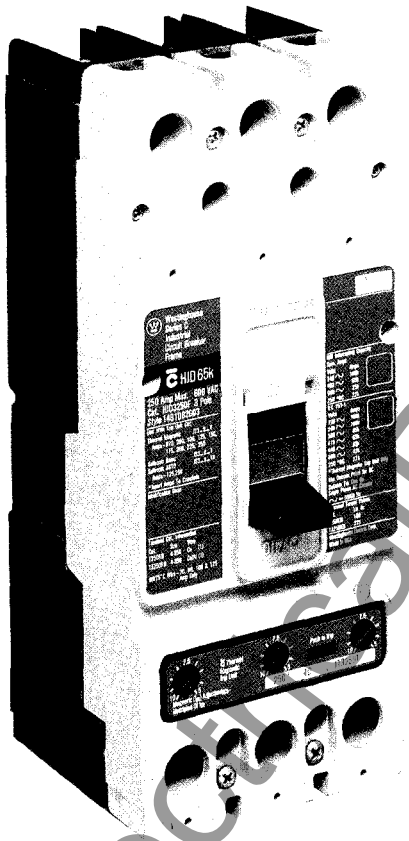
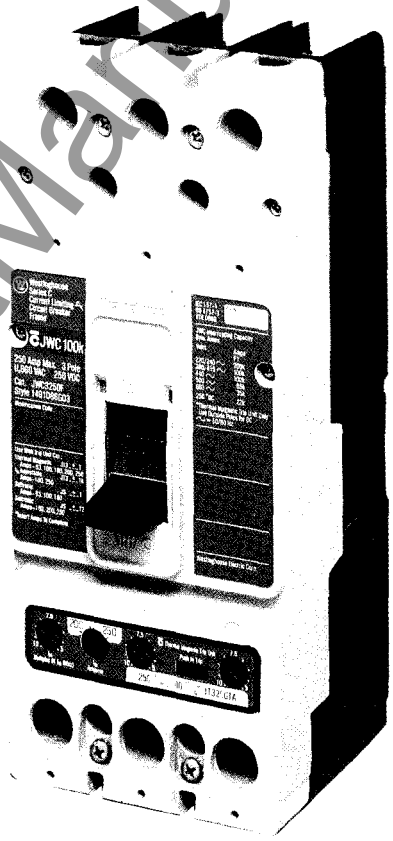
SERIES C®

J-Frame Molded Case Circuit Breakers



D Model, 70 to 250 Amperes



W Model, 63 to 250 Amperes

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

Series C Circuit Breakers

The new Series C line of molded case circuit breakers represents a significant step forward in circuit protection technology. It incorporates, in frame ratings 150A to 2000A, interrupting capacities as high as 100 kA at 480 Vac (200 kA at 240 Vac) in physical sizes normally associated with standard interrupting rating breakers. Series C circuit breakers, in most frame sizes, are physically and electrically interchangeable with the industrial line of molded case circuit breakers they replace.

There are two branches to the Series C line. The branch covering domestic applications complies with applicable UL, NEMA, and CSA standards, as well as being assigned interrupting ratings under IEC 157-1 or IEC 947-2. The world class branch complies with IEC 947-2. The domestic product line which complies with applicable UL/NEMA/CSA standards is composed of six frame ratings: 150A, 250A, 400A, 600A, 1200A, and 1600A/2000A. The six frame ratings of the IEC branch of the Series C line are 160A, 250A, 400A, 630A, 1250A, and 1600A/2000A and are physically interchangeable with the corresponding UL/NEMA/CSA frames.

Series C circuit breakers in the 150A through 630A frame sizes are available with thermal-magnetic trip units. Electronic trip units can be supplied in the 400A through 2000A frame sizes. The electronic trip units for the 400A, 600A, and 630A frames are field-interchangeable with the thermal-magnetic trip unit in the same frame size.

The 150A and 160A frame sizes of Series C circuit breakers are available in 1-, 2-, 3-, and 4-pole models. The 250A through 1250A frame sizes are available in 2-, 3-, and 4-pole models, and the 1600A and 2000A frame sizes are available in 3- and 4-pole models only.

A complete line of external as well as plug-in internal accessories is available for use with Series C circuit breakers.

Because of unique conductor configuration, the 100 kA (at 480 Vac) interrupting rating model of each Series C frame size is inherently current limiting. These models can, therefore, be used in series tested applications at the 100 kA level to protect specified, lower interrupting rating downstream circuit breakers. This current limiting action is achieved without the use of fuse-type current limiters or extra sets of contacts. The 65 kA (at 480 Vac) interrupting rating model of each Series C circuit breaker provides for simple, fully rated application on the 480 Vac secondary of unit substations up to 2500 kVA.

Series C Literature

A new format has been designed for the Series C circuit breaker literature. The literature is designed to provide each user with the needed information presented in the most usable form. The literature includes:

- Frame Books – provide basic descriptions, application data, technical data, dimensional data, and ordering information for each Series C circuit breaker and associated accessories
- Instruction Leaflets – provide installation, inspection, operation, and adjustment information for Series C circuit breakers and accessories
- Time/Current Curve Packets – provide full-size time/current characteristic curves for each Series C circuit breaker

Note: This catalog is published solely for ***information*** purposes and should not be considered all inclusive. If further information is required, Westinghouse Electric Corporation should be consulted.

Sale of product shown in this catalog is subject to terms and conditions outlined in Westinghouse Electric Corporation Selling Policy 25-000.

NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OR WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ARE MADE REGARDING THE INFORMATION, RECOMMENDATIONS, AND DESCRIPTIONS CONTAINED HEREIN. In no event will Westinghouse be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss whatsoever including but not limited to damage, or loss of use of equipment, plant or power system, cost of capital, loss of profits or revenues, cost of replacement power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of information, recommendations, and descriptions contained herein.

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

Table of Contents

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

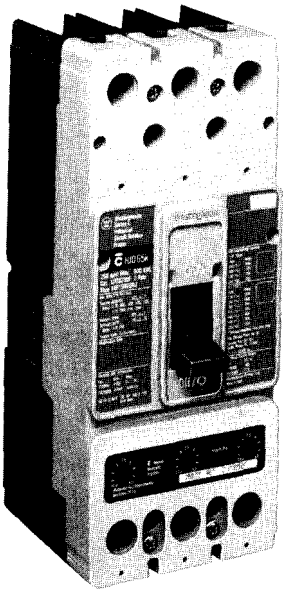


Figure 1-1. J-Frame Series C Circuit Breaker with Thermal-Magnetic Trip Unit

1-1. General Information

J-Frame Circuit Breaker
The J-frame Series C circuit breaker using interchangeable thermal-magnetic (Figure 1-1) is available in two basic models: the D model and the W model. The D model (rated from 70A to 250A) is designed to comply with Underwriters Laboratories, Inc. Standard UL489, Canadian Standards Association Standard C22.2 No. 5, and International Electrotechnical Commission Recommendations IEC 157-1 (P1). The W model (rated from 63A to 250A) complies with International Electrotechnical Commission Recommendations IEC 947-2. Instantaneous (magnetic) only circuit interrupters, molded case switches (circuit interrupters), and mining duty circuit breakers are also available.

For most applications, the J-frame circuit breaker is designed to physically and electrically replace the KB circuit breaker family (JB, KB, HKB). When replacing the KB family, additional consideration must be given where external handle operating accessories are used. Refer to Westinghouse.

An innovative design of internal components allows applications to be extended to higher interrupting rating levels. In addition, the higher interrupting and current limiting performance capabilities of the J-frame circuit breaker allow it to be applied in situations that previously required physically larger circuit breakers. Each circuit breaker nameplate is color coded to provide easy identification of type and interrupting capacity rating.

Table 1-1. J-Frame Circuit Breaker Interrupting Capacity Ratings

UL489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes)			
		Volts ac (50/60 Hz)			Volts dc
		240	480	600	250②③
JDB	2,3	65,000	25,000	18,000	10,000
JD	2,3,4	65,000	25,000	18,000	10,000
HJD	2,3,4	100,000	65,000	25,000	22,000
JDC	2,3,4	200,000	100,000	35,000	22,000

IEC 157-1 Interrupting Capacity Ratings (P1)

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes)					
		Volts ac (50/60 Hz)					Volts dc
		220/240	380/415	440	500	660	250②③
JD	2,3,4	65,000	25,000	25,000	20,000	.....	10,000
HJD	2,3,4	100,000	65,000	65,000	42,000	.....	22,000
JDC	2,3,4	200,000	100,000	100,000	65,000	.....	22,000
JW	2,3,4	65,000	25,000	25,000	20,000	14,000	10,000
HJW	2,3,4	100,000	65,000	65,000	42,000	18,000	22,000
JWC	2,3,4	200,000	100,000	100,000	65,000	22,000	22,000

IEC 947-2 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles	Interrupting Capacity (Symmetrical Amperes)							
		Volts Ac (50/60 Hz)						Volts dc②⑥	
		380		415		690		250	
		I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
JW	2, 3, 4	35,000	(18,000)	35,000	(18,000)	14,000	(7,000)	10,000	(5,000)
HJW	2, 3, 4	65,000	(33,000)	65,000	(33,000)	18,000	(9,000)	20,000	(10,000)
JWC	2, 3, 4	100,000	(50,000)	100,000	(50,000)	22,000	(11,000)	20,000	(10,000)

Table 1-2. Standard Trip Unit Types for J-Frame Circuit Breakers

Type of Trip Unit	Magnetic	Thermal	Circuit Breaker Type
Thermal-Magnetic	Adjustable	Fixed	JDB, JD, HJD, JDC
	Adjustable	Adjustable	JW, HJW, JWC
Instantaneous Only	Adjustable	None	HMCP⑤
High Instantaneous Molded Case Switch	Fixed	None	JD-K, HJD-K, JDC-K, JW-K, HJW-K, JWC-K

Table 1-3. Standard Thermal-Magnetic Trip Unit Ratings

Model D Circuit Breaker		Model W Circuit Breaker	
Continuous Current Rating (A)	Adjustable Magnetic Trip Setting (A)	Adjustable Continuous Current Setting (A)	Adjustable Magnetic Trip Setting (A)
70	350 - 700		
90	450 - 900		
100	500 - 1000		
125	625 - 1250	100 - 125	625 - 1250
150	750 - 1500	125 - 160	800 - 1600
175	875 - 1750		
200	1000 - 2000	160 - 200	1000 - 2000
225	1125 - 2250		
250	1250 - 2500	200 - 250	1250 - 2500

② 2-pole circuit breaker or two poles of 3-pole circuit breaker.
③ Time constant is 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.
⑤ Refer to Frame Book 29-111A.
⑥ Time constant is 5 milliseconds minimum at 10 kA and 15 milliseconds minimum at 22 kA.

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

The J-frame circuit breaker is available in 2-, 3-, and 4-pole configurations to satisfy application requirements in all types of electrical systems.① A modular accessory concept permits wide flexibility in accessory installation.

This frame book provides basic information about the circuit breaker, interchangeable trip units, and molded case switch models of the J-frame circuit breaker. Separate publications cover instantaneous-only circuit interrupters (motor circuit protectors) and mining duty circuit breakers.

1-2. J-Frame Circuit Breaker Types

J-Frame circuit breakers are available in several types. Types JDB, JD, HJD and Current Limiting JDC are listed in accordance with Underwriters Laboratories, Inc. Standard UL489 and Canadian Standards Association Standard C22.2 No. 5.② Types JD, HJD and JDC comply with International Electrotechnical Commission Recommendations IEC 157-1 (P1). Types JW, HJW and JWC comply with International Electrotechnical Commission Standard IEC 947-2. Table 1-1 gives the interrupting capacity ratings for the different circuit breaker types.

Each circuit breaker rating is achieved by specific design features incorporated into the circuit breaker frame and the type of trip unit selected. J-frame trip units are interchangeable and do not affect the circuit breaker interrupting rating.③

Fixed Thermal-Adjustable Magnetic and Adjustable Thermal-Adjustable Magnetic Trip Units
J-frame circuit breakers available with either a fixed thermal-adjustable magnetic or an adjustable thermal-adjustable magnetic trip unit provide thermal (inverse time) and magnetic (instantaneous) automatic tripping. Available ratings and adjustments are shown in Tables 1-2 and 1-3. The trip units are also equipped with a manual Push-to-Trip mechanism.

Instantaneous-Only Trip Unit (Motor Circuit Protector)
The instantaneous-only trip unit provides short circuit protection only. The 250A instantaneous-only motor circuit protector is covered in Frame Book 29-111A.

Molded Case Switch (Circuit Interrupter)
Molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous-automatic type. Molded case switches are listed in accordance with Underwriters Laboratories, Inc. Standard UL1087.②

The high instantaneous-automatic molded case switch is equipped with a nonadjustable, instantaneous trip mechanism that protects the switch if it is subjected to a fault current above its withstand rating. The switch does not provide low level fault or inverse time overload protection and must be used with a properly rated overcurrent protective device.

All molded case switches are equipped with an integral trip bar and will accept field installable plug-in accessories. A manual Push-to-Trip mechanism is not provided.

1-3. Advantages

The Series C circuit breaker line represents an entirely new approach to circuit breaker design. The J-frame circuit breaker uses new design features that improve performance and extend application capabilities while allowing a high degree of physical interchangeability with the existing KB circuit breaker family.

Figure 1-2 highlights advantages of the J-frame circuit breaker over previously available circuit breakers.

a. Performance
The J-frame circuit breaker provides higher interrupting capacities and improved current limiting capabilities compared to previous standard-line circuit breakers. The enhanced performance characteristics extend J-frame circuit breaker use to applications that previously required physically larger circuit breakers.

b. Designs
The standard D model circuit breakers have fixed thermal and adjustable magnetic settings to provide application consistency. The W model circuit breakers have adjustable thermal and adjustable magnetic settings to provide application flexibility where local codes and standards permit the use of adjustable thermal circuit breakers.

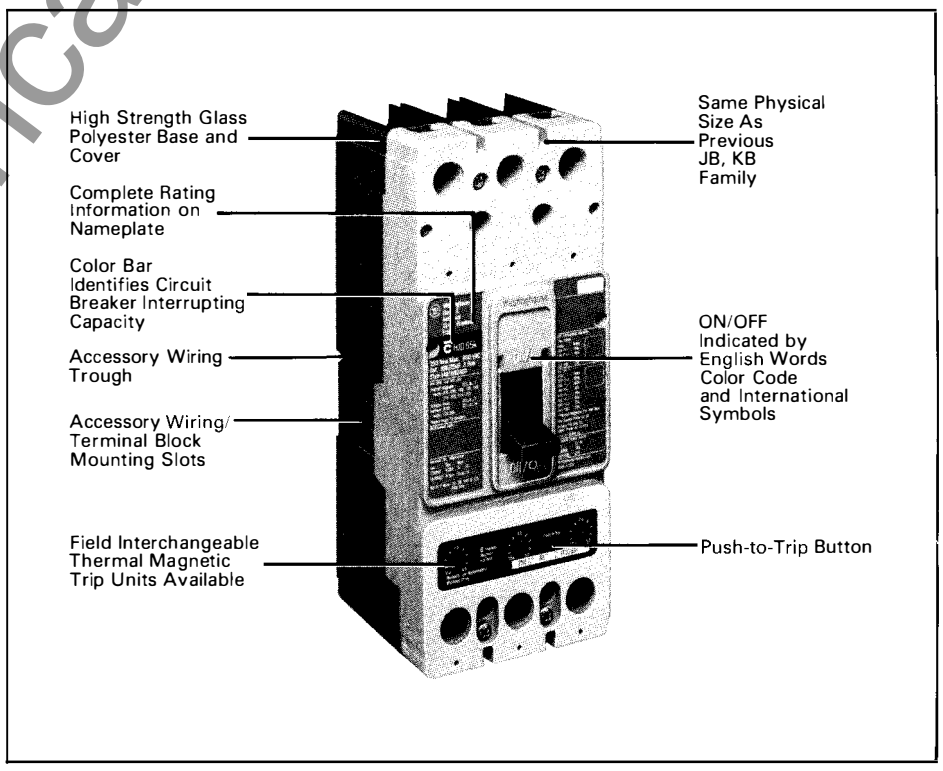


Figure 1-2. J-Frame Circuit Breaker Features

① Two pole circuit breaker supplied in three pole frame.
② Some listings pending; refer to Westinghouse.
③ Type JDB circuit breaker trip units are non-interchangeable.

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

c. Construction Details
The 2-, 3-, and 4-pole configurations satisfy application requirements for all types of electrical systems. The 4-pole configuration provides 3-phase, 4-wire neutral line circuit breaking where required by local codes and applications.

The frame size allows a high degree of physical interchangeability with the existing KB circuit breaker family. Note: When replacing existing circuit breakers, assure the correctness of the application by comparing existing equipment ratings and system requirements with J-frame performance characteristics.

Circuit breaker mounting hardware is available in Imperial or metric thread sizes to accommodate user needs.

A Push-to-Trip button located in each trip unit provides a local means of manually exercising the trip mechanism. Molded case switches do not have Push-to-Trip provisions.

High strength glass-polyester base and cover have excellent dielectric qualities and reduce the need for fungus proofing. Cover design reduces the possibility of accidental contact with live terminations.

Operating mechanism design provides increased air gap between stationary and moving contacts when circuit breaker is in tripped position. The increased air gap provides greater arc impedance during contact opening, which allows higher interrupting capacity ratings to be obtained in compact frame sizes.

Variations in contact assembly designs allow different interrupting capacities in one physical frame size.

The one piece molded crossbar assembly has high dielectric qualities and ensures simultaneous operation of all moving contacts.

Positive operating mechanism ensures that the operating handle remains in the ON position when the contacts are closed. Handle operating force is compatible with circuit breakers in the KB family.

d. Internal Accessories
Modular plug-in accessory design simplifies factory installation for improved customer service and facilitates field installation where local codes and standards permit.

The internally mounted accessories include auxiliary switch, alarm (signal)/lockout switch, shunt trip, and undervoltage release mechanism. These accessories are designed to meet most ac and dc rating requirements.

Internal accessory wiring options provide wire routing versatility. The standard wiring configuration is pigtail leads exiting the rear of the base directly behind the accessory. Optional configurations include a terminal block mounted on the same side of the base as the accessory, leads exiting the side of the base where the accessory is mounted, and leads exiting the rear of the base on the side opposite the accessory.

e. External Accessories
Cover design permits field installation of key interlocks, padlockable handle lock hasp, and electrical or manual handle operators without modifying the cover.

A factory-installed cylinder lock can be mounted in the cover providing a simplified system for locking the trip bar in the tripped position.

Plug-in adapters provide convenience for front-removable switchboard construction.

All J-frame models can be operated by Vari-Depth, SM, MC, and AMT handle mechanisms. These are different from existing KB family handle mechanisms.

f. Markings
The Series C circuit breaker line features a new nameplate format which provides easy identification of circuit breaker type, rating, and operating status.

Nameplates are color coded for immediate rating identification. A color-coded bar identifies the type and the interrupting rating (kA) at the most common application voltage. The color codes are as follows:

Grey:	JDB/JD/JW
Black:	HJD/HJW
Red:	JDC/JWC

Consolidated nameplate design provides complete identification and rating information in an easily readable, understandable format.

Circuit breaker status is clearly indicated by circuit breaker handle position and color-coded flags (red for ON, green for OFF, and white for trip). The on and off positions are identified in English words (ON and OFF) and international symbols (1 and 0).

g. Equipment Literature
A complete line of technical literature produced in several languages provides specification, ordering, application, and instructional information. This makes the circuit breaker easy to specify, purchase, and apply, saving time and minimizing application errors.

Dimensional data is in Imperial and metric units to satisfy user requirements.

h. Standards Compliance
The Series C circuit breaker is designed to comply with the following standards:

- Australian Standard AS 2184, Moulded Case Circuit Breakers
- British Standards Institution Standard BS 4752: Part 1, Switchgear and Control Gear, Part 1: Circuit Breakers
- Canadian Standards Association Standard C22.2 No. 5, Service Entrance and Branch Circuit Breakers
- International Electrotechnical Commission Recommendations IEC 157-1 (P1 and P2), Low-Voltage Distribution Switchgear, Part 1: Circuit Breakers
- Japanese Industrial Specification 8370, Molded Case Circuit Breakers
- National Electrical Manufacturers Association Standards Publication No. AB1 - 1975. Molded Case Circuit Breakers.
- South African Bureau of Standards Standard SABS 156, Standard Specification for Moulded Case Circuit Breakers
- Swiss Electro-Technical Association Standard SEV 157-1, Safety Regulations for Circuit Breakers
- Underwriters Laboratories, Inc. Standard UL489, Molded Case Circuit Breakers and Circuit Breaker Enclosures, Including Marine Circuit Breakers
- Union Technique de l'Electricite Standard NF C 63-120, Low Voltage Switchgear and Control Gear Circuit Breaker Requirements
- Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) Standard VDE 0660, Low Voltage Switch Gear and Control Gear, Circuit Breakers.

Compliance with these standards satisfies most local and international codes, assuring user acceptability and simplifying application.

i. Federal Specification Classifications
Circuit breaker types JD, HJD and JDC equal or exceed W-C-375b requirements for class 22(a).

Series C Molded Case Circuit Breakers, J-Frame
Section 2 – Applications

2-1. Introduction

Application flexibility of the J-frame circuit breaker is enhanced by the higher interrupting ratings and current limiting characteristics designed into the Series C line.

2-2. Typical Applications (See Figure 2-1)

Switchboard Application
The JD/JW, HJD/HJW, and JDC/JWC circuit breakers are used in distribution systems to provide feeder and branch circuit protection.

Panelboard Applications
The J-frame circuit breaker is used in panelboard applications as both a main and a branch circuit protection device. The Type JDB noninterchangeable trip circuit breaker is specifically designed for reverse-feed applications.

Busway Plug-In Application
The J-frame circuit breaker can be applied in busway plug-in units to provide feeder or branch circuit protection. Size compatibility between the KB family and the J-frame circuit breaker facilitates replacement. However, when the existing busway plug-in unit is used, handle location modifications may be required.

Individual Enclosure Application
The J-frame circuit breaker can be applied in individual enclosures to meet specific installation requirements.

Machine Tool Control Panel Application
In machine tool applications, J-frame circuit breakers and molded case switches can be applied to meet individual equipment requirements.

Special Applications
In mining, motor circuit protection, and other applications, special versions of the J-frame circuit breaker provide safe equipment control and protection. For additional information, see separate frame books or refer to Westinghouse.

For all 3-phase Delta, grounded B-phase applications, reduced interrupting ratings will apply; refer to Westinghouse.

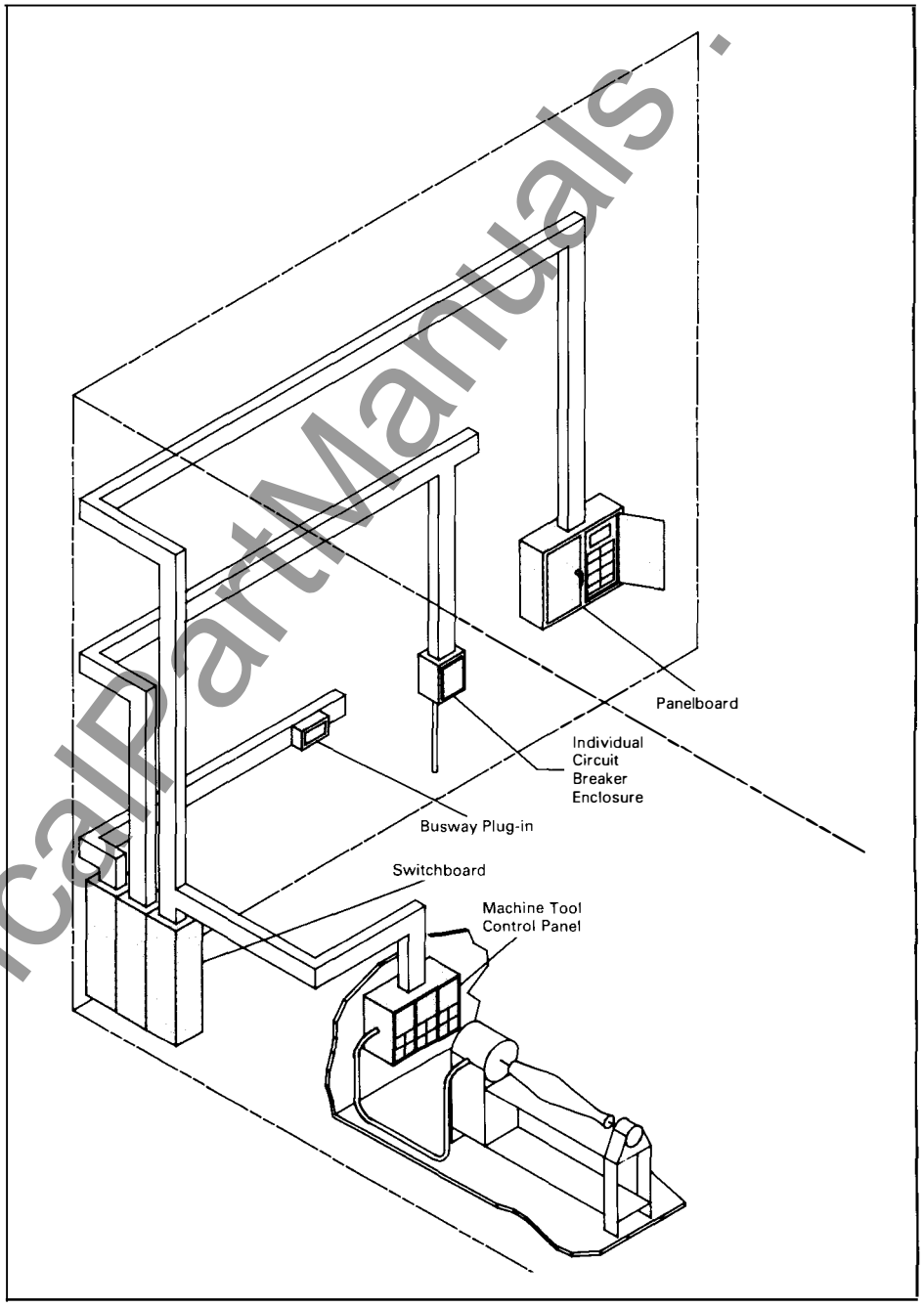


Figure 2-1. J-Frame Circuit Breaker Typical Applications

Series C Molded Case Circuit Breakers, J-Frame
Section 3 – Description

3-1. Physical Description

The J-frame circuit breaker consists of the following components mounted inside a molded glass-polyester case (Figure 3-1):

- Operating mechanism
- Arc extinguishers
- Stationary contact assemblies
- Moving contact assemblies
- Trip unit.

For a generic functional and component description of circuit breaker components other than the trip unit, refer to Frame Book 29-101.

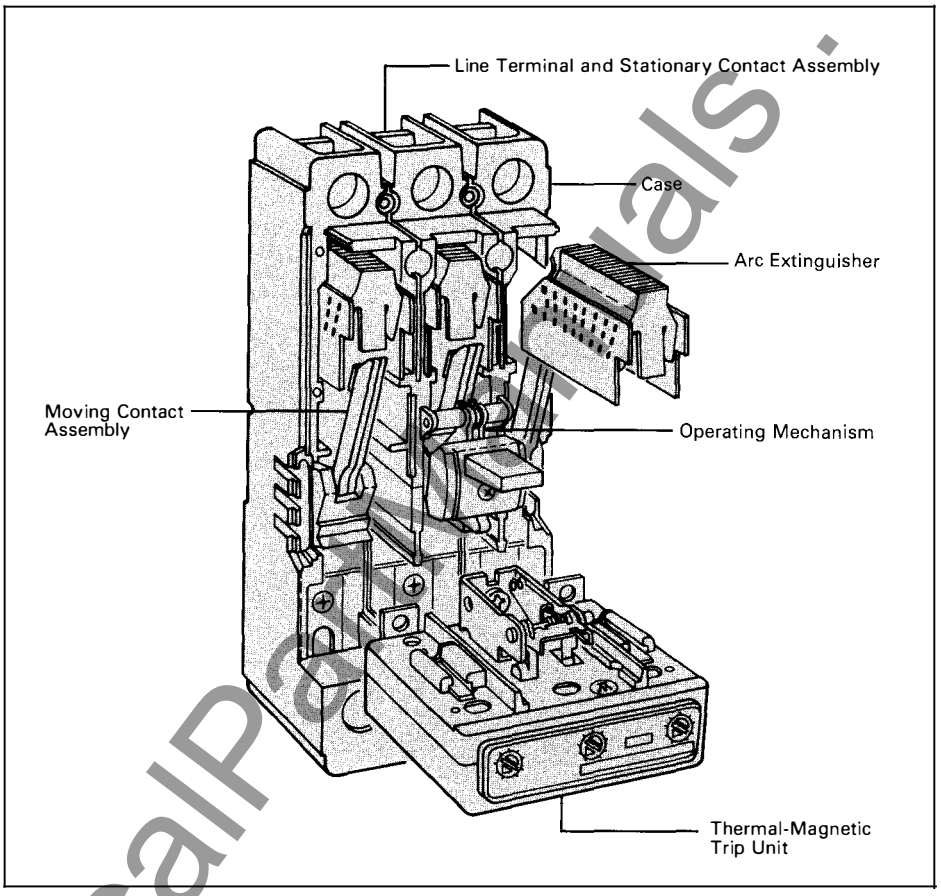


Figure 3-1. J-Frame Circuit Breaker Components

3-2. Trip Unit Description and Operation

General Description
All interchangeable trip units are of the self-contained, factory-sealed type using thermal-magnetic sensing elements. The thermal-magnetic trip unit contains a fixed or optional adjustable thermal (bi-metal) element for overload protection and an adjustable magnetic element for short circuit protection. A manual Push-to-Trip button is included for exercising the trip unit.

Trip Operation
The trip mechanism can be automatically actuated by the thermal trip element or magnetically actuated. The trip mechanism can also be actuated by the Push-to-Trip button, the cylinder lock, the shunt trip, or the undervoltage release mechanism accessories.

JW, HJW, and JWC Adjustable Thermal and Adjustable Magnetic Mechanism
The thermal and magnetic time-current performance characteristics of JW, HJW, JWC circuit breakers can be altered by rotating the adjustment buttons in the cover of the trip unit to the desired setting marked on the label. The adjustable thermal mechanism has movable elements (one per pole) connected by a common adjustment linkage. Each pole element is in the form of an inclined plane and is located between the bi-metal strip and the trip bar. Movement of the inclined plane adjusts the bi-metal-trip bar gap, varying the necessary bi-metal travel required to trip the circuit breaker. The magnetic pick-up setting is adjusted by a linkage that varies the spring tension on the magnet armature.

Push-to-Trip Button
The Push-to-Trip button provides a manual means of tripping the circuit breaker. When the button is pressed, a plunger rotates the trip bar causing the circuit breaker to trip.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

4-1. General Information

A complete line of accessories is available for use with the Series C circuit breakers and molded case switches. Commonly required internally mounted accessories are plug-in types for use only with the Series C line. KB family internal accessories cannot be used in J-frame Series C circuit breakers.

Although the physical size of the Series C J-frame family of circuit breakers is the same as the JB, KB and HKB family, there are certain differences; therefore in some cases, direct replacement is not possible and new accessories must be ordered:

- Circuit breaker mounting details, panel cutouts, and terminal centerline locations are identical. Existing KB family terminals continue to be used with J-frame Series C circuit breakers.
- Handle locations and handle throw details are different. Therefore, existing handle mechanisms and externally mounted accessories including electrical operator and key interlocks, etc. must be replaced or mounting details modified.

The following paragraphs describe each accessory and provide operation, rating, and specification information. In this section, "circuit breaker" shall also include molded case switch, unless otherwise stated.

To identify allowable accessory installation combinations, see paragraph 4-8.

Ordering information is found in Section 5.

4-2. Termination Accessories

Termination accessories of two basic types are available: terminal connection devices, which accommodate typical circuit breaker connection variations; and termination protection devices, which provide terminal isolation.

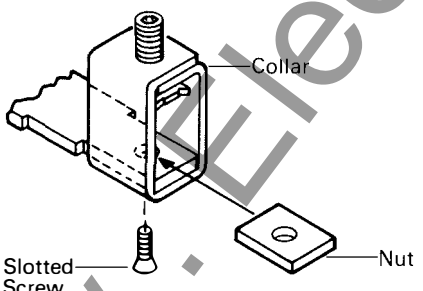
Termination Connection Devices
- Line and Load Terminals
- Plug Nut
- Rear Connecting Studs
- Plug-In Adapters
- Panelboard Connecting Straps

Termination Protection Devices
- Terminal Shield
- Interphase Barriers

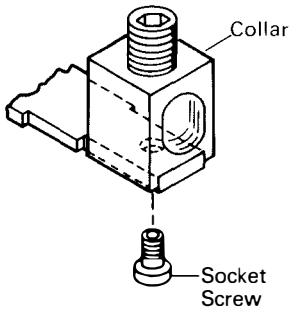
Line and Load Terminals

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories, Inc. Standards UL486A and UL486B and CSA Standard C22.2 No. 65, or Electrical Bulletin 1165. Unless otherwise specified, J-frame circuit breaker line and load terminals are shipped separately for field installation.

The bottom of the standard TA250KB terminal contains a recess which is positioned over the J-frame circuit breaker terminal conductor.



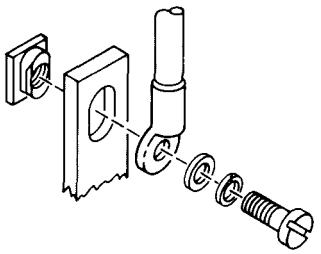
T250KB Terminal



TA250KB Terminal

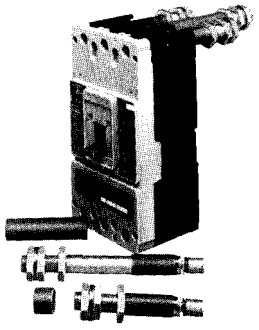
① Washers and screw for illustration only. Not supplied by Westinghouse.

Plug Nut



The plug nut is used in applications where screw-connected ring-type terminals are preferred to connect cables to circuit breaker conductors. The plug nut is press-fit into the opening in the circuit breaker terminal conductor.

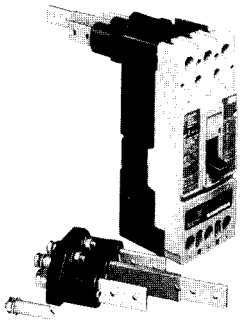
Rear Connecting Studs



Rear connecting studs are available in several sizes to accommodate specific fixed-mounted circuit breaker applications. The rear connecting studs are rated 250A. See Section 6 for dimensional data. (Field installation only)

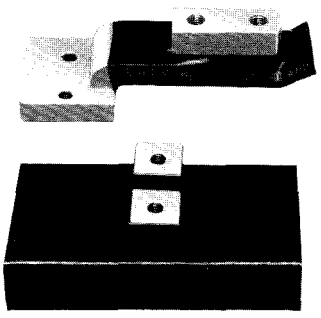
Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

Plug-In Adapters



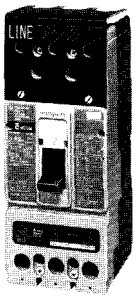
Plug-in adapters simplify installation and front removal of circuit breakers. Individual line and load plug-in adapters are available for rear connection applications on 2-, 3-, and 4-pole circuit breakers. Common mounting plates for line and load end adapters are available. The plug-in adapters are rated 250A. See Section 6 for dimensional data. (Field installation only.)

Panelboard Connecting Straps



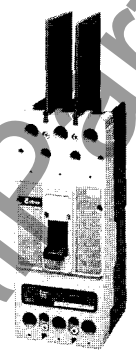
Panelboard connecting straps are used to connect the circuit breaker terminals to the panelboard bus. The panelboard connecting straps are available with 250A rating for outside and center poles. (Field installation only.)

Terminal Shield



Terminal shields provide protection against accidental contact with live line side terminations. Terminal shields are fabricated from high dielectric insulating material and fasten over the front terminal access openings. Small openings in the shields provide limited access to the terminals for tightening connectors. (Field installation only.)

Interphase Barriers

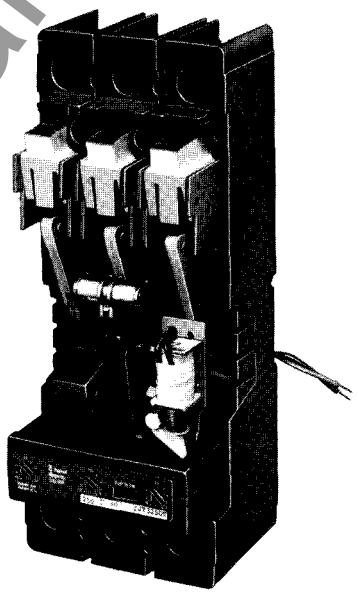


The interphase barriers provide additional electrical clearance between circuit breaker poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals. (Field installation only.)

4-3. Internal Accessories

All internal accessories are of the plug-in type and are listed for field installation under UL File E64983.① Internal accessories for sealed circuit breakers are listed under UL File E7819① for factory installation only. The available plug-in accessories include the following:

- Alarm (Signal)/Lockout Switch
- Auxiliary Switch
- Shunt Trip
- Low Energy Shunt Trip
- Undervoltage Release Mechanism.

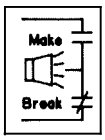


Typical Internal Plug-in Accessory Installed in J-frame Circuit Breaker

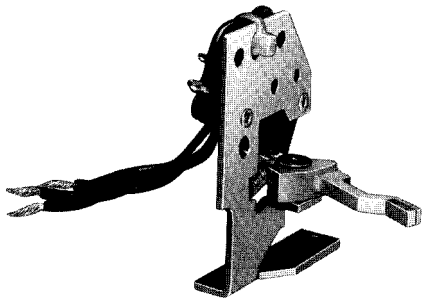
Different accessory wiring options are available to satisfy most circuit breaker mounting applications. The standard wiring configuration is pigtail leads exiting the rear of the base directly behind the accessory. Optional configurations include a terminal block mounted on the same side of the base as the accessory, leads exiting the side of the base where the accessory is mounted, and leads exiting the rear of the base on the side opposite the accessory. If accessory leads longer than 18 inches are required, side-mounted terminal blocks should be used. To identify allowable accessory installation combinations, see paragraph 4-8. Internally mounted accessories identified in paragraph 4-8 are shown in this section by a graphic symbol in a shaded blue box.

① Some UL listings pending; refer to Westinghouse.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications



Alarm (Signal)/ Lockout Switch

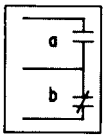


The alarm (signal)/lockout switch monitors circuit breaker trip status and provides remote signaling and interlocking capabilities when the circuit breaker trips. For 2-, 3-, and 4-pole circuit breakers, the alarm (signal)/lockout switch consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. The SPDT switch contacts are identified as make and break contacts. When the circuit breaker trips, the make contact closes and the break contact opens. Table 4-1 provides electrical rating data for the alarm (signal)/lockout switch.

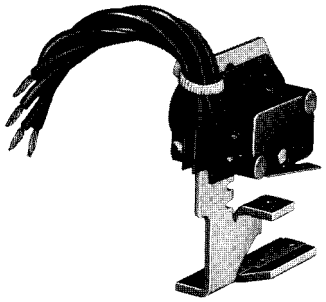
Table 4-1. Alarm (Signal)/Lockout Switch Electrical Rating Data ①②

Maximum Voltage	Freq.	Maximum Current Amps	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	dc	0.5③	
250	dc	0.25③	

① Endurance – 6000 electrical operations plus 2000 mechanical operations.
② Pigtail wire size – No. 18 AWG (0.82 mm²).
③ Non-inductive load.



Auxiliary Switch

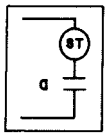


The auxiliary switch provides circuit breaker contact status information by monitoring the position of the molded crossbar containing the moving contact arms. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. Each SPDT switch has one "a" and one "b" contact. When the circuit breaker contacts are open, the "a" contact is open and the "b" contact is closed. Table 4-2 provides electrical rating data for the auxiliary switch.

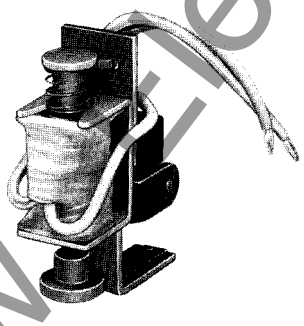
Table 4-2. Auxiliary Switch Electrical Rating Data① ②

Maximum Voltage	Freq.	Maximum Current Amps	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	dc	0.5③	
250	dc	0.25③	

① Endurance – 6000 electrical operations plus 2000 mechanical operations.
② Pigtail wire size – No. 18 AWG (0.82 mm²).
③ Non-inductive load.



Shunt Trip



The shunt trip provides remote controlled tripping of the circuit breaker. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain ac rated shunt trips, as noted in Table 4-3, are suitable for operation at 55 percent of rated voltage. Table 4-3 also provides electrical rating data for the shunt trip.

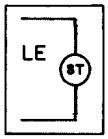
Notes:
① Approximate unlatching time – 6 milliseconds
② Approximate total circuit breaker contact opening time – 18 milliseconds
③ Endurance – 6000 electrical operations plus 2000 mechanical operations
④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.

Table 4-3. Shunt Trip Electrical Rating Data

Electrical Operating Ratings① ● ③

50/60 Hz			dc		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
9	6	36	...	..	....
12	7	31	12	5	50
24		173	24		247
48		686	48		1094
60		1014	60		1698
110④	40	66	110	25	112
120④		84	120		138
127④		102	125		150
208④		354	220	95	40
220④		396	250		58
240④		432	...	..	....
380	135	95	...	..	....
400		108	...	..	....
415		120	...	..	....
440		136	...	..	....
480	240	34	...	..	....
525		42	...	..	....
550		50	...	..	....
600		60	...	..	....

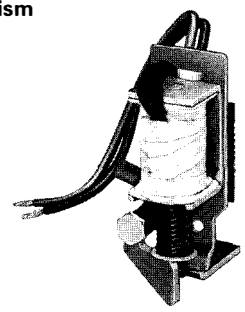
Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications



Low Energy Shunt Trip

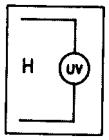
Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the circuit breaker trip mechanism. When a pulse of direct current from the power source passes through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the circuit breaker. As the circuit breaker contacts open, the reset arm is actuated by the circuit breaker operating mechanism, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cut-off provisions required in control circuit.

Undervoltage Release Mechanism



The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating. Table 4-4 provides electrical rating data for each operating voltage of the handle reset undervoltage release mechanism.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.



Handle Reset (Standard) The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever assembled to a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the circuit breaker handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the circuit breaker contacts will not touch when a closing operation is attempted.

Table 4-4. Undervoltage Release Mechanism (Handle Reset) Electrical Rating Data

Electrical Operating Ratings①②

50/60 Hz					dc				
Supply Voltage	Dropout Voltage Min.	Max.	Pickup Voltage Max.	VA	Supply Voltage	Dropout Voltage Min.	Max.	Pickup Voltage Max.	VA
9	3.2	8.4	7.7	1.9	...	...	...	...	..
12	4.2	8.4	10.2	1.9	12	4.2	8.4	10.2	1.6
24	8.4	16.8	20.4	3.9	24	8.4	16.8	20.4	3.1
48 60	21	33.6	40.8	2.5 3.8	48 60	21	33.6	40.8	2.0 3.1
110 120 127	44.5	77	93.5	1.8 2.1 2.4	110 120 125	44.5	77	93.5	1.6 1.9 2.2
208 220 240	85	145.6	176.8	2.7 3.1 3.8	220 250 ...	87.5	154	187	3.1 4.0 ..
380 415 440 480	168	266	323	3.4 4.0 4.6 5.4	... ...	... ...	... ...	... ...	.. ..
525 550 600	210	367	446	4.5 5.0 5.8	... ...	... ...	... ...	... ...	.. .. ..

① Endurance – 6000 electrical operations plus 2000 mechanical operations
② For electrical rating data for manual, automatic and electrical reset undervoltage release mechanisms, refer to Westinghouse.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

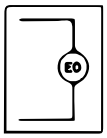
4-4. Handle Operating Accessories

The handle operating accessories provide indirect electrical or manual circuit breaker handle operation. These accessories are field installed only and include:

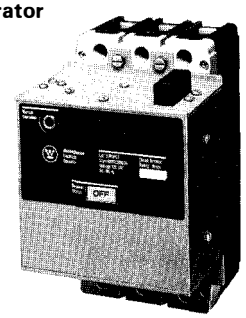
- Electrical (Solenoid) Operator
- Rotary Handle
- Vari-Depth Handle Mechanism
- Type SM Safety Handle Mechanism
- Type MC Motor Control Handle Mechanism
- Type AMT Vari-Depth/Vari-Width Flange-Mounted Handle Mechanism

To identify allowable accessory installation combinations, see paragraph 4-8. Handle operating accessories identified in paragraph 4-8 are shown in this section by a graphic symbol in a shaded blue box.

Ordering Information is found in Section 5.



Electrical (Solenoid) Operator



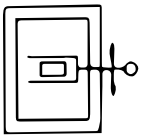
The electrical (solenoid) operator is a double solenoid mechanism that enables local and remote circuit breaker ON, OFF, and reset switching. The electrical operator is mounted on the circuit breaker cover. The electrical operator uses a unique bi-stable latch that allows the device to operate using two solenoids. The accessory provides high speed switching with a maximum operating time of 5 cycles (80 ms), making it suitable for generator synchronizing applications.

Means are provided for remote electrical operation and for local manual operation. A special slide-bar locking mechanism provides means for padlocking the operator in the OFF position. (Padlocking does not affect the trip-free operation of the circuit breaker.) The slide-bar will accept one padlock shackle with a maximum diameter of ¼ inch (6mm). Table 4-5 provides electrical rating data for the electrical (solenoid) operator.

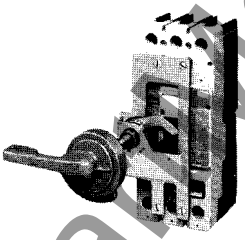
Table 4-5. Electrical (Solenoid) Operator Electrical Rating Data①②③

Voltage④ (V)	Inrush Current (A)	Fuse (A)
24	80	30
120	24	6
240	12	4

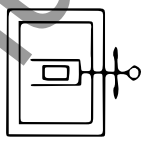
① The electrical operator design has been endurance tested for 6000 electrical operations.
② Frequency: 50/60 Hz or dc.
③ Maximum operating time: 5 cycles (80 ms).
④ Tolerance: +10%, −15% of nominal voltage.
● Underwriters Laboratories listing pending under UL File E64983.



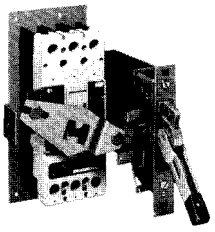
Vari-Depth Handle Mechanism⑤



The vari-depth handle mechanism provides a means of externally operating a circuit breaker housed in an enclosure and can be applied to enclosures of varying depths. The handle mechanism can be used in NEMA 1, 3R, 4, 7, 9, and 12 enclosure applications, depending on the accessory components selected. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 5/16 inch (7.94mm).

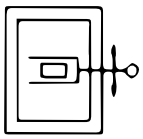


Type SM Safety Handle Mechanism⑤

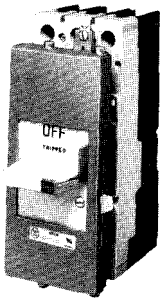


The SM safety handle mechanism provides a means of externally operating a circuit breaker mounted in an enclosure and is designed to reduce the possibility of circuit breaker tampering. The handle mechanism is especially suited for use in automotive and machine tool industries through its conformance to NEMA 12 and J. I. C. requirements. A specially modified handle mechanism for NEMA 4 enclosure applications is also available. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 3/8 inch (9.52mm).

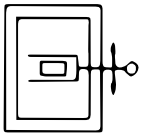
Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications



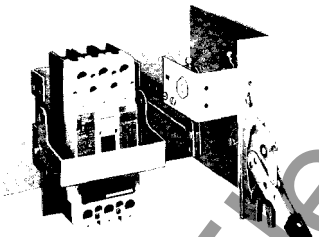
Type MC Motor Control Handle Mechanism



The MC motor control handle mechanism is a linear-operating, fixed-depth mechanism designed for through-door mounting in standardized and shallow depth enclosures. The handle mechanism provides positive operation and direct disconnect status indication. It is interlocked with the enclosure door so that the door can be opened only when the handle is set to OFF. (A defeater, supplied with the handle mechanism, can be used to bypass the interlock for maintenance and inspection.) The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of ⅜ inch (7.92mm). UL File E56845.



Type AMT Vari-Depth/ Vari-Width Flange Mounted Handle Mechanism ①



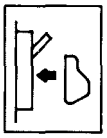
The AMT vari-depth/vari-width flange-mounted handle mechanism is an extra heavy-duty mechanism designed for mounting in flange-type enclosures. The handle mechanism is available for mounting above or below the centerline of the circuit breaker handle, is suitable for various enclosure depths, and can also be used in various horizontal position applications. A door interlock prevents the enclosure from being opened with the handle mechanism in the ON position and prevents the handle mechanism from being switched to ON unless the enclosure door is closed. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of ⅜ inch (7.92mm).

4-5. Lock and Interlock Accessories

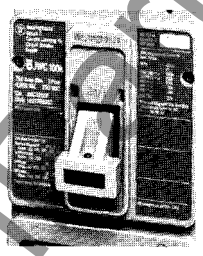
Lock and interlock accessories are used to deter undesired circuit breaker operation and establish interlocked control systems. Lock and interlock accessories include:

- Nonlockable Handle Block
- Padlockable Handle Lock Hasp
- Cylinder Lock
- Key Interlock
- Sliding Bar Interlock
- Walking Beam Interlock.

To identify allowable accessory installation combinations, see paragraph 4-8. Lock and interlock accessories identified in paragraph 4-8 are shown in this section by a graphic symbol in a shaded blue box.

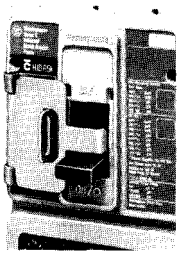


Nonlockable Handle Block

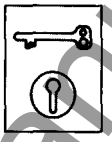


The nonlockable handle block secures the circuit breaker handle in either the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle block holds the circuit breaker handle in the ON position.) The device is positioned over the circuit breaker handle and secured by a setscrew to deer accidental operation of the circuit breaker handle. (Field installation only.)

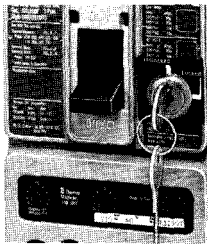
Padlockable Handle Lock Hasp ①



The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle lock holds the circuit breaker handle in the ON position.) The hasp mounts on the circuit breaker cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with ¼ inch (6mm) shackles. (Field installation only.)

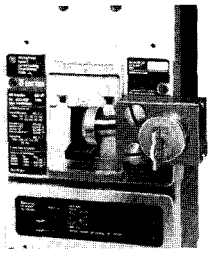


Cylinder Lock



The cylinder lock internally blocks the trip bar in the tripped position to prevent the circuit breaker from being switched to ON. The cylinder lock is factory installed in the circuit breaker cover. Other internally mounted accessories cannot be installed in the same pole as the cylinder lock. (Factory installation only.)

Key Interlock Kit (Lock not included) ①

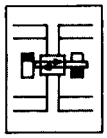


The key interlock is used to externally lock the circuit breaker handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the circuit breaker handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of circuit breakers for a given specific customer installation.

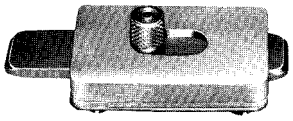
The key interlock assembly consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the circuit breaker cover in either the left- or right-pole position; key interlock mounting hardware; and, a wire seal. Specific mounting kits are required for individual key interlock types. (Field installation only.)

① Underwriters Laboratories listing pending under UL File E64983.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

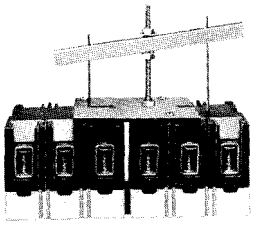


Sliding Bar Interlock



The sliding bar interlock provides mechanical interlocking between two adjacent 2- or 3-pole circuit breakers. It is installed on the enclosure cover between the circuit breakers. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the circuit breaker handles and prevents both circuit breakers from being switched to ON at the same time. Sliding bar interlocks are not UL listed. (Field installation only.)

Walking Beam Interlock



The walking beam interlock provides mechanical interlocking between two adjacent circuit breakers of the same pole configuration. The walking beam interlock mounts on a bracket behind and between the circuit breakers. A plunger on each end of the beam is inserted through an access hole in the backplate and base of each circuit breaker. The walking beam interlock prevents both circuit breakers from being switched to ON at the same time. When a walking beam interlock is installed, the wiring troughs in the back of the circuit breaker case are blocked by the plungers and cannot be used for cross wiring. Factory-modified circuit breakers are required for this application.

4-6. Miscellaneous Accessories

- Base Mounting Hardware
- Earth Leakage Protection Module.

Base Mounting Hardware

Hardware for surface mounting of circuit breakers is supplied only on request. Hardware consists of mounting screws and lockwashers. Order hardware for circuit breaker pole configurations as required.

4-7. Modifications

Limited modifications to the basic circuit breaker are available to satisfy specific customer requirements. All modifications are completed at the factory. The following modifications are available:

- Special Calibration
- Moisture-Fungus Treatment
- Marine Applications

If additional modifications are required, refer to Westinghouse. The following paragraphs describe the modifications.

Special Calibration

Special non-UL listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or dc. Reduced interrupting ratings will apply for 400 Hz applications. **Maximum thermal calibration is limited to 200A at 400 Hz.**

Moisture-Fungus Treatment

All series C circuit breaker cases are molded from glass-polyester, which does not support the growth of fungus. Only a limited number of internal parts require special treatment.

Marine Applications

UL489 listed① 40°C circuit breakers for marine application on vessels over 65 feet are available. Non-aluminum terminals are required. In addition, other marine specifications may require 50°C ambient calibration.

① UL listed under File E85313.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

4-8. Accessory Combinations

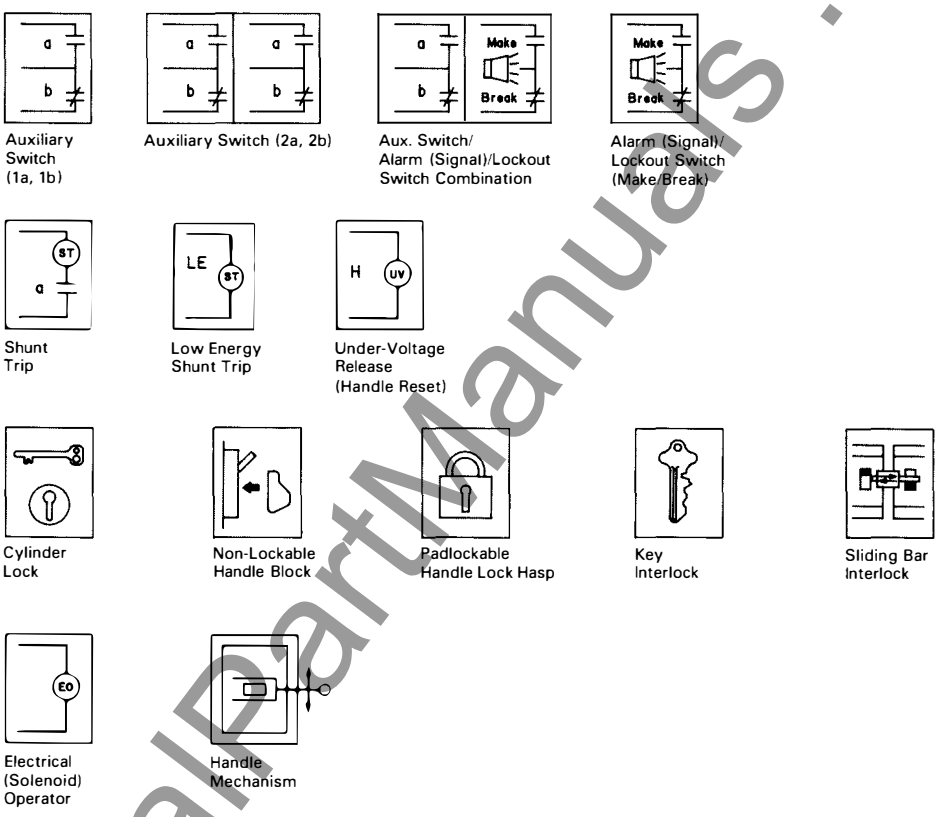
Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker. The following illustrations show the different accessories or combinations that can be used internally and externally with each pole of 2-, 3-, and 4-pole circuit breakers. Each pole in a particular circuit breaker configuration is identified by a column head; each accessory or combination that can be used with that pole is identified by symbols in a box below the column head. Unless otherwise noted, one internal and one external accessory can be selected for each pole.

The cylinder lock will occupy the accessory mounting cavity in the circuit breaker base and also project through the cover. Therefore, if this device is selected, no other internal or external accessory can be applied to that particular pole. In the illustrations, these accessories are identified by repeating the symbol in the internal and cover boxes. If a cylinder lock is selected, the electrical (solenoid) operator or any external handle mechanism cannot be used.

Some external accessories will cover more than one pole. In the illustrations when a box containing accessory symbols spans more than one column, any accessory within that box occupies the area of the cover indicated.

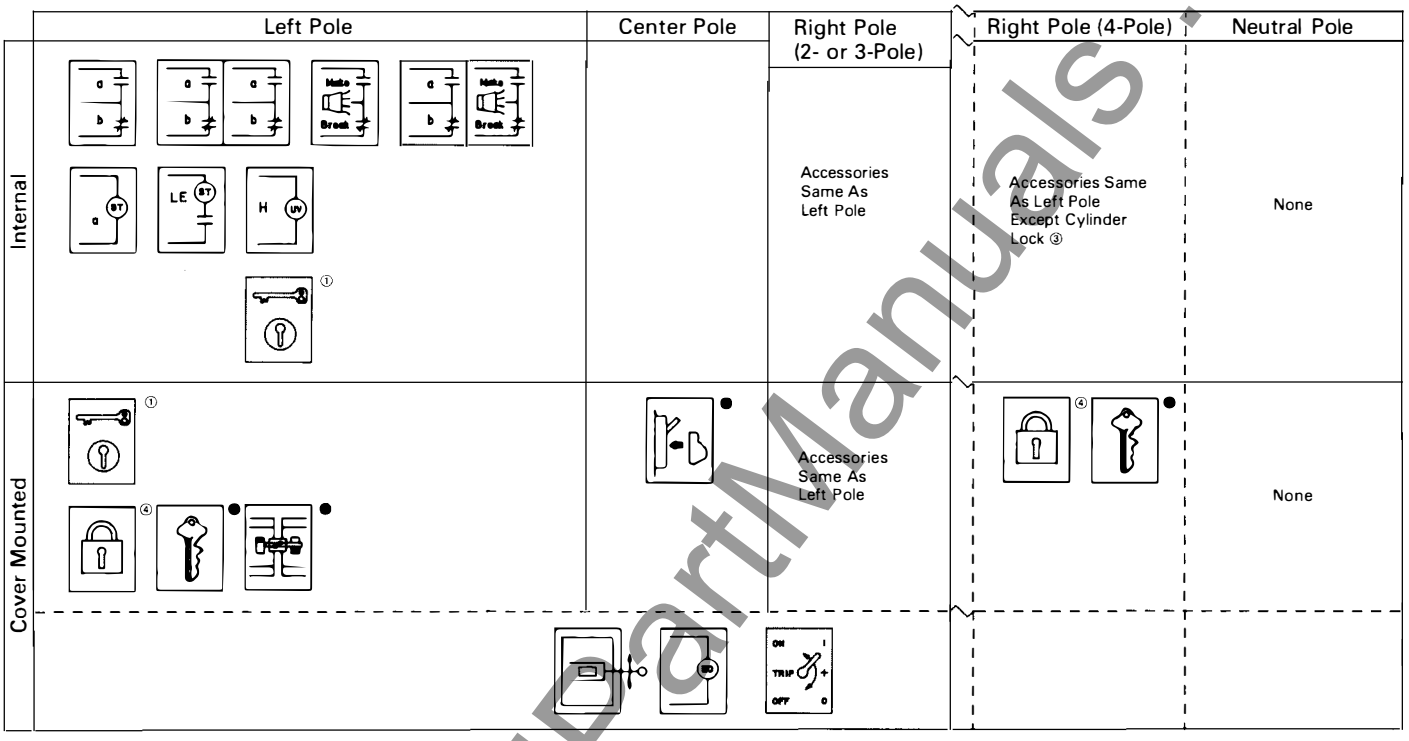
Accessory Legend
The accessory legend shows each symbol used in the accessory combination illustration.

Accessory Symbols Used in Accessory Combination Example (See Page 18)



Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

2-, 3-, and 4-Pole Circuit Breaker Accessory Combinations for use with Type JT Trip Thermal Magnetic Units



① Occupies internal and cover spaces.
② Non-padlockable handle block cannot be mounted simultaneously with either key interlock, padlockable handle hasp or sliding bar interlock.
③ Accessories with terminal blocks installed in this pole have special catalog numbers. See Section 5, Accessory Catalog Numbers.
④ May be mounted on left or right pole, not both.
⑤ 2- and 3-pole circuit breaker only.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

5-1. General Information

When ordering a J-frame circuit breaker or molded case switch, use the catalog numbers given in Tables 5-1 through 5-6. Interrupting ratings can be found in Table 1-1. List any accessories or modifications required together with the applicable catalog number. Handle mechanisms are suitable for use with all J-frame Series C circuit breakers. REFER TO WESTINGHOUSE FOR AVAILABILITY OF ALL CIRCUIT BREAKERS, MOLDED CASE SWITCHES, ACCESSORIES, AND MODIFICATIONS.

List Prices: See Price List 29-020. Discount Symbol CB-2 applies for circuit breakers and accessories. Discount Symbol CB-14 applies for handle mechanisms.

5-2. Ordering Instructions – Circuit Breakers

Factory sealed, non-interchangeable trip circuit breakers may be ordered completely assembled with standard type terminals supplied by referring to Table 5-1 and specifying the appropriate catalog numbers.

Interchangeable trip circuit breakers may be ordered as a circuit breaker frame and trip unit only by specifying the individual catalog numbers from Tables 5-2, 5-3 and 5-4. Terminal connectors can be ordered separately by specifying individual catalog numbers in Table 5-7.

Complete circuit breakers consisting of a frame, trip unit, and standard terminals (Table 5-7) can be ordered by specifying the appropriate catalog numbers from Tables 5-2 and 5-4.

5-3. Ordering Instructions – Accessories

When ordering an accessory that is for installation by the customer, use the field installation kit catalog number.

5-4. Ordering Examples

Example No. 1 – Customer Requirement
One UL listed molded case circuit breaker as follows:

1. 3-pole, 600 Vac class, 250A, with 65 kA interrupting capacity at 480 Vac.
2. Fixed thermal, adjustable magnetic interchangeable trip unit
3. One 2a/2b auxiliary switch with pigtail leads (field installed)
4. One 120 Vac, 50/60 Hz shunt trip with terminal block (field installed)
5. Line and load terminals for 350 mcm aluminum cables, one per phase.

Ordering Steps

1. **Refer to Tables 1-1 and 5-2. Select catalog number HJD3250 consisting of frame HJD3250F, trip unit JT3250T and standard terminals TA250KB. See Table 5-7. (This covers items 1, 2 and 5 above.)**
2. **Refer to auxiliary switch table (page 23). Select field installation kit catalog number A2X2PK. (This covers item 3 above.) Right-pole mounting is standard.**
3. **Refer to shunt trip table (page 24). Select field installation kit catalog number SNT2T11K. (This covers item 4 above.) Left-pole mounting is standard.**
4. **Enter order by specifying as follows:**

   Item 1 – Quantity 1 – Circuit breaker frame, Cat. No. HJD3250F

   Item 1A – Quantity 1 – Trip unit, Cat. No. JT3250T

   Item 1C – Quantity 6 – Terminal, Cat. No. TA250KB

   Item 2 – Quantity 1 – Auxiliary switch kit, Cat. No. A2X2PK

   Item 3 – Quantity 1 – Shunt trip kit, Cat. No. SNT2T11K

The circuit breaker will be shipped unassembled as frame, trip unit, terminals and accessory kits.

Example No. 2 – Customer Requirement
One completely assembled molded case circuit breaker in compliance with IEC 157-1 as follows:

1. 4-pole, 660 Vac class, with 25 kA interrupting capacity (P1) at 380 Vac.
2. Adjustable thermal (200-250A), adjustable magnetic interchangeable trip unit with unprotected neutral pole.
3 One 1a/1b auxiliary switch with pigtail leads (factory installed).
4. One 380 Vac handle reset undervoltage release with pigtail leads (factory installed).
5. Non-aluminum line and load terminals for 350 mcm copper cables, one per phase.

Ordering Steps

1. **Refer to Tables 1-1 and 5-4. Select 4-pole frame catalog number JW4250F and trip unit catalog number JT3250TA. (This covers items 1 and 2 above).**
2. **Refer to auxiliary switch table (page 23). Select catalog number A1X2RB (This covers item 3 above). Right-pole mounting with pigtail leads exiting rear is standard.**
3. **Refer to UVR table (page 24). Select catalog number UVH2LB15. (This covers item 4 above). Left-pole mounting with pigtail leads exiting rear is standard.**
4. **Refer to Table 5-7 (page 22). Select stainless steel terminal catalog number T250KB. A quantity of 8 is required for this application (This covers item 5 above).**
5. **Enter order by specifying as follows**

   Item 1 – Quantity 1 – Factory assembled 4 pole circuit breaker consisting of
   1 – JW4250F Frame
   1 – JT3250TA Trip Unit
   1 – A1X2RB Auxiliary Switch
   1 – UVH2LB15 UVR
   8 – T250KB Terminals

The circuit breaker will be shipped completely assembled. Alternatively, each component could be ordered separately for field assembly.

Example No. 3 – Customer Requirement
One 600 Vac 1m/1b alarm (signal)/lockout switch with 18-inch pigtail leads for field installation in the right hand pole of a JD 3-pole circuit breaker.

In this case, an accessory kit must be specified.

Order as follows, referring to alarm (signal) switch table on page 23.

Quantity 1 – Alarm/lockout switch Cat. No. A1L2RPK.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

5-5. J-Frame Series C Catalog Numbering System

This information is presented only as an aid to understanding catalog numbers shown in Tables 5-1 through 5-6. It is not to be used to build catalog numbers for circuit breakers or trip units.

Circuit Breaker/Frame Catalog Numbers

JD	3	250	F
Circuit Breaker/ Frame Type	Number of Poles	Circuit Breaker/ Frame Ampere Rating	Suffix
JDB	2: 2-Poles	70	C: Copper Terminals
JD	3: 3-Poles	90	E: 50% Protected Neutral Pole (4-Pole Seltronic Trip Circuit Breaker Only)
HJD	4: 4-Poles	100	
JDC		125	
		150	F: Frame Only
JW		160	K: High Magnetic Molded Case Switch
HJW		200	W: Without Terminals
JWC		225	X: Load Side Terminals Only
		250	Y: Line Side Terminals Only

Trip Unit Catalog Numbers

JT	3	250	T
Trip Unit Type	Number of Poles	Trip Unit Ampere Rating	Suffix
JT: Thermal-Magnetic	2	70	T: Trip Unit • Thermal-Magnetic Fixed Thermal Adjustable Magnetic
	3	90	
	4	100	
		125	
		150	TA: Trip Unit • Thermal-Magnetic: Adjustable Thermal Adjustable Magnetic
		160	
		175	
		200	
		225	
		250	

V: 50°C Calibration
E: 50% Protected Neutral Pole (Four-pole trip unit only)

5-6. Circuit Breakers

Circuit breaker catalog numbers are identified in Tables 5-1, 5-2 and 5-4.

Table 5-1. Type JDB Circuit Breaker Catalog Numbers

600 Vac Maximum, 250 Vdc Non-Interchangeable Thermal-Magnetic Trip Unit, Factory Sealed

Continuous Ampere Rating at 40°C	With Line and Load Terminals①	
	2-Pole	3-Pole②
70	JDB2070	JDB3070
90	JDB2090	JDB3090
100	JDB2100	JDB3100
125	JDB2125	JDB3125
150	JDB2150	JDB3150
175	JDB2175	JDB3175
200	JDB2200	JDB3200
225	JDB2225	JDB3225
250	JDB2250	JDB3250

① Standard Cu/Al terminals supplied; refer to Table 5-7. Terminals shipped separately, unless otherwise specifically requested.
② Use any two poles for dc or single phase ac applications.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Table 5-2. Type JD, HJD, and Current Limiting JDC Circuit Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Trip Unit Only	Circuit Breaker Frame Only		
		Complete Circuit Breaker With Standard Line and Load Terminals① ②		
2-Pole③, 600 Vac Maximum, 250 Vdc With Interchangeable Thermal-Magnetic Trip Units				
		JD2250F	**HJD2250F**	**JDC2250F**
70	**JT2070T**	JD2070	HJD2070	JDC2070
90	**JT2090T**	JD2090	HJD2090	JDC2090
100	**JT2100T**	JD2100	HJD2100	JDC2100
125	**JT2125T**	JD2125	HJD2125	JDC2125
150	**JT2150T**	JD2150	HJD2150	JDC2150
175	**JT2175T**	JD2175	HJD2175	JDC2175
200	**JT2200T**	JD2200	HJD2200	JDC2200
225	**JT2225T**	JD2225	HJD2225	JDC2225
250	**JT2250T**	JD2250	HJD2250	JDC2250
3-Pole④, 600 Vac Maximum, 250 Vdc With Interchangeable Thermal-Magnetic Trip Units				
		JD3250F	**HJD3250F**	**JDC3250F**
70	**JT3070T**	JD3070	HJD3070	JDC3070
90	**JT3090T**	JD3090	HJD3090	JDC3090
100	**JT3100T**	JD3100	HJD3100	JDC3100
125	**JT3125T**	JD3125	HJD3125	JDC3125
150	**JT3150T**	JD3150	HJD3150	JDC3150
175	**JT3175T**	JD3175	HJD3175	JDC3175
200	**JT3200T**	JD3200	HJD3200	JDC3200
225	**JT3225T**	JD3225	HJD3225	JDC3225
250	**JT3250T**	JD3250	HJD3250	JDC3250
4-Pole⑤ ⑥, 600 Vac Maximum, 250 Vdc With Interchangeable Thermal-Magnetic Trip Units				
		JD4250F	**HJD4250F**	**JDC4250F**
70	**JT3070T**	JD4070	HJD4070	JDC4070
90	**JT3090T**	JD4090	HJD4090	JDC4090
100	**JT3100T**	JD4100	HJD4100	JDC4100
125	**JT3125T**	JD4125	HJD4125	JDC4125
150	**JT3150T**	JD4150	HJD4150	JDC4150
175	**JT3175T**	JD4175	HJD4175	JDC4175
200	**JT3200T**	JD4200	HJD4200	JDC4200
225	**JT3225T**	JD4225	HJD4225	JDC4225
250	**JT3250T**	JD4250	HJD4250	JDC4250

① Standard Cu/Al terminals supplied; refer to Table 5-7.
② Circuit breaker shipped separately as frame, trip unit, and terminals.
③ 2-pole circuit breaker supplied in 3-pole frame.
④ Use any two protected poles for dc or single phase ac applications.
⑤ Overcurrent protection not available in neutral pole with thermal-magnetic trip unit.
⑥ 3-pole trip unit used with 4-pole circuit breaker. Load end adapter for unprotected neutral pole included with 4-pole frame.
⑦ W model circuit breakers not UL listed.
⑧ Adjustable magnetic ranges shown in Table 1-3 on page 4.

Table 5-3. Type JW, HJW, and JWC Circuit Breaker Catalog Numbers⑦

Continuous Ampere Rating at 40°C	Thermal Trip Range⑧ Low High	Trip Unit Only	Circuit Breaker Frame Only		
			Complete Circuit Breaker With Standard Line and Load Terminals① ②		
2-Pole③, 660 Vac Maximum, 250 Vdc With Interchangeable Trip Unit – Adjustable Thermal, Adjustable Magnetic					
			JW2250F	**HJW2250F**	**JWC2250F**
125	100 - 125	**JT2125TA**	JW2125	HJW2125	JWC2125
160	125 - 160	**JT2160TA**	JW2160	HJW2160	JWC2160
200	160 - 200	**JT2200TA**	JW2200	HJW2200	JWC2200
250	200 - 250	**JT2250TA**	JW2250	HJW2250	JWC2250
3-Pole, 660 Vac Maximum, 250 Vdc④ With Interchangeable Trip Unit – Adjustable Thermal, Adjustable Magnetic					
			JW3250F	**HJW3250F**	**JWC3250F**
125	100 - 125	**JT3125TA**	JW3125	HJW3125	JWC3125
160	125 - 160	**JT3160TA**	JW3160	HJW3160	JWC3160
200	160 - 200	**JT3200TA**	JW3200	HJW3200	JWC3200
250	200 - 250	**JT3250TA**	JW3250	HJW3250	JWC3250
4-Pole⑤, 660 Vac Maximum, 250 Vdc④ With Interchangeable Trip Unit – Adjustable Thermal, Adjustable Magnetic					
			JW4250F	**HJW4250F**	**JWC4250F**
125	100 - 125	**JT3125TA**	JW4125	HJW4125	JWC4125
160	125 - 160	**JT3160TA**	JW4160	HJW4160	JWC4160
200	160 - 200	**JT3200TA**	JW4200	HJW4200	JWC4200
250	200 - 250	**JT3250TA**	JW4250	HJW4250	JWC4250

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

5-7. Molded Case Switches

Molded case switch catalog numbers are identified in Tables 5-5 and 5-6. For UL listed, series tested molded case switch application data, refer to Westinghouse.

Table 5.5. Type JD, HJD and JDC High Instantaneous Molded Case Switch Catalog Numbers

600 Vac Maximum, 250 Vdc

Continuous Ampere Rating at 40°C	Catalog Numbers	
	2-Pole①	3-Pole
	Complete with Standard Line and Load Terminals (shipped separately)	
	Type JD	
250	JD2250K	JD3250K

5-8. UL Listed DC Circuit Breakers

These UL Listed DC Molded Case Circuit Breakers are for use in the ungrounded battery supply circuits of UPS systems providing continuous, reliable AC power to computer controlled applications such as financial transactions and telecommunications.

These devices are an excellent alternative to molded case switches and fuses because they are easier to install, and require less maintenance.

- Type HJDDC (250A) are thermal magnetic type devices and have interrupting ratings of 30 kA at 500 VDC nominal with 3 poles in series.

DC Circuit Breaker Ratings

Breaker Type			HJDDC*
Maximum Ampere Rating			250
Standard	Voltage	Freq.	kA Interrupting Capacity
	384①	DC	30
UL 489	500①	DC	30

*8 milliseconds time constant.
① 3 Poles in series

Accessories
The HJDDC circuit breaker uses the same accessories used on the Series C J-frame circuit breaker.

Frame and Trip Unit

Catalog Number	Trip Unit	Ampere Rating
Series C J Frame		
HJDDC3250F		250
	JT3070T	70
	JT3090T	90
	JT3100T	100
	JT3125T	125
	JT3150T	150
	JT3175T	175
	JT3200T	200
	JT3225T	225
	JT3250T	250

① Two-pole molded case switches supplied in 3-pole frames.
③ Not UL listed.
④ Use 3-pole mounting plate for 2-pole circuit breaker.

Terminals
Use standard Cu/Al or optional copper only terminals for Series C J-frame breaker as shown in Table 5-7.

Shorting Straps For Series Connecting Poles (Package of 2)

Breaker Frame	Catalog Number
HJDDC	SS250

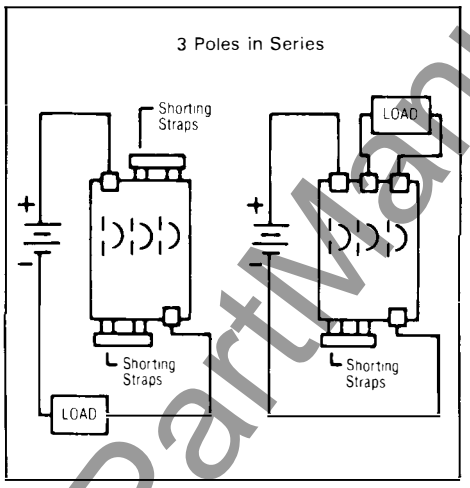


Fig. 1. Series Connection Diagrams.

Order as Follows:
Type HJDDC
1 . . . amp breaker without terminals consisting of:
1 - HJDDC3250F frame
1 - Trip unit (specify catalog number)
Accessories as required

5-9. Accessories

Accessory catalog or style numbers are identified in Tables on pages 22 through 27. All mounting hardware is supplied unless otherwise noted.

Termination Accessories

Line and Load Terminals
J-frame circuit breakers use Cu/Al terminals as standard. When optional copper-only terminals are required, order by catalog number. See Table 5-4. Specify if factory installation is required.

Plug-In Adapter
Plug-in adapters are available for 2-, 3-, and 4-pole circuit breaker configurations. All adapters are rated 250A continuous. One plug-in adapter is used for each terminal end (line or load); specify quantity when ordering. A one-piece steel mounting plate is available at no charge when ordered with line and load plug-in adapters. (Field installation only.)

Terminal End	Style/Catalog Numbers	
	2-Pole	3-Pole
Line	1260C86G05	1260C86G06
Load	1260C86G07	1260C86G08
1 Line and 1 Load	506C144G27	506C144G28
Mounting Plate	④	PMP23

Plug Nut
Plug nuts are available for line/load conductors of J-frame Series C circuit breakers. Plug nuts are supplied in packages of 6.

Thread Type	Thread Size	Catalog Number (Package of 6)
Imperial	.250-20	PLN2
Metric	M-6	PLN2M

Table 5-4. Line and Load Terminal Catalog Numbers

Max. Breaker Amps	Terminal Body Material	Wire Type	AWG Wire Range/No. of Conductors	Metric Wire Range mm²	Catalog Numbers
Standard Cu/Al Terminal					
250	Aluminum	Cu/Al	#4-350 MCM	25-150	TA250KB
250	Stainless Steel	Cu	#4-350 MCM	25-150	T250KB

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Panelboard Connecting Straps

The panelboard connecting straps are available to meet the needs of most standard panelboard applications. Style numbers for mounting brackets for CDP panelboard installations are also included.

Bus Spacing (Inches)	Continuous Current Rating (Amperes)	Pole Connector Type	
		Center	Outside
		Style Number	Style Number
3½	250	2600D26G01	2600D26G02

Mounting Bracket, 2- and 3-Pole
Style Number: 1576707

Terminal Shield

The terminal shield is available for line and load terminal areas in 2-, 3-, and 4-pole circuit breakers. Terminal shields must be ordered in multiples of 10 (for each style number).

Location	No. of Poles	Style Number
Line End	2, 3	1266C07G01
	4	6631C01G01
Load End	2, 3	6641C16G01
	4	6641C16G02

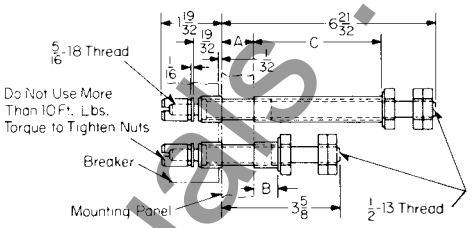
Interphase Barrier

Catalog Number: IPB3 (Pkg. of 2 Barriers)

The interphase barrier is available for extended insulation between circuit breaker poles. Specify quantity when ordering.

Rear Connecting Studs

Each rear connecting stud assembly consists of one stud and one tube. To maintain proper clearances between poles, select alternate long and short stud assemblies for circuit breakers with more than one pole. One assembly is required for line-end and one for load-end of each pole. Tubes must be ordered separately. Connecting studs are only available with English thread sizes.



Stud Length	Stud Style Number	Panel Thickness (Inches) A	Tube Length (Inches) B	C	Standard Tube Style Number
250A Short	5010D23G01	¾ – 1	27/32		456D983H05
250A Short	5010D23G01	½ – ¾	1 3/32		456D983H06
250A Short	5010D23G01	¼ – ½	1 11/32		456D983H07
250A Long	5010D23G02	¾ – 1		3 7/8	5010D23H05
250A Long	5010D23G02	½ – ¾		4 1/8	5010D23H06
250A Long	5010D23G02	¼ – ½		4 3/8	5010D23H07

Internal Accessories

Alarm (Signal)/Lockout Switch

Number of Sets of Contacts (1M and 1B)	Mounting Location (Pole)	Connection Type and Location				Field Installation Kits①	
		18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
		Same Side	Rear ②	Opposite Side			
		Catalog Numbers				Catalog Numbers	
1	Left	A1L2LA	A1L2LB	A1L2LC	A1L2LT	A1L2LPK	A1L2LTK
	Right②	A1L2RA	A1L2RB	A1L2RC	A1L2RT③	A1L2RPK	A1L2RTK③

Auxiliary Switch

Number of Sets of Contacts (1a and 1b)	Mounting Location (Pole)	Connection Type and Location				Field Installation Kits①	
		18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
		Same Side	Rear ②	Opposite Side			
		Catalog Numbers				Catalog Numbers	
1	Left	A1X2LA	A1X2LB	A1X2LC	A1X2LT	A1X2PK	A1X2LTK
	Right②	A1X2RA	A1X2RB	A1X2RC	A1X2RT③	A1X2PK	A1X2RTK③
2	Left	A2X2LA	A2X2LB	.....	A2X2LT	A2X2PK	A2X2LTK
	Right②	A2X2RA	A2X2RB	.....	A2X2RT③	A2X2PK	A2X2RTK③

Auxiliary Switch-Alarm (Signal)/Lockout (ASL) Switch Combination

Each catalog number listed in the following table includes one auxiliary switch and one alarm switch. In an auxiliary switch-ASL switch combination, the auxiliary switch is always mounted on the side of the plug-in module next to the center pole of the circuit breaker.

Number of Sets of Contacts (1a and 1b and 1M and 1B)	Mounting Location (Pole)	Connection Type and Location				Field Installation Kits①	
		18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
		Same Side	Rear ②	Opposite Side			
		Catalog Numbers				Catalog Numbers	
1	Left	AAL2LA	AAL2LB	.....	AAL2LT	AAL2LPK	AAL2LTK
	Right②	AAL2RA	AAL2RB	.....	AAL2RT③	AAL2RPK	AAL2RTK③

① Listed with Underwriters Laboratories, Inc. for field installation on interchangeable trip unit breakers under E64983.
② Standard mounting location – leads exit rear of breaker.
③ Not for use on 4-pole circuit breakers.

ORDERING INFORMATION

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Shunt Trip

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Specific application voltages are shown in Table 4-3. Performance data is shown on applicable circuit breaker accessory nameplates.

Shunt Trip

Voltage Rating (ac Freq = 50/60 Hz)	Connection Type and Location				Field Installation Kits①	
	18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
	Same Side	Rear ②	Opposite Side			
	Catalog Numbers				Catalog Numbers	
Left Pole Mounting AC/DC Ratings②						
12-60 Vac or Vdc	SNT2LA05	SNT2LB05	SNT2LC05	SNT2T05	SNT2P05K	SNT2T05K
⑤110-240 Vac or 110-125 Vdc	SNT2LA11	SNT2LB11	SNT2LC11	SNT2T11	SNT2P11K	SNT2T11K
380-440 Vac or 220-250 Vdc	SNT2LA14	SNT2LB14	SNT2LC14	SNT2T14	SNT2P14K	SNT2T14K
480-600 Vac	SNT2LA18	SNT2LB18	SNT2LC18	SNT2T18	SNT2P18K	SNT2T18K
Right Pole Mounting AC/DC Ratings③						
12-60 Vac or Vdc	SNT2RA05	SNT2RB05	SNT2RC05	SNT2T05④	SNT2P05K	SNT2T05K④
⑤110-240 Vac or 110-125 Vdc	SNT2RA11	SNT2RB11	SNT2RC11	SNT2T11④	SNT2P11K	SNT2T11K④
380-440 Vac or 220-250 Vdc	SNT2RA14	SNT2RB14	SNT2RC14	SNT2T14④	SNT2P14K	SNT2T14K④
480-600 Vac	SNT2RA18	SNT2RB18	SNT2RC18	SNT2T18④	SNT2P18K	SNT2T18K④

Low Energy Shunt Trip⑤

Mounting Positions	Connection Type and Location				Field Installation Kits①	
	18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
	Same Side	Rear ②	Opposite Side			
	Catalog Numbers				Catalog Numbers	
Left Pole②	LST2LA	LST2LB	LST2LC	LST2LT	LST2LPK	LST2LTK
Right Pole③	LST2RA	LST2RB	LST2RC	LST2RT④	LST2RPK	LST2RTK④

Undervoltage Release Mechanism (Handle Reset)

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Specific application voltages are shown in Table 4-4. Performance data is shown on applicable circuit breaker accessory nameplates.

Undervoltage Release Mechanism

Voltage Rating (ac Freq = 50/60 Hz)	Connection Type and Location				Field Installation Kits①	
	18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
	Same Side	Rear ②	Opposite Side			
	Catalog Numbers				Catalog Numbers	
Left Pole Mounting② AC Ratings						
12 Vac	UVH2LA02	UVH2LB02	UVH2LC02	UVH2LT02	UVH2LP02K	UVH2LT02K
24 Vac	UVH2LA03	UVH2LB03	UVH2LC03	UVH2LT03	UVH2LP03K	UVH2LT03K
48-60 Vac	UVH2LA05	UVH2LB05	UVH2LC05	UVH2LT05	UVH2LP05K	UVH2LT05K
110-127 Vac	UVH2LA08	UVH2LB08	UVH2LC08	UVH2LT08	UVH2LP08K	UVH2LT08K
208-240 Vac	UVH2LA11	UVH2LB11	UVH2LC11	UVH2LT11	UVH2LP11K	UVH2LT11K
380-480 Vac	UVH2LA15	UVH2LB15	UVH2LC15	UVH2LT15	UVH2LP15K	UVH2LT15K
525-600 Vac	UVH2LA18	UVH2LB18	UVH2LC18	UVH2LT18	UVH2LP18K	UVH2LT18K
Right Pole Mounting③④ AC Ratings						
12 Vac	UVH2RA02	UVH2RB02	UVH2RC02	UVH2RT02	UVH2RP02K	UVH2RT02K
24 Vac	UVH2RA03	UVH2RB03	UVH2RC03	UVH2RT03	UVH2RP03K	UVH2RT03K
48-60 Vac	UVH2RA05	UVH2RB05	UVH2RC05	UVH2RT05	UVH2RP05K	UVH2RT05K
110-127 Vac	UVH2RA08	UVH2RB08	UVH2RC08	UVH2RT08	UVH2RP08K	UVH2RT08K
208-240 Vac	UVH2RA11	UVH2RB11	UVH2RC11	UVH2RT11	UVH2RP11K	UVH2RT11K
380-480 Vac	UVH2RA15	UVH2RB15	UVH2RC15	UVH2RT15	UVH2RP15K	UVH2RT15K
525-600 Vac	UVH2RA18	UVH2RB18	UVH2RC18	UVH2RT18	UVH2RP18K	UVH2RT18K
Left Pole Mounting② DC Ratings						
12 Vdc	UVH2LA20	UVH2LB20	UVH2LC20	UVH2LT20	UVH2LP20K	UVH2LT20K
24 Vdc	UVH2LA21	UVH2LB21	UVH2LC21	UVH2LT21	UVH2LP21K	UVH2LT21K
48-60 Vdc	UVH2LA23	UVH2LB23	UVH2LC23	UVH2LT23	UVH2LP23K	UVH2LT23K
110-125 Vdc	UVH2LA26	UVH2LB26	UVH2LC26	UVH2LT26	UVH2LP26K	UVH2LT26K
220-250 Vdc	UVH2LA28	UVH2LB28	UVH2LC28	UVH2LT28	UVH2LP28K	UVH2LT28K
Right Pole Mounting③④ DC Ratings						
12 Vdc	UVH2RA20	UVH2RB20	UVH2RC20	UVH2RT20	UVH2RP20K	UVH2RT20K
24 Vdc	UVH2RA21	UVH2RB21	UVH2RC21	UVH2RT21	UVH2RP21K	UVH2RT21K
48-60 Vdc	UVH2RA23	UVH2RB23	UVH2RC23	UVH2RT23	UVH2RP23K	UVH2RT23K
110-125 Vdc	UVH2RA26	UVH2RB26	UVH2RC26	UVH2RT26	UVH2RP26K	UVH2RT26K
220-250 Vac	UVH2RA28	UVH2RB28	UVH2RC28	UVH2RT28	UVH2RP28K	UVH2RT28K

① Listed with Underwriters Laboratories, Inc. for field installation under E64983.
② Standard mounting location – leads exit rear of breaker.
③ For use with JT (thermal-magnetic) trip units only.
④ Not for use on 4-pole circuit breakers.
⑤ Suitable for use with Class 1 ground fault sensing element.
⑥ Cutoff provisions required in control circuit.

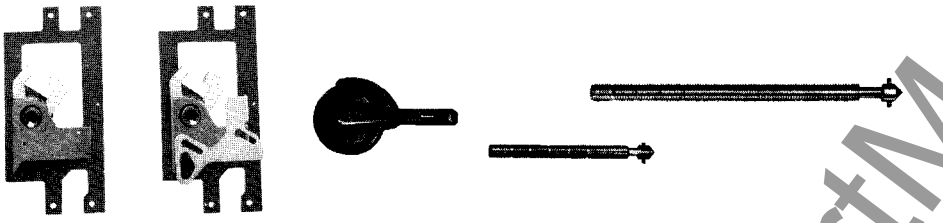
Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Handle Operating Accessories

Electrical (Solenoid) Operator①

Operating Voltage	Frequency	Catalog Numbers
		Terminal Block
24	50/60 Hz	EOP2T03
120		EOP2T07
240		EOP2T11
24	DC	EOP2T03DC
120		EOP2T07DC
240		EOP2T11DC

Vari-Depth Handle Mechanism②



Mechanisms③④		Handle	Shaft			
Standard – (No Internal Lockoff)	Special – (With Internal Lockoff)	NEMA 1, 3R, 12 (With Hardware)	Standard		Long	
Style Number	Style Number	Style Number	Style Number	Panel Depth	Style Number	Panel Depth
5092A62G03	5092A62G04	504C323G03	47A4446G36	5⅞-11⅛	47A4446G37	11⅛-14⅞

Accessories for Vari-Depth Handle Mechanisms

Special Handles: Meet NEMA 4 requirements. These handles are similar to standard handles, except they include an internal neoprene gasket. Due to gasketing effect between handle and housing, handle will not indicate a tripped position when used with circuit breakers.

Standard Finish
Style Number: 504C323G04

Handle Kits: These kits are for use with NEMA 4, 7, and 9 cast enclosures. The kits include a special operating handle, mounting bolts, and an adapter bushing. (The bushing may be purchased separately.) Kits may be used with standard mechanisms and shafts as required.

NEMA 4 and 9 Kit
Style Number: 314C794G10

NEMA 7 Kit
Style Number: 314C794G09

Adapter Bushing Only
Style Number: 314C794G04

Type MC Motor Control Handle Mechanism

For use with NEMA 1 Enclosure Catalog Number: SMCU250JD
For use with NEMA 12 Enclosure Catalog Number: CMCU250JD

Type SM Safety Handle Mechanism

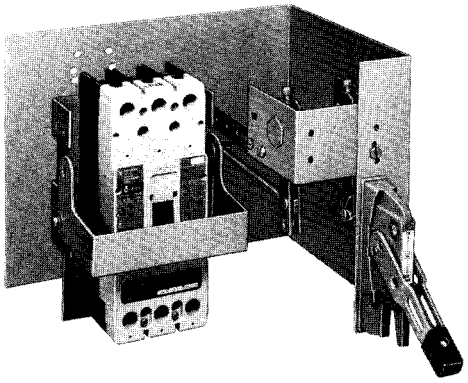
Right-Hand Mounting Enclosure Cover Hinged on Left. Catalog Number: SM250JR

Left-Hand Mounting Enclosure Cover Hinged on Right. Catalog Number: SM250JL

① UL listed for field installation under E64983.
② When circuit breaker is used with plug-in adapter kit, order mounting hardware Style No. 673B125G14. If rear connected studs are used, refer to Westinghouse.
③ Includes hardware.
④ Outline and drilling plan reference: Drawing 653D270.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

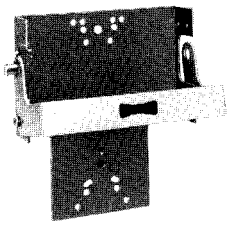
Type AMT Vari-Depth/Vari-Width Flange-Mounted Handle Mechanism



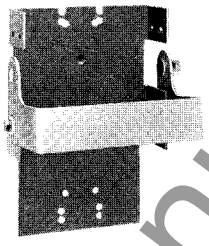
Assembled Type AMT for Below Handle Mounting (Breaker Not Included)

Type AMT Component Parts

Backplate and Yoke Assembly

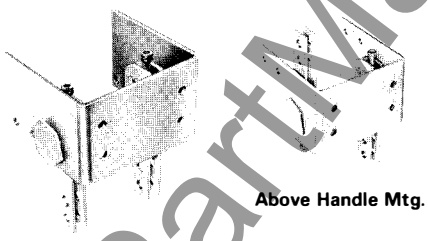


Below Handle Mtg.



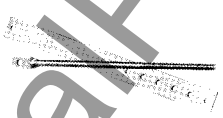
Above Handle Mtg.

Flange Mounted Pivot Mechanism

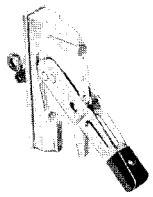


Above Handle Mtg.

Below Handle Mtg.



Rod Brace Assembly



Operating Handle

Catalog Numbers

Complete Assembly	Consists of and Shipped as Component Parts Listed Below			
	Backplate and Yoke Assembly	Operating rod and Brace Assembly●	Flange Mounted Pivot Mechanism Assembly ①	External Operating Handle
Above Handle Mounting With Short Rod and Brace				
AMTJDASV	AMTJD	AMTRB1	AMTPM	AMTOP
Above the Handle Mounting with Long Rod and Brace				
AMTJDALV	AMTJD	AMTRB2	AMTPM	AMTOP
Below the Handle Mounting with Short Rod and Brace				
AMTJDBSV	AMTJD-B	AMTRB1	AMTPM-B	AMTOP
Below the Handle Mounting with Long Rod and Brace				
AMTJDBLV	AMTJD-B	AMTRB2	AMTPM-B	AMTOP

① Width spacer kit not included.
② Width spacer kits cannot be used with short rod at minimum enclosure depth.

Ordering Information

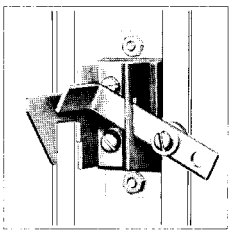
1. Order a complete mechanism using Complete Assembly catalog number. Mechanism will be shipped as individual components shown above and listed in table.
2. Order spacer kits or door hardware adapter as required.
3. Individual component parts may be ordered by catalog number.

Accessories for Type AMT Mechanisms

Spacer Kit to Vary Width

Catalog Number: AMTSK1
This spacer kit is for up to 1-inch variation and consists of multiples of thin spacers to be used as required. A maximum of two kits per installation may be used. Hardware is not supplied because of dimensional variations. Use standard ¼-inch x 20 bolts.

Door Hardware Kit
Cat. No. AMTDHA



This adapter kit is for use with door hardware kits DH1R, DH2R, or DH3R for type SM handle mechanisms to permit the use and interlocking of right hand installation of the type AMT handle mechanism (Below-the-Handle or Above-the-Handle type).

Operating Rod and Brace Assemblies.

Enclosure Depth Dimensions in Inches for Operating Rod and Brace Assembly

Short Rod		Long Rod	
Cat. No.	**AMTRB1**	Cat. No.	**AMTRB2**
Min.②	Max.	Min.	Max.
6½	14	12½	18

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Lock and Interlock Accessories

Nonlockable Handle Block

Catalog Number: LKD3

One per circuit breaker

Padlockable Handle Lock Hasp①

Catalog Number: PLK3

The padlockable handle lock hasp can be mounted on either side of the operating handle. One per circuit breaker; field installation only.

Cylinder Lock

Catalog Number: CLK2L

The cylinder lock is factory installed in the left pole only of the circuit breaker cover. Internal accessories cannot be installed in the same pole as the cylinder lock.

Key Interlock Mounting Kit①
Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

Lock Manufacturer	Lock Type	Bolt Projection in Withdrawn Position	Kit Cat. No.
Superior	B-4003-1	3/8 inch	
Kirk	F	3/8 inch	
Square D	SF	None	KYK3
Federal Pioneer	VF	3/8 inch	
Castell	K or QK	3/8 inch	

Sliding Bar Interlock

Catalog Number: SBK2

The sliding bar interlock is available for mounting between two adjacent 2- or 3-pole circuit breakers with circuit breaker centerline spacing at 4 3/8 inches and enclosure front panel thickness of 1/8 or 3/16 inches. (For field installation only.)

Walking Beam Interlock

Catalog Number: WBL2

The walking beam interlock is available for mounting between two adjacent circuit breakers spaced 1/4 inch apart and having the same pole configuration. The two circuit breakers must be factory modified to accept the walking beam interlock assembly (suitable for use with either 2- and 3-pole circuit breakers). With properly modified circuit breakers, the walking beam interlock is suitable for field installation under UL File E64983 . Order circuit breakers of the type and rating required, modified for field installation of the walking beam interlock.

① UL listed for field installation under E64983.

Miscellaneous Accessories

Base Mounting Hardware
Base mounting hardware is supplied at no charge when ordered with a circuit breaker. When ordering separately, refer to price list.

Imperial Thread

Number of Poles	Description	Type of Mounting	Style Number
2-, 3-, and 4-pole	0.250-20 x 2.75 inch Pan-Head Steel Screws and Lockwashers	Individual	4218B80G03

Metric Thread

Number of Poles	Description	Type of Mounting	Style Number
2-, 3-, and 4-pole	M6 – 1.0 x 70mm Pan-Head Steel Screws and Lockwashers	Individual	4218B80G13

Modifications

Special Calibration
For special thermal, magnetic, or frequency calibration, order by description; refer to price list.

Moisture-Fungus Treatment
Order by description; refer to price list.

Marine Applications
When Listing Mark for marine applications under UL489 is required, specify requirement when ordering. Non-aluminum terminals must be used. Refer to price list.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Door Hardware
Door hardware listed in this section may be used with Types SM and AMT handle mechanisms.

Three choices of door hardware and an auxiliary handle are offered to provide the best latching scheme for individual needs. The door hardware is designed with a provision for padlocking, and a coin-proof slot that requires the use of a tool to open the door.

Select desired hardware below. Additional latches can be ordered from accessories section if desired.

Hardware Item	Description and Catalog Numbers
	With sliding latches for smaller panels up to approx. 30" high. Catalog Numbers Right Hand: DH1R Left Hand: DH1L
	With 2 roller latches for intermediate panels up to approx. 40" high. Catalog Numbers Right Hand: DH2R Left Hand: DH2L
	With 3 roller latches for larger panels, approx. 40" and higher. Catalog Numbers Right Hand: DH3R Left Hand: DH3L
	Auxiliary handle for larger panels Catalog Numbers Right Hand: DH4R Left Hand: DH4L

Note:
Right hand enclosure cover hinged on left,
Left hand enclosure cover hinged on right.

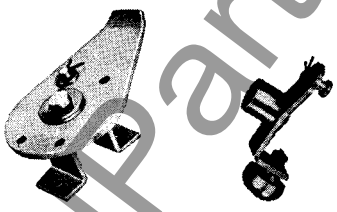
Accessories
Dress Nameplates: Required to meet automotive specifications. Mounts from inside enclosure and covers operating mechanism mounting bolts; makes mechanism non-removable when enclosure door is closed.

Style Number: 373D260G05

Electrical Interlock Kit:
Provides 1 N. C. and 1 N. O. contacts (SPDT switch) for use with auxiliary circuits. Mounts to end of mechanism housing as shown.

Style Number: 622B747G01

Auxiliary Latch Kits: Provide an additional latch for use with applications where two point latching may not be adequate.



Sliding Latch **Rolling Latch**

For Door Hardware Using Sliding Latches
Right or Left Hand Mtg.: Style No. 656D669G01

For Door Hardware Using Roller Latches
Right Hand Mtg.: Style No. 370D801G04

Left Hand Mtg.: Style No. 370D802G04

Remote Mounting Kit:
Enables the operating mechanism to be mounted remotely on a vertical centerline from the circuit breaker or disconnect switch.

Style Number: 505C367G01

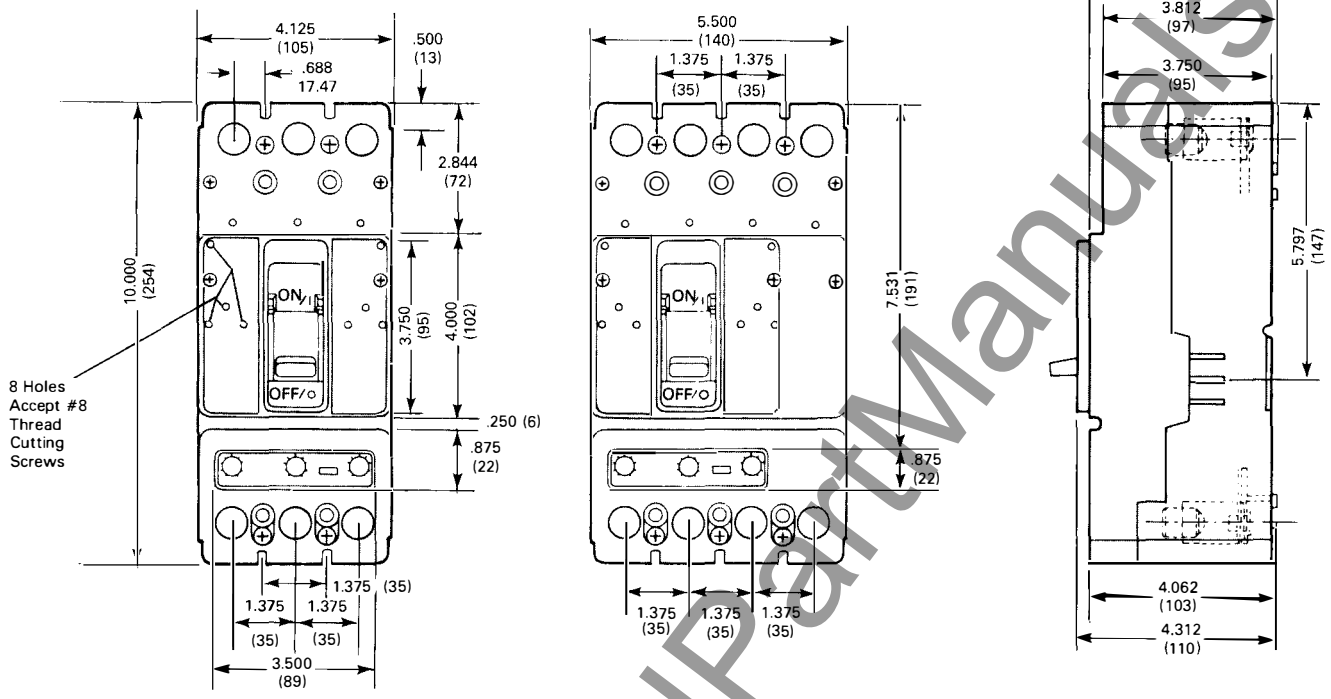
Door Operated Interlock Defeater Kit for Type SM Mechanisms
Required when door hardware is not used, operates as door closes. Additional method of securing door such as screw latch, also required (supplied by box manufacturer).

Style Number: 623B214G02

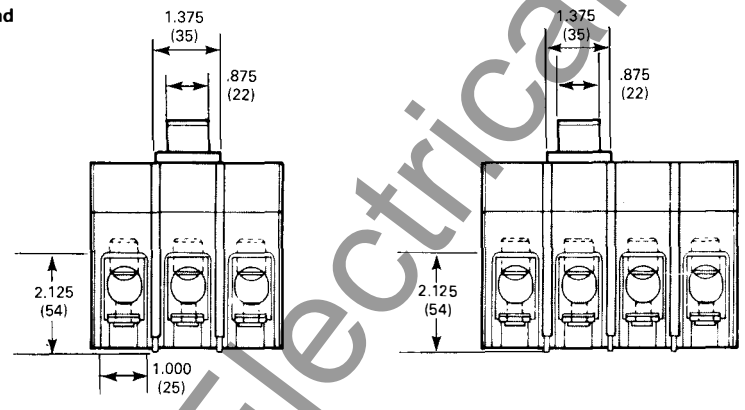
Series C Molded Case Circuit Breakers, J-Frame
Section 6 – Dimensional Data

Dimensions in Inches and (Millimeters)
Not to be used for construction purposes unless approved.

Line End



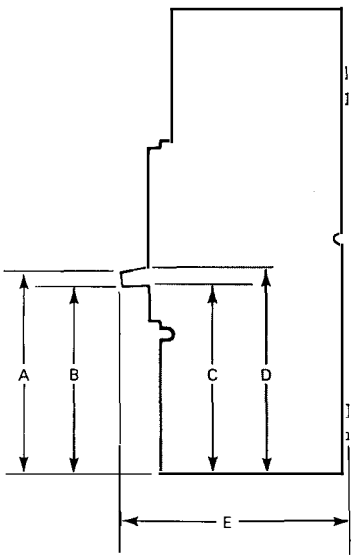
Line/Load End



Circuit Breaker Handle Travel Distances and Handle Force

Circuit Breaker Status	A	B	C	D	E	Handle Force①
On	5.535 (141)	5.233 (133)	5.110 (130)	5.483 (139)	4.717 (120)	32 Pounds (14.53 Kilograms)
Tripped	4.914 (125)	4.606 (117)	4.551 (116)	4.936 (125)	4.886 (124)	—
Off	4.341 (110)	4.036 (103)	4.067 (103)	4.461 (113)	4.949 (126)	22 Pounds (9.98 Kilograms)
Reset	4.205 (107)	3.902 (99)	3.954 (100)	5.349 (136)	4.952 (126)	38 Pounds (17.25 Kilograms)

① All handle forces measured approximately 0.125 (3) from top of handle

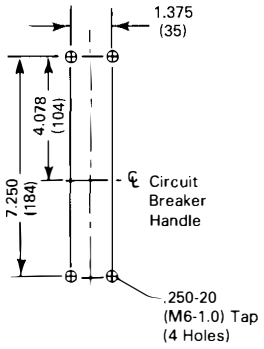


Series C Molded Case Circuit Breakers, J-Frame
Section 6 – Dimensional Data

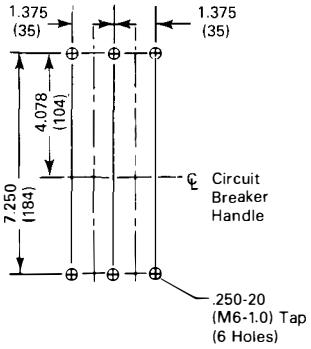
Front Connected Drilling Plan

Line End

2 & 3-Pole



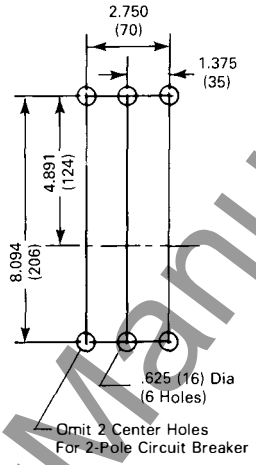
4-Pole



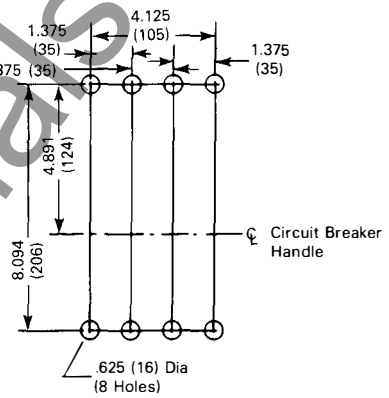
Rear Connected Drilling Plan

Line End

2 & 3-Pole

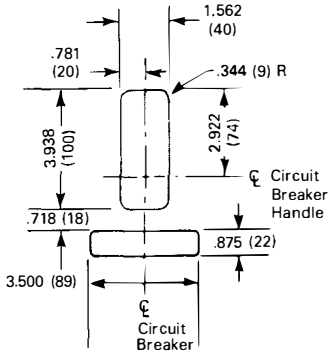


4-Pole

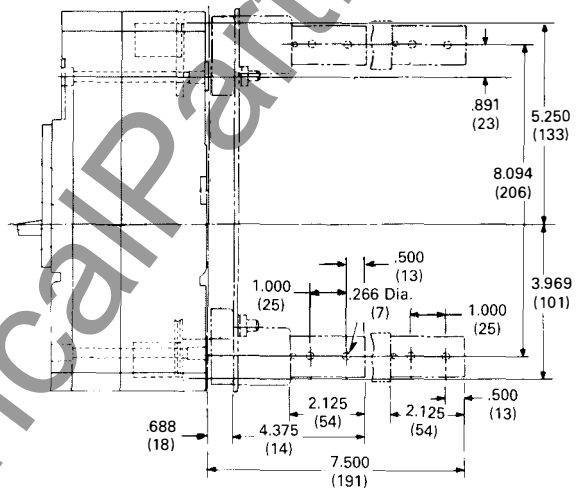


Front Cover Cutout

Line End



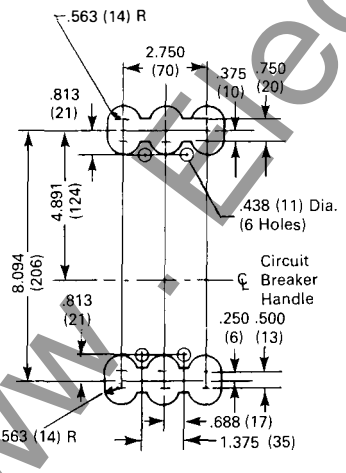
Plug-in Adapter



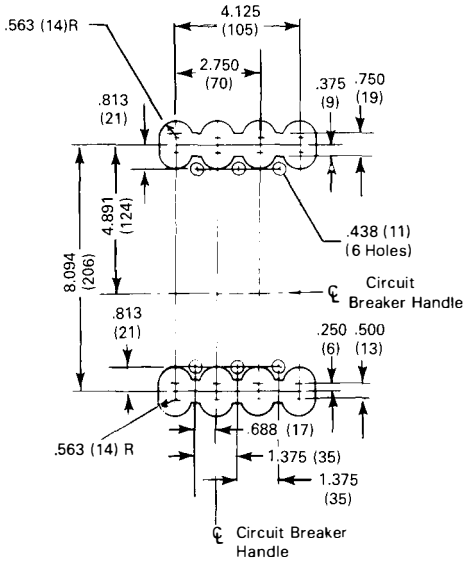
Plug-in Adapter Drilling Plan

Line End

2 & 3-Pole



4-Pole



J-Frame Circuit Breaker Approximate Shipping Weights

2-pole JD/HJD Frame: 9 lb (4.10 kg)
2-pole JDC Frame: 10 lb (4.55 kg)
3-pole JD/HJD Frame: 10 lb (4.55 kg)
3-pole JDC Frame: 11 lb (5.00 kg)
4-pole JD/HJD Frame: 13 lb (5.90 kg)
4-pole JDC Frame: 15 lb (6.80 kg)

2-, 3-pole JT Trip Unit: 2 lb (0.90 kg)

Terminal Weights
TA250KB: 0.07 lb (0.03 kg)
T250KB: 0.16 lb (0.07 kg)

Series C Molded Case Circuit Breakers, J-Frame
Section 7 – Guide Specifications

Typical Specifications For Series C Molded Case Circuit Breakers

Electrical circuits shall be protected by Series C Molded Case Circuit Breakers as manufactured by Westinghouse Electric Corporation.

Each pole of the 2- and 3-pole circuit breakers shall provide complete circuit overcurrent protection by having inverse time and instantaneous tripping characteristics and, where applicable, be current limiting.

The circuit breakers shall be operated by a toggle type handle and shall have a quick-make, quick-break, over-center switching mechanism that is mechanically trip free from the handle so that the contacts cannot be held closed against short circuit currents. Tripping due to overload or short circuits shall be clearly indicated by the position of the handle. The ON and OFF positions shall be clearly marked on the cover of the circuit breaker along with the international symbols 1 for ON and 0 for OFF providing positive indication of the circuit breaker contact position. Additionally, a color-coded indication of the circuit breaker contact position shall be provided: red for ON, green for OFF, and white for tripped. An easily accessible Push-to-Trip button for mechanically exercising the trip unit shall be provided on the cover of each circuit breaker. All poles of a multi-pole circuit breaker shall be so constructed as to ensure simultaneous open, close, and trip operations.

Circuit breakers shall be completely enclosed in a high strength glass-polyester case. Non-interchangeable trip circuit breakers shall be factory sealed; interchangeable trip circuit breakers shall have the trip unit sealed to prevent tampering. Ampere ratings shall be clearly visible from the front of the circuit breaker. Contacts shall be non-welding silver alloy. Arc extinction shall be accomplished by means of DE-ION® arc chutes, consisting of metal grids mounted in an insulating support.

The minimum interrupting ratings of the circuit breakers shall be at least equal to the available short circuit current at the line terminals. Where applicable, circuit breakers shall be UL listed for series tested application.

Circuit breakers in the 150A frame size shall be supplied in 1-, 2-, 3-, and 4-pole models, as specified on the drawings. Circuit breakers in frame sizes 250A through 1600A shall be supplied in 2-, 3-, or 4-pole models, as specified on the drawings.

Circuit breakers in frame sizes 100A through 600A shall be equipped with thermal-magnetic trip units. Circuit breakers in 800A and through 1600A frame sizes shall be equipped with electronic trip units that are insensitive to changes in ambient temperature within the normal operating temperature range of the circuit breaker. The 250A, 400A, 600A, and 630A frame sizes shall be designed to accept either thermal-magnetic or electronic interchangeable trip units.

Circuit breakers shall be listed with Underwriters Laboratories, Inc. under standard UL489, conform to the applicable requirements of NEMA Standards Publication AB1-1975, meet the appropriate classifications of Federal Specifications W-C-375b, and/or comply with the requirements of International Electrotechnical Commission Standard IEC 157-1.

Circuit breaker ratings and modifications shall be indicated on the drawings.

Molded case circuit breakers shall be of the inverse time and instantaneous trip type as provided by thermal-magnetic elements with either standard interrupting, high interrupting, or current limiting characteristics as shown in Section 1 of this frame book. These circuit breakers shall be listed per UL489.

Molded case circuit interrupters (motor circuit protectors) shall be of the instantaneous (magnetic) only type, providing instantaneous short circuit protection by means of a front-adjustable trip unit. Instantaneous-only circuit interrupters shall be component recognized per UL489.

Molded case switches shall be of the same construction as the related listed circuit breaker and equipped with a factory sealed, nonadjustable, high instantaneous-only short circuit protection.

Molded case switches shall have no overload or low-level fault protection provided and shall be marked with a maximum withstand rating denoting the type and level of upstream protection required. Molded case switches shall be listed per UL1087.

Electrical characteristics of accessories shall be as indicated on the drawings.

Internally mounted accessories including alarm (signal)/lockout switches, auxiliary switches, shunt trips, and undervoltage release mechanisms shall be of the plug-in type and shall be listed for field installation in circuit breakers which are not factory sealed.

Accessory wiring shall be brought out through the side or rear of the circuit breaker, or be connected to a terminal block mounted on the side of the circuit breaker, as specified. The ability to route accessory wiring to the opposite side of the circuit breaker through a trough in the base shall be provided.

Electrical operators for circuit breakers of the 400A frame size and below shall be of the solenoid type with maximum 5-cycle closing characteristics. Electrical operators for circuit breaker frame sizes 600A through 1600A shall be of the motor driven type with an optional 2-step stored energy mechanism providing minimum 5-cycle closing. All electrical operators shall be cover mounted. All electrical operators shall be listed for field installation per UL489.

Circuit breakers shall be provided with uniformly designed nameplates to clearly indicate the type, rating, listing/recognition/certification marks, accessory details, and other information defined in UL489.

All terminals shall comply with UL486A or UL486B Standards and CSA Standard C22.2 No. 65 or Bulletin 1165. Torque markings shall be provided.

Series C Molded Case Circuit Breakers, J-Frame

Series C Molded Case Circuit Breakers, J-Frame

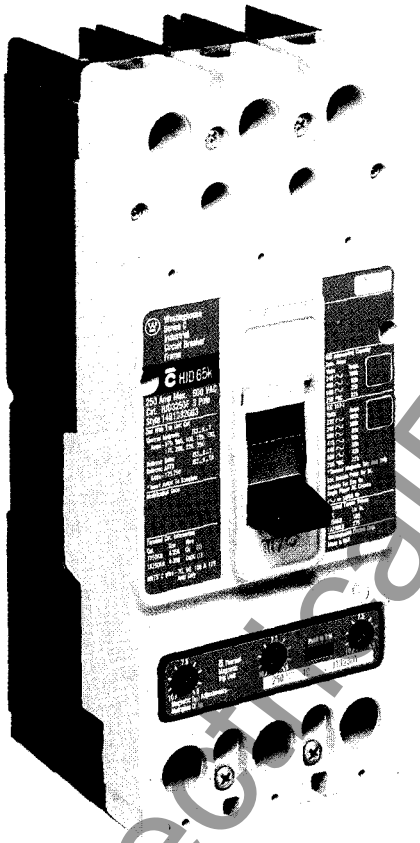
Westinghouse Electric Corporation
Distribution and Control Business Unit
Electrical Components Division
Pittsburgh, Pennsylvania, U.S.A. 15220

Printed in U.S.A.

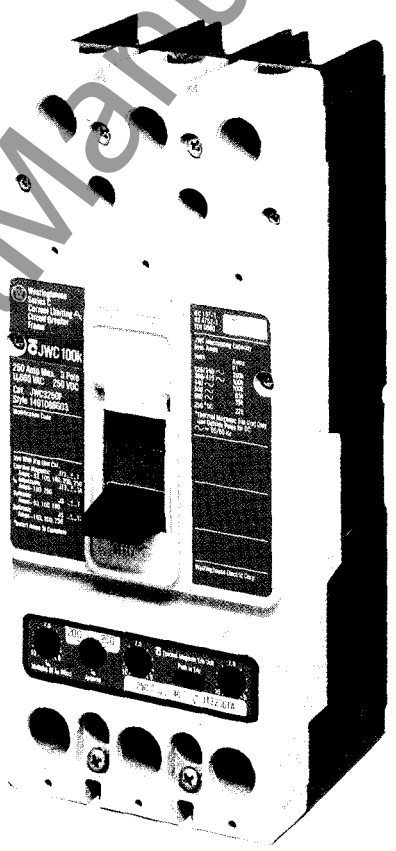
January 1992

SERIES C®

J-Frame Molded Case Circuit Breakers



D Model, 70 to 250 Amperes



W Model, 63 to 250 Amperes

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

Series C Circuit Breakers

The new Series C line of molded case circuit breakers represents a significant step forward in circuit protection technology. It incorporates, in frame ratings 150A to 1600A, interrupting capacities as high as 100 kA at 480 Vac (200 kA at 240 Vac) in physical sizes normally associated with standard interrupting capacity breakers. Series C circuit breakers, in most frame sizes, are highly interchangeable with the industrial line of molded case circuit breakers they replace.

There are two branches to the Series C line. One complies with applicable UL, NEMA, and CSA standards, as well as, being assigned P1 interrupting ratings under IEC 157-1. The second complies with IEC 157-1 and is assigned both P1 and P2 interrupting ratings.

The branch which complies with applicable UL/NEMA/CSA standards is composed of six frame ratings: 150A, 250A, 400A, 600A, 1200A, and 1600A. The six frame ratings of the IEC branch of the Series C line are 160A, 250A, 400A, 630A, 1250A, and 1600A and are physically interchangeable with the corresponding UL/NEMA/CSA frames.

Series C circuit breakers in the 150A through 630A frame sizes are available with thermal-magnetic trip units. Electronic trip units can be supplied in the 250A through 1600A frame sizes. The electronic trip units for the 250A, 400A, 600A, and 630A frames are field-interchangeable with the thermal-magnetic trip unit in the same frame size.

The 150A and 160A frame sizes of the Series C are available in 1-, 2-, 3-, and 4-pole models, while the remainder of the line is available in 2-, 3-, and 4-pole models.

A complete line of external as well as plug-in internal accessories is available for use with Series C circuit breakers.

Because of its unique stationary conductor configuration, the 100 kA (at 480 Vac) interrupting capacity model of each Series C frame size is inherently current limiting. These models can, therefore, be used in series tested applications to protect specified, lower interrupting capacity downstream circuit breakers. This current limiting action is achieved without the use of fuse-type current limiters or extra sets of contacts. The 65 kA (at 480 Vac) interrupting capacity model of each Series C circuit breaker provides for simple, fully rated application on the 480 Vac secondary of unit substations up to 2500 kVA.

Series C Literature

A new format has been designed for the Series C circuit breaker literature. The literature is designed to provide each user with the needed information presented in the most usable form. The literature includes:

- Frame Books – provide basic descriptions, technical data, dimensional data, and ordering information for each Series C circuit breaker and associated accessories
- Instruction Leaflets – provide installation, inspection, operation, and adjustment information for Series C circuit breakers and accessories
- Technical Application Guide – provides basic definitions and standards, code requirements, and technical application information for Series C circuit breakers
- Time/Current Curves Packets – provide full-size time/current characteristic curves for each Series C circuit breaker
- Maintenance and Troubleshooting Guide – provides maintenance procedures and troubleshooting information for Series C circuit breakers and accessories.

Note: This catalog is published solely for ***information*** purposes and should not be considered all inclusive. If further information is required, Westinghouse Electric Corporation should be consulted.

Sale of product shown in this catalog is subject to terms and conditions outlined in Westinghouse Electric Corporation Selling Policy 29-000.

NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OR WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE, ARE MADE REGARDING THE INFORMATION, RECOMMENDATIONS, AND DESCRIPTIONS CONTAINED HEREIN. In no event will Westinghouse be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss whatsoever including but not limited to damage, or loss of use of equipment, plant or power system, cost of capital, loss of profits or revenues, cost of replacement power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of information, recommendations, and descriptions contained herein.

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

Table of Contents

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

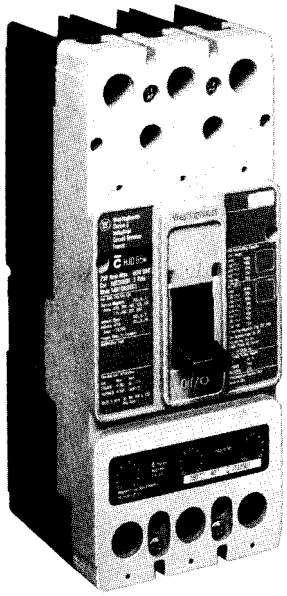


Figure 1-1. J-Frame Series C Circuit Breaker with Thermal-Magnetic Trip Unit

1-1. General Information

J-Frame Circuit Breaker

The J-frame Series C circuit breaker using interchangeable thermal-magnetic or electronic trip units (Figure 1-1) is available in two basic models: the D model and the W model. The D model (rated from 70A to 250A) is designed to comply with Underwriters Laboratories, Inc. Standard UL489, Canadian Standards Association Standard C22.2 No. 5, and International Electrotechnical Commission Recommendations IEC 157-1 (P1). The W model (rated from 63A to 250A) complies with International Electrotechnical Commission Recommendations IEC 157-1 (P1 and P2). Instantaneous (magnetic) only circuit interrupters, molded case switches (circuit interrupters), and mining duty circuit breakers are also available.

For most applications, the J-frame circuit breaker is designed to physically and electrically replace the KB circuit breaker family (JB, KB, HKB). When replacing the KB family, additional consideration must be given where external handle operating accessories are used. Refer to Westinghouse.

An innovative design of internal components allows applications to be extended to higher interrupting rating levels. In addition, the higher interrupting and current limiting performance capabilities of the J-frame circuit breaker allow it to be applied in situations that previously required physically larger circuit breakers. Each circuit breaker nameplate is color coded to provide easy identification of type and interrupting capacity rating.

Table 1-1. J-Frame Circuit Breaker Interrupting Capacity Ratings

UL489 Interrupting Capacity Ratings

Circuit Breaker Type	Number of Poles①	Interrupting Capacity (Symmetrical Amperes)			
		Volts ac (50/60 Hz)			Volts dc
		240	480	600	250②③
JDB	2,3	65,000	25,000	18,000	10,000
JD	2,3,4	65,000	25,000	18,000	10,000
HJD	2,3,4	100,000	65,000	25,000	22,000
JDC	2,3,4	200,000	100,000	⑥	22,000

IEC 157-1 Interrupting Capacity Ratings (P1)④

Circuit Breaker Type	Number of Poles①	Interrupting Capacity (Symmetrical Amperes)					
		Volts ac (50/60 Hz)					Volts dc
		220/240	380/415	440	500	660	250②③
JD	2,3,4	65,000	25,000	25,000	20,000	.....	10,000
HJD	2,3,4	100,000	65,000	65,000	42,000	.....	22,000
JDC	2,3,4	200,000	100,000	100,000	65,000	.....	22,000
JW	2,3,4	65,000	25,000	25,000	20,000	14,000	10,000
HJW	2,3,4	100,000	65,000	65,000	42,000	18,000	22,000
JWC	2,3,4	200,000	100,000	100,000	65,000	22,000	22,000

Table 1-2. Standard Trip Unit Types for J-Frame Circuit Breakers

Type of Trip Unit	Magnetic	Thermal	Circuit Breaker Type
Thermal-Magnetic	Adjustable	Fixed	JDB, JD, HJD, JDC
	Adjustable	Adjustable	JW, HJW, JWC
Instantaneous Only	Adjustable	None	HMCP⑤
High Instantaneous Molded Case Switch	Fixed	None	JD-K, HJD-K, JDC-K, JW-K, HJW-K, JWC-K

Table 1-3. Standard Thermal-Magnetic Trip Unit Ratings

Model D Circuit Breaker		Model W Circuit Breaker	
Continuous Current Rating (A)	Adjustable Magnetic Trip Setting (A)	Adjustable Continuous Current Setting (A)	Adjustable Magnetic Trip Setting (A)
70	350 - 700		
90	450 - 900		
100	500 - 1000		
125	625 - 1250	100 - 125	625 - 1250
150	750 - 1500	125 - 160	800 - 1600
175	875 - 1750		
200	1000 - 2000	160 - 200	1000 - 2000
225	1125 - 2250		
250	1250 - 2500	200 - 250	1250 - 2500

Table 1-4. Optional Seltronic (Electronic) Trip Unit Types

Trip Unit Functions		JS Trip Unit Type	
		T	TA
Long Time	Adjustable Ampere Setting with Fixed Long Delay	X	X
Short Time	Adjustable Short Time Pick-up with Short Time Delay I^2t Ramp	X	..
	Adjustable Short Time Delay with Adjustable Short Time Pick-up, or	..	X
	Adjustable Instantaneous Pick-up⑥	..	X
Instantaneous	Fixed Instantaneous (Override)⑦	X	X

① Protected neutral pole in 4-pole circuit breaker available only with optional Seltronic trip units.
② 2-pole circuit breaker or two poles of 3-pole circuit breaker.
③ L/R = 3 milliseconds minimum at 10 kA and 8 milliseconds minimum at 22 kA.
● Interrupting ratings are subject to final test verification. Refer to Westinghouse for P2 ratings.
⑤ Refer to Frame Book 29-111A.
⑥ Using trip unit with adjustable short time delay (TA) instantaneous pick-up is achieved when the lowest time delay setting (I) is selected.
⑦ Override setting fixed at frame withstand rating.
⑧ Refer to Westinghouse.

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

The J-frame circuit breaker is available in 2-, 3-, and 4-pole configurations to satisfy application requirements in all types of electrical systems.① A modular accessory concept permits wide flexibility in accessory installation.

This frame book provides basic information about the circuit breaker, interchangeable trip units, and molded case switch models of the J-frame circuit breaker. Separate publications cover instantaneous-only circuit interrupters (motor circuit protectors) and mining duty circuit breakers.

1-2. J-Frame Circuit Breaker Types

J-Frame circuit breakers are available in several types. Types JDB, JD, HJD and JDC are listed in accordance with Underwriters Laboratories, Inc. Standard UL489 and Canadian Standards Association Standard C22.2 No. 5.② Types JD, HJD and JDC comply with International Electrotechnical Commission Recommendations IEC 157-1 (P1). Types JW, HJW and JWC comply with International Electrotechnical Commission Standard IEC 157-1 (P1 and P2). Table 1-1 gives the interrupting capacity ratings for the different circuit breaker types.

Each circuit breaker rating is achieved by specific design features incorporated into the circuit breaker frame and the type of trip unit selected. J-frame trip units are interchangeable and do not affect the circuit breaker interrupting rating.③

Fixed Thermal-Adjustable Magnetic and Adjustable Thermal-Adjustable Magnetic Trip Units
J-frame circuit breakers available with either a fixed thermal-adjustable magnetic or an adjustable thermal-adjustable magnetic trip unit provide thermal (inverse time) and magnetic (instantaneous) automatic tripping. Available ratings and adjustments are shown in Tables 1-2 and 1-3. The trip units are also equipped with a manual Push-to-Trip mechanism.

Seltronic™ (Electronic) Trip Unit
The Seltronic trip unit includes current sensing circuits that provide an inverse time delay tripping action for overload conditions and either short delay or instantaneous tripping for protection against short circuit conditions. The trip units are also equipped with a manual Push-to-Trip mechanism.

Instantaneous-Only Trip Unit (Motor Circuit Protector)
The instantaneous-only trip unit provides short circuit protection only. The 250A instantaneous-only motor circuit protector is covered in Frame Book 29-111A.

Molded Case Switch (Circuit Interrupter)
Molded case switches are used as compact switches in applications requiring high current switching capabilities. Molded case switches are constructed of circuit breaker components and are of the high instantaneous-automatic type. Molded case switches are listed in accordance with Underwriters Laboratories, Inc. Standard UL1087.②

The high instantaneous-automatic molded case switch is equipped with a nonadjustable, instantaneous trip mechanism that protects the switch if it is subjected to a fault current above its withstand rating. The switch does not provide low level fault or inverse time overload protection and must be used with a properly rated overcurrent protective device.

All molded case switches are equipped with an integral trip bar and will accept field installable plug-in accessories. A manual Push-to-Trip mechanism is not provided.

1-3. Advantages

The Series C circuit breaker line represents an entirely new approach to circuit breaker design. The J-frame circuit breaker uses new design features that improve performance and extend application capabilities while allowing a high degree of physical interchangeability with the existing KB circuit breaker family.

Figure 1-2 highlights advantages of the J-frame circuit breaker over previously available circuit breakers.

a. Performance
The J-frame circuit breaker provides higher interrupting capacities and improved current limiting capabilities compared to previous standard-line circuit breakers. The enhanced performance characteristics extend J-frame circuit breaker use to applications that previously required physically larger circuit breakers.

b. Designs
Thermal-magnetic and electronic trip designs are available. The standard D model circuit breakers have fixed thermal and adjustable magnetic settings to provide application consistency. The W model circuit breakers have adjustable thermal and adjustable magnetic settings to provide application flexibility where local codes and standards permit the use of adjustable thermal circuit breakers.

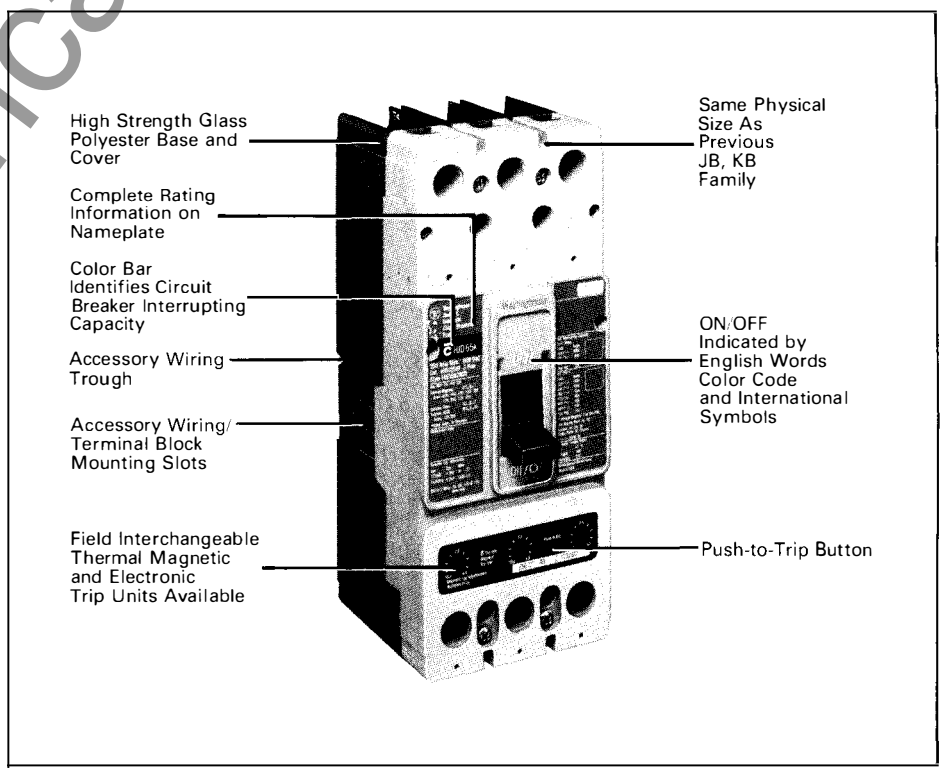


Figure 1-2. J-Frame Circuit Breaker Features

① Two pole circuit breaker supplied in three pole frame.
② Some listings pending; refer to Westinghouse.
③ Type JDB circuit breaker trip units are non-interchangeable.

Series C Molded Case Circuit Breakers, J-Frame
Section 1 – Introduction

c. Construction Details
The 2-, 3-, and 4-pole configurations satisfy application requirements for all types of electrical systems. The 4-pole configuration provides 3-phase, 4-wire neutral line circuit breaking where required by local codes and applications.

The frame size allows a high degree of physical interchangeability with the existing KB circuit breaker family. Note: When replacing existing circuit breakers, assure the correctness of the application by comparing existing equipment ratings and system requirements with J-frame performance characteristics.

Circuit breaker mounting hardware is available in Imperial or metric thread sizes to accommodate user needs.

A Push-to-Trip button located in each trip unit provides a local means of manually exercising the trip mechanism. Molded case switches do not have Push-to-Trip provisions.

High strength glass-polyester base and cover have excellent dielectric qualities and reduce the need for fungus proofing. Cover design reduces the possibility of accidental contact with live terminations.

Operating mechanism design provides increased air gap between stationary and moving contacts when circuit breaker is in tripped position. The increased air gap provides greater arc impedance during contact opening, which allows higher interrupting capacity ratings to be obtained in compact frame sizes.

Variations in contact assembly designs allow different interrupting capacities in one physical frame size.

The one piece molded crossbar assembly has high dielectric qualities and ensures simultaneous operation of all moving contacts.

Positive operating mechanism ensures that the operating handle remains in the ON position when the contacts are closed. Handle operating force is compatible with circuit breakers in the KB family.

d. Internal Accessories
Modular plug-in accessory design simplifies factory installation for improved customer service and facilitates field installation where local codes and standards permit.

The internally mounted accessories include auxiliary switch, alarm (signal)/lockout switch, shunt trip, and undervoltage release mechanism. These accessories are designed to meet most ac and dc rating requirements.

Internal accessory wiring options provide wire routing versatility. The standard wiring configuration is pigtail leads exiting the rear of the base directly behind the accessory. Optional configurations include a terminal block mounted on the same side of the base as the accessory, leads exiting the side of the base where the accessory is mounted, and leads exiting the rear of the base on the side opposite the accessory.

e. External Accessories
Cover design permits field installation of key interlocks, padlockable handle lock hasp, and electrical or manual handle operators without modifying the cover.

A factory-installed cylinder lock can be mounted in the cover providing a simplified system for locking the trip bar in the tripped position.

Plug-in adapters provide convenience for front-removable switchboard construction.

All J-frame models can be operated by Vari-Depth, SM, MC, and AMT handle mechanisms. These are different from existing KB family handle mechanisms. A new rotary handle mechanism is also available.

f. Markings
The Series C circuit breaker line features a new nameplate format which provides easy identification of circuit breaker type, rating, and operating status.

Nameplates are color coded for immediate rating identification. A color-coded bar identifies the type and the interrupting rating (kA) at the most common application voltage. The color codes are as follows:

Grey:	JDB/JD/JW
Black:	HJD/HJW
Red:	JDC/JWC

Consolidated nameplate design provides complete identification and rating information in an easily readable, understandable format.

Circuit breaker status is clearly indicated by circuit breaker handle position and color-coded flags (red for ON, green for OFF, and white for trip). The on and off positions are identified in English words (ON and OFF) and international symbols (1 and 0).

g. Equipment Literature
A complete line of technical literature produced in several languages provides specification, ordering, application, and instructional information. This makes the circuit breaker easy to specify, purchase, and apply, saving time and minimizing application errors.

Dimensional data is in Imperial and metric units to satisfy user requirements.

h. Standards Compliance
The Series C circuit breaker is designed to comply with the following standards:

- Australian Standard AS 2184, Moulded Case Circuit Breakers
- British Standards Institution Standard BS 4752: Part 1, Switchgear and Control Gear, Part 1: Circuit Breakers
- Canadian Standards Association Standard C22.2 No. 5, Service Entrance and Branch Circuit Breakers
- International Electrotechnical Commission Recommendations IEC 157-1 (P1 and P2), Low-Voltage Distribution Switchgear, Part 1: Circuit Breakers
- Japanese Industrial Specification 8370, Molded Case Circuit Breakers
- National Electrical Manufacturers Association Standards Publication No. AB1 - 1975. Molded Case Circuit Breakers.
- South African Bureau of Standards Standard SABS 156, Standard Specification for Moulded Case Circuit Breakers
- Swiss Electro-Technical Association Standard SEV 157-1, Safety Regulations for Circuit Breakers
- Underwriters Laboratories, Inc. Standard UL489, Molded Case Circuit Breakers and Circuit Breaker Enclosures, Including Marine Circuit Breakers
- Union Technique de l'Electricite Standard NF C 63-120, Low Voltage Switchgear and Control Gear Circuit Breaker Requirements
- Verband Deutscher Elektrotechniker (Association of German Electrical Engineers) Standard VDE 0660, Low Voltage Switch Gear and Control Gear, Circuit Breakers.

Compliance with these standards satisfies most local and international codes, assuring user acceptability and simplifying application.

i. Federal Specification Classifications
Circuit breaker types JD, HJD and JDC equal or exceed W-C-375b requirements for class 22(a).

Series C Molded Case Circuit Breakers, J-Frame
Section 2 – Applications

2-1. Introduction

Application flexibility of the J-frame circuit breaker is enhanced by the higher interrupting ratings and current limiting characteristics designed into the Series C line.

2-2. Typical Applications (See Figure 2-1)

Switchboard Application
The JD/JW, HJD/HJW, and JDC/JWC circuit breakers are used in distribution systems to provide feeder and branch circuit protection.

Panelboard Applications
The J-frame circuit breaker is used in panelboard applications as both a main and a branch circuit protection device. The Type JDB noninterchangeable trip circuit breaker is specifically designed for reverse-feed applications.

Busway Plug-In Application
The J-frame circuit breaker can be applied in busway plug-in units to provide feeder or branch circuit protection. Size compatibility between the KB family and the J-frame circuit breaker facilitates replacement. However, when the existing busway plug-in unit is used, handle location modifications may be required.

Individual Enclosure Application
The J-frame circuit breaker can be applied in individual enclosures to meet specific installation requirements.

Machine Tool Control Panel Application
In machine tool applications, J-frame circuit breakers and molded case switches can be applied to meet individual equipment requirements.

Special Applications
In mining, motor circuit protection, and other applications, special versions of the J-frame circuit breaker provide safe equipment control and protection. For additional information, see separate frame books or refer to Westinghouse.

For all 3-phase Delta, grounded B-phase applications, reduced interrupting ratings will apply; refer to Westinghouse.

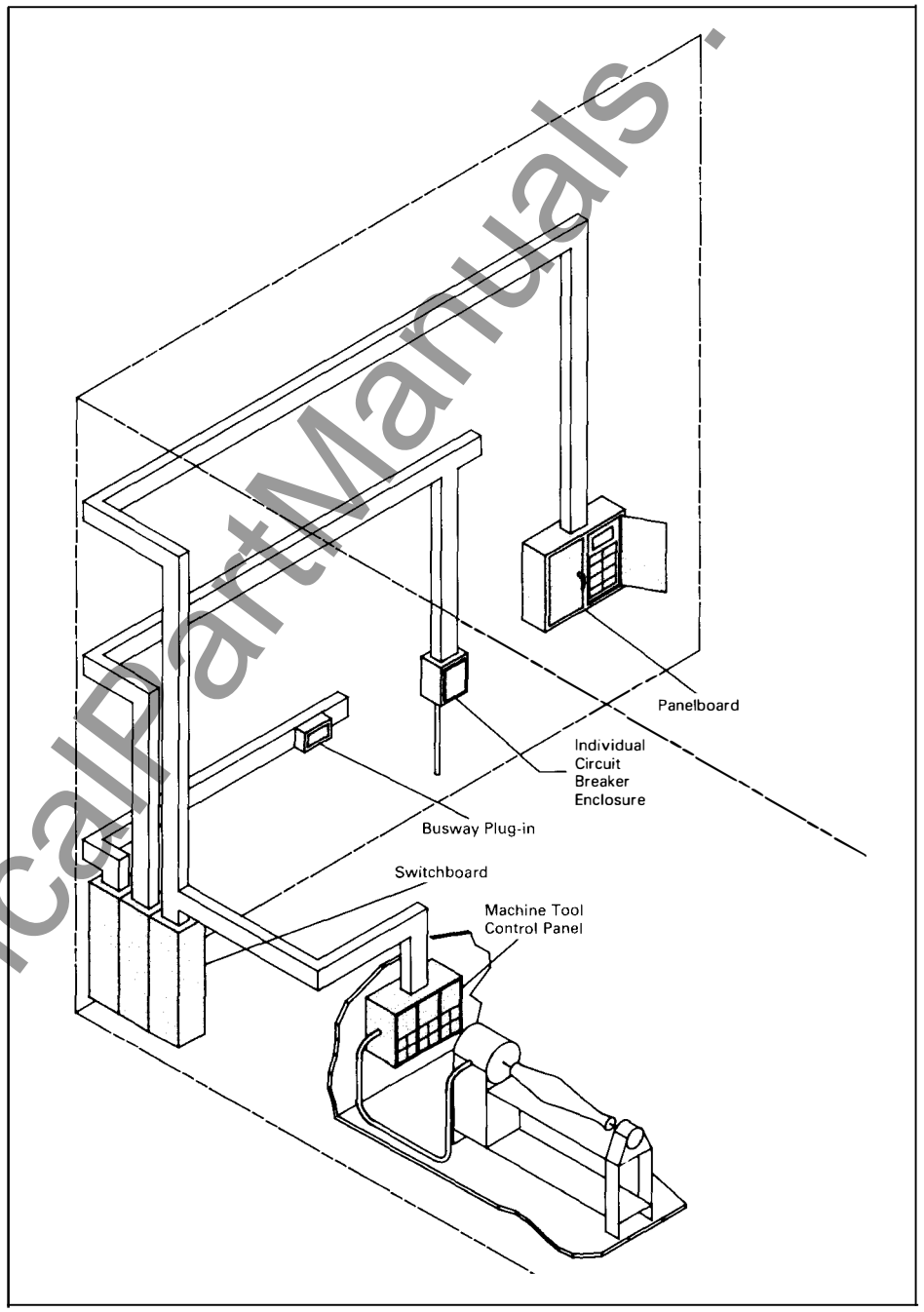


Figure 2-1. J-Frame Circuit Breaker Typical Applications

Series C Molded Case Circuit Breakers, J-Frame
Section 3 – Description

3-1. Physical Description

The J-frame circuit breaker consists of the following components mounted inside a molded glass-polyester case (Figure 3-1):

- Operating mechanism
- Arc extinguishers
- Stationary contact assemblies
- Moving contact assemblies
- Trip unit.

For a generic functional and component description of circuit breaker components other than the trip unit, refer to Frame Book 29-101.

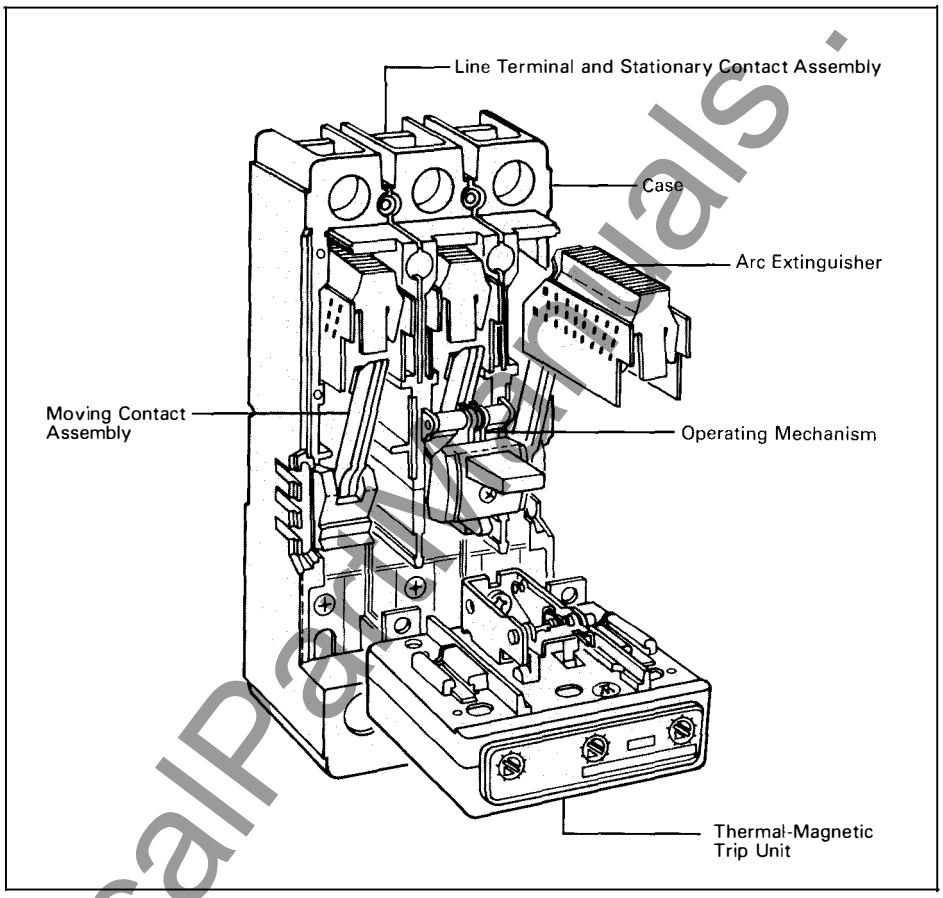


Figure 3-1. J-Frame Circuit Breaker Components

3-2. Trip Unit Description and Operation

General Description
All interchangeable trip units are of the self-contained, factory-sealed type using either thermal-magnetic or electronic sensing elements. All interrupting ratings of the J-frame family of interchangeable trip circuit breakers will accept either a thermal-magnetic or electronic trip unit. The thermal-magnetic type contains a fixed or optional adjustable thermal (bi-metal) element for overload protection and an adjustable magnetic element for short circuit protection. A manual Push-to-Trip button is included for exercising the trip unit.

The Seltronic type contains current sensors, printed circuit boards, and an integral low energy shunt trip. A manual Push-to-Trip button is included for exercising the trip mechanism. Adjustments and options are available to fine tune the time-current tripping characteristics.

Trip Operation
The trip operation provides contact opening when the trip mechanism is actuated. Depending on the type of trip unit installed, the trip mechanism can be automatically actuated by the thermal trip element, magnetically actuated, or electronically actuated. The trip mechanism can also be actuated by the Push-to-Trip button, the cylinder lock, the shunt trip, or the undervoltage release mechanism accessories.

Series C Molded Case Circuit Breakers, J-Frame
Section 3 – Description

Electronic Trip Operation
The Seltronic trip unit is supplied in one of the two types (Table 1-4). Trip unit function and rating settings are shown in Table 3-1.

In open air at 40°C, the trip unit continuously carries a current equal to its maximum ampere setting without exceeding a 50°C rise at the terminals. The trip unit is insensitive to ambient temperatures over a range of −20° to +55°C. However, for ambient temperatures below −5°C, special lubrication may be required for proper mechanical operation of the circuit breaker. The trip unit contains temperature protective circuits that initiate a trip operation for self-protection if the internal ambient temperature at the printed circuit board reaches approximately 90°C.

For ambient conditions above 40°C, derating of the circuit breaker frame should be considered to avoid exceeding a safe terminal temperature operating range. Consult Westinghouse for recommendations.

Overload Trip: The trip unit initiates a trip of the circuit breaker within two hours for an overload of 135 percent, and a trip in less time for higher overloads.

Short Delay/Instantaneous Trip: For short circuit conditions that exceed the short delay or instantaneous pick-up settings, the trip unit initiates a trip after a prescribed delay by the I^2t ramp function for trip units with catalog number suffix T. A flat response time delay action is provided by trip units with catalog number suffix TA unless the instantaneous (I) setting is selected.

DC Application: Seltronic trip units are suitable for ac application only. For dc applications, a thermal-magnetic trip unit should be used.

Field Testing: Test points are for functional field testing of the trip unit when connected to the test kit (Catalog number STK1). Existing Seltronic test kits are suitable for field testing of Series C circuit breaker Seltronic trip units. Testing information is supplied with each trip unit.

JW, HJW, and JWC Adjustable Thermal and Adjustable Magnetic Mechanism
The thermal and magnetic time-current performance characteristics of JW, HJW, JWC circuit breakers can be altered by rotating the adjustment buttons in the cover of the trip unit to the desired setting marked on the label. The adjustable thermal mechanism has movable elements (one per pole) connected by a common adjustment linkage. Each pole element is in the form of an inclined plane and is located between the bi-metal strip and the trip bar. Movement of the inclined plane adjusts the bi-metal-trip bar gap, varying the necessary bi-metal travel required to trip the circuit breaker. The magnetic pick-up setting is adjusted by a linkage that varies the spring tension on the magnet armature.

Push-to-Trip Button
The Push-to-Trip button provides a manual means of tripping the circuit breaker. When the button is pressed, a plunger rotates the trip bar causing the circuit breaker to trip.

Table 3-1. Seltronic (Electronic) Trip Unit Trip Function and Rating Settings

Trip Function	Rating/Setting Description
Adjustable Ampere Setting	50-100% Adjustment I_n
Short Delay Pick-up (Adjustable)	In multiples ampere setting at 2-3-4-5-6-7-8x
Short Delay Time (Fixed)	I^2t ramp configuration
Short Delay Time (Adjustable)	Flat response with time delay settings at 100ms, 200ms, and 300ms
Instantaneous Pick-up①	In multiples of ampere setting (I_n) with marks at 2-3-4-5-6-7-8x

① Occurs with short delay time adjustment set at I.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

4-1. General Information

A complete line of accessories is available for use with the Series C circuit breakers and molded case switches. Commonly required internally mounted accessories are plug-in types for use only with the Series C line. KB family internal accessories cannot be used in J-frame Series C circuit breakers.

Although the physical size of the Series C J-frame family of circuit breakers is the same as the JB, KB and HKB family, there are certain differences; therefore in some cases, direct replacement is not possible and new accessories must be ordered:

- Circuit breaker mounting details, panel cutouts, and terminal centerline locations are identical. Existing KB family terminals continue to be used with J-frame Series C circuit breakers.
- Handle locations and handle throw details are different. Therefore, existing handle mechanisms and externally mounted accessories including electrical operator and key interlocks, etc. must be replaced or mounting details modified.

The following paragraphs describe each accessory and provide operation, rating, and specification information. In this section, "circuit breaker" shall also include molded case switch, unless otherwise stated.

To identify allowable accessory installation combinations, see paragraph 4-8.

Ordering information is found in Section 5.

4-2. Termination Accessories

Termination accessories of two basic types are available: terminal connection devices, which accommodate typical circuit breaker connection variations; and termination protection devices, which provide terminal isolation.

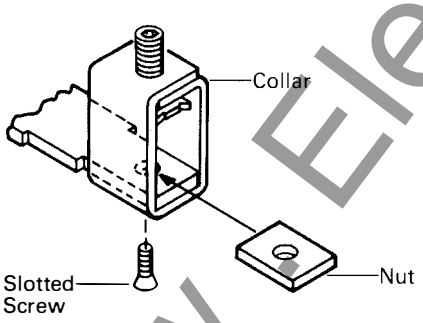
Termination Connection Devices
- Line and Load Terminals
- Plug Nut
- Rear Connecting Studs
- Plug-In Adapters
- Panelboard Connecting Straps

Termination Protection Devices
- Terminal Shield
- Interphase Barriers

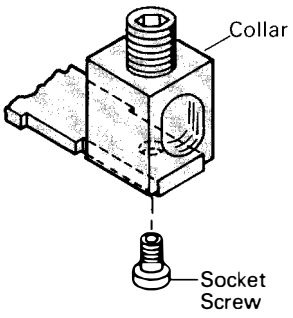
Line and Load Terminals

Line and load terminals provide wire connecting capabilities for specific ranges of continuous current ratings and wire types. All terminals comply with Underwriters Laboratories, Inc. Standards UL486A and UL486B and CSA Standard C22.2 No. 65, or Electrical Bulletin 1165. Unless otherwise specified, J-frame circuit breaker line and load terminals are shipped separately for field installation.

The bottom of the standard TA250KB terminal contains a recess which is positioned over the J-frame circuit breaker terminal conductor.

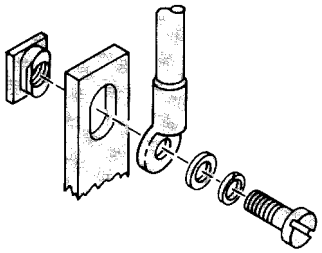


T250KB Terminal



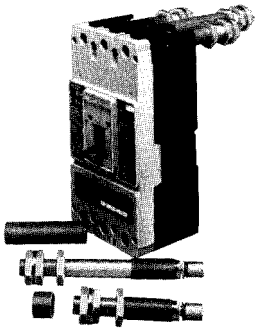
TA250KB Terminal

Plug Nut



The plug nut is used in applications where screw-connected ring-type terminals are preferred to connect cables to circuit breaker conductors. The plug nut is press-fit into the opening in the circuit breaker terminal conductor and is supplied with a plain washer, lock washer and .250-20 screw.

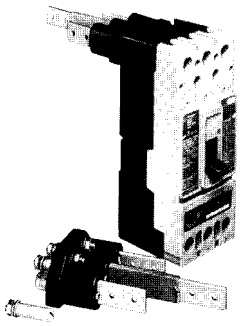
Rear Connecting Studs



Rear connecting studs are available in several sizes to accommodate specific fixed-mounted circuit breaker applications. The rear connecting studs are rated 250A. See Section 6 for dimensional data. (Field installation only)

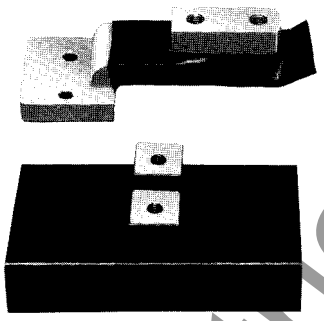
Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

Plug-In Adapters



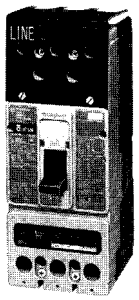
Plug-in adapters simplify installation and front removal of circuit breakers. Individual line and load plug-in adapters are available for rear connection applications on 2-, 3-, and 4-pole circuit breakers. Common mounting plates for line and load end adapters are available. The plug-in adapters are rated 250A. See Section 6 for dimensional data. (Field installation only.)

Panelboard Connecting Straps



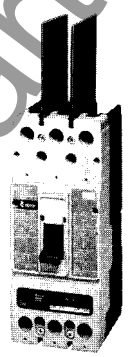
Panelboard connecting straps are used to connect the circuit breaker terminals to the panelboard bus. The panelboard connecting straps are available with 250A rating for outside and center poles. (Field installation only.)

Terminal Shield



Terminal shields provide protection against accidental contact with live line side terminations. Terminal shields are fabricated from high dielectric insulating material and fasten over the front terminal access openings. Small openings in the shields provide limited access to the terminals for tightening connectors. (Field installation only.)

Interphase Barriers

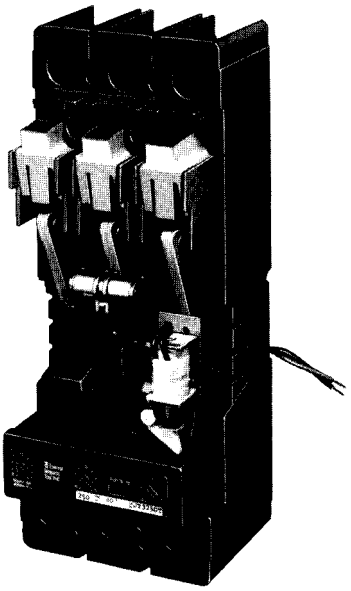


The interphase barriers provide additional electrical clearance between circuit breaker poles for special termination applications. The barriers are high dielectric insulating plates that are installed in the molded slots between the terminals. (Field installation only.)

4-3. Internal Accessories

All internal accessories are of the plug-in type and are listed for field installation under UL File E64983.①. Internal accessories for sealed circuit breakers are listed under UL File E7819① for factory installation only. The available plug-in accessories include the following:

- Alarm (Signal)/Lockout Switch
- Auxiliary Switch
- Shunt Trip
- Low Energy Shunt Trip
- Undervoltage Release Mechanism.

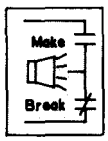


Typical Internal Plug-in Accessory Installed in J-frame Circuit Breaker

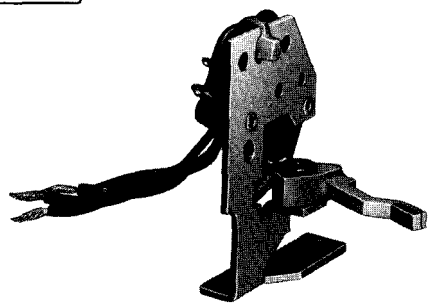
Different accessory wiring options are available to satisfy most circuit breaker mounting applications. The standard wiring configuration is pigtail leads exiting the rear of the base directly behind the accessory. Optional configurations include a terminal block mounted on the same side of the base as the accessory, leads exiting the side of the base where the accessory is mounted, and leads exiting the rear of the base on the side opposite the accessory. If accessory leads longer than 18 inches are required, side-mounted terminal blocks should be used. To identify allowable accessory installation combinations, see paragraph 4-8. Internally mounted accessories identified in paragraph 4-8 are shown in this section by a graphic symbol in a shaded blue box.

① Some UL listings pending; refer to Westinghouse.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications



Alarm (Signal)/ Lockout Switch

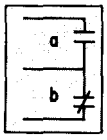


The alarm (signal)/lockout switch monitors circuit breaker trip status and provides remote signaling and interlocking capabilities when the circuit breaker trips. For 2-, 3-, and 4-pole circuit breakers, the alarm (signal)/lockout switch consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. The SPDT switch contacts are identified as make and break contacts. When the circuit breaker trips, the make contact closes and the break contact opens. Table 4-1 provides electrical rating data for the alarm (signal)/lockout switch.

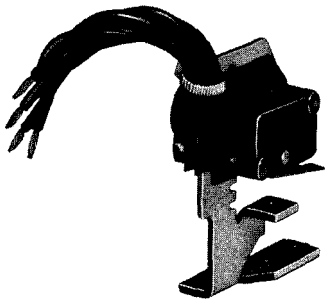
Table 4-1. Alarm (Signal)/Lockout Switch Electrical Rating Data ①②

Maximum Voltage	Freq.	Maximum Current Amps	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	dc	0.5③	
250	dc	0.25③	

① Endurance – 6000 electrical operations plus 2000 mechanical operations.
② Pigtail wire size – No. 18 AWG (0.82 mm²).
③ Non-inductive load.



Auxiliary Switch

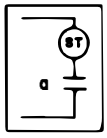


The auxiliary switch provides circuit breaker contact status information by monitoring the position of the molded crossbar containing the moving contact arms. The auxiliary switch is used for remote signaling and interlocking purposes, and consists of one or two SPDT switches assembled to a plug-in module mounted in retaining slots in the top of the trip unit. Each SPDT switch has one "a" and one "b" contact. When the circuit breaker contacts are open, the "a" contact is open and the "b" contact is closed. Table 4-2 provides electrical rating data for the auxiliary switch.

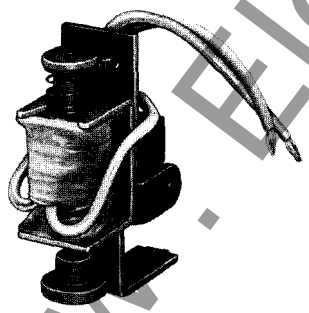
Table 4-2. Auxiliary Switch Electrical Rating Data①②

Maximum Voltage	Freq.	Maximum Current Amps	Dielectric Withstand Voltage
600	50/60 Hz	6	2500
125	dc	0.5③	
250	dc	0.25③	

① Endurance – 6000 electrical operations plus 2000 mechanical operations.
② Pigtail wire size – No. 18 AWG (0.82 mm²).
③ Non-inductive load.



Shunt Trip



The shunt trip provides remote controlled tripping of the circuit breaker. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain ac rated shunt trips, as noted in Table 4-3, are suitable for operation at 55 percent of rated voltage. Table 4-3 also provides electrical rating data for the shunt trip.

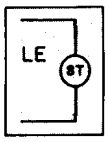
Notes:
① Approximate unlatching time – 6 milliseconds
② Approximate total circuit breaker contact opening time – 18 milliseconds
③ Endurance – 6000 electrical operations plus 2000 mechanical operations
④ Supply voltages suitable for use with Class 1 GFP devices. Marking label included with accessory kits.

Table 4-3. Shunt Trip Electrical Rating Data

Electrical Operating Ratings①②③

50/60 Hz			dc		
Supply Voltage	Minimum Operating Voltage	VA	Supply Voltage	Minimum Operating Voltage	VA
9	6	36	...	..	....
12	7	31	12	5	50
24		173	24		247
48		686	48		1094
60		1014	60		1698
110④	40	66	110	25	112
120④		84	120		138
127④		102	125		150
208④		354	220	95	40
220④		396	250		58
240④		432	...	..	....
380	135	95	...	..	....
400		108	...	..	....
415		120	...	..	....
440		136	...	..	....
480	240	34	...	..	....
525		42	...	..	....
550		50	...	..	....
600		60	...	..	....

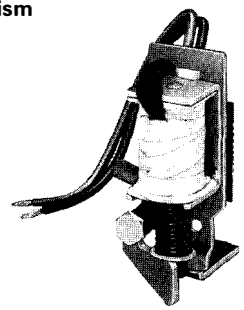
Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications



Low Energy Shunt Trip

Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the circuit breaker trip mechanism. When a pulse of direct current from the power source passes through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the circuit breaker. As the circuit breaker contacts open, the reset arm is actuated by the circuit breaker operating mechanism, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cut-off provisions required in control circuit.

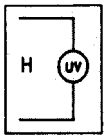
Undervoltage Release Mechanism



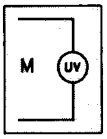
The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating. Table 4-4 provides electrical rating data for each operating voltage of the handle reset undervoltage release mechanism.

NOTE: Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

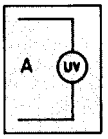
There are four different types of undervoltage release mechanisms available: handle, manual, automatic, and electrical reset.



Handle Reset (Standard) The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever assembled to a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the circuit breaker handle is moved to the reset (OFF) position. With no voltage applied to the undervoltage release mechanism, the circuit breaker contacts will not touch when a closing operation is attempted.



Manual Reset (Optional) The accessory consists of two metal cores held together by the flux of a surrounding coil. As voltage drops in the coil, the lower core drops pivoting a lever, which presses against the trip bar, and at the same time extends a plunger through the circuit breaker cover as an indication of an undervoltage trip. When normal voltage is restored, the plunger projecting through the circuit breaker cover must be depressed to reset the undervoltage release mechanism. This accessory can be factory installed only.



Automatic Reset (Optional) This accessory is similar to the manual reset model, but has no reset plunger. The tripping lever has an extension that rests on the molded crossbar. When the circuit breaker trips and travel of the molded crossbar is almost complete, the tripping lever extension pushes the tripping lever up and resets the undervoltage release mechanism.

Table 4-4. Undervoltage Release Mechanism (Handle Reset) Electrical Rating Data

Electrical Operating Ratings①②

50/60 Hz					dc				
Supply Voltage	Dropout Voltage Min.	Dropout Voltage Max.	Pickup Voltage Max.	VA	Supply Voltage	Dropout Voltage Min.	Dropout Voltage Max.	Pickup Voltage Max.	VA
9	3.2	8.4	7.7	1.9	...	...	...	...	..
12	4.2	8.4	10.2	1.9	12	4.2	8.4	10.2	1.6
24	8.4	16.8	20.4	3.9	24	8.4	16.8	20.4	3.1
48 60	21	33.6	40.8	2.5 3.8	48 60	21	33.6	40.8	2.0 3.1
110 120 127	44.5	77	93.5	1.8 2.1 2.4	110 120 125	44.5	77	93.5	1.6 1.9 2.2
208 220 240	85	145.6	176.8	2.7 3.1 3.8	220 250 ...	87.5	154	187	3.1 4.0 ..
380 415 440 480	168	266	323	3.4 4.0 4.6 5.4	... ...	... ...	... ...	... ...	.. ..
525 550 600	210	367	446	4.5 5.0 5.8	... ...	... ...	... ...	... ...	.. .. ..

Notes:
① Endurance – 6000 electrical operations plus 2000 mechanical operations
② For electrical rating data for manual, automatic and electrical reset undervoltage release mechanisms, refer to Westinghouse.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

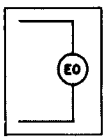
4-4. Handle Operating Accessories

The handle operating accessories provide indirect electrical or manual circuit breaker handle operation. These accessories are field installed only and include:

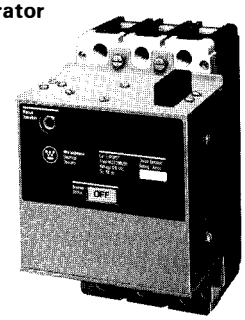
- Electrical (Solenoid) Operator
- Rotary Handle
- Vari-Depth Handle Mechanism
- Type SM Safety Handle Mechanism
- Type MC Motor Control Handle Mechanism
- Type AMT Vari-Depth/Vari-Width Flange-Mounted Handle Mechanism

To identify allowable accessory installation combinations, see paragraph 4-8. Handle operating accessories identified in paragraph 4-8 are shown in this section by a graphic symbol in a shaded blue box.

Ordering Information is found in Section 5.



Electrical (Solenoid) Operator



The electrical (solenoid) operator is a double solenoid mechanism that enables local and remote circuit breaker ON, OFF, and reset switching. The electrical operator is mounted on the circuit breaker cover. The electrical operator uses a unique bi-stable latch that allows the device to operate using two solenoids. The accessory provides high speed switching with a maximum operating time of 5 cycles (80 ms), making it suitable for generator synchronizing applications.

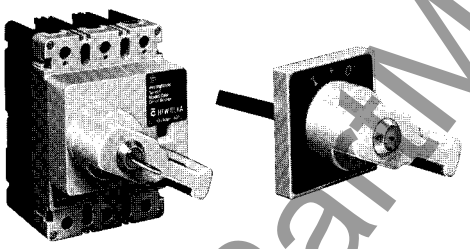
Means are provided for remote electrical operation and for local manual operation. A special slide-bar locking mechanism provides means for padlocking the operator in the OFF position. (Padlocking does not affect the trip-free operation of the circuit breaker.) The slide-bar will accept one padlock shackle with a maximum diameter of ¼ inch (6mm). Table 4-5 provides electrical rating data for the electrical (solenoid) operator.

Table 4-5. Electrical (Solenoid) Operator Electrical Rating Data①②③

Voltage④ (V)	Inrush Current (A)	Fuse (A)
24	80	30
120	24	6
240	12	4

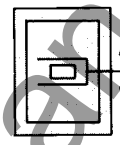
① The electrical operator design has been endurance tested for 6000 electrical operations.
② Frequency: 50/60 Hz or dc.
③ Maximum operating time: 5 cycles (80 ms).
④ Tolerance: +10%, −15% of nominal voltage.
⑤ Underwriters Laboratories listing pending under UL File E64983.

Rotary Handle Mechanism⑤

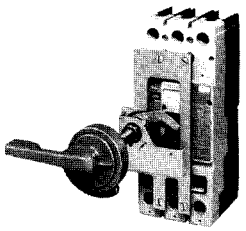


The rotary handle mechanism mechanically transfers the rotating operation of the rotary handle to the in-line toggle operation of the circuit breaker handle. A window in the handle mechanism case indicates circuit breaker status: ON, I on a red background; TRIP, + on a white background; OFF, O on a green background. The handle mechanism is mounted on the circuit breaker cover within the trimline and will take up to three padlock shackles, each with a maximum diameter of ¼ inch (6mm). A cylinder lock can be installed in the handle. The handle is designed to be locked in the OFF position; one knockout tab which is provided in the handle mounting boss must be removed to lock the handle in the ON position. Trip-free operation permits the circuit breaker to trip if the handle is locked in the ON position. For this condition, the handle will continue to indicate ON.

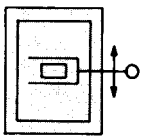
The handle is removable. A 10-inch (250mm) shaft extension is available to use with the handle mechanism when the circuit breaker is mounted behind a fixed or hinged front cover. Provision is made for mounting an early-make/early-break auxiliary switch on the handle mechanism for use with undervoltage release mechanisms. Styles with red handles and yellow background labels are available for use on main disconnect devices where required by local codes.



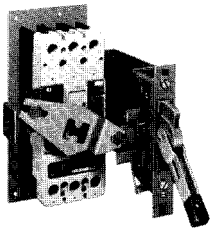
Vari-Depth Handle Mechanism⑤



The vari-depth handle mechanism provides a means of externally operating a circuit breaker housed in an enclosure and can be applied to enclosures of varying depths. The handle mechanism can be used in NEMA 1, 3R, 4, 7, 9, and 12 enclosure applications, depending on the accessory components selected. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 5/16 inch (7.94mm).

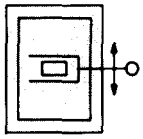


Type SM Safety Handle Mechanism⑤

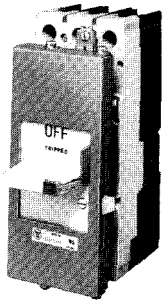


The SM safety handle mechanism provides a means of externally operating a circuit breaker mounted in an enclosure and is designed to reduce the possibility of circuit breaker tampering. The handle mechanism is especially suited for use in automotive and machine tool industries through its conformance to NEMA 12 and J. I. C. requirements. A specially modified handle mechanism for NEMA 4 enclosure applications is also available. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of 3/8 inch (9.52mm).

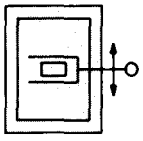
Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications



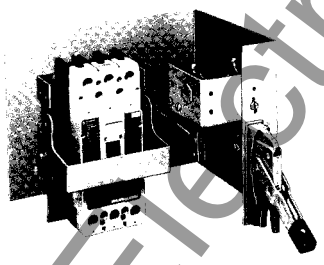
Type MC Motor Control Handle Mechanism



The MC motor control handle mechanism is a linear-operating, fixed-depth mechanism designed for through-door mounting in standardized and shallow depth enclosures. The handle mechanism provides positive operation and direct disconnect status indication. It is interlocked with the enclosure door so that the door can be opened only when the handle is set to OFF. (A defeater, supplied with the handle mechanism, can be used to bypass the interlock for maintenance and inspection.) The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of ⅜ inch (7.92mm). UL File E56845.



Type AMT Vari-Depth/ Vari-Width Flange Mounted Handle Mechanism①



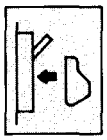
The AMT vari-depth/vari-width flange-mounted handle mechanism is an extra heavy-duty mechanism designed for mounting in flange-type enclosures. The handle mechanism is available for mounting above or below the centerline of the circuit breaker handle, is suitable for various enclosure depths, and can also be used in various horizontal position applications. A door interlock prevents the enclosure from being opened with the handle mechanism in the ON position and prevents the handle mechanism from being switched to ON unless the enclosure door is closed. The handle mechanism will accept up to three padlock shackles, each with a maximum diameter of ⅜ inch (7.92mm).

4-5. Lock and Interlock Accessories

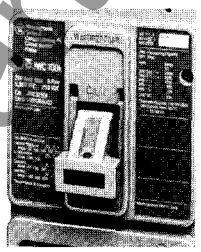
Lock and interlock accessories are used to deter undesired circuit breaker operation and establish interlocked control systems. Lock and interlock accessories include:

- Nonlockable Handle Block
- Padlockable Handle Lock Hasp
- Cylinder Lock
- Key Interlock
- Sliding Bar Interlock
- Walking Beam Interlock.

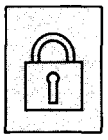
To identify allowable accessory installation combinations, see paragraph 4-8. Lock and interlock accessories identified in paragraph 4-8 are shown in this section by a graphic symbol in a shaded blue box.



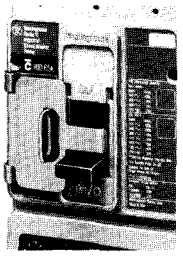
Nonlockable Handle Block



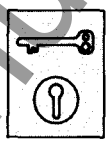
The nonlockable handle block secures the circuit breaker handle in either the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle block holds the circuit breaker handle in the ON position.) The device is positioned over the circuit breaker handle and secured by a setscrew to deer accidental operation of the circuit breaker handle. (Field installation only.)



Padlockable Handle Lock Hasp①



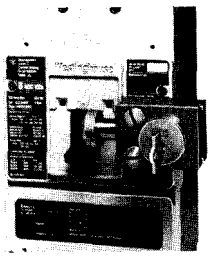
The padlockable handle lock hasp allows the handle to be locked in the ON or OFF position. (Trip-free operation allows the circuit breaker to trip when the handle lock holds the circuit breaker handle in the ON position.) The hasp mounts on the circuit breaker cover within the trimline. The cover is predrilled on both sides of the operating handle so that the hasp can be mounted on either side of the handle. The hasp will accommodate up to three padlocks with ¼ inch (6mm) shackles. (Field installation only.)



Cylinder Lock

The cylinder lock internally blocks the trip bar in the tripped position to prevent the circuit breaker from being switched to ON. The cylinder lock is factory installed in the circuit breaker cover. Other internally mounted accessories cannot be installed in the same pole as the cylinder lock. (Factory installation only.)

Key Interlock Kit (Lock not included)①

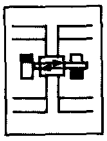


The key interlock is used to externally lock the circuit breaker handle in the OFF position. When the key interlock is locked, an extended deadbolt blocks movement of the circuit breaker handle. Uniquely coded keys are removable only with the deadbolt extended. Each coded key controls a group of circuit breakers for a given specific customer installation.

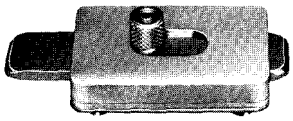
The key interlock assembly consists of a mounting kit and a purchaser supplied deadbolt lock. The mounting kit comprises a mounting plate, which is secured to the circuit breaker cover in either the left- or right-pole position; key interlock mounting hardware; and, a wire seal. Specific mounting kits are required for individual key interlock types. (Field installation only.)

① Underwriters Laboratories listing pending under UL File E64983.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

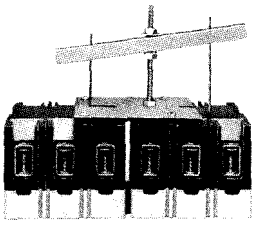


Sliding Bar Interlock



The sliding bar interlock provides mechanical interlocking between two adjacent 2- or 3-pole circuit breakers. It is installed on the enclosure cover between the circuit breakers. When the sliding bar interlock handle is moved from one side to the other, a bar extends to alternately block movement of the circuit breaker handles and prevents both circuit breakers from being switched to ON at the same time. Sliding bar interlocks are not UL listed. (Field installation only.)

Walking Beam Interlock



The walking beam interlock provides mechanical interlocking between two adjacent circuit breakers of the same pole configuration. The walking beam interlock mounts on a bracket behind and between the circuit breakers. A plunger on each end of the beam is inserted through an access hole in the backplate and base of each circuit breaker. The walking beam interlock prevents both circuit breakers from being switched to ON at the same time. When a walking beam interlock is installed, the wiring troughs in the back of the circuit breaker case are blocked by the plungers and cannot be used for cross wiring. Factory-modified circuit breakers are required for this application.

4-6. Miscellaneous Accessories

- Base Mounting Hardware
- Earth Leakage Protection Module.

Base Mounting Hardware

Hardware for surface mounting of circuit breakers is supplied only on request. Hardware consists of mounting screws and lockwashers. Order hardware for circuit breaker pole configurations as required.

Earth Leakage Protection Module

The earth leakage protection module is an add-on accessory designed to protect personnel and equipment from low level earth leakage (ground fault) conditions. It consists of a current sensing element and an amplifier circuit that trips the associated circuit breaker by signaling a shunt trip or undervoltage release mechanism. (No external power to operate the shunt trip is needed.) Refer to Westinghouse for further information.

Seltronic Portable Test Kit

The Seltonic portable test kit provides verification of performance of all ratings of Seltronic trip units installed in Series C circuit breakers while in service under varying load and/or phase inbalance. The test kit operates on 120-Volt, 50/60 Hz power; it includes complete instructions and test times for testing long time, short time/instantaneous operation and optional ground fault operation of the circuit breaker.

4-7. Modifications

Limited modifications to the basic circuit breaker are available to satisfy specific customer requirements. All modifications are completed at the factory. The following modifications are available:

- Special Calibration
- Moisture-Fungus Treatment
- Marine Applications

If additional modifications are required, refer to Westinghouse. The following paragraphs describe the modifications.

Special Calibration

Special non-UL listed calibrations are available for certain ambient temperatures other than 40°C and for frequencies other than 50/60 Hz or dc. Reduced interrupting ratings will apply for 400 Hz applications. Maximum thermal calibration is limited to 200A at 400 Hz.

Moisture-Fungus Treatment

All series C circuit breaker cases are molded from glass-polyester, which does not support the growth of fungus. Only a limited number of internal parts require special treatment.

Marine Applications

UL489 listed① 40°C circuit breakers for marine application on vessels over 65 feet are available. Non-aluminum terminals are required.

① UL listing pending; refer to Westinghouse.

Series C Molded Case Circuit Breakers, J-Frame
Section 4 – Accessories and Modifications

4-8. Accessory Combinations

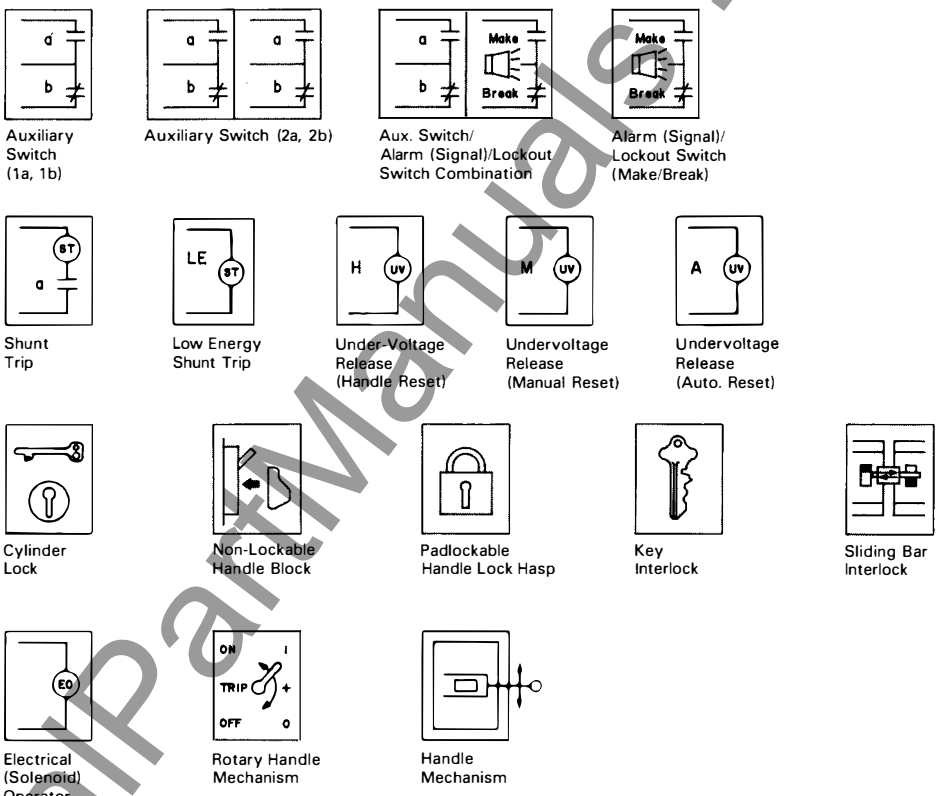
Different combinations of accessories can be supplied, depending on the types of accessories and the number of poles in the circuit breaker. The following illustrations show the different accessories or combinations that can be used internally and externally with each pole of 2-, 3-, and 4-pole circuit breakers. Each pole in a particular circuit breaker configuration is identified by a column head; each accessory or combination that can be used with that pole is identified by symbols in a box below the column head. Unless otherwise noted, one internal and one external accessory can be selected for each pole.

The manual reset undervoltage release mechanism or the cylinder lock will occupy the accessory mounting cavity in the circuit breaker base and also project through the cover. Therefore, if either of these devices is selected, no other internal or external accessory can be applied to that particular pole. In the illustrations, these accessories are identified by repeating the symbol in the internal and cover boxes. If a manual reset undervoltage release mechanism or cylinder lock is selected, the electrical (solenoid) operator or any external handle mechanism cannot be used.

Some external accessories will cover more than one pole. In the illustrations when a box containing accessory symbols spans more than one column, any accessory within that box occupies the area of the cover indicated.

Accessory Legend
The accessory legend shows each symbol used in the accessory combination illustration.

Accessory Symbols Used in Accessory Combination Example (See Page 18)

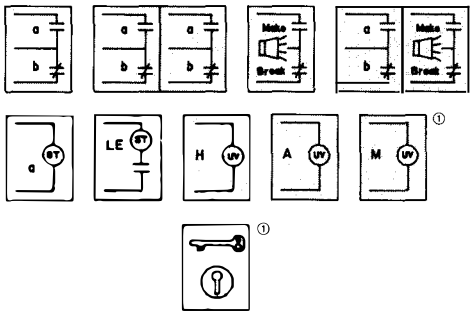
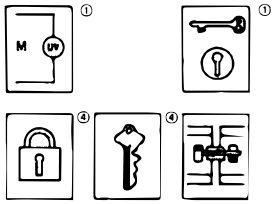
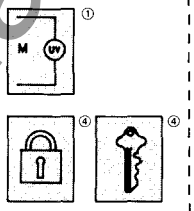
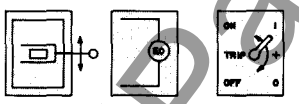


Auxiliary Switch (1a, 1b)
Auxiliary Switch (2a, 2b)
Aux. Switch/ Alarm (Signal)/Lockout Switch Combination
Alarm (Signal)/ Lockout Switch (Make/Break)
Shunt Trip
Low Energy Shunt Trip
Under-Voltage Release (Handle Reset)
Undervoltage Release (Manual Reset)
Undervoltage Release (Auto. Reset)
Cylinder Lock
Non-Lockable Handle Block
Padlockable Handle Lock Hasp
Key Interlock
Sliding Bar Interlock
Electrical (Solenoid) Operator
Rotary Handle Mechanism
Handle Mechanism

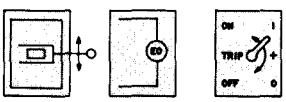
Series C Molded Case Circuit Breakers, J-Frame

Section 4 – Accessories and Modifications

2-, 3-, and 4-Pole Circuit Breaker Accessory Combinations for use with Type JT Trip Thermal Magnetic Units

	Left Pole	Center Pole	Right Pole (2- or 3-Pole)	Right Pole (4-Pole)	Neutral Pole
Internal			Accessories Same As Left Pole Except Cylinder Lock	Accessories Same As Left Pole Except Cylinder Lock ②	None
Cover Mounted			Accessories Same As Left Pole Except Cylinder Lock		None
					

2-, 3-, and 4-Pole Circuit Breaker Accessory Combinations for use with Type JS Seltronic Trip Units

	Left Pole	Center Pole	Right Pole (2- or 3-Pole)	Right Pole (4-Pole)	Neutral Pole
Internal	Accessories Same As Thermal-Magnetic Trip Unit Above		No Accessories Allowed	No Accessories Allowed	None
Cover Mounted	Accessories Same As Thermal-Magnetic Trip Unit Above			Accessories Same As Right Pole (2- or 3-Pole) Except Sliding Bar Interlock	None
					

① Occupies internal and cover spaces.
② Non-padlockable handle block cannot be mounted simultaneously with either key interlock, padlockable handle hasp or sliding bar interlock.
③ Accessories with terminal blocks installed in this pole have special catalog numbers. See Section 5, Accessory Catalog Numbers.
④ May be mounted on left or right pole, not both.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

5-1. General Information

When ordering a J-frame circuit breaker or molded case switch, use the catalog numbers given in Tables 5-1 through 5-6. Interrupting ratings can be found in Table 1-1. List any accessories or modifications required together with the applicable catalog number. Handle mechanisms are suitable for use with all J-frame Series C circuit breakers. REFER TO WESTINGHOUSE FOR AVAILABILITY OF ALL CIRCUIT BREAKERS, MOLDED CASE SWITCHES, ACCESSORIES, AND MODIFICATIONS.

List Prices: See Price List 29-020. Discount Symbol CB-2 applies for circuit breakers and accessories. Discount Symbol CB-14 applies for handle mechanisms.

5-2. Ordering Instructions – Circuit Breakers

Factory sealed, non-interchangeable trip circuit breakers may be ordered completely assembled with standard type terminals supplied by referring to Table 5-1 and specifying the appropriate catalog numbers.

Interchangeable trip circuit breakers may be ordered as a circuit breaker frame and trip unit only by specifying the individual catalog numbers from Tables 5-2, 5-3 and 5-4. Terminal connectors can be ordered separately by specifying individual catalog numbers in Table 5-7.

Complete circuit breakers consisting of a frame, trip unit, and standard terminals (Table 5-7) can be ordered by specifying the appropriate catalog numbers from Tables 5-2 and 5-4. Optional Seltronic trip units are listed in Table 5-3.

5-3. Ordering Instructions – Accessories

When ordering an accessory that is for installation by the customer, use the field installation kit catalog number.

5-4. Ordering Examples

Example No. 1 – Customer Requirement
One UL listed molded case circuit breaker as follows:

1. 3-pole, 600 Vac class, 250A, with 65 kA interrupting capacity at 480 Vac.
2. Fixed thermal, adjustable magnetic interchangeable trip unit
3. One 2a/2b auxiliary switch with pigtail leads (field installed)
4. One 120 Vac, 50/60 Hz shunt trip with terminal block (field installed)
5. Line and load terminals for 350 mcm aluminum cables, one per phase.

Ordering Steps

1. **Refer to Tables 1-1 and 5-2. Select catalog number HJD3250 consisting of frame HJD3250F, trip unit JT3250T and standard terminals TA250KB. See Table 5-7. (This covers items 1, 2 and 5 above.)**
2. **Refer to auxiliary switch table (page 23). Select field installation kit catalog number A2X2PK. (This covers item 3 above.) Right-pole mounting is standard.**
3. **Refer to shunt trip table (page 24). Select field installation kit catalog number SNT2T11K. (This covers item 4 above.) Left-pole mounting is standard.**
4. **Enter order by specifying as follows:**

   Item 1 – Quantity 1 – Circuit breaker frame, Cat. No. HJD3250F

   Item 1A – Quantity 1 – Trip unit, Cat. No. JT3250T

   Item 1C – Quantity 6 – Terminal, Cat. No. TA250KB

   Item 2 – Quantity 1 – Auxiliary switch kit, Cat. No. A2X2PK

   Item 3 – Quantity 1 – Shunt trip kit, Cat. No. SNT2T11K

The circuit breaker will be shipped unassembled as frame, trip unit, terminals and accessory kits.

Example No. 2 – Customer Requirement
One completely assembled molded case circuit breaker in compliance with IEC 157-1 as follows:

1. 4-pole, 660 Vac class, with 25 kA interrupting capacity (P1) at 380 Vac.
2. Adjustable thermal (200-250A), adjustable magnetic interchangeable trip unit with unprotected neutral pole.
3. One 1a/1b auxiliary switch with pigtail leads (factory installed).
4. One 380 Vac handle reset undervoltage release with pigtail leads (factory installed).
5. Non-aluminum line and load terminals for 350 mcm copper cables, one per phase.

Ordering Steps

1. **Refer to Tables 1-1 and 5-4. Select 4-pole frame catalog number JW4250F and trip unit catalog number JT3250TA. (This covers items 1 and 2 above).**
2. **Refer to auxiliary switch table (page 23). Select catalog number A1X2RB (This covers item 3 above). Right-pole mounting with pigtail leads exiting rear is standard.**
3. **Refer to UVR table (page 24). Select catalog number UVH2LB15. (This covers item 4 above). Left-pole mounting with pigtail leads exiting rear is standard.**
4. **Refer to Table 5-7 (page 22). Select stainless steel terminal catalog number T250KB. A quantity of 8 is required for this application (This covers item 5 above).**
5. **Enter order by specifying as follows**

   Item 1 – Quantity 1 – Factory assembled 4 pole circuit breaker consisting of
   1 – JW4250F Frame
   1 – JT3250TA Trip Unit
   1 – A1X2RB Auxiliary Switch
   1 – UVH2LB15 UVR
   8 – T250KB Terminals

The circuit breaker will be shipped completely assembled. Alternatively, each component could be ordered separately for field assembly.

Example No. 3 – Customer Requirement
One 600 Vac 1m/1b alarm (signal)/lockout switch with 18-inch pigtail leads for field installation in the right hand pole of a JD 3-pole circuit breaker.

In this case, an accessory kit must be specified.

Order as follows, referring to alarm (signal) switch table on page 23.

Quantity 1 – Alarm/lockout switch Cat. No. A1L2RPK.

ORDERING INFORMATION

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

5-5. J-Frame Series C Catalog Numbering System

This information is presented only as an aid to understanding catalog numbers shown in Tables 5-1 through 5-6. It is not to be used to build catalog numbers for circuit breakers or trip units.

Circuit Breaker/Frame Catalog Numbers

JD	3	250	F
Circuit Breaker/ Frame Type	Number of Poles	Circuit Breaker/ Frame Ampere Rating	Suffix
JDB	2: 2-Poles	70	C: Copper Terminals
JD	3: 3-Poles	90	E: 50% Protected Neutral Pole (4-Pole Seltronic Trip Circuit Breaker Only)
HJD	4: 4-Poles	100	
JDC		125	F: Frame Only
		150	K: High Magnetic Molded Case Switch
JW		160	W: Without Terminals
HJW		200	X: Load Side Terminals Only
JWC		225	Y: Line Side Terminals Only
		250	

Trip Unit Catalog Numbers

JT	3	250	T
Trip Unit Type	Number of Poles	Trip Unit Ampere Rating	Suffix
JT: Thermal-Magnetic	2	70	T: Trip Unit • Thermal-Magnetic Fixed Thermal Adjustable Magnetic • Seltronic Simultaneously Adjustable Short Time Pick-up and Time Delay
	3	90	
	4	100	
JS: Seltronic (Electronic)		125	
		150	
		160	
		175	
		200	
		225	
		250	TA: Trip Unit • Thermal-Magnetic: Adjustable Thermal Adjustable Magnetic • Seltronic Independently Adjustable Short Time Pick-up and Time Delay Adjustments V: 50°C Calibration (Thermal-Magnetic Trip Units Only) E: 50% Protected Neutral Pole (Four-pole trip unit only)

ORDERING INFORMATION

5-6. Circuit Breakers

Circuit breaker catalog numbers are identified in Tables 5-1, 5-2 and 5-4. Optional Seltronic trip units are listed in Table 5-3.

Table 5-1. Type JDB Circuit Breaker Catalog Numbers

600 Vac Maximum, 250 Vdc Non-Interchangeable Thermal-Magnetic Trip Unit, Factory Sealed

Continuous Ampere Rating at 40°C	With Line and Load Terminals①	
	2-Pole	3-Pole②
70	JDB2070	JDB3070
90	JDB2090	JDB3090
100	JDB2100	JDB3100
125	JDB2125	JDB3125
150	JDB2150	JDB3150
175	JDB2175	JDB3175
200	JDB2200	JDB3200
225	JDB2225	JDB3225
250	JDB2250	JDB3250

① Standard Cu/Al terminals supplied; refer to Table 5-7. Terminals shipped separately, unless otherwise specifically requested.
② Use any two poles for dc or single phase ac applications.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Table 5-2. Type JD, HJD, and JDC Circuit Breaker Catalog Numbers

Continuous Ampere Rating at 40°C	Trip Unit Only	Circuit Breaker Frame Only: Complete Circuit Breaker With Standard Line and Load Terminals①②		
2-Pole③, 600 Vac Maximum, 250 Vdc With Interchangeable Thermal-Magnetic Trip Units				
		JD2250F	**HJD2250F**	**JDC2250F**
70	**JT2070T**	JD2070	HJD2070	JDC2070
90	**JT2090T**	JD2090	HJD2090	JDC2090
100	**JT2100T**	JD2100	HJD2100	JDC2100
125	**JT2125T**	JD2125	HJD2125	JDC2125
150	**JT2150T**	JD2150	HJD2150	JDC2150
175	**JT2175T**	JD2175	HJD2175	JDC2175
200	**JT2200T**	JD2200	HJD2200	JDC2200
225	**JT2225T**	JD2225	HJD2225	JDC2225
250	**JT2250T**	JD2250	HJD2250	JDC2250
3-Pole④, 600 Vac Maximum, 250 Vdc With Interchangeable Thermal-Magnetic Trip Units				
		JD3250F	**HJD3250F**	**JDC3250F**
70	**JT3070T**	JD3070	HJD3070	JDC3070
90	**JT3090T**	JD3090	HJD3090	JDC3090
100	**JT3100T**	JD3100	HJD3100	JDC3100
125	**JT3125T**	JD3125	HJD3125	JDC3125
150	**JT3150T**	JD3150	HJD3150	JDC3150
175	**JT3175T**	JD3175	HJD3175	JDC3175
200	**JT3200T**	JD3200	HJD3200	JDC3200
225	**JT3225T**	JD3225	HJD3225	JDC3225
250	**JT3250T**	JD3250	HJD3250	JDC3250
4-Pole⑤⑥, 600 Vac Maximum, 250 Vdc With Interchangeable Thermal-Magnetic Trip Units				
		JD4250F	**HJD4250F**	**JDC4250F**
70	**JT3070T**	JD4070	HJD4070	JDC4070
90	**JT3090T**	JD4090	HJD4090	JDC4090
100	**JT3100T**	JD4100	HJD4100	JDC4100
125	**JT3125T**	JD4125	HJD4125	JDC4125
150	**JT3150T**	JD4150	HJD4150	JDC4150
175	**JT3175T**	JD4175	HJD4175	JDC4175
200	**JT3200T**	JD4200	HJD4200	JDC4200
225	**JT3225T**	JD4225	HJD4225	JDC4225
250	**JT3250T**	JD4250	HJD4250	JDC4250

① Standard Cu/Al terminals supplied; refer to Table 5-7.
② Circuit breaker shipped separately as frame, trip unit, and terminals.
③ 2-pole circuit breaker supplied in 3-pole frame.
④ Use any two protected poles for dc or single phase ac applications.
⑤ Overcurrent protection not available in neutral pole with thermal-magnetic trip unit. Where fourth-pole protection is required, use Seltronic trip units, refer to Table 5-3.
⑥ 3-pole trip unit used with 4-pole circuit breaker. Load end adapter for unprotected neutral pole included with 4-pole frame.
⑦ Consult Westinghouse for availability.
⑧ Not UL Listed.
⑨ Trip unit includes protected neutral pole. Use corresponding 3-pole trip unit if protected neutral pole not required.
⑩ Fully rated neutral pole protection is standard. For 50% rated protection on neutral pole, add suffix E to 4-pole trip unit catalog number.
⑪ W model circuit breakers not UL listed.

Table 5-3. Type JS Seltronic (Electronic) Trip Unit Catalog Numbers (For use with Types JD, HJD, and JDC Circuit Breaker Frames shown in Table 5-2, and with Types JW, HJW, and JWC Circuit Breaker Frames shown in Table 5-4)⑦

Maximum Continuous Ampere Rating at 40°C	Ampere Settings	Trip Unit Type: Adjustable Short Time Pick-up with I^2t Short Delay Ramp	Trip Unit Type: Independently Adjustable Short Time Pick-up and Delay
2- and 3-Pole			
125	70-80-90-100-125	JS3125T1	JS3125TA1
	63-80-90-100-125	JS3125T2⑧	JS3125TA2⑧
250	125-150-200-225-250	JS3250T1	JS3250TA1
	125-160-200-225-250	JS3250T2⑧	JS3250TA2⑧
4-Pole⑨●			
125	70-80-90-100-125	JS4125T1	JS4125TA1
	63-80-90-100-125	JS4125T2⑧	JS4125TA2⑧
250	125-150-200-225-250	JS4250T1	JS4250TA1
	125-160-200-225-250	JS4250T2⑧	JS4250TA2⑧

Table 5-4. Type JW, HJW, and JWC Circuit Breaker Catalog Numbers⑪

Continuous Ampere Rating at 40°C	Thermal Trip Range: Low	Thermal Trip Range: High	Trip Unit Only	Circuit Breaker Frame Only: Complete Circuit Breaker With Standard Line and Load Terminals①②		
2-Pole③, 660 Vac Maximum, 250 Vdc With Interchangeable Trip Unit – Adjustable Thermal, Adjustable Magnetic						
				JW2250F	**HJW2250F**	**JWC2250F**
125	100	125	**JT2125TA**	JW2125	HJW2125	JWC2125
160	125	160	**JT2160TA**	JW2160	HJW2160	JWC2160
200	160	200	**JT2200TA**	JW2200	HJW2200	JWC2200
250	200	250	**JT2250TA**	JW2250	HJW2250	JWC2250
3-Pole, 660 Vac Maximum, 250 Vdc④ With Interchangeable Trip Unit – Adjustable Thermal, Adjustable Magnetic						
				JW3250F	**HJW3250F**	**JWC3250F**
125	100	125	**JT3125TA**	JW3125	HJW3125	JWC3125
160	125	160	**JT3160TA**	JW3160	HJW3160	JWC3160
200	160	200	**JT3200TA**	JW3200	HJW3200	JWC3200
250	200	250	**JT3250TA**	JW3250	HJW3250	JWC3250
4-Pole⑤, 660 Vac Maximum, 250 Vdc④ With Interchangeable Trip Unit – Adjustable Thermal, Adjustable Magnetic						
				JW4250F	**HJW4250F**	**JWC4250F**
125	100	125	**JT3125TA**	JW4125	HJW4125	JWC4125
160	125	160	**JT3160TA**	JW4160	HJW4160	JWC4160
200	160	200	**JT3200TA**	JW4200	HJW4200	JWC4200
250	200	250	**JT3250TA**	JW4250	HJW4250	JWC4250

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

5-7. Molded Case Switches

Molded case switch catalog numbers are identified in Tables 5-5 and 5-6. For UL listed, series tested molded case switch application data, refer to Westinghouse.

Table 5.5. Type JD, HJD and JDC High Instantaneous Molded Case Switch Catalog Numbers

600 Vac Maximum, 250 Vdc

Continuous Ampere Rating at 40°C	Catalog Numbers		
	2-Pole①	3-Pole	4-Pole②
	Complete with Standard Line and Load Terminals (shipped separately)		
	Type JD		
250	JD2250K	JD3250K	JD4250K
	Type HJD		
250	HJD2250K	HJD3250K	HJD4250K
	Type JDC		
250	JDC2250K	JDC3250K	JDC4250K

Table 5-6. Type JW, HJW and JWC High Instantaneous Molded Case Switch Catalog Numbers③

660 Vac Maximum, 250 Vdc

Continuous Ampere Rating at 40°C	Catalog Numbers		
	2-Pole①	3-Pole	4-Pole②
	Complete with Standard Line and Load Terminals (shipped separately)		
	Type JW		
250	JW2250K	JW3250K	JW4250K
	Type HJW		
250	HJW2250K	HJW3250K	HJW4250K
	Type JWC		
250	JWC2250K	JWC3250K	JWC4250K

5-8. Accessories

Accessory catalog or style numbers are identified in Tables on pages 22 through 28. All mounting hardware is supplied unless otherwise noted.

Termination Accessories

Line and Load Terminals

J-frame circuit breakers use Cu/Al terminals as standard. When optional copper-only terminals are required, order by catalog number. See Table 5-7. Specify if factory installation is required.

Table 5-7. Line and Load Terminal Catalog Numbers

Max. Breaker Amps	Terminal Body Material	Wire Type	AWG Wire Range/No. of Conductors	Metric Wire Range mm²	Catalog Numbers
Standard Cu/Al Terminal					
250	Aluminum	Cu/Al	#4-350 MCM	25-150	TA250KB
250	Stainless Steel	Cu	#4-350 MCM	25-150	T250KB

① Two-pole molded case switches supplied in 3-pole frames.
② Neutral pole is not protected in 4-pole high instantaneous molded case switches.
③ Not UL listed.
④ Use 3-pole mounting plate for 2-pole circuit breaker.

Plug-In Adapter

Plug-in adapters are available for 2-, 3-, and 4-pole circuit breaker configurations. All adapters are rated 250A continuous. One plug-in adapter is used for each terminal end (line or load); specify quantity when ordering. A one-piece steel mounting plate is available at no charge when ordered with line and load plug-in adapters. (Field installation only.)

Terminal End	Style/Catalog Numbers		
	2-Pole	3-Pole	4-Pole
Line	1260C86G01	1260C86G02	PAD24A
Load	1260C86G03	1260C86G04	PAD24B
1 Line and 1 Load	506C144G17	506C144G18	PAD24
Mounting Plate	④	PMP23	PMP24

Plug Nut

Plug nuts are available for line/load conductors of J-frame Series C circuit breakers. Plug nuts are supplied in packages of 6.

Thread Type	Thread Size	Catalog Number Package of 6
Imperial	.250-20	PLN2
Metric	M-6	PLN2M

ORDERING INFORMATION

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Panelboard Connecting Straps

The panelboard connecting straps are available to meet the needs of most standard panelboard applications. Style numbers for mounting brackets for CDP panelboard installations are also included.

Bus Spacing (Inches)	Continuous Current Rating (Amperes)	Pole Connector Type	
		Center	Outside
		Style Number	Style Number
3½	250	2600D26G01	2600D26G02

Mounting Bracket, 2- and 3-Pole
Style Number: 1576707

Terminal Shield

The terminal shield is available for line and load terminal areas in 2-, 3-, and 4-pole circuit breakers. Terminal shields must be ordered in multiples of 10 (for each style number).

Location	No. of Poles	Style Number
Line End	2, 3	1266C07G01
	4	6631C01G01
Load End	2, 3	6641C16G01
	4	6641C16G02

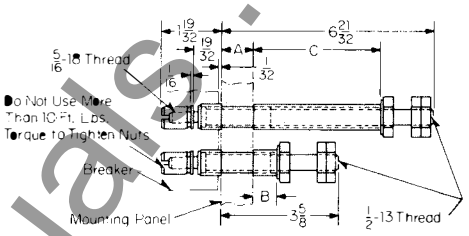
Interphase Barrier

Catalog Number: IPB3 (Pkg. of 2 Barriers)

The interphase barrier is available for extended insulation between circuit breaker poles. Specify quantity when ordering.

Rear Connecting Studs

Each rear connecting stud assembly consists of one stud and one tube. To maintain proper clearances between poles, select alternate long and short stud assemblies for circuit breakers with more than one pole. One assembly is required for line-end and one for load-end of each pole. Tubes must be ordered separately. Connecting studs are only available with English thread sizes.



Stud Length	Stud Style Number	Panel Thickness (Inches) A	Tube Length (Inches) B	C	Standard Tube Style Number
250A Short	5010D23G01	¾ – 1	27/32		456D938H05
250A Short	5010D23G01	½ – ¾	1 3/32		456D938H06
250A Short	5010D23G01	¼ – ½	1 11/32		456D938H07
250A Long	5010D23G02	¾ – 1		3⅞	5010D23H05
250A Long	5010D23G02	½ – ¾		4⅛	5010D23H06
250A Long	5010D23G02	¼ – ½		4⅜	5010D23H07

Internal Accessories

Alarm (Signal)/Lockout Switch

Number of Sets of Contacts (1M and 1B)	Mounting Location (Pole)	Connection Type and Location				Field Installation Kits①	
		18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
		Same Side	Rear ②	Opposite Side			
		Catalog Numbers				Catalog Numbers	
1	Left	A1L2LA	A1L2LB	A1L2LC	A1L2LT	A1L2LPK	A1L2LTK
	Right②	A1L2RA	A1L2RB	A1L2RC	A1L2RT③	A1L2RPK	A1L2RTK③

Auxiliary Switch

Number of Sets of Contacts (1a and 1b)	Mounting Location (Pole)	Connection Type and Location				Field Installation Kits①	
		18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
		Same Side	Rear ②	Opposite Side			
		Catalog Numbers				Catalog Numbers	
1	Left	A1X2LA	A1X2LB	A1X2LC	A1X2LT	A1X2PK	A1X2LTK
	Right②	A1X2RA	A1X2RB	A1X2RC	A1X2RT③	A1X2PK	A1X2RTK③
2	Left	A2X2LA	A2X2LB	.....	A2X2LT	A2X2PK	A2X2LTK
	Right②	A2X2RA	A2X2RB	.....	A2X2RT③	A2X2PK	A2X2RTK●

Auxiliary Switch-Alarm (Signal)/Lockout (ASL) Switch Combination

Each catalog number listed in the following table includes one auxiliary switch and one alarm switch. In an auxiliary switch-ASL switch combination, the auxiliary switch is always mounted on the side of the plug-in module next to the center pole of the circuit breaker.

Number of Sets of Contacts (1a and 1b and 1M and 1B)	Mounting Location (Pole)	Connection Type and Location				Field Installation Kits①	
		18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
		Same Side	Rear ②	Opposite Side			
		Catalog Numbers				Catalog Numbers	
1	Left	AAL2LA	AAL2LB	.....	AAL2LT	AAL2LPK	AAL2LTK
	Right②	AAL2RA	AAL2RB	.....	AAL2RT③	AAL2RPK	AAL2RTK③

① Listed with Underwriters Laboratories, Inc. for field installation under E64983.
② Standard mounting location – leads exit rear of breaker.
③ For 4-pole circuit breakers, add suffix F to catalog number.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Shunt Trip

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Specific application voltages are shown in Table 4-3. Performance data is shown on applicable circuit breaker accessory nameplates.

Shunt Trip

Voltage Rating (ac Freq = 50/60 Hz)	Connection Type and Location				Field Installation Kits①	
	18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
	Same Side	Rear ②	Opposite Side			
	Catalog Numbers				Catalog Numbers	
Left Pole Mounting AC/DC Ratings②						
9 Vac	SNT2LA01	SNT2LB01	SNT2LC01	SNT2T01	SNT2P01K	SNT2T01K
12-60 Vac or Vdc	SNT2LA05	SNT2LB05	SNT2LC05	SNT2T05	SNT2P05K	SNT2T05K
⑤110-240 Vac or 110-125 Vdc	SNT2LA11	SNT2LB11	SNT2LC11	SNT2T11	SNT2P11K	SNT2T11K
380-440 Vac or 220-250 Vdc	SNT2LA14	SNT2LB14	SNT2LC14	SNT2T14	SNT2P14K	SNT2T14K
480-600 Vac	SNT2LA18	SNT2LB18	SNT2LC18	SNT2T18	SNT2P18K	SNT2T18K
Right Pole Mounting AC/DC Ratings③						
9 Vac	SNT2RA01	SNT2RB01	SNT2RC01	SNT2T01④	SNT2P01K	SNT2T01K④
12-60 Vac or Vdc	SNT2RA05	SNT2RB05	SNT2RC05	SNT2T05④	SNT2P05K	SNT2T05K④
⑤110-240 Vac or 110-125 Vdc	SNT2RA11	SNT2RB11	SNT2RC11	SNT2T11④	SNT2P11K	SNT2T11K④
380-440 Vac or 220-250 Vdc	SNT2RA14	SNT2RB14	SNT2RC14	SNT2T14④	SNT2P14K	SNT2T14K④
480-600 Vac or	SNT2RA18	SNT2RB18	SNT2RC18	SNT2T18④	SNT2P18K	SNT2T18K④

Low Energy Shunt Trip⑤

Mounting Positions	Connection Type and Location				Field Installation Kits①	
	18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
	Same Side	Rear ②	Opposite Side			
	Catalog Numbers				Catalog Numbers	
Left Pole②	LST2LA	LST2LB	LST2LC	LST2LT	LST2LPK	LST2LTK
Right Pole③	LST2RA	LST2RB	LST2RC	LST2RT④	LST2RPK	LST2RTK④

Undervoltage Release Mechanism (Handle Reset)

Select handle reset undervoltage release mechanism catalog number for the voltage within the indicated voltage range. Undervoltage release mechanism coils are designed to be applied at specific ac or dc voltages within the voltage range shown. Specific application voltages are shown in Table 4-4. Performance data is shown on applicable circuit breaker accessory nameplates.

Undervoltage Release Mechanism

Voltage Rating (ac Freq = 50/60 Hz)	Connection Type and Location				Field Installation Kits①	
	18-inch Pigtail Leads			Terminal Block Same Side	Pigtail Leads	Terminal Block
	Same Side	Rear ②	Opposite Side			
	Catalog Numbers				Catalog Numbers	
Left Pole Mounting② AC Ratings						
9 Vac	UVH2LA01	UVH2LB01	UVH2LC01	UVH2LT01	UVH2LP01K	UVH2LT01K
12 Vac	UVH2LA02	UVH2LB02	UVH2LC02	UVH2LT02	UVH2LP02K	UVH2LT02K
24 Vac	UVH2LA03	UVH2LB03	UVH2LC03	UVH2LT03	UVH2LP03K	UVH2LT03K
48-60 Vac	UVH2LA05	UVH2LB05	UVH2LC05	UVH2LT05	UVH2LP05K	UVH2LT05K
110-127 Vac	UVH2LA08	UVH2LB08	UVH2LC08	UVH2LT08	UVH2LP08K	UVH2LT08K
208-240 Vac	UVH2LA11	UVH2LB11	UVH2LC11	UVH2LT11	UVH2LP11K	UVH2LT11K
380-480 Vac	UVH2LA15	UVH2LB15	UVH2LC15	UVH2LT15	UVH2LP15K	UVH2LT15K
525-600 Vac	UVH2LA18	UVH2LB18	UVH2LC18	UVH2LT18	UVH2LP18K	UVH2LT18K
Right Pole Mounting③④ AC Ratings						
9 Vac	UVH2RA01	UVH2RB01	UVH2RC01	UVH2RT01	UVH2RP01K	UVH2RT01K
12 Vac	UVH2RA02	UVH2RB02	UVH2RC02	UVH2RT02	UVH2RP02K	UVH2RT02K
24 Vac	UVH2RA03	UVH2RB03	UVH2RC03	UVH2RT03	UVH2RP03K	UVH2RT03K
48-60 Vac	UVH2RA05	UVH2RB05	UVH2RC05	UVH2RT05	UVH2RP05K	UVH2RT05K
110-127 Vac	UVH2RA08	UVH2RB08	UVH2RC08	UVH2RT08	UVH2RP08K	UVH2RT08K
208-240 Vac	UVH2RA11	UVH2RB11	UVH2RC11	UVH2RT11	UVH2RP11K	UVH2RT11K
380-480 Vac	UVH2RA15	UVH2RB15	UVH2RC15	UVH2RT15	UVH2RP15K	UVH2RT15K
525-600 Vac	UVH2RA18	UVH2RB18	UVH2RC18	UVH2RT18	UVH2RP18K	UVH2RT18K
Left Pole Mounting② DC Ratings						
12 Vdc	UVH2LA20	UVH2LB20	UVH2LC20	UVH2LT20	UVH2LP20K	UVH2LT20K
24 Vdc	UVH2LA21	UVH2LB21	UVH2LC21	UVH2LT21	UVH2LP21K	UVH2LT21K
48-60 Vdc	UVH2LA23	UVH2LB23	UVH2LC23	UVH2LT23	UVH2LP23K	UVH2LT23K
110-125 Vdc	UVH2LA26	UVH2LB26	UVH2LC26	UVH2LT26	UVH2LP26K	UVH2LT26K
220-250 Vdc	UVH2LA28	UVH2LB28	UVH2LC28	UVH2LT28	UVH2LP28K	UVH2LT28K
Right Pole Mounting③④ DC Ratings						
12 Vdc	UVH2RA20	UVH2RB20	UVH2RC20	UVH2RT20	UVH2RP20K	UVH2RT20K
24 Vdc	UVH2RA21	UVH2RB21	UVH2RC21	UVH2RT21	UVH2RP21K	UVH2RT21K
48-60 Vdc	UVH2RA23	UVH2RB23	UVH2RC23	UVH2RT23	UVH2RP23K	UVH2RT23K
110-125 Vdc	UVH2RA26	UVH2RB26	UVH2RC26	UVH2RT26	UVH2RP26K	UVH2RT26K
220-250 Vac	UVH2RA28	UVH2RB28	UVH2RC28	UVH2RT28	UVH2RP28K	UVH2RT28K

① Listed with Underwriters Laboratories, Inc. for field installation under E64983.
② Standard mounting location – leads exit rear of breaker.
③ For use with JT (thermal-magnetic) trip units only.
④ For 4-pole circuit breakers, add suffix F to catalog number.
⑤ Suitable for use with Class 1 ground fault sensing element.
⑥ Cutoff provisions required in control circuit.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Handle Operating Accessories

Electrical (Solenoid) Operator①

Operating Voltage	Frequency	Catalog Numbers Terminal Block
24	50/60 Hz	EOP2T03
120	or	EOP2T07
240	DC	EOP2T11

Rotary Handle Mechanism①

Description	Catalog Number
Rotary Handle Mechanism Standard Grey Handle:	RHM2G
Rotary Handle Mechanism Optional Red Handle with Yellow Label:	RHM2R
Early-Make Electrical Interlock Kit (2a-2b):	RHM2EK
Cylinder Lock Kit:	RHM2CLK
Standard Grey Remote Mounted Handle Extension Shaft Kit:	RHM2ESK
Optional Red Remote Mounted Handle Extension Shaft Kit:	RHM2ERK

Type MC Motor Control Handle Mechanism

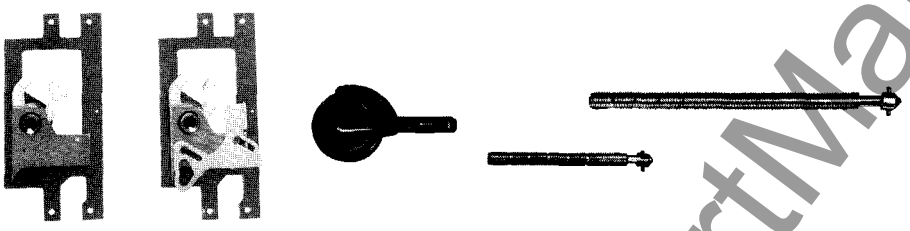
For use with NEMA 1 Enclosure Catalog Number: SMCU250JD
For use with NEMA 12 Enclosure Catalog Number: CMCU250JD

Type SM Safety Handle Mechanism

Right-Hand Mounting Enclosure Cover Hinged on Left. Catalog Number: SM250JR

Left-Hand Mounting Enclosure Cover Hinged on Right. Catalog Number: SM250JL

Vari-Depth Handle Mechanism②



Mechanisms③④		Handle	Shaft			
Standard – (No Internal Lockoff)	Special – (With Internal Lockoff)	NEMA 1, 3R, 12 (With Hardware)	Standard		Long	
Style Number	Style Number	Style Number	Style Number	Panel Depth	Style Number	Panel Depth
5092A62G03	5092A62G04	504C323G03	47A4446G16	5⅞-11⅛	47A4446G15	11⅛-14⅞

Accessories for Vari-Depth Handle Mechanisms

Special Handles: Meet NEMA 4 requirements. These handles are similar to standard handles, except they include an internal neoprene gasket. Due to gasketing effect between handle and housing, handle will not indicate a tripped position when used with circuit breakers.

Standard Finish
Style Number: 504C323G04

Handle Kits: These kits are for use with NEMA 4, 7, and 9 cast enclosures. The kits include a special operating handle, mounting bolts, and an adapter bushing. (The bushing may be purchased separately.) Kits may be used with standard mechanisms and shafts as required.

NEMA 4 and 9 Kit
Style Number: 314C794G10

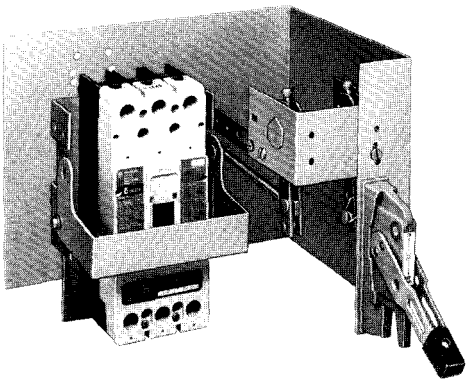
NEMA 7 Kit
Style Number: 314C794G09

Adapter Bushing Only
Style Number: 314C794G04

① UL listed for field installation under E64983.
② When circuit breaker is used with plug-in adapter kit, order mounting hardware Style No. 673B125G14. If rear connected studs are used, refer to Westinghouse.
③ Includes hardware.
● Outline and drilling plan reference: Drawing 653D270.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

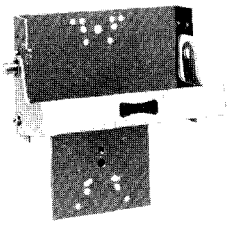
Type AMT Vari-Depth/Vari-Width Flange-Mounted Handle Mechanism



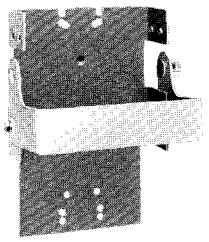
Assembled Type AMT for Below Handle Mounting (Breaker Not Included)

Type AMT Component Parts

Backplate and Yoke Assembly

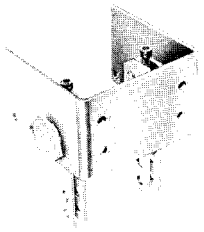


Below Handle Mtg.



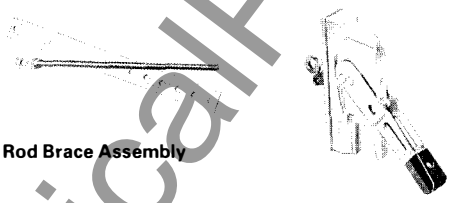
Above Handle Mtg.

Flange Mounted Pivot Mechanism



Below Handle Mtg.

Above Handle Mtg.



Rod Brace Assembly

Operating Handle

Catalog Numbers

Complete Assembly	Consists of and Shipped as Component Parts Listed Below			
	Backplate and Yoke Assembly	Operating rod and Brace Assembly●	Flange Mounted Pivot Mechanism Assembly ①	External Operating Handle
Above Handle Mounting With Short Rod and Brace				
AMTJDASV	AMTJD	AMTRB1	AMTPM	AMTOP
Above the Handle Mounting with Long Rod and Brace				
AMTJDALV	AMTJD	AMTRB2	AMTPM	AMTOP
Below the Handle Mounting with Short Rod and Brace				
AMTJDBSV	AMTJD-B	AMTRB1	AMTPM-B	AMTOP
Below the Handle Mounting with Long Rod and Brace				
AMTJDBLV	AMTJD-B	AMTRB2	AMTPM-B	AMTOP

① Width spacer kit not included.
② Width spacer kits cannot be used with short rod at minimum enclosure depth.

Ordering Information

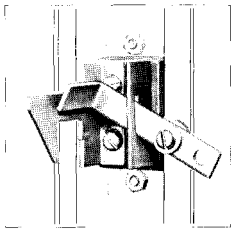
1. Order a complete mechanism using Complete Assembly catalog number. Mechanism will be shipped as individual components shown above and listed in table.
2. Order spacer kits or door hardware adapter as required.
3. Individual component parts may be ordered by catalog number.

Accessories for Type AMT Mechanisms

Spacer Kit to Vary Width

Catalog Number: AMTSK1
This spacer kit is for up to 1-inch variation and consists of multiples of thin spacers to be used as required. A maximum of two kits per installation may be used. Hardware is not supplied because of dimensional variations. Use standard ¼-inch x 20 bolts.

Door Hardware Kit
Cat. No. AMTDHA



This adapter kit is for use with door hardware kits DH1R, DH2R, or DH3R for type SM handle mechanisms to permit the use and interlocking of right hand installation of the type AMT handle mechanism (Below-the-Handle or Above-the-Handle type).

Operating Rod and Brace Assemblies.

Enclosure Depth Dimensions in Inches for Operating Rod and Brace Assembly

Short Rod		Long Rod	
Cat. No.	**AMTRB1**	Cat. No.	**AMTRB2**
Min.②	Max.	Min.	Max.
6½	14	12½	18

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Lock and Interlock Accessories

Nonlockable Handle Block

Catalog Number: LKD3

One per circuit breaker

Padlockable Handle Lock Hasp①

Catalog Number: PLK3

The padlockable handle lock hasp can be mounted on either side of the operating handle. One per circuit breaker; field installation only.

Cylinder Lock

Catalog Number: CLK2L

The cylinder lock is factory installed in the left pole only of the circuit breaker cover. Internal accessories cannot be installed in the same pole as the cylinder lock.

Key Interlock Mounting Kit①
Key interlock mounting kits are for field installation only. Select mounting kit catalog numbers to match type of lock used. Key interlocks are supplied by customer.

Lock Manufacturer	Lock Type	Bolt Projection in Withdrawn Position	Kit Cat. No.
Superior	B-4003-1	3/8 inch	
Kirk	F	3/8 inch	
Square D	SF	None	KYK3
Federal Pioneer	VF	3/8 inch	
Castell	K or QK	3/8 inch	

Sliding Bar Interlock

Catalog Number: SBK2

The sliding bar interlock is available for mounting between two adjacent 3-pole circuit breakers with circuit breaker centerline spacing at 5½ inches. (For field installation only.)

Walking Beam Interlock

Catalog Number: WBL2

The walking beam interlock is available for mounting between two adjacent circuit breakers spaced ¼ inch apart and having the same pole configuration. The two circuit breakers must be factory modified to accept the walking beam interlock assembly (suitable for use with either 2- and 3-pole circuit breakers). With properly modified circuit breakers, the walking beam interlock is suitable for field installation under UL File E64983 . Order circuit breakers of the type and rating required, modified for field installation of the walking beam interlock.

① UL listed for field installation under E64983.

Miscellaneous Accessories

Base Mounting Hardware
Base mounting hardware is supplied at no charge when ordered with a circuit breaker. When ordering separately, refer to price list.

Imperial Thread

Number of Poles	Description	Type of Mounting	Style Number
2-, 3-, and 4-pole	0.250-20 x 2.75 inch Pan-Head Steel Screws and Lockwashers	Individual	4218B80G03

Metric Thread

Number of Poles	Description	Type of Mounting	Style Number
2-, 3-, and 4-pole	M6 – 1.0 x 70mm Pan-Head Steel Screws and Lockwashers	Individual	4218B80G13

Earth Leakage Protection Module
Refer to Westinghouse for ratings and availability.

Seltronic Portable Test Kit

Catalog Number: STK1

For verification of performance of Seltronic trip units while in service.

Modifications

Special Calibration
For special thermal, magnetic, or frequency calibration, order by description; refer to price list.

Moisture-Fungus Treatment
Order by description; refer to price list.

Marine Applications
When Listing Mark for marine applications under UL489 is required, specify requirement when ordering. Non-aluminum terminals must be used. Refer to price list.

Series C Molded Case Circuit Breakers, J-Frame
Section 5 – Selection and Ordering Information

Door Hardware
Door hardware listed in this section may be used with Types SM and AMT handle mechanisms.

Three choices of door hardware and an auxiliary handle are offered to provide the best latching scheme for individual needs. The door hardware is designed with a provision for padlocking, and a coin-proof slot that requires the use of a tool to open the door.

Select desired hardware below. Additional latches can be ordered from accessories section if desired.

Hardware Item	Description and Catalog Numbers
	With sliding latches for smaller panels up to approx. 30" high. Catalog Numbers Right Hand: DH1R Left Hand: DH1L
	With 2 roller latches for intermediate panels up to approx. 40" high. Catalog Numbers Right Hand: DH2R Left Hand: DH2L
	With 3 roller latches for larger panels, approx. 40" and higher. Catalog Numbers Right Hand: DH3R Left Hand: DH3L
	Auxiliary handle for larger panels Catalog Numbers Right Hand: DH4R Left Hand: DH4L

Note:
Right hand enclosure cover hinged on left,
Left hand enclosure cover hinged on right.

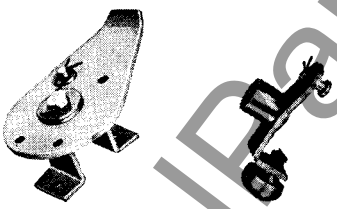
Accessories
Dress Nameplates: Required to meet automotive specifications. Mounts from inside enclosure and covers operating mechanism mounting bolts; makes mechanism non-removable when enclosure door is closed.

Style Number: 373D260G05

Electrical Interlock Kit: Provides 1 N. C. and 1 N. O. contacts (SPDT switch) for use with auxiliary circuits. Mounts to end of mechanism housing as shown.

Style Number: 622B747G01

Auxiliary Latch Kits: Provide an additional latch for use with applications where two point latching may not be adequate.



Sliding Latch **Rolling Latch**

For Door Hardware Using Sliding Latches
Right or Left Hand Mtg.: Style No. 656D669G01

For Door Hardware Using Roller Latches
Right Hand Mtg.: Style No. 370D801G04

Left Hand Mtg.: Style No. 370D802G04

Remote Mounting Kit: Enables the operating mechanism to be mounted remotely on a vertical centerline from the circuit breaker or disconnect switch.

Style Number: 505C367G01

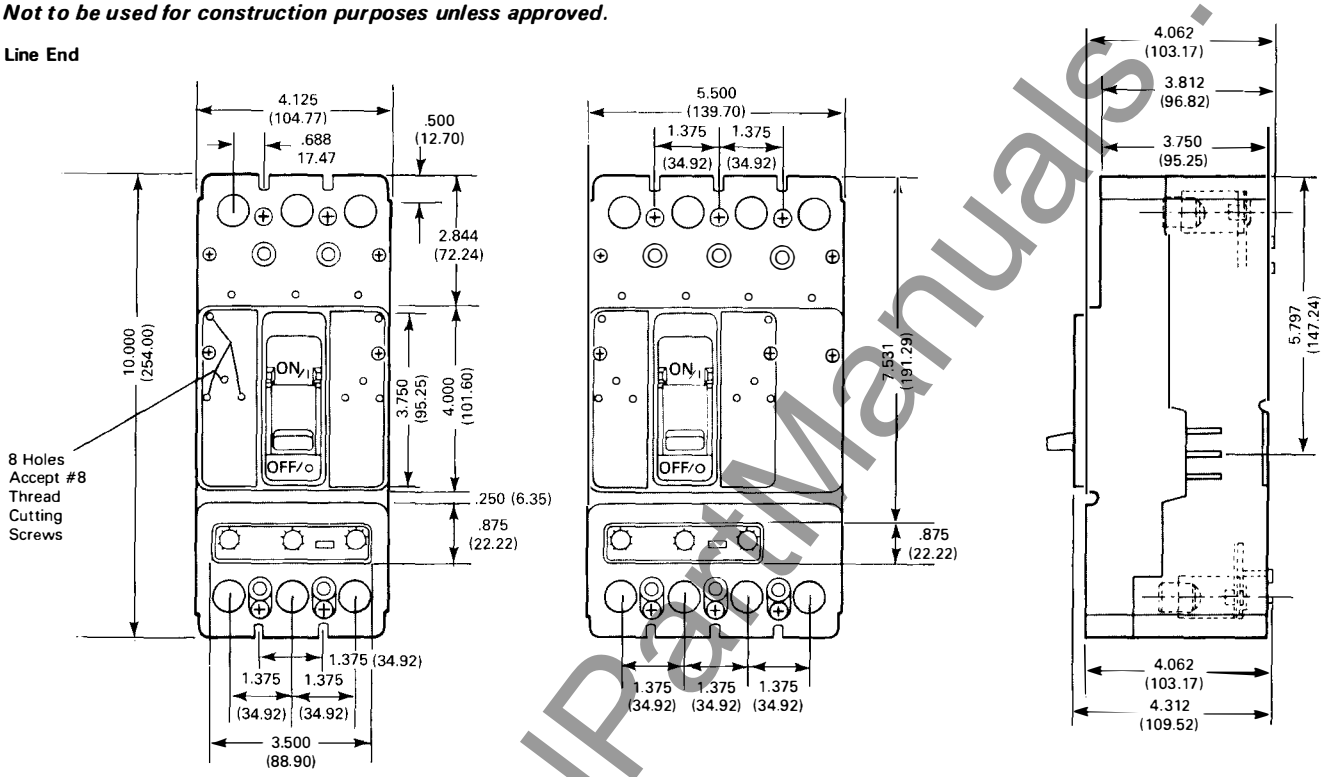
Door Operated Interlock Defeater Kit for Type SM Mechanisms
Required when door hardware is not used, operates as door closes. Additional method of securing door such as screw latch, also required (supplied by box manufacturer).

Style Number: 623B214G02

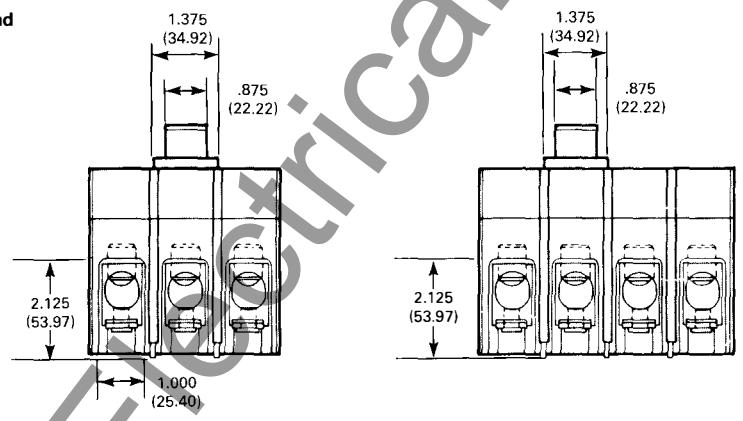
Series C Molded Case Circuit Breakers, J-Frame
Section 6 – Dimensional Data

Dimensions in Inches and (Millimeters)
Not to be used for construction purposes unless approved.

Line End



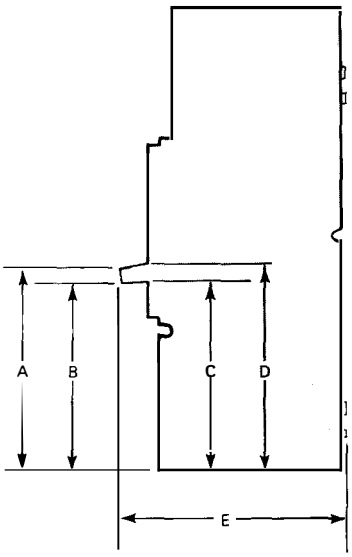
Line/Load End



Circuit Breaker Handle Travel Distances and Handle Force

Circuit Breaker Status	A	B	C	D	E	Handle Force①
On	5.535 (140.59)	5.233 (132.92)	5.110 (129.79)	5.483 (139.27)	4.717 (119.81)	32 Pounds (14.53 Kilograms)
Tripped	4.914 (124.81)	4.606 (116.99)	4.551 (115.59)	4.936 (125.37)	4.886 (124.10)	—
Off	4.341 (110.26)	4.036 (102.51)	4.067 (103.30)	4.461 (113.31)	4.949 (125.70)	22 Pounds (9.98 Kilograms)
Reset	4.205 (106.81)	3.902 (99.11)	3.954 (100.43)	5.349 (135.86)	4.952 (125.78)	38 Pounds (17.25 Kilograms)

① All handle forces measured approximately 0.125 (3.17) from top of handle

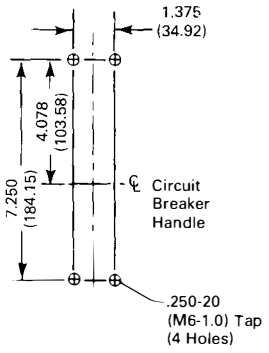


Series C Molded Case Circuit Breakers, J-Frame
Section 6 – Dimensional Data

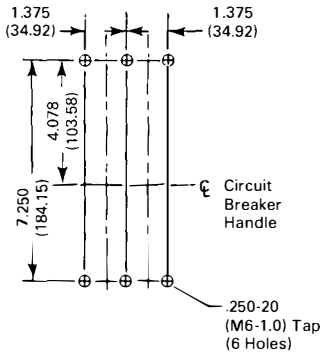
Front Connected Drilling Plan

Line End

2 & 3-Pole



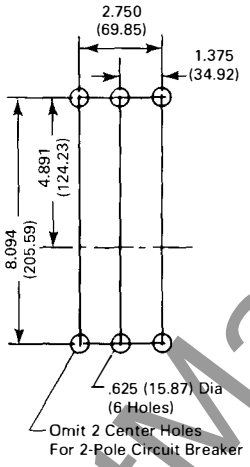
4-Pole



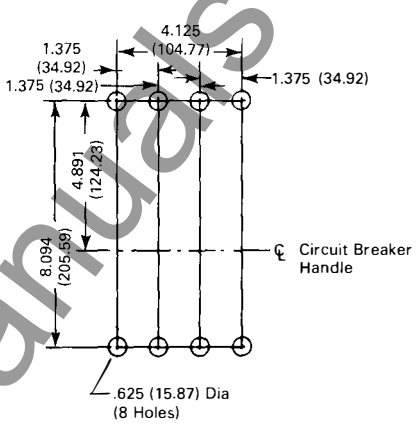
Rear Connected Drilling Plan

Line End

2 & 3-Pole

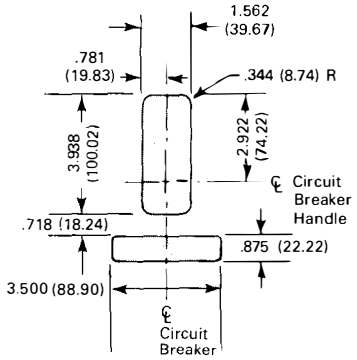


4-Pole

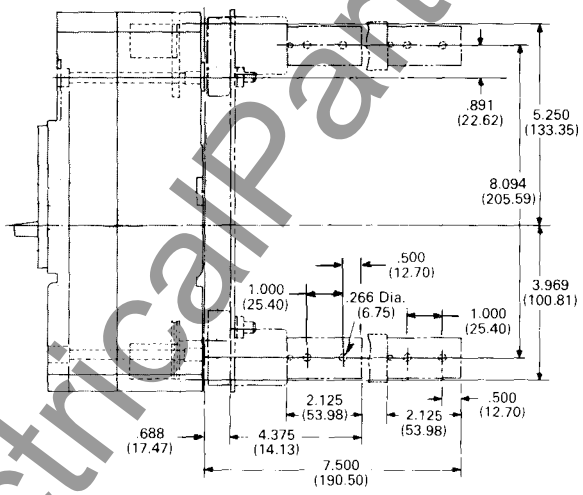


Front Cover Cutout

Line End



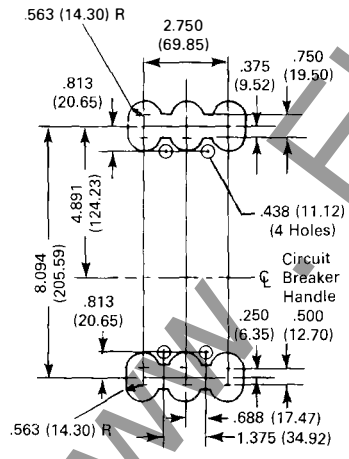
Plug-in Adapter



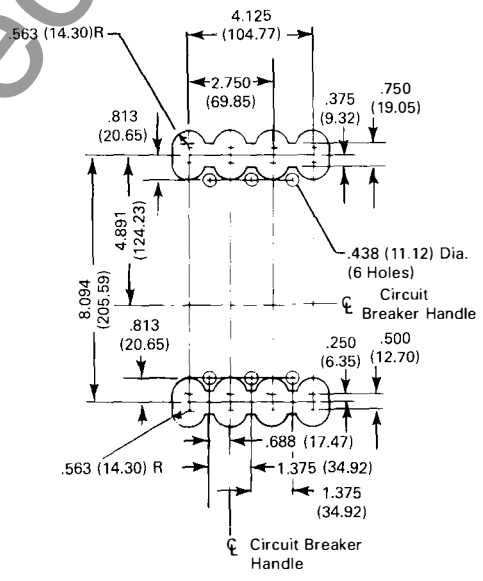
Plug-in Adapter Drilling Plan

Line End

2 & 3-Pole



4-Pole



J-Frame Circuit Breaker Approximate Shipping Weights

2-pole JD/HJD Frame: 9 lb (4.10 kg)
2-pole JDC Frame: 10 lb (4.55 kg)
3-pole JD/HJD Frame: 10 lb (4.55 kg)
3-pole JDC Frame: 11 lb (5.00 kg)
4-pole JD/HJD Frame: 13 lb (5.90 kg)
4-pole JDC Frame: 15 lb (6.80 kg)

2-, 3-pole JT Trip Unit: 2 lb (0.90 kg)

Terminal Weights
TA250KB: 0.07 lb (0.03 kg)
T250KB: 0.16 lb (0.07 kg)

Series C Molded Case Circuit Breakers, J-Frame
Section 7 – Guide Specifications

Typical Specifications For Series C Molded Case Circuit Breakers

Electrical circuits shall be protected by Series C Molded Case Circuit Breakers as manufactured by Westinghouse Electric Corporation.

Each pole of the 2- and 3-pole circuit breakers shall provide complete circuit overcurrent protection by having inverse time and instantaneous tripping characteristics and, where applicable, be current limiting.

The circuit breakers shall be operated by a toggle type handle and shall have a quick-make, quick-break, over-center switching mechanism that is mechanically trip free from the handle so that the contacts cannot be held closed against short circuit currents. Tripping due to overload or short circuits shall be clearly indicated by the position of the handle. The ON and OFF positions shall be clearly marked on the cover of the circuit breaker along with the international symbols 1 for ON and 0 for OFF providing positive indication of the circuit breaker contact position. Additionally, a color-coded indication of the circuit breaker contact position shall be provided: red for ON, green for OFF, and white for tripped. An easily accessible Push-to-Trip button for mechanically exercising the trip unit shall be provided on the cover of each circuit breaker. All poles of a multi-pole circuit breaker shall be so constructed as to ensure simultaneous open, close, and trip operations.

Circuit breakers shall be completely enclosed in a high strength glass-polyester case. Non-interchangeable trip circuit breakers shall be factory sealed; interchangeable trip circuit breakers shall have the trip unit sealed to prevent tampering. Ampere ratings shall be clearly visible from the front of the circuit breaker. Contacts shall be non-welding silver alloy. Arc extinction shall be accomplished by means of DE-ION® arc chutes, consisting of metal grids mounted in an insulating support.

The minimum interrupting ratings of the circuit breakers shall be at least equal to the available short circuit current at the line terminals. Where applicable, circuit breakers shall be UL listed for series tested application.

Circuit breakers in the 150A frame size shall be supplied in 1-, 2-, 3-, and 4-pole models, as specified on the drawings. Circuit breakers in frame sizes 250A through 1600A shall be supplied in 2-, 3-, or 4-pole models, as specified on the drawings.

Circuit breakers in frame sizes 100A through 600A shall be equipped with thermal-magnetic trip units. Circuit breakers in 800A and through 1600A frame sizes shall be equipped with electronic trip units that are insensitive to changes in ambient temperature within the normal operating temperature range of the circuit breaker. The 250A, 400A, 600A, and 630A frame sizes shall be designed to accept either thermal-magnetic or electronic interchangeable trip units.

Circuit breakers shall be listed with Underwriters Laboratories, Inc. under standard UL489, conform to the applicable requirements of NEMA Standards Publication AB1-1975, meet the appropriate classifications of Federal Specifications W-C-375b, and/or comply with the requirements of International Electrotechnical Commission Standard IEC 157-1.

Circuit breaker ratings and modifications shall be indicated on the drawings.

Molded case circuit breakers shall be of the inverse time and instantaneous trip type as provided by thermal-magnetic or electronic trip elements with either standard interrupting, high interrupting, or current limiting characteristics as shown in Section 1 of this frame book. These circuit breakers shall be listed per UL489.

Molded case circuit interrupters (motor circuit protectors) shall be of the instantaneous (magnetic) only type, providing instantaneous short circuit protection by means of a front-adjustable trip unit. Instantaneous-only circuit interrupters shall be component recognized per UL489.

Molded case switches shall be of the same construction as the related listed circuit breaker and equipped with a factory sealed, nonadjustable, high instantaneous-only short circuit protection.

Molded case switches shall have no overload or low-level fault protection provided and shall be marked with a maximum withstand rating denoting the type and level of upstream protection required. Molded case switches shall be listed per UL1087.

Electrical characteristics of accessories shall be as indicated on the drawings.

Internally mounted accessories including alarm (signal)/lockout switches, auxiliary switches, shunt trips, and undervoltage release mechanisms shall be of the plug-in type and shall be listed for field installation in circuit breakers which are not factory sealed.

Accessory wiring shall be brought out through the side or rear of the circuit breaker, or be connected to a terminal block mounted on the side of the circuit breaker, as specified. The ability to route accessory wiring to the opposite side of the circuit breaker through a trough in the base shall be provided.

Electrical operators for circuit breakers of the 400A frame size and below shall be of the solenoid type with maximum 5-cycle closing characteristics. Electrical operators for circuit breaker frame sizes 600A through 1600A shall be of the motor driven type with an optional 2-step stored energy mechanism providing minimum 5-cycle closing. All electrical operators shall be cover mounted. All electrical operators shall be listed for field installation per UL489.

Circuit breakers shall be provided with uniformly designed nameplates to clearly indicate the type, rating, listing/recognition/certification marks, accessory details, and other information defined in UL489.

All terminals shall comply with UL486A or UL486B Standards and CSA Standard C22.2 No. 65 or Bulletin 1165. Torque markings shall be provided.

Series C Molded Case Circuit Breakers, J-Frame

Westinghouse Electric Corporation
Distribution and Control Business Unit
Components Division
Beaver, Pennsylvania U.S.A. 15009

Printed in U.S.A.

January, 1987

Westinghouse Electric Corporation
Distribution and Control Business Unit
Electrical Components Division
Pittsburgh, Pennsylvania, U.S.A. 15220

August 1, 1988
New Information
Mailed to: E, D, C/29-100A

Series C® J-Frame Molded Case Circuit Breakers

UL Listed DC Circuit Breakers

These new UL Listed DC Molded Case Circuit Breakers are for use in the ungrounded battery supply circuits of UPS systems providing continuous, reliable AC power to computer controlled applications such as financial transactions and telecommunications.

These devices are an excellent alternative to molded case switches and fuses because they are easier to install, and require less maintenance.

- Type HJDDC (250A) are thermal magnetic type devices and have interrupting ratings of 30 kA at 500 VDC nominal with 3 poles in series.

DC Circuit Breaker Ratings

Breaker Type			HJDDC*
Maximum Ampere Rating			250
Standard	Voltage	Freq.	kA Interrupting Capacity
	384①	DC	30
UL 489	500①	DC	30

*8 milliseconds time constant.
① 3 Poles in series

Accessories

The HJDDC circuit breaker uses the same accessories used on the Series C J-frame circuit breaker.

Frame and Trip Unit

Catalog Number	Trip Unit	Ampere Rating
Series C J Frame		
HJDDC3250F		250
	JT3070T	70
	JT3090T	90
	JT3100T	100
	JT3125T	125
	JT3150T	150
	JT3175T	175
	JT3200T	200
	JT3225T	225
	JT3250T	250

Terminals

Use standard Cu/Al or optional copper only terminals for Series C J-frame breaker as shown in Frame Book 29-102.

Shorting Straps For Series Connecting Poles (Package of 2)

Breaker Frame	Catalog Number
HJDDC	SS250

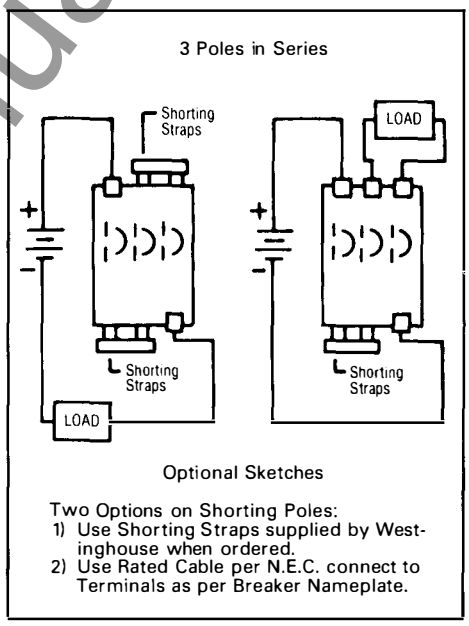


Fig. 1. Series Connection Diagrams.

Order as Follows:

Type HJDDC
1 .... amp breaker without terminals consisting of:
1 - HJDDC3250F frame
1 - Trip unit (specify catalog number)
Accessories as required

Note: Shorting straps and/or terminals are to be ordered as separate items.