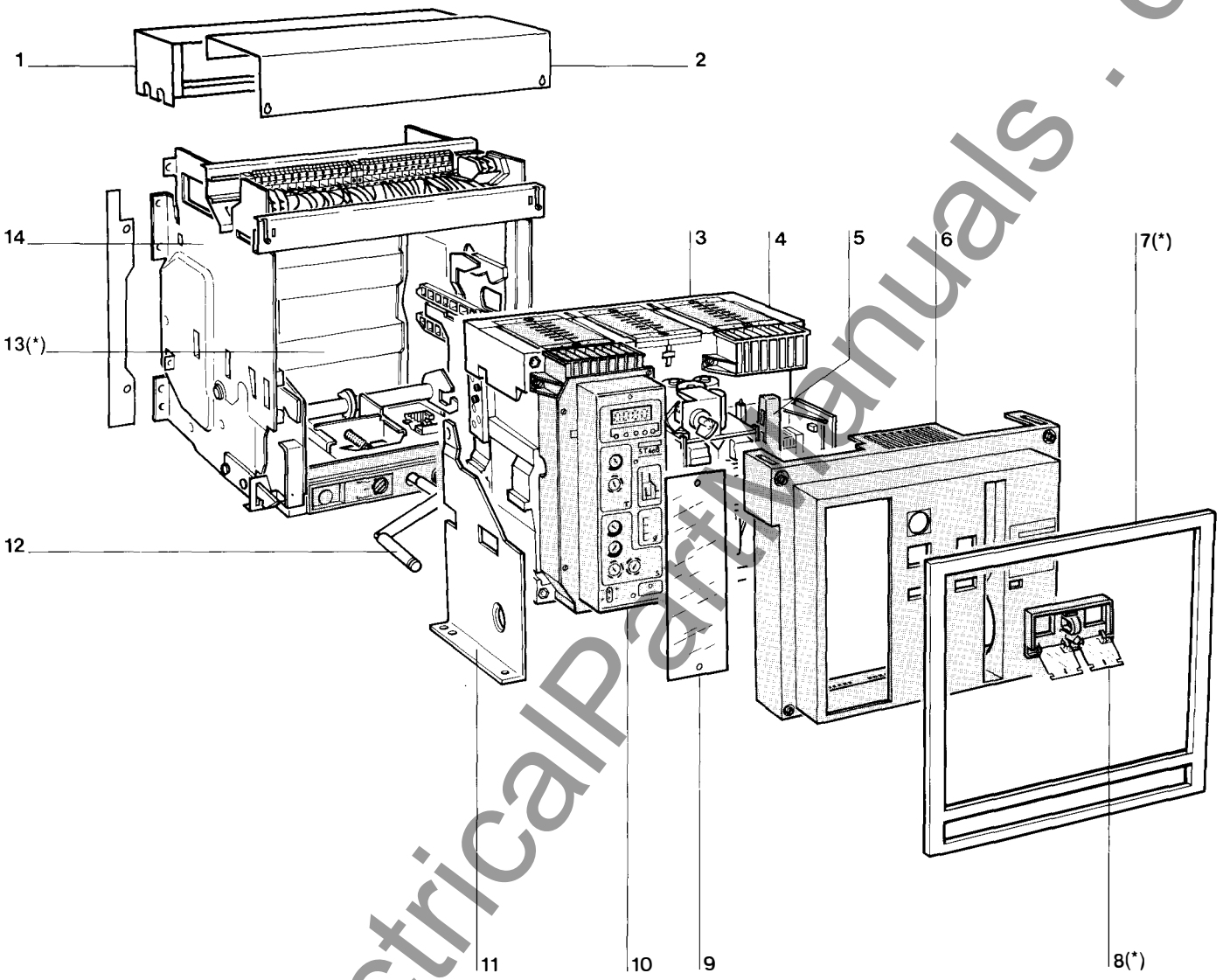
Masterpact™ circuit breaker table of contents

Masterpact™ circuit breaker description



(1) arc chute cover (drawout only)
(2) removable control terminal cover
(3) arc chute
(4) circuit breaker
(5) charging handle
(6) front insulated cover
(7) door escutcheon
(8) padlockable pushbutton cover
(9) clear protective control cover
(10) control unit
(11) mounting plate (fixe version only)
(12) racking crank
(13) safety shutters
(14) self standing cradle

(*) : optional equipment

Masterpact™ circuit breaker advantages

main features

simple cradle installation

- self standing cradle assembly fixed by 4 bolts on a shelf or 2 cross members
- no safety clearances or insulation are needed above arc chute cover or from the side of drawout breaker (see page 6).

single size up to 3000A

- standardization of installation design

common door cut-out up to 6300A

- standardization of installation design

reverse feeding

- flexibility of connection
- cost effective connection solution

serviceability

- removable front insulated cover allows full front access to mechanism, control unit and field installable accessories
- top removable arc chutes, for main contact inspection
- removable control terminal cover allows full front access to secondary disconnects
- all control functions are isolated and insulated from main contacts

common wiring and controls

- secondary control terminal numbers standardized to 6300A
- control accessories interchangeable up to 6300A
- few spare parts to stock

Masterpact™ circuit breaker advantages

Masterpact is a unique power circuit breaker, bringing all the advantages of an advanced technology using a high strenght polyester casing to an air circuit breaker design

- high reliability by reducing the number of components compared to a metal frame
- field installable and common accessories from 800 to 6300A
- double insulation
- segregation of main contacts
- high dielectric withstand

Masterpact exceeds all the characteristics usually found in a power circuit breaker

- true 2 step stored energy mechanism
- high short time current up to 100kA for 1 second
- 100% rated for continuous current
- high endurance (mechanical & electrical)
- high interrupting capability without the need of instantaneous tripping up to100kA 600V.
- easy replacement of the worn components and main contacts
- withdrawable up to 6300A with the door closed
- ANSI and UL ratings

Masterpact can be used either in dead front electrical switchboards built per UL 891 or in metal enclosed LV power CB switchgear built per ANSI C 37-20-1

- type MP which is listed per UL 489 is intended to be mounted in switchboards
- type MC which is ANSI rated per ANSI C 37-13 is intended to be mounted in switchgear

Masterpact™ circuit breaker advantages

when the Masterpact is installed

door closed

■ all information and operations are accessible:
- ☐ opening/closing push buttons (padlockable)
- ☐ control unit indications and settings (sealed clear cover)
- ☐ stored energy mechanism status
- ☐ main contact position and locking in open position
- ☐ position indicator "connected","test","disconnected", locking features
- ☐ stored energy mechanism charging handle
- ☐ fault trip indicator/breaker reset button
- ☐ operation counter (optional)

■ door interlock prevents opening the door when breaker is connected (optional)

■ racking crank storage (the drawout assembly mechanism allows the breaker to be racked in 4 positions : connected, test, disconnected and withdrawn)

■ locking facilities by lock or padlock

■ door escutcheon allowing door adjustment and better breaker appearance

door open

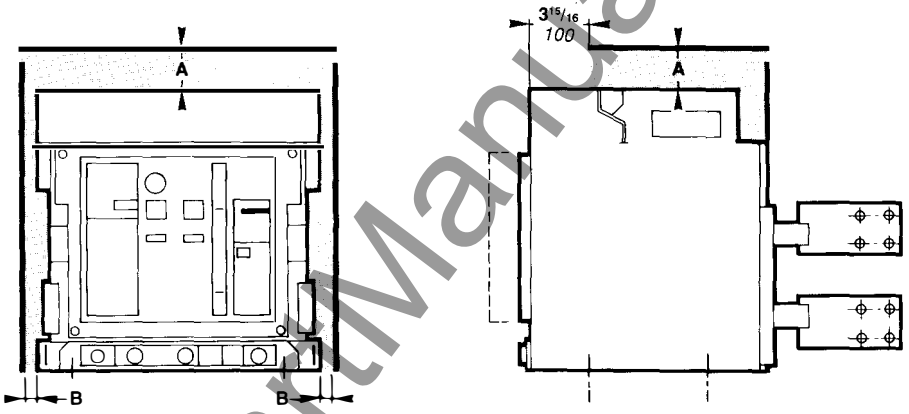
■ all control accessories and secondary disconnects are accessible from the front with the breaker in service position

■ optional automatic insulated safety shutters protect live parts when the breaker is removed

Masterpact™ circuit breaker safety clearances

The following tables give the clearances around the circuit breaker necessary to guarantee safe interruption of short-circuit current.
Dimensions given for the maximun interrupting current of the circuit breaker.

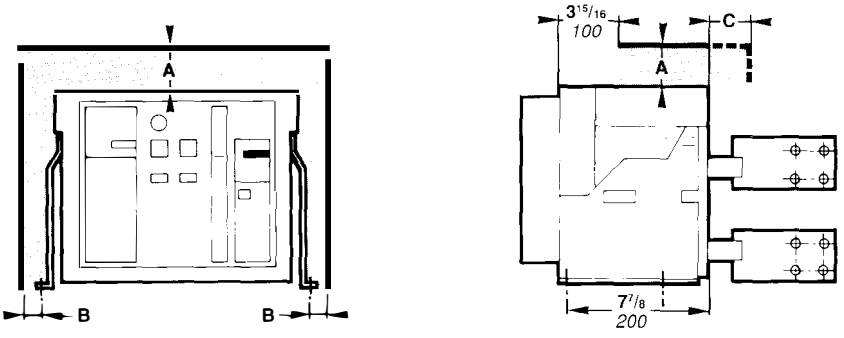
drawout circuit breaker (with arc chute cover)



dimensions

Masterpact		to insulating parts A	to insulating parts B	to metallic parts A	to metallic parts B
MP 08 to **MP 63**	**inch**	**0**	**0**	**0**	**0**
MC 08 to **MC 50**	*mm*	*0*	*0*	*0*	*0*

fixed breaker



dimensions

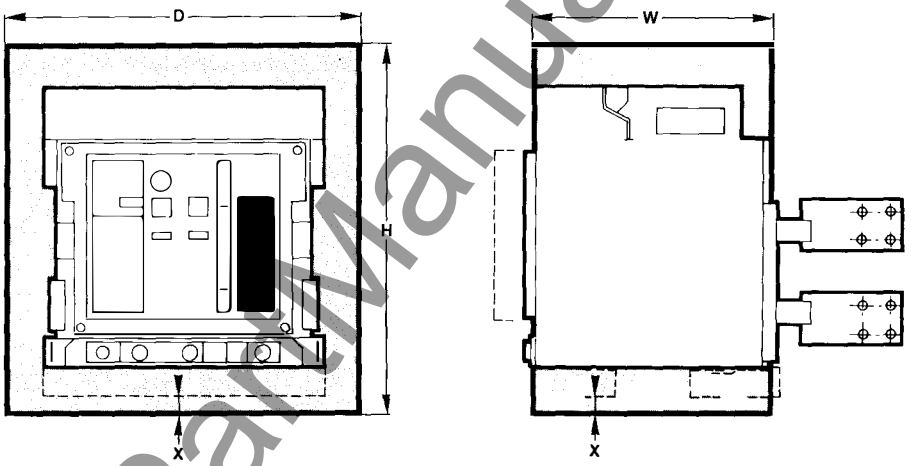
Masterpact		to insulating parts A	to insulating parts B	to insulating parts C	to metallic parts A	to metallic parts B	to metallic parts C
MP 08 to **MP 50**	**inch**	**6**	**13/16**	**13/16**	**10**	**2 3/4**	**3 3/4**
	mm	*150*	*30*	*20*	*250*	*70*	*95*

Masterpact™ circuit breaker compartment dimensions

The following tables indicate the minimun compartment size in which Masterpact has been tested and is suitable for continuous operation at 100% rating.

In some cases, ventilation both at top and bottom of the compartment is required. Dimension X helps to determine the position of the circuit breaker in the compartment.

drawout circuit breaker (with arc chute cover)

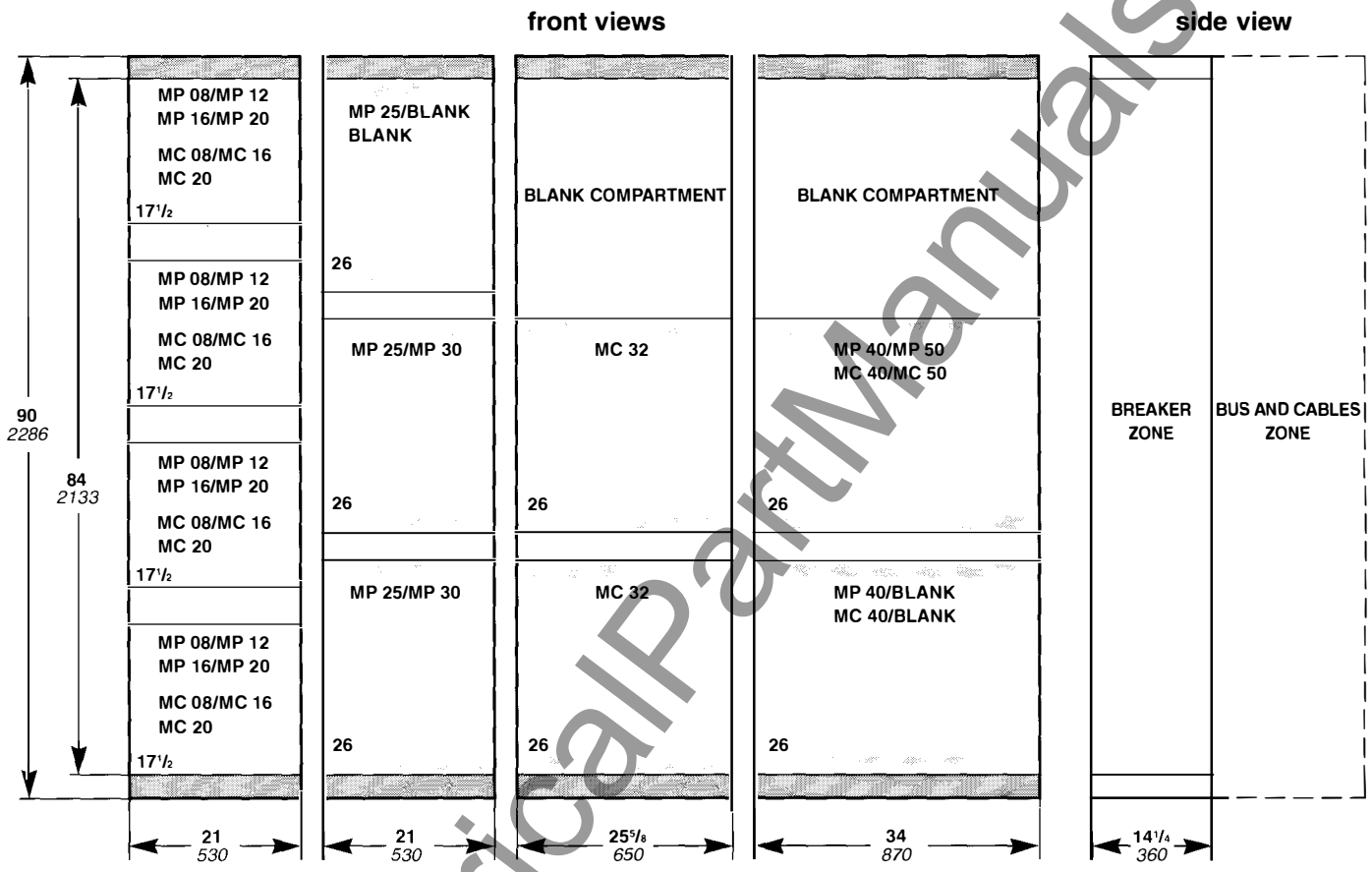


dimensions

Masterpact		MP 08 to MP 20	MP 25 to MP 30	MP 40 to MP50	MC 08 to MC 20	MC 32	MC 40 to MC 50
H	**inch** *mm*	**17 1/2** *440*	**26** *660*	**26** *660*	**17 1/2** *440*	**26** *660*	**26** *660*
W	**inch** *mm*	**21** *530*	**21** *530*	**34** *870*	**21** *530*	**25 5/8** *650*	**34** *870*
D	**inch** *mm*	**14 1/4** *360*	**14 1/4** *360*	**14 1/4** *360*	**14 1/4** *360*	**14 1/4** *360*	**14 1/4** *360*
X mini	**inch** *mm*	**0** *0*	**0** *0*	**4 3/8** *110*	**0** *0*	**4 3/8** *110*	**4 3/8** *110*
ventilation (BOTH TOP & BOTTOM)	**sq.inch** *cm^2*	**no** *no*	**30** *200*	**30** *200*	**no** *no*	**30** *200*	**30** *200*

Masterpact™ circuit breaker switchboard and switchgear arrangement

The following tables show some possible arrangements when stacking Masterpact. These examples could be done when Masterpact is used either as a main, a tie or a feeder breaker.



Note: the depth of the breaker zone (14¼) corresponds to the depth of the breaker compartment (see page 7).

■ as mentionned in the NEC 380-8, all switches and circuit breakers used as switches shall be located so that they may be operated from a readily accessible place. They shall be so installed that the center of the grip of the operating handle of the switch or circuit breaker, when in its highest position, will not be more than 6½ feet above the floor or working platform.

■ customer allowable cumulative loading is as recommended in ANSI C 37.20.1 (See page 9).

Masterpact™ circuit breaker switchboard and switchgear arrangement

cumulative loading

■ the following table gives values of the allowable cumulative loading per section.

Masterpact type		number of breakers carrying load frame size (A)		allowable cumulative load
MP 08	**MC 08**	800	1	800 *
			2	1300 *
			3	1800 *
			4	2200 *
MP 12		1200	1	1200
			2	1900
			3	2700
			4	3400
MP 16	**MC 16**	1600	1	1600 *
			2	2600 *
			3	3600 *
			4	4500 *
MP 20	**MC 20**	2000	1	2000 *
			2	3200 *
			3	4500
			4	5600
MP 25		2500	1	2500
			2	4000
			3	5600
MP 30		3000	1	3000 *
			2	4800 *
	MC 32	3200	1	3200
			2	5100
MP 40	**MC 40**	4000	1	4000 *
			2	6400
MP 50	**MC 50**	5000	1	5000

(*) : ANSI C 37.20.1 values

Note: allowable cumulative loading can be based on equal loading or higher loading in the lowest compartment.

Masterpact™ circuit breaker derating

temperature derating

■ the continuous current rating of Masterpact breakers is based on their use in an enclosure in a 40°C ambient temperature. Continuous current ratings of Masterpact breakers must be derated for ambient temperatures above 40°C as indicated in the following tables.

Masterpact		MP 08H	MP 12H	MP 16H	MP 20H	MP 25H	MP 30H	MP 40H	MP 50H	MP 63H
type	T°C									
drawout	40	800	1200	1600	2000	2500	3000	4000	5000	6300
	45	800	1200	1600	2000	2500	2900	3900	5000	6000
	50	800	1200	1550	2000	2500	2750	3700	4800	5700
	55	800	1150	1450	1900	2400	2600	3500	4500	5400
	60	800	1100	1350	1800	2300	2450	3300	4200	5100
fixed	40	800	1200	1600	2000	2500	3000	4000	5000	
	45	800	1200	1600	2000	2500	3000	4000	5000	
	50	800	1200	1600	2000	2500	2900	3900	5000	
	55	800	1200	1550	2000	2500	2600	3700	4800	
	60	800	1150	1450	1900	2400	2450	3300	4500	

Masterpact		MC 08N	MC 08H	MC 16H	MC 20H	MC 32H	MC 40H	MC 50H
type	T°C							
drawout	40	800	800	1600	2000	3200	3750	5000
	45	800	800	1500	2000	3000	3550	4800
	50	800	800	1400	1900	2800	3350	4500
	55	750	750	1300	1500	2600	3050	4200
	60	700	700	1200	1700	2420	2850	3800

Masterpact™ circuit breaker connection

busbar connections

■ the values indicated in the table have been extrapolated from test data based on UL 891.
They can only act as a guide and cannot replace industrial experience or a temperature rise test.

Masterpact	MP 08 MC 08	MP 12	MP 16 MC 16	MP 20 MC 20	MP 25	MP 30	MC 32	MP 40 MC 40	MP 50 MC 50	MP 63
copper busbars										
quantity	1	2	2	2	2 or 4	4 or 3	3	4 or 5	6 or 5	6
size	$^1/_4$ x 3	$^1/_4$ x 3	$^1/_4$ x 3	$^1/_4$ x 4	$^1/_4$ x 5 or $^1/_4$ x $2^1/_2$	$^1/_4$ x 4 or $^1/_4$ x 6	$^1/_4$ x 6	$^1/_4$ x 5 or $^1/_4$ x 4	$^1/_4$ x 5 or $^1/_4$ x 6	$^1/_4$ x 6

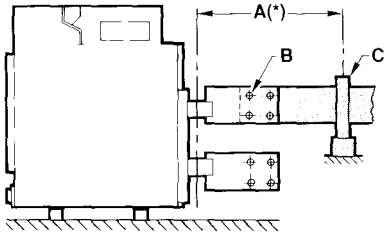
Masterpact™ circuit breaker connection

busbar connections

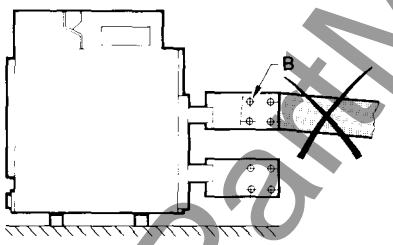
■ the busbars should be suitably adjusted to ensure that the connection points are positioned on the terminal pads before the bolts are inserted in **B**.

The connections are held by the support which is solidly fixed to the framework of the board, so that the circuit breaker terminal pads do not have to support its weight **C**.

Refer to the table in next page for dimension **A**.



(⋆) : see page 13



cable connections

If the link is in the form of cables, it is again essential to ensure the mechanical stresses are not applied to the circuit breaker terminal pads. Vertical terminal pads are thus recommended, and they should be arranged as indicated below :

■ with busbar extensions

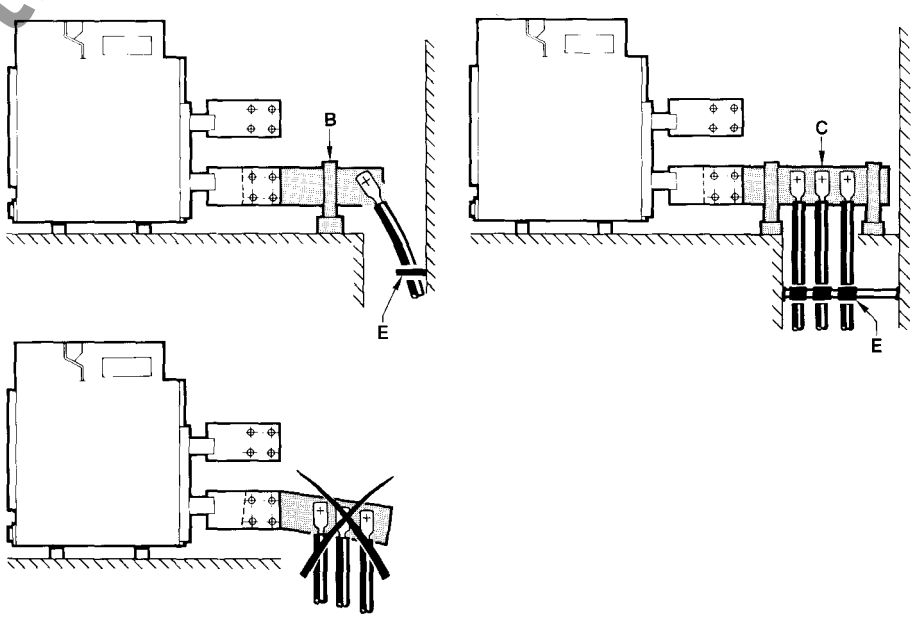
□ if the circuit has only a single cable, use the method indicated **B**

□ if the circuit has several cables, use a method like **C.**

■ in all cases, follow the same general rules as for busbars:

□ cable ends correctly positioned before the bolts are inserted.

□ cables held solidly and solidly fixed to the frame work **E**.



Masterpact™ circuit breaker connection

electrodynamic stresses

■ the first busbar support or spacer shall be situated at a maximum dimension from the connection point of the breaker.

■ this dimension **A** must be maintained to allow the electrodynamic stresses between phases to be withstood in the event of a short circuit.

maximum dimension between circuit breaker horizontal terminals (fixing point of the extention members) and the first support or spacer with respect to the value of the prospective short circuit current.

Masterpact	s/c current (kA rms)		30	50	65	80	100	150
MP 08 to MP 16	dimension	inch	13 3/4	11 7/8	9 7/8	7 7/8	6	6
MC 08 to MC 16	A	*mm*	*350*	*300*	*250*	*200*	*150*	*150*
MP 20 to MP 63	dimension	inch	13 3/4	11 7/8	9 7/8	7 7/8	7 7/8	7 7/8
MC 20 to MC 50	A	*mm*	*350*	*300*	*250*	*200*	*200*	*200*

clamping

■ correct clamping of busbars depends amongst other things, on the tightening torques used for locking the nuts and bolts. Too great a tightening may result in the same difficulties as insufficient tightening.

For connecting busbars to the circuit breaker, the tightening torques to be used are shown in the opposite table. These values are for use with copper busbars and for high strengh nuts and bolts.

tightening torques

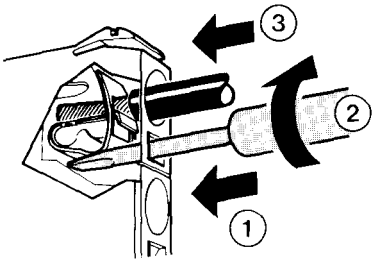
bolt size Inch *mm*	Ø drilling inch *mm*	tightening torque with washers: grooved or flat Lb.in *m.daN*	Belleville Lb.in *m.daN*
3/8 *10*	7/16 *11*	332 *3.75*	375 *4.25*

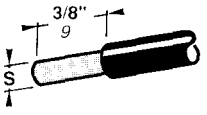
Use the same torque value for aluminium busbars of quality standard AGS-T52.

secondary disconnects

■ quick connection of the auxiliary circuits is possible as accessory terminals are of screwless type and may be connected by standard copper wires 18 to 14 AWG.

detail of the accessory terminal

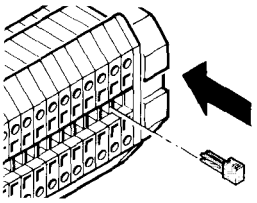




18 to 14 AWG
0,6 ≤ S ≤2,5mm²

■ to connect more than one wire to same terminal, use jumper terminal block

detail of the jumper terminal block



Masterpact™ circuit breaker design considerations

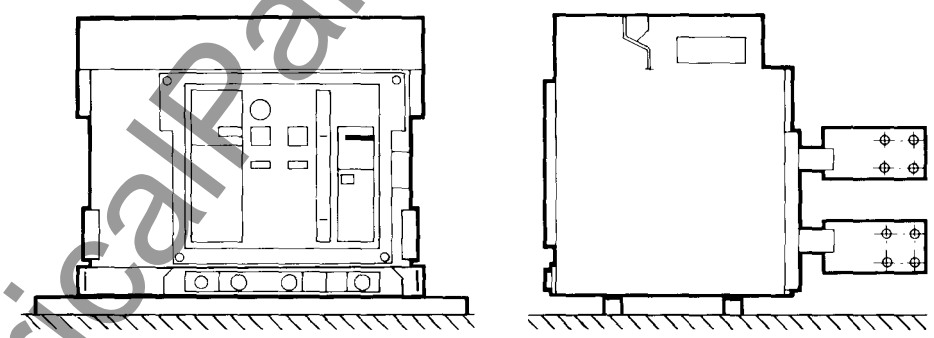
breaker weights (lbs)

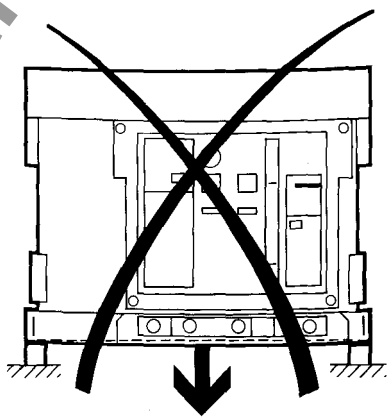
Masterpact	MP 08	MP 12	MP 16	MP 20	MP 25	MP 30	MP 40	MP 50	MP 63
type									
fixed	105	105	120	160	260	260	300	390	
drawout	150	150	165	215	365	365	560	650	715
Masterpact	**MC 08**	**MC 16**	**MC 20**	**MC 32**	**MC 40**	**MC 50**			
type									
drawout	150	165	215	410	560	650			

mounting the circuit breaker

■ it is important to distribute the weight of the equipement uniformily over a rigid mounting surface such as crossbeams or a metal floor for exemple.

This mounting plate should be perfectly flat : this eliminates any risk of deformation which could interfere with a correct operation of the circuit breaker.





Masterpact™ circuit breaker design considerations

power dissipation

■ power is given in WATTS.
Measured values for 3p circuit breakers at rated current, 40°C.

Masterpact	MP 08	MP 12	MP 16	MP 20	MP 25	MP 30	MP 40	MP 50	MP 63
type									
fixed	43	95	170	166	305	440	448	700	
drawout	97	220	390	333	490	705	736	1150	1200
Masterpact	**MC 08**	**MC 16**	**MC 20**	**MC 32**	**MC 40**	**MC 50**			
type									
drawout	97	390	333	800	736	1150			

Note : these values reflect our extensive heat run testing and reflect the total heating effect rather than the heating caused by I^2R losses alone.

resistance

■ resistance between line and load terminals.
Values measured per pole in micro-ohms.

Masterpact	MP 08	MP 12	MP 16	MP 20	MP 25	MP 30	MP 40	MP 50	MP 63
type									
fixed	14	14	14	8	10	10	10	10	
drawout	32	32	32	17	15	15	9	9	9
Masterpact	**MC 08**	**MC 16**	**MC 20**	**MC 32**	**MC 40**	**MC 50**			
type									
drawout	32	32	17	15	9	9			

altitude correction factors

■ when applying Masterpact at altitudes greater than 6600ft., their continuous current rating must be modified.
The voltage ratings must also be modified. Breaking capacities remain unchanged.

altitude	ft	6600	9900	13200
	m	*2000*	*3000*	*4000*
continuous current correction factor		1.00	0.99	0.96
voltage correction factor		1.00	0.89	0.79

Masterpact™ circuit breaker design considerations

tropicalisation	■ the standard moisture and fungus protection ensure normal operation under extreme ambient conditions. Masterpact breakers comply with T2 tropicalization (IEC standard 62 30) relative humidity 95% and 113°F (45°C) and 80% at 131°F (55°C) (hot-humide climate). Salt spray resistance as per IEC 68.2.11.
vibration	■ the Masterpact range is in accordance with requirements of LLYOD'S-RINA and VERITAS NI 122E standards. Test reports available on request.
mechanical shock	■ Masterpact MP 08 to MP 30 and MC 08 to MC 32 drawout versions are shock tested on 3 axis at 15G/10 milliseconds ; semi-sinusoidal pulse. Other ratings : consult us.
dielectric withstand voltages	■ main circuit : 3500V/1 minute ■ secondary circuit : 2500V/1 minute

Masterpact™ MP circuit breaker

page

table of contents

refer to technical manual for :

- control units
- time-current curves
- wiring diagrams
- dimensions
- maintenance
- endurances

introduction

Instructions are to be followed when receiving the breaker and before installing it.

tools needed

- hex key wrenches
- straight blade scewdriver (large and small)
- wire stipper

recommendations for storing

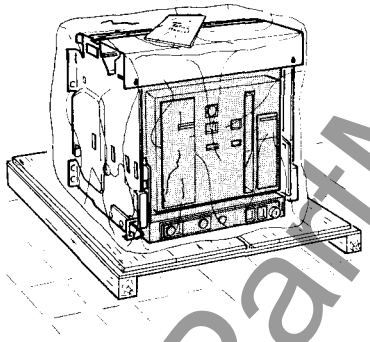
it is not recommended to store the breakers in corrosive or salt laden environment.

Temperature limits :
from -60°F (-50°C) min to +160°F (+70°C)max

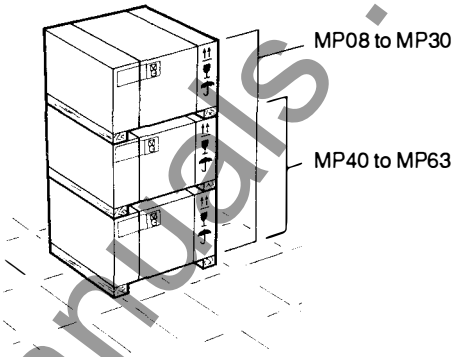
Breaker status :

- main contacts open
- spring discharged
- connected position

Do not store breaker without its original shipping carton or any protective covering.

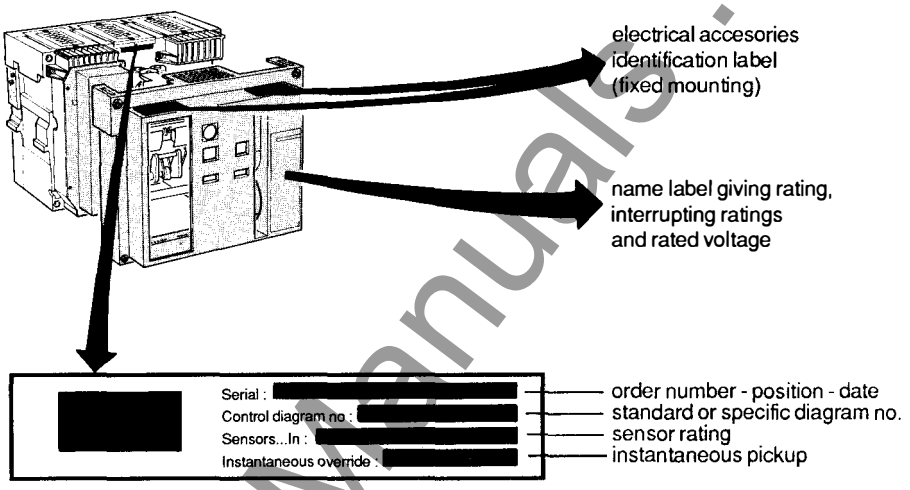


Stacking :
maximum permitted :

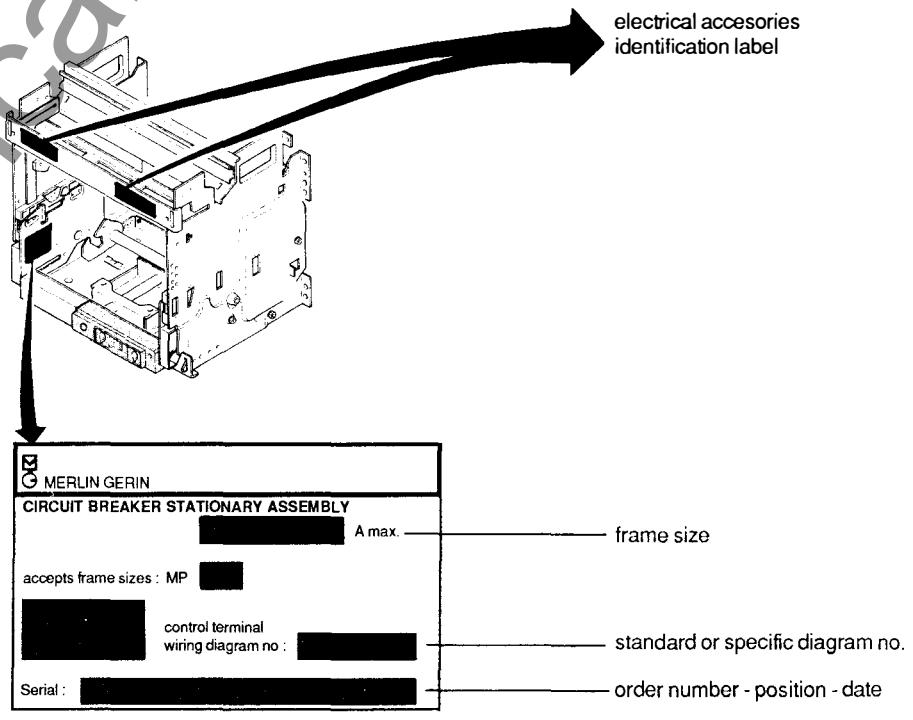


identifying your Masterpact™
location of markings

circuit breaker frame



stationary assembly

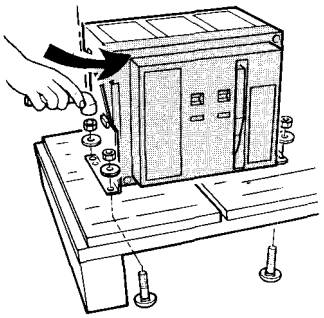


unpacking

MP08 to MP30

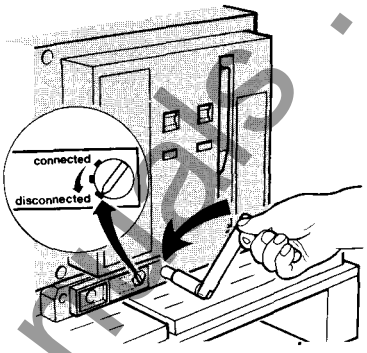
Breakers are screwed on their palett by means of 4 bolts.
With drawout mounting, it is necessary to withdraw and remove the breaker to have access to the bolts.

fixed mounted

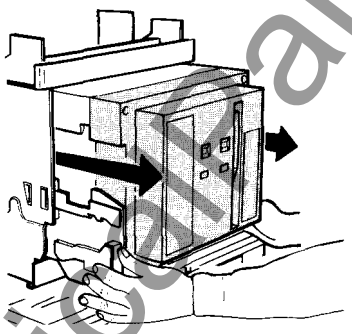


remove the four bolts

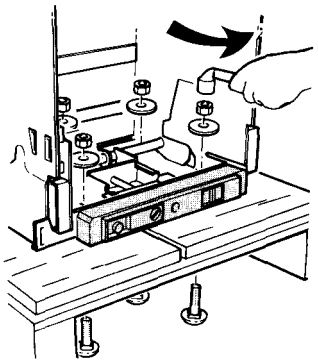
drawout mounted



disconnect the breaker (see page 12) and remove it from its stationary assembly (see page 13)

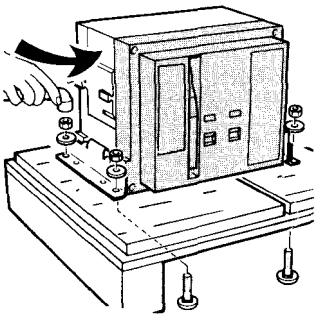


pull the two handgrips to extract the breaker

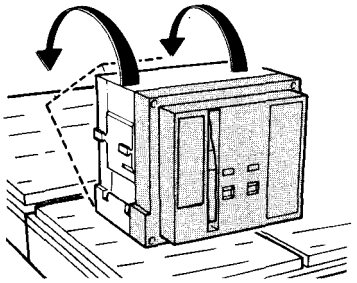


remove bolts, nuts and washers

drawout mounted without stationary assembly



remove the 4 shipping bolts

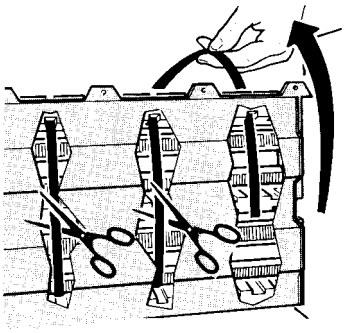


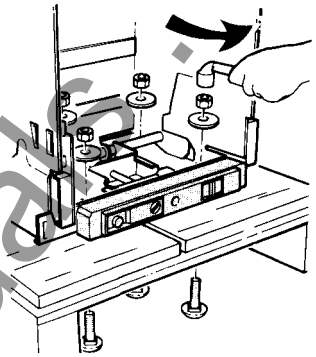
breaker is delivered upside down. Place another palett next to shipping palett. Rotate breaker onto terminals, then onto its bottom on second palett

unpacking (cont'd)

MP08 to MP30

stationary assembly only

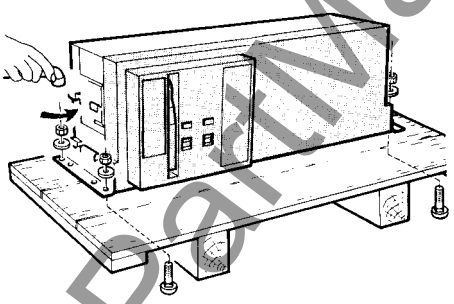




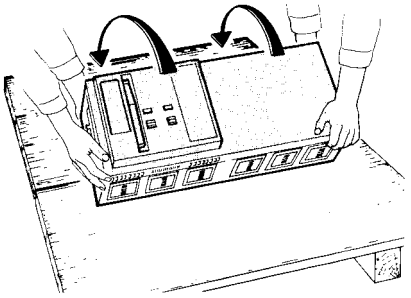
remove the tap holding the safety shutters (if any)

MP40 to MP63 drawout mounted

circuit breaker frame

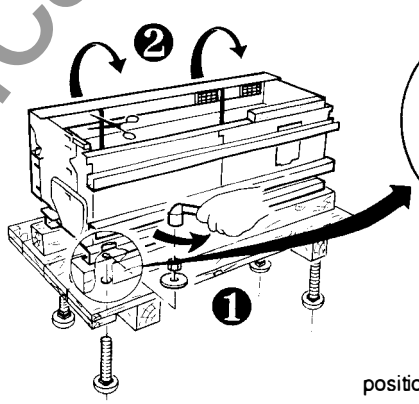


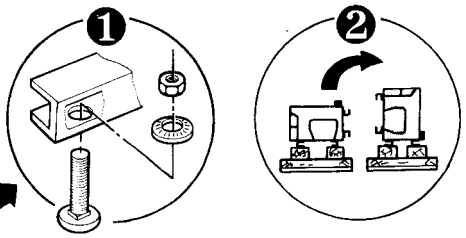
remove the 4 shipping bolts



breaker is delivered upside down. Place another palett next to shipping palett. Rotate breaker onto terminals, then onto its bottom on second palett

stationary assembly





❶
remove the 4 shipping bolts

❷
position another wooden palett and rotate the frame

❸
remove the plastic caps

handling

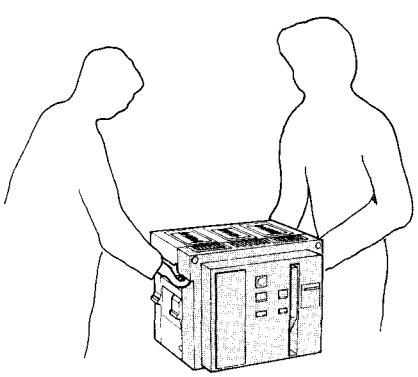
MP08 to MP30

The Masterpact frame and its stationary assembly are provided with lateral handles in order to facilitate lifting.
Before handling it is suggested to remove the breaker from its stationary assembly.
See page 12 for operation.
External or overhead lifting device can use the lateral handles for lifting the circuit breaker as shown.

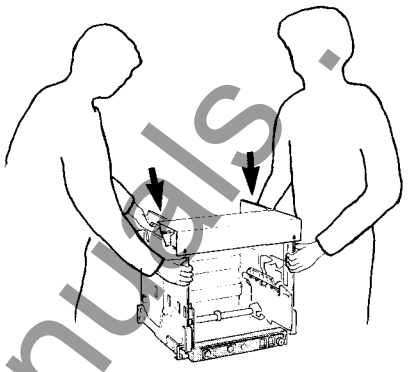
Weights (lbs/*kg*)

	stationary assembly	frame	terminals
MP08	**60** / *27*	**121** / *55*	**13** / *6*
MP12	**60** / *27*	**121** / *55*	**13** / *6*
MP16	**60** / *27*	**121** / *55*	**13** / *6*
MP20	**60** / *27*	**121** / *55*	**36** / *16*
MP25	**110** / *50*	**176** / *80*	**89** / *40*
MP30	**110** / *50*	**176** / *80*	**89** / *40*

using the lateral handles



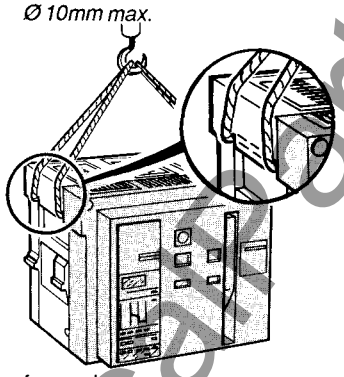
frame alone



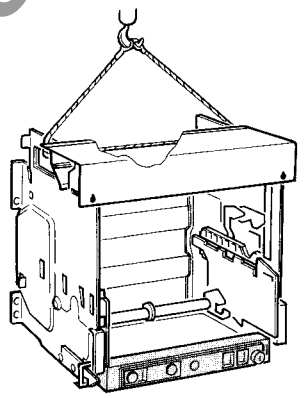
stationary assembly alone

using a lifting sling

slings :
.40 dia max.
Ø 10mm max.

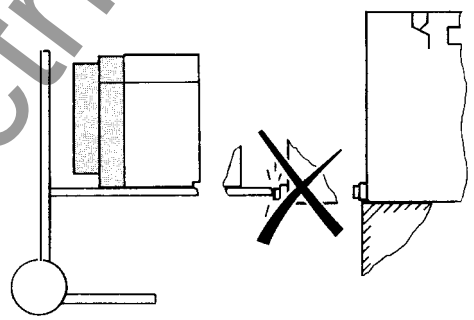


frame alone



stationary assembly alone

using a fork lift



frame alone
caution:
to avoid damage to the stationary assembly do not let the forks of the fork lift protrude past the rear of the breaker.

handling (cont'd)

MP40 to MP63

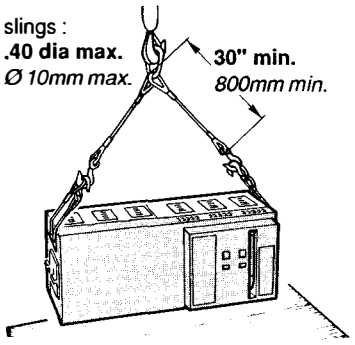
An external or overhead lifting device can use the lateral handles for lifting the circuit breaker as shown.

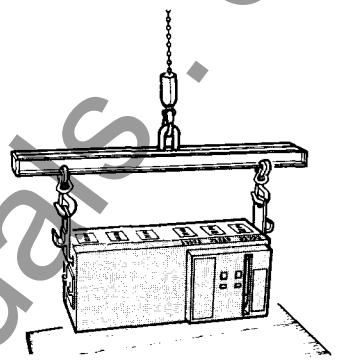
Weights (lbs/*kg*)

	stationary assembly	frame	terminals
MP40	**198** / *90*	**264** / *120*	**88** / *40* ①
MP50	**198** / *90*	**264** / *120*	**177** / *80*
MP63	**242** / *110*	**308** / *140*	**177** / *80*

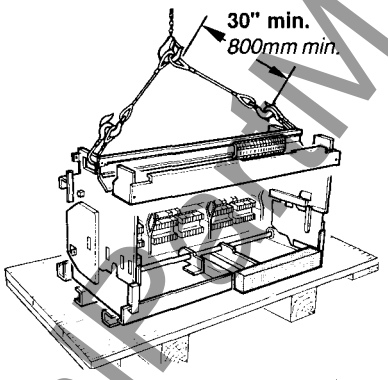
① optional terminals

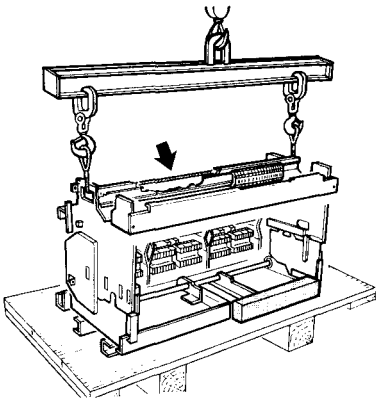
using a lifting sling





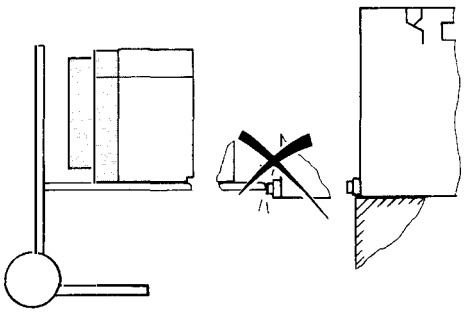
frame alone

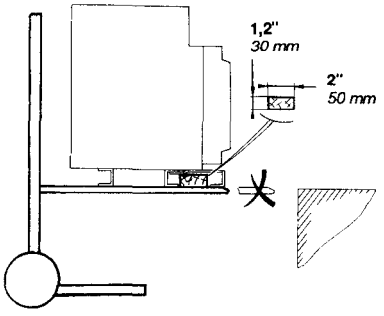




stationary assembly alone

using a fork lift





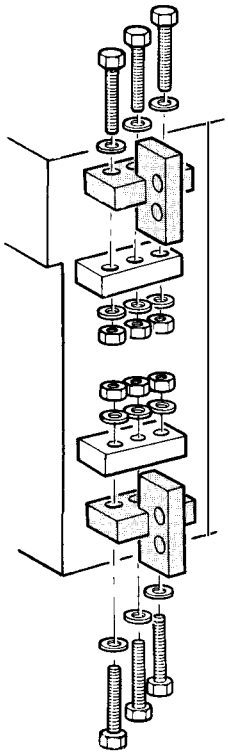
frame alone
caution:
to avoid damage to the stationary assembly do not let the forks of the fork lift protrude past the rear of the breaker.

stationary assembly alone
caution:
to avoid capsizing the stationary assembly place a chock as shown. Remove it as soon as the ends of forks lean on the cubicle floor.

attaching rear terminals

The terminals provided with the Masterpact ™ shall be mounted as indicated below :

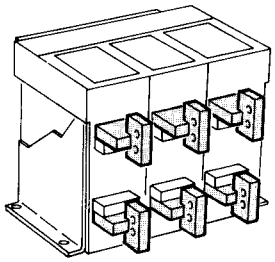
MP08 - MP20



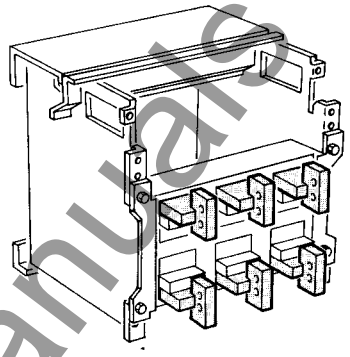
screws M10, 60mm long
tightening torque = 375 lb.in.
11/16 hex key wrench may be used

MP08 - MP12 - MP16

fixed mounted

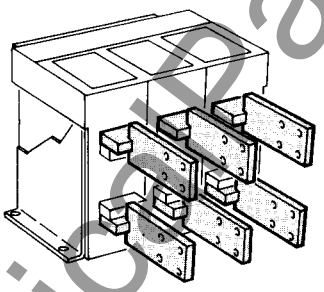


drawout mounted

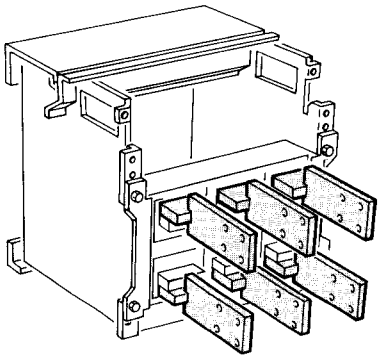


MP20

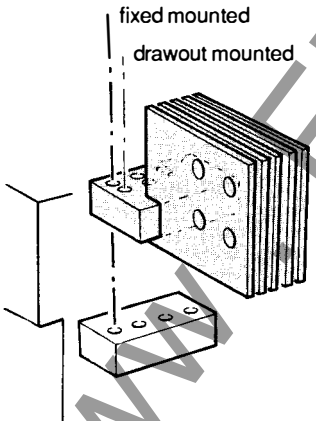
fixed mounted



drawout mounted



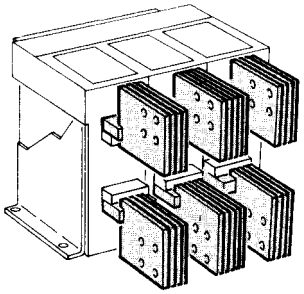
MP25 - MP30



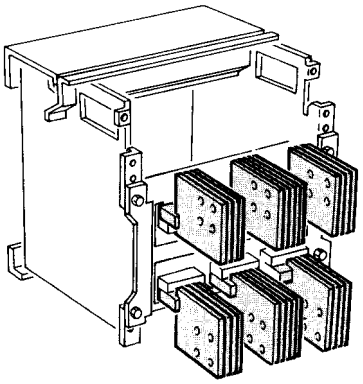
screws M10, 60mm long
11/16 hex key wrench may be used

MP25 - MP30

fixed mounted

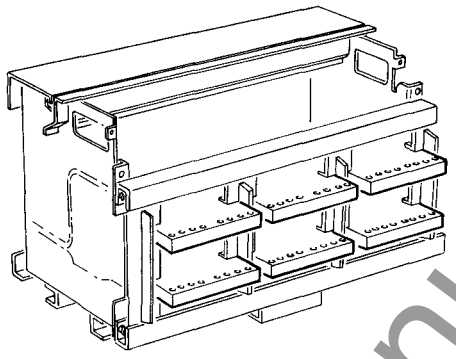


drawout mounted

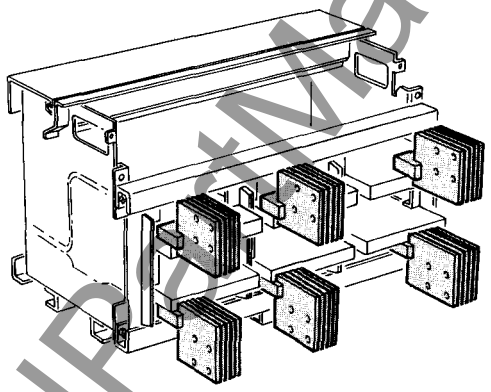


attaching rear terminals (cont'd)

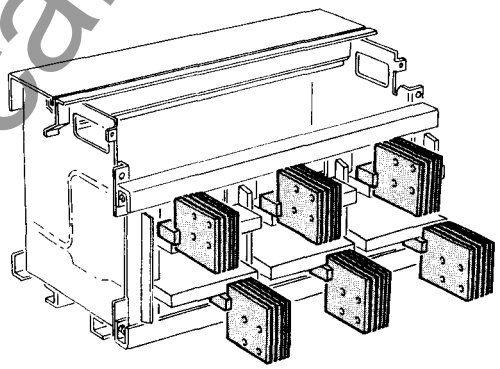
MP40
without terminals



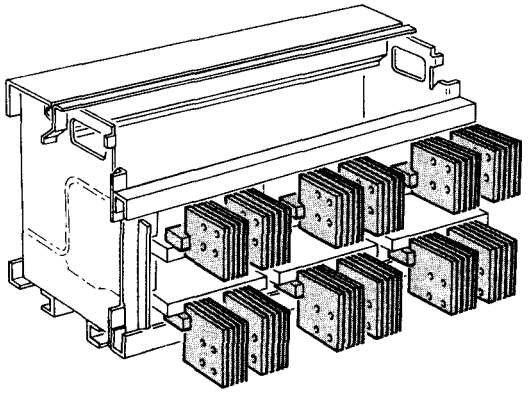
with optional terminals



or



MP50 - MP63



control wiring

Each terminal may be connected by one stranded copper wire 18 to 14 AWG (0.6 to 2.5 mm²)
Cable strip length : **3/8" / *9mm***

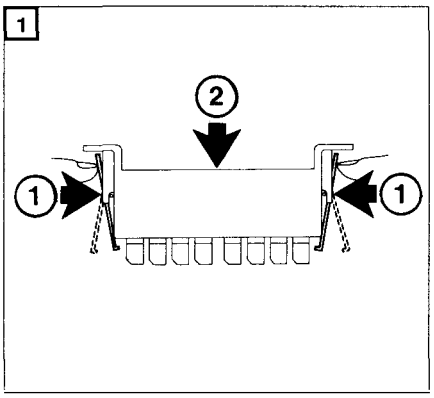
fixed mounting

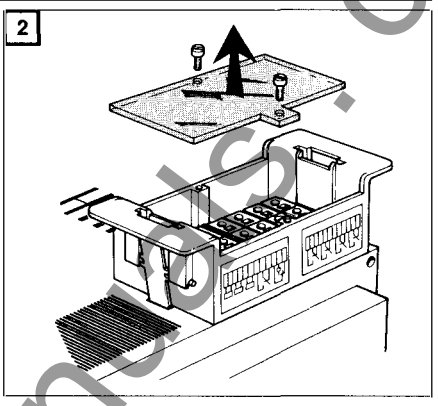
1 install the connector

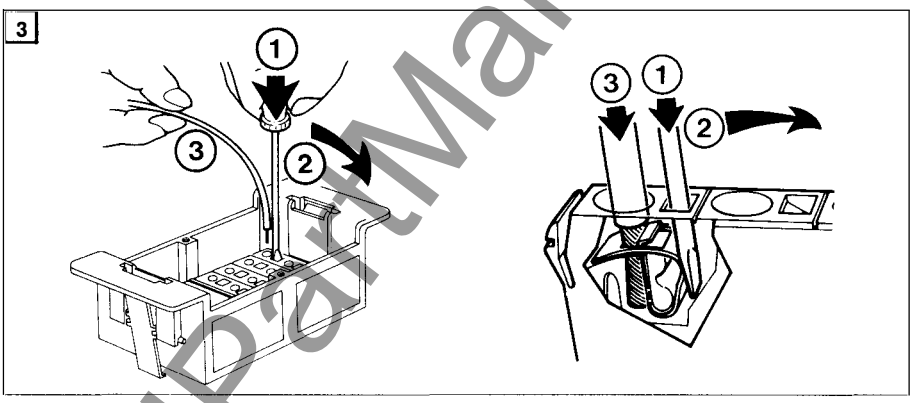
2 remove the transparent shield

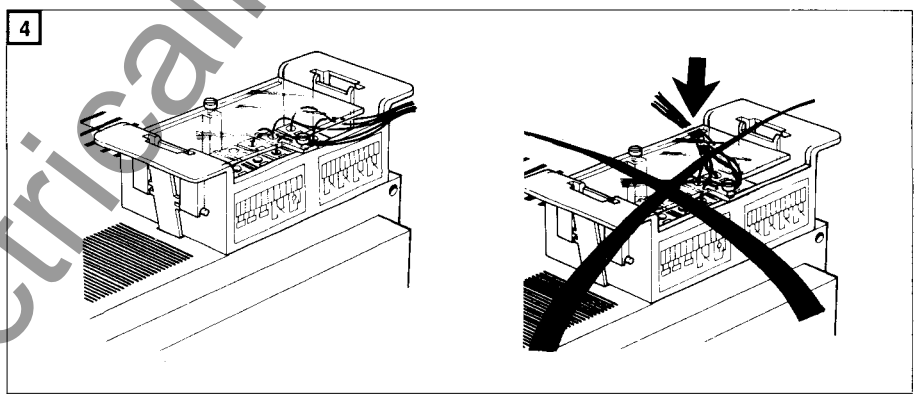
3 connect the control wires according to the wiring diagrams shown on the label and using a small screwdriver

4 replace the transparent cover
warning : do not route the control wires close to the arc chutes









control wiring (cont'd)

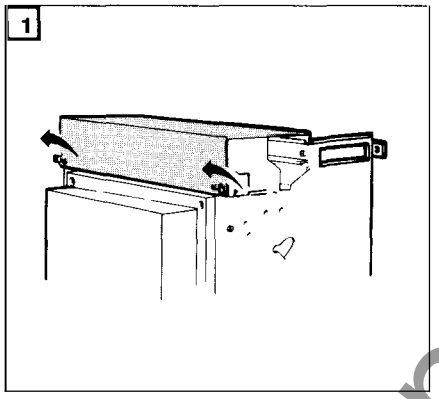
drawout mounting

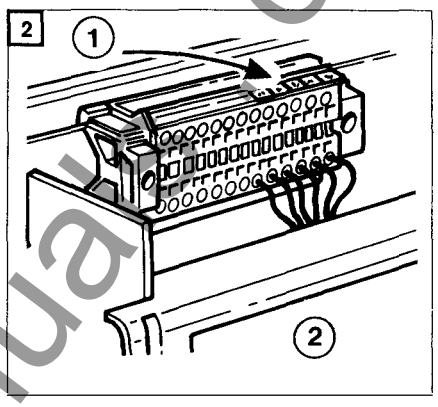
1 remove the front terminal cover

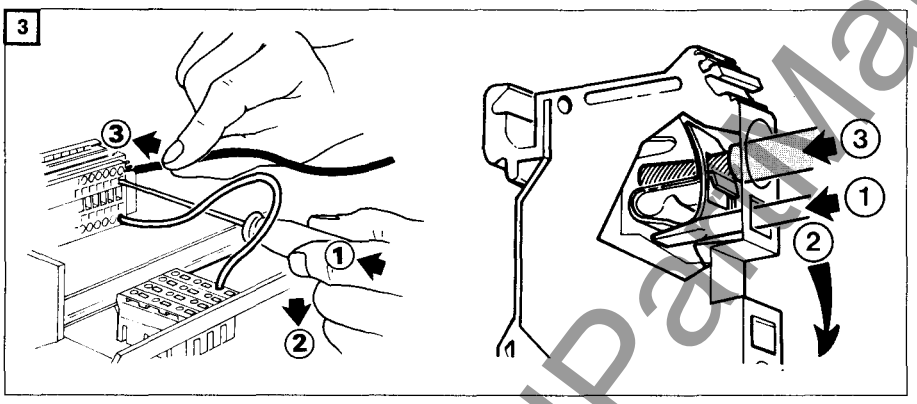
2 determine the terminal number ① according to the wiring label ②

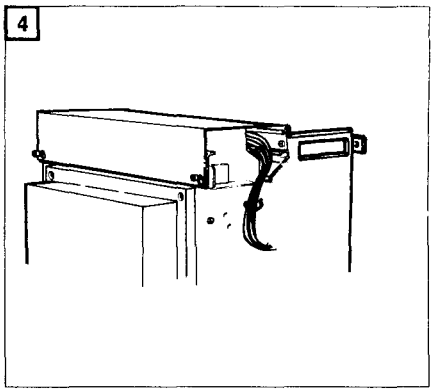
3 connect the control wires using a small screwdriver and replace the front terminal cover

4 **warning** : do not route the control wires close to the arc chutes

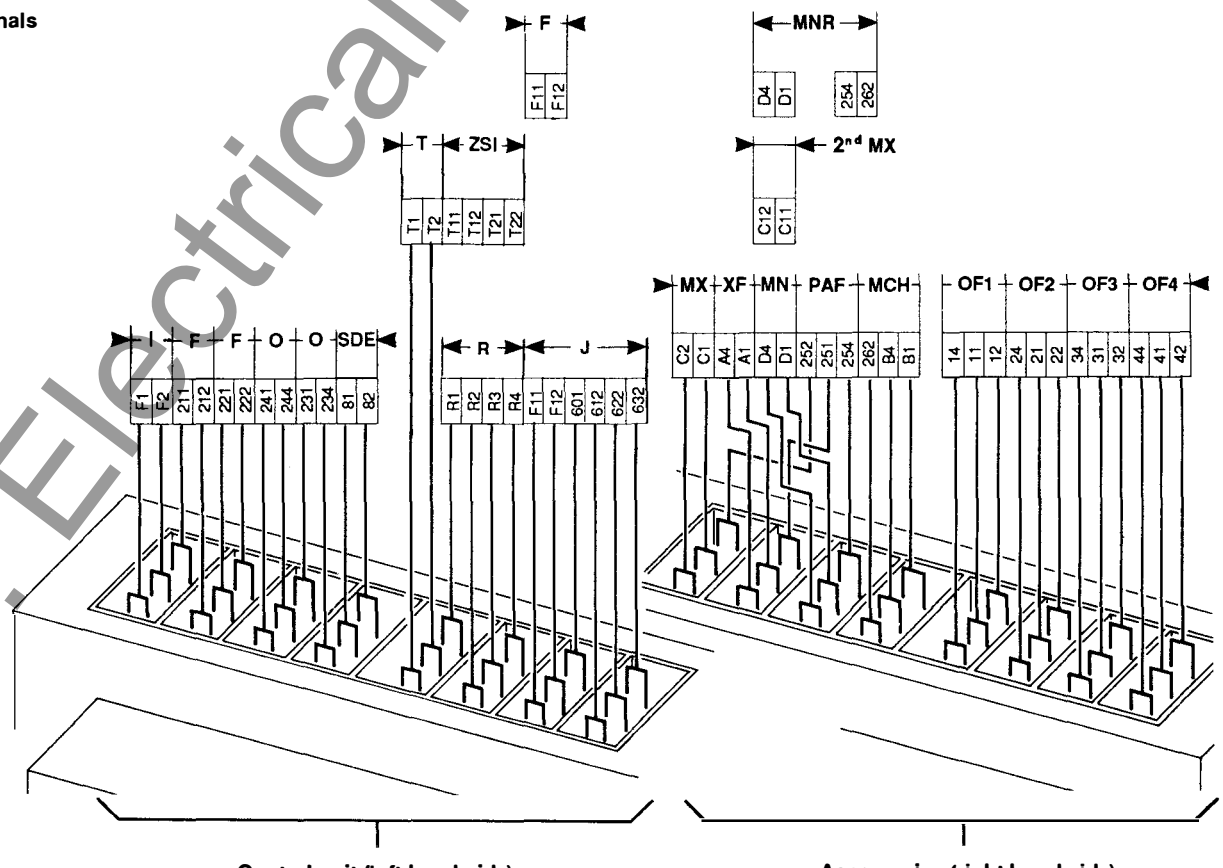








location of terminals



note : Z = Z - W

Control unit (left hand side)

Accessories (right hand side)

disconnecting and connecting instructions

All Masterpact circuit breakers have four drawout positions and can be operated in these four positions. The circuit breaker is captive in all positions except "withdrawn". To connect or disconnect the Masterpact circuit breaker, first insert the of racking crank.
Insertion of the racking crank can be prevented by the following stationary assembly accessories:

- padlock
- key-lock
- racking interlock

note : Disconnecting and connecting instructions are summarized on a sticker provided with the installation instructions . The sticker must be affixed to the door of the cubicle .

- In the CONNECTED position, the primary and secondary disconnecting terminals are engaged, and the circuit breaker is ready for service.

- In the TEST position, the primary terminals are disengaged; however, control contacts are connected to permit operation of the circuit breaker. The TEST position is used for testing circuit breaker operation and control system functions as provided. In this position, the circuit breaker is not suitable for internal inspection or any maintenance function.

- In the DISCONNECTED position, the primary and secondary disconnect terminals are disengaged and separated by a safe distance from the corresponding stationary terminals

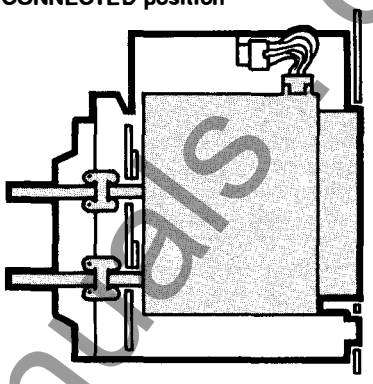
- In the WITHDRAWN position, both primary and secondary contacts are disconneted. The circuit breaker may be removed for complete accessibility.

note: a racking crank maintened inserted or breaker not completely disconnected prevents the extraction of the right rail.

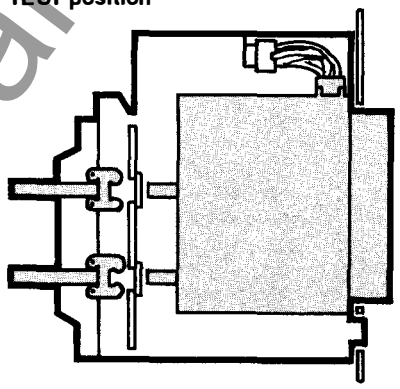
notes :

- a closed circuit breaker is automatically opened prior to being connected or disconnected during a racking in or racking out operation.
- the circuit breaker may be operated in all four positions.

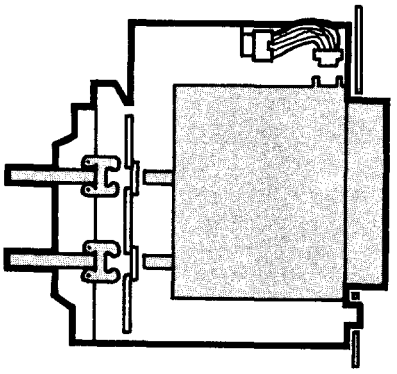
CONNECTED position



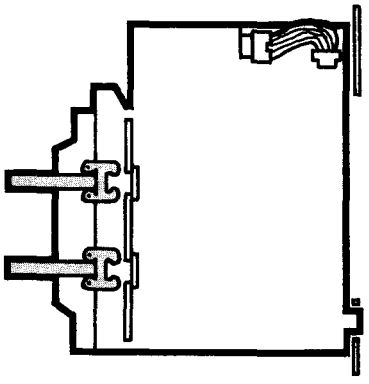
TEST position



DISCONNECTED position



WITHDRAWN position



disconnecting instructions

note: open the breaker before disconnecting it. Otherwise it will open automatically during disconnection.

1 remove the racking crank from its storage hole and engage it in the racking slot

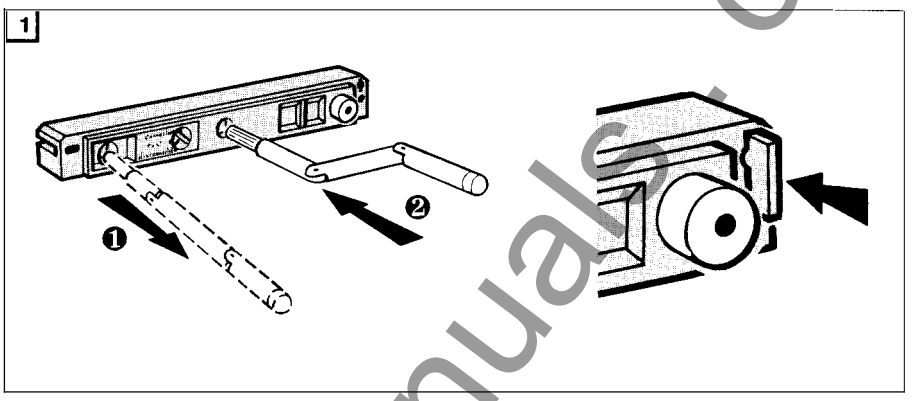
note : in case of racking interlock, press the "compartment door closed" sensor located at the front of the drawout mechanism to simulate a closed door.

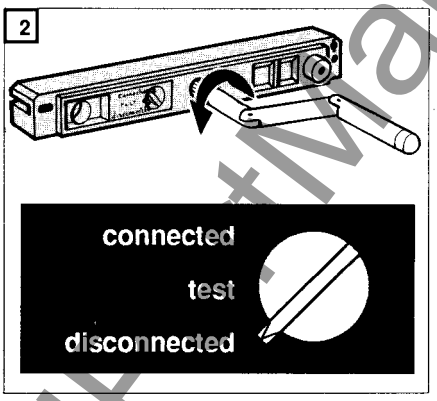
2 to reach the test position then disconnected position turn the racking crank until the test and disconnected indication are shown on the position indicator

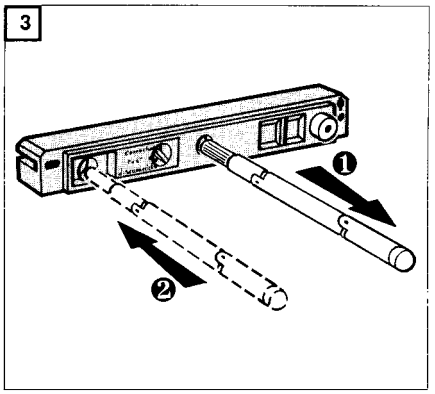
3 **caution :** The racking handle must be removed before pulling out the breaker, otherwise the right rail will not fully extend

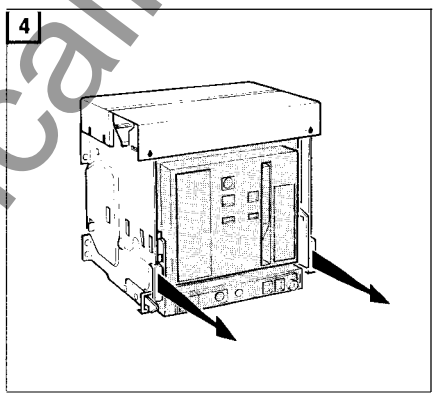
4 pull the two handgrips to extract the breakers

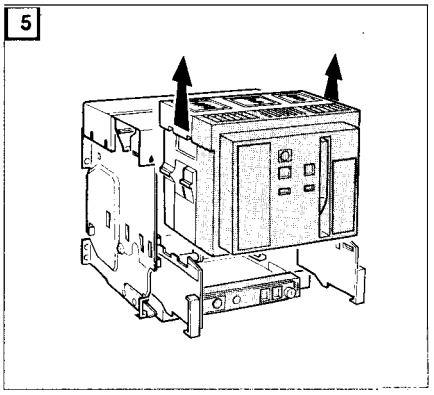
5 use the two lateral handles to remove the frame from its stationary assembly. See other means of handling page 4











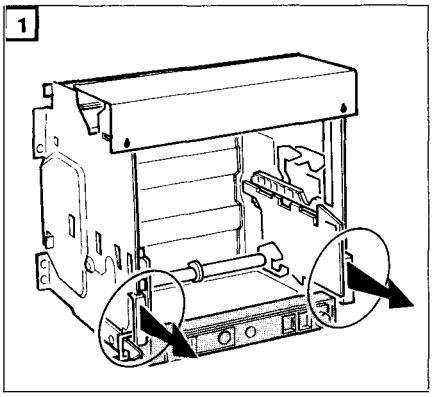
installating the breaker in its stationary assembly

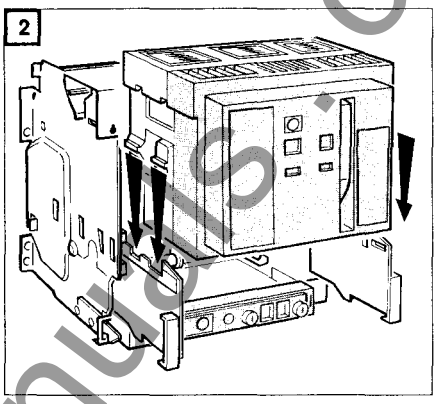
note : a racking handle remaining inserted in its racking slot or a breaker not fully disconnected prevents the extraction of the right rail

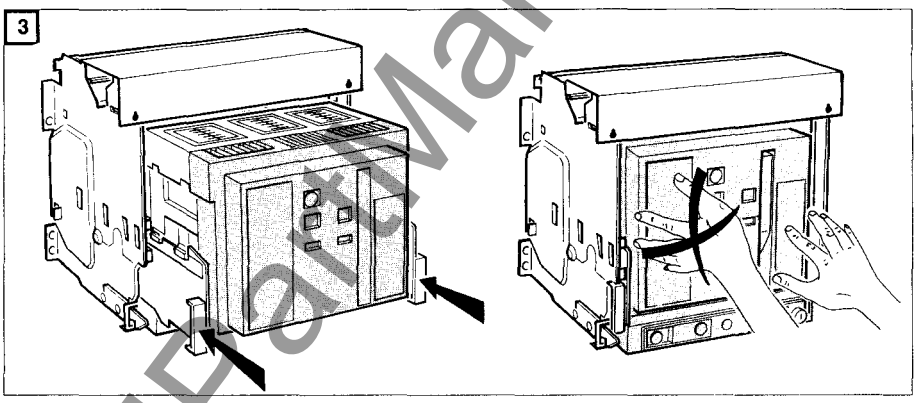
1 pull the two extension rails by their handles

2 install the breaker on the two extension rails making sure that the four breaker supports located on the two sides of the circuit breaker are correctly engaged in the slots. See page 6 for other means of handling

3 to move the breaker from the WITHDRAWN position to the DISCONNECTED position, push the breaker into the stationary assembly until it stops. As a safety feature, the racking crank cannot be engaged if the breaker is not in the DISCONNECTED position.
caution : do not press on the control unit while pushing the breaker in.







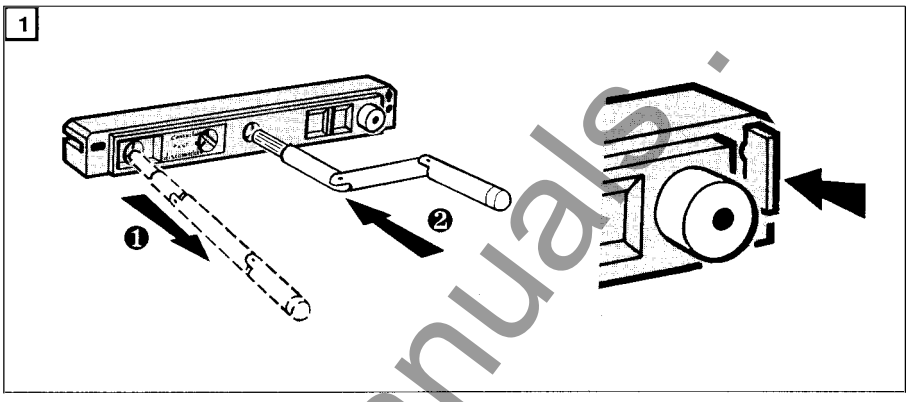
connecting instructions

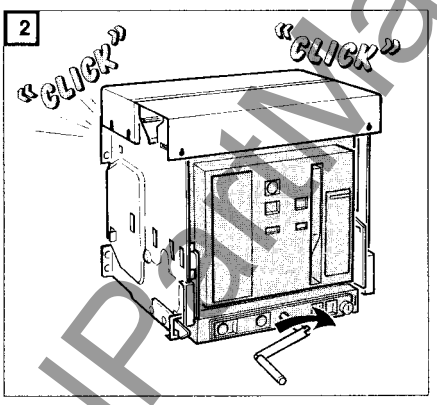
1 engage racking crank into its racking slot
note : the operation is possible only if :
- ❑ breaker is in DISCONNECTED position
- ❑ drawout mechanism padlocks have been removed
- ❑ Kirk key lock has been unlocked
- ❑ compartment door is closed

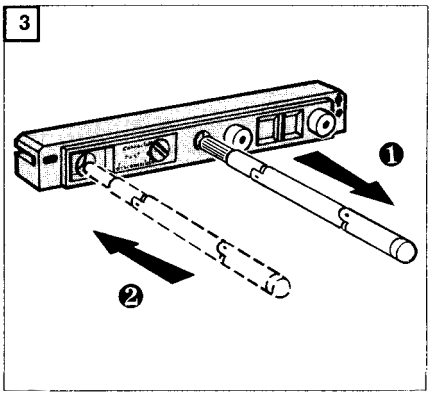
note : in case of racking interlock, press the "compartment door closed" sensor located at the front of the drawout mechanism to simulate a closed door

2 tum the racking crank clockwise until the CONNECTED position is reached on the position indicator
warning : as the fully connected position is neared, more force will be necessary to tum the crank. Continue cranking until two "click" sounds are heard (locking the breaker in the connected position)

3 remove the racking crank and put it back in its storage hole



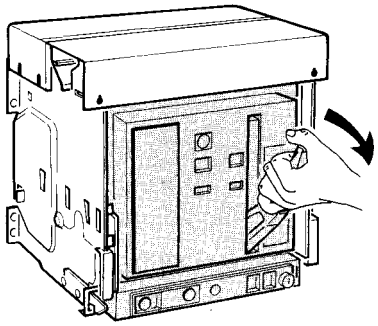




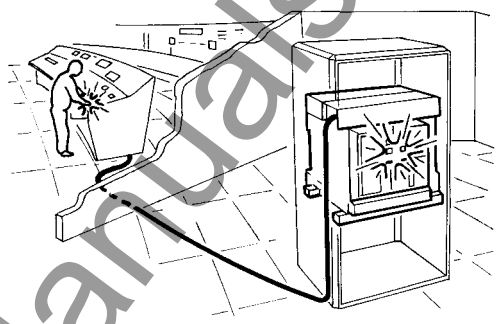
charging instructions

All basic breaker and drawout operations can be performed from the front of the breaker.
Suitable electrical and mechanical interlocks are provided to prevent incorrect operation of the breaker. Manually operated breakers have multiple charge-close provisions which allow the following possible operating sequence : charge-close-recharge-open-close-open.
To manually charge an electrically or manually operated breaker, push or pull down on the charging handle. The handle is shaped to make manual charging easy, when the breaker is located in either a low or high position within a switchboard enclosure. Six full strokes can be used. When the spring is fully charged, the yellow "charged" indicator will appear in the stored energy window on the breaker front cover.
When the mechanism is fully charged, the handle stops and will return to normal position when released.

Manually

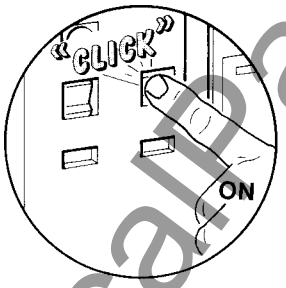


Electrically



closing instructions

All that is required to close the breaker locally is to push the mechanical "Push-to-close" pushbutton. Pre-charged breakers may be closed remotely via a spring release solenoïd which is standard for electrically operated breakers and optional for manually operated breakers.
Before attempting to close the breaker locally, the yellow stored energy window indicator must read "charged".

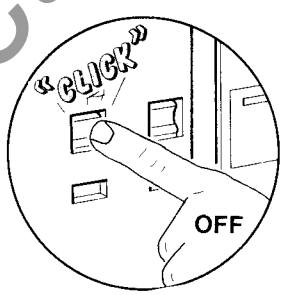


Breaker can be closed only if :
- it is opened
- charged
- pop-out type fault indicator is correcly reset
- no opening order is intended

note :
- The closing coil (XF) withstands a continuous voltage, providing antipumping function. If the breaker is not ready to close when the closing order is intended, inhibit it and try again as soon as the breaker is ready to close
- to inhibit the antipumping function, wire in series the ready-to-close switch (terminals 251 - 252) with the closing coil.

opening instructions

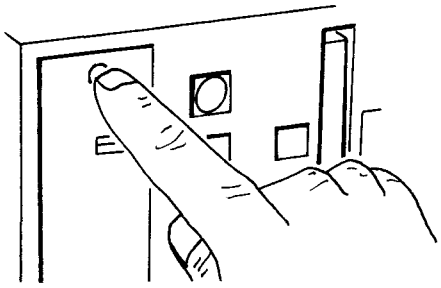
Opening the breaker locally is accomplished with the mechanical "Push to open" pushbutton on the breaker front cover
Breakers may be opened remotely via either a shunt trip or an undervoltage trip device depending upon the application requirements.



resetting instructions

The mechanical fault indicator indicates that an overcurrent has occured and prevents reclosure of the circuit breaker until reset.

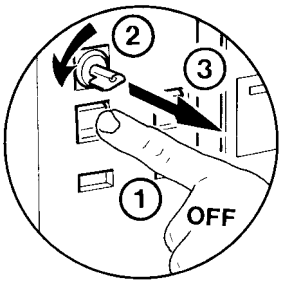
caution : in case of tripping due to overcurrent or ground fault, the fault must be cleared before any attempt of resetting



locking

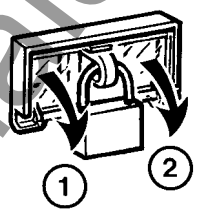
circuit breaker frame

■ by Kirk lock (VSKA)



locking in open position :
① push the OFF button
② turn the lock
③ remove the key

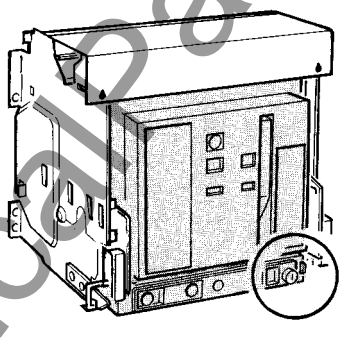
■ padlocking using a device (VBP).
Access to opening ① and/or closing ② of the circuit breaker can be prevented by a padlock.



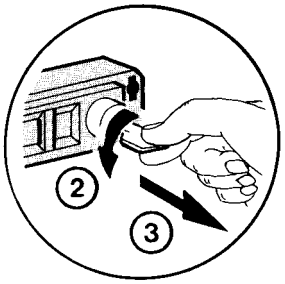
Shackle diameter : 1/4 to 5/16

stationary assembly

■ by Kirk key lock (VSKC)

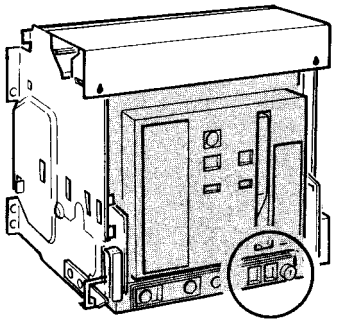


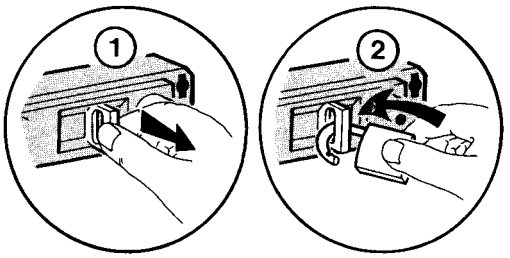
note : locking in disconnected position or in all positions : connected - test and disconnected (on request)



locking in the disconnected position :
① disconnect the breaker
② turn the lock
③ remove the key

■ by padlocking device (standard)



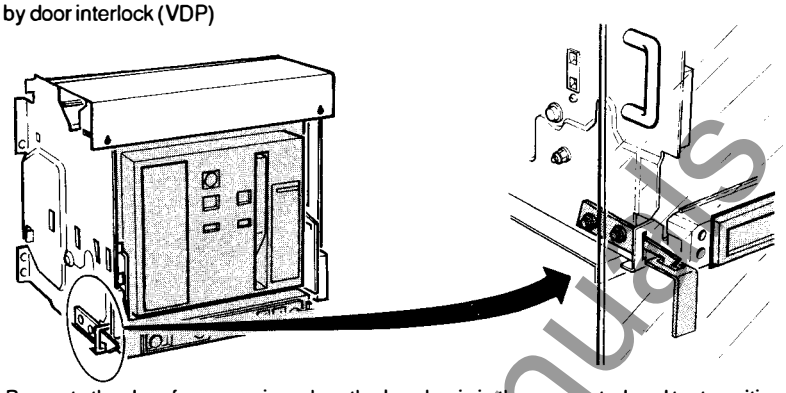


Shackle diameter : 1/4 to 5/16

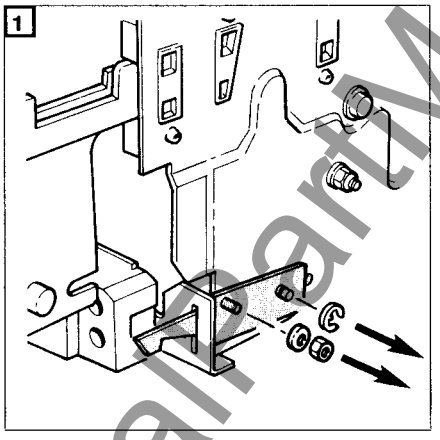
note : this locking inhibits the insertion of the racking handle. This will prevent racking the breaker into its stationary assembly

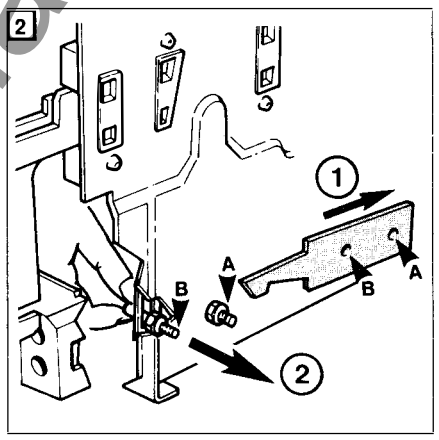
locking (cont'd)

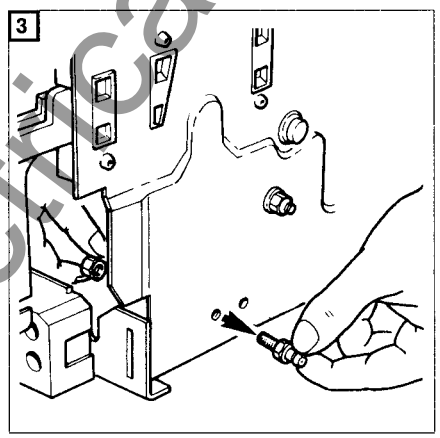
Door
by door interlock (VDP)



Prevents the door from opening when the breaker is in the connected and test positions.
note : the hook can be mounted on either side.
To change location :

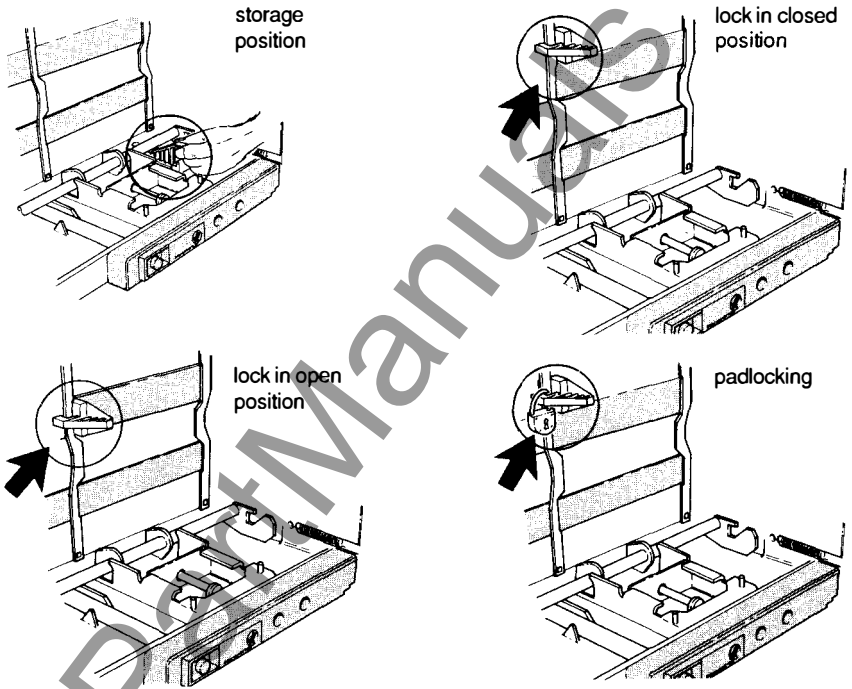




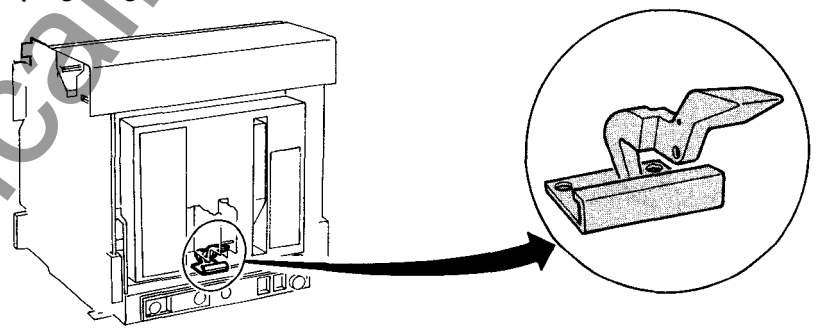


locking (cont'd)

Shutters
by padlocking device



Spring charged



When the closing springs are charged, this interlock prevents the breaker from being disconnected by-catching it in its stationary assembly
Before pulling out the circuit breaker, discharge the spring by pressing the ON pushbutton then the OFF pushbutton
caution : not suitable with undervoltage trip device

Masterpact™ installation instructions

universal power breaker

mastering electrical power

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