

Installation of U-Series ACB MI (Mechanical Interlock) Accessories

MI 2WAY/3WAY	
Ordering code	
S01	UANS DWB1
S02	UANS DWB2
S03	UANS FWB1
S04	UANS FWB2
S05	UANS DWB1A
S06	UANS DWB2A
S07	UANS DWB1B
S08	UANS DWB2B
S09	UANS DWB1C3
S10	UANS DWB1C4
S11	UANS DWB2C3
S12	UANS DWB2C4
S13	UANS FWB1A
S14	UANS FWB2A
S15	UANS FWB1B
S16	UANS FWB2B
S17	UANS FWB1C3
S18	UANS FWB1C4
S19	UANS FWB2C3
S20	UANS FWB2C4
S21	UANS BODA
S22	UANS BODB
S23	UANS BODC3
S24	UANS BODC4
S25	UANS B0FA
S26	UANS B0FB
S27	UANS B0FC3
S28	UANS B0FC4

주 의

- 제품을 설치하기 전 주의사항을 반드시 읽고 설명에 따라 설치하여 주십시오.
- 차단기의 설치 및 보수는 유자격자(전기공사사)가 행하여 주십시오. 잘못된 설치로 인한 오동작 또는 사고가 발생할 위험이 있습니다.

CAUTION

- Before installation, be sure to read the manual carefully to ensure proper operation
- Installation, maintenance and inspection of the circuit breaker should be performed by persons who are qualified for electric work.

CUIDADO

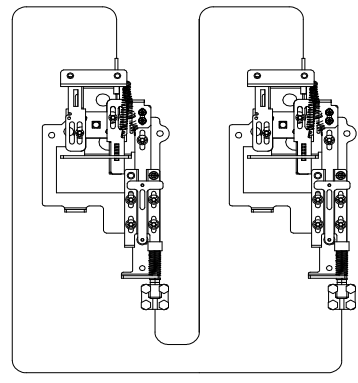
- Antes da instalação, certifique-se de ler atentamente o manual e entender os procedimentos para o funcionamento adequado
- A instalação, manutenção e inspeção do disjuntor deve ser realizada por pessoas qualificadas para o trabalho elétrico.

PRECAUCION

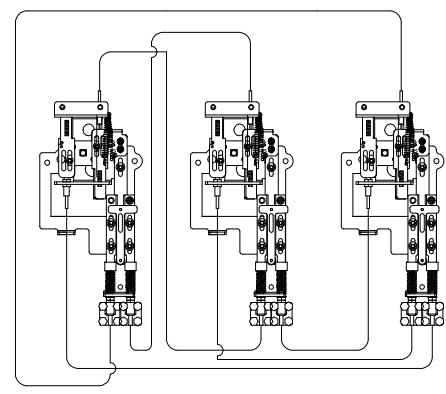
- Antes de la instalación, asegúrese de leer el manual cuidadosamente y comprenda los procedimientos para la apropiada operación
- La instalación, mantenimiento e inspección del interruptor automático debe ser realizada por personas cualificadas para el trabajo eléctrico.

ПРЕДУПРЕЖДЕНИЕ

- Перед установкой, внимательно прочтите инструкцию по эксплуатации и ознакомьтесь с порядком выполнения необходимых условий и процедур для корректной работы оборудования.
- Установка, ремонт и осмотр автоматического выключателя должен выполняться квалифицированным специалистом по электрооборудованию.



MI 2WAY



MI 3WAY



* Part list of 2,3way

품명	IMAGE	구분																											
		S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28
①	MI UNIT 2WAY (B1)	1	-	1	-	1	-	1	-	1	1	-	-	1	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-
	MI UNIT 3WAY (B2)	-	1	-	1	-	1	-	1	-	-	1	1	-	1	-	1	-	-	1	1	-	-	-	-	-	-	-	-
②	MI-TRIP ROD PKG 06-20A 3/4P (A=139)	-	-	-	2	3	-	-	-	-	-	-	2	3	-	-	-	-	-	-	1	-	-	-	1	-	-	-	
	MI-TRIP ROD PKG 06-40B 3/4P (A=174)	-	-	-	-	2	3	-	-	-	-	-	-	-	2	3	-	-	-	-	-	1	-	-	-	1	-	-	
	MI-TRIP ROD PKG 32-50C 3P (A=435)	-	-	-	-	-	-	-	-	2	-	3	-	-	-	-	2	-	3	-	-	-	1	-	-	-	1	-	
	MI-TRIP ROD PKG 32-50C 4P (A=520)	-	-	-	-	-	-	-	-	-	2	-	3	-	-	-	-	2	-	3	-	-	-	1	-	-	-	1	
③	MI-CONN-BUSH for A/C Frame	-	-	-	-	2	3	-	-	2	2	3	3	2	3	-	-	2	2	3	3	1	-	1	1	1	-	1	
	MI-CONN-BUSH for B/D Frame	-	-	-	-	-	-	2	3	-	-	-	-	-	2	3	-	-	-	-	-	1	-	-	-	-	1	-	
④	M5*16L R/H SCREW + S/W	-	-	-	-	2	3	-	-	2	2	3	3	2	3	-	-	2	2	3	3	1	-	1	1	1	-	1	
	M5*10L R/H SCREW + S/W	-	-	-	-	-	-	2	3	-	-	-	-	-	2	3	-	-	-	-	-	1	-	-	-	-	1	-	
⑤	MI-FIXED-BRACKET (For FIXED TYPE)	-	-	2	2	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	1	1	1	
⑥	M6*10L (+)HEAD HEXAGON BOLT + P.S/W (For M.I. UNIT)	6	9	6	9	6	9	6	9	6	9	9	6	9	6	9	6	6	9	9	-	-	-	-	-	-	-	-	
⑦	M6*16L R/H SCREW + P.S/W (For FIXED TYPE BRACKET)	-	-	2	2	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	1	1	1	
⑧	M6*8L R/H SCREW + P.S/W (For FIXED TYPE BRACKET)	-	-	2	2	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	1	1	1	

*** 설치 전 확인 사항 / TO CONFIRM BEFORE INSTALLATION**

⚠ 주의 : 작업 전 차단기의 상태는 DIS-CHARGED & OFF 상태에 있어야 합니다. 사고의 위험이 있습니다.

⚠ CAUTION : Circuit breaker should be in DIS-CHARGED and OFF state before installation.

It could be possible to happen such an accident.



1. M/I (Mechanical interlock) UNIT를 적용 시 원활한 설치 및 안정된 동작을 위하여 CRADLE 좌측 바닥면을 X (70mm) * Y (140mm)이상의 치수로 커팅하여 주십시오. (FIG 1)

원활한 CABLE의 연결을 위하여 다른 위치에 추가적인 가공이 필요 할 수도 있습니다.

When installing M/I(Mechanical Interlock) Unit, Cut the left bottom of CRADLE at least X(70mm) * Y(140mm) size for convinience in installation and stability in running. (Fig 1)

Additional cut may be needed at another position for the convinience connection of the cable.

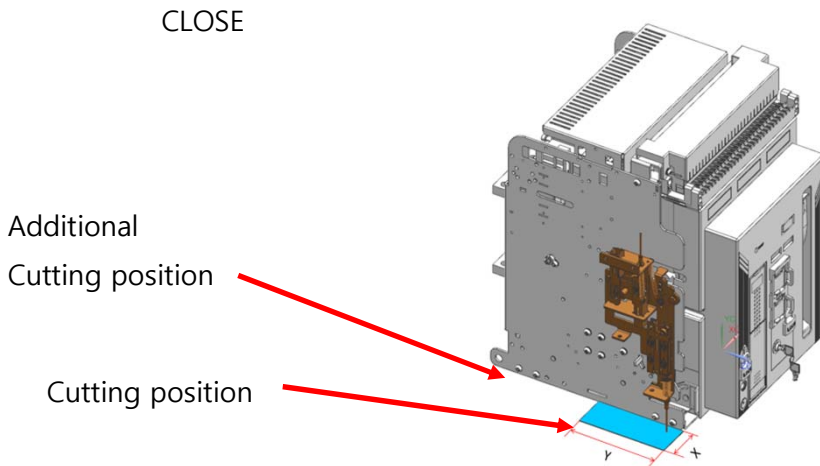


FIG 1

*** M/I 구동용 본체 추가 부품 (B0 부품) 부착**

*** INSTALLATION OF ADDITIONAL PARTS OF BODY FOR M/I OPERATING**

2. 두대 또는 세대의 제품을 연동하는 M/I는 본체 내부에 ON/OFF 시 Interlock과 연계되는 부품이 추가되어야 합니다. (FIG 2)

A part which linked to interlock in ON/OFF time should be installed inside main body

when M/I interlocking over two or three breakers. (FIG 2)

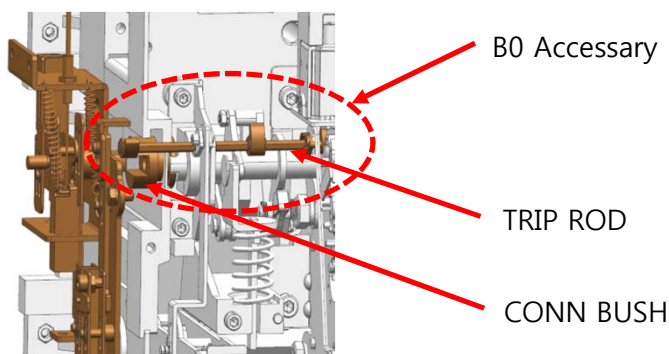


FIG 2

3. 인출형 제품의 경우는

제품을 인출하십시오. (FIG 3)

If Draw-out type breaker,

draw out the breaker. (FIG 3)

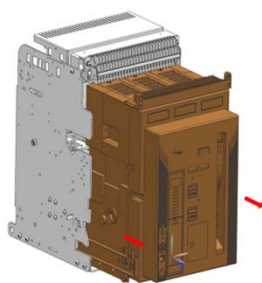


FIG 3

4. 제품은 Dis-Charged 및 OFF 상태로

하십시오. (FIG 4)

Set the breaker to Dis-charged or OFF state. (FIG 4)



FIG 4

5. Front Cover 분리 / Remove Front Cover

인출형 또는 고정형 제품의 본체에서 M6 screw를 풀어 모든 Front Cover를 분리 하십시오. (FIG 5)

Remove the front cover by removing all M6 screws in cover. (FIG 5)

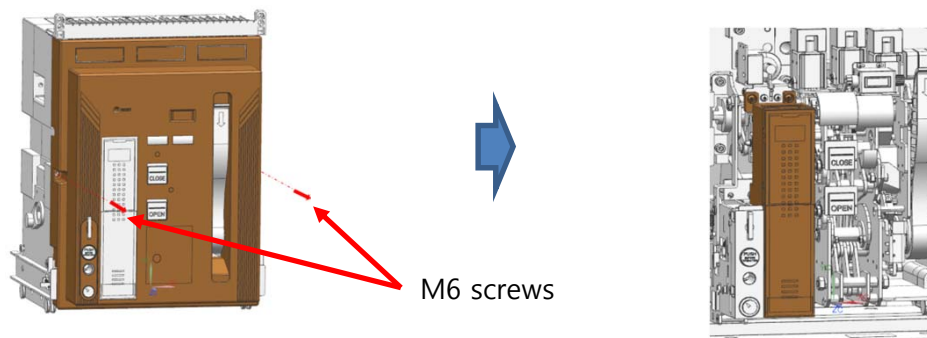


FIG 5

6. OCR 분리 / Remove OCR (FIG 6)

상부의 OCR Wire를 소형 (-) 드라이버를 이용하여 분리하고 상부 측 M4 Screw 2개소를 풀고난 후

하단의 Lower cap을 소형 (-) 드라이버를 이용하여 제거 한 다음 하단의 M4 screw 1개소를 제거 하십시오.

Remove connected OCR wire by using small (-) type driver, and remove two M4 Screws in upper side.

After it, remove the lower cap by small (-) type driver and a M4 Screw in lower side.

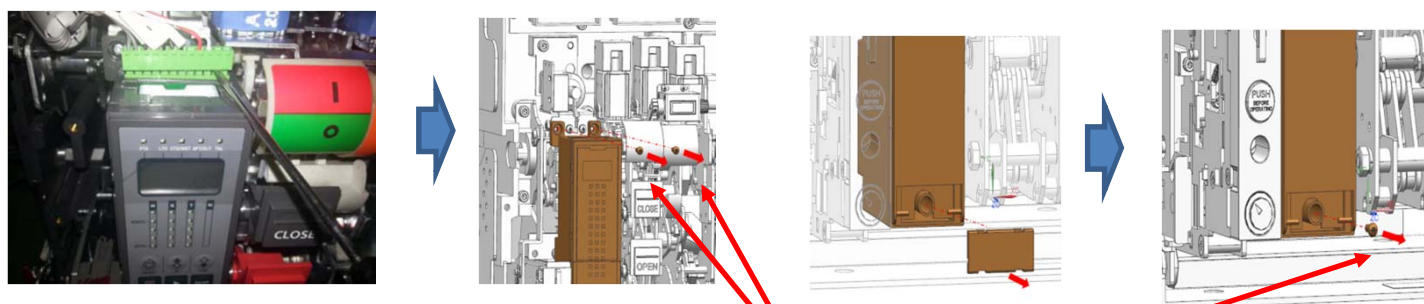


FIG 6

M4 screws

7. MHT UNIT 분리 / Remove MHT UNIT (FIG 7)

#5 렌치를 이용하여 상부 1개소, 하부 1개소의 볼트 2개소를 풀고 MHT UNIT를 분리 하십시오.

Remove bolts in top and bottom by #5 Wrench then remove the MHT UNIT.

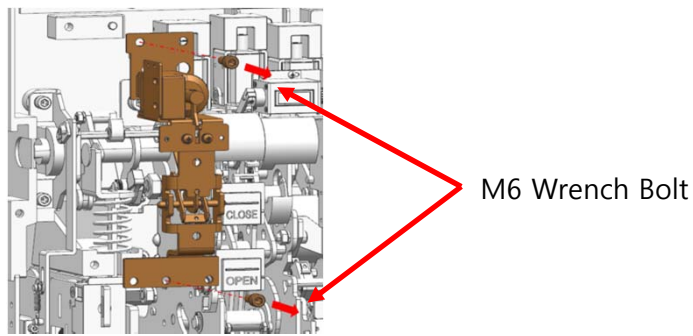


FIG 7

8. INTERLOCK LEVER & TRIP ROD 분리 / REMOVE INTERLOCK LEVER & TRIP ROD (FIG 8)

1) 인터록레버의 SCREW를 풀고 E-RING을 제거한 후 TRIP ROD 와 인터록 링크에서 분리 하십시오.

Loosen the SCREW in interlock lever and remove E-Ring.

After it, remove lever from the TRIP ROD and the interlock link.

2) #5 렌치를 이용하여 M6 Bolt를 풀어 CROSS-BAR SUP와 TRIP ROD를 함께 제거 하십시오.

Remove M6 Bolt by #5 Ranch and remove CROSS-BAR SUP and TRIP ROD.

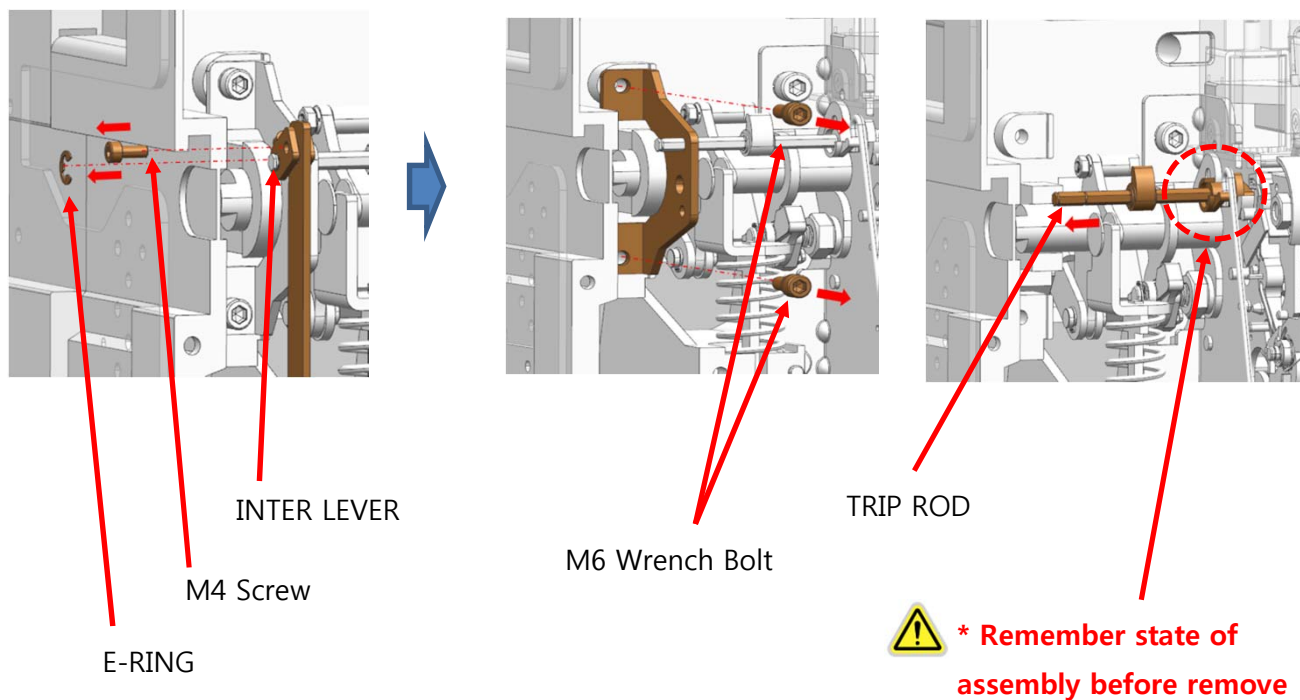


FIG 8

9. MI-CONN-BUSH 설치 / INSTALLATION OF MI-CONN-BUSH (FIG 9)

1) MAIN BODY의 좌측의 CROSS-BAR 측면을 CUTTING 후 / 1) Cut the left side of main body covering CROSS-BAR.

2) MI-CONN-BUSH를 전면에서 돌기와 평행하게 삽입 후 M5*12L R/H SCREW + SAMS 를 체결 하십시오.

After it, place MI-COMN-BUSH matching in shape, then fasten it by screwing the M5*12L R/H CREW + SAMS.

⚠ 주의 : 측면의 Mold 물 cutting 시 Cutting 부 외에 다른 부분의 표면에 흠집이 나지 않도록 유의 하십시오.

⚠ CAUTION : When cutting a mold in left side, be careful not to make a scratch in surface.

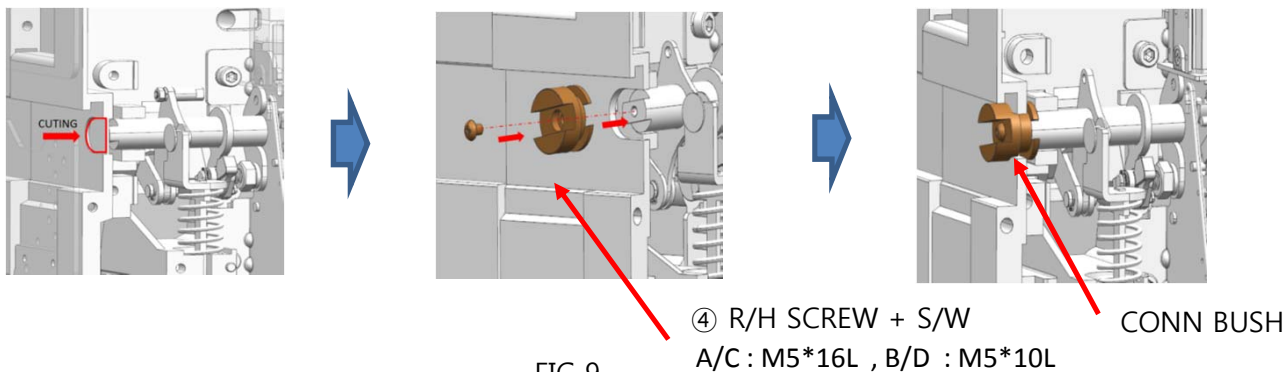


FIG 9

10. MI-TRIP ROD 교환 설치 / INSTALLATION OF MI-TRIP ROD CHANGE (FIG 10)

1) 지정된 FRAME에 맞는 MI용 MI-TRIP ROD를 CROSS-BAR SUP의 지정된 HOLE에 삽입 후

(CROSS-BAR SUP 및 취부용 볼트는 분해 후 재조립 하는 부품 입니다.)

Insert the MI-TRIP-ROD fit with selected frame to correct HOLE in CROSS BAR SUP

(These CROSS-BAR SUP and bolt was removed at above process no. 8.)

2) MI용 MI-TRIP ROD의 우측 끝부분을 MECHANISM 좌측면의 지정된 위치에 삽입 후 CROSS-BAR SUP를 조임 하십시오.

Insert the right end of MI-TRIP-ROD for MI to correct point in left side of MECHANISM,

and fasten the CROSS-BAR SUP

⚠ 주의 : MI-TRIP ROD 우측의 MECHANISM 좌측의 TRIP LEVER 와 TRIP BUTTON ROD의 정확한 조립을 확인 하십시오.

MI-TRIP ROD 조립 완료 후 CHARGE 상태 또는 투입 상태 일 때 OPEN LATCH의 위치가 그림과 같아야 합니다.

⚠ CAUTION : Check the assembeled state of TRIP BUTTON ROD and TRIP LEVER in left side of mechanism, and right side of TRIP ROD. After complete assembly of MI-TRIP ROD, when ACB state is spring charge or closing, Position of OPEN LATCH should be like below picture.

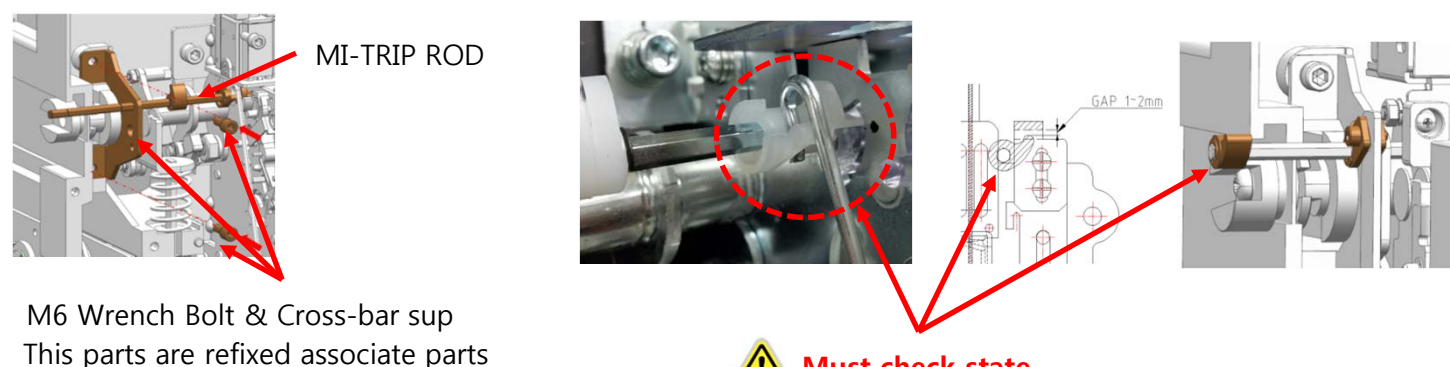


FIG 10

⚠ Must check state

11. INTERLOCK LEVER & OPEN LATCH 설치 / INSTALLATION OF INTERLOCK LEVER & OPEN LATCH (FIG 11)

1) INTERLOCK LEVER를 MI-TRIP ROD에 삽입 후 INTERLOCK LINK를 밴딩된 부위의 안쪽으로 위치시키고

SLOT 홈을 이탈하지 않게 스크류를 정확하게 조립 하십시오. (INTERLOCK LEVER는 분해 후 재조립 하는 부품 입니다.)

Insert the INTERLOCK LEVER to MI-TRIP ROD, put the INTERLOCK LINK inside of bended part. Then tighten the screw.

Beware parts should not be apart from SLOT. (The INTERLOCK LEVER was removed above process no. 8.)

2) MI-TRIP ROD 좌측 끝단에 OPEN LATCH를 삽입후 E-RING으로 고정 하십시오.

Insert the OPEN LATCH to left end of MI-TRIP ROD, then fix it with E-Ring.

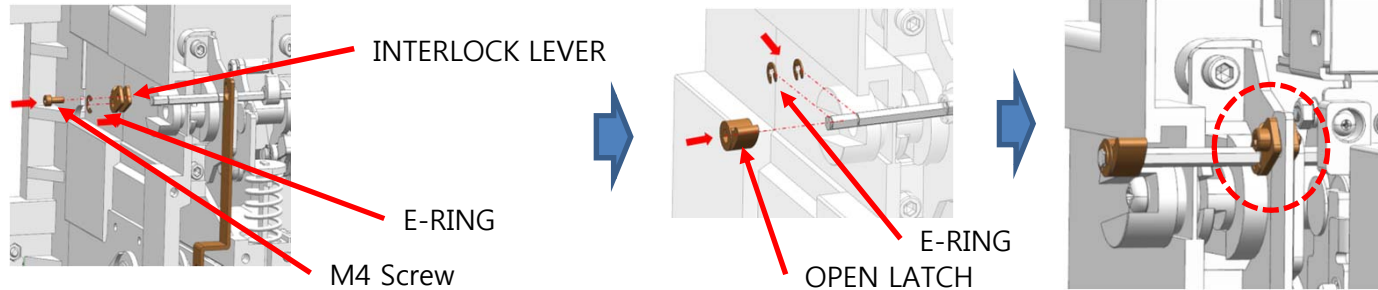


FIG 11

12. MHT UNIT & OCR 설치/ INSTALLATION OF MHT UNIT & OCR UNIT (FIG 12)

MHT UNIT 와 OCR UNIT는 분해의 역순으로 재조립 하십시오.

Reassemble MHT UNIT and OCR UNIT by inverse order of removing.

단, MHT UNIT 설치 시 자동리셋형인 경우에는 차단기를 투입 한 상태에서 그림과 같이 판스프링을

CROSS-BAR LEVER의 리셋 핀 뒤편으로 걸어 끼운다음 볼트를 조임 하십시오.

IF AUTO-RESET type, install the MHT UNIT in CLOSING STATE.

Put the plate spring at the rear side of reset pin in CROSS-BAR LEVER and screw the bolt.

⚠ 주의 : 반드시 판스프링의 위치와 OPEN LATCH의 위치는 그림과 같은 상태에 있어야 합니다.

⚠ CAUTION: The leaf spring and OPEN LATCH must be the same as the shown state in the figure.

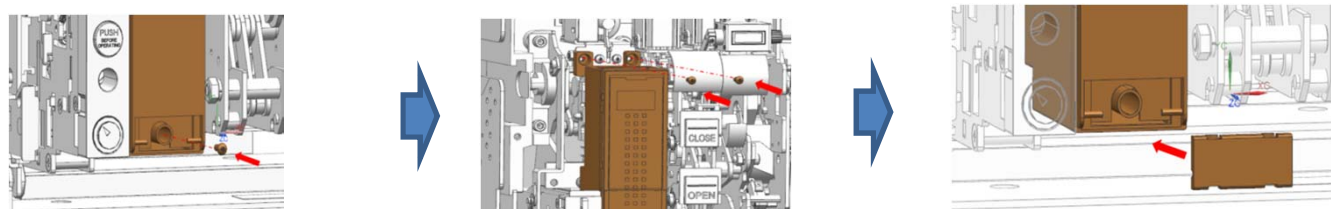
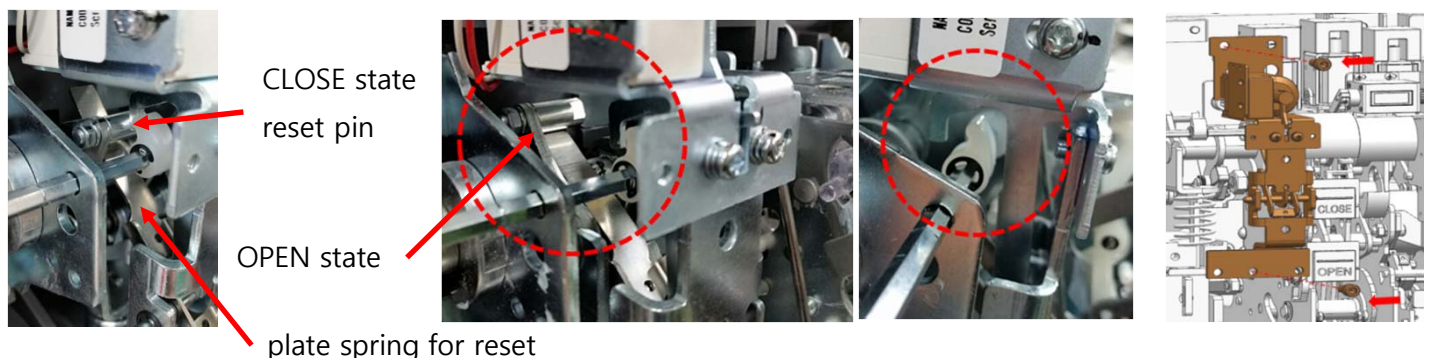


FIG 12

*** M/I 설치 / MI INSTALLATION (2WAY (B1) & 3WAY (B2))**

13. 고정형 BRACKET 설치 / INSTALLATION OF BRACKET FOR FIXED TYPE (FIG 13)

고정형 본체의 좌측면에 그림과 같이 BRACKET를 안착하고 측면 하단에 M6*8L R/H SCREW P, S/W를 조임하고
 전면에서 그림과 같이 M6*16L R/H SCREW P,S/W를 조임 하십시오.

Put the BRACKET in left side of FIXED TYPE main body.
 Then tighten the M6*8L R/H SCREW P,S/W in left lower side.
 Tighten the M6*16L R/H SCREW P,S/W in front.

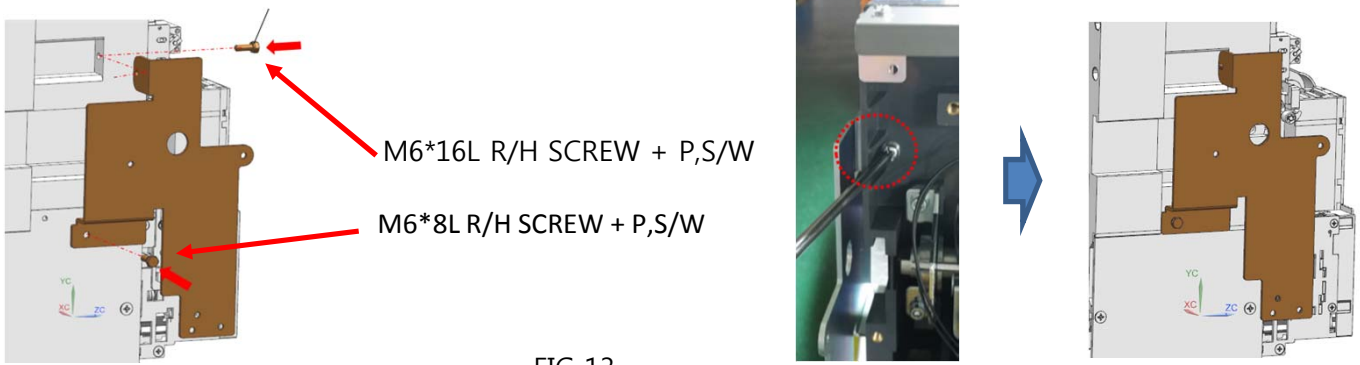


FIG 13

14. 고정형 본체의 M/I 설치 / INSTALLATION OF M/I FOR FIXED TYPE (FIG 14)

고정형 BRACKET이 설치된 고정형 본체의 좌측면에 그림과 같이 M/I를
 M6*10L(+)HEAD HEXAGON BOLT + P,S/W로 3개소 조임 하십시오.

Screw the M/I, which in left side of FIXED TYPE BODY (bracket installed), with M6*10L(+)HEAD HEXA BOLT + P,S/W.

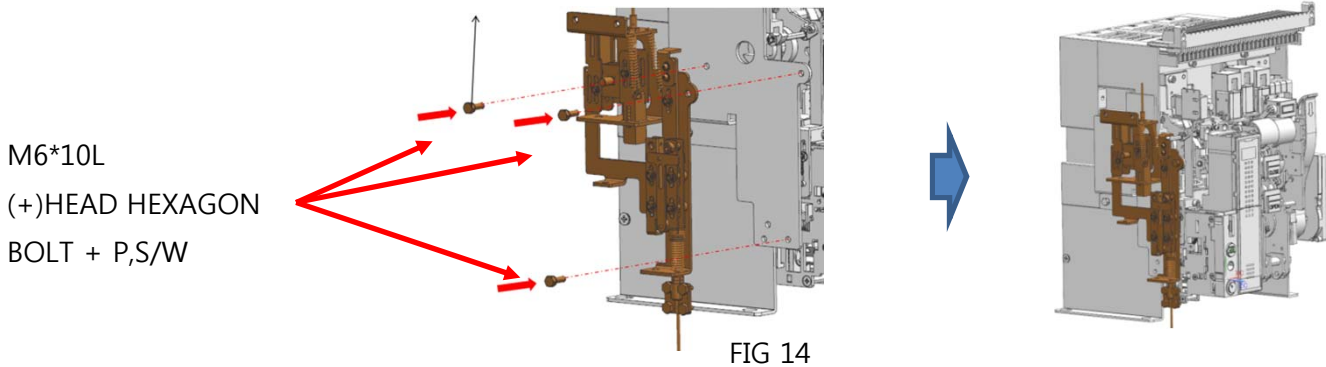


FIG 14

15. 인출형 제품의 M/I 설치 / INSTALLATION OF M/I FOR DRAW OUT TYPE (FIG 14)

CRADLE 좌측면에 그림과 같이 M/I를 M6*10L(+)HEAD HEXA BOLT + P,S/W 로 3개소 조임 하십시오.

Screw the M/I, which in the left side of CRADLE, with M6*10L(+)HEAD HEXA BOLT + P,S/W

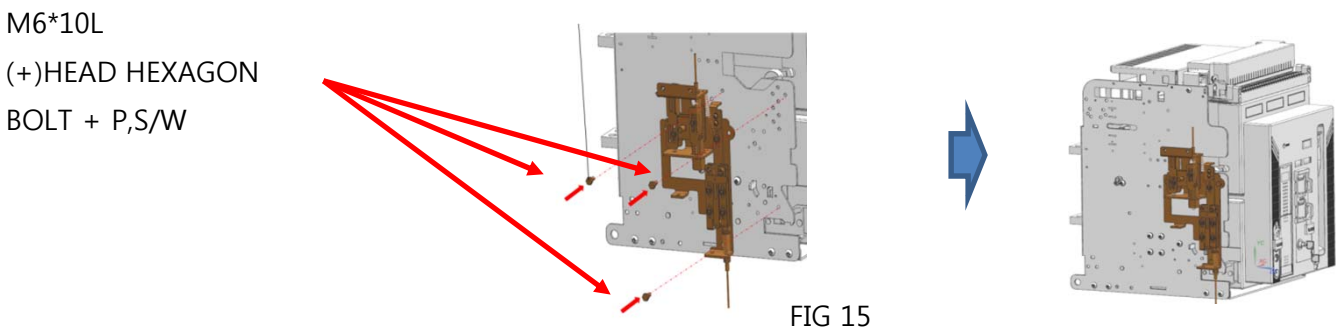


FIG 15

*** M/I 조립 후 동작 점검 / OPERATING CHECK AFTER INSTALLATION**

16. WIRE 배열 / ARRANGE OF WIRE (FIG 16)

제품에 M/I UNIT를 설치 후 제품을 연결하는 WIRE는 굽힘 반경 R은 최소 100mm 이상 이어야 하며 굽힘각 Θ 는 최소 90° 이상 되어야 합니다.

After installation of M/I Unit, the bending radius R value of connecting wire should be at least 100mm, and bending angle Θ should be at least 90°

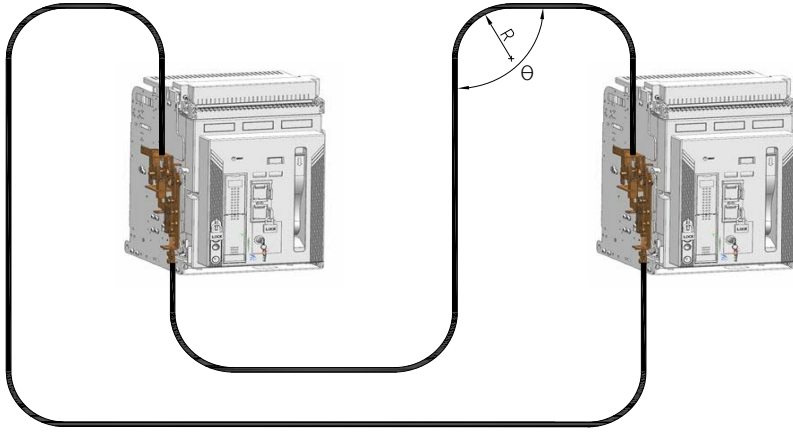


FIG 16

17 GAP CHECK (FIG 17)

1) 모든 부품의 조립이 완료되면 FRONT COVER를 장착하십시오. 인출형은 CONNECTED 위치 까지 제품을 삽입하십시오

After internal parts are assembled, attach the front cover. If Draw-out type, insert the body by "CONNECTED" position.

⚠ 주의 : 인입 시 본체 좌측의 OPEN LATCH가 M/I INTERLOCK PUSHER와 간섭하는지 반드시 확인하여야 합니다.

⚠ CAUTION : Must check whether OPEN LATCH in left side of main body inteferes M/I INTERLOCK PUSHER.

2) 고정형 차단기는 M/I가 설치 된 상태에서, 인출형 차단기는 CONNECTION 위치에서 OPEN LATCH와

M/I INTERLOCK PUSHER 간의 Gap이 1~1.5mm가 되도록 그림의 A부의 SCREW를 이용하여 setting 하십시오

Make gap in 1~1.5mm between OPEN LATCH and M/I INTERLOCK PUSHER using SCREW at A in figure.

Do this operation after M/I installed in FIXED TYPE CB, and at CONNECTION POSITION in DRAW-OUT TYPE CB.

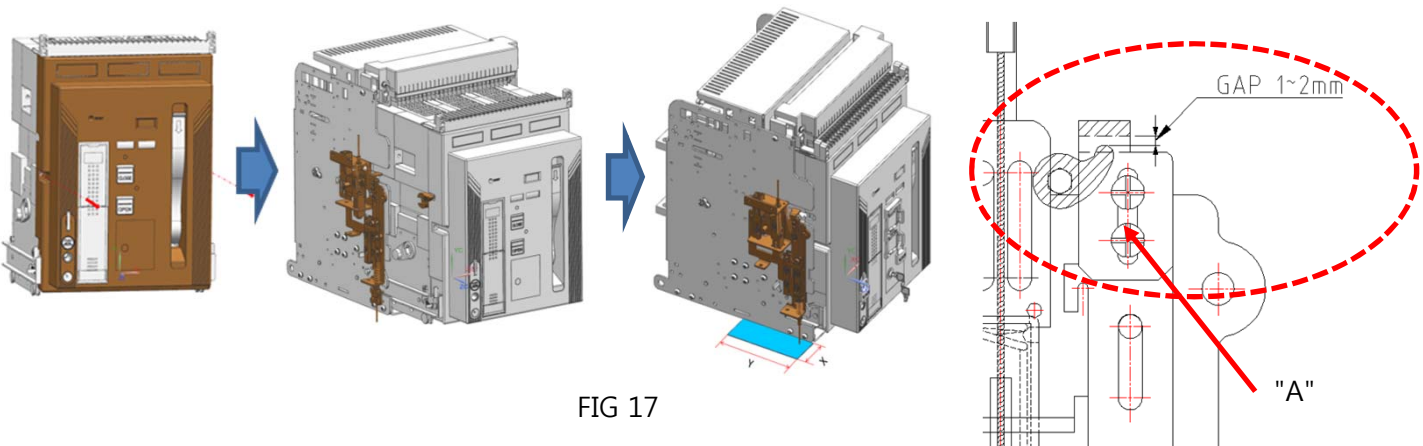


FIG 17

18. OPERATING CHECK

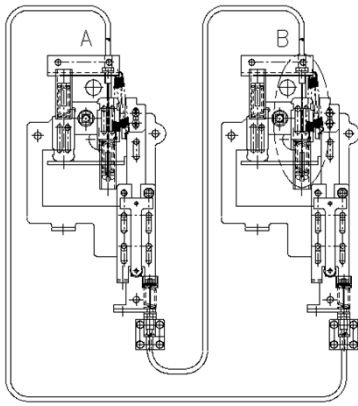
모든 부품의 조립이 완료되고 cable 정리가 완료 된 후 모든 연동된 차단기의 동작이 가능하다고 판단되면

아래의 표를 기준으로 동작을 실행하여 차단기의 ON/OFF 및 Interlock 동작이 정상적인지 확인 하십시오.

After assembly of all parts and arrange of all cables are completed,

Check whether normally to operate or not through ON/OFF operating and interlock operating of ACB

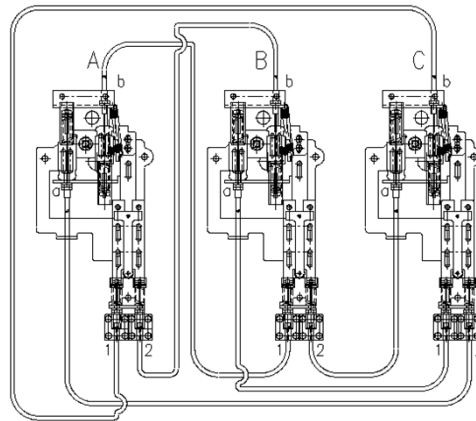
Refer to below the table of operating procedure.



2 WAY

A	B
OFF	OFF
ON	OFF (DO NOT PERMIT "ON")
OFF (DO NOT PERMIT "ON")	ON

FIG 18-1



3 WAY

CABLE 조립
 Aa -> C2 (5m)
 Ab -> B1
 Ba -> C1
 Bb -> A2
 Ca -> B2
 Cb -> A1 (5m)

A	B	C
OFF	OFF	OFF
ON	OFF	OFF
OFF	ON	OFF
OFF	OFF	ON
ON	ON	OFF (DO NOT PERMIT "ON")
OFF (DO NOT PERMIT "ON")	ON	ON
ON	OFF (DO NOT PERMIT "ON")	ON

FIG 18-2

19. ADJUSTING OF STROKE

동작 상태를 점검 중 Interlock 동작이 정상적이지 않은 경우가 발생하게 되면 그림의 "A" 및 "B"를 조절하여 stroke를 조정할 수 있습니다.

If function of interlock doesn't operate normally, Adjust the A or B.

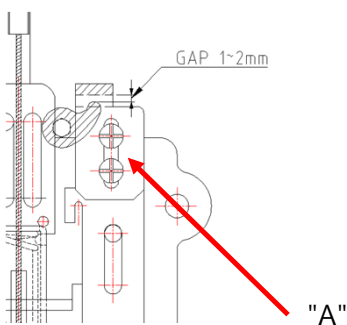
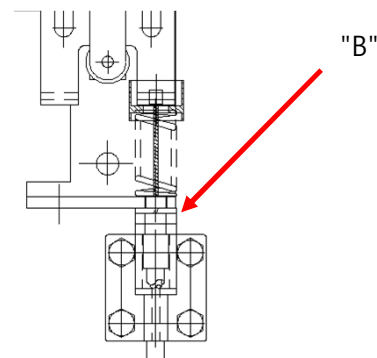


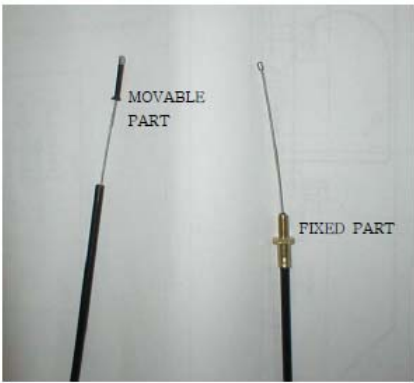
FIG 18-2



*** Annex : M/I CABLE 연결 / CONNECTION OF CABLE**

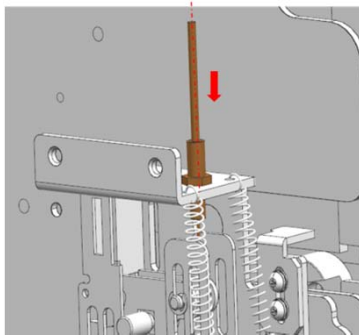
20. CABLE 연결 / CONNECTION OF CABLE

20-1. PREPARE MI CABLE UNIT1

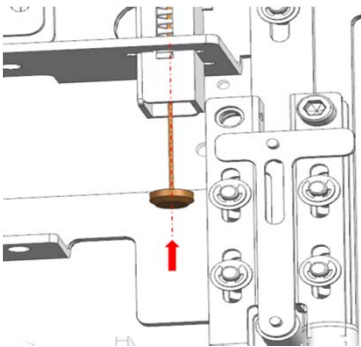


20-2. FIX FIXED PART OF MI CABLE UNIT1 WITH SPRING WASHER (FOR M6) ABOVE Ab OF BREAKER-A

20-3. EXTRACT WIRE AND PUT THROUGH THE CENTER OF Ab OF BREAKER1 AND THEN FIX IT WITH MI CABLE BUSH1



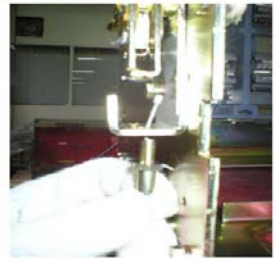
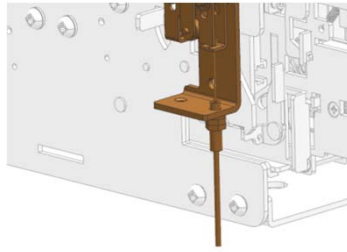
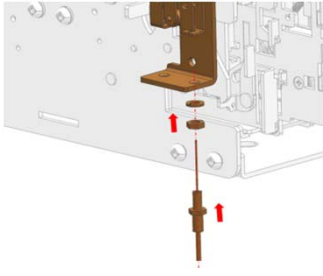
20-4. EXTRACT AND HOLD THE OTHER END(MOVABLE PART) WIRE TO PREVENT MISSING OF MI CABLE BUSH1.



20-5. PREPARE MOVABLE PART OF MI CABLE UNIT1



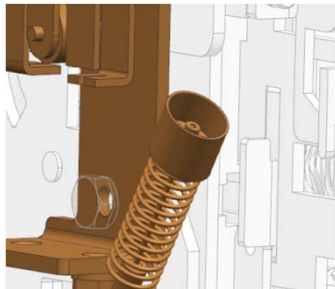
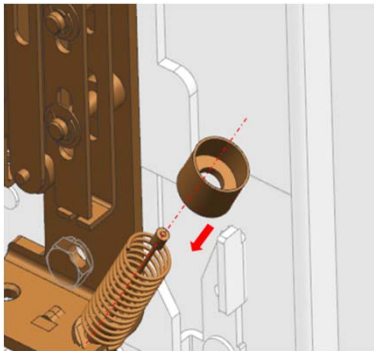
20-6. FIX MOVABLE PART WITH SPRING WASHER TO BELOW B2 OF BREAKER-B



20-7. ATTACH MI RESET SPRING2



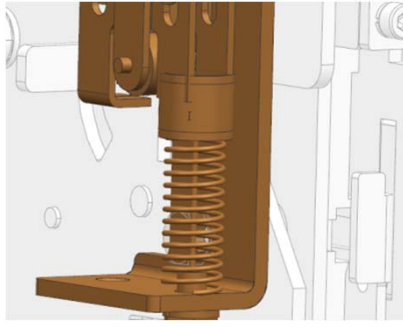
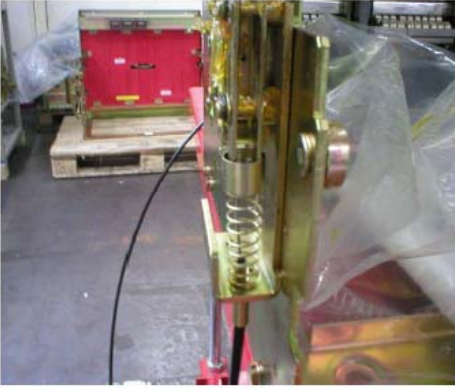
20-8. ASSEMBLE N-ME-CABLE-BUSH2 IN THE DIRECTION OF DEEP HOLLOW



20-9. INSERT WIRE OF MOVABLE PART TO B2 OF BREAKER-B

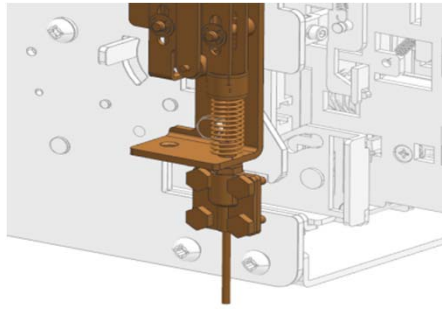
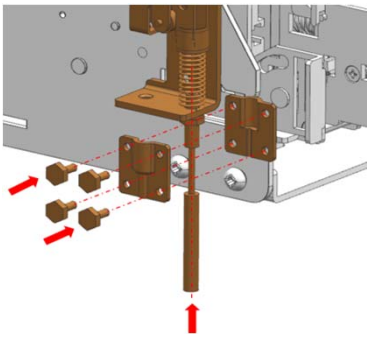


20-10. PLACE MI CABLE-BUSH2 IN PROPER POSITION LIKE BELOW IMAGE



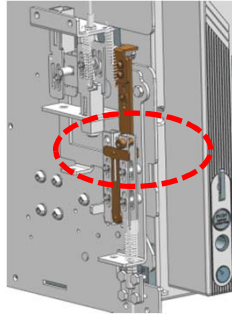
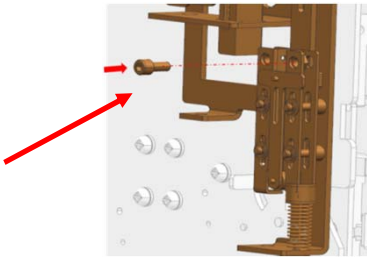
20-11. PULL DOWN THE SHEATH OF MOVABLE PART OF MI CABLE-UNIT1

20-12. ASSEMBLE MI CABLE-PUSH PLATE U&B



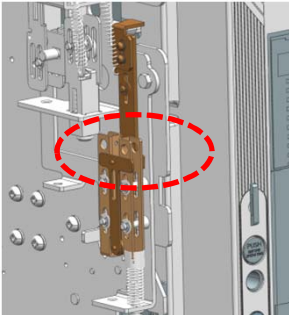
20-13. Attach a bolt in case of 2 WAY M/I.

M6 BOLT



This bolt don't need in case of 3WAY

20-14. 3 WAY M/I don't need M6 BOLT. But



Adjust Should be same position

