

Hydraulic Breaker

F***SERIES***

(F6,F9,F12,F19,F22,F27,F35,F45,F70)

INSTRUCTION MANUAL

WARNING

Inadvertent use of the breaker may cause serious injury or death.

Operators and service personnel shall carefully read this breaker operation manual to thoroughly understand the details.

Read the operation manual for the carrier as well.

FURUKAWA

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Standard specifications

Item \ Model		F6	F9	F12
Weight of body (incl. rod)		195	300	500
Total weight	T-BOX	305	465	760
	Side plate	320	480	825
	Side bracket	305	475	875
Weight of top bracket		45	70	80
Hydraulic oil pressure		10-14	12-15	16-18
Required oil qty		50-90	65-110	100-130
Number of blows		650-1050	550-900	450-625
Hose dia.	High-pressure side	19	19	19
	Low-pressure side	19	19	19

Item \ Model		F19	F22	F27
Weight of body (incl. rod)		640	865	960
Total weight	T-BOX	1130	1410	1550
	Side plate	1250	1640	2000
	Side bracket	1200	1640	1980
Weight of top bracket		200	200	250
Hydraulic oil pressure		16-18	16-18	16-18
Required oil qty		120-155	145-180	155-190
Number of blows		400-525	360-460	340-440
Hose dia.	High-pressure side	25	25	25
	Low-pressure side	25	25	25

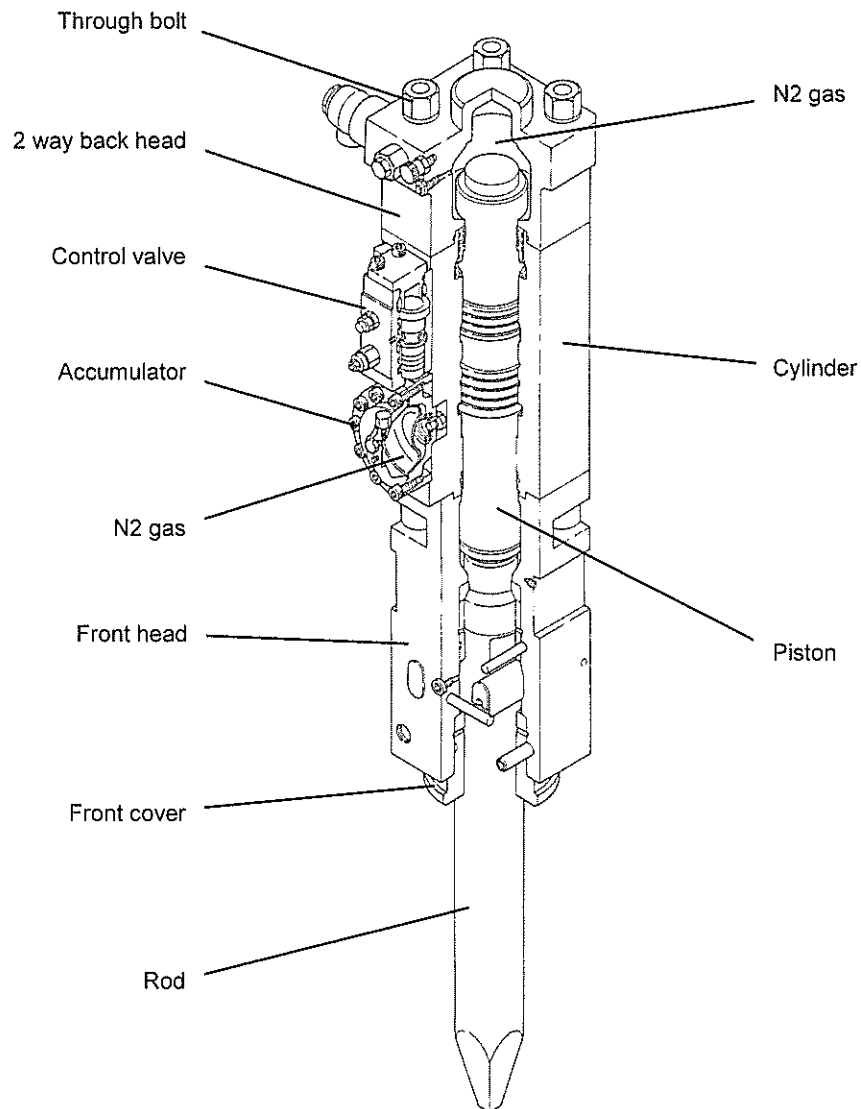
Item \ Model		F35	F45	F70
Weight of body (incl. rod)		1210	1590	2250
Total weight	T-BOX	2050	2950	3800
	Side plate	2300	3190	
	Side bracket	2520	3280	
Weight of top bracket		250	360	515
Hydraulic oil pressure		16-18	16-18	16-18
Required oil qty		175-220	200-250	250-340
Number of blows		320-400	300-350	250-320
Hose dia.	High-pressure side	25	32	32
	Low-pressure side	25	32	32

CAUTION

Use tunnel breaker for tunneling work. Use of standard breaker for tunneling work will be no warranty.

For underwater operation, ask your dealer for an air compressor kit.

FUNCTION OF EACH PART



The illustration is the F22 optional specifications
(T-BOX type.)

Through bolt

4 connecting bolts for fixing the front head, cylinder and back head of the breaker body..

Cylinder

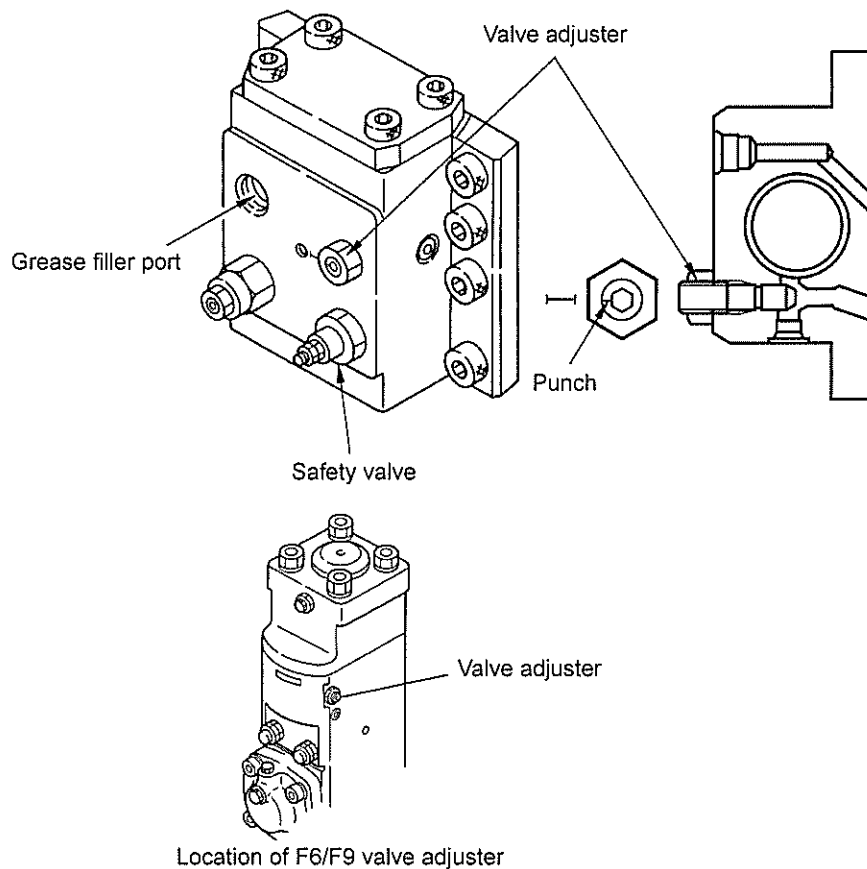
Hydraulic circuit for reciprocating the piston and stroke adjustment circuit is built in. The cylinder is the heart of the breaker body.

Accumulator

N2 gas is charged inside. The accumulator compensates for pressure in the hydraulic circuit and prevents pulsation. (See "Charging accumulator with N2 gas and inspection of charge pressure," p.3-28.)

Valve adjuster

The valve adjuster controls the quantity of breaker consumption oil.



- Adjusting valve adjuster is only needed when breaker is installed on a carrier other than recommended carrier so once breaker is installed, do not adjust it unnecessarily.

(See p.3-32.)

- * The marking of completely closed state is punched in alignment with the  mark on the valve housing when the valve adjuster is tightened completely. (0-point adjusting mark)

Turning valve adjuster counterclockwise increases number of blows and consumption oil and turning it clockwise decreases number of blows and consumption oil.

Safety valve (F12-F45)

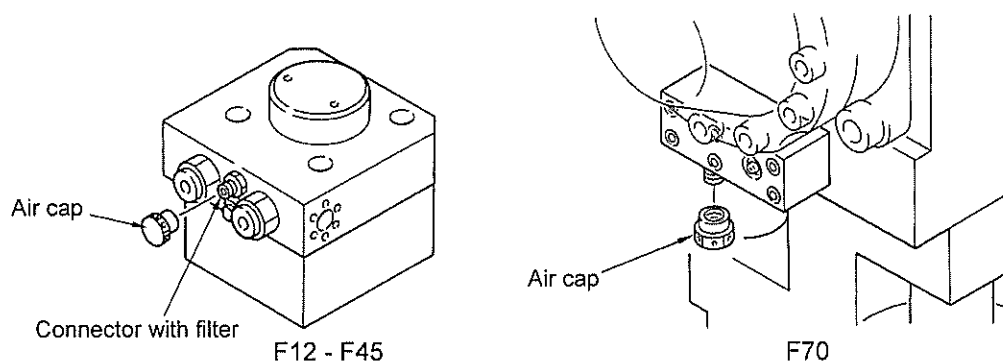
This valve protects the breaker from the overloaded oil pressure which rises to 21-22 MPa.

- Do not disassemble safety valve. If repairing is needed, ask your Furukawa dealer.

Grease supply port

- F12-F45 have grease nipple atop valve housing to grease front cover and thrust bush through internal passage.
- F6 and F9 grease thrust bush through grease nipple at front head.
- F70 greases front cover and thrust bush through grease nipple at cylinder port block or front head.

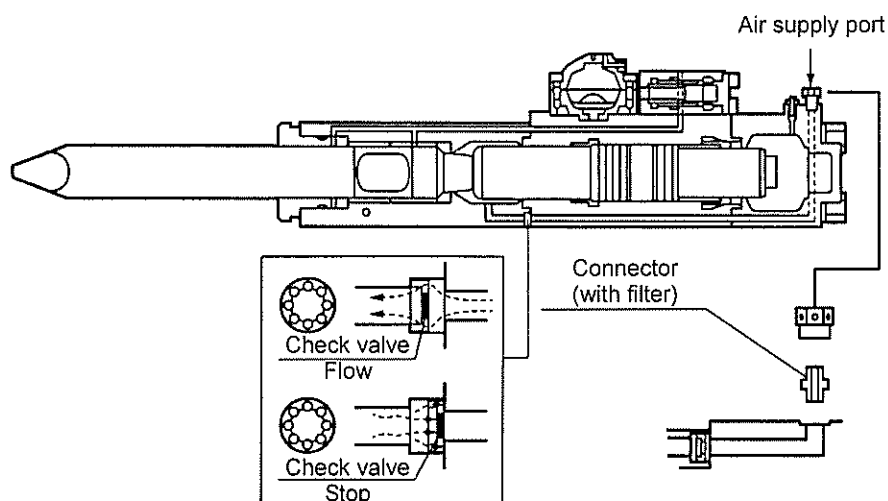
Air supply port



An air check valve is installed inside the breaker to prevent an air pump phenomenon in the piston chamber.

- The connector with a filter in the air supply port prevents suction of dust.
- Clean filter periodically.

Explanation of operation



- When the piston moves up, a negative pressure is generated in the piston chamber, and air enters into the piston chamber through the air check valve.
- When the piston moves down (blow process), the pressure inside the piston chamber increases, causing a back flow. However, the air check valve operates to stop the back flow, and prevents entry of dust by releasing the air to the rod side.

★ NOTICE

Do not operate the breaker with the air cap removed.

Attach air compressor piping to air supply port for operation in tunnel or underwater.

(See "Tunneling specifications," p.3-41.)

(See "Underwater specifications," p.3-42.)

PARTS LIST

F22

油圧ブレーカ

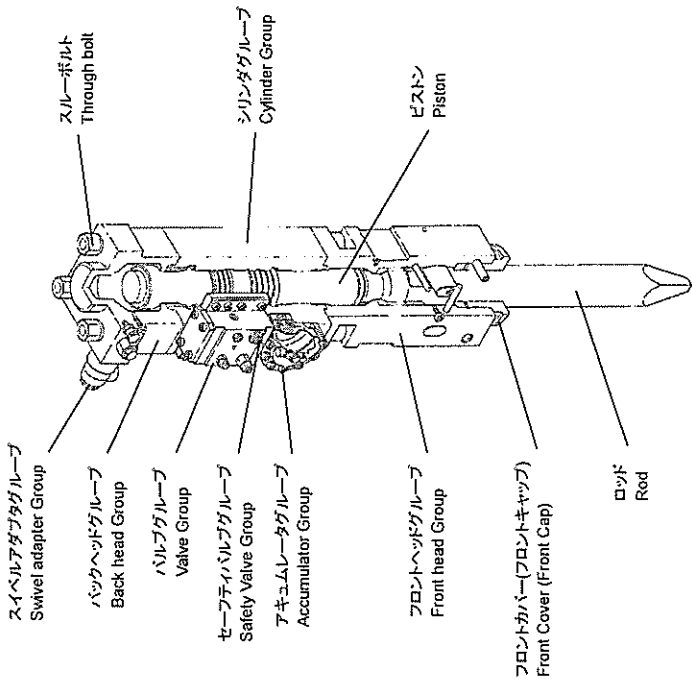
HYDRAULIC BREAKER

適用号機 3051 号機以降

APPLICABLE SERIAL NUMBER 3051 AND UP



各部の名称 Name of Components or Component Group



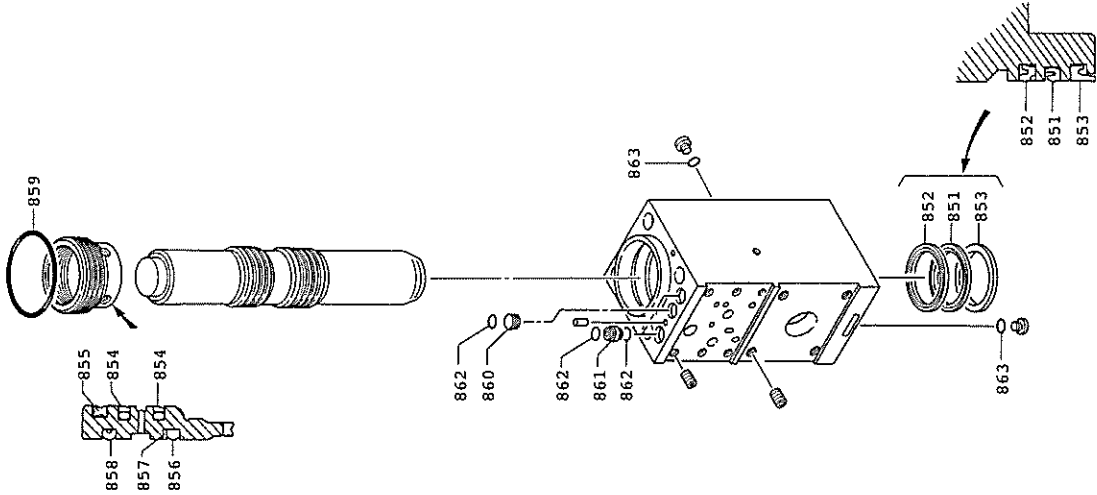
ブラケット組合せ Bracket Combination

サイドプレート SIDE PLATE	サイドブラケット SIDE BRACKET 中継配管 RELAY PIPING TYPE	サイドブラケット, S-ボックス SIDE BRACKET, S-BOX 中継配管 RELAY PIPING TYPE	サイドブラケット, S-ボックス SIDE BRACKET, S-BOX 内装配管 TRIM PIPING TYPE	T-ボックス, NT-ボックス T-BOX, NT-BOX 直接接続 WITH OUT SWIVEL
P.30-01	P.28-01	P.28-01	P.29-01	P.30-01
T-ボックス, NT-ボックス T-BOX, NT-BOX 直接接続・上向きかつアサクト WITH OUT SWIVEL UPWARD TOP BRACKET	T-ボックス, NT-ボックス T-BOX, NT-BOX スィール・標準かつアサクト SWIVEL •STANDARD TOP BRACKET	T-ボックス, NT-ボックス T-BOX, NT-BOX スィール・上向きかつアサクト SWIVEL •UPWARD TOP BRACKET		
P.30-01	P.31-01	P.31-01		

シールキット一覧表 SEAL KIT TABLE	スィール無 Without Swivel				スィール仕様 For Swivel Type				
	シールキット(A) SEAL KIT(A)	シールキット(B) SEAL KIT(B)	シールキット(C) SEAL KIT(C)	シールキット(E) SEAL KIT(E)	シールキット(A) SEAL KIT(A)	シールキット(B) SEAL KIT(B)	シールキット(C) SEAL KIT(C)	シールキット(D) SEAL KIT(D)	シールキット(E) SEAL KIT(E)
シリンダグループ Cylinder Group	F22-92021				F22-92021				
フロントヘッドグループ Front head Group		F22-92032				F22-92032			
バックヘッドグループ Back head Group									
バルブグループ Valve Group			F22-92023				F22-92023		
アキュムレータグループ Accumulator Group									
スィールアダプタグループ Swivel Adapter Group								F35-92024	
セーフティバルブグループ Safety Valve Group				F22-92025					F22-92025

シールキット(A)(シリンダグループ)
SEAL KIT(A) (CYLINDER GROUP)

R1.....シールキット(A)



符号 ITEM	部品番号 PART NO.	部品名 PART NAME	数量 Q'TY	適用機種 SERIAL NO.	備考: 補給性 REMARKS
	F22-92021	シールキット(A)	1	シリンダグループ用 FOR CYLINDER GROUP	
851	HB20G-10207	*U ハッキン	1		
852	F22-10108	*ハッパリング	1		
853	HB20G-10210	*ダストシール	1		
854	HB20G-10212	*スライト ハッキン	2		
855	F22-10214	*シールリング	1		
856	F22-10116	*D-リング	1		
857	262032-00160	*ハッパリング	1		
858	F22-10216	*デルタリング	1		
859	160021-00190	*O-RING	1		
860	HB20G-10120	*プラグ	1		
861	HB20G-10121	*ブッシュ	2		
862	160011-00029	*O-RING	5		
863	160011-00011	*O-RING	2		