4 (349.3) 13-3/4 (349.3)	15-5/8 (397.0) 15-5/8 (397.0) 15-5/8 (397.0)	RP04304001E RP04304002E RP04304003E
5 Star Freedom Unitrol F10 Unitrol	Lever Slider Lever/Slider	A200 Freedom Series Citation	13-3/4 (349.3) 13-7/8 (352.5) 14 (355.6)	15-5/8 (397.0) 15-1/2 (393.7) 14-3/4 (374.7) w/ Wireway or 19-1/2 (495.3) w/o Wireway	RP04304003E RP04304004E RP04304005E
Type W 9800 Unitrol 11-300	Slider Rotary Rotary	A200 or 11-200 3 Star and/or Citation 11-200 Lifeline N and/or A200	11-3/4 (298.5) 16-1/8 (409.7) 15-3/4 (400.1)	13-3/8 (339.9) 19-3/8 (492.3) 20 (508.0)	RP04304006E RP04304007E RP04304008E

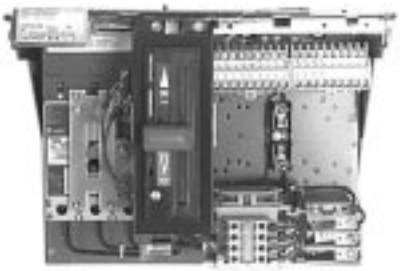


F2100



Advantage

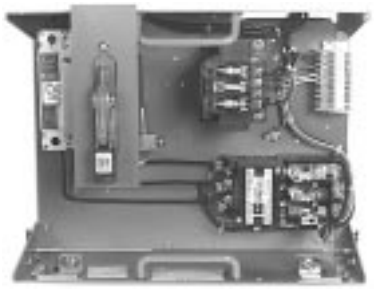
Series 2100/5 Star



Freedom Unitrol

F10 Unitrol

Type W



9800 Unitrol

11-300

Series 2100/5 Star Product Description

Introduced in 1975, the Westinghouse 5 Star MCC was the basis for the Series 2100 and Advantage designs. The vertical structures are normally 20 inches (508.0 mm) wide, 90 inches (2286.0 mm) high and 16 inches (406.4) or 21 inches (533.4 mm) deep. Vertical sections may be bolted together forming a single lineup with continuous horizontal bus and open horizontal wireways. Unit height is measured in 6 inch (152.4 mm) increments, up to a maximum of 72 inches (1828.8 mm) of usable vertical space.

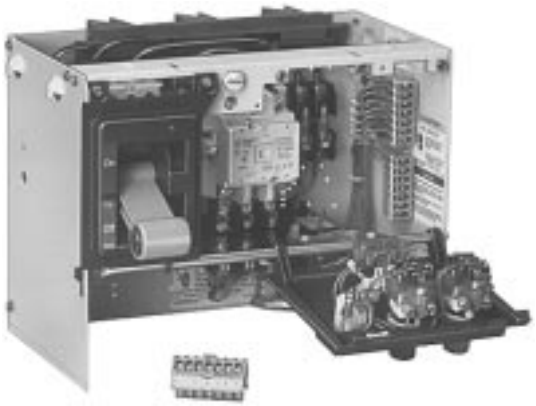
A two-tone light/dark enamel paint system is used for this design. Ferro white is applied to the structural framework and units. ANSI 61 gray is applied to the roof and side sheets and all exterior doors. Starter units are 13-3/4 inches (349.3 mm) wide.

The Series 2100/5 Star starter unit's handle mechanism is a gray toggle type handle with a black exterior mounting panel and is used on the Advantage and Freedom 2100 designs. Bus and bus support systems are typically braced to withstand fault currents of 42,000A on the 5 Star and 65,000A on the Series 2100.

Table 3. 2100 Product Rating

Maximum Ratings
3-Phase, 600V, 600 hp, 3200A Bus

Series F2100 Structure



Series F2100 Starter Unit

Series 2100/5 Star Replacement Starter Units

How to Order

When ordering a replacement unit, you receive:

- Series C® HMCP.
- A200 Starter.
- Unit options as specified.
- New steel wrapper, door and handle mechanism.
- New stabs.
- UL® label.

Use the following steps for creating a catalog number for your specific application:

Step 1

Select the correct replacement unit from **Pages 6 – 27**. When selecting, you need to know the following:

- MCC type.
- Class of Unit (FVNR, FVR, Reduced Voltage — Autotransformer or Part Winding or Solid State, FV – 2 Speed, 1 Winding or 2 Speed, 2 Winding, etc.).
- Starter size or horsepower rating.
- Protection device (breaker or fusible).
- Service voltage.
- Control voltage.
- Space required.

Step 2

Verify required space is available.

Step 3

Create a catalog number by selecting Catalog Codes from the columns per the example given.

Step 4

Add modifications as required from the Unit Options on **Pages 16 – 18**. Space available determines allowable options.

Table 4. Catalog Numbering System Example

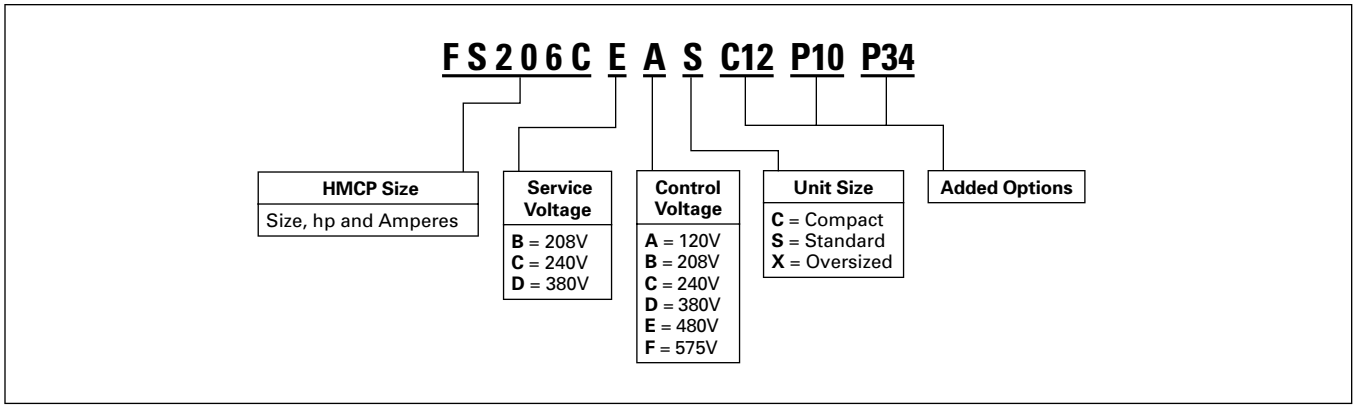


Table 5. Full Voltage Non-Reversing Combination Starter — HMCP (Must specify if HMCPE is required)

NEMA® Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS206A** **FS206B** **FS206C** **FS206D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
2	10	15	25	25	25	50	**FS206E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
3	25	30	50	50	50	100	**FS206H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
4	40	50	75	100	100	150	**FS206L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
5	60 75	60 100	125 150	150 200	150 200	250 400	**FS206P** **FS206R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**

Series 2100/5 Star Replacement Starter Units

Table 6. Full Voltage Reversing Combination Starter — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS216A** **FS216B** **FS216C** **FS216D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	10	15	25	25	25	50	**FS216E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	25	30	50	50	50	100	**FS216H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
4	40	50	75	100	100	150	**FS216L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
5	50 75	60 100	100 150	125 200	150 200	250 400	**FS216P** **FS216R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

Table 7. Full Voltage 2 Speed 1 Winding — Constant/Variable Torque — HMCP ①

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS946A** **FS946B** **FS946C** **FS946D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	10	15	25	25	25	50	**FS946E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	25	30	50	50	50	100	**FS946H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	40	50	75	100	100	150	**FS946L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
5	60 75	60 100	125 150	150 200	150 200	250 400	**FS946P** **FS946R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**

① For constant horsepower instead of constant/variable torque, see Option SV6 on **Page 18**.

Series 2100/5 Star Replacement Starter Units

Table 8. Full Voltage 2 Speed 2 Winding — Constant/Variable Torque — HMCP ①

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS956A** **FS956B** **FS956C** **FS956D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	10	15	25	25	25	50	**FS956E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	25	30	50	50	50	100	**FS956H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
4	40	50	75	100	100	150	**FS956L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
5	50 75	60 100	100 150	125 200	150 200	250 400	**FS956P** **FS956R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

① For constant horsepower instead of constant/variable torque, see Option SV6 on **Page 18**.

Table 9. Reduced Voltage Autotransformer — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	10	15	25	25	25	50	**FS606E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
3	25	30	50	50	50	100	**FS606H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**
4	40	50	75	100	100	150	**FS606L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S** ②
5	50 75	60 100	100 150	125 200	150 200	250 400	**FS606P** **FS606R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S** ②

② If existing MCC is back-to-back design, 36 inches (914.4 mm) in bottom rear is unusable.

Series 2100/5 Star Replacement Starter Units

Table 10. Reduced Voltage Part Winding — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	10	10	15	15	15	30	**FS706D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High	**S**
2	20	25	40	40	40	100	**FS706F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High	**S**
3	40	50	75	75	75	150	**FS706J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
4	—	—	—	100	125	150	**FS706L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
	75	75	150	150	150	250	**FS706M**					48 (1219.2) High	**S**
5	100 150	125 150	— 250	250 350	300 250	400 600	**FZ706R** **FZ706T**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

Table 11. Reduced Voltage Wye Delta Open Transition — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	20	25	40	40	40	100	**FS806F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
3	40	50	75	75	75	150	**FS806J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	60 —	75 —	125 150	150 —	150 —	250 400	**FS806M** **FS806N**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**
5	100 150	125 150	200 250	250 350	300 —	400 600	**FS806R** **FS806T**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

Series 2100/5 Star Replacement Starter Units

Table 12. Reduced Voltage Wye Delta Closed Transition — HMCP (Non-Chiller Application)

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	20	25	40	40	40	100	**FS896F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
3	40	50	50	50	50	100	**FS896J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	60 —	75 —	125 150	150 —	150 —	250 400	**FS896M** **FS896N**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
5	100 150	125 150	200 250	250 300	300 —	400 600	**FS896R** **FS896T**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

IT06 — Intelligent Technologies *IT.* Solid-State Reduced Voltage Starter — HMCP

The ***IT.*** solid-state reduced voltage starter uses SCRs when starting and a low impedance run circuit during operation. Solid-state starters have (5) 24V dc inputs and 2 relay outputs. Soft start units include a disconnect, starter, 24V dc power supply and 100VA CPT.

Motor Service Factor (SF) Effect on *IT.* Starter Selection

- A 1.0 service factor motor may draw up to 1.00 x full load amperes.
- A 1.15 service factor motor may draw up to 1.15 x full load amperes.
- 15% more current. ***IT.*** starters are current rated devices. In some cases, a larger ***IT.*** SSRV starter must be supplied for 1.15 SF motors. See the maximum horsepower chart below.

Note: Most motors used in industrial applications are 1.15 Service Factor (SF).

Table 13. Replacement *IT.* Soft Start Units

Service Factor	Horsepower	*IT.* Soft-Start Amperes	HMCP Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options	Catalog Code
1.15	10	37	100	**FS306A**	208	**B**	120	**A**	12 (304.8) High	**S**
	15	66		**FS306B**			208	**B**		
	30	105	150	**FS306C**			240	**C**	18 (457.2) High	
	40	135		**FS306D**			380	**D**		
	50	180	400	**FS306E**			480	**E**	36 (914.4) High	
	60	240		**FS306F**			575	**F**		
	75	304		**FS306G**			—	**—**		
1.15	10	37	100	**FS306A**	240	**C**	120	**A**	12 (304.8) High	**S**
	20	66		**FS306B**			208	**B**		
	30	105	150	**FS306C**			240	**C**	18 (457.2) High	
	40	135		**FS306D**			380	**D**		
	60	180	250	**FS306E**			480	**E**	36 (914.4) High	
	75	240	400	**FS306F**			575	**F**		
	100	304		**FS306G**			—	**—**		
1.15	15	37	100	**FS306A**	380	**D**	120	**A**	12 (304.8) High	**S**
	30	66		**FS306B**			208	**B**		
	45	105	150	**FS306C**			240	**C**	18 (457.2) High	
	55	135	250	**FS306D**			380	**D**		
	75	180	400	**FS306E**			480	**E**	36 (914.4) High	
	110	240		**FS306F**			575	**F**		
	132	304	600	**FS306G**			—	**—**		

Series 2100/5 Star Replacement Starter Units

Table 13. Replacement *IT.* Soft Start Units (Continued)

Service Factor	Horsepower	*IT.* Soft-Start Amperes	HMCP Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options	Catalog Code
1.15	20	37	100	**FS306A**	480	**E**	120	**A**	12 (304.8) High	**S**
	40	66		**FS306B**			208	**B**		
	60	105	150	**FS306C**			240	**C**	18 (457.2) High	
	75	135		**FS306D**			380	**D**		
	125	180	400	**FS306E**			480	**E**	36 (914.4) High	
	150	240		**FS306F**			575	**F**		
	200	304		**FS306G**			—	**—**		
1.15	30	37	100	**FS306A**	575	**F**	120	**A**	12 (304.8) High	**S**
	50	66		**FS306B**			208	**B**		
	75	105	150	**FS306C**			240	**C**	18 (457.2) High	
	100	135		**FS306D**			380	**D**		
	150	180	250	**FS306E**			480	**E**	36 (914.4) High	
	200	240	400	**FS306F**			575	**F**		
	250	304		**FS306G**			—	**—**		

Table 14. Full Voltage Non-Reversing — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS204C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
2	— 10	— 15	15 25	15 25	25 —	30 60	**FS204E** **FS204F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS204H** **FS204J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
4	— 50	— 50	— 50	60 100	75 100	100 200	**FS204L** **FS204M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
5	60 100	60 100	100 150	150 200	150 200	200 400	**FS204P** **FS204R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480	**A** **B** **C** **D** **E**	60 (1524.0) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Replacement Starter Units

Table 15. Full Voltage Reversing — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS214C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	— 10	— 15	15 25	15 25	25 —	30 60	**FS214E** **FS214F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS214H** **FS214J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS214L** **FS214M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
5	60 100	60 100	100 150	150 200	150 200	200 400	**FS214P** **FS214R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.

Table 16. Full Voltage Non-Reversing Vacuum Starters — Fusible ②

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
4	— 50	— 50	— 60	60 100	75 100	100 200	**FSV04L** **FSV04M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
5	60	60	100	150	150	200	**FSV04P**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
	100	100	150	200	200	400	**FSV04R**					72 (1828.8) High	**S**

② Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Replacement Starter Units

Table 17. Full Voltage 2 Speed 1 Winding — Fusible — Constant/Variable Torque ①②

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS944C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	— 15	— 15	15 25	15 25	25 —	30 60	**FS944E** **FS944F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High 30 (762.0) High	**S** **X**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS944H** **FS944J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS944L** **FS944M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.
② For constant horsepower instead of constant/variable torque, see option SV6 on **Page 18**.

Table 18. Full Voltage 2 Speed 2 Winding — Fusible – Constant/Variable Torque ③④

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS954C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	— 15	— 15	15 25	15 25	25 —	30 60	**FS954E** **FS954F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High 30 (762.0) High	**S** **X**
3	— 25	20 30	30 60	40 50	50 —	60 100	**FS954H** **FS954J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS954L** **FS954M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

③ Fuse clip ratings shown are based on Class RK1, 5 fuses.
④ For constant horsepower instead of constant/variable torque, see Option SV6 on **Page 18** .

Series 2100/5 Star Replacement Starter Units

Table 19. Reduced Voltage Autotransformer — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	— 10	— 15	15 25	15 25	25 —	30 60	**FS604E** **FS604F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS604H** **FS604J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS604L** **FS604M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S** ②

① Fuse clip ratings shown are based on Class RK1, 5 fuses.
② If existing MCC is Back-to-Back design, 36 inches (914.4 mm) in bottom rear is unusable.

Table 20. Reduced Voltage Part Winding — Fusible ③

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	10	10	15	15	60	60	**FS704D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
2	—	15	25	30	40	60	**FS704F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
	20	25	40	40	—	200	**FS704G**					30 (762.0) High	**S**
3	— 40	— 50	— 75	50 75	60 75	100 200	**FS704J** **FS704K**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
4	50 75	— 75	100 150	100 150	150 —	200 400	**FS704M** **FS704N**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

③ Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Replacement Starter Units

Table 21. Reduced Voltage Wye Delta Open Transition — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	15	15	30	40	40	60	**FS804F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
	20	25	40	—	—	100	**FS804G**					36 (914.4) High	**S**
3	25	30	50	60	75	100	**FS804J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
	40	50	75	75	—	200	**FS804K**					48 (1219.2) High	**S**
4	50	60	100	125	150	200	**FS804M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
	60	75	150	150	—	400	**FS804N**					72 (1828.8) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.

Table 22. Reduced Voltage Wye Delta Closed Transition — Fusible (Non-Chiller Application) ②

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	15	15	30	40	40	60	**FS894F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
	20	25	40	—	—	100	**FS894G**					36 (914.4) High	**S**
3	25 40	30 50	50 75	60 75	75 —	100 200	**FS894J** **FS894K**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
4	50	60	100	125	150	200	**FS894M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
	60	75	150	150	—	400	**FS894N**					72 (1828.8) High	**S**

② Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Unit Options

Table 23. Option Groups ①

Groups	Description	Page Number
A	Advantage Options	**16**
B	Circuit Breaker Options	**16**
C	Control Power Source Options	**16**
G	Ground Fault Protection Options	**17**
M	Metering Options	**17**
O	Overload Options	**17**
P	Pilot Device Options	**17**
R	Relay and Timer (Control, Voltage, Current) Options	**18**
S	Starter Contact Options	**18**
SV	Vacuum Starter Options	**18**
T	Terminal Block Options	**18**
U	Unit Wiring Options	**18**

① Select your option suffix and attach it to the end of the catalog number.

Table 24. Option Suffix

Suffix	Description	Space Required ②
A — Advantage Options		
A10	Substitute Advantage Starter Size 1	③
A11	Substitute Advantage Starter Size 2	③
A12	Substitute Advantage Starter Size 3	③
A13	Substitute Advantage Starter Size 4	③
A14	Substitute Advantage Starter Size 5	**C** ③④
A15	Advantage Hand/Off/Auto ACM for FVNR or RVNR Starters	**C** ④
A16	Advantage Stop/Start for FVNR or RVNR Starters	**C** ④
A17	Advantage Hand/Off/Auto-Start/Stop ACM for FVNR or RVNR Starters	**C** ④
A18	Advantage Fast/Slow/Stop 2-Speed Starters	**C** ④
A19	Advantage Forward/Reverse/Stop for Reversing Starters	**C** ④
A20	Advantage Fast/Slow/Off/Auto for 2-Speed Starters	**C** ④
A21	Advantage Forward/Reverse/Off/Auto for Reversing Starters	**C** ④
A22	ACM Metering Module	**C** ④
A23	WBELL Form C Bell Alarm Contact	**C** ④
A24	Reset with Overload Alarm and Trip Indication	**C** ④
A25	120V ac PLC Circuit Compatible Load Resistor	**C** ④
A26	WPONI PowerNet Communications Module	**C** ④
A27	Advantage Status Only ACM	**C** ④
A28	WPONIDNA DeviceNet Communications Module	**C** ④
B — Breaker Options		
B10	Shunt Trip 120V AC Wired to Terminal Blocks for Remote Tripping	**C**
B11	Auxiliary Switch Form C (1NO/1NC) Wired to Terminal Blocks	**C**
B12	Form C Bell Alarm Contact (1NO/1NC) Wired to Terminal Blocks	**C**
B13	Undervoltage Release	**C**
B14	IQ Energy Sentinel — F Frame	③
B15	IQ Energy Sentinel — J Frame	③
B16	IQ Energy Sentinel — K Frame	③
B17	IQ Central Energy Display	③
B18	Thermal Magnetic Circuit Breaker Instead of HMCP	**—**
C — Control Power Source Options		
C10	Control Fuse Wired for Separate Source in Lieu of Control Power Transformer	**C**
C11	Control Fuse with Disconnect for Separate Source in Lieu of Control Power Transformer	**C**
C12	Control Power Transformer 100 VA for Size 1 and 2 Starters (Fused)	**C** ④
C13	Control Power Transformer 150 VA for Size 3 and 4 Starters (Fused)	**C**
C14	Control Power Transformer 100 VA with Interposing Relay for Size 5 Starters, Fused	**C**
C15	Extra 50 VA for Control Power Transformer	**S**
C16	Extra 100 VA for Control Power Transformer	**S**
C17	Service Voltage Control, Fused in Lieu of Control Power Transformer	**C**
C18	Full Capacity Control Power Transformer for Size 5 Starters, Fused	**C**

② Minimum unit size required (refer to Replacement Unit pages).
③ Consult factory for spacing.
④ Not available in 6 inches (152.4 mm).

Series F2100/5 Star Unit Options

Table 24. Option Suffix (Continued)

Suffix	Description	Space Required ①
G — Ground Fault Protection Options		
G10	Class 1 Ground Fault Protection — GRT1 Size 1 – 4	X
G11	Class 1 Ground Protection — GRT1 Size 5 – 6	X
G12	Ground Fault Test Panel	X
M — Metering Options		
M10	Mini Voltmeter	C ②
M11	Mini Ammeter with Current Transformer	S
M12	Mini Elapsed Time Meter	C ②
M13	Current Transformer for Remote Metering	S
M14	Current Transducer 4-20 mA Output	X
O — Overload Options		
O10	IQ 500 Solid-State Overload Relay	—
O11	IQ 500 Load Protection Module	—
O16	Bell Alarm (1NO) Wired	C
O17	Bi-Metallic Overload Substitution	C
O18	Adjustable A200 Overload Substitution	C
O19	Overload Relay Heater/Heater Pack	C
O20	CEP7 Solid-State Overload Relay	C
P — Pilot Device Options ③		
P10	Red “RUN” Light	C
P11	Green “STOPPED” Light	C
P12	Amber “OVERLOAD TRIPPED” Light	C
P13	Green “RUN” Light	C
P14	Red “STOPPED” Light	C
P15	Red “RUN” Push-to-Test Light	C
P16	Green “STOPPED” Push-to-Test Light	C
P17	Amber “OVERLOAD TRIPPED” Push-to-Test Light	C
P18	Green “RUN” Push-to-Test Light	C
P19	Red “STOPPED” Push-to-Test Light	C
P20	Special Function Light	C
P30	“START” Pushbutton	C
P31	“STOP” Pushbutton	C
P32	“START/STOP” Pushbutton	C
P33	“ON” Pushbutton	C
P34	“OFF” Pushbutton	C
P35	“ON/OFF” Pushbutton	C
P36	“FORWARD/REVERSE/STOP” Pushbutton	C
P37	“FAST/SLOW/STOP” Pushbutton	C
P38	“FAST/OFF/SLOW” Pushbutton	C
P39	“HIGH/LOW/STOP” Pushbutton	C
P40	“HIGH/LOW/OFF” Pushbutton	C
P41	Special Function Pushbutton	C
P50	“ON-OFF” Selector Switch	C
P51	“HIGH-LOW” Selector Switch	C
P52	“OFF-AUTO” Selector Switch	C
P53	“START-STOP” Selector Switch	C
P54	“SLOW-FAST” Selector Switch	C
P55	“FORWARD-REVERSE” Selector Switch	C
P56	Special Function 2-Position Selector Switch	C
P57	“HAND-OFF-AUTO” Selector Switch	C
P58	“LOCAL-OFF-REMOTE” Selector Switch	C
P59	“FAST-OFF-SLOW” Selector Switch	C
P60	“HIGH-OFF-LOW” Selector Switch	C
P61	Special Function 3-Position Selector Switch	C
P62	“HIGH-LOW-OFF-AUTO” Selector Switch	C
P63	Special Function 4-Position Selector Switch	C

① Minimum unit size required (refer to Replacement Unit pages).
② Customer to supply range of meter required.
③ Available only with F2100, Advantage, Series 2100/5 Star, Freedom Unitrol, F10 Unitrol and Type W. Consult factory for specific size limitations.

Series F2100/5 Star Unit Options

Table 24. Option Suffix (Continued)

Suffix	Description	Space Required ①
R — Relay and Timer Options		
R10	Auxiliary Control Relay 2-Pole (1NO/1NC) Convertible Contacts Wired in Parallel with Starter Coil	**S**
R11	Auxiliary Control Relay 4-Pole (2NO/2NC) Convertible Contacts Wired in Parallel with Starter Coil	**S**
R12	Auxiliary Control Relay 2-Pole Overload Alarm (1NO/1NC) Convertible Contacts	**S**
R13	Mechanical Latching Relay (Specify Connection)	**X**
R14	Ice Cube Relay 300 Volts 3-Pole Blade Type (Specify Connection)	**S**
R15	Phase Voltage Relay	**X**
R16	Current Sensing Relay with Contacts Wired to Terminal Blocks	**X**
R17	Deceleration Timing Relay (Pneumatic “OFF” Delay)	**S**
R18	Compelling Timing Relay (Pneumatic “ON” Delay)	**S**
R19	Time Clock 24 Hour	②
R20	Time Clock 7 Day	②
R21	Solid-State Timer Type TR (Specify Connection)	**S**
R22	DN65 DeviceNet Interface Module	**S**
R23	D15 2-Pole Control Relay	**C**
R24	D15 4-Pole Control Relay	**C**
S — Starter Contact Options (Maximum of 8 Contacts)		
S_ _	To order extra starter contacts, you must specify the number of NO/NC contacts, given a maximum of eight (8). To define the unit option required, create a suffix based on the following example:	

	Quantity of Normally Open Contacts	Quantity of Normally Closed Contacts
S	2	3

SV — Vacuum Starter Options		
SV4	Vacuum Starter Size 4 Substitution FVNR	②
SV5	Vacuum Starter Size 5 Substitution FVNR	②
SV6	Constant Horsepower Instead of Constant/Variable Torque	**—**
T — Terminal Block Options		
T10	Pull-apart Type Terminal Blocks (Standard on all Vintages Except Type W and 11-300)	**S**
T11	Utility Screw Type Terminal Blocks (Add 6 Inches (152.4 mm) for Every 18 Points)	**—**
T12	Front-mounted Pull-apart Terminal Block for F2100, Advantage, Series 2100/5 Star	**S**
T13	T-Lead Power Terminal Blocks for Size 1 Starter	**—**
U — Unit Wiring Options		
U10	Surge Suppressor on Coil	**C**
U11	Type SIS Control Wire	**C**
U12	Type SIS Power Wire	**C**
U13	Type 14 Gauge Control Wire (Standard for all Vintages Except F2100, Series 2100/5 Star, Type W and 11-300)	**C**
U14	Wiremarkers — Sleeve Type on all Control Wire	**C**
U15	Locking Fork Terminals on all Control Wiring	**S**
U16	Ring Wire Terminals on Power Wiring	**S**
U17	Wiring Diagram Inside Starter Unit Door	**C**
U18	Pre-insulated Ring Terminals on all Control Wiring	**C**
U19	Pre-insulated Ring Terminals on all Control Wiring, except for Freedom Starter Terminals	**C**
U20	Wiremarkers for Power Wiring	**C**

① Minimum unit size required (refer to Replacement Unit pages).
② Consult factory for spacing.

Series 2100/5 Star Structure Parts

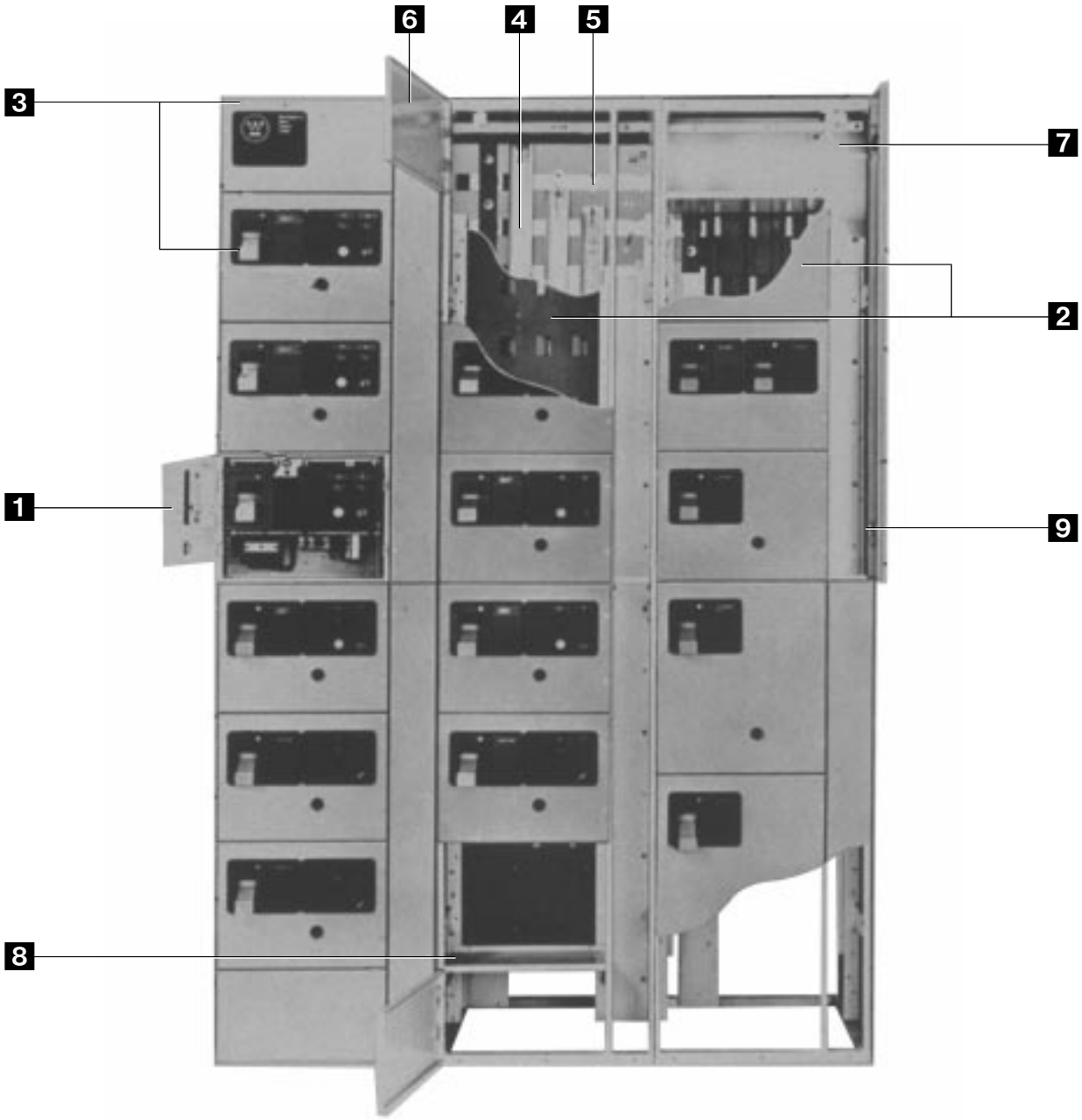


Table 25. Structure Parts

Reference	Description	Page
1	Blank Unit Door	20
2	Vertical Bus Barrier Kit Shutter Kit	20 20
3	Top and Side Sheet Metal Covers Touch-up Paint Kit	20 20
4	Vertical Bus Bar Vertical Bus Insulation Kit	20 20
5	Horizontal Bus Bar	21

Reference	Description	Page
6	Horizontal Wireway Door Kit	21
7	Horizontal Bus Barriers	21
8	Divider Pan/Guide Rails	21
9	Vertical Wireway Door Kit Horizontal to Vertical Bus Connection Kit Horizontal Bus Insulator Kit Horizontal Bus Splice Kit Door Mounting Hardware Kit	21 22 22 22 22

Series 2100/5 Star Structure Parts

Vertical Bus Bar 4

65,000 ampere rms bus bracing

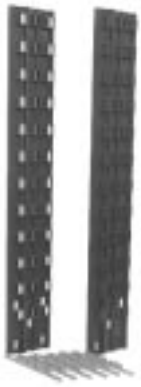
Vertical Bus Bar

Table 26. Vertical Bus Bar — Copper Only

Ampere Rating	Mounting Type	Style Number
300	Front	**4719A80G01**
600	Front/Back-to-Back	**4719A80G02**
800	Front	**4719A80G04**
1200	Front	**4719A80G05**

Vertical Bus Barrier Kits 2

Standard Flat Barrier

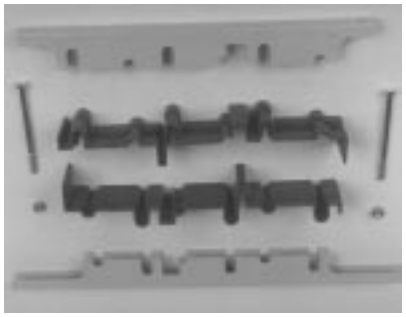


Labyrinth Barrier Kit

Table 27. Vertical Bus Barrier Kit

Description	Style Number
Standard flat barrier kit includes one flat barrier, 12 covers and clips.	**4719A91G13**
Labyrinth barrier kit includes front and rear barrier, bus supports and hardware (does not include shutters).	**4719A91G14**

Vertical Bus Insulation Kit 4



Vertical Bus Insulation Kit

Table 28. Vertical Bus Insulation Kit

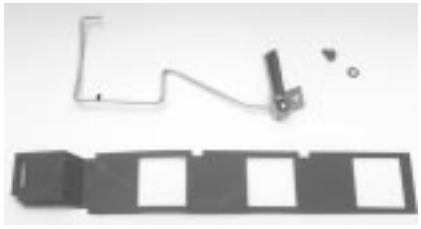
Description	Style Number
Kit includes 2 insulators, 2 mounting brackets and mounting hardware.	**4719A91G12**

Sheet Metal Covers with Mounting Hardware 3

Table 29. Sheet Metal Covers with Mounting Hardware

Description	Style Number
Side Sheets	
16-Inches (406.4 mm) Deep, Front Mounted	**4719A91G31**
21-Inches (533.4 mm) Deep, Front Mounted	**4719A91G32**
21-Inches (533.4 mm) Deep, Back-to-Back Mounted	**4719A91G33**
Rear Sheets	
20-Inches (508.0 mm) Wide x 90-Inches (2286.0 mm) High	**4719A91G34**
24-Inches (609.6 mm) Wide x 90-Inches (2286.0 mm) High	**4719A91G35**
Top Sheets	
20-Inches (508.0 mm) Wide x 16-Inches (406.4 mm) Front Mounted	**4719A91G36**
20-Inches (508.0 mm) Wide x 21-Inches (533.4 mm) Front Mounted	**4719A91G37**
20-Inches (508.0 mm) Wide x 21-Inches (533.4 mm) Back-to-Back Mounted	**4719A91G38**
24-Inches (609.6 mm) Wide x 16-Inches (406.4 mm) Front Mounted	**4719A91G39**
24-Inches (609.6 mm) Wide x 21-Inches (533.4 mm) Front Mounted	**4719A91G40**

Shutter Kit 2



Shutter Kit

Table 30. Shutter Kit

Description	Style Number
Kit includes shutter, spring loaded coupler and mounting screws.	**4719A91G15**

Blank Unit Door with Mounting Hardware 1

Table 31. Blank Unit Door with Mounting Hardware

Description	Style Number
6-Inches (152.4 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G20**
12-Inches (304.8 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G21**
18-Inches (457.2 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G22**
24-Inches (609.6 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G23**
30-Inches (762.0 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G24**
36-Inches (914.4 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G25**

Touch-up Paint Kit 3

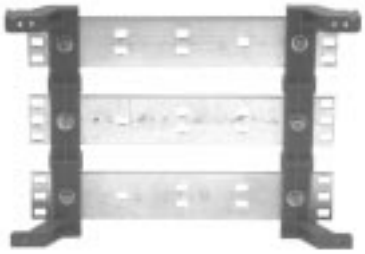
Table 32. Touch-up Paint Kit

Description	Style Number
Kit includes three spray cans of ANSI-61 Gray.	**4719A91G10**

Series 2100/5 Star Structure Parts

Horizontal Bus Bar 5

65,000 ampere rms bus bracing.



Horizontal Bus Bar

Table 33. Horizontal Bus Bar — Tin-Plated Copper

Structures		Bar Size Inches (mm)	Bars/ Phase	Ampere Rating		Style Number
Number	Width Inches (mm)			UL (50°C)	NEMA (65°C)	
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 2 (6.4 x 50.8)	1	600	600	**4719A97G28** **4719A97G29** **4719A97G30**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 2 (6.4 x 50.8)	1	—	800	**4719A97G31** **4719A97G32** **4719A97G33**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 3 (6.4 x 76.2)	1	—	1000	**4719A97G34** **4719A97G35** **4719A97G36**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 3 (6.4 x 76.2)	2	—	1200	**4719A97G37** **4719A97G38** **4719A97G39**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 3 (6.4 x 76.2)	1	800	—	**4719A97G40** **4719A97G41** **4719A97G42**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 2-1/2 (6.4 x 63.5)	2	1200	—	**4719A97G43** **4719A97G44** **4719A97G45**

Horizontal Wireway Door Kit 6

Horizontal Wireway Door Kit

Table 34. Horizontal Wireway Door Kit

Description Inches (mm)	Style Number
9 (228.6) High x 15-1/2 (393.7) Wide (Standard Kit of 2)	**4719A91G18**
(1) 15 (381.0) High x 15-1/2 (393.7) Wide, (1) 3 (76.2) High	**4719A91G19**

Horizontal Bus Barrier Kit 7

Horizontal Bus Barrier Kit

Table 35. Horizontal Bus Barrier Kit

Description Inches (mm)	Style Number
9 (228.6) High, Front Mounted	**4719A91G02**
15 (381.0) High, Front Mounted	**4719A91G03**
15 (381.0) High, Rear Mounted	**4719A91G04**

Kit includes divider pan, horizontal and vertical barriers, junction piece, and mounting hardware.

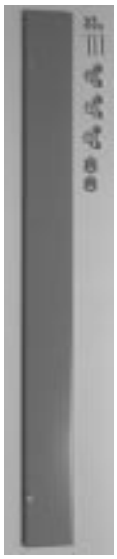
Divider Pan/Guide Rails with Mounting Hardware 8

Divider Pan/Guide Rails with Mounting Hardware

Table 36. Divider Pan/Guide Rails with Mounting Hardware

Description	Style Number
Divider pan/guide rails with mounting hardware.	**4719A91G05**

Vertical Wireway Door Kit 9



Vertical Wireway Door Kit

Table 37. Vertical Wireway Door Kit

Description Inches (mm)	Style Number
Kit includes 4 x 45 (101.6 x 1143.0) door, hinges, hinge pins and mounting hardware.	**4719A91G17**

Series 2100/5 Star Structure Parts

Horizontal to Vertical Bus Connection Kit 9

Horizontal to Vertical Bus Connection Kit

Table 38. Horizontal to Vertical Bus Connection Kit

Description	Horizontal Bus		Vertical Bus		Style Number
	Ampere Rating	Bars/Phase	Ampere Rating	Material	
Kit includes bus spacers with mounting hardware.	600	1	300	Cu	**4719A97G64**
			600	Cu	**4719A97G65**
	800	2	300	Cu	**4719A97G72**
			600	Cu	**4719A97G73**
			800	Cu	**4719A97G74**
	1200	3	300	Cu	**4719A97G80**
			600	Cu	**4719A97G81**
			800	Cu	**4719A97G82**
			1200	Cu	**4719A97G84**

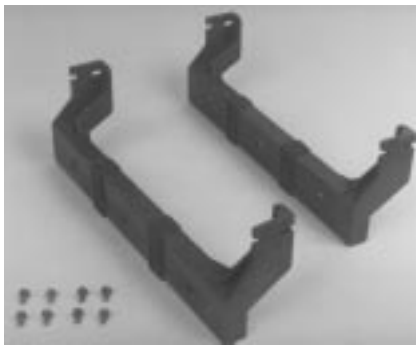
Horizontal Bus Splice Kit 9

Horizontal Bus Splice Kit

Table 39. Horizontal Bus Splice Kit — Tin-Plated Copper

Description	Bus Ampere Rating		Bus Size Inches (mm)	Bars/ Phase	Style Number
	UL (50°C)	NEMA (65°C)			
Kit includes bus splice plates with mounting hardware.	600	600	2 (50.8)	1	**4719A97G86**
	—	800	2 (50.8)	1	**4719A97G87**
	800	—	3 (76.2)	1	**4719A97G88**
	—	1000	3 (76.2)	1	**4719A97G89**
	1000	1200	3 (76.2)	2	**4719A97G90**
	1200	—	2-1/2 (63.5)	2	**4719A97G91**

Horizontal Bus Insulator Kit 9



Horizontal Bus Insulator Kit

Table 40. Horizontal Bus Insulator Kit

Description	Style Number
Kit includes 2 insulators with mounting hardware.	**4719A91G11**

Door Mounting Hardware Kit 9

Door Mounting Hardware Kit

Table 41. Door Mounting Hardware Kit

Description	Style Number
Kit includes 2 hinges, hinge pins and (2) 1/4 turn latches.	**4719A91G26**

Series 2100/5 Star Unit Parts

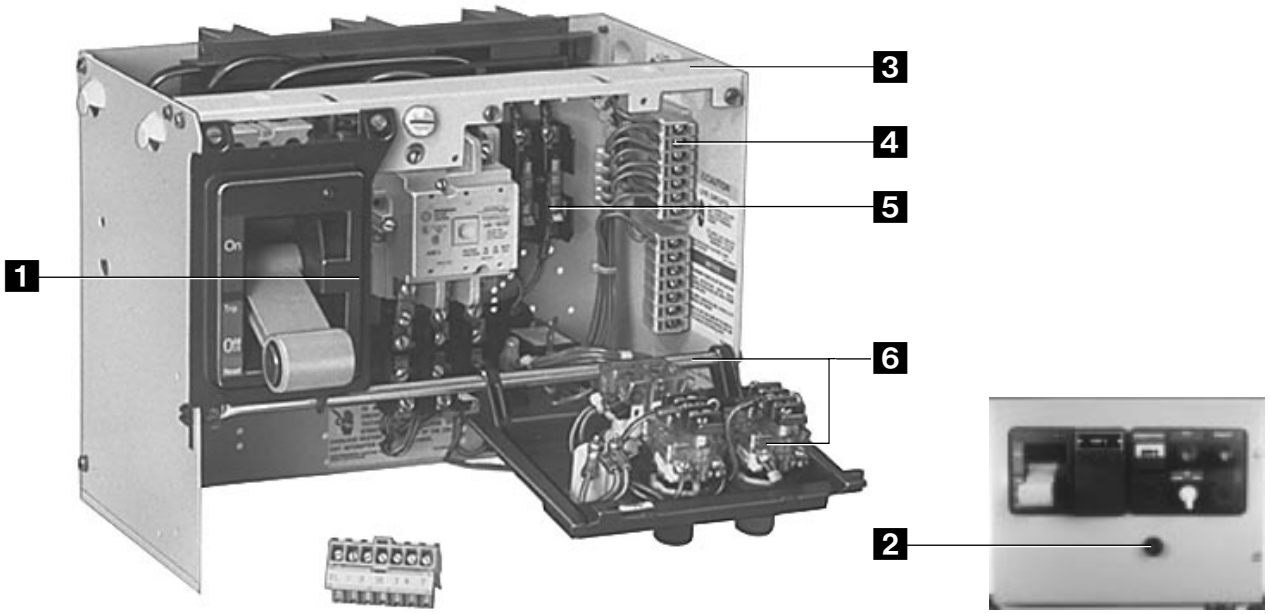


Table 42. Unit Parts

Reference	Description	Page
1	Operating Handle Mechanism	23
2	Overload Reset Button and Reset Rod Extension Kit	23
3	Unit Drawout Top Rail	24
4	Terminal Blocks	24
5	Control Transformers Primary/Secondary Fuse Holder Kit	24 24
6	Device Panel/Pivot Tube Fusible Disconnect Block Kit	24 24

Operating Handle Mechanism Kit 1

Operating Handle Mechanism Kit

Kit includes operating arm, adjustable linkage, and mounting hardware.

Table 43. Operating Handle Mechanism Kit

Description	Style Number
Circuit Breaker Units	
FB/MCP	**4719A92G43**
KB	**4719A92G05**
HFD/HMCP	**4719A88G01**
HMCPE	**4700A99G69**
HLD	**4700A99G65**
HJD/HKD	**4719A89G01**
LB	**4719A92G06**
MA/MC	**4719A92G07**
NB	**4719A92G08**
FCL	**4719A92G44**
LCL	**4719A92G45**
HFD/HMCP (6-Inch Unit)	**4719A92G56**
Fusible Switch Units	
30/60/100A DS Switch	**4719A92G09**
200/400A DS Switch	**4719A92G10**

Overload Reset Button and Reset Rod Extension Kit 2

Overload Reset Button and Reset Rod Extension Kit

Table 44. Overload Reset Button and Reset Rod Extension Kit

Description	Style Number
For A200 starters, the kit includes reset button, extension rod and "O" ring.	**4719A92G04**

Series 2100/5 Star Unit Parts

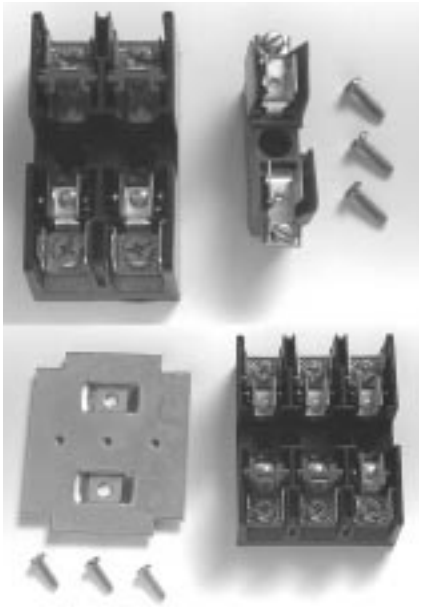
Unit Drawout Top Rail 3

Unit Drawout Top Rail

Table 45. Unit Drawout Top Rail

Description	Style Number
Unit Top Rail with Hardware	**4719A92G02**

Primary/Secondary Fuse Holder Kit 5



Primary/Secondary Fuse Holder Kit

Table 46. Primary/Secondary Fuse Holder Kit

Description	Style Number
5 Star kit includes fuse block, mounting bracket and screws.	**4719A92G01**
Series 2100 kit includes fuse block, mounting bracket and screws.	**4719A92G59**

Terminal Blocks 4

Terminal Blocks

Table 47. Terminal Blocks

Description	Style Number
White, 7 Circuit, Pull-apart	**4719A92G57**

Device Panel/Pivot Tube with Mounting Hardware 6

Device Panel/Pivot Tube with Mounting Hardware

Table 48. Device Panel/Pivot Tube with Mounting Hardware

Description	Style Number
Device panel/pivot tube with mounting hardware.	**4719A92G03**

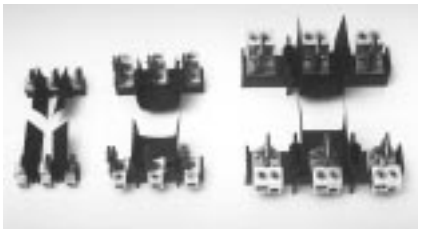
Control Transformers (480/240V to 120V Single-Phase) 5

Table 49. Control Transformers (480/240V to 120V Single-Phase)

Description	Style Number
50 VA	**4719A92G46**
100 VA	**4719A92G48**
150 VA	**4719A92G49**
200 VA	**4719A92G50**
250 VA	**4719A92G51**
300 VA	**4719A92G52**
350 VA	**4719A92G53**
500 VA	**4719A92G54**

Fusible Disconnect Block Kit 6

For use with DS type switch.



Fusible Disconnect Block Kit

Kit includes line and load blocks with clips.

Table 50. Fusible Disconnect Block Kit ①②

Description	Style Number
30A Non-rejection	**4719A92G33**
30A Rejection	**4719A92G34**
60A Non-rejection	**4719A92G35**
60A Rejection	**4719A92G36**
100A Non-rejection	**4719A92G37**
100A Rejection	**4719A92G38**
200A Non-rejection	**4719A92G39**
200A Rejection	**4719A92G40**
400A Non-rejection	**4719A92G41**
400A Rejection	**4719A92G42**

① Certain fusible designs have line fuse clips mounted on the DS Switch. Non-rejection clips can be removed from the mounting block and mounted on the switch. Rejection clips are non-removable. Order a complete switch assembly.

② For MCCs built after October 1984, consult factory for specific details.

Series C® Retrofit Kits

Series C Retrofit Kits are to be used to upgrade existing Type W and 5 Star Motor Control Center buckets by changing out the old breakers with the Series C. These kits can be applied to both starter and feeder units.

The old breakers that these kits will upgrade include, but are not limited to, the MCP, F, FA, FB, HFB, K, KA, KB, HKB, L, LA, LB and HLB breakers.

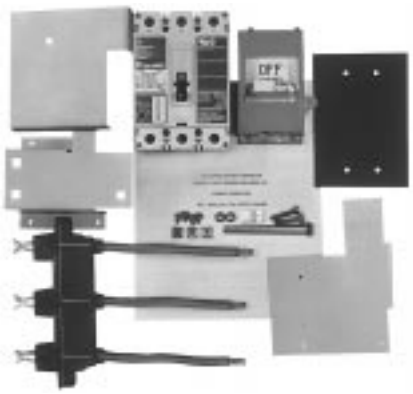
5 Star Series C Retrofit Kit

5 Star Series C Retrofit Kit

The 5 Star Series C Retrofit Kit includes:

- Series C device, 65 kA (either HMCP or thermal-magnetic breaker).
- Operating handle mechanism, including tripped indication and push-to-trip.
- Label stating that the MCC unit has been retrofitted with Series C device suitable for 65 kA (similar to UL quality label).
- Templates for desired frame size.
- Assembly instructions.

Type W Series C Retrofit Kit



Type W Series C Retrofit Kit

The Type W Series C Retrofit Kit includes:

- Series C device, 65 kA (either HMCP or thermal-magnetic breaker).
- Operating handle mechanism, including tripped indication and push-to-trip.
- Label stating that the MCC unit has been retrofitted with Series C device suitable for 65 kA (similar to UL quality label).
- Templates for proper hole placement for desired frame size.
- Series C breaker mounting hardware.
- New door and hardware.
- New stab assembly.
- Assembly instructions.

F10 Series C Retrofit Kit

F10 Series C Retrofit Kit

The F10 Series C Retrofit Kit includes:

- Series C device, 65 kA (either HMCP or thermal-magnetic breaker).
- Operating handle mechanism, including tripped indication push-to-trip.
- Label stating that the MCC unit has been retrofitted with Series C device suitable for 65 kA (similar to UL quality label).
- Templates for desired frame size.
- Assembly instructions.

How to Order

1. Select the correct Series C device from the table in the applicable RPD
   5 Star — RP04304003E
   Type W — RP04304006E
   F10 — RP04304005E
2. Create a catalog number based on the MCC Type, Device Selected, Modification, Door Size and Device Panel.

Select price from PL04304002E.

Table 51. Series C Retrofits, Catalog Numbering System

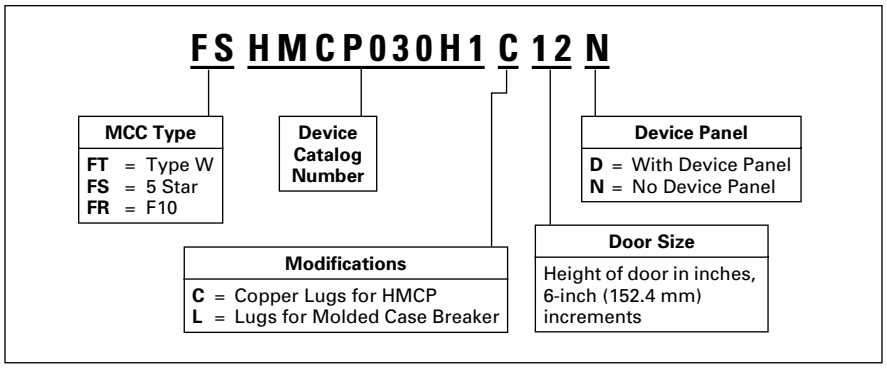


Table 52. Series 2100/5-Star Series C Breaker Retrofit Upgrade Kit

Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
FSHMCP003A0	FSHMCP250D5	FSHMCP400X5	FSFDC3020	FSHJD3250
FSHMCP007C0	FSHMCP250F5	FSHFD3015	FSFDC3025	FSJDC3175
FSHMCP015E0	FSHMCP250G5	FSHFD3020	FSFDC3030	FSJDC3200
FSHMCP025D0	FSHMCP250J5	FSHFD3025	FSFDC3040	FSJDC3225
FSHMCP030H1	FSHMCP250K5	FSHFD3030	FSFDC3050	FSJDC3250
FSHMCP050G2	FSHMCP250L5	FSHFD3040	FSFDC3060	FSHKD3300
FSHMCP050K2	FSHMCP250W5	FSHFD3050	FSFDC3070	FSHKD3350
FSHMCP070J2	FSHMCP400D5	FSHFD3060	FSFDC3080	FSHKD3400
FSHMCP070M2	FSHMCP400F5	FSHFD3070	FSFDC3090	FSKDC3300
FSHMCP100L3	FSHMCP400G5	FSHFD3080	FSFDC3100	FSKDC3350
FSHMCP100R3	FSHMCP400J5	FSHFD3090	FSFDC3125	FSKDC3400
FSHMCP150T4	FSHMCP400K5	FSHFD3100	FSFDC3150	—
FSHMCP150U4	FSHMCP400L5	FSHFD3125	FSHJD3175	—
FSHMCP250A5	FSHMCP400W5	FSHFD3150	FSHJD3200	—
FSHMCP250C5	FSHMCP400R5	FSFDC3015	FSHJD3225	—

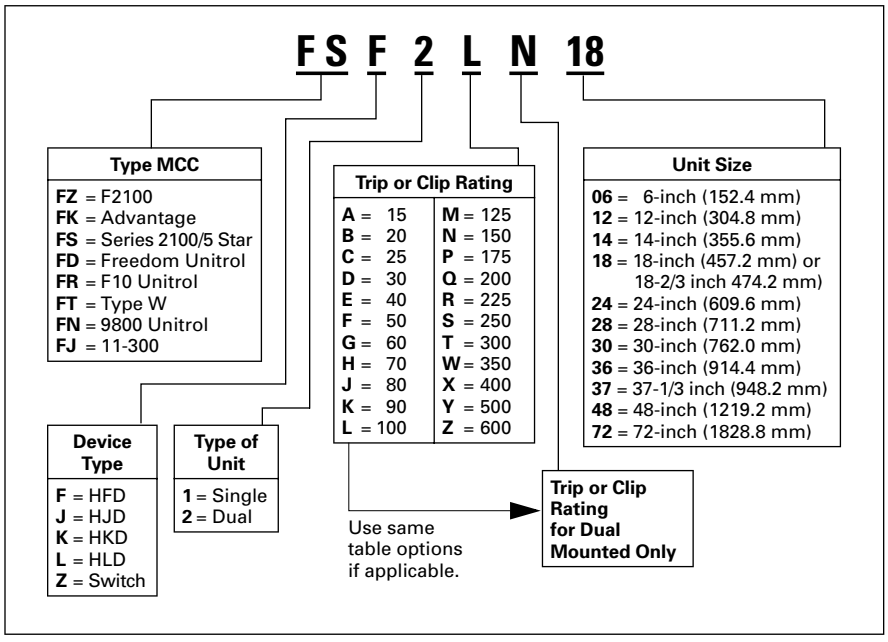
Note: Entire catalog number is not listed above and will not affect price.

How to Create a Catalog Number

After selecting the circuit device required, create a **Dual Mounted** feeder unit catalog number based on the following:

Note: Catalog number varies in length based on single or dual mounted unit.

Table 53. Catalog Numbering System Example



Replacement Feeder Units

Product Description

Each Feeder Unit consists of a single mounted 3-pole molded case circuit breaker or fusible switch (dual mounted are also available). Each unit includes a new wrapper, stab assembly, door, handle mechanism and customer specific disconnect device. They are shipped assembled and ready to install into the existing motor control center.

The following are simple steps to select and order a new feeder unit:

Step 1

Select the circuit device required from **Table 54** below.

Step 2

Verify the amount of space available.

Step 3

Create a catalog number from the formula on **Table 53** on **Page 26**.

Unit options and modifications for replacement feeder units:

For factory installed molded case circuit breaker modifications or additional unit options, contact the factory for prices and availability.

Table 54. Electrical Characteristics and Space Requirements of Molded Case Circuit Breakers and Fusible Switch Replacement Feeder Units — Inches (mm)

Device Type	Maximum Amperes	Interrupting Rating (kAIC)			Trip Rating or Clip	Freedom 2100 Series 2100/5 Star Advantage		Freedom Unitrol		F10		Type W		9800		11-300	
		240V	480V	600V		Single	Dual	Single	Dual ①	Single	Dual ①	Single	Dual	Single	Dual ①	Single	Dual
HFD	150	100	65	25	15 20 25 30 40 50 60 70												
					80	6 ② (152.4)		6 ② (152.4)									
					90	12 ③ (304.8)	12 (304.8)	12 ③ (304.8)	12 (304.8)	12 ③ (304.8)	12 (304.8)	12 ③ (304.8)	12 (304.8)	14 (355.6)	14 (355.6)	14 (355.6)	14 (355.6)
					100												
					125	12 (304.8)	12 (304.8)	12 (304.8)	18 (457.2)	12 (304.8)	18 (457.2)	12 (304.8)	12 (304.8)	14 (355.6)	18 (457.2)	14 (355.6)	14 (355.6)
					150	12 ③ (304.8)						12 ③ (304.8)					
HJD	250	100	65	25	175 200												
					225	18 (457.2)		24 (609.6)		18 (457.2)		18 (457.2)		18 (457.2)		14 (355.6)	
					250												
HKD	400	100	65	35	300 350												
					400	24 (609.6)		24 ④ (609.6)		24 ④ (609.6)		24 (609.6)		28 ④ (711.2)		14 (355.6)	
HLD	600	100	65	35	500												
					600	24 (609.6)		24 ④ (609.6)		24 ④ (609.6)							
Fusible Switch	30	100	100	100	30	12 (304.8)	12 ③ (304.8)	12 (304.8)	18 (457.2)	12 (304.8)	18 (457.2)	12 (304.8)	12 ③ (304.8)	14 (355.6)	18 (457.2)	14 (355.6)	14 (355.6)
	60	100	100	100	60	12 (304.8)	12 ③ (304.8)	12 (304.8)	18 (457.2)	18 (457.2)	18 (457.2)	12 (304.8)	12 ③ (304.8)	14 (355.6)	18 (457.2)	14 (355.6)	14 (355.6)
	100	100	100	100	100	18 (457.2)		18 (457.2)		18 (457.2)		12 ③ (304.8)		18 (457.2)		18 (457.2)	18-2/3 (474.2)
	200	100	100	100	200	36 (914.4)		30 (762.0)		30 (762.0)		24 (609.6)		28 (711.2)		28 (711.2)	
	400	100	100	100	400	36 (914.4)		72 ④ (1828.8)		48 ④ (1219.2)		42 (1066.8)		42 ④ (1066.8)		42 (1066.8)	
	600	100	100	100	600	48 (1219.2)		72 ④ (1828.8)									

① Combined ampacity no greater than 150A for 12-inch (304.8 mm) height. For greater than 150A, 18-inch (457.2 mm) required.
② 100A maximum.
③ Available in 18-inch (457.2 mm) height.
④ Cable in/cable out, no stab assembly.

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Motor Control Center
Type Series 2100/5 Star

Renewal Parts

Supersedes RPD Supplement 8991c
pages 1-28, dated May 1998

MCC Type	Dates	Cutler-Hammer Renewal Parts Publication
F2100 Advantage™ Series 2100	1995 – 1992 – 1987 – 95	RP04304001E RP04304002E RP04304003E
5 Star Freedom Unitrol F10 Unitrol	1975 – 87 1988 – 94 1972 – 89	RP04304003E RP04304004E RP04304005E
Type W 9800 Unitrol 11-300	1965 – 75 1956 – 74 1935 – 65	RP04304006E RP04304007E RP04304008E

F2100 *Advantage* *Series 2100/ 5 Star* *Freedom Unitrol* *F10 Unitrol* *Type W* *9800 Unitrol* *11-300*

Identifying Motor Control Center Types

In most cases, it is possible to identify MCC design by handle type. Starter type, bucket width and door width can assist in identification.

Table 1. Identifying Motor Control Center Types

MCC Type	Type of Handle Mechanism	Original MCC Starter Type	Bucket Width Inches (mm)	Door Width Inches (mm)	Original Manufacturer ①	Starter Type (Installed in New Unit)
F2100 ②	Lever	Freedom Series	13-3/4 (349.3)	15-5/8 (397.0)	Cutler-Hammer 1994 to Present	Freedom
Advantage ②	Lever	Advantage	13-3/4 (349.3)	15-5/8 (397.0)	Westinghouse until 1994 Cutler-Hammer 1994 to Present	Advantage
Series 2100 ②	Lever	A200	13-3/4 (349.3)	15-5/8 (397.0)	Westinghouse until 1994 Cutler-Hammer 1994 to Present	A200
5 Star ②	Lever	A200	13-3/4 (349.3)	15-5/8 (397.0)	Westinghouse 1975 – 1987	A200
Freedom Unitrol	Slider	Freedom Series	13-7/8 (352.5)	15-1/2 (393.7)	Cutler-Hammer 1988 – 1994	Freedom
F10 Unitrol	Slider and Lever	Citation	14 (355.6)	14-3/4 (374.7) w/ Wireway 19-1/2 (495.3) w/o Wireway	Cutler-Hammer 1972 – 1989	Freedom
Type W	Slider	A200 or 11-200	11-3/4 (298.5)	13-3/8 (339.9)	Westinghouse 1965 – 1975	A200
9800 Unitrol	Rotary ③	3 Star/Citation	16-1/8 (409.7)	19-3/8 (492.3)	Cutler-Hammer 1956 – 1974	Freedom
11-300	Rotary	11-200 Lifeline Type N/A200	15-3/4 (400.1)	20 (508.0)	Westinghouse 1950 – 1965	A200

① MCC types were sometimes produced outside the time spans shown. This was due to the overlap of production when a new design was adopted.
② The unit "wrappers" are mechanically identical for these designs.
③ 9800 originally was supplied with Rotary. New replacement units are manufactured with slider handle mechanism.

Identification by Original Handle Mechanism

F2100, Advantage, Series 2100/5 Star

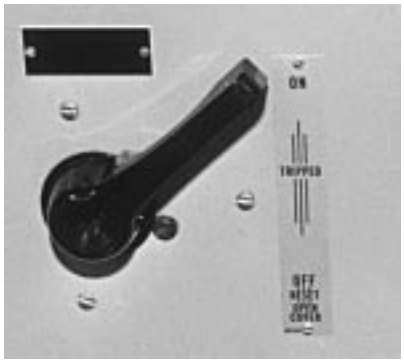
Freedom Unitrol

F10 Unitrol Slider 9800 Unitrol

F10 Unitrol Lever and 9800 Unitrol

Type W

9800 Unitrol



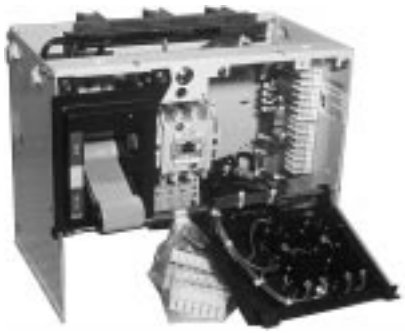
11-300

Procedure for Identifying Motor Control Center Types

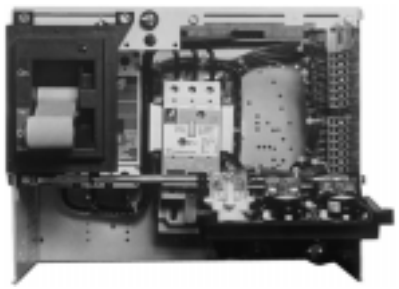
In the event that the nameplate is missing, it is possible to identify the MCC design by the type of handle mechanism, starter type, bucket width and door width.

Table 2. Identifying Motor Control Center Types

MCC Type	Type of Handle Mechanism	Starter Type	Bucket Width Inches (mm)	Door Width Inches (mm)	Cutler-Hammer Renewal Parts Publication
F2100 Advantage Series 2100	Lever Lever Lever	Freedom Series Advantage A200	13-3/4 (349.3) 13-3/4 (349.3) 13-3/4 (349.3)	15-5/8 (397.0) 15-5/8 (397.0) 15-5/8 (397.0)	RP04304001E RP04304002E RP04304003E
5 Star Freedom Unitrol F10 Unitrol	Lever Slider Lever/Slider	A200 Freedom Series Citation	13-3/4 (349.3) 13-7/8 (352.5) 14 (355.6)	15-5/8 (397.0) 15-1/2 (393.7) 14-3/4 (374.7) w/ Wireway or 19-1/2 (495.3) w/o Wireway	RP04304003E RP04304004E RP04304005E
Type W 9800 Unitrol 11-300	Slider Rotary Rotary	A200 or 11-200 3 Star and/or Citation 11-200 Lifeline N and/or A200	11-3/4 (298.5) 16-1/8 (409.7) 15-3/4 (400.1)	13-3/8 (339.9) 19-3/8 (492.3) 20 (508.0)	RP04304006E RP04304007E RP04304008E

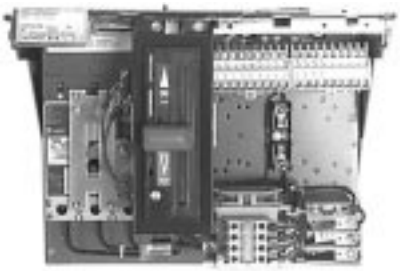


F2100



Advantage

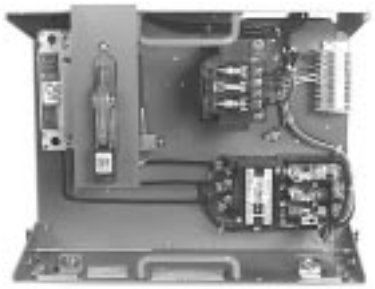
Series 2100/5 Star



Freedom Unitrol

F10 Unitrol

Type W



9800 Unitrol

11-300

Series 2100/5 Star Product Description

Introduced in 1975, the Westinghouse 5 Star MCC was the basis for the Series 2100 and Advantage designs. The vertical structures are normally 20 inches (508.0 mm) wide, 90 inches (2286.0 mm) high and 16 inches (406.4) or 21 inches (533.4 mm) deep. Vertical sections may be bolted together forming a single lineup with continuous horizontal bus and open horizontal wireways. Unit height is measured in 6 inch (152.4 mm) increments, up to a maximum of 72 inches (1828.8 mm) of usable vertical space.

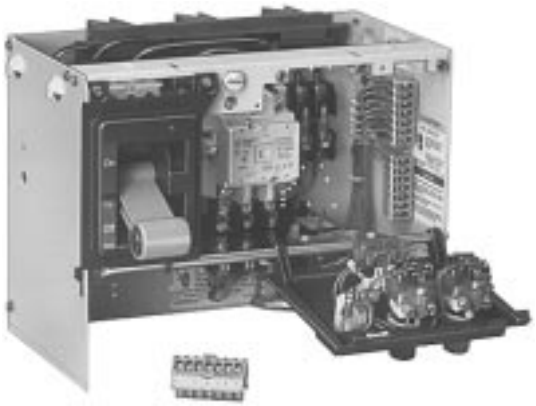
A two-tone light/dark enamel paint system is used for this design. Ferro white is applied to the structural framework and units. ANSI 61 gray is applied to the roof and side sheets and all exterior doors. Starter units are 13-3/4 inches (349.3 mm) wide.

The Series 2100/5 Star starter unit's handle mechanism is a gray toggle type handle with a black exterior mounting panel and is used on the Advantage and Freedom 2100 designs. Bus and bus support systems are typically braced to withstand fault currents of 42,000A on the 5 Star and 65,000A on the Series 2100.

Table 3. 2100 Product Rating

Maximum Ratings
3-Phase, 600V, 600 hp, 3200A Bus

Series F2100 Structure



Series F2100 Starter Unit

Series 2100/5 Star Replacement Starter Units

How to Order

When ordering a replacement unit, you receive:

- Series C® HMCP.
- A200 Starter.
- Unit options as specified.
- New steel wrapper, door and handle mechanism.
- New stabs.
- UL® label.

Use the following steps for creating a catalog number for your specific application:

Step 1

Select the correct replacement unit from **Pages 6 – 27**. When selecting, you need to know the following:

- MCC type.
- Class of Unit (FVNR, FVR, Reduced Voltage — Autotransformer or Part Winding or Solid State, FV – 2 Speed, 1 Winding or 2 Speed, 2 Winding, etc.).
- Starter size or horsepower rating.
- Protection device (breaker or fusible).
- Service voltage.
- Control voltage.
- Space required.

Step 2

Verify required space is available.

Step 3

Create a catalog number by selecting Catalog Codes from the columns per the example given.

Step 4

Add modifications as required from the Unit Options on **Pages 16 – 18**. Space available determines allowable options.

Table 4. Catalog Numbering System Example

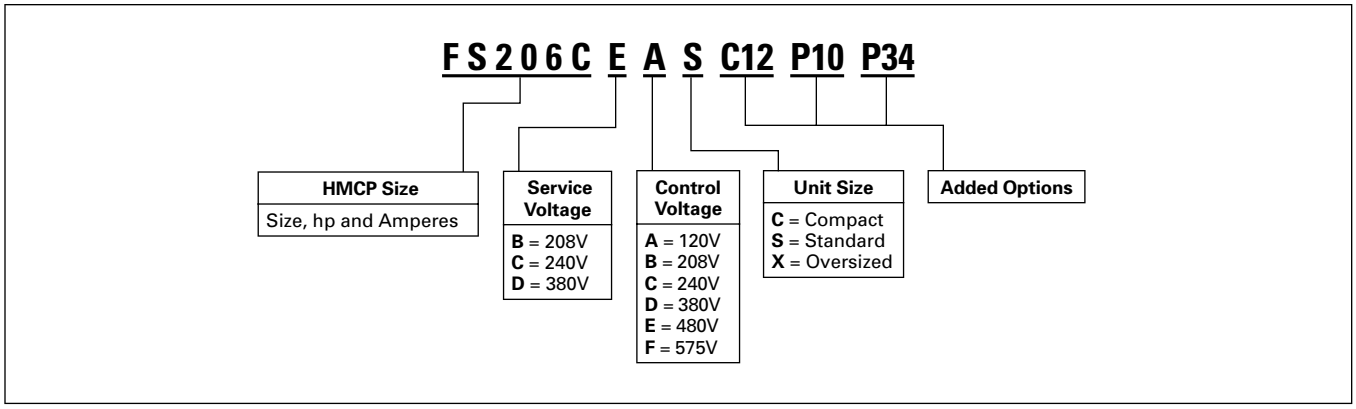


Table 5. Full Voltage Non-Reversing Combination Starter — HMCP (Must specify if HMCPE is required)

NEMA® Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS206A** **FS206B** **FS206C** **FS206D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
2	10	15	25	25	25	50	**FS206E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
3	25	30	50	50	50	100	**FS206H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
4	40	50	75	100	100	150	**FS206L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
5	60 75	60 100	125 150	150 200	150 200	250 400	**FS206P** **FS206R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**

Series 2100/5 Star Replacement Starter Units

Table 6. Full Voltage Reversing Combination Starter — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS216A** **FS216B** **FS216C** **FS216D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	10	15	25	25	25	50	**FS216E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	25	30	50	50	50	100	**FS216H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
4	40	50	75	100	100	150	**FS216L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
5	50 75	60 100	100 150	125 200	150 200	250 400	**FS216P** **FS216R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

Table 7. Full Voltage 2 Speed 1 Winding — Constant/Variable Torque — HMCP ①

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS946A** **FS946B** **FS946C** **FS946D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	10	15	25	25	25	50	**FS946E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	25	30	50	50	50	100	**FS946H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	40	50	75	100	100	150	**FS946L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
5	60 75	60 100	125 150	150 200	150 200	250 400	**FS946P** **FS946R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**

① For constant horsepower instead of constant/variable torque, see Option SV6 on **Page 18**.

Series 2100/5 Star Replacement Starter Units

Table 8. Full Voltage 2 Speed 2 Winding — Constant/Variable Torque — HMCP ①

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	0.5 1 3 7.5	0.33 1 3 7.5	1 2 5 10	1 3 7.5 10	1.5 3 7.5 10	3 7 15 30	**FS956A** **FS956B** **FS956C** **FS956D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	10	15	25	25	25	50	**FS956E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	25	30	50	50	50	100	**FS956H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
4	40	50	75	100	100	150	**FS956L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
5	50 75	60 100	100 150	125 200	150 200	250 400	**FS956P** **FS956R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

① For constant horsepower instead of constant/variable torque, see Option SV6 on **Page 18**.

Table 9. Reduced Voltage Autotransformer — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	10	15	25	25	25	50	**FS606E**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
3	25	30	50	50	50	100	**FS606H**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**
4	40	50	75	100	100	150	**FS606L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S** ②
5	50 75	60 100	100 150	125 200	150 200	250 400	**FS606P** **FS606R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S** ②

② If existing MCC is back-to-back design, 36 inches (914.4 mm) in bottom rear is unusable.

Series 2100/5 Star Replacement Starter Units

Table 10. Reduced Voltage Part Winding — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	10	10	15	15	15	30	**FS706D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High	**S**
2	20	25	40	40	40	100	**FS706F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High	**S**
3	40	50	75	75	75	150	**FS706J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
4	—	—	—	100	125	150	**FS706L**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
	75	75	150	150	150	250	**FS706M**					48 (1219.2) High	**S**
5	100 150	125 150	— 250	250 350	300 250	400 600	**FZ706R** **FZ706T**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

Table 11. Reduced Voltage Wye Delta Open Transition — HMCP

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	20	25	40	40	40	100	**FS806F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
3	40	50	75	75	75	150	**FS806J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	60 —	75 —	125 150	150 —	150 —	250 400	**FS806M** **FS806N**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**
5	100 150	125 150	200 250	250 350	300 —	400 600	**FS806R** **FS806T**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

Series 2100/5 Star Replacement Starter Units

Table 12. Reduced Voltage Wye Delta Closed Transition — HMCP (Non-Chiller Application)

NEMA Size	Maximum Horsepower					HMCP Size	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	20	25	40	40	40	100	**FS896F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
3	40	50	50	50	50	100	**FS896J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	60 —	75 —	125 150	150 —	150 —	250 400	**FS896M** **FS896N**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
5	100 150	125 150	200 250	250 300	300 —	400 600	**FS896R** **FS896T**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

IT06 — Intelligent Technologies *IT.* Solid-State Reduced Voltage Starter — HMCP

The ***IT.*** solid-state reduced voltage starter uses SCRs when starting and a low impedance run circuit during operation. Solid-state starters have (5) 24V dc inputs and 2 relay outputs. Soft start units include a disconnect, starter, 24V dc power supply and 100VA CPT.

Motor Service Factor (SF) Effect on *IT.* Starter Selection

- A 1.0 service factor motor may draw up to 1.00 x full load amperes.
- A 1.15 service factor motor may draw up to 1.15 x full load amperes.
- 15% more current. ***IT.*** starters are current rated devices. In some cases, a larger ***IT.*** SSRV starter must be supplied for 1.15 SF motors. See the maximum horsepower chart below.

Note: Most motors used in industrial applications are 1.15 Service Factor (SF).

Table 13. Replacement *IT.* Soft Start Units

Service Factor	Horsepower	*IT.* Soft-Start Amperes	HMCP Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options	Catalog Code
1.15	10	37	100	**FS306A**	208	**B**	120	**A**	12 (304.8) High	**S**
	15	66		**FS306B**			208	**B**		
	30	105	150	**FS306C**			240	**C**	18 (457.2) High	
	40	135		**FS306D**			380	**D**		
	50	180	400	**FS306E**			480	**E**	36 (914.4) High	
	60	240		**FS306F**			575	**F**		
	75	304		**FS306G**			—	**—**		
1.15	10	37	100	**FS306A**	240	**C**	120	**A**	12 (304.8) High	**S**
	20	66		**FS306B**			208	**B**		
	30	105	150	**FS306C**			240	**C**	18 (457.2) High	
	40	135		**FS306D**			380	**D**		
	60	180	250	**FS306E**			480	**E**	36 (914.4) High	
	75	240	400	**FS306F**			575	**F**		
	100	304		**FS306G**			—	**—**		
1.15	15	37	100	**FS306A**	380	**D**	120	**A**	12 (304.8) High	**S**
	30	66		**FS306B**			208	**B**		
	45	105	150	**FS306C**			240	**C**	18 (457.2) High	
	55	135	250	**FS306D**			380	**D**		
	75	180	400	**FS306E**			480	**E**	36 (914.4) High	
	110	240		**FS306F**			575	**F**		
	132	304	600	**FS306G**			—	**—**		

Series 2100/5 Star Replacement Starter Units

Table 13. Replacement *IT.* Soft Start Units (Continued)

Service Factor	Horsepower	*IT.* Soft-Start Amperes	HMCP Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options	Catalog Code
1.15	20	37	100	**FS306A**	480	**E**	120	**A**	12 (304.8) High	**S**
	40	66		**FS306B**			208	**B**		
	60	105	150	**FS306C**			240	**C**	18 (457.2) High	
	75	135		**FS306D**			380	**D**		
	125	180	400	**FS306E**			480	**E**	36 (914.4) High	
	150	240		**FS306F**			575	**F**		
	200	304		**FS306G**			—	**—**		
1.15	30	37	100	**FS306A**	575	**F**	120	**A**	12 (304.8) High	**S**
	50	66		**FS306B**			208	**B**		
	75	105	150	**FS306C**			240	**C**	18 (457.2) High	
	100	135		**FS306D**			380	**D**		
	150	180	250	**FS306E**			480	**E**	36 (914.4) High	
	200	240	400	**FS306F**			575	**F**		
	250	304		**FS306G**			—	**—**		

Table 14. Full Voltage Non-Reversing — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS204C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
2	— 10	— 15	15 25	15 25	25 —	30 60	**FS204E** **FS204F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	12 (304.8) High 18 (457.2) High	**S** **X**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS204H** **FS204J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
4	— 50	— 50	— 50	60 100	75 100	100 200	**FS204L** **FS204M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
5	60 100	60 100	100 150	150 200	150 200	200 400	**FS204P** **FS204R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480	**A** **B** **C** **D** **E**	60 (1524.0) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Replacement Starter Units

Table 15. Full Voltage Reversing — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS214C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	— 10	— 15	15 25	15 25	25 —	30 60	**FS214E** **FS214F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS214H** **FS214J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS214L** **FS214M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
5	60 100	60 100	100 150	150 200	150 200	200 400	**FS214P** **FS214R**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.

Table 16. Full Voltage Non-Reversing Vacuum Starters — Fusible ②

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
4	— 50	— 50	— 60	60 100	75 100	100 200	**FSV04L** **FSV04M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
5	60	60	100	150	150	200	**FSV04P**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
	100	100	150	200	200	400	**FSV04R**					72 (1828.8) High	**S**

② Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Replacement Starter Units

Table 17. Full Voltage 2 Speed 1 Winding — Fusible — Constant/Variable Torque ①②

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS944C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	— 15	— 15	15 25	15 25	25 —	30 60	**FS944E** **FS944F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High 30 (762.0) High	**S** **X**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS944H** **FS944J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	42 (1066.8) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS944L** **FS944M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.
② For constant horsepower instead of constant/variable torque, see option SV6 on **Page 18**.

Table 18. Full Voltage 2 Speed 2 Winding — Fusible – Constant/Variable Torque ③④

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
1	7.5	7.5	10	10	10	30	**FS954C**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	18 (457.2) High 24 (609.6) High	**S** **X**
2	— 15	— 15	15 25	15 25	25 —	30 60	**FS954E** **FS954F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High 30 (762.0) High	**S** **X**
3	— 25	20 30	30 60	40 50	50 —	60 100	**FS954H** **FS954J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS954L** **FS954M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

③ Fuse clip ratings shown are based on Class RK1, 5 fuses.
④ For constant horsepower instead of constant/variable torque, see Option SV6 on **Page 18** .

Series 2100/5 Star Replacement Starter Units

Table 19. Reduced Voltage Autotransformer — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	— 10	— 15	15 25	15 25	25 —	30 60	**FS604E** **FS604F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
3	— 25	20 30	30 50	40 50	50 —	60 100	**FS604H** **FS604J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
4	— 50	— 50	— 60	60 100	75 100	100 200	**FS604L** **FS604M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	72 (1828.8) High	**S** ②

① Fuse clip ratings shown are based on Class RK1, 5 fuses.
② If existing MCC is Back-to-Back design, 36 inches (914.4 mm) in bottom rear is unusable.

Table 20. Reduced Voltage Part Winding — Fusible ③

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	10	10	15	15	60	60	**FS704D**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
2	—	15	25	30	40	60	**FS704F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	24 (609.6) High	**S**
	20	25	40	40	—	200	**FS704G**					30 (762.0) High	**S**
3	— 40	— 50	— 75	50 75	60 75	100 200	**FS704J** **FS704K**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
4	50 75	— 75	100 150	100 150	150 —	200 400	**FS704M** **FS704N**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	54 (1371.6) High	**S**

③ Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Replacement Starter Units

Table 21. Reduced Voltage Wye Delta Open Transition — Fusible ①

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	15	15	30	40	40	60	**FS804F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
	20	25	40	—	—	100	**FS804G**					36 (914.4) High	**S**
3	25	30	50	60	75	100	**FS804J**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	36 (914.4) High	**S**
	40	50	75	75	—	200	**FS804K**					48 (1219.2) High	**S**
4	50	60	100	125	150	200	**FS804M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
	60	75	150	150	—	400	**FS804N**					72 (1828.8) High	**S**

① Fuse clip ratings shown are based on Class RK1, 5 fuses.

Table 22. Reduced Voltage Wye Delta Closed Transition — Fusible (Non-Chiller Application) ②

NEMA Size	Maximum Horsepower					Fuse Clip Amperes	Catalog Code	Service Voltage	Catalog Code	Control Voltage	Catalog Code	Space Options Inches (mm)	Catalog Code
	208V	240V	380V	480V	600V								
2	15	15	30	40	40	60	**FS894F**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	30 (762.0) High	**S**
	20	25	40	—	—	100	**FS894G**					36 (914.4) High	**S**
3	25 40	30 50	50 75	60 75	75 —	100 200	**FS894J** **FS894K**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	48 (1219.2) High	**S**
4	50	60	100	125	150	200	**FS894M**	208 240 380 480 575	**B** **C** **D** **E** **F**	120 208 240 380 480 575	**A** **B** **C** **D** **E** **F**	60 (1524.0) High	**S**
	60	75	150	150	—	400	**FS894N**					72 (1828.8) High	**S**

② Fuse clip ratings shown are based on Class RK1, 5 fuses.

Series 2100/5 Star Unit Options

Table 23. Option Groups ①

Groups	Description	Page Number
A	Advantage Options	**16**
B	Circuit Breaker Options	**16**
C	Control Power Source Options	**16**
G	Ground Fault Protection Options	**17**
M	Metering Options	**17**
O	Overload Options	**17**
P	Pilot Device Options	**17**
R	Relay and Timer (Control, Voltage, Current) Options	**18**
S	Starter Contact Options	**18**
SV	Vacuum Starter Options	**18**
T	Terminal Block Options	**18**
U	Unit Wiring Options	**18**

① Select your option suffix and attach it to the end of the catalog number.

Table 24. Option Suffix

Suffix	Description	Space Required ②
A — Advantage Options		
A10	Substitute Advantage Starter Size 1	③
A11	Substitute Advantage Starter Size 2	③
A12	Substitute Advantage Starter Size 3	③
A13	Substitute Advantage Starter Size 4	③
A14	Substitute Advantage Starter Size 5	**C** ③④
A15	Advantage Hand/Off/Auto ACM for FVNR or RVNR Starters	**C** ④
A16	Advantage Stop/Start for FVNR or RVNR Starters	**C** ④
A17	Advantage Hand/Off/Auto-Start/Stop ACM for FVNR or RVNR Starters	**C** ④
A18	Advantage Fast/Slow/Stop 2-Speed Starters	**C** ④
A19	Advantage Forward/Reverse/Stop for Reversing Starters	**C** ④
A20	Advantage Fast/Slow/Off/Auto for 2-Speed Starters	**C** ④
A21	Advantage Forward/Reverse/Off/Auto for Reversing Starters	**C** ④
A22	ACM Metering Module	**C** ④
A23	WBELL Form C Bell Alarm Contact	**C** ④
A24	Reset with Overload Alarm and Trip Indication	**C** ④
A25	120V ac PLC Circuit Compatible Load Resistor	**C** ④
A26	WPONI PowerNet Communications Module	**C** ④
A27	Advantage Status Only ACM	**C** ④
A28	WPONIDNA DeviceNet Communications Module	**C** ④
B — Breaker Options		
B10	Shunt Trip 120V AC Wired to Terminal Blocks for Remote Tripping	**C**
B11	Auxiliary Switch Form C (1NO/1NC) Wired to Terminal Blocks	**C**
B12	Form C Bell Alarm Contact (1NO/1NC) Wired to Terminal Blocks	**C**
B13	Undervoltage Release	**C**
B14	IQ Energy Sentinel — F Frame	③
B15	IQ Energy Sentinel — J Frame	③
B16	IQ Energy Sentinel — K Frame	③
B17	IQ Central Energy Display	③
B18	Thermal Magnetic Circuit Breaker Instead of HMCP	**—**
C — Control Power Source Options		
C10	Control Fuse Wired for Separate Source in Lieu of Control Power Transformer	**C**
C11	Control Fuse with Disconnect for Separate Source in Lieu of Control Power Transformer	**C**
C12	Control Power Transformer 100 VA for Size 1 and 2 Starters (Fused)	**C** ④
C13	Control Power Transformer 150 VA for Size 3 and 4 Starters (Fused)	**C**
C14	Control Power Transformer 100 VA with Interposing Relay for Size 5 Starters, Fused	**C**
C15	Extra 50 VA for Control Power Transformer	**S**
C16	Extra 100 VA for Control Power Transformer	**S**
C17	Service Voltage Control, Fused in Lieu of Control Power Transformer	**C**
C18	Full Capacity Control Power Transformer for Size 5 Starters, Fused	**C**

② Minimum unit size required (refer to Replacement Unit pages).
③ Consult factory for spacing.
④ Not available in 6 inches (152.4 mm).

Series F2100/5 Star Unit Options

Table 24. Option Suffix (Continued)

Suffix	Description	Space Required ①
G — Ground Fault Protection Options		
G10	Class 1 Ground Fault Protection — GRT1 Size 1 – 4	X
G11	Class 1 Ground Protection — GRT1 Size 5 – 6	X
G12	Ground Fault Test Panel	X
M — Metering Options		
M10	Mini Voltmeter	C ②
M11	Mini Ammeter with Current Transformer	S
M12	Mini Elapsed Time Meter	C ②
M13	Current Transformer for Remote Metering	S
M14	Current Transducer 4-20 mA Output	X
O — Overload Options		
O10	IQ 500 Solid-State Overload Relay	—
O11	IQ 500 Load Protection Module	—
O16	Bell Alarm (1NO) Wired	C
O17	Bi-Metallic Overload Substitution	C
O18	Adjustable A200 Overload Substitution	C
O19	Overload Relay Heater/Heater Pack	C
O20	CEP7 Solid-State Overload Relay	C
P — Pilot Device Options ③		
P10	Red “RUN” Light	C
P11	Green “STOPPED” Light	C
P12	Amber “OVERLOAD TRIPPED” Light	C
P13	Green “RUN” Light	C
P14	Red “STOPPED” Light	C
P15	Red “RUN” Push-to-Test Light	C
P16	Green “STOPPED” Push-to-Test Light	C
P17	Amber “OVERLOAD TRIPPED” Push-to-Test Light	C
P18	Green “RUN” Push-to-Test Light	C
P19	Red “STOPPED” Push-to-Test Light	C
P20	Special Function Light	C
P30	“START” Pushbutton	C
P31	“STOP” Pushbutton	C
P32	“START/STOP” Pushbutton	C
P33	“ON” Pushbutton	C
P34	“OFF” Pushbutton	C
P35	“ON/OFF” Pushbutton	C
P36	“FORWARD/REVERSE/STOP” Pushbutton	C
P37	“FAST/SLOW/STOP” Pushbutton	C
P38	“FAST/OFF/SLOW” Pushbutton	C
P39	“HIGH/LOW/STOP” Pushbutton	C
P40	“HIGH/LOW/OFF” Pushbutton	C
P41	Special Function Pushbutton	C
P50	“ON-OFF” Selector Switch	C
P51	“HIGH-LOW” Selector Switch	C
P52	“OFF-AUTO” Selector Switch	C
P53	“START-STOP” Selector Switch	C
P54	“SLOW-FAST” Selector Switch	C
P55	“FORWARD-REVERSE” Selector Switch	C
P56	Special Function 2-Position Selector Switch	C
P57	“HAND-OFF-AUTO” Selector Switch	C
P58	“LOCAL-OFF-REMOTE” Selector Switch	C
P59	“FAST-OFF-SLOW” Selector Switch	C
P60	“HIGH-OFF-LOW” Selector Switch	C
P61	Special Function 3-Position Selector Switch	C
P62	“HIGH-LOW-OFF-AUTO” Selector Switch	C
P63	Special Function 4-Position Selector Switch	C

① Minimum unit size required (refer to Replacement Unit pages).
② Customer to supply range of meter required.
③ Available only with F2100, Advantage, Series 2100/5 Star, Freedom Unitrol, F10 Unitrol and Type W. Consult factory for specific size limitations.

Series F2100/5 Star Unit Options

Table 24. Option Suffix (Continued)

Suffix	Description	Space Required ①
R — Relay and Timer Options		
R10	Auxiliary Control Relay 2-Pole (1NO/1NC) Convertible Contacts Wired in Parallel with Starter Coil	**S**
R11	Auxiliary Control Relay 4-Pole (2NO/2NC) Convertible Contacts Wired in Parallel with Starter Coil	**S**
R12	Auxiliary Control Relay 2-Pole Overload Alarm (1NO/1NC) Convertible Contacts	**S**
R13	Mechanical Latching Relay (Specify Connection)	**X**
R14	Ice Cube Relay 300 Volts 3-Pole Blade Type (Specify Connection)	**S**
R15	Phase Voltage Relay	**X**
R16	Current Sensing Relay with Contacts Wired to Terminal Blocks	**X**
R17	Deceleration Timing Relay (Pneumatic “OFF” Delay)	**S**
R18	Compelling Timing Relay (Pneumatic “ON” Delay)	**S**
R19	Time Clock 24 Hour	②
R20	Time Clock 7 Day	②
R21	Solid-State Timer Type TR (Specify Connection)	**S**
R22	DN65 DeviceNet Interface Module	**S**
R23	D15 2-Pole Control Relay	**C**
R24	D15 4-Pole Control Relay	**C**
S — Starter Contact Options (Maximum of 8 Contacts)		
S_ _	To order extra starter contacts, you must specify the number of NO/NC contacts, given a maximum of eight (8). To define the unit option required, create a suffix based on the following example:	

	Quantity of Normally Open Contacts	Quantity of Normally Closed Contacts
S	2	3

SV — Vacuum Starter Options		
SV4	Vacuum Starter Size 4 Substitution FVNR	②
SV5	Vacuum Starter Size 5 Substitution FVNR	②
SV6	Constant Horsepower Instead of Constant/Variable Torque	**—**
T — Terminal Block Options		
T10	Pull-apart Type Terminal Blocks (Standard on all Vintages Except Type W and 11-300)	**S**
T11	Utility Screw Type Terminal Blocks (Add 6 Inches (152.4 mm) for Every 18 Points)	**—**
T12	Front-mounted Pull-apart Terminal Block for F2100, Advantage, Series 2100/5 Star	**S**
T13	T-Lead Power Terminal Blocks for Size 1 Starter	**—**
U — Unit Wiring Options		
U10	Surge Suppressor on Coil	**C**
U11	Type SIS Control Wire	**C**
U12	Type SIS Power Wire	**C**
U13	Type 14 Gauge Control Wire (Standard for all Vintages Except F2100, Series 2100/5 Star, Type W and 11-300)	**C**
U14	Wiremarkers — Sleeve Type on all Control Wire	**C**
U15	Locking Fork Terminals on all Control Wiring	**S**
U16	Ring Wire Terminals on Power Wiring	**S**
U17	Wiring Diagram Inside Starter Unit Door	**C**
U18	Pre-insulated Ring Terminals on all Control Wiring	**C**
U19	Pre-insulated Ring Terminals on all Control Wiring, except for Freedom Starter Terminals	**C**
U20	Wiremarkers for Power Wiring	**C**

① Minimum unit size required (refer to Replacement Unit pages).
② Consult factory for spacing.

Series 2100/5 Star Structure Parts

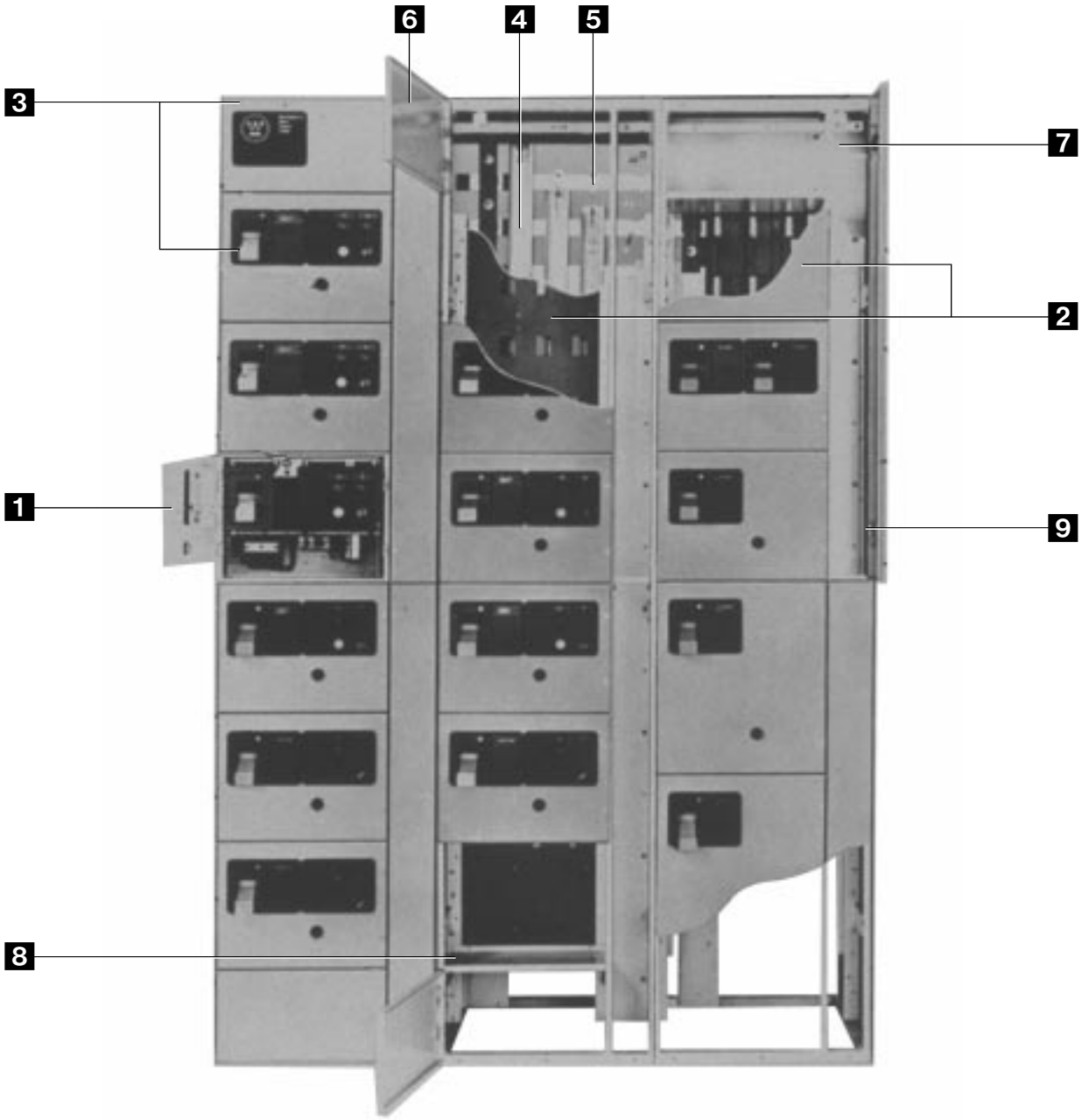


Table 25. Structure Parts

Reference	Description	Page
1	Blank Unit Door	20
2	Vertical Bus Barrier Kit Shutter Kit	20 20
3	Top and Side Sheet Metal Covers Touch-up Paint Kit	20 20
4	Vertical Bus Bar Vertical Bus Insulation Kit	20 20
5	Horizontal Bus Bar	21

Reference	Description	Page
6	Horizontal Wireway Door Kit	21
7	Horizontal Bus Barriers	21
8	Divider Pan/Guide Rails	21
9	Vertical Wireway Door Kit Horizontal to Vertical Bus Connection Kit Horizontal Bus Insulator Kit Horizontal Bus Splice Kit Door Mounting Hardware Kit	21 22 22 22 22

Series 2100/5 Star Structure Parts

Vertical Bus Bar 4

65,000 ampere rms bus bracing

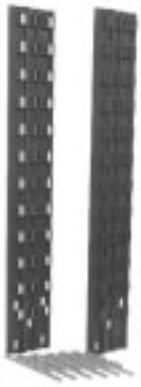
Vertical Bus Bar

Table 26. Vertical Bus Bar — Copper Only

Ampere Rating	Mounting Type	Style Number
300	Front	**4719A80G01**
600	Front/Back-to-Back	**4719A80G02**
800	Front	**4719A80G04**
1200	Front	**4719A80G05**

Vertical Bus Barrier Kits 2

Standard Flat Barrier

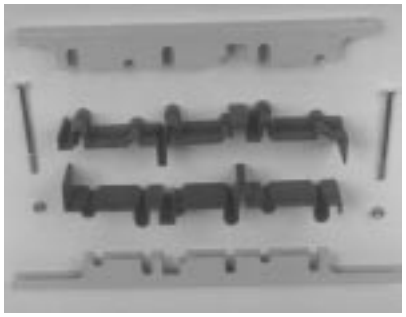


Labyrinth Barrier Kit

Table 27. Vertical Bus Barrier Kit

Description	Style Number
Standard flat barrier kit includes one flat barrier, 12 covers and clips.	**4719A91G13**
Labyrinth barrier kit includes front and rear barrier, bus supports and hardware (does not include shutters).	**4719A91G14**

Vertical Bus Insulation Kit 4



Vertical Bus Insulation Kit

Table 28. Vertical Bus Insulation Kit

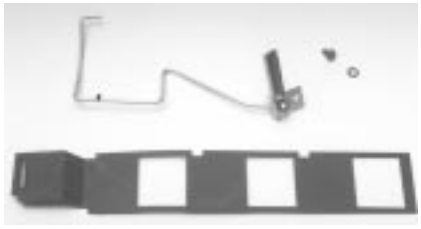
Description	Style Number
Kit includes 2 insulators, 2 mounting brackets and mounting hardware.	**4719A91G12**

Sheet Metal Covers with Mounting Hardware 3

Table 29. Sheet Metal Covers with Mounting Hardware

Description	Style Number
Side Sheets	
16-Inches (406.4 mm) Deep, Front Mounted	**4719A91G31**
21-Inches (533.4 mm) Deep, Front Mounted	**4719A91G32**
21-Inches (533.4 mm) Deep, Back-to-Back Mounted	**4719A91G33**
Rear Sheets	
20-Inches (508.0 mm) Wide x 90-Inches (2286.0 mm) High	**4719A91G34**
24-Inches (609.6 mm) Wide x 90-Inches (2286.0 mm) High	**4719A91G35**
Top Sheets	
20-Inches (508.0 mm) Wide x 16-Inches (406.4 mm) Front Mounted	**4719A91G36**
20-Inches (508.0 mm) Wide x 21-Inches (533.4 mm) Front Mounted	**4719A91G37**
20-Inches (508.0 mm) Wide x 21-Inches (533.4 mm) Back-to-Back Mounted	**4719A91G38**
24-Inches (609.6 mm) Wide x 16-Inches (406.4 mm) Front Mounted	**4719A91G39**
24-Inches (609.6 mm) Wide x 21-Inches (533.4 mm) Front Mounted	**4719A91G40**

Shutter Kit 2



Shutter Kit

Table 30. Shutter Kit

Description	Style Number
Kit includes shutter, spring loaded coupler and mounting screws.	**4719A91G15**

Blank Unit Door with Mounting Hardware 1

Table 31. Blank Unit Door with Mounting Hardware

Description	Style Number
6-Inches (152.4 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G20**
12-Inches (304.8 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G21**
18-Inches (457.2 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G22**
24-Inches (609.6 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G23**
30-Inches (762.0 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G24**
36-Inches (914.4 mm) High x 15-1/2 Inches (393.7 mm) Wide	**4719A91G25**

Touch-up Paint Kit 3

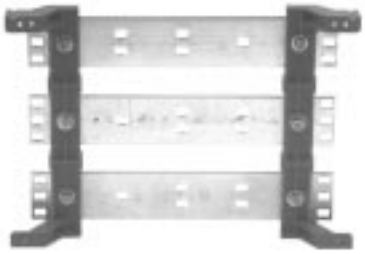
Table 32. Touch-up Paint Kit

Description	Style Number
Kit includes three spray cans of ANSI-61 Gray.	**4719A91G10**

Series 2100/5 Star Structure Parts

Horizontal Bus Bar 5

65,000 ampere rms bus bracing.



Horizontal Bus Bar

Table 33. Horizontal Bus Bar — Tin-Plated Copper

Structures		Bar Size Inches (mm)	Bars/ Phase	Ampere Rating		Style Number
Number	Width Inches (mm)			UL (50°C)	NEMA (65°C)	
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 2 (6.4 x 50.8)	1	600	600	**4719A97G28** **4719A97G29** **4719A97G30**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 2 (6.4 x 50.8)	1	—	800	**4719A97G31** **4719A97G32** **4719A97G33**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 3 (6.4 x 76.2)	1	—	1000	**4719A97G34** **4719A97G35** **4719A97G36**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 3 (6.4 x 76.2)	2	—	1200	**4719A97G37** **4719A97G38** **4719A97G39**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 3 (6.4 x 76.2)	1	800	—	**4719A97G40** **4719A97G41** **4719A97G42**
1 2 3	20 (508.0) 40 (1016.0) 60 (1524.0)	1/4 x 2-1/2 (6.4 x 63.5)	2	1200	—	**4719A97G43** **4719A97G44** **4719A97G45**

Horizontal Wireway Door Kit 6

Horizontal Wireway Door Kit

Table 34. Horizontal Wireway Door Kit

Description Inches (mm)	Style Number
9 (228.6) High x 15-1/2 (393.7) Wide (Standard Kit of 2)	**4719A91G18**
(1) 15 (381.0) High x 15-1/2 (393.7) Wide, (1) 3 (76.2) High	**4719A91G19**

Horizontal Bus Barrier Kit 7

Horizontal Bus Barrier Kit

Table 35. Horizontal Bus Barrier Kit

Description Inches (mm)	Style Number
9 (228.6) High, Front Mounted	**4719A91G02**
15 (381.0) High, Front Mounted	**4719A91G03**
15 (381.0) High, Rear Mounted	**4719A91G04**

Kit includes divider pan, horizontal and vertical barriers, junction piece, and mounting hardware.

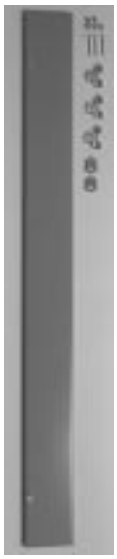
Divider Pan/Guide Rails with Mounting Hardware 8

Divider Pan/Guide Rails with Mounting Hardware

Table 36. Divider Pan/Guide Rails with Mounting Hardware

Description	Style Number
Divider pan/guide rails with mounting hardware.	**4719A91G05**

Vertical Wireway Door Kit 9



Vertical Wireway Door Kit

Table 37. Vertical Wireway Door Kit

Description Inches (mm)	Style Number
Kit includes 4 x 45 (101.6 x 1143.0) door, hinges, hinge pins and mounting hardware.	**4719A91G17**

Series 2100/5 Star Structure Parts

Horizontal to Vertical Bus Connection Kit 9

Horizontal to Vertical Bus Connection Kit

Table 38. Horizontal to Vertical Bus Connection Kit

Description	Horizontal Bus		Vertical Bus		Style Number
	Ampere Rating	Bars/Phase	Ampere Rating	Material	
Kit includes bus spacers with mounting hardware.	600	1	300	Cu	**4719A97G64**
			600	Cu	**4719A97G65**
	800	2	300	Cu	**4719A97G72**
			600	Cu	**4719A97G73**
			800	Cu	**4719A97G74**
	1200	3	300	Cu	**4719A97G80**
			600	Cu	**4719A97G81**
			800	Cu	**4719A97G82**
			1200	Cu	**4719A97G84**

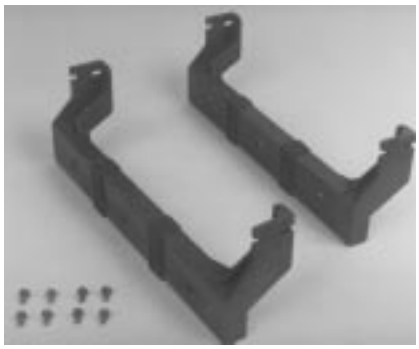
Horizontal Bus Splice Kit 9

Horizontal Bus Splice Kit

Table 39. Horizontal Bus Splice Kit — Tin-Plated Copper

Description	Bus Ampere Rating		Bus Size Inches (mm)	Bars/ Phase	Style Number
	UL (50°C)	NEMA (65°C)			
Kit includes bus splice plates with mounting hardware.	600	600	2 (50.8)	1	**4719A97G86**
	—	800	2 (50.8)	1	**4719A97G87**
	800	—	3 (76.2)	1	**4719A97G88**
	—	1000	3 (76.2)	1	**4719A97G89**
	1000	1200	3 (76.2)	2	**4719A97G90**
	1200	—	2-1/2 (63.5)	2	**4719A97G91**

Horizontal Bus Insulator Kit 9



Horizontal Bus Insulator Kit

Table 40. Horizontal Bus Insulator Kit

Description	Style Number
Kit includes 2 insulators with mounting hardware.	**4719A91G11**

Door Mounting Hardware Kit 9

Door Mounting Hardware Kit

Table 41. Door Mounting Hardware Kit

Description	Style Number
Kit includes 2 hinges, hinge pins and (2) 1/4 turn latches.	**4719A91G26**

Series 2100/5 Star Unit Parts

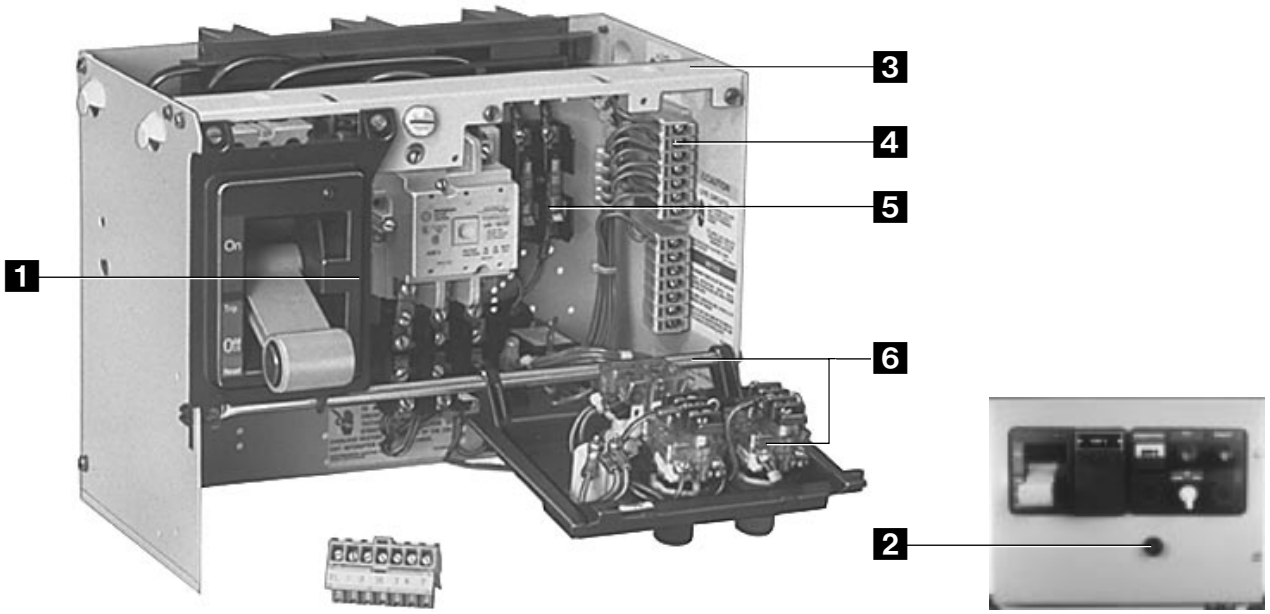


Table 42. Unit Parts

Reference	Description	Page
1	Operating Handle Mechanism	23
2	Overload Reset Button and Reset Rod Extension Kit	23
3	Unit Drawout Top Rail	24
4	Terminal Blocks	24
5	Control Transformers Primary/Secondary Fuse Holder Kit	24 24
6	Device Panel/Pivot Tube Fusible Disconnect Block Kit	24 24

Operating Handle Mechanism Kit 1

Operating Handle Mechanism Kit

Kit includes operating arm, adjustable linkage, and mounting hardware.

Table 43. Operating Handle Mechanism Kit

Description	Style Number
Circuit Breaker Units	
FB/MCP	**4719A92G43**
KB	**4719A92G05**
HFD/HMCP	**4719A88G01**
HMCPE	**4700A99G69**
HLD	**4700A99G65**
HJD/HKD	**4719A89G01**
LB	**4719A92G06**
MA/MC	**4719A92G07**
NB	**4719A92G08**
FCL	**4719A92G44**
LCL	**4719A92G45**
HFD/HMCP (6-Inch Unit)	**4719A92G56**
Fusible Switch Units	
30/60/100A DS Switch	**4719A92G09**
200/400A DS Switch	**4719A92G10**

Overload Reset Button and Reset Rod Extension Kit 2

Overload Reset Button and Reset Rod Extension Kit

Table 44. Overload Reset Button and Reset Rod Extension Kit

Description	Style Number
For A200 starters, the kit includes reset button, extension rod and "O" ring.	**4719A92G04**

Series 2100/5 Star Unit Parts

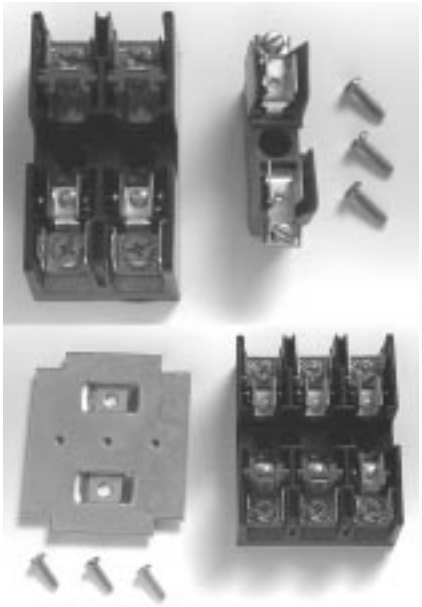
Unit Drawout Top Rail 3

Unit Drawout Top Rail

Table 45. Unit Drawout Top Rail

Description	Style Number
Unit Top Rail with Hardware	**4719A92G02**

Primary/Secondary Fuse Holder Kit 5



Primary/Secondary Fuse Holder Kit

Table 46. Primary/Secondary Fuse Holder Kit

Description	Style Number
5 Star kit includes fuse block, mounting bracket and screws.	**4719A92G01**
Series 2100 kit includes fuse block, mounting bracket and screws.	**4719A92G59**

Terminal Blocks 4

Terminal Blocks

Table 47. Terminal Blocks

Description	Style Number
White, 7 Circuit, Pull-apart	**4719A92G57**

Device Panel/Pivot Tube with Mounting Hardware 6

Device Panel/Pivot Tube with Mounting Hardware

Table 48. Device Panel/Pivot Tube with Mounting Hardware

Description	Style Number
Device panel/pivot tube with mounting hardware.	**4719A92G03**

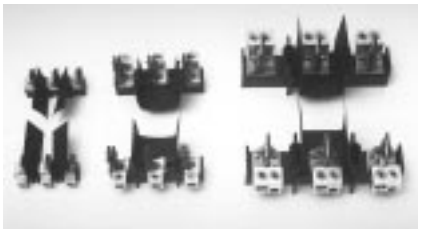
Control Transformers (480/240V to 120V Single-Phase) 5

Table 49. Control Transformers (480/240V to 120V Single-Phase)

Description	Style Number
50 VA	**4719A92G46**
100 VA	**4719A92G48**
150 VA	**4719A92G49**
200 VA	**4719A92G50**
250 VA	**4719A92G51**
300 VA	**4719A92G52**
350 VA	**4719A92G53**
500 VA	**4719A92G54**

Fusible Disconnect Block Kit 6

For use with DS type switch.



Fusible Disconnect Block Kit

Kit includes line and load blocks with clips.

Table 50. Fusible Disconnect Block Kit ①②

Description	Style Number
30A Non-rejection	**4719A92G33**
30A Rejection	**4719A92G34**
60A Non-rejection	**4719A92G35**
60A Rejection	**4719A92G36**
100A Non-rejection	**4719A92G37**
100A Rejection	**4719A92G38**
200A Non-rejection	**4719A92G39**
200A Rejection	**4719A92G40**
400A Non-rejection	**4719A92G41**
400A Rejection	**4719A92G42**

① Certain fusible designs have line fuse clips mounted on the DS Switch. Non-rejection clips can be removed from the mounting block and mounted on the switch. Rejection clips are non-removable. Order a complete switch assembly.

② For MCCs built after October 1984, consult factory for specific details.

Series C® Retrofit Kits

Series C Retrofit Kits are to be used to upgrade existing Type W and 5 Star Motor Control Center buckets by changing out the old breakers with the Series C. These kits can be applied to both starter and feeder units.

The old breakers that these kits will upgrade include, but are not limited to, the MCP, F, FA, FB, HFB, K, KA, KB, HKB, L, LA, LB and HLB breakers.

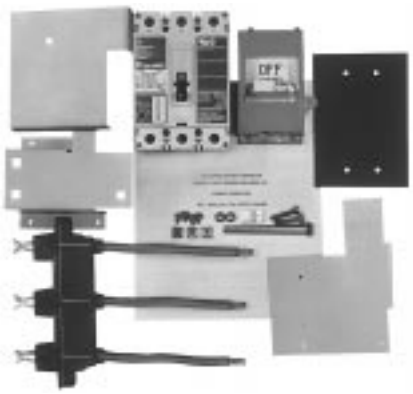
5 Star Series C Retrofit Kit

5 Star Series C Retrofit Kit

The 5 Star Series C Retrofit Kit includes:

- Series C device, 65 kA (either HMCP or thermal-magnetic breaker).
- Operating handle mechanism, including tripped indication and push-to-trip.
- Label stating that the MCC unit has been retrofitted with Series C device suitable for 65 kA (similar to UL quality label).
- Templates for desired frame size.
- Assembly instructions.

Type W Series C Retrofit Kit



Type W Series C Retrofit Kit

The Type W Series C Retrofit Kit includes:

- Series C device, 65 kA (either HMCP or thermal-magnetic breaker).
- Operating handle mechanism, including tripped indication and push-to-trip.
- Label stating that the MCC unit has been retrofitted with Series C device suitable for 65 kA (similar to UL quality label).
- Templates for proper hole placement for desired frame size.
- Series C breaker mounting hardware.
- New door and hardware.
- New stab assembly.
- Assembly instructions.

F10 Series C Retrofit Kit

F10 Series C Retrofit Kit

The F10 Series C Retrofit Kit includes:

- Series C device, 65 kA (either HMCP or thermal-magnetic breaker).
- Operating handle mechanism, including tripped indication push-to-trip.
- Label stating that the MCC unit has been retrofitted with Series C device suitable for 65 kA (similar to UL quality label).
- Templates for desired frame size.
- Assembly instructions.

How to Order

1. Select the correct Series C device from the table in the applicable RPD
   5 Star — RP04304003E
   Type W — RP04304006E
   F10 — RP04304005E
2. Create a catalog number based on the MCC Type, Device Selected, Modification, Door Size and Device Panel.

Select price from PL04304002E.

Table 51. Series C Retrofits, Catalog Numbering System

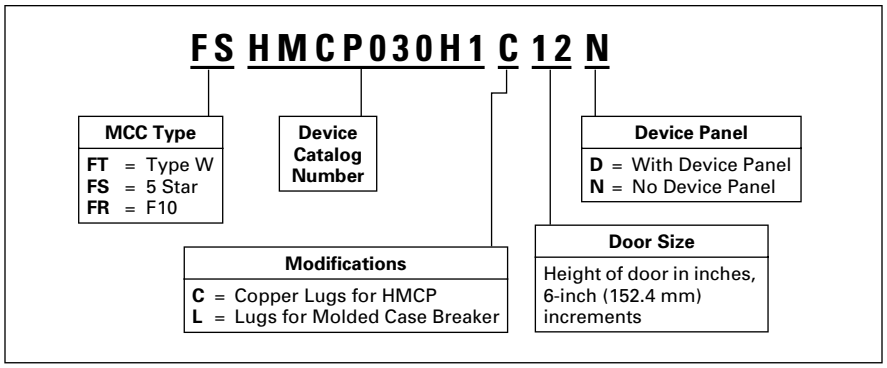


Table 52. Series 2100/5-Star Series C Breaker Retrofit Upgrade Kit

Catalog Number	Catalog Number	Catalog Number	Catalog Number	Catalog Number
FSHMCP003A0	FSHMCP250D5	FSHMCP400X5	FSFDC3020	FSHJD3250
FSHMCP007C0	FSHMCP250F5	FSHFD3015	FSFDC3025	FSJDC3175
FSHMCP015E0	FSHMCP250G5	FSHFD3020	FSFDC3030	FSJDC3200
FSHMCP025D0	FSHMCP250J5	FSHFD3025	FSFDC3040	FSJDC3225
FSHMCP030H1	FSHMCP250K5	FSHFD3030	FSFDC3050	FSJDC3250
FSHMCP050G2	FSHMCP250L5	FSHFD3040	FSFDC3060	FSHKD3300
FSHMCP050K2	FSHMCP250W5	FSHFD3050	FSFDC3070	FSHKD3350
FSHMCP070J2	FSHMCP400D5	FSHFD3060	FSFDC3080	FSHKD3400
FSHMCP070M2	FSHMCP400F5	FSHFD3070	FSFDC3090	FSKDC3300
FSHMCP100L3	FSHMCP400G5	FSHFD3080	FSFDC3100	FSKDC3350
FSHMCP100R3	FSHMCP400J5	FSHFD3090	FSFDC3125	FSKDC3400
FSHMCP150T4	FSHMCP400K5	FSHFD3100	FSFDC3150	—
FSHMCP150U4	FSHMCP400L5	FSHFD3125	FSHJD3175	—
FSHMCP250A5	FSHMCP400W5	FSHFD3150	FSHJD3200	—
FSHMCP250C5	FSHMCP400R5	FSFDC3015	FSHJD3225	—

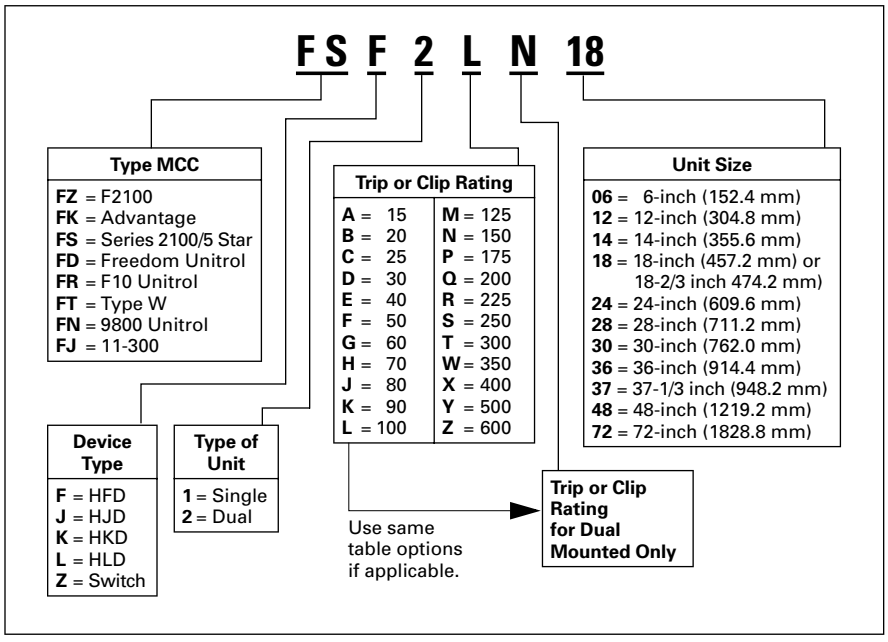
Note: Entire catalog number is not listed above and will not affect price.

How to Create a Catalog Number

After selecting the circuit device required, create a **Dual Mounted** feeder unit catalog number based on the following:

Note: Catalog number varies in length based on single or dual mounted unit.

Table 53. Catalog Numbering System Example



Replacement Feeder Units

Product Description

Each Feeder Unit consists of a single mounted 3-pole molded case circuit breaker or fusible switch (dual mounted are also available). Each unit includes a new wrapper, stab assembly, door, handle mechanism and customer specific disconnect device. They are shipped assembled and ready to install into the existing motor control center.

The following are simple steps to select and order a new feeder unit:

Step 1

Select the circuit device required from **Table 54** below.

Step 2

Verify the amount of space available.

Step 3

Create a catalog number from the formula on **Table 53** on **Page 26**.

Unit options and modifications for replacement feeder units:

For factory installed molded case circuit breaker modifications or additional unit options, contact the factory for prices and availability.

Table 54. Electrical Characteristics and Space Requirements of Molded Case Circuit Breakers and Fusible Switch Replacement Feeder Units — Inches (mm)

Device Type	Maximum Amperes	Interrupting Rating (kAIC)			Trip Rating or Clip	Freedom 2100 Series 2100/5 Star Advantage		Freedom Unitrol		F10		Type W		9800		11-300	
		240V	480V	600V		Single	Dual	Single	Dual ①	Single	Dual ①	Single	Dual	Single	Dual ①	Single	Dual
HFD	150	100	65	25	15 20 25 30 40 50 60 70												
					80	6 ② (152.4)		6 ② (152.4)									
					90	12 ③ (304.8)	12 (304.8)	12 ③ (304.8)	12 (304.8)	12 ③ (304.8)	12 (304.8)	12 ③ (304.8)	12 (304.8)	14 (355.6)	14 (355.6)	14 (355.6)	14 (355.6)
					100												
					125	12 (304.8)	12 (304.8)	12 (304.8)	18 (457.2)	12 (304.8)	18 (457.2)	12 (304.8)	12 (304.8)	14 (355.6)	18 (457.2)	14 (355.6)	14 (355.6)
					150	12 ③ (304.8)						12 ③ (304.8)					
HJD	250	100	65	25	175 200												
					225	18 (457.2)		24 (609.6)		18 (457.2)		18 (457.2)		18 (457.2)		14 (355.6)	
					250												
HKD	400	100	65	35	300 350												
					400	24 (609.6)		24 ④ (609.6)		24 ④ (609.6)		24 (609.6)		28 ④ (711.2)		14 (355.6)	
HLD	600	100	65	35	500												
					600	24 (609.6)		24 ④ (609.6)		24 ④ (609.6)							
Fusible Switch	30	100	100	100	30	12 (304.8)	12 ③ (304.8)	12 (304.8)	18 (457.2)	12 (304.8)	18 (457.2)	12 (304.8)	12 ③ (304.8)	14 (355.6)	18 (457.2)	14 (355.6)	14 (355.6)
	60	100	100	100	60	12 (304.8)	12 ③ (304.8)	12 (304.8)	18 (457.2)	18 (457.2)	18 (457.2)	12 (304.8)	12 ③ (304.8)	14 (355.6)	18 (457.2)	14 (355.6)	14 (355.6)
	100	100	100	100	100	18 (457.2)		18 (457.2)		18 (457.2)		12 ③ (304.8)		18 (457.2)		18 (457.2)	18-2/3 (474.2)
	200	100	100	100	200	36 (914.4)		30 (762.0)		30 (762.0)		24 (609.6)		28 (711.2)		28 (711.2)	
	400	100	100	100	400	36 (914.4)		72 ④ (1828.8)		48 ④ (1219.2)		42 (1066.8)		42 ④ (1066.8)		42 (1066.8)	
	600	100	100	100	600	48 (1219.2)		72 ④ (1828.8)									

① Combined ampacity no greater than 150A for 12-inch (304.8 mm) height. For greater than 150A, 18-inch (457.2 mm) required.
② 100A maximum.
③ Available in 18-inch (457.2 mm) height.
④ Cable in/cable out, no stab assembly.

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