SB Series

C612556

SOOSAN HYDRAULIC BREAKER

OPERATION MANUAL & PARTS LIST

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SOOSAN

SB Series

SOOSAN HYDRAULIC BREAKER

OPERATION MANUAL

DANGER

SERIOUS INJURY OR DEATH COULD RESULT FROM THE IMPROPER REPAIR OR SERIVICE OF THIS HYDRAULIC BREAKER.

REPAIRS AND / OR SERVICE TO THIS HYDRAULIC BREAKER MUST ONLY BE DONE BY AN AUTHORIZED AND CERTIFIED DEALER.

Model	
Serial Number	
Year of Construction	

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DANGER

DO NOT OPERATE THE HYDRAULIC BREAKER UNLESS THE FOLLOWING SAFETY INSTRUCTIONS HAVE BEEN THOROUGHLY READ AND UNDERSTOOD!
READ THIS MANUAL BEFORE INSTALLING, OPERATING OR MAINTAINING THIS EQUIPMENT.

- Flying debris form the hydraulic breaker or other material may cause serious or fatal injury to the operator. Personal protection equipment must be used.

- Flying debris hydraulic breaker or other materials may cause serious or fatal injury to bystanders. Never operate the grab when bystanders are in the working area.

- On machines/carriers, the hydraulic breaker can enter the operator's compartment under specific hydraulic breaker position. Make sure that suitable impact shields are used when operating the hydraulic breaker with this type of equipment.

- Do not operate the breaker unless all safety decals described in this manual are in place. The decals must be inspected periodically to ensure that all wording is legible. The decals must be replaced if illegible. Replacement decals can be obtained from your authorized Soosan Distributor.

- The hydraulic breaker will become very hot during operation. Allow time for hydraulic breaker to cool down before touching hydraulic breaker parts.

If this machine is transferred, be sure to attach this manual to the machine.

For safety, common items are described “SAFETY PRECATUIONS”, and others are mentioned in the succeeding pages.

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PREFACE

We appreciate your purchasing a Soosan Hydraulic Breaker.

The Hydraulic Breaker, designed and built to provide durable operation under any working conditions, has been developed by Soosan's excellent engineering techniques with accumulated experiences for many years. Without proper handling, regular inspection and maintenance, however, the machine fails to display its full capacity, resulting in various troubles of machine parts.

This publication should be carefully read prior to installation and operation in order to prevent any mishandling of hydraulic breaker.

We guarantee that a faithful compliance of the instruction will contribute to the best operation condition.

Customers are, therefore, required to keep in mind that the company is not responsible for troubles caused by not following our guidelines or not using genuine parts.

Soosan Heavy Industries Co., Ltd.

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OPERATION MANUAL

PARTS LIST

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1. Safety Precautions.

1.1 Safety Precautions

This manual contains safety, operation, and routine maintenance instructions. It doesn't contain service disassembly and service assembly instructions. If needed, complete service disassembly and service assembly instructions are contained in manual which can be ordered from your Soosan Hydraulic Breaker authorized and certified dealer.

Please read the following warning.

DANGER

Serious injury or death could result from the improper repair or service of this breaker. Repairs or service to this breaker must only be done by an authorized and certified dealer**.**

Most of the accidents are caused by disregarding the basic rules of operation inspection or repair, or by neglecting the inspection before operation. Many accidents can often be avoided by recognizing potentially hazardous situations before an accident occurs. Before operating, inspecting or repairing this machine, be sure to read and fully understand the preventive methods and warnings described on the machine or in this manual. If not, never operate, inspect or repair this machine

Safety labels and messages are classified as follows so that the users can understand the warnings on the machine or in this manual.

DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, It may also be used to alert against unsafe practices.
NOTICE	Signs used to indicate a statement of company policy directly or indirectly related to the safety of personal or protection of property.

The safety messages including the preventive measures to avoid danger.

For safety, common items are described in “SAFETY PRECAUTIONS", and others are mentioned in the succeeding pages.

Soosan cannot anticipate every possible circumstance that might involve a potential hazard on operation,

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inspection or repair. Therefore the warnings in this manual are not all inclusive. If an operation, inspection or repair not described in this manual is used, you must take measures for safety by yourself.
.

Observe the cautions and take a preventive measure for safety

The Soosan Hydraulic Breaker will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual, any decals and tags attached to the breaker before operation. Failure to do so could result in personal injury or equipment damage

■ Operate the breaker in accordance with all laws and regulations which affect you, your equipment, and the worksite.

■ Do not operate the breaker until you have read this manual and thoroughly understood all safety, operation and maintenance instructions.

■ Do not operate the breaker until you have read the carrier equipment manual and thoroughly understood backhoe or excavator or similar equipment used to operate the breaker. The word "carrier", as used in this manual, means a backhoe or excavator or similar equipment used to operate the breaker.

■ Ensure that all maintenance procedures recommended in this manual are completed before using the equipment.

■ The operator must not operate the breaker or carrier if any people are within the area where they may be injured by flying debris or movement of the equipment.

■ Know the limits of your equipment.

■ Before starting a work, Check the prohibitions, cautions and working processes in a working site with the field overseer, Observe all of them strictly.

■ Wear such protective tools as a helmet, safety shoes, etc. to perform a work.
Make use of the protective glasses, earplugs, gloves and other protective tools if necessary.

■ Establish a training program for all operators to ensure safe operation. Do not operate the breaker unless thoroughly trained or under the supervision of an instructor. Become familiar with the carrier controls before operating carrier and breaker. While learning operate the breaker and carrier, do so at a slow pace. If necessary, set the carrier to the slow position.

■ Make sure all controls(levers and pedals) are in the neutral position before starting the carrier.

■ Before leaving the carrier, always lower the boom and insure the carrier is stable. Never leave the machine with the engine running. Always engage the parking brake.

■ Stop the engine before attempting to make any repairs, adjustments or servicing to either the carrier or the breaker.

■ Do not operate the breaker at oil temperature above 175℉/80℃. Operation at higher temperature can damage the internal components of the breaker and carrier and will result in reduced breaker performance.

■ Do not operate a damaged, leaking, improperly adjusted, or incompletely assembled breaker.

■ Do not modify this breaker in any manner.

■ Use only breaker parts manufactured by Soosan. Usage of breaker rod produced by another manufacturer may damage the breaker and will void the warranty.

■ To avoid personal injury or equipment damage, all breaker repair, maintenance and service must only be performed by authorized and properly trained personnel.
■ If you do not understand how to operate safely your breaker, contact an authorized Soosan Dealer for

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assistance.

■ Keep this manual with the breaker.

■ Do not operate this equipment if you are taking medication which may affect your mental judgement or physical performance.

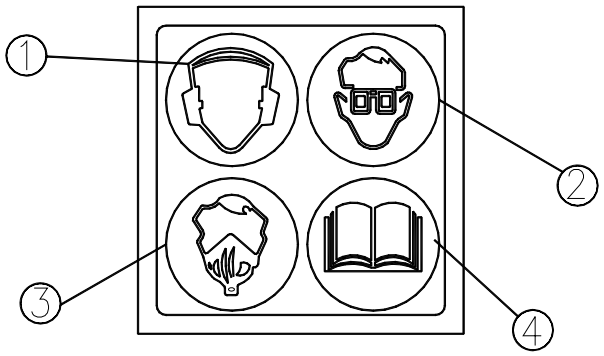
■ Do not operate this equipment if you are under the influence of drug or alcohol.

■ Remove breaker form carrier during transportation.

1.2 Sticker list & Placed on the Breaker

■ Warning sticker (C03 192)

1) Use hearing protection 2) Use eye protection
3) Use breathing protection 4) Use the manual before use

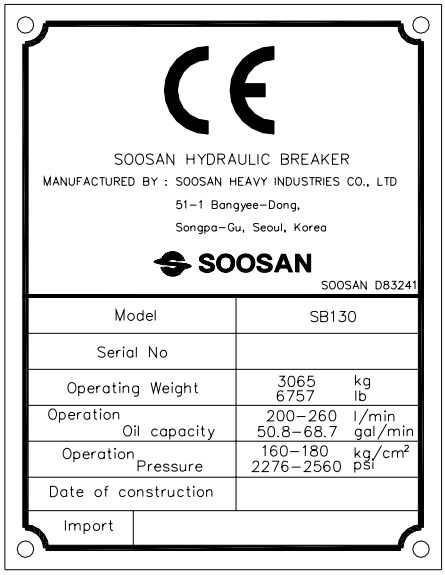


■ Greasing Sticker (SOOSAN D83 168)

GREASING

1. Fill cavity with recommended grease.
2. Grease whenever pin looks dry.
3. Failure to comply with these instruction can result in damage to demolition & sorting grab and will void the warranty.

■ Specification Plate(For Example SB130)



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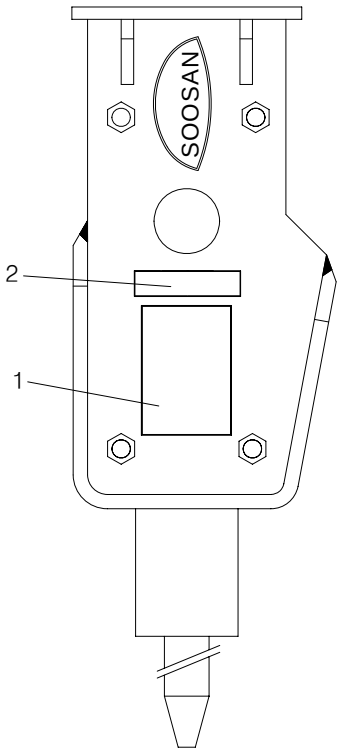
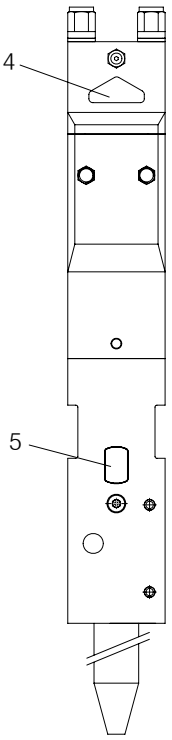
■ SB10 II~SB70

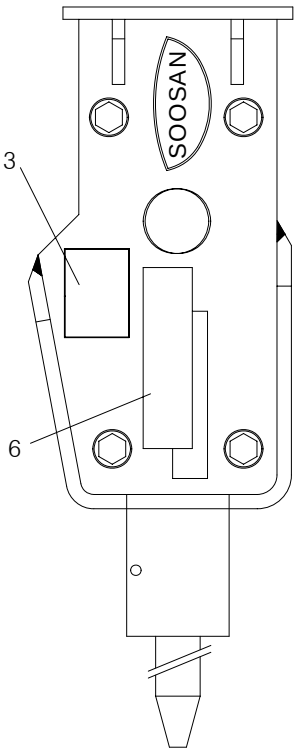
NO. / MODEL.	1 Danger Sticker	2 Warning Sticker	3 Spec Plate Sticker	4 Back Head Sticker	5 Greasing Sticker	6 Model Sticker
SB10II	E83 147	E83 148	E83 145	E83 144	C02 136	E83 146
SB20II	C03 193	C03 192	F03 123	C02 135	↑	F03 114
SB30II	↑	↑	E73 130	↑	↑	E73 129
SB35II	↑	↑	F83 150	↑	↑	F83 151
SB40II	↑	↑	C03 361	↑	↑	C03 115
SB43II	↑	↑	F93 157	↑	↑	F93 155
SB45	↑	↑	D43 289	↑	↑	D43 114
SB50	C02 193	↑	C13 328	↑	↑	C03 116
SB60	↑	↑	C23 353	↑	↑	C23 113
SB70	C03 296	D83 166	L03 150	↑	↑	L03 148



LEFT



MAIN BODY



RIGHT

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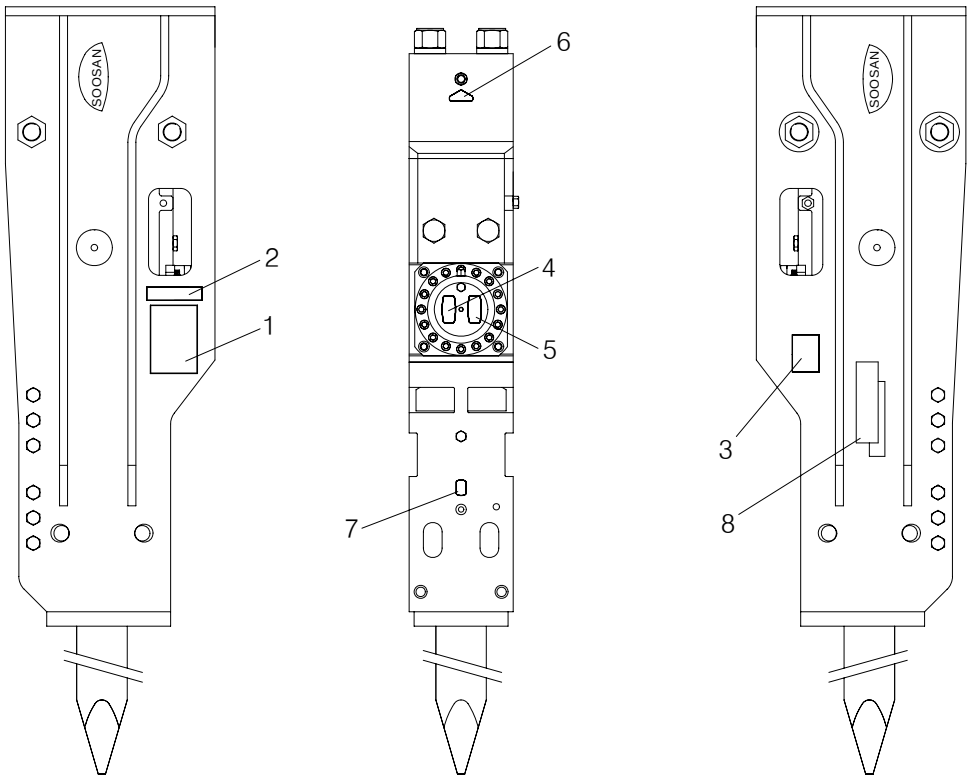
■ SB81~SB151

NO. / MODEL	1 Danger Sticker	2 Warning Sticker	3 Spec Plate	4 Acc' Sticker(A)	5 Acc' Sticker(B)	6 Back Head Sticker	7 Greasing Sticker	8 Model Sticker
SB81	C02138	C03192	C33450	C62212	C62213	C02135	C02136	C32248
SB100	D83167	D83166	E93190	C62212	C62213	C02135	D83168	E93138
SB121	C02138	C03192	C63254	C62212	C62213	C02135	C02136	C62245
SB130	C02138	C03192	D83241	C62212	C62213	C02135	C02136	D82115
SB151	C03193	C03192	C73167	C62212	C62213	C02135	C02136	C73130



LEFT MAIN BODY RIGHT

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■ SB10TS-P~SB151TS-P

MODEL \ NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Soosan Sticker	Model Sticker	Silenced Sticker	TUV Sticker	CE Sticker	Name Plate	AEM Sticker	Danger Sticker	Logo Sticker	Warning Sticker	Greasing Sticker	Back Head Sticker	Auto Greasing Sticker	Acc' Sticker (A)	Acc' Sticker (B)	Distance Sticker	Noise Sticker	Lifting Sticker
SB10IITS-P	E73161	E83131	C03300	D83174	D83163	E83130	D83164	C03296	C03301	D83166	D83168	E83144	-	-	-	E73185	E83163	C23344
SB20IITS-P	↑	F03129	↑	↑	↑	F03128	↑	↑	↑	↑	↑	↑	-	-	-	↑	F03126	↑
SB30IITS-P	↑	E73162	↑	↑	↑	E73158	↑	↑	↑	↑	↑	↑	-	-	-	↑	E73184	↑
SB35IITS-P	↑	F83129	↑	↑	↑	F83130	↑	↑	↑	↑	↑	↑	-	-	-	D83239	F83149	↑
SB40IITS-P	C03298	C03299	↑	↑	↑	C03297	↑	↑	↑	↑	↑	C02135	-	-	-	↑	C03323	↑
SB43IITS-P	↑	F93137	↑	↑	↑	F93136	↑	↑	↑	↑	↑	↑	-	-	-	↑	F93153	↑
SB45TS-P	D43226	D43227	D83169	↑	↑	D43213	↑	↑	C33509	↑	↑	↑	D83170	-	-	↑	D43287	↑
SB50TS-P	C13263	C13264	↑	↑	↑	C13262	↑	↑	↑	↑	↑	↑	↑	-	-	↑	C13317	↑
SB60TS-P	C23295	C23296	↑	↑	↑	C23294	↑	D83167	↑	↑	↑	↑	↑	-	-	↑	C23323	↑
SB70TS-P	C33507	L03148	↑	↑	↑	L03147	↑	↑	↑	↑	↑	↑	↑	-	-	↑	L03149	↑
SB81TS-P	↑	C33508	↑	↑	↑	C33505	↑	↑	↑	↑	↑	↑	↑	-		↑	C33598	↑
SB81ATS-P	↑	↑	↑	↑	↑	C33510	↑	↑	↑	↑	↑	↑	↑	C62213	C62212	↑	↑	↑
SB100TS-P	E93137	E93138	↑	↑	↑	E93136	↑	↑	C73234	↑	↑	↑	↑	↑	↑	↑	E93199	↑
SB121TS-P	C63306	C63307	↑	↑	↑	C63304	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	C63366	↑
SB130TS-P	D83172	D83173	↑	↑	↑	D83165	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	D83232	↑
SB140TS-P	D83172	D83173	↑	↑	↑	L23 33	↑	↑	↑	↑	↑	↑	-	↑	↑	↑	D83232	↑
SB151TS-P	C73232	C73233	↑	↑	↑	C73231	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	C73292	↑

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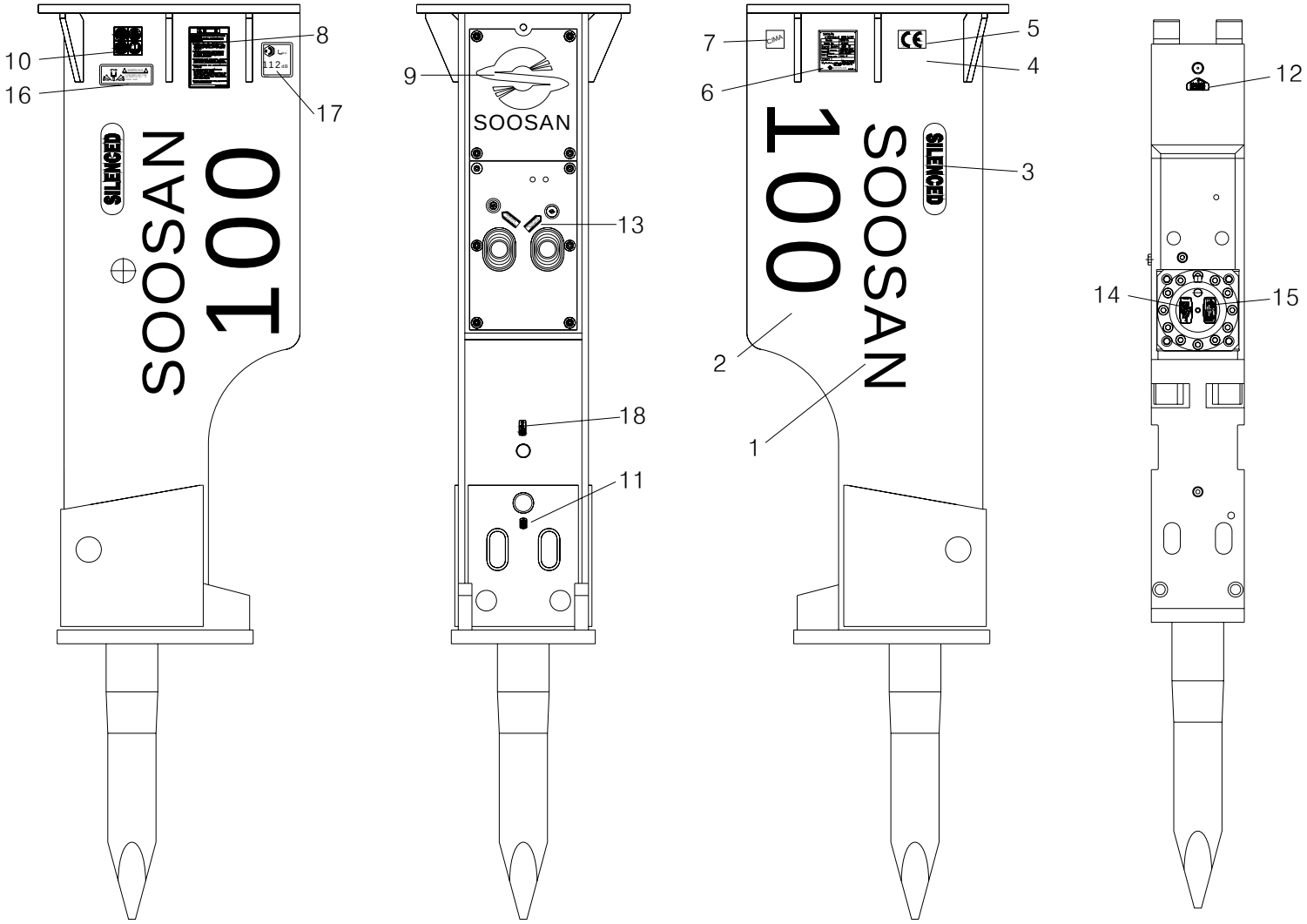

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Local safety regulations.

Enter any local safety regulation here, keep these instructions in an area accessible to the operator and maintenance personnel.

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2. Standard Specification

DESCRIPTION		UNIT	MODEL							
			SB10II	**SB20II**	**SB30II**	**SB35II**	**SB40II**	**SB43II**	**SB45**	**SB50**
Body Weight	Including Rod	kg	53	65	86	122	151	208	278	471
		lb	117	143	190	269	333	459	613	1038
Operating Weight	Side Type	kg	70	90	120	180	250	380	510	765
		lb	154	198	265	397	551	838	1124	1687
	Top Type (Trench)	kg	73	100	120	189	298	375	577	890
		lb	161	220	265	417	657	827	1272	1962
	TS-P	kg	102	126	152	224	295	375	571	861
		lb	225	278	335	494	650	827	1259	1898
Length	Side Type	mm	972	1000	1170	1244	1347	1699	1737	1994
		in	38.3	39.4	46.1	49.0	53.0	66.8	68.4	78.5
	Top Type (Trench)	mm	1072	1119	1210	1394	1390	1699	2070	2060
		in	42.2	44.1	47.6	54.9	54.7	66.9	81.5	81.1
	TS-P	mm	1135	1262	1342	1472	1600	1859	2101	2326
		in	44.7	49.7	52.8	58.0	63.0	73.2	82.7	91.6
Width	Side Type	mm	162	176	177	233	235	290	357	395
		in	6.4	6.9	7.0	9.3	9.3	11.4	14.1	15.6
	Top Type (Trench)	mm	162	176	177	233	350	288	357	438
		in	6.4	6.9	7.0	9.3	13.8	11.3	14.1	17.2
	TS-P	mm	252	264	264	320	320	336	378	420
		in	9.9	10.4	10.4	12.6	12.6	13.2	14.9	16.5
Required Oil Flow		ℓ/min	15～30	20～40	25～50	30～60	40～70	50～90	60～100	80～110
		gal/min	4~8	5.3~10.6	6.6~13.2	7.9~16	10.6 ~18.5	13.2 ~23.8	15.9 ~26.4	21.1 ~29.1
Operating Pressure		kg/㎠	90～120	90~120	90~120	100~130	110~140	120~150	130~160	150~170
		psi	1280 ~1707	1280 ~1707	1280 ~1707	1422 ~1849	1565 ~1991	1707 ~2134	1849 ~2276	2134 ~2418
Impact Rate		BPM	800 ～1400	700 ～1200	600 ～1100	500 ～1000	500～900	400～800	400～800	350～700
Hose Diameter		in	⅜,½	⅜,½	½	½	½	½	¾	¾
Rod Diameter		mm	40	45	53	60	68	75	85	100
		in	1.6	1.8	2.1	2.4	2.7	3.0	3.3	3.9
Applicable Carrier		㎥	0.07 이하	0.03~0.1	0.06~0.2	0.1~0.25	0.15~0.3	0.2~0.35	0.25~0.5	0.4~0.6
		ton	0.8~2.5	1.2~3.0	2.5~4.5	3.0~5.5	4.0~7.0	6~9	7~14	11~16
Noise Level		dB	105.5	106.8	108.5	116.9	108.7	114.5	112	113.5

* Operating weight include Cap, Rod weight by AEM regulation.
  (Except for pin, hose, fitting and tubing)
* The above specifications are subject to change without prior notice for the quality enhancement.
* The above Noise level is TS-P type.
* Rod is long type standard.

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DESCRIPTION		UNIT	MODEL							
			SB60	**SB70**	**SB81/81A**	**SB100**	**SB121**	**SB130**	**SB140**	**SB151**
Body Weight	Including Rod	kg	618	759	911/943	1072	1283	1443	1579	1924
		lb	1362	1673	2008/2079	2363	2829	3181	3481	4242
Operating Weight	Side Type	kg	1255	1462	1740/1772	2144	2413	2650	2990	3788
		lb	2767	3223	3836/3907	4727	5320	5842	6592	8351
	Top Type (Trench)	kg	1303	1515	1754/1786	1972	2555	3065	-	3909
		lb	2873	3340	3867/3937	4347	5633	6757	-	8618
	TS-P	kg	1297	1500	1766/1798	2071	2632	2833	3090	3991
		lb	2859	3307	3893/3964	4566	5803	6246	6812	8799
Length	Side Type	mm	2119	2289	2409	2430	2731	2919	3015	3189
		in	83.4	90.1	94.8	95.7	107.5	114.9	118.7	125.6
	Top Type (Trench)	mm	2520	2691	2823	3047	3119	3359	3461	3617
		in	99.2	105.9	111.1	120.0	122.8	132.2	136.2	142.4
	TS-P	mm	2604	2691	2828	3052	3254	3393	3461	3709
		in	102.5	105.9	111.3	120.2	128.1	133.6	136.3	146.0
Width	Side Type	mm	508	508	508	600	610	610	630	665
		in	20.0	20.0	20.0	23.6	24.0	24.0	24.8	26.2
	Top Type (Trench)	mm	498	580	620	620	710	710	-	760
		in	19.6	22.8	24.4	24.4	28.0	28.0	-	29.9
	TS-P	mm	498	580	620	620	710	710	730	760
		in	19.6	22.8	24.4	24.4	28.0	28.0	28.7	29.9
Required Oil Flow		ℓ/min	90~120	100~150	120~180	150~210	180~240	200~260	200~260	210~290
		gal/ min	23.8 ~31.7	26.4 ~39.6	31.7 ~47.6	39.6 ~55.5	47.6 ~63.4	50.8 ~68.7	50.8 ~68.7	55.5 ~76.6
Operating Pressure		kg/㎠	150~170	160~180	160~180	160~180	160~180	160~180	160~180	160~180
		psi	2134 ~2418	2276 ~2560	2276 ~2560	2276 ~2560	2276 ~2560	2276 ~2560	2276 ~2560	2276 ~2560
Impact Rate		BPM	350~650	350~600	350~500	300~450	300~450	250~400	250~350	200~350
Hose Diameter		in	1	1	1	1	1¼	1¼	1¼	1¼
Rod Diameter		mm	125	135	140	150	155	165	165	175
		in	4.9	5.3	5.5	5.9	6.1	6.1	6.5	6.9
Applicable Carrier		㎥	0.5~0.7	0.6~0.8	0.7~0.9	0.9~1.2	1.1~1.4	1.2~1.7	1.2~1.7	1.4~2.0
		ton	15~18	16~21	18~26	25~30	28~35	30~45	30~45	40~55
Noise Level		dB	115	120	118	120	123	124	124	125

* Operating weight include Cap, Rod weight by AEM regulation.
  (Except for pin, hose, fitting and tubing)
* The above specifications are subject to change without prior notice for the quality enhancement.
* The above Noise level is TS-P type.
* Rod is long type standard.

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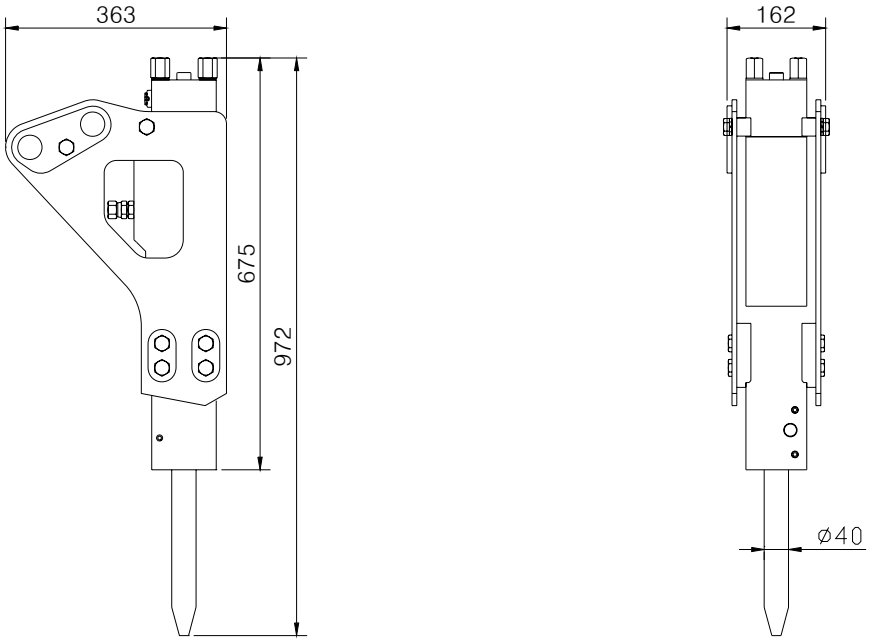
3. External Dimension

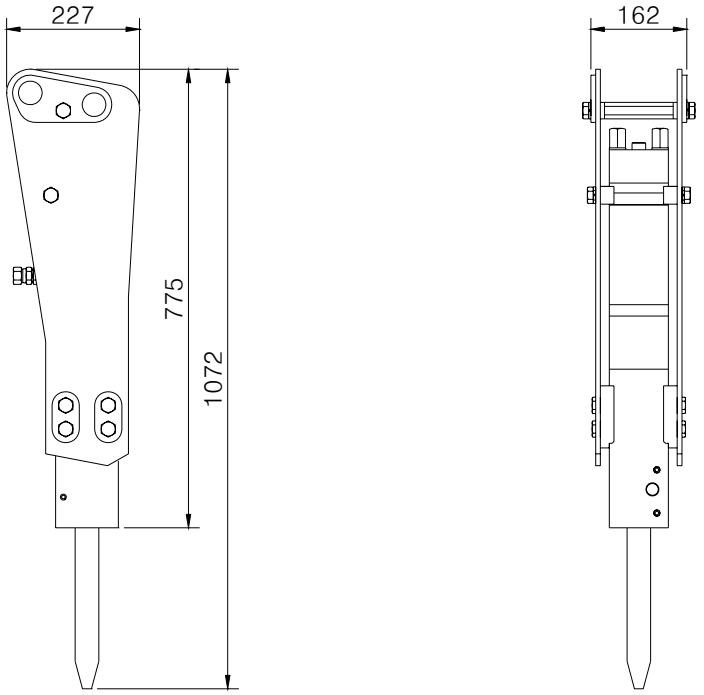
3.1 SIDE & TOP Type

MODEL : SB10II

SIDE TYPE



TOP TYPE



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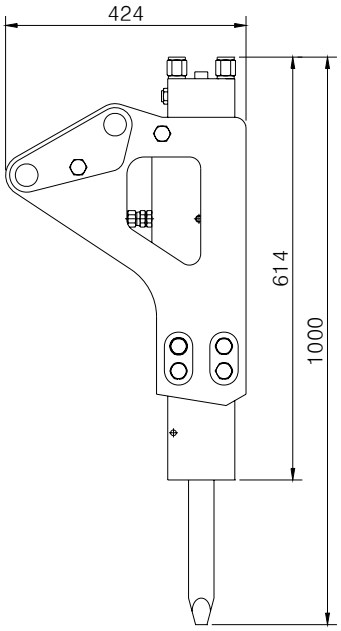
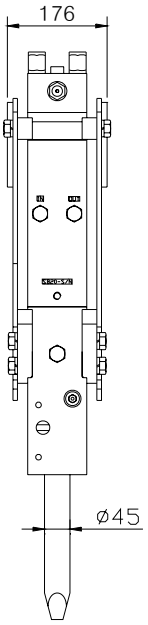
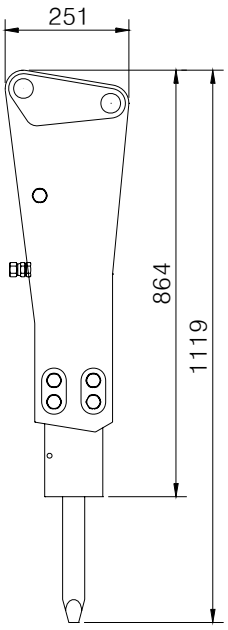
MODEL : SB20II

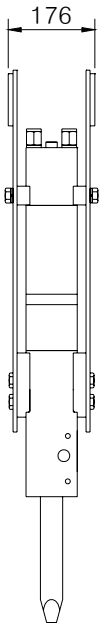
SIDE TYPE





TOP TYPE

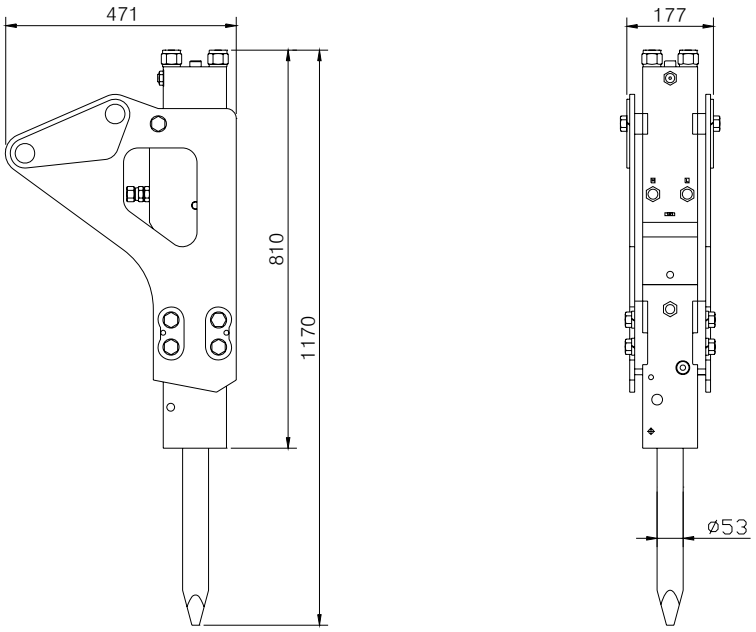




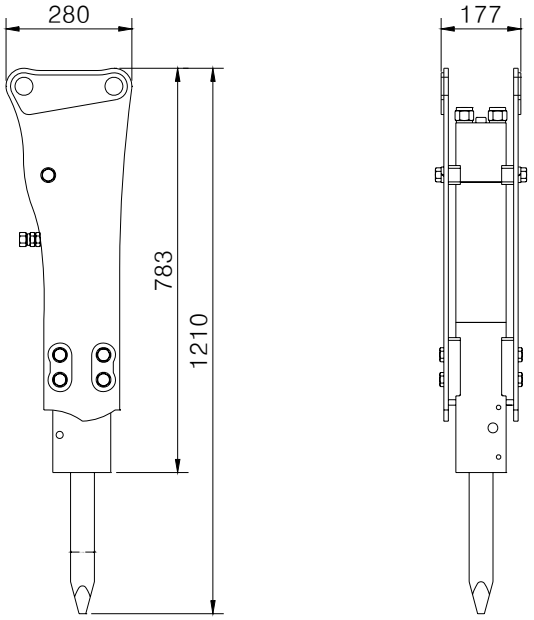
https://cranemanuals.com

MODEL : SB30II

SIDE TYPE



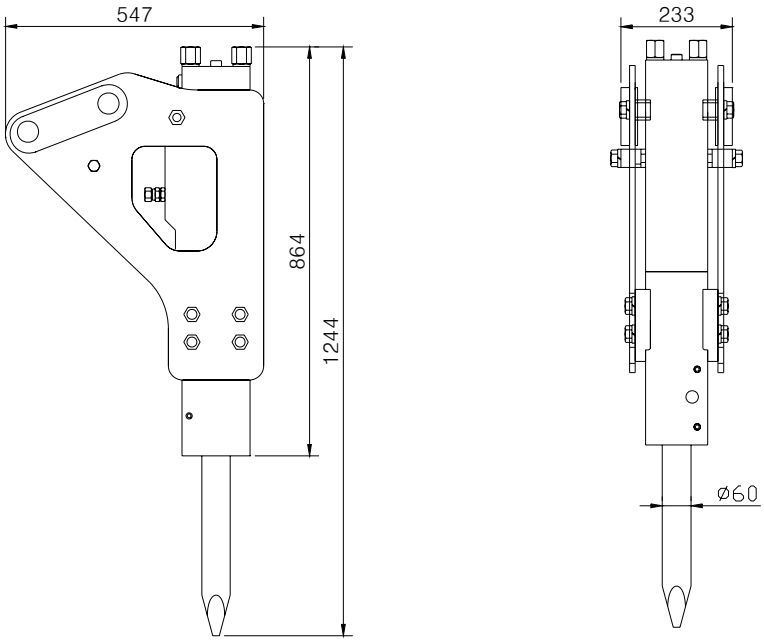
TOP TYPE



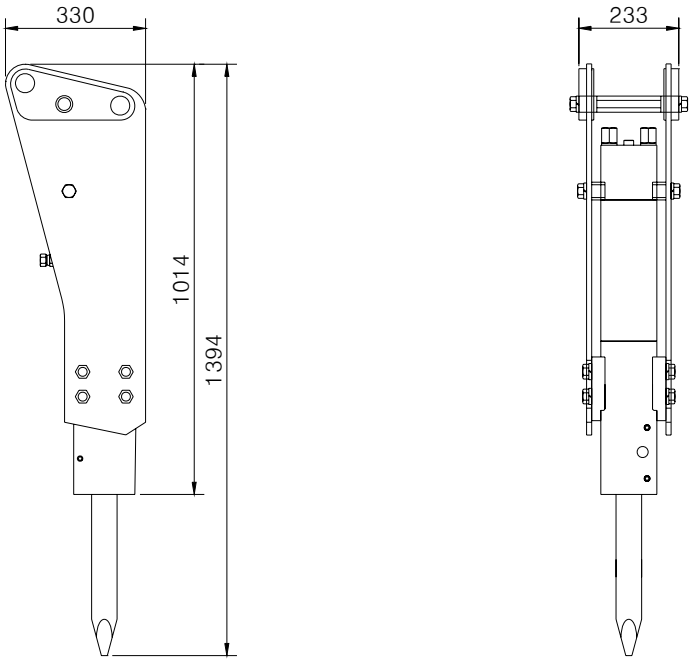
https://cranemanuals.com

MODEL : SB35II

SIDE TYPE



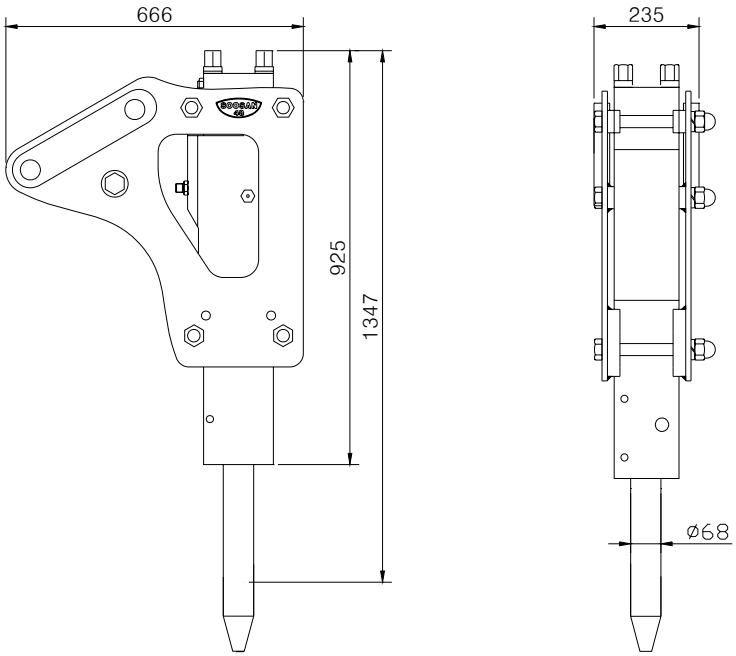
TOP TYPE



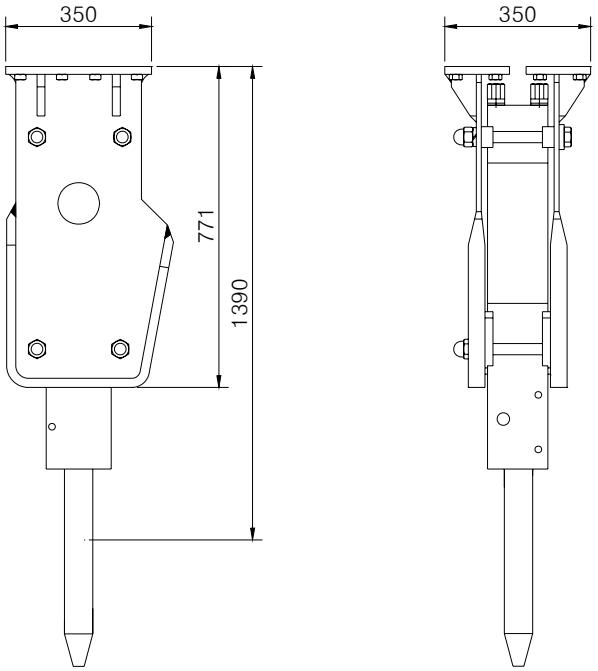
https://cranemanuals.com

MODEL : SB40II

SIDE TYPE



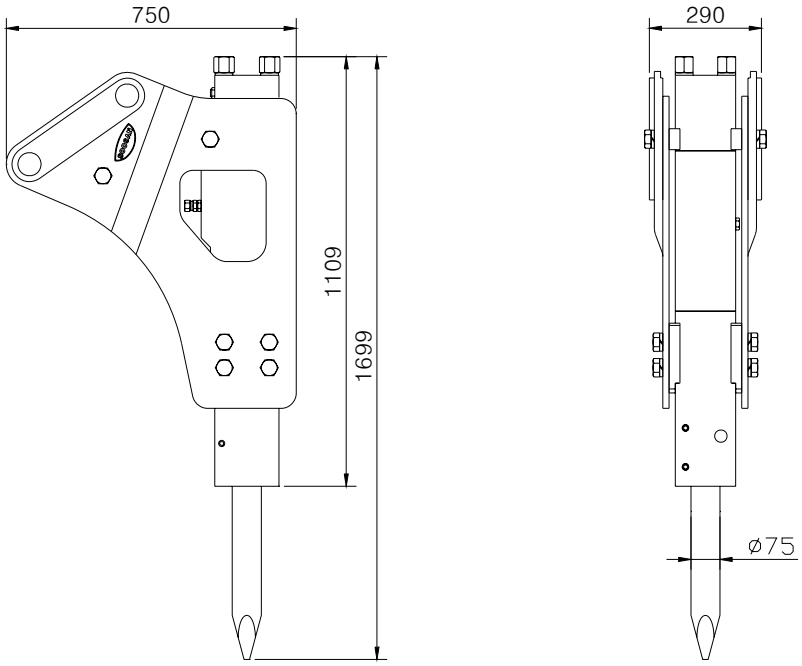
TOP TYPE



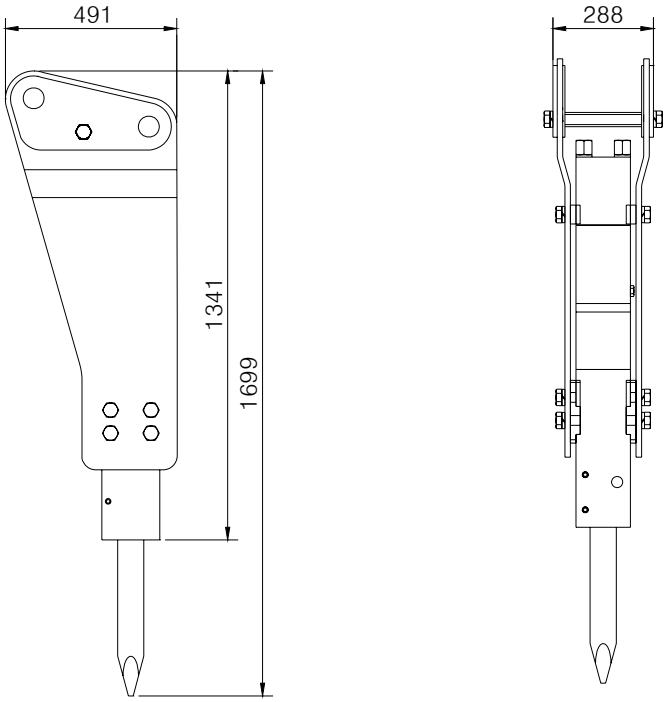
https://cranemanuals.com

MODEL : SB43II

SIDE TYPE



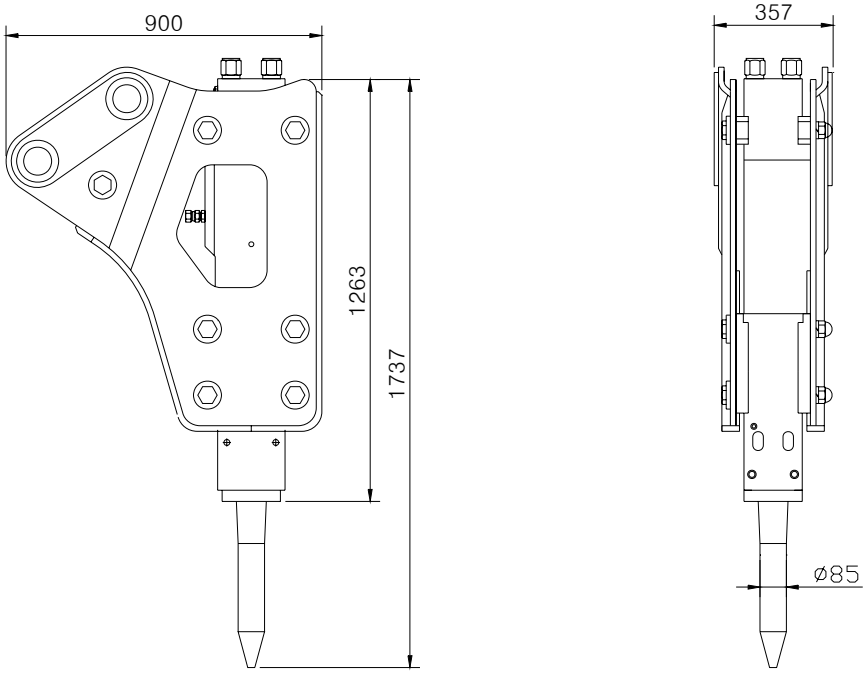
TOP TYPE



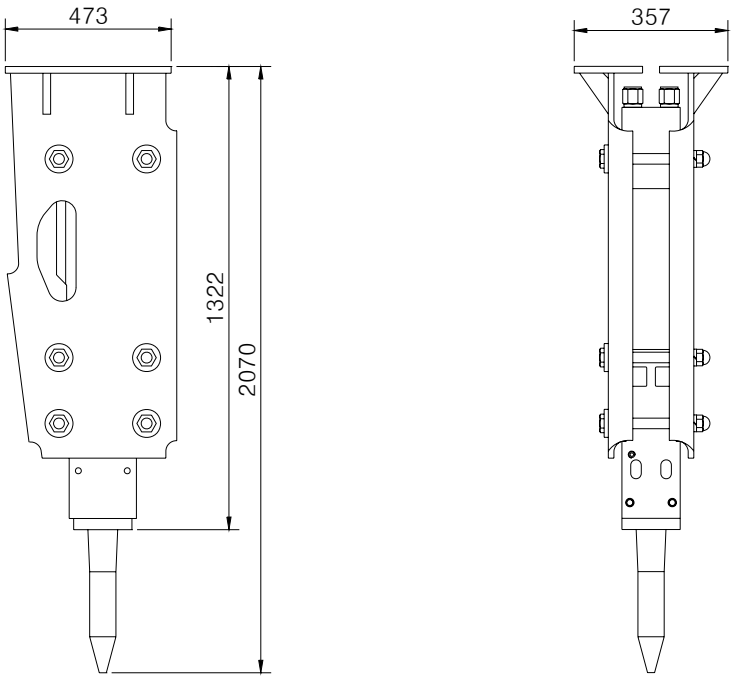
https://cranemanuals.com

MODEL : SB45

SIDE TYPE



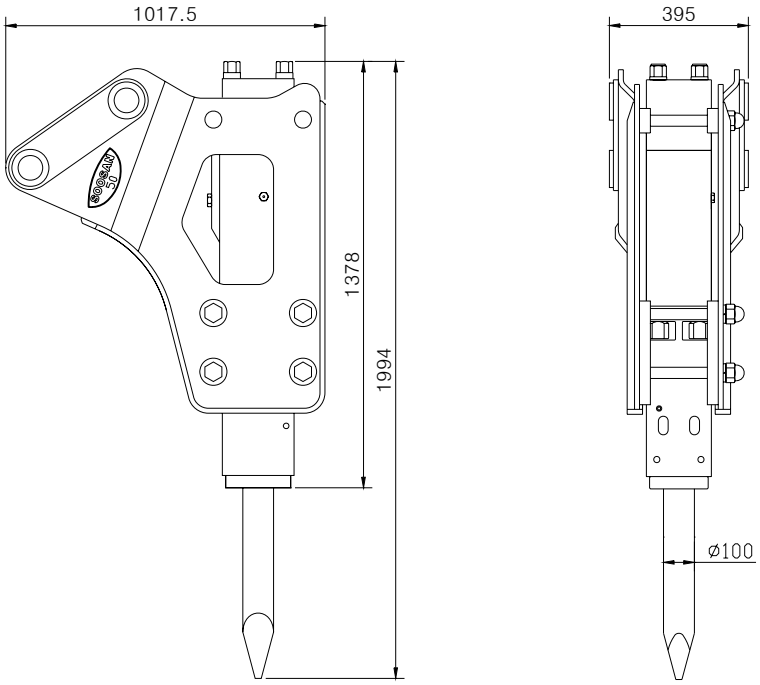
TOP TYPE



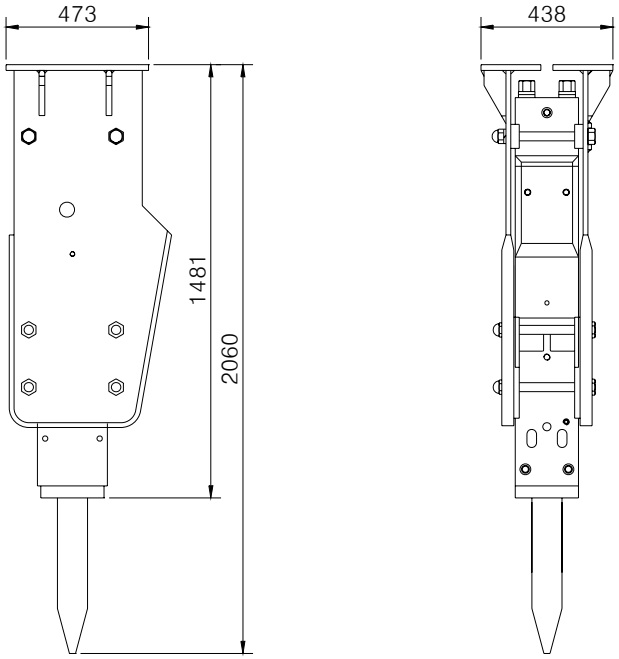
https://cranemanuals.com

MODEL : SB50

SIDE TYPE



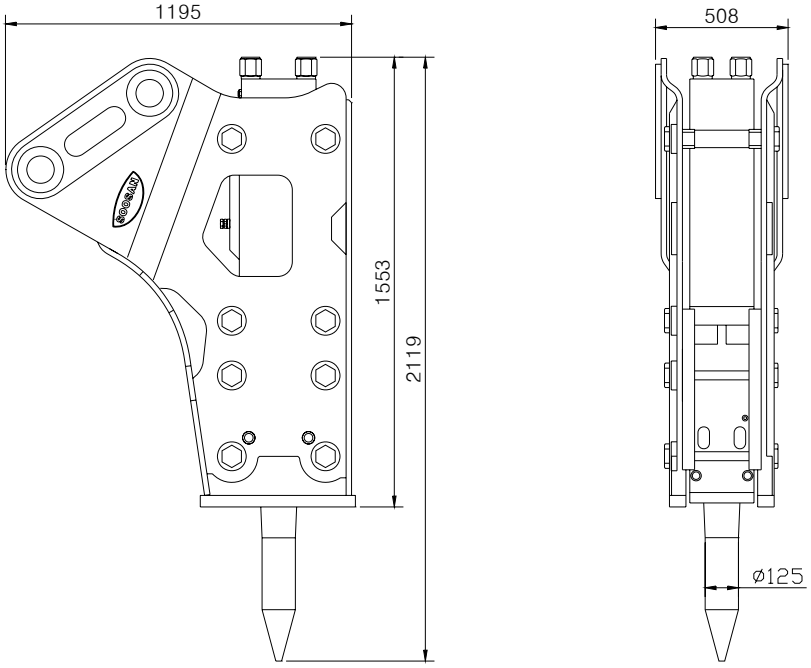
TOP TYPE



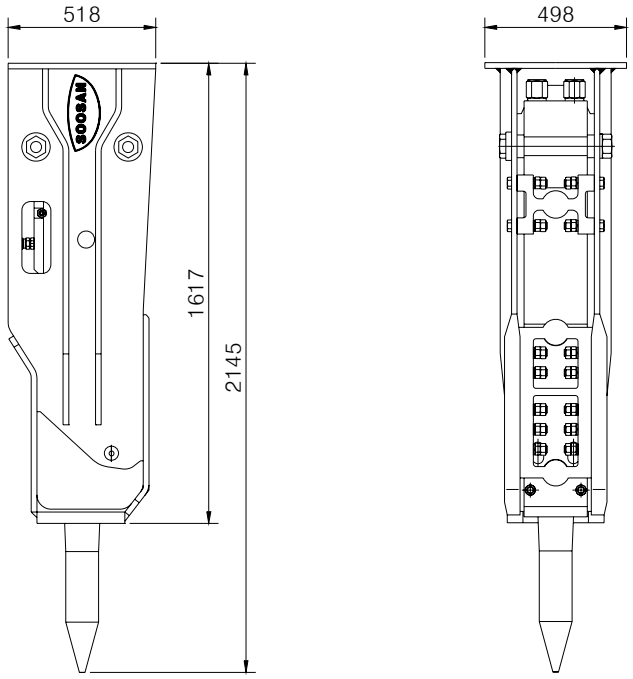
https://cranemanuals.com

MODEL : SB60

SIDE TYPE



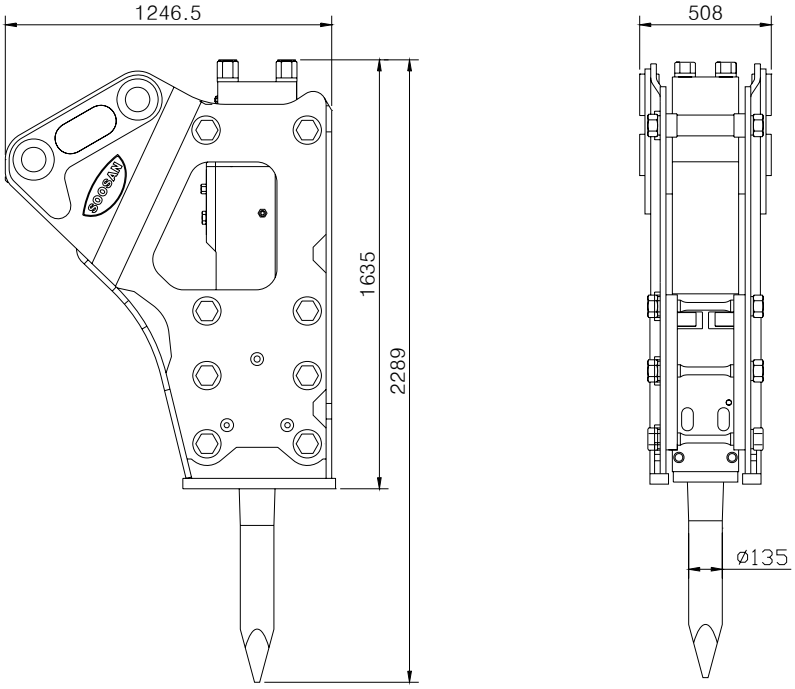
TRENCH TYPE



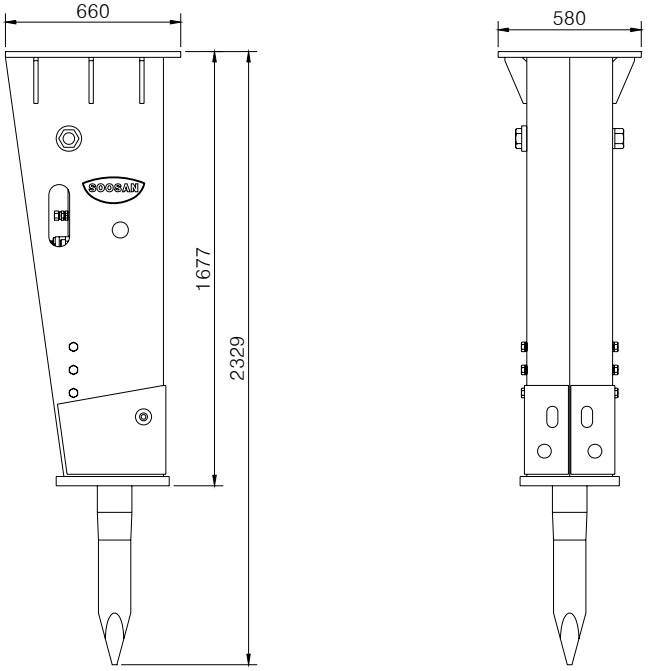
https://cranemanuals.com

MODEL : SB70

SIDE TYPE



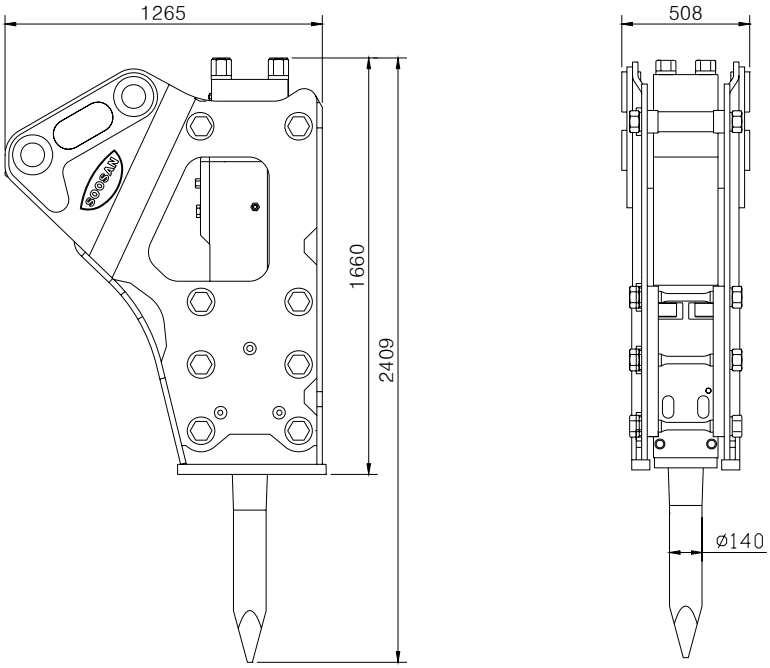
TRENCH TYPE



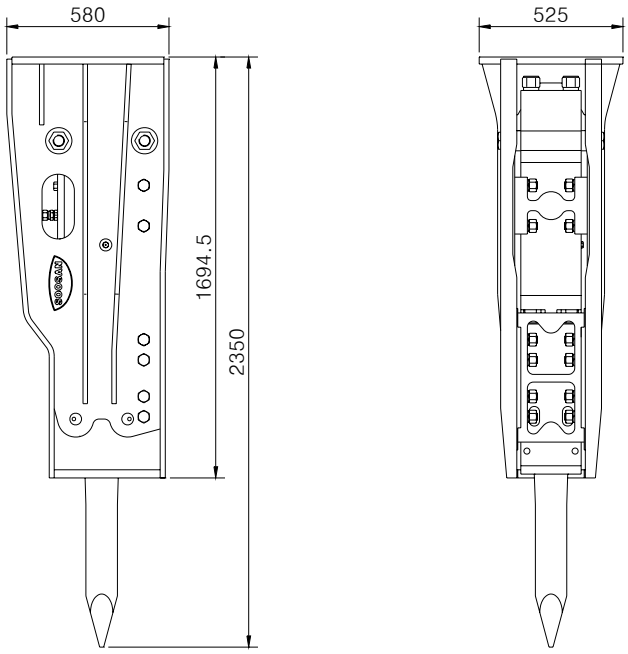
https://cranemanuals.com

MODEL : SB81

SIDE TYPE



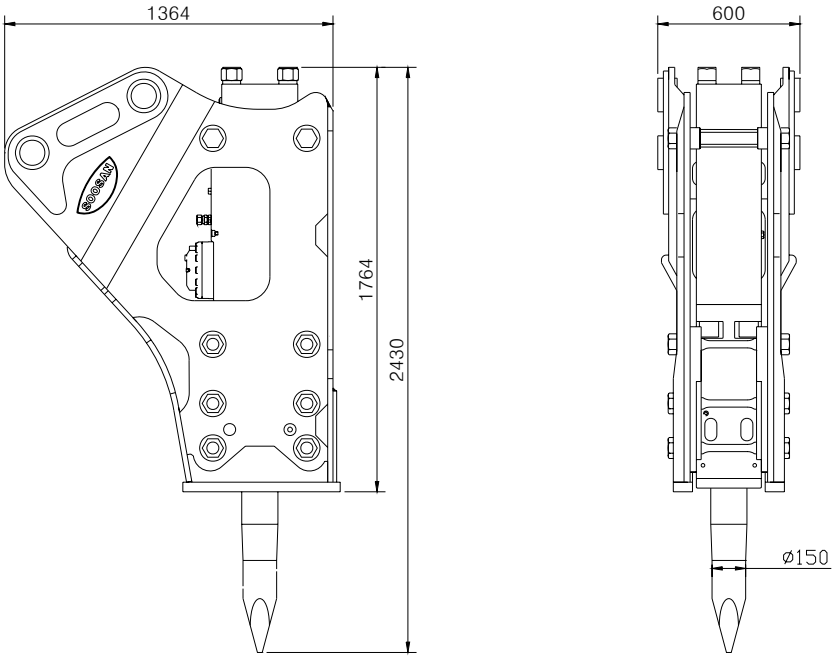
TRENCH TYPE



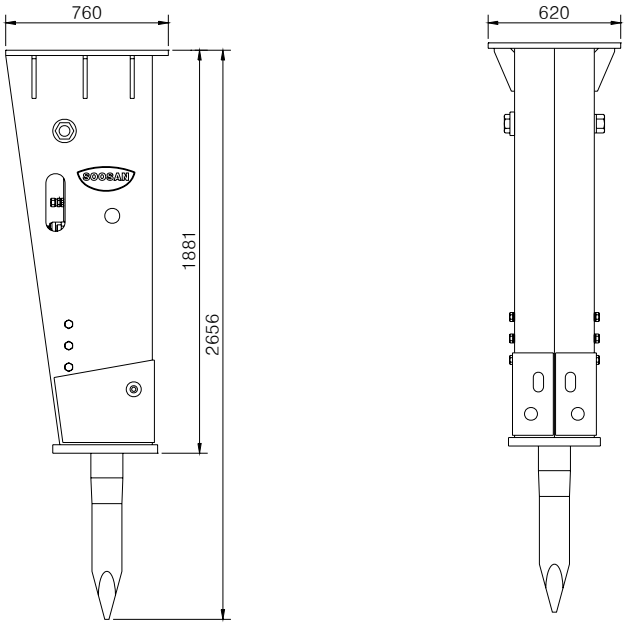
https://cranemanuals.com

MODEL : SB100

SIDE TYPE



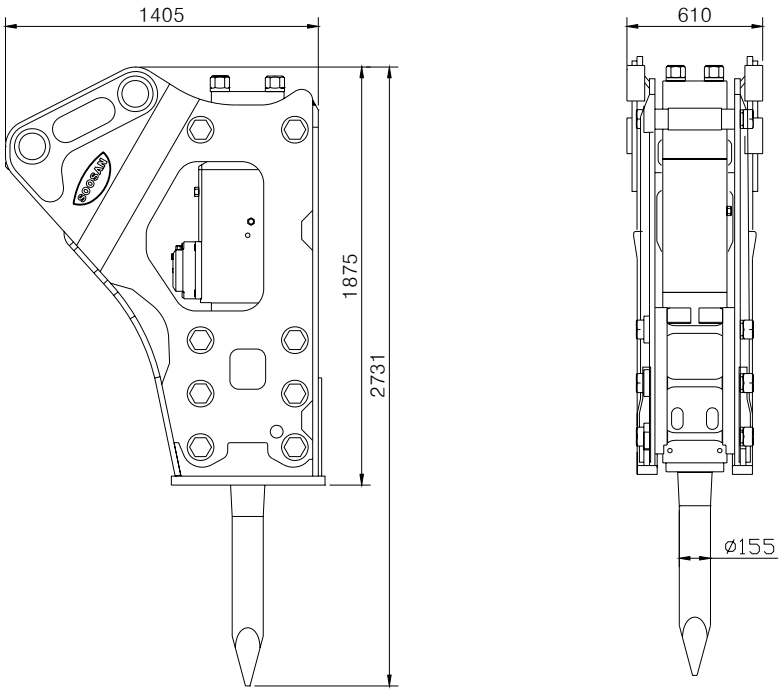
TRENCH TYPE



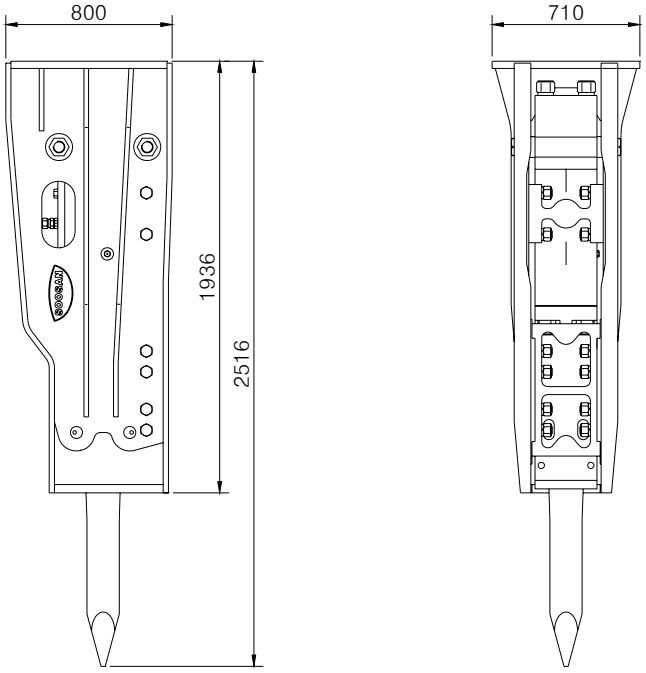
https://cranemanuals.com

MODEL : SB121

SIDE TYPE



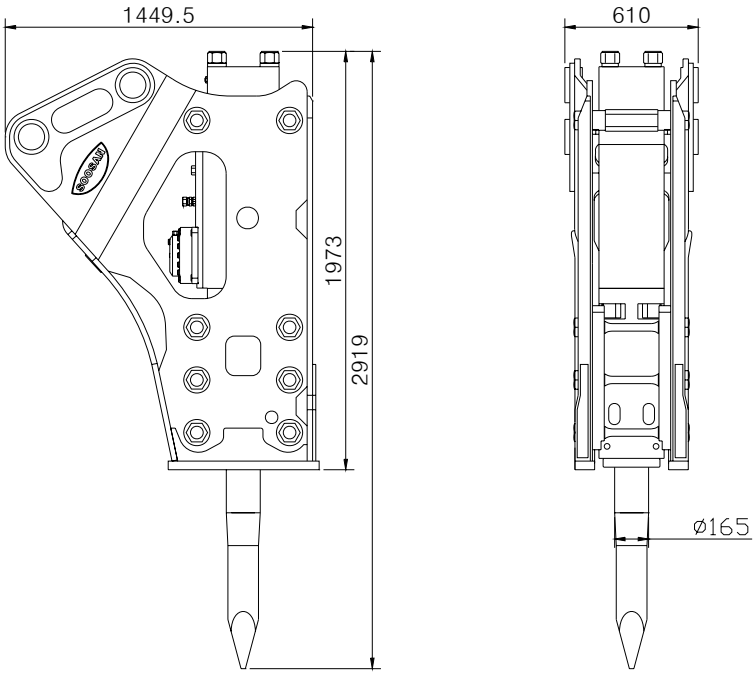
TRENCH TYPE



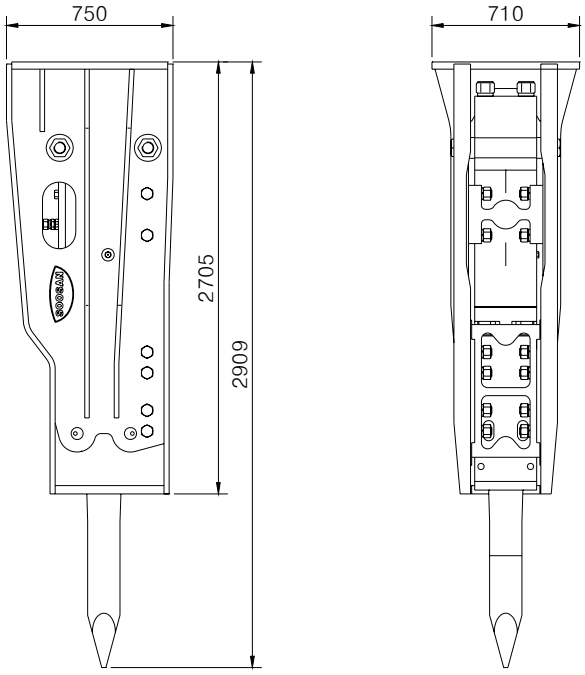
https://cranemanuals.com

MODEL : SB130

SIDE TYPE



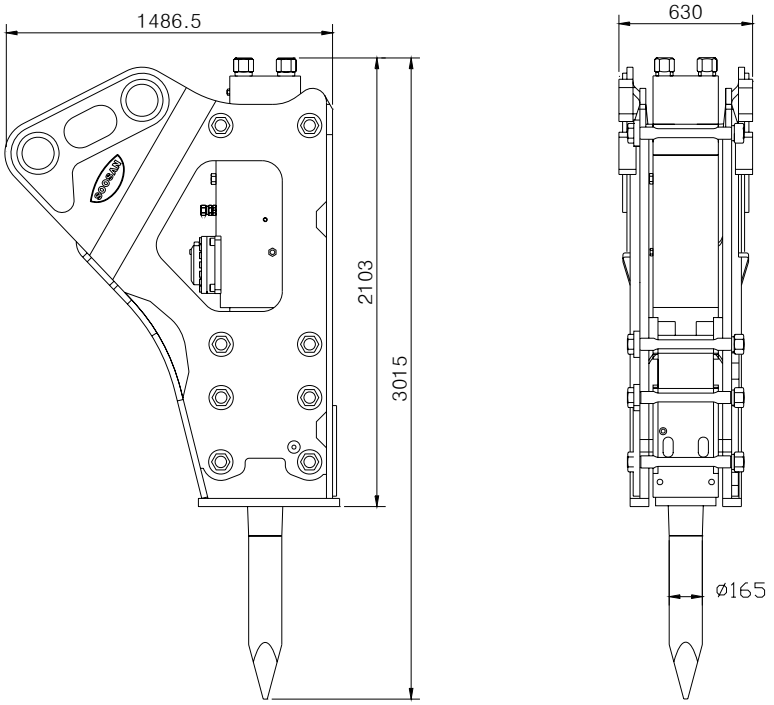
TRENCH TYPE



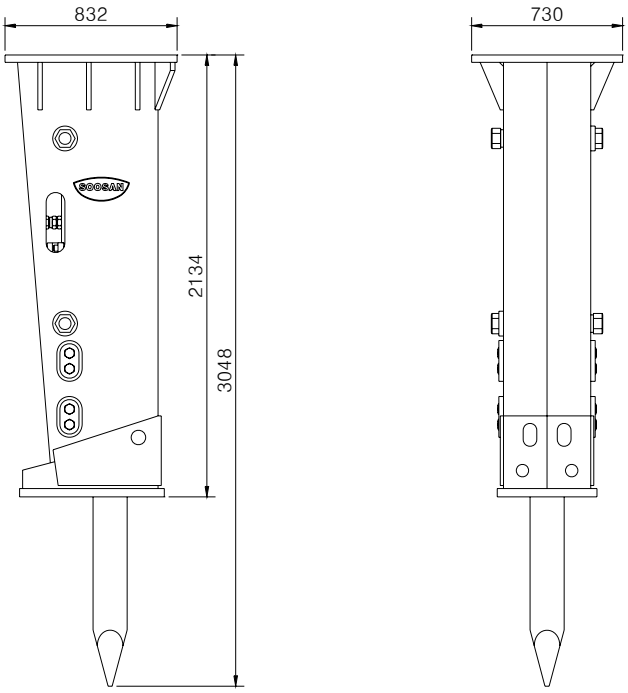
https://cranemanuals.com

MODEL : SB140

SIDE TYPE



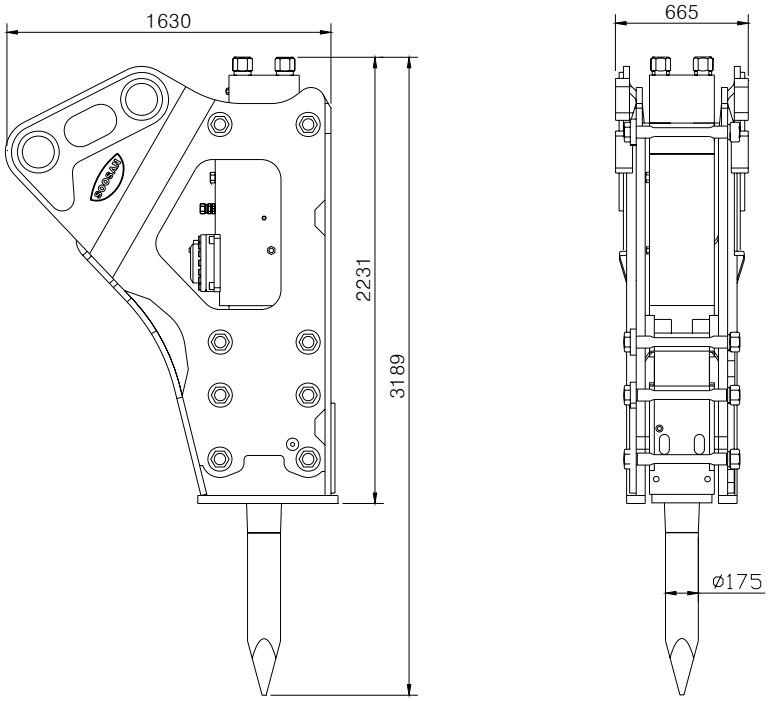
TRENCH TYPE



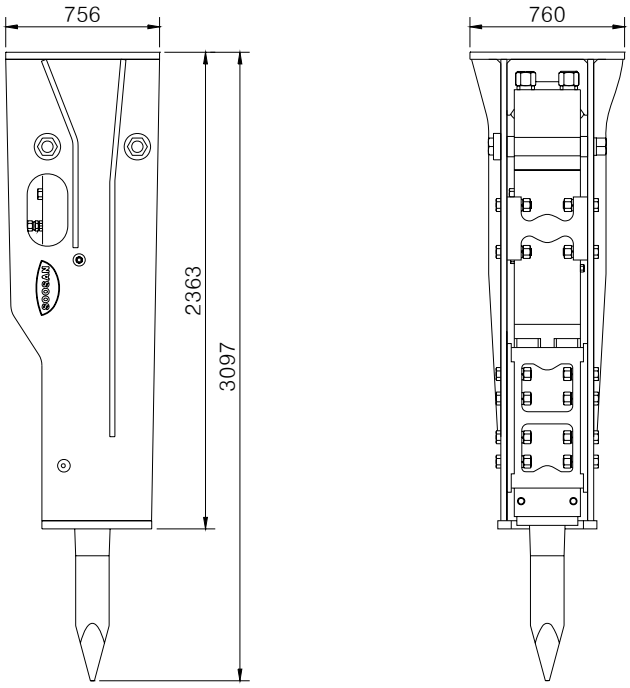
https://cranemanuals.com

MODEL : SB151

SIDE TYPE



TRENCH TYPE



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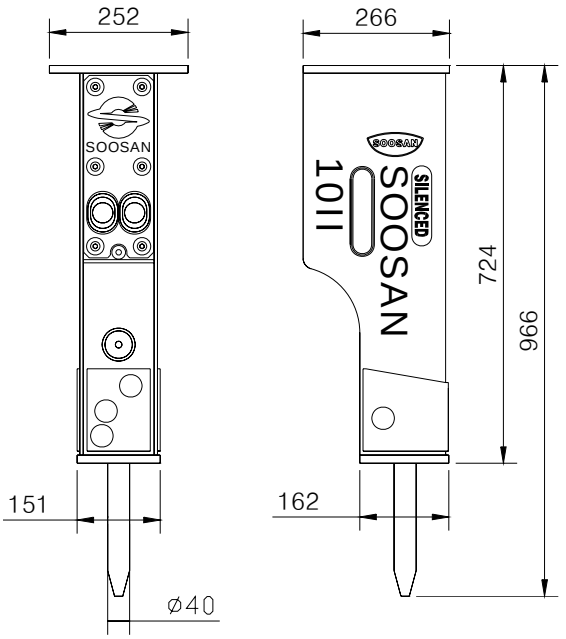
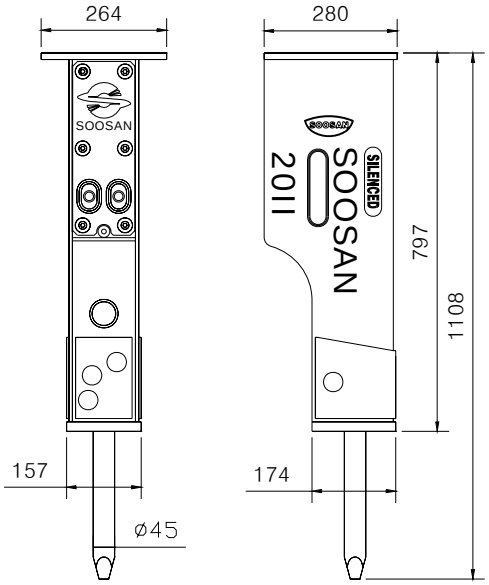
3.2 TS-P Type

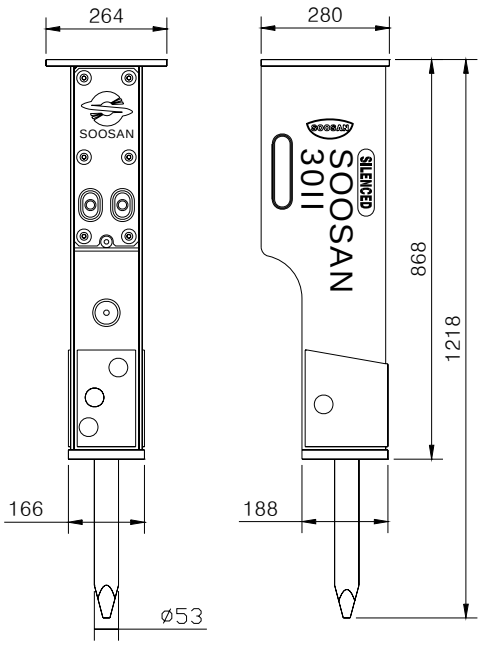
MODEL : SB10ⅡTS-P ~ SB35ⅡTS-P



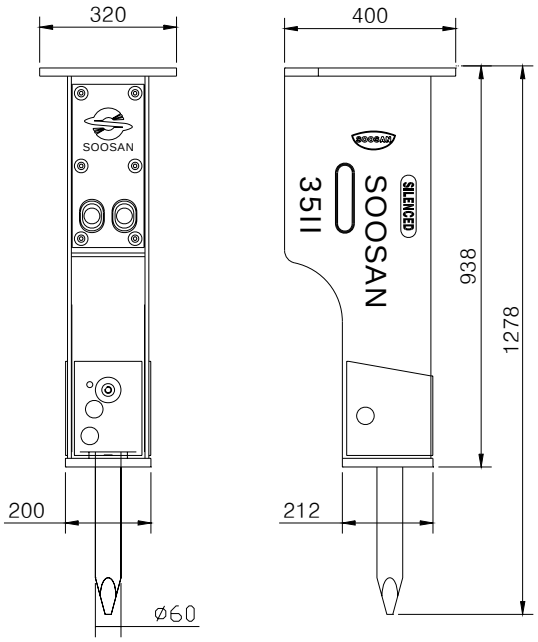
SB10 ⅡTS-P



SB20 ⅡTS-P



SB30 ⅡTS-P



SB35 ⅡTS-P

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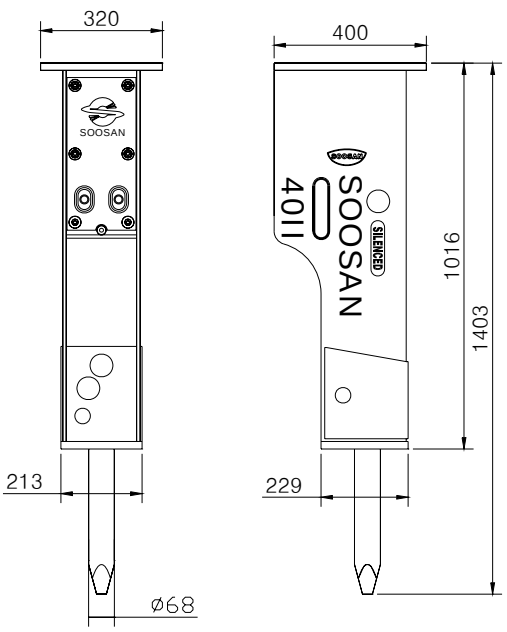
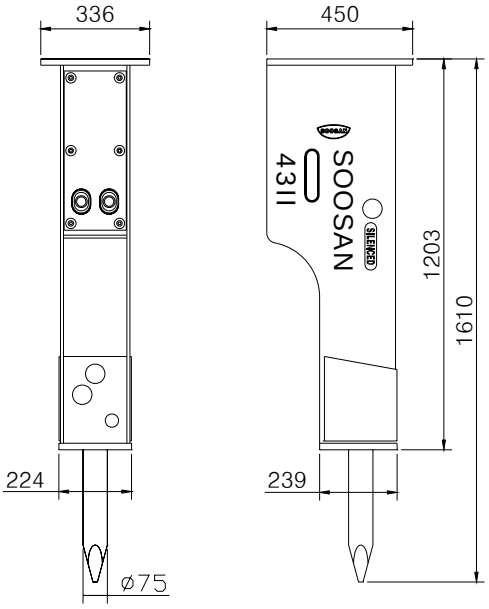
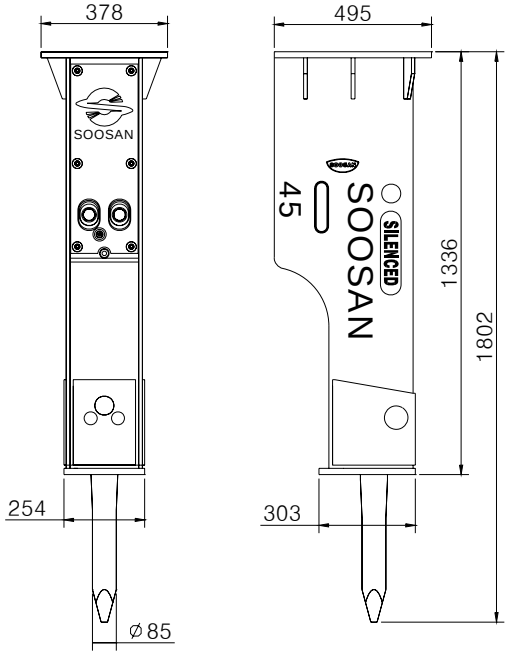
MODEL : SB40ⅡTS-P ~ SB50TS-P



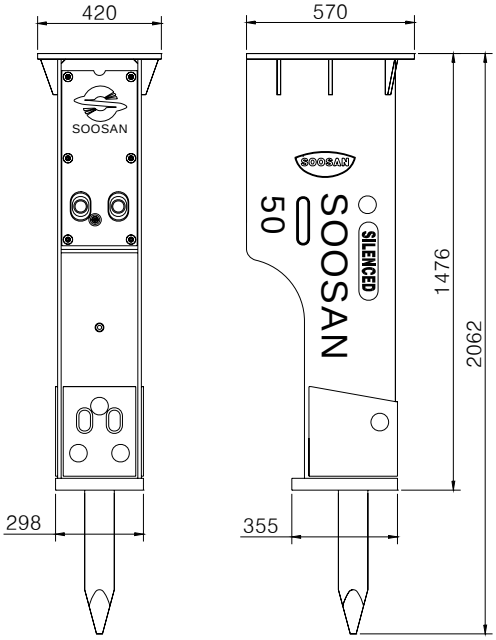
SB40 ⅡTS-P



SB43 ⅡTS-P



SB45 TS-P



SB50 TS-P

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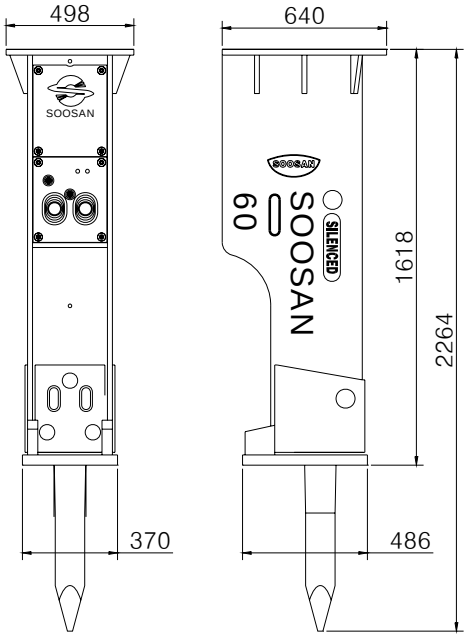
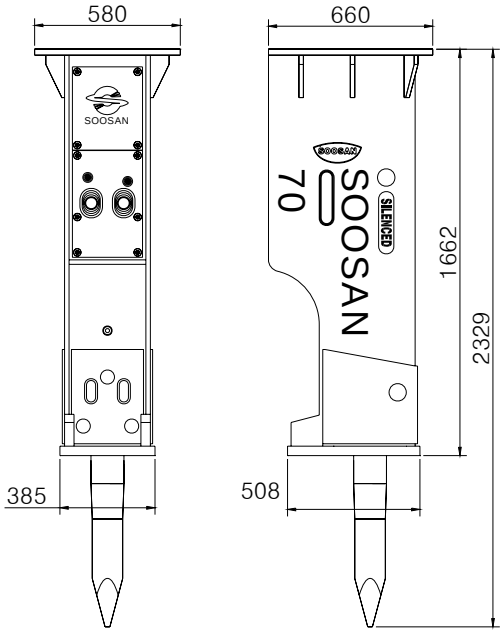
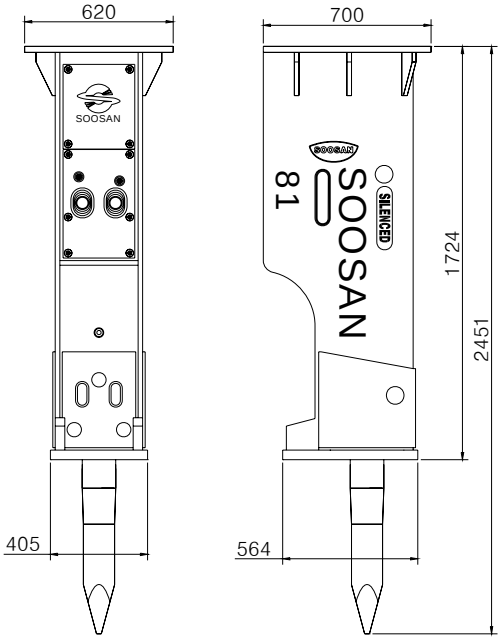
MODEL : SB60TS-P ~ SB100TS-P



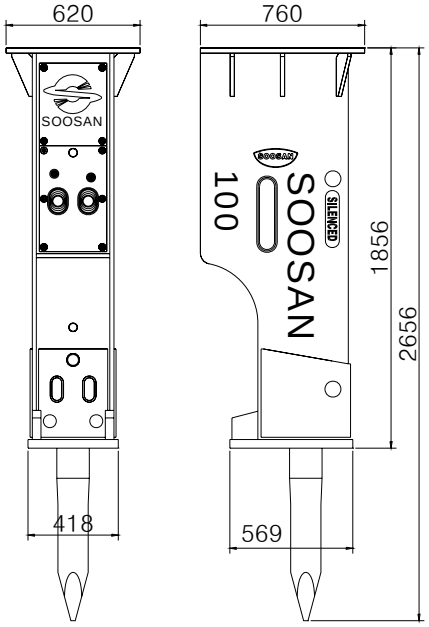
SB60 TS-P



SB70 TS-P



SB81 TS-P



SB100 TS-P

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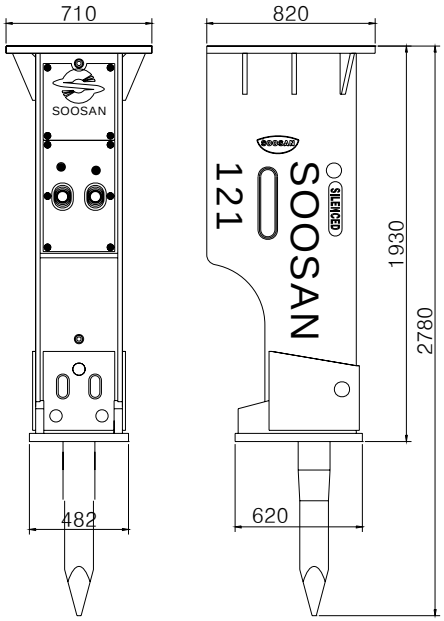
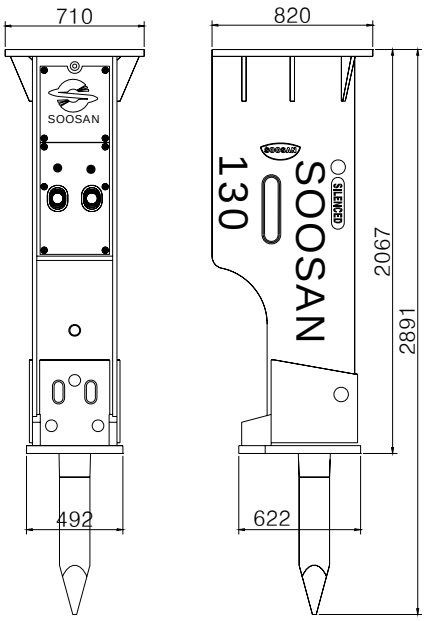
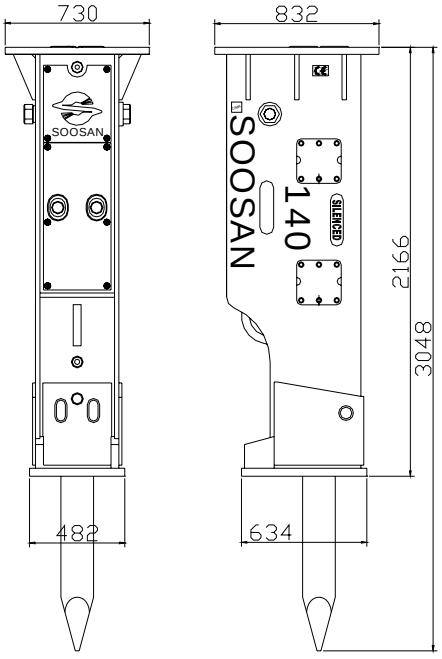
MODEL : SB121 TS-P ~ SB151 TS-P



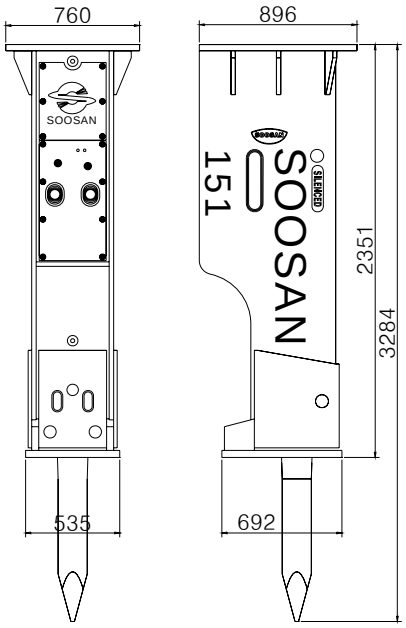
SB121 TS-P



SB130 TS-P



SB140 TS-P



SB151 TS-P

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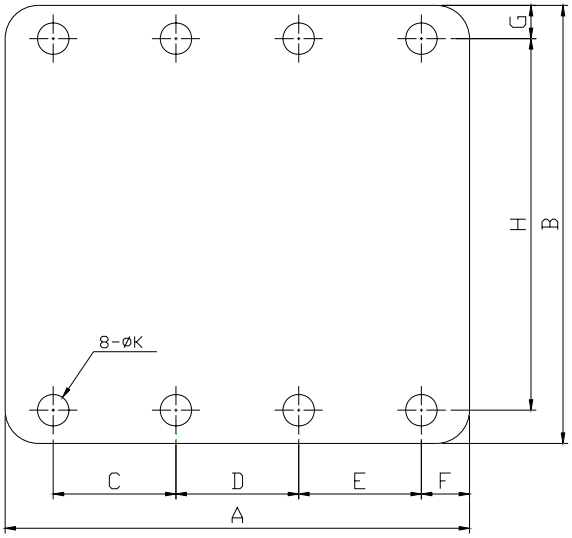
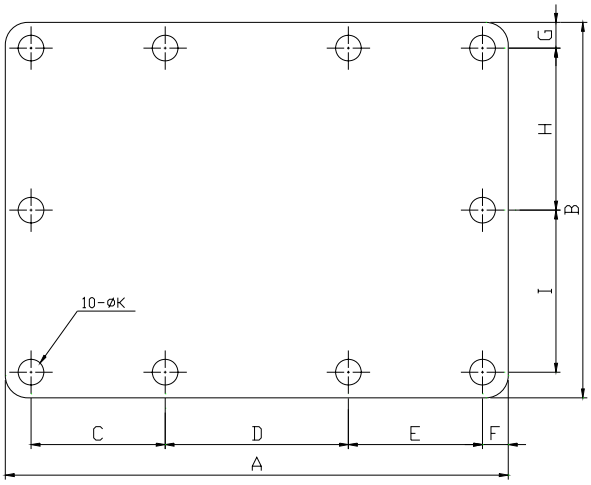
3.3 COVER PLATE(TS-P Type)

■ SB10II ~ 30II TS-P



Model	Thickness	A	B	C	D	E	F	G	H	K
SB10II TS-P	14	266	252	70	70	70	28	20	212	17
SB20II TS-P	14	280	264	74	74	74	29	20	224	19
SB30II TS-P	14	280	264	74	74	74	29	20	224	19

■ SB35II ~ 43II TS-P



Model	Thickness	A	B	C	D	E	F	G	H	I	K
SB35II TS-P	19	400	320	115	124	115	23	23	137	137	21
SB40II TS-P	19	400	320	115	124	115	23	23	137	137	21
SB43II TS-P	19	450	336	120	164	120	23	23	145	145	21

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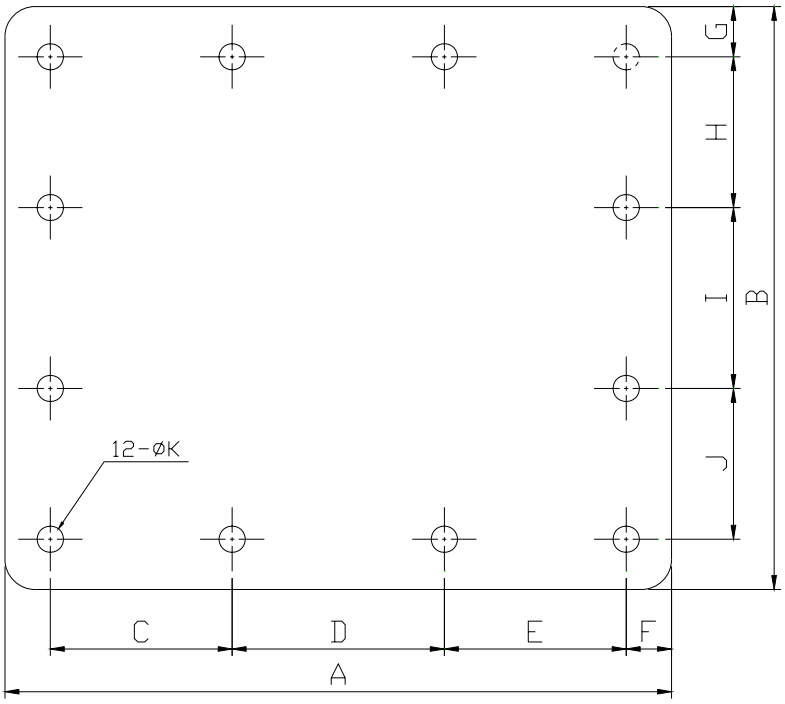
■ **SB45～151TS-P**



Model	Thickness	A	B	C	D	E	F	G	H	I	J	K
SB45TS-P	19	495	378	149	149	149	24	24	100	130	100	21
SB50TS-P	19	570	420	170	180	170	25	25	120	130	120	21
SB60TS-P	22	640	498	180	190	180	45	45	122	164	122	26
SB70TS-P	22	660	580	180	210	180	45	50	150	180	150	26
SB81TS-P	22	700	620	210	210	210	35	50	160	200	160	26
SB100TS-P	22	760	620	225	240	225	35	35	175	200	175	26
SB121TS-P	32	820	710	245	250	245	40	40	200	230	200	38
SB130TS-P	32	820	710	245	250	245	40	40	200	230	200	38
SB140TS-P	32	832	730	251	250	251	40	40	210	230	210	38
SB151TS-P	35	896	760	258	260	258	60	60	220	200	220	38

4. Preparation for Installation and Operation.

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4.1 Checking before installation instructions

⚠ CAUTION

CHECK THE "SPECIFICATIONS" SECTION OF THIS MANUAL TO DETERMINE CORRECT EXCAVATOR SIZES AND HYDRAULIC PRESSURE, HYDRAULIC FLOW IF HYDRAULIC PRESSURE, HYDRAULIC FLOW ARE EXCEEDED, THE HYDRAULIC BREAKER WARRANTY IS VOID

⚠ CAUTION

BE SURE THE FLUID IN THE HYDRAULIC SYSTEM IS CLEAN.
CHECK THE HYDRAULIC FILTER, REPLACE THE FILTER IF DIRTY OR DETERIORATED.
CHECK THE GAS PRESSURE ACCUMULATOR AND BACK HEAD.
SEE INSPECTION AND CHARGING OF NITROGEN GAS AT BACK HEAD, ACCUMULATOR HOSE AND PIPING FLEXING.

⚠ CAUTION

THE CONTAMINATED PART MUST BE CLEANED WITH NO DELAY.
HYDRAULIC OIL OR LIGHT OIL IS HIGHLY RECOMMENDABLE.

⚠ CAUTION

THE CIRCUIT RELIEF SETTING PRESSURE IS NOT FIXED.
BUT, IT WILL BE ADJUSTED BY PUMP CAPACITY.

■ Recommended circuit relief setting pressure and back pressure

MODEL	**SB10II**	**SB20**	**SB30II**	**SB35II**	**SB40II**	**SB43II**	**SB45**	**SB50**	REMARK
Relief Setting Pressure[kg/㎠]	150	150	160	160	170	180	190	200	
Back Pressure [kg/㎠]	10	10	10	10	10	10	10	10	

MODEL	**SB60**	**SB70**	**SB81**	**SB100**	**SB121**	**SB130**	**SB140**	**SB151**	REMARK
Relief Setting Pressure[kg/㎠]	200	210	210	210	210	210	210	210	
Back Pressure [kg/㎠]	10	10	10	10	10	10	10	10	

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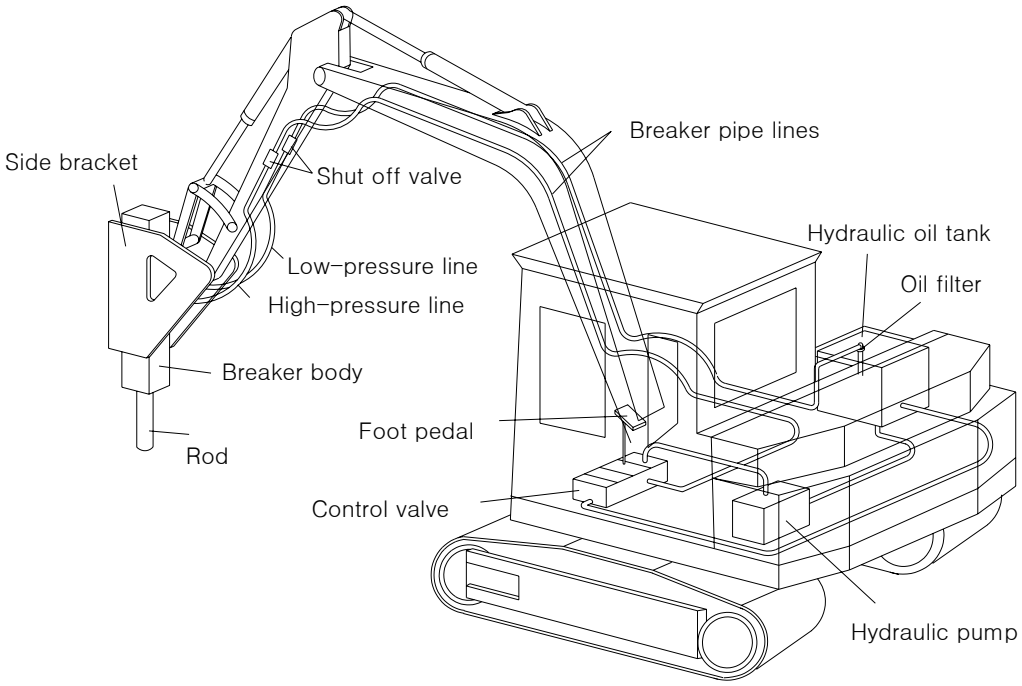
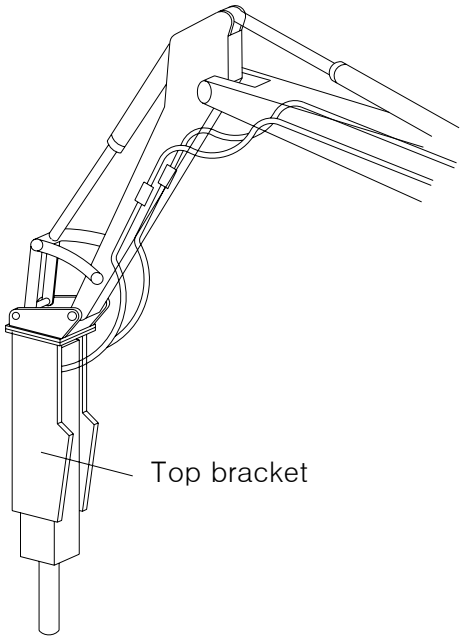
4.2 Installation and Removal

■ Side Bracket Type



■ Top Bracket Type & Trench Type.



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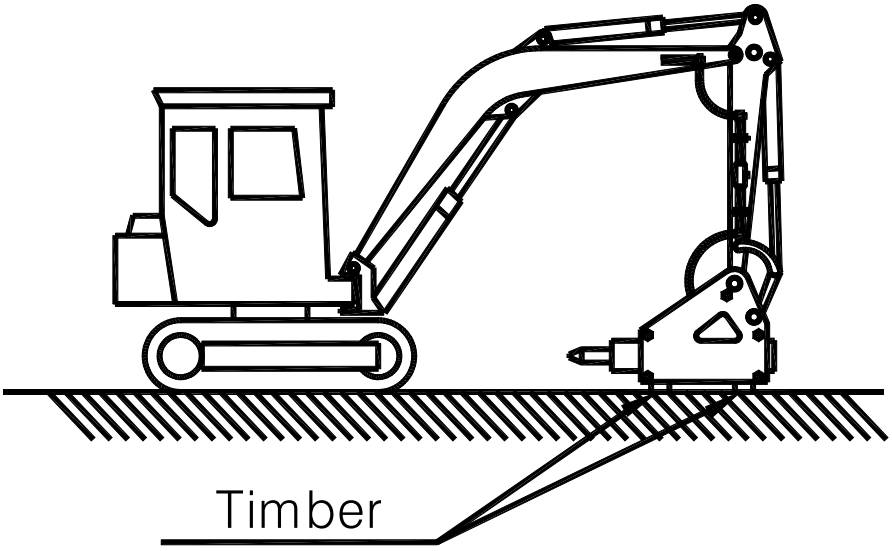
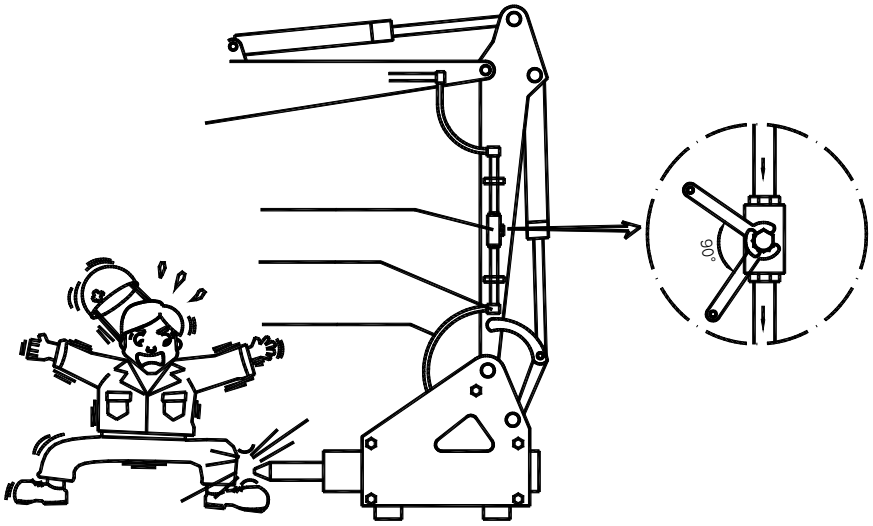
■ Removal of the Hydraulic Breaker

When the bucket and breaker operation alternately, the bucket and breaker can be easily exchanged by the hydraulic hoses and two mounting pins. However there is a risk of hydraulic contamination accordingly, do installation and removal as follows.



(1) Move the carrier to stable ground free from mud, dust and dirt.
(2) Place the hydraulic breaker on timber.
(3) Stop the engine, turn off the main switch and deflate air from oil tank if it is
(4) Turn 90° the shut off valve installed to the end of arm to prevent hydraulic from flowing out.



(5) Loosen hose plug on the breaker arm. Collect small amount of oil flowing out at this time and put into a container.
(6) Be careful to prevent mud or dust from entering oil hoses and pipe lines. Plug oil hoses with hose plug and pipe lines with union caps. Bind high-and low-pressure hoses with a wire to prevent them from getting mud.

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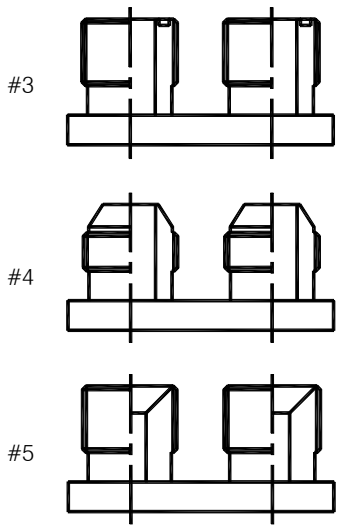
■ Oil hose plug

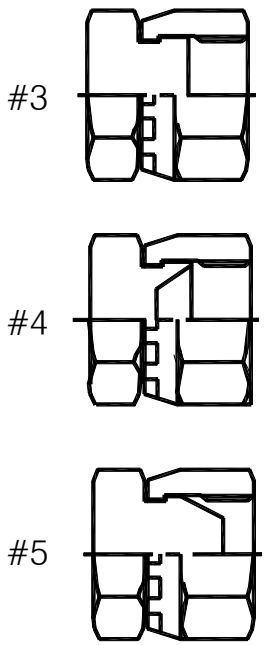
The oil hose plug is used to plug the hose attached to the hydraulic breaker. It prevents mud or dust from entering the hose when the hydraulic breaker is removed from the carrier for bucket operation.



MODEL	TYPE	P/ N	TYPE	P/ N	O-RING(#3)
SB10II	# 5	C04100	# 4	C04332	-
SB20II	# 5	C04100	# 4	C04332	-
SB30II	# 5	C04100	# 4	C04332	-
SB35II	# 5	C04100	# 4	C04332	-
SB40II	# 5	C04100	# 4	C04332	-
SB43II	# 5	C04100	# 4	C04332	-
SB45	# 3	C14100	# 4	C14372	-
SB50	# 3	C14100	# 4	C14372	-
SB60	# 3	C34100	# 4	C34050	2856004
SB70	# 3	C34100	# 4	C34050	2856004
SB81	# 3	C34100	# 4	C34050	2856004
SB100	# 3	C34100	# 4	C34050	2856004
SB121	# 3	C64100	# 4	C34506	2856005
SB130	# 3	C64100	# 4	C34506	2856005
SB140	# 3	C64100	# 4	C34506	2856005
SB151	# 3	C64100	# 4	C34506	2856005

■ Union cap

The union cap is used to cap the piping bracket attached to the carrier for prevention of the piping bracket from being smeared with mud during bucket operation.



MODEL	TYPE	P/ N	TYPE	P/ N	O-RING(#3)
SB10II	# 5	2715002	# 4	C01152	-
SB20II	# 5	2715002	# 4	C01152	-
SB30II	# 5	2715002	# 4	C01152	-
SB35II	# 5	2715002	# 4	C01152	-
SB40II	# 5	2715002	# 4	C01152	-
SB43II	# 5	2715002	# 4	C01152	-
SB45	# 3	2715062	# 4	C11149	2856003
SB50	# 3	2715062	# 4	C11149	2856003
SB60	# 3	2715063	# 4	C21132	2856004
SB70	# 3	2715063	# 4	C21132	2856004
SB81	# 3	2715063	# 4	C21132	2856004
SB100	# 3	2715063	# 4	C21132	2856004
SB121	# 3	2715064	# 4	C31175	2856005
SB130	# 3	2715064	# 4	C31175	2856005
SB140	# 3	2715064	# 4	C31175	2856005
SB151	# 3	2715064	# 4	C31175	2856005

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4.3 Hydraulic pipe lines for exclusive use

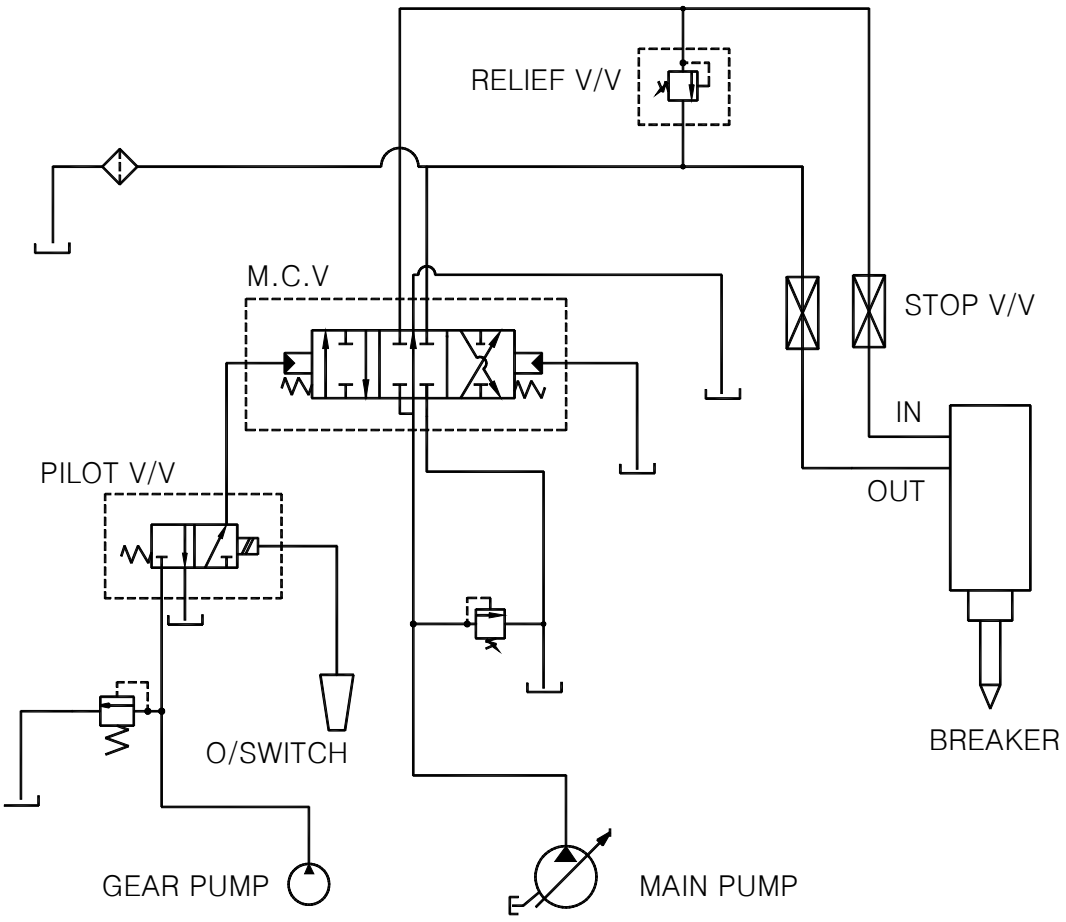
Operation of the hydraulic breaker requires installation of hydraulic pipe lines for exclusive use of the hydraulic breaker. As hydraulic pipe lines vary depending on base machines, our service engineer must first check hydraulic pressure, oil capacity, pressure loss and other conditions of the base machine before installing hydraulic pipe lines. Use only genuine parts in case of replacement because hydraulic pipe lines(hoses, pipes and fittings) are made of materials carefully selected in consideration of durability.

⚠ WARNING

THE HYDRAULIC SYSTEM TO THE BASE MACHINE MUST BE CHECKED BY AN AUTHORIZED SOOSAN SERVICE ENGINEER BEFORE FIRST USE AND AFTER ANY MODIFICATIONS.

⚠ WARNING

MAKE SURE THAT THE HYDRAULIC BREAKER VALVE OF HYDRAULIC SYSTEM IS PROPERLY SET.



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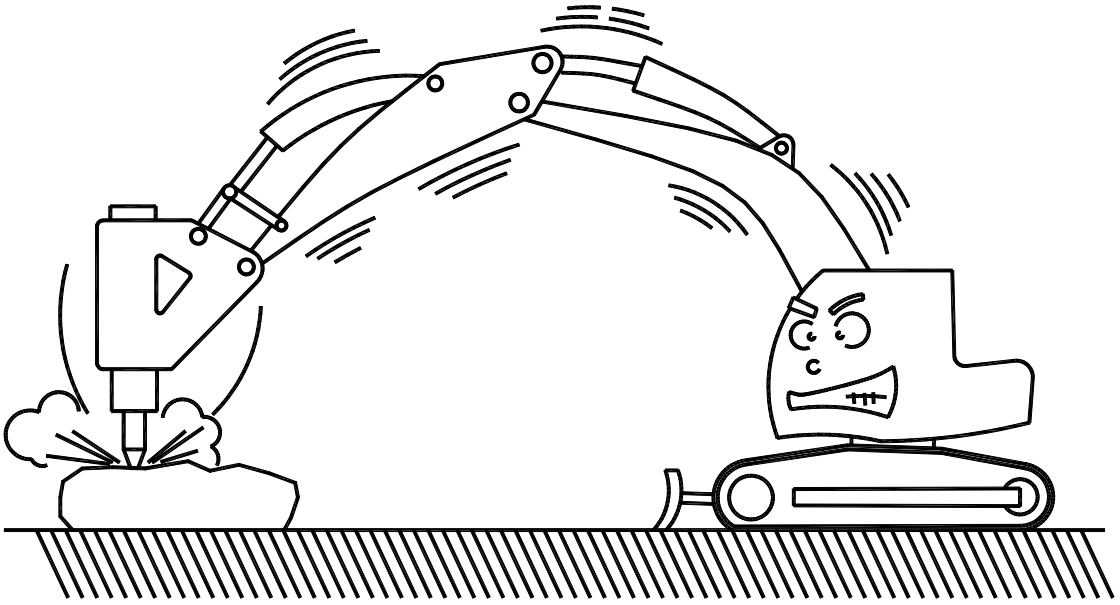
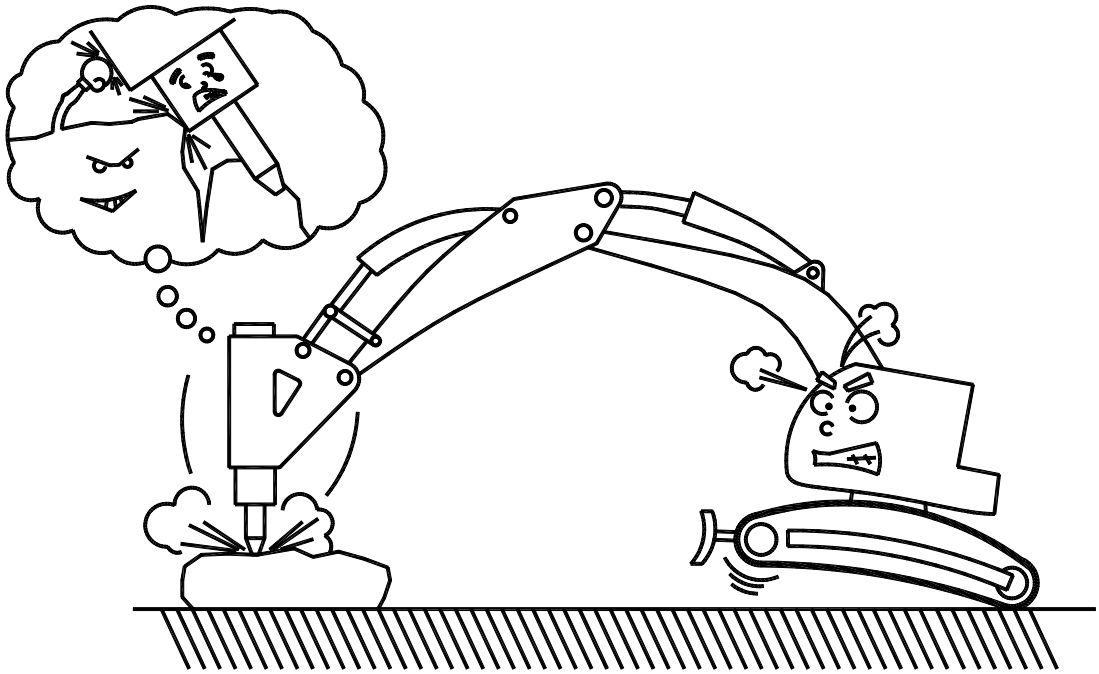
5. Precautions for safe operation.

[1] Proper position must be applied for an effective usage of breaking force.
When position is incorrect, hammering energy of the piston is too weak to break rocks,
Instead, hammering force applies shocks to the breaker body, breaker arm and boom of the base machine, thereby resulting in damage to those parts.



[2] On the contrary, when position is excessive enough to break rocks with front of the base machine raised, the machine may suddenly tilt forward the moment rocks are broken. Then, the breaker body or the end of bracket may violently hit against rocks and result in damage.



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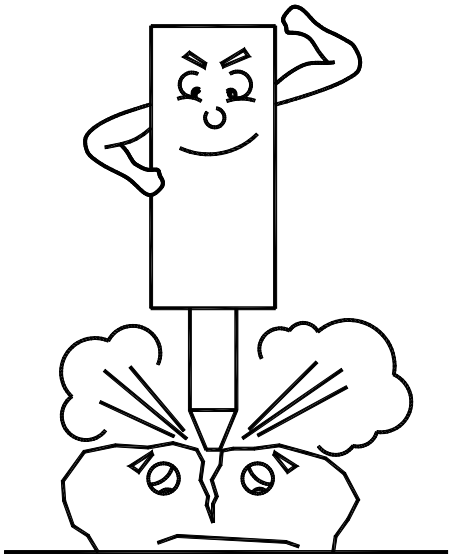
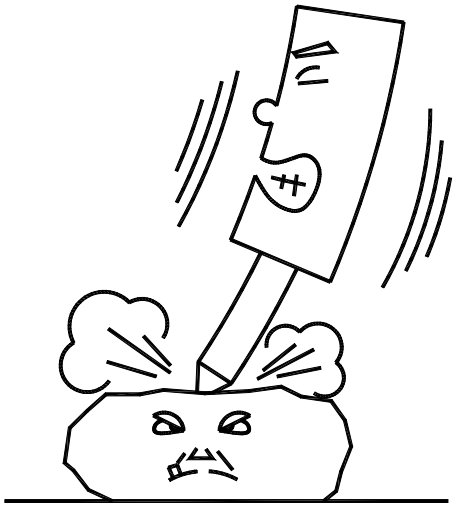
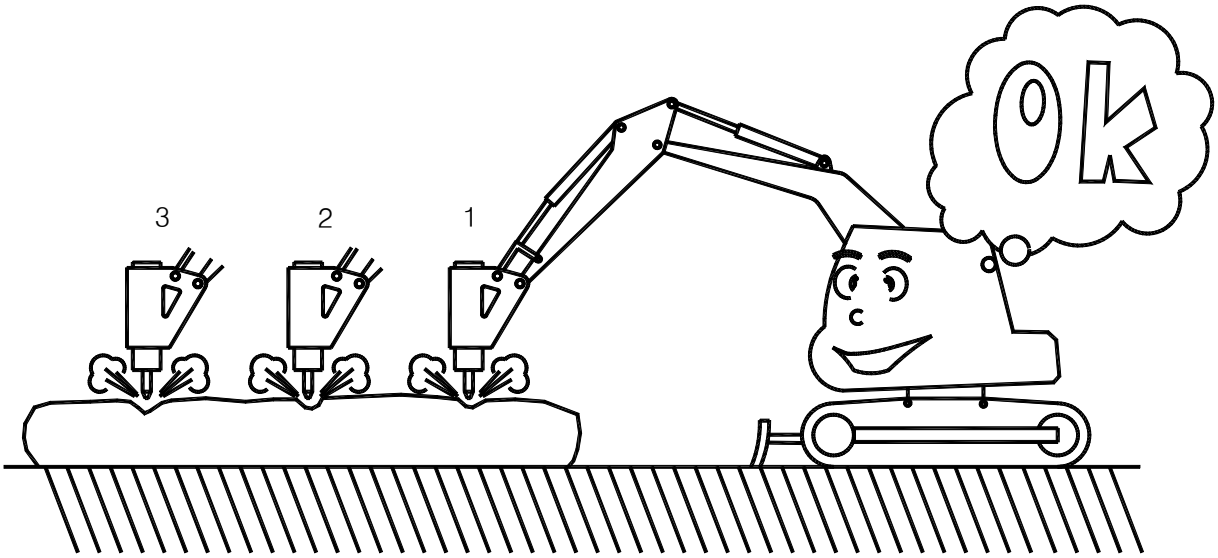
[3] It is undesirable to carry out hammering under the below condition, because vibrations during hammering may be transmitted to tracks of the base machine.
During hammering, however, proper position must be always applied to the breaker.
Special care must be taken not to hammer under abnormal condition.





[4] Apply same direction of boom force in line with the rod and place the rod in the rock with hammering surface as vertical as possible. If hammering surface is oblique, the rod may slip during hammering. This causes the rod to seize and to be broken and piston to be damaged. When breaking, fully stabilize the rod first and then select the point of a rock on which hammering can be performed in a stable condition.



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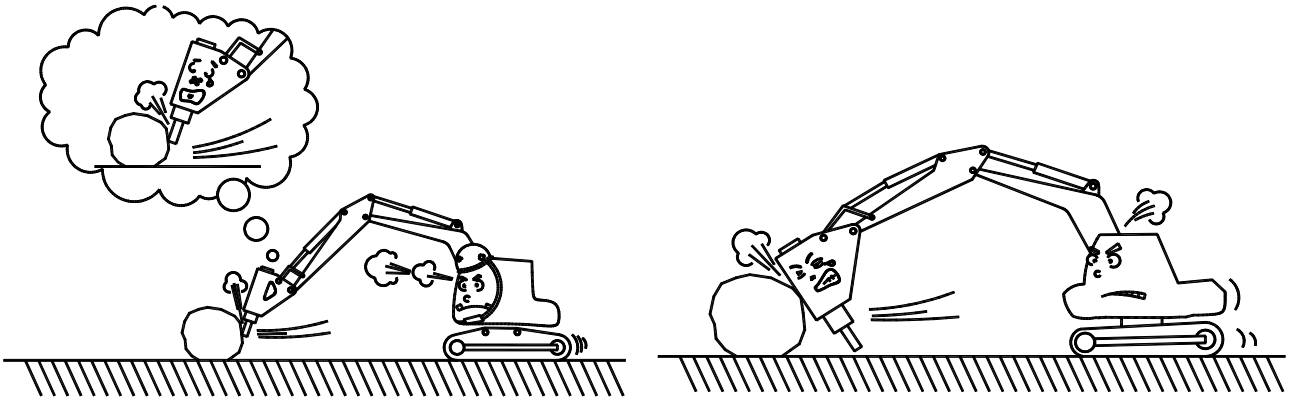
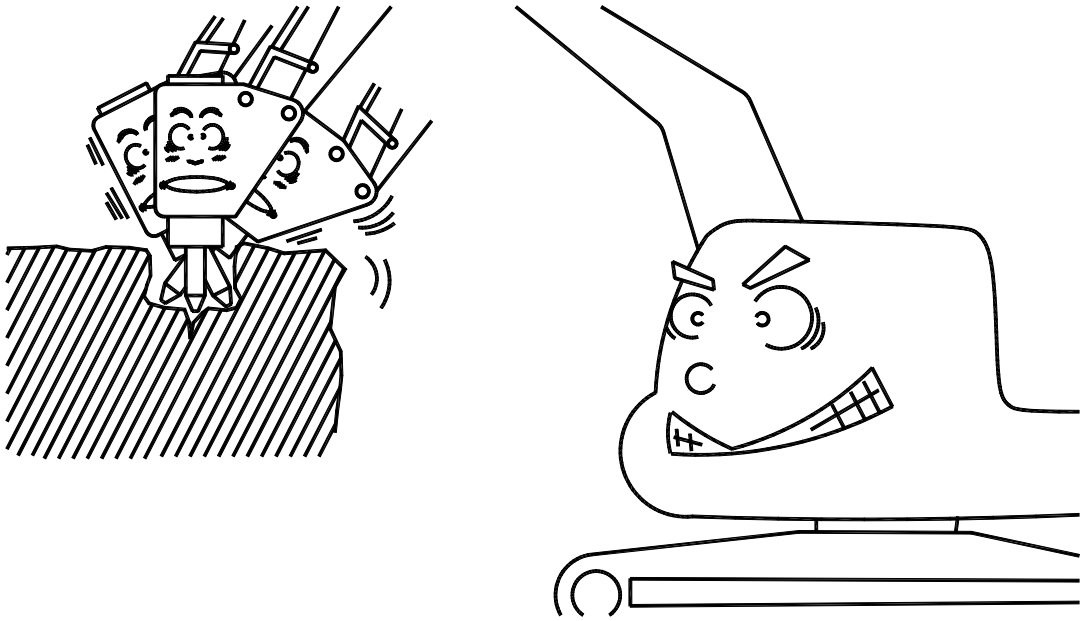
[5] Rolling or falling a rock with the rod end or bracket side by using the boom or arm of the carrier as shown in the figure will result in breakage of the breaker mounting bolt or bracket, breakage and galling of rod, and damage to the arm and boom. Do not move rock. It is strictly prohibited to travel when the breaker is in the contact with rock.



[6] Do not use rod as a lever. Do not put the rod into a crack in rock and move the rod to and fro to breaker the rock, otherwise the rod will be broken or the bracket will be damaged.



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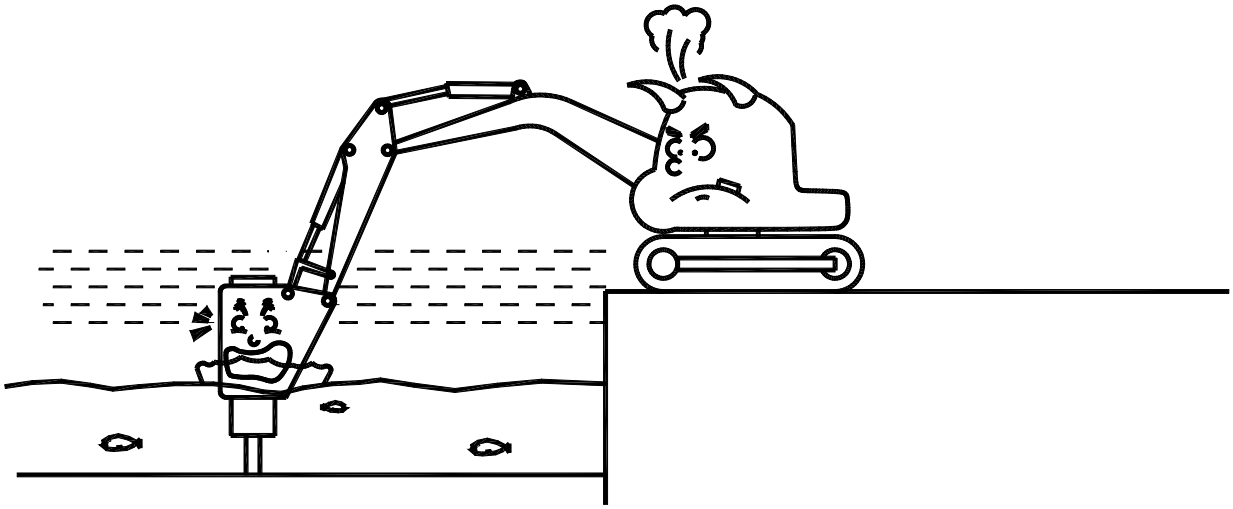
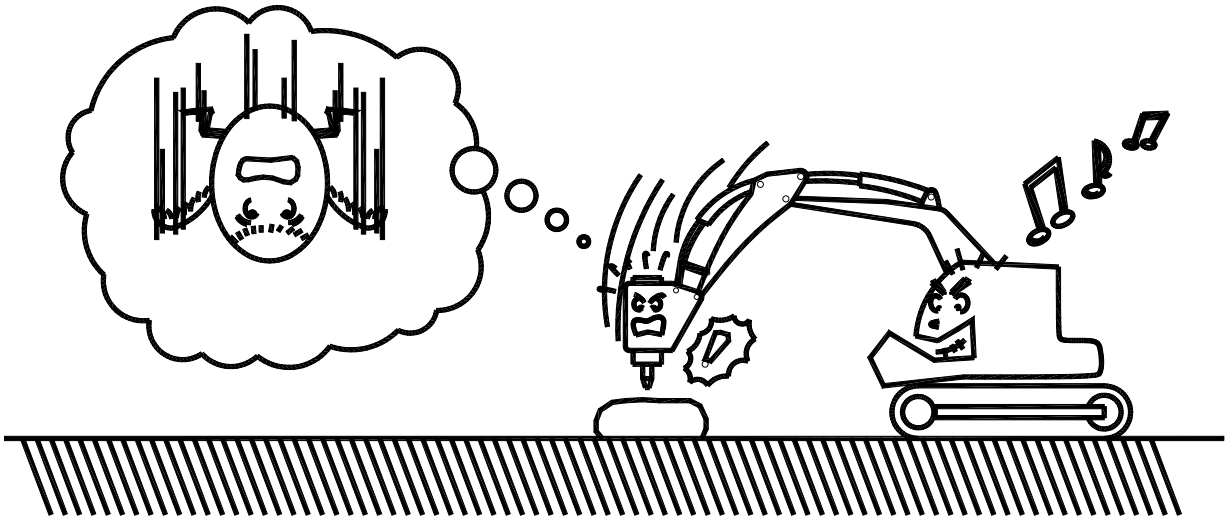
[7] Do not operate breaker when all components except rod are immersed in water and mud.
Underwater usage of the breaker will cause internal damage to the breaker.
Consult Soosan for modifications if you have an underwater requirement.



[8] Do not allow the breaker to fall to a rock.
Falling down the breaker will apply excessive force to the breaker or the carrier, causing damage to the parts of the breaker and carrier.



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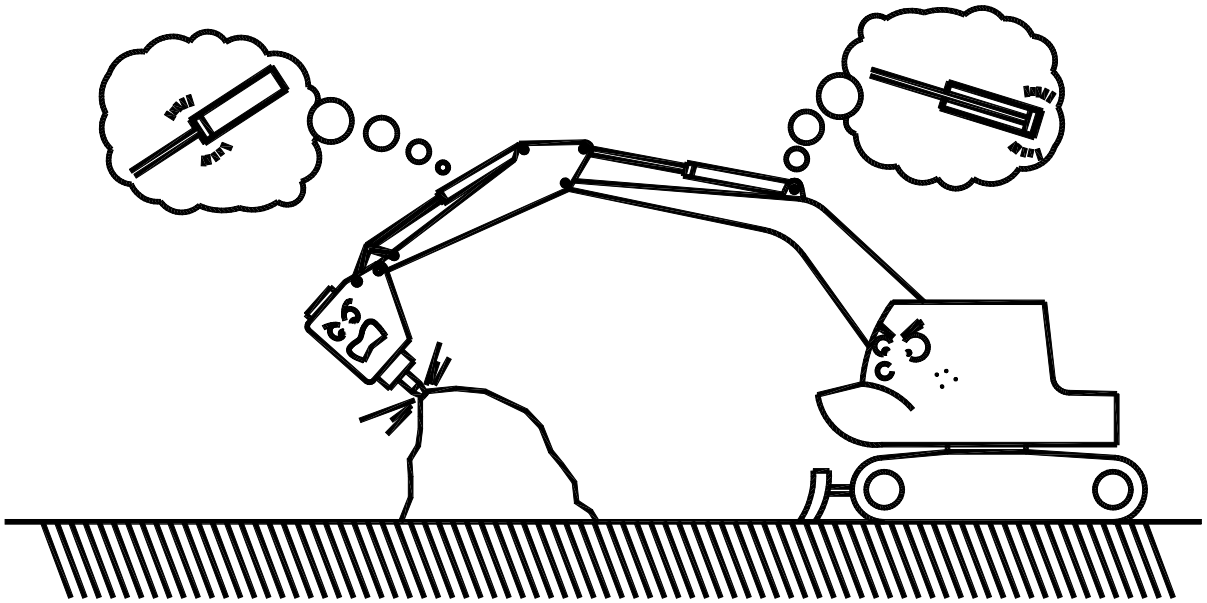
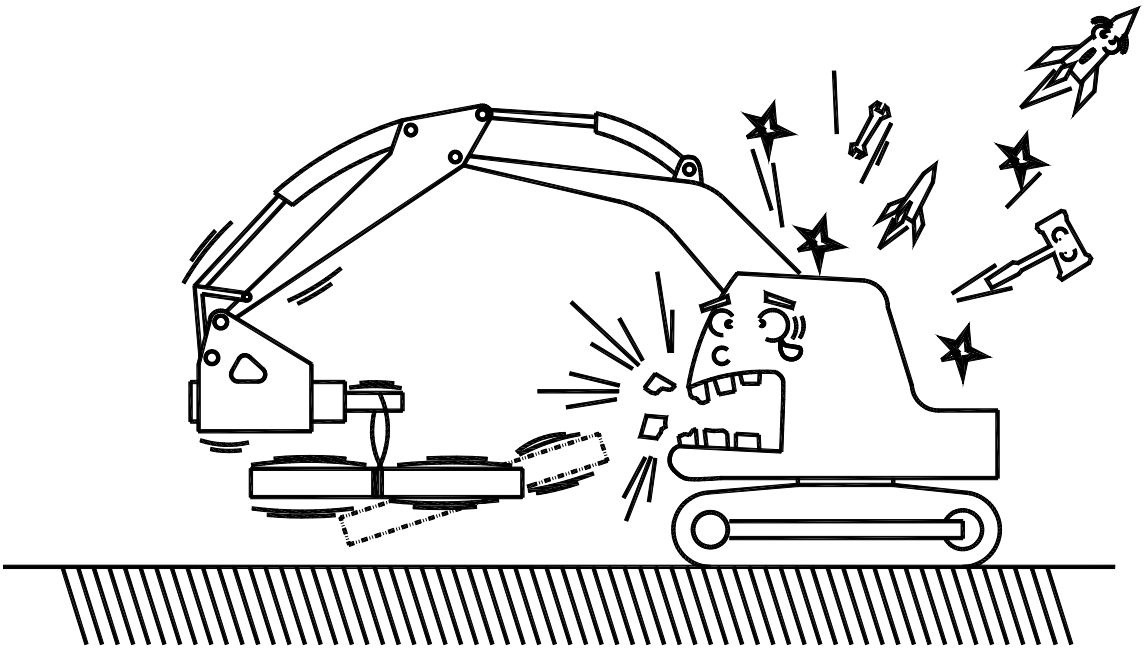
[9] Breaking operation conducted at the stroke end(when the cylinder is extended or retracted to a maximum extent) of respective hydraulic cylinders of the carrier will lead to damage to the cylinders and other parts of the carrier.



[10] Lifting thing by hanging wire in the bracket or rod not only causes damage to the breaker but also is very dangerous.



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[11] Warm-up of machine prior to operation
- Do not operate the machine right after starting the engine. Idle the machine for warm-up. Warm the hydraulic oil sufficiently especially in winter or in the cold place.
- Especially in winter, the carrier's engine should be warmed up for 5 to 10 minutes 30~40℃(86~105℉) before breaker operation.
- When operating the hydraulic breaker, idle the engine and operate the hydraulic breaker with a light load.

[12] Stop operation when hoses are vibrating abnormally.
Check the hoses on the high pressure and low pressure sides of the breaker for abnormal vibration. If they are vibrating abnormally, contact the nearest Soosan dealer.

[13] Avoid blank hammering.
Blank hammering accelerates wear and tear on breaker and carrier components and may result in failure of one or more components. Excessive blank hammering may be considered equipment abuse and may result in voiding warranties. In case of blank hammering, hammering sound changes.

[14] Operate the breaker at proper engine speed.
Break rocks at the specified engine speed. Raising engine speed more than necessary does not strengthen hammering force but increase oil temperature to the detriment of piston and valve.

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6. Maintenance

■ Regular Hydraulic breaker Inspection and Maintenance

⚠ CAUTION

Regular inspection is essential for keeping hydraulic breaker operating in the best condition consult with the Soosan service station for regular inspection and maintenance. Customers are recommended to contact the service station for inspection within six months after delivery.

■ Maintenance of Hydraulic breaker

Check cycle	Check Item	Location
Ordinary check items before and after operating breaker	● Confirm the state of setting breaker and carrier * Damage and assembled state of bracket pin * Fastened state of pin assembled bolts * State of quick-clamp setting and bolts/pins assembled * State of cap mounting bolt(TOP Type)	
	● Assembling state of breaker and bracket * State of side-bolt and all kinds of bolt * Whether all kinds fixing part and anti-shock parts (cushion & wear plate)are damaged * State of bracket-crack, breakage, welded area	D
	● Fastening state of breaker main-body parts - Fastening and breakage state of pins, blocks, bolts * Fastened through bolt state * Front head pin and Rubber plugs * Stop pin and Rubber plugs * Air check valve * Back head charging valve * Valve adjuster * Accumulator mounting bolt * Accumulator cover fastening bolt * Accumulator charging valve * Hose adapter	 A G F H B C D I
	● Damage of safety/warning sticker	
	● Loss or fastening state of bracket assembled parts * Sound plug(Silenced type) * Window cover(Silenced type) * Hose cover(silenced type)	
	● Leakage, interference and assembling state of carrier hoses and pipes * Interference and assembling state of hoses and pipes * Fixing state of control valve * Welding state of clamps * Leakage and fastening state of pipes/hoses connected * Whether hose are twisted/damaged/aged	
	● Oil tank and working fluid quality * Quantity of working fluid * Contamination of working fluid	
	● Breaker on/off switch and electric wire	
	● Examine worsen state of consumable parts * Inside diameter of front cover * Worsen state of rod	

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Check cycle	Check Item	Location
Any time check items during operating breaker	● Temperature of working fluid(below 80℃/176℉)	
	● Loss and damage of parts	
	● Leakage of breaker hoses - A little leakage could be run on the rod (as much as it does not affect operating, performance and efficiency)	
	● Efficiency and abnormal working of breaker * Irregular blowing is occurred * Abnormal blowing sound is occurred * Pipes and hoses are shaken extremely	
After 1Hr operating	● Grease pumping(about 20cc after 1hr operating) - About 5~10 times pumping with grease gun * Rod friction area : Ring bush, Front cover, Rod pin	
Every week (Every 50hr operating)	● Quantity and contamination degree of working fluid(Refill or replace) * Contamination limit : 20~40cst	
	● Examining wear of consumable parts (Grind the area deformed if necessary) * Rod pin * Ring bush * Front cover	
	● Remove strange material inside of front head	
	● Check the gas pressure and refill * Back head * Accumulator	
	● Whether all kinds of bolts are fastened by regulated torque	
Every month (Every 200 Hr operating)	● Operating pressure of breaker	
	● Relief setting pressure of hydraulic circuit	
	● Supply flow	
	● Replace oil filter of carrier	
Every 3month (Every 500 ~ 1000 operating)	● Replace seal kit	
	● Replace diaphragm of accumulator	
	● Examine if piston is pressed or deformed	
	● Examine if hydraulic parts are scratched if necessary grind and repair them	
Hold breaker over 1month	● Sufficient greasing * Rod, Rod pin, Front cover, Ring bush	
	● Lubricate piston surface	
	● Remove N2 Gas * Back head * Accumulator	
	● Paint area fallen off	
After under water operating	● Clean and grease after dissemble all parts of main body	

* The maintenance related with carrier follows carrier manufacturer rule

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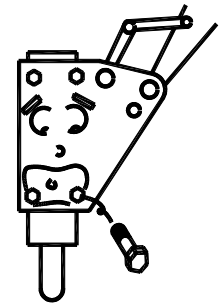
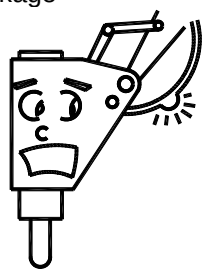
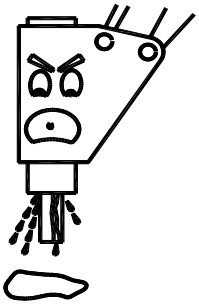
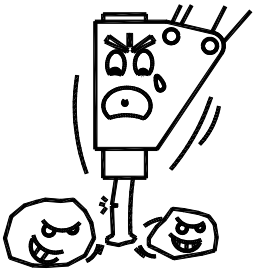
■ Daily Inspection before opearting

Be fore starting operation, be sure to inspect the breaker referring to the following table.

Inspection Item	Inspection Point	Remedy
- Looseness, missing and damage to bolts and nuts 	- Through bolt - Bracket mounting bolt	- Check looseness. - Retighten to correct Tightening torque.
- Looseness of hose fittings, visible damage to hoses & oil leakage 	- Hydraulic piping for breaker - Oil hose	- Retighten sufficiently. - Replace when damaged.
- Abnormal oil leakage 	- Connection of back head and cylinder - Gap between front head and rod ※ But small leakage is normal.	- Consult with Soosan for further inspection.
- Abnormal wear and cracks rod. 	- rod	- If the rod is deformed, burred and worn out, be repaired. - If the rod is excessively worn out, be replaced. - If the rod is cracked, be replaced.

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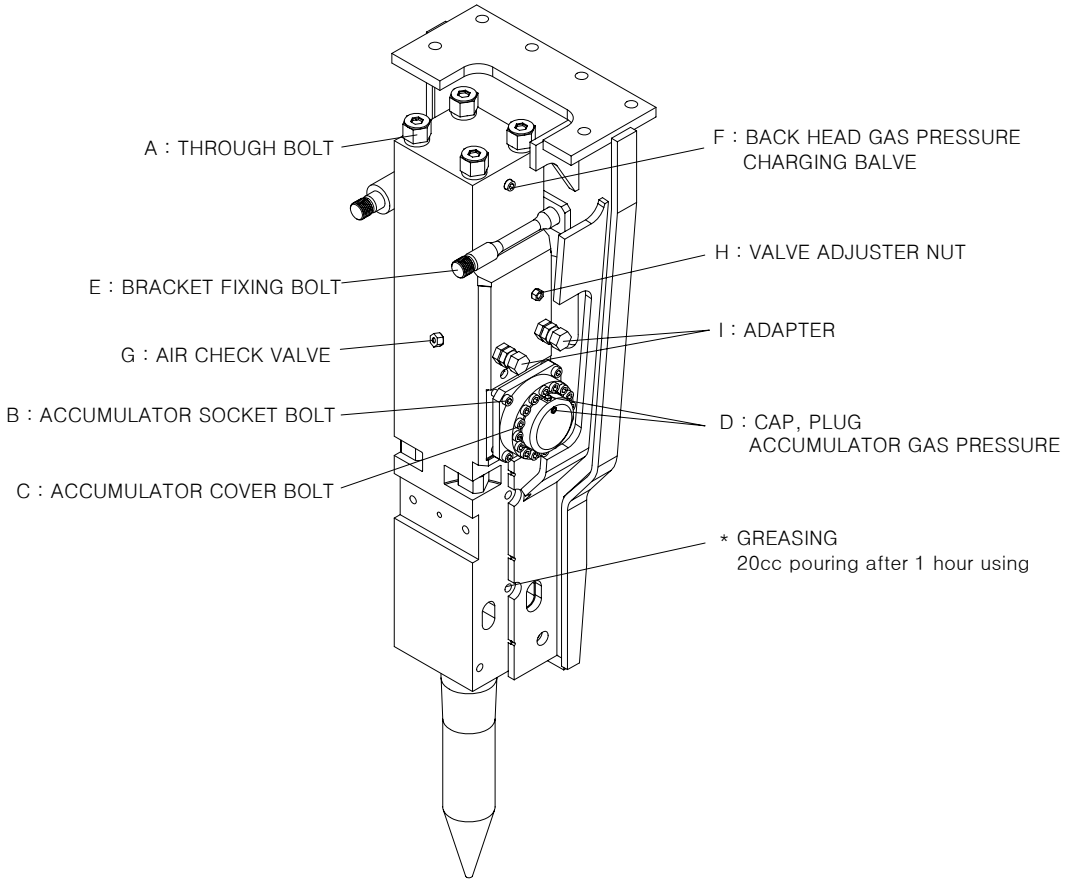
■ Tightening Torque & Gas Pressure

MODE / ITEM	Position	UNIT	SB10II SB20II	SB30II	SB35II	SB40II	SB43II	SB45	SB50	SB60	SB70	SB81 SB81A	SB100	SB121 SB130	SB140	SB151
Through Bolt	A	kg-m	30	30	35	40	65	100	150	240	250	270	300	300	350	350
Accumulator Socket Bolt	B	kg-m	-	-	-	-		-	-	-	-	60~65	60~65	60~65	60~65	90~95
Accumulator Cover Socket Bolt	C	kg-m	-	-	-	-		-	-	-	-	45	45	35	35	65
Cap, Plug	D	kg-m	-	-	-	-		-	-	-	-	15	15	15	15	15
Bracket Fixing Bolt	E	kg-m	60	80	80	100	100	145	145	200	250	250	250	350	350	350
Back Head Gas Pressure	F	kg/㎠ (psi)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)	16.5 (235)
Accumulator Gas Pressure	D	kg/㎠ (psi)	-	-	-	-	-	-	-	-	-	55 (782)	55 (782)	55 (782)	55 (782)	55 (782)
Air check valve	G	kg-m	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18	16~18
Valve Adjust Nut	H	kg-m	-	-	-	-	-	-	-	25~30	30~35	30~35	30~35	50~55	50~55	60~65
Adapter	I	kg-m	16~18	16~18	16~18	16~18	16~18	24~26	24~26	32~35	32~35	32~35	32~35	35~40	35~40	35~40
Charging Valve	F	kg-m	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40	35~40
Greasing every 1 Hr Using (Manual)	*	cc	7	7	7	10	10	10	15	15	20	20	20	25	25	25



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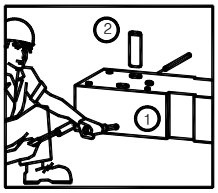
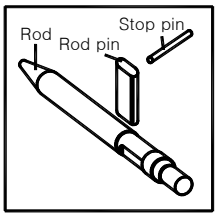
■ Replacement & Breakage of Rod

- Rod is deformed of burrs produced in a long term use.
- If the rod tip is worn out, rod is liable to slip. Grind the rod tip to sharpen the edge.
- If the rod tip is sharpened many times, the hardened surface layer will disappear and the rod will be worn out rapidly. In this case, replace with a new rod.
- If the gap between rod and front cover is large, the piston fail to fit in rod to cause damage to the piston or the rod.

● Replacement





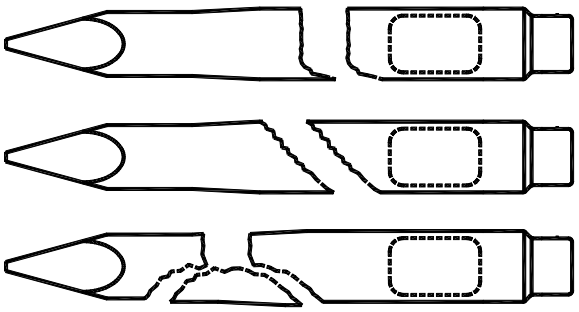
① Put the breaker horizontally on the timber.
② Remove the spring pin(SB43 below) or rubber plug(SB45 above) using a pin bar.
③ Set round bar on the opposite side, and push the stop pin with a hammer.
④ Remove the rod pin. In removing the rod pin, be careful falling of rod and rod pin.
⑤ Wind rope or nylon sling around the rod and remove from the main body.
⑥ Before installing a new rod, check wear, breakage and score.
Remove burrs and swelling from the disassembled rod pin with a grinder. Excessively deformed rod pin will make replacement of rod difficult. Rod pin is required to be checked every 100 to 150 hours of operation
⑦ Grease sufficiently to inserting part of front head.

● Breakage of Rod

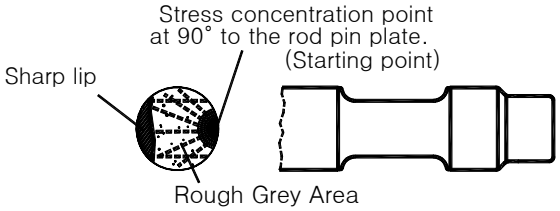
The service life of the rods depends on the manner of handling them. The rod can sufficiently withstand the vertically acting load, but is weak to the perpendicularly acting load. Especially, the rod is affected by the negative conditions such as force by craning operation, tilted blowing, wrenching and idle strokes etc.

There are several ways of breakage of the rod. Each cause of the breakage can be inferred by observing the breakage section. Further, the breakage case which is not caused by low quality materials or insufficient heat-treatment but by wrong way of handling which the manufacturer is not responsible for the breakage.

The breakage section has the origin on the outer surface, the narrow area of fatigue breakage and the wide area of rough grey area, and final breakage part has the share-lip form. Such as undulation on the breakage section and its inclination to the right and left witness that the breakage is caused by excessive force which excessive force which exceeds the toughness of the rod. Such the breakage is supposed to occur owing to careless handling of the rod. To avoid such the breakage more carefulness and attention is required in handling the breaker.



Typical fractures caused by excessive bending of the rod. Warranty claims rejected.



Typical fractures caused by levering tool while buried in the burden. Warranty claims rejected.

Flat type rod worn more than 45mm or moil type and wedge,universal type rods worn back more than 75mm of working end classed as reasionable life. Warranty claims rejected.

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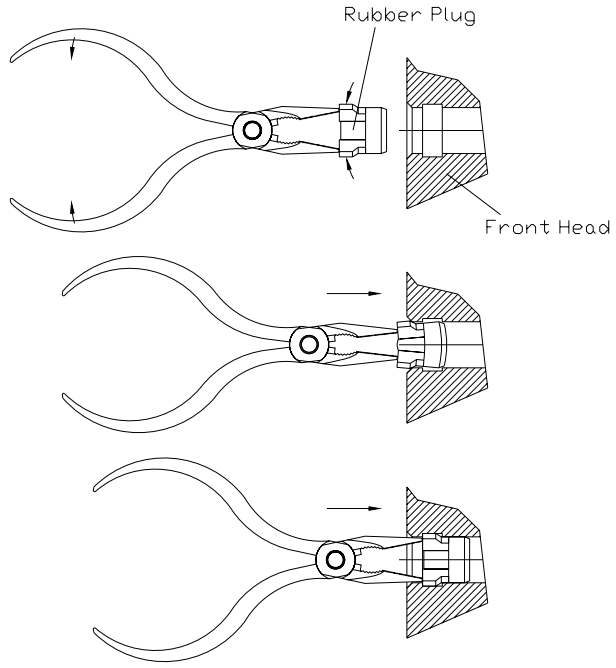
■ Assembly and Disassembly of Rubber Plug

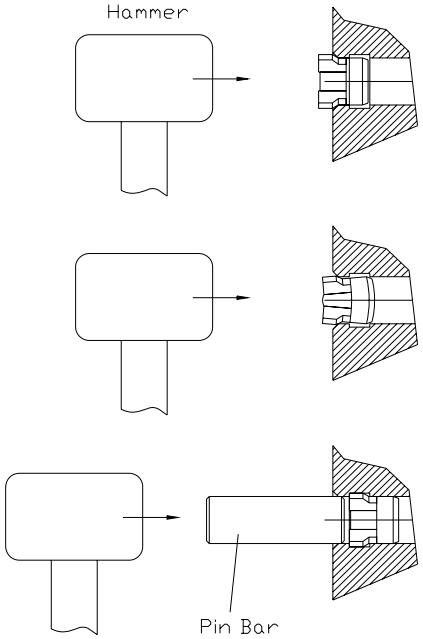
In disassembling the front head pin and stop pin, assemble or disassemble with following method.

1) Assembling the rubber

● Method #1

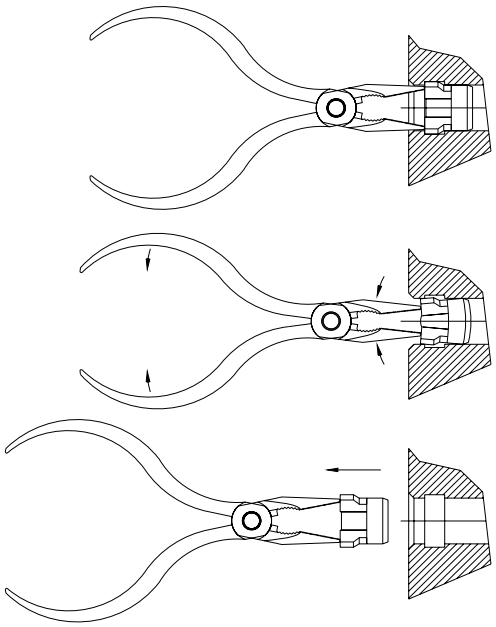


● Method #2

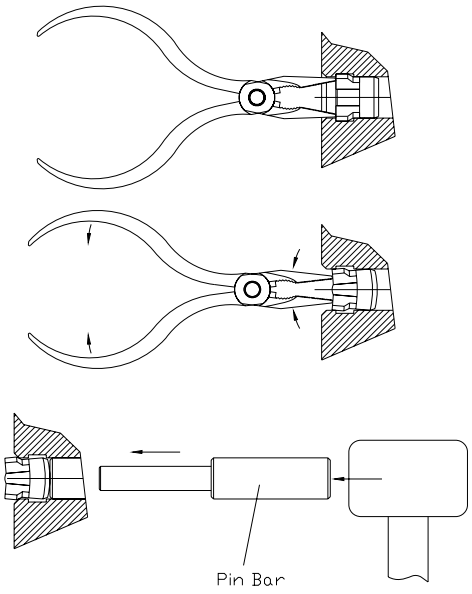


2) Disassembling the rubber plug

● Method #1



● Method #2



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7. Wear Tolerance

Wear tolerance of each kind expendable parts come to decide. The usage of exceeding the wear tolerance causes fatal damage to breaker. Prevent the damage through the regular inspection and exchange of expendable parts including seals and all kinds of bushes. Our company is not responsible for the flaw using in exceeding the wear tolerance of the expendable parts.

7.1 Seal & O-Ring

Quality Guaranteed Period : 3 months

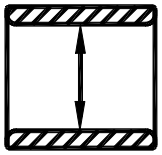
Since hydraulic breaker operates at high-pressure and high-temperature, leakage or scratch could be occurred by friction, wear and breakage of seals. Considering pressure, temperature, viscosity of oil, a little leakage is accepted to be normal. But in case of abnormal leakage, replace as a new ones. To prevent fatal defect periodical replacement is carried out every 3months without external leakage of breaker.

Although the breaker is not operated in a long time, replace seals periodically to prevent rust, corrosion of oil and transformation of seals.

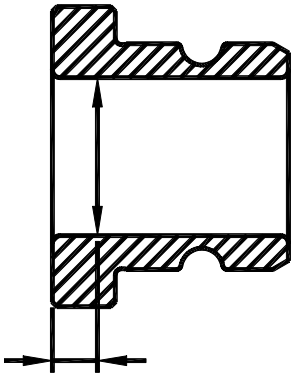
7.2 Front cover, Thrust bush

Unit(mm)

	MODEL	New Inside Dia.	Reject Inside Dia.
THRUST BUSH	**SB10II**	40	42
	SB20II	45	47
	SB30II	53	55
	SB35II	60	62
	SB40II	68	71
	SB43II	75	79
FRONT COVER	**SB45**	85	89
	SB50	100	105
	SB60	125	130
	SB70	135	140
	SB81	140	146
	SB100	150	156
	SB121	155	161
	SB130	165	171
	SB140	165	171
	SB151	175	181



THRUST BUSH
(Measure at center)



FRONT COVER
(Measure at 10mm)

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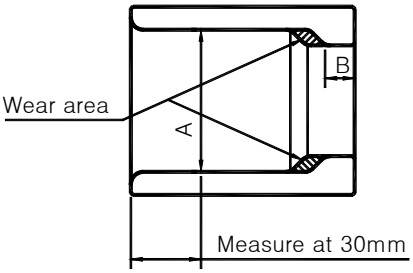
7.3 Ring bush

Unit(mm)

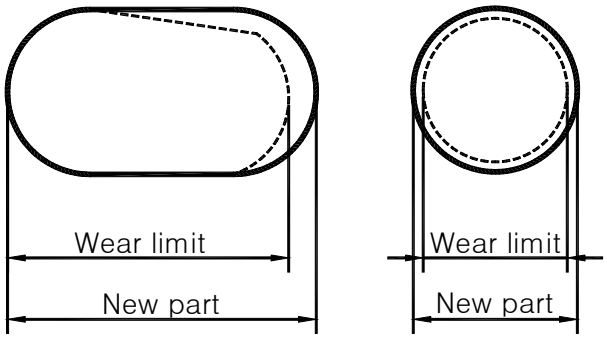
MODEL	New Inside Dia.	Reject Inside Dia.	New B	Reject
SB10II	40	42	8.75	7
SB20II	45	47	10.25	8
SB30II	53	55	8.5	6
SB35II	60	62	10.5	7.5
SB40II	68	71	10.5	7.5
SB43II	75	78	15	12
SB45	85	89	24	21
SB50	100	105	17	14
SB60	125	130	31	28
SB70	135	140	32.5	29.5
SB81	140	146	40	37
SB100	150	156	38	35
SB121	155	161	46	43
SB130	165	171	41	38
SB140	165	171	41	38
SB151	175	171	53.5	50.5



7.4 Rod pin

Unit(mm)

MODEL	NEW Length	REJECT Length
SB10II	28	26
SB20II	28	26
SB30II	32	30
SB35II	36	34
SB40II	38	36
SB43II	42	40
SB45	54	51
SB50	60	57
SB60	75	72
SB70	82	79
SB81	88.5	85.5
SB100	94	91
SB121	96	93
SB130	96	93
SB140	96	93
SB151	99	95



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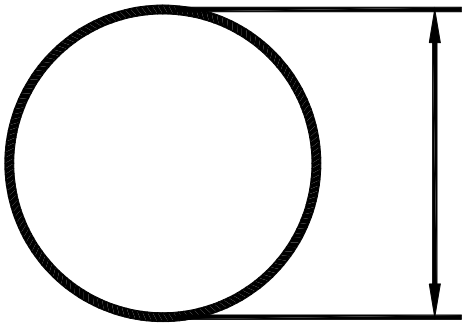
7.5 Stop pin

Unit(mm)

MODEL	New Outside Dia	Reject Outside Dia
SB10II	13	11
SB20II	13	11
SB30II	13	11
SB35II	13	11
SB40II	16	14
SB43II	16	14
SB45	17.5	15.5
SB50	17.5	15.5
SB60	17.5	15.5
SB70	17.5	15.5
SB81	20	18
SB100	17.5	15.5
SB121	17.5	15.5
SB130	17.5	15.5
SB140	17.5	15.5
SB151	26	24

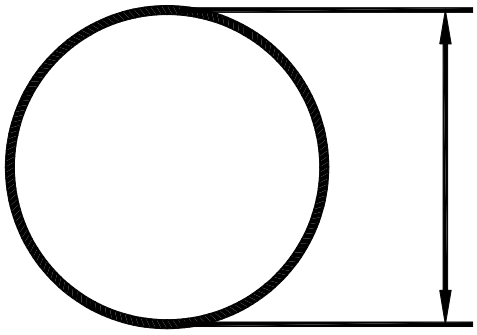


Measure Diameter

7.6 Front head pin

Unit(mm)

MODEL	New Outside Dia	Reject Outside Dia
SB45	20	18
SB50	26	24
SB60	26	24
SB70	26	24
SB81	30	28
SB100	26	24
SB121	26	24
SB130	26	24
SB140	26	24
SB151	36	34



Measure Diameter

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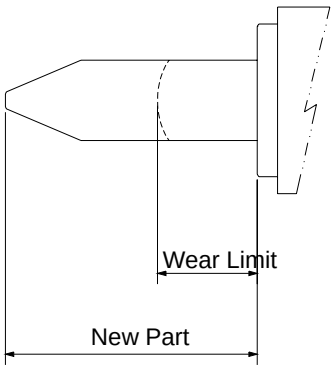
7.7 Rod

Unit(mm)

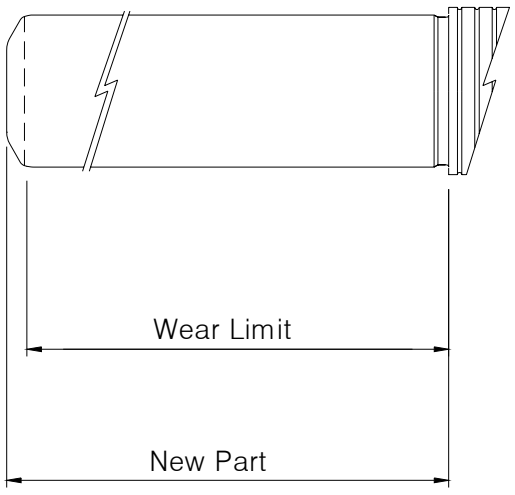
MODEL	New (LONG Type)	New (SHORT Type)	Wear Limit
SB10II	297	247	200
SB20II	326	276	200
SB30II	330	280	200
SB35II	374	324	200
SB40II	425	325	250
SB43II	507	407	250
SB45	564	464	250
SB50	561	461	250
SB60	650	550	300
SB70	701	601	350
SB81	762	662	400
SB100	854	754	450
SB121	913	813	500
SB130	952	852	500
SB140	952.5	852	500
SB151	918	818	550



7.8 Piston

Unit(mm)

MODEL	New Length	Wear Limit
SB10II	159	158
SB20II	169	168
SB30II	168	167
SB35II	196	195
SB40II	189	188
SB43II	251	250
SB45	285	284
SB50	275	274
SB60	340	338
SB70	318	316
SB81	324	322
SB100	357	355
SB121	385	383
SB130	413	411
SB140	433	431
SB151	518	516



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8. Inspection and Charging of N_2 Gas at Back head

WARNING

Charging gas pressure changes according to the rod condition.
Lay down the hammer and let the rod extend fully to charge gas.
Stay clear of the rod while charging the breaker with gas.
The rod may be impacted by the piston and forced out abruptly, when the through bolts are changed or the breaker body is disassembled. Discharge N_2 gas before work.
Take special care to handle and store the N_2 gas cylinder as it is high pressurized container.
Use nitrogen gas only.
Back head gas pressure 6kg/㎠ (85.5psi) on the back head surface temperature at 20℃(68°F)
See “CONVERSION TABLE FOR CHARGING N_2 GAS PRESSURE TO BACK HEAD”

■ Inspection of N2 Gas Back Head

1) Make sure if the cap and valve of the 3-way valve assembly(5) are fully tightened.
   Screw the 3-way valve assembly(5) into the charging valve of the back head after removing the plug.
2) At this time the handle must stand up to prevent the gas from coming out.
3) Push the handle into the charging valve fully, so the gas pressure inside the back head is indicated on the pressure gauge.
4) When the gas pressure is normal, unscrew the 3-way valve assembly after discharging gas inside the 3-way valve assembly.
5) When the gas pressure is higher or lower, charge it as described below.

■ Charging of N2 gas into Back Head

1) Connect the charging hose(4) to N2 gas cylinder(1) after screwing the bombe adapter(3) onto adapter nut(2) and installing them to the N2 gas cylinder.
2) Connect the 3-way valve assembly(5) to the charging hose(4) after unscrewing the cap on the 3-way valve.
3) Install the 3-way valve assembly(5) to the charging valve of the Back Head. At this time the handle of the 3-way valve assembly must be up position to prevent the gas from coming out.
4) Push the handle of the 3-way valve assembly fully and turn the handle of the N2 gas cylinder counterclockwise gradually to charge gas.
5) When the gas pressure exceeds 10% higher than the specified pressure, close the N2 gas cylinder by turning the handle clockwise.
6) Leave the handle of 3-way valve assembly up. Generated pressure makes it return back to original position naturally.
7) In order to discharge N2 gas in the charging hose(4) and the 3-way valve assembly turn the relief valve counterclockwise.
8) Remove the charging hose(4) from the N2 gas cylinder(1) and the 3-way valve assembly(5), and screw the cap into the 3-way valve assembly.
9) Push the handle of the 3-way valve assembly fully, and the gas pressure inside the Back Head is indicated on the pressure gauge. When the pressure is higher, discharge a small amount of gas from the Back Head by repeatedly opening and closing the valve and then gas pressure falls to the specified pressure.
10) When the gas pressure reaches to the specified pressure, close the valve and release the handle.
11) Open the valve completely and discharge gas inside the 3-way valve assembly.
    Remove the 3-way valve assembly from the charging valve of Back Head and install the plug to the charging valve. At this time prevent contamination from entering the breaker.

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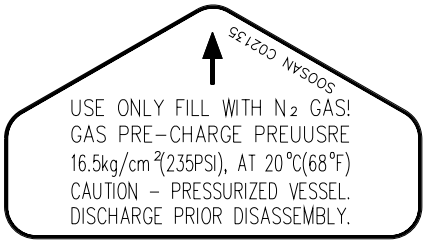
■ Conversion Table for charging nitrogen gas pressure to Back Head

(Depends on the temperature of Back Head surface)

Back Head Surface Temperature (℃ / ˚F)	0 / 32	10 / 50	20 / 68	30 / 86	40 / 104
Back Head Gas Pressure (kg/㎠ / psi)	15.5 / 220	16 / 228	16.5 / 235	17 / 242	17.5 / 249

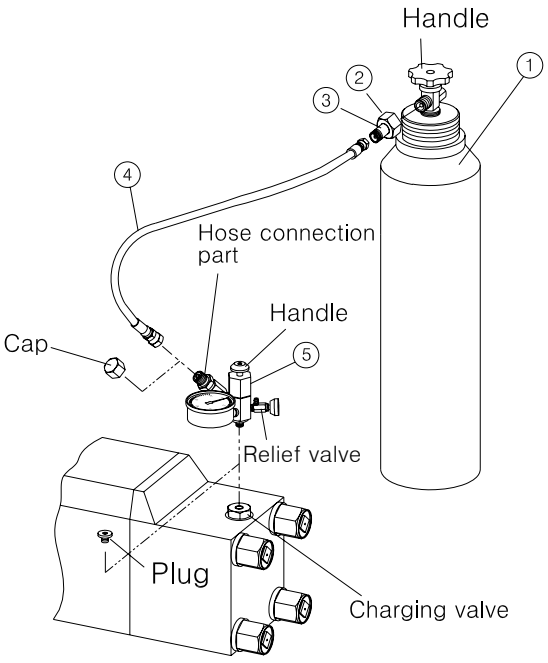
■ Back Head Sticker (C02135)

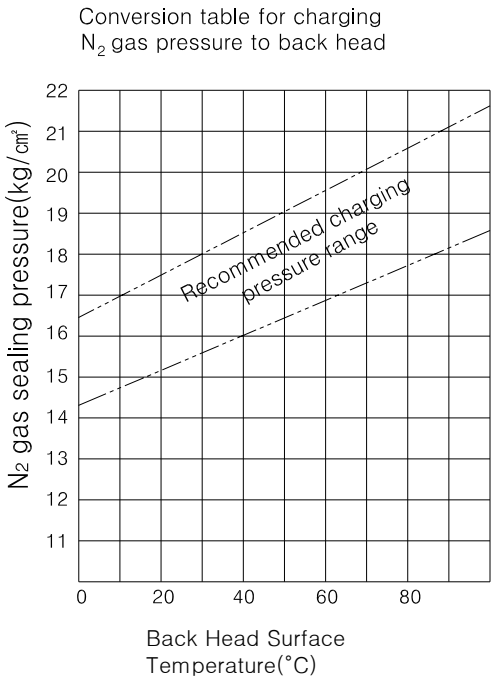
(Appears on the Back Head charging valve)



■ N2 Gas charging tools to Back Head

ITEM	PART No.	Q'ty	PART NAME
	C61204	1 SET	N_2 Gas Charging Set
1	2900003	1	N_2 Gas Cylinder
2	C91121	1	Bombe Adapter Nut
3	C91122	1	Bombe Adapter
4	2651001	1	Synflex Hose
5	C91142	1	B-3way Valve Assembly





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9. Inspection and Charging of N_2 gas in Accumulator

WARNING

Take special care to handle and store the N_2 gas cylinder as it is high pressurized
Use nitrogen gas only.
When disassemble the accumulator, must discharge N_2 gas before working.
Do not touch on the accumulator surface when working.
Be sure to use the 3 way valve assembly for charging the N_2 gas if charging gas leaks directly from the cylinder, diaphragm may be broken off.
If charging for handling N_2 gas to only the accumulator, make sure that the accumulator body and cover are tightened fully.

Standard accumulator gas pressure 55kg/㎠ (783psi) on the accumulator surface temperature at 20℃(68˚F)
See “CONVERSION TABLE FOR CHARGING N_2 GAS PRESSURE TO BACK HEAD”

■ Inspection of N_2 gas Accumulator.

1) Make sure if the cap and valve of the 3-way valve assembly(5) are fully tightened.
2) Remove the cap(11) from the accumulator and tighten the charging valve (12) fully.
3) Check if O-rings(6)(8) are installed to the bushing(7). Remove the plug(9) and screw the bushing.
4) Install the bushing(7) to the 3-way valve assembly(5).
5) Loosen the charging valve(12) gradually. The charging pressure is indicated on the pressure gauge.
6) Close the valve clockwise when the gas pressure is normal. If the gas pressure is higher, repeat loosening and tightening the relief valve of 3-way valve assembly. The pressure is lowered gradually.
7) Loosen the relief valve of the 3-way valve assembly to discharge the N2 gas in the 3-way valve assembly(5).
8) Remove the 3-way valve assembly(5) and tighten the plug(9) and cap(11).

■ Charging of N_2 gas into Accumulator

1) Connect the charging hose(4) to N2 gas cylinder(1) after screwing the bombe adapter(3) onto adapter, nut(2) and installing to the N2 gas cylinder.
2) Connect the 3-way valve assembly(5) to the charging hose(4) after unscrewing the cap on the 3-way valve assembly.
3) Remove the cap(11) form the accumulator and tighten the charging valve(12) fully.
4) Check if O-rings (6)(8) are installed to the bushing(7). Remove the plug(9) and screw the bushing.
5) Loosen the accumulator charging valve(12) after checking if bushing(7) is installed to the 3-way valve assembly.
6) Turn the handle of the N2 gas cylinder counter clockwise slowly to charge gas.
7) Charge gas in accordance with the conversion table for charging N2 gas pressure to accumulator.
8) Turn the handle of the N2 gas cylinder clockwise to close the cock.
9) Close the accumulator charging valve(12).
10) Loosen the relief valve of the 3-way valve assembly to discharge the N2 gas remaining in the charging hose.
11) Remove the charging hose, 3-way valve assembly and bushing and tighten the plug(9) and cap(11).

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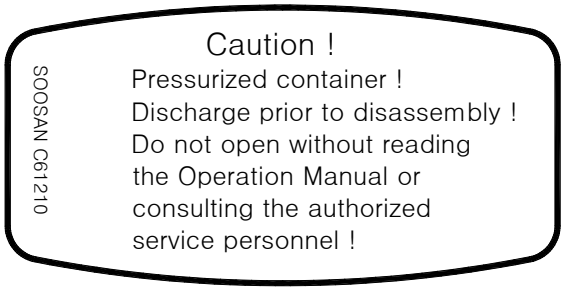
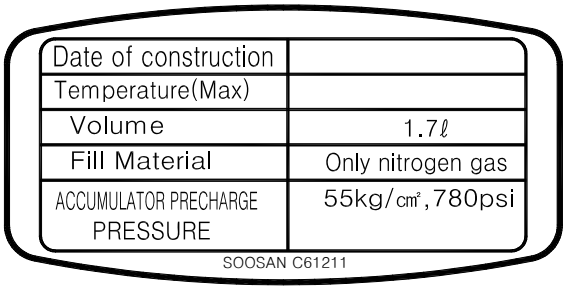
■ Conversion Table for charging nitrogen gas pressure to Accumulator

Accumulator Surface Temperature (℃ / °F)	0 / 32	10 / 50	20 / 68	30 / 86	40 / 104
Accumulator Gas Pressure (kg/㎠ / psi)	51 / 730	53 / 755	55 / 780	57 / 815	59 / 830

■ Accumulator(A) Sticker (C61210)
- appears on the accumulator body



■ Accumulator(B) Sticker (C61211)
- appears on the accumulator body



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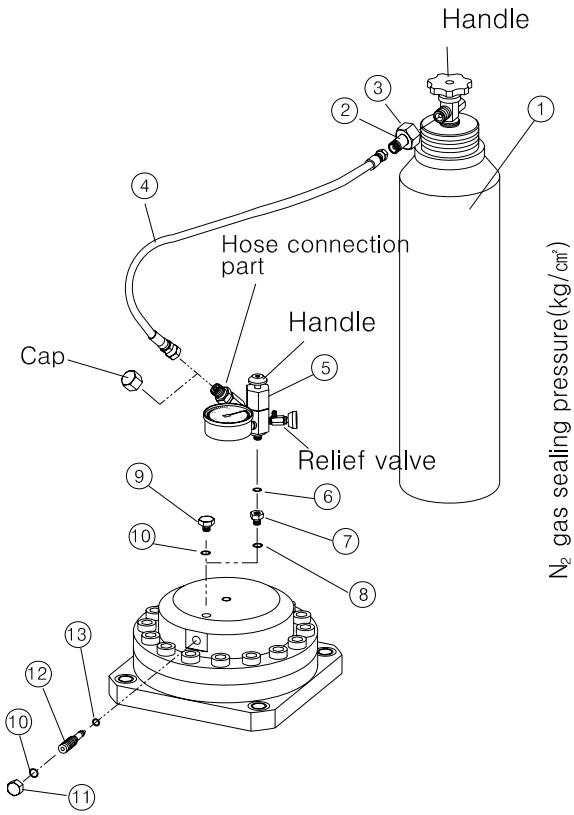
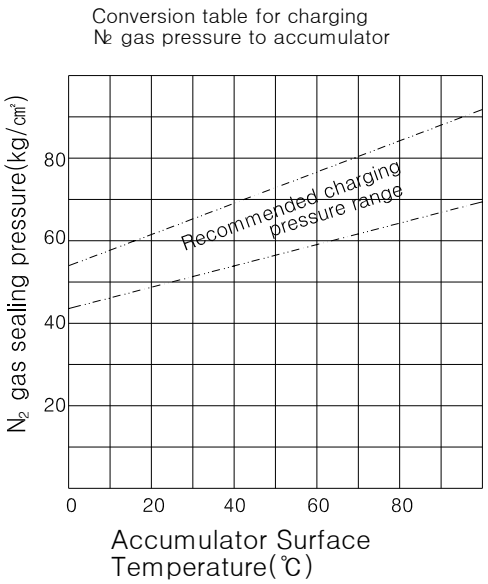
■ N_2 gas Charging Tools to Accumulator

ITEM	PART No.	Q'ty	Part Name
1	2900003	1	N_2 Gas Cylinder
2	C91122	1	Bombe Adapter
3	C91121	1	Bombe Adapter Nut
4	2651001	1	Synflex Hose
5	C91142	1	B-3 Way Valve Assembly
6	2850010	1	O-Ring
7	U81414	1	O-Ring Hex Bushing
8	2850014	1	O-Ring
9	U81276	1	O-Ring Plug
10	2850014	2	O-Ring
11	U81275	1	O-Ring Cap
12	U81266	1	Accumulator Charging Valve
13	2850003	1	O-Ring





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10. Trouble Shooting

The trouble-shooting chart is prepared to help operators find out causes and remedies instantly when troubles occur. When a trouble is found, have a good grip of the problem and contact our service station.
When diagnosing faults in operation of the breaker, always check that hydraulic power source is supplying the correct hydraulic flow and pressure to the breaker as listed in the table.
Check the flow with the hydraulic oil temperature at least 176˚F/80℃. An approved test procedure is available form Soosan.

TROUBLE	CAUSE	REMEDY
1. Breaker fails to hammer		
* Sufficient high pressure oil does not flow to breaker inlet.	* Defective hose or pipes· * Clogged or damaged piping	* Check, clean and repair piping or replace with new one.
* Sufficient high pressure oil flows to breaker inlet.	* Defective control valve and related parts	* Check and repair valve and its related parts or replace with new one.
	* Insufficient hydraulic oil	* Refill oil tank.
	* Internal breaker defects	* Consult with our service station.
2. Breaker hammers with hammering force reduced.		
* Sufficient high pressure oil does not flow to breaker inlet.	* Defective hose or pipes Clogged piping, Oil leakage	* Check, clean and repair piping or replace with new one.
	* Defective control valve and related parts	* Check control valve and related parts or replace with new one.
	* Deformed pedal	
	* Deformed control valve	
	* Stuck control valve	
	* Insufficient control valve stroke due to loose screws	
	* Clogged filter in return line of base machine tank	* Clean or replace.
	* Insufficient hydraulic oil	* Refill.
	* Contaminated or deteriorated hydraulic oil	* After flushing tank, change oil entirely.
* Sufficient high pressure oil flows to breaker inlet.	* Defective pump	* Ask service station for base machine service.
	* Internal breaker defects	* Consult with our service station.
	* low N_2-gas pressure of back head	* Adjust the gas pressure referring to Chapter 10.
3. Hammering force weakens suddenly and high pressure hose vibrates excessively during operation.	* Defective Back Head Gas leakage	* Ask our service station for repair.
4. Excessive oil leakage from Front Head or Rod.	* Worn cylinder seals	* Ask our service station for repair.
5. Piston works but does not hammer.	* Stuck in rod	* Remove front parts and pull out rod. * Repair with a grindstone.

※ Ask base machine service station to repair defective base machine.

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11. Hydraulic Oil.

Selection of hydraulic oil determines the efficiency of the hydraulic breaker performance.
Please consult with our service station under following conditions.

(1) When used in special regions where climate is severe (extremely cold or hot weather)
(2) When recommended brands of hydraulic oil are not available
(3) When hydraulic oil supplied for the base machine differ from the recommended one.

■ Hydraulic Oil and Grease

Recommended for Hydraulic Grab by Soosan

LUBE & SPEC / Manufacturer	HYDRAULIC OIL			GREASE
	SUMMER	WINTER	ALL SEASON	(MOS2)
	ISO VG 46	ISO VG 32	ISO VG 46	NLGI No2
MOBIL	MOBIL DTE 25	MOBIL DTE 24	MOBIL DTE 15M	MOBIL GREASE SPECIAL
	MOBIL SHC 525 *			MOBILITH SHC 220 *
	MOBIL EAL SYNDRAULIC 46 **			
LG-CALTEX	RANDOHD 46	RANDO HD 32	NEW RANDO HD CZ	MOLYTEX EP2
BP	ENERGOL HP46	ENERGOL HP32	ENERGOL HP46	-
SHELL	TELLUS 46	TELLUS 32	TELLUS T 46	RETINAX HDX-2

★: Synthetic Lubricant

★★: Environmentally Friendly Synthetic Lubricant

■ Oil Contamination

Contaminated oil results in malfunctions of the breaker as well as the base machine and causes damage to parts. Pay special attention to oil contamination.
Contaminated oil should be changed without delay. When changing oil, thoroughly wash oil tank, cylinder and pipes. Cleaning or replacing oil filter also requires check for oil contamination.

※ Replacement of filter : after first 50 hours and every 100 hours thereafter

※ Replacement of hydraulic oil : every 500 hours

⚠ WARNING

Hydraulic oil Temperature and viscosity

Do operate the hydraulic breaker at oil temperatures from 20℃/68℉ to 80℃/176℉.

Operation at higher temperatures can damage the internal components of the breaker and carrier there will result in reduced breaker performance.

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■ Criterion of Oil Contamination and Malfunction

(General Analysis)

Analysis Item	Criterion	Causes and Effects when exceed the criterion
Adhesiveness	Within±10% (40℃ cst)	Adhesiveness rarely decreases because of hydraulic oil. Entry of different kind of oil may reduce the adhesiveness which contributes to rising oil temperature , wear and scratch of bearing and gear and malfunction of hydraulic oil.
Oxidizing Level	Less than 0.3 (mg KOH/g)	Use of lubricating oil in a long period or in a high temperature (above 60℃) will oxidize it. Oxidizing level rises as oxidization proceeds. Sludge will be produced during the process and it leads to malfunction, corrosion and ageing.
Moisture	Less than 0.1(%)	Moisture causes rust, wear and scratch. Moisture of 0.3% goes considerably rusty and moisture of 0.5% occurs the damage of machine.

■ Criterion of Oil Malfunction by Hydraulic Oil Color
(Simple discrimination by ASTM color)

Hydraulic oil turns black as the breaker fails to display best performance. The old oil is assumed to be contaminated when there is a visual difference between the old new oil color and functions begin to deteriorate when hydraulic oil turns darker than the new oil color (ASTM number) by more than two.

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12. The Auto Lubrication Kit(Option)

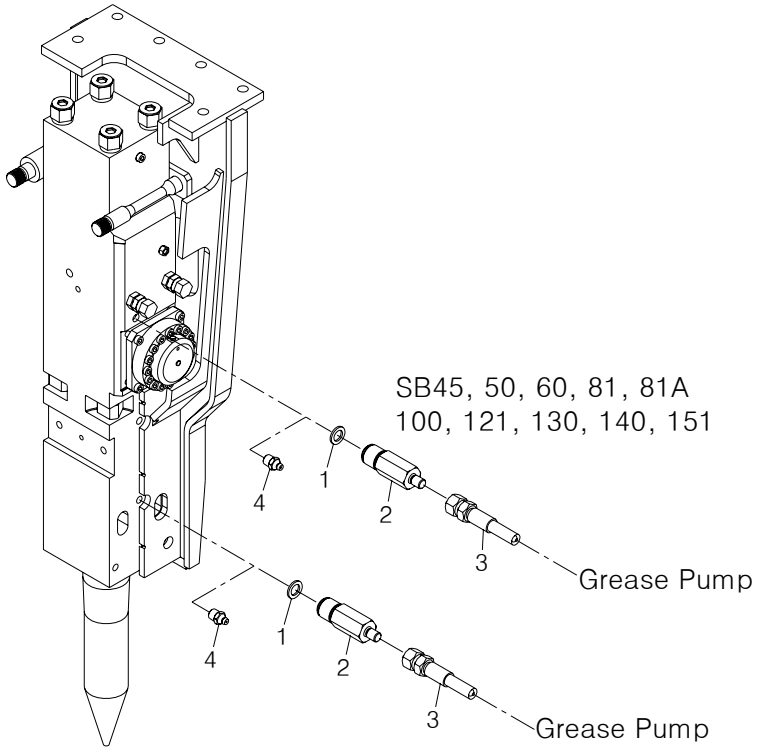
- Install the auto lubrication kit before using it.
- Use only recommended lubricant, if not the lubricant useless.
- For the sake of the auto lubrication, the grease adapter is supplied as standard parts.
- Don't lubricate excessively, the lubricant will be leaked through the air check valve.
- Don't use fluid grease, but use only recommended lubricant.

■ Installing the Auto lubrication kit

1) Clean surface area of the grease nipple hole on the Cylinder(or Front head).
2) Remove the Grease nipple form the Cylinder(or Front head).
3) Apply the O-ring to the G adapter and install it on the Cylinder(or Front head).
4) Connect the 1/4" Hose to the G adapter.

■ The Auto lubrication kit's Parts List

Model	No.	Part No.	Part Name
ALL MODEL	1	2851019	O-Ring
	2	C01157	G-Adapter
	3	2551042	Hose
	4	2700403	Grease Nipple



SB10II, 20II, 30II, 40II, 43II

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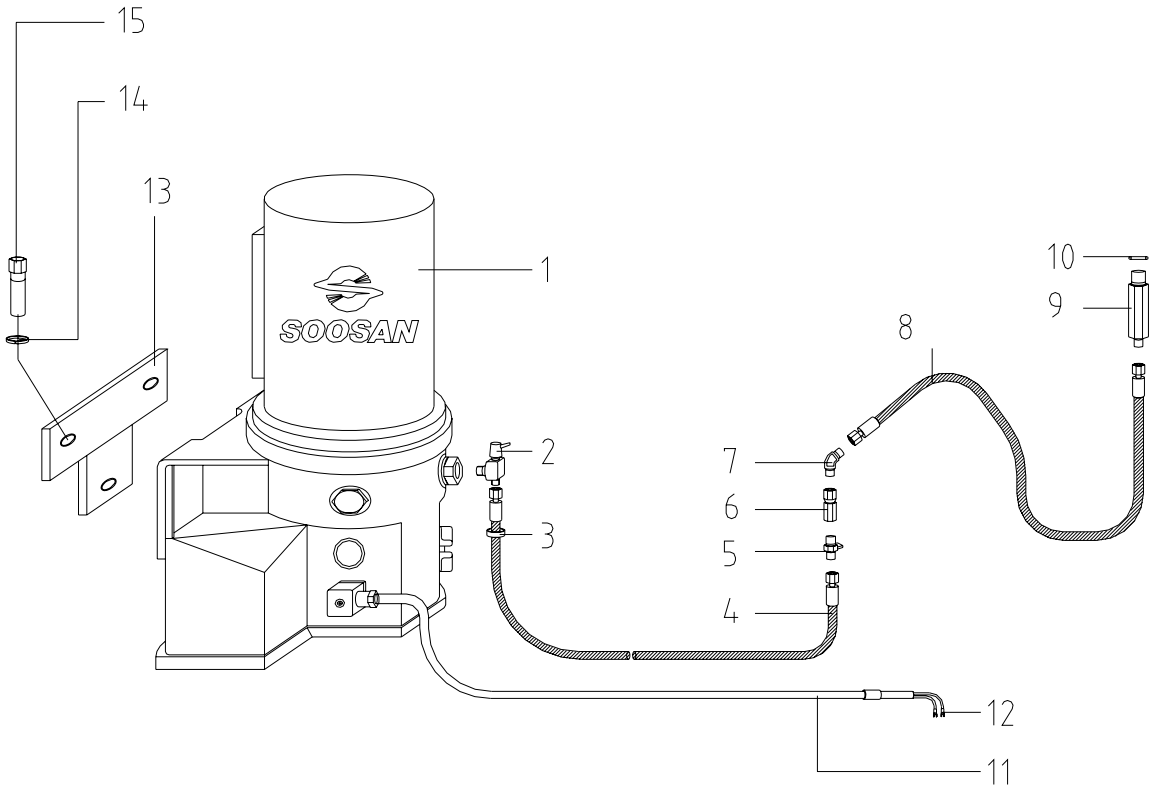
■ Auto lubrication kit installed in carrier (SB10II ~ SB151)

No	Part No.	Q'ty	Part Name
-	E95 001	1SET	Auto Lubrication kit
1	E95 002	1	Grease Pump
2	E95 003	1	Connector
3	4520007	10	Tie band
4	25510A1	1	Hose
5	E95 005	1	Hose Joint
6	2791001	1	Quick Coupler
7	2711600	1	H-Adapter-40
8	2551071	1	Compact hose
9	C01 157	1	G-Adapter
10	2851019	1	O-Ring
11	7101003	5	AV Cable
12	7105002	2	Terminal Ring
13	E95 004	1	Bracket
14	4210010	3	Spring Washer
15	4002153	3	Hex Bolt



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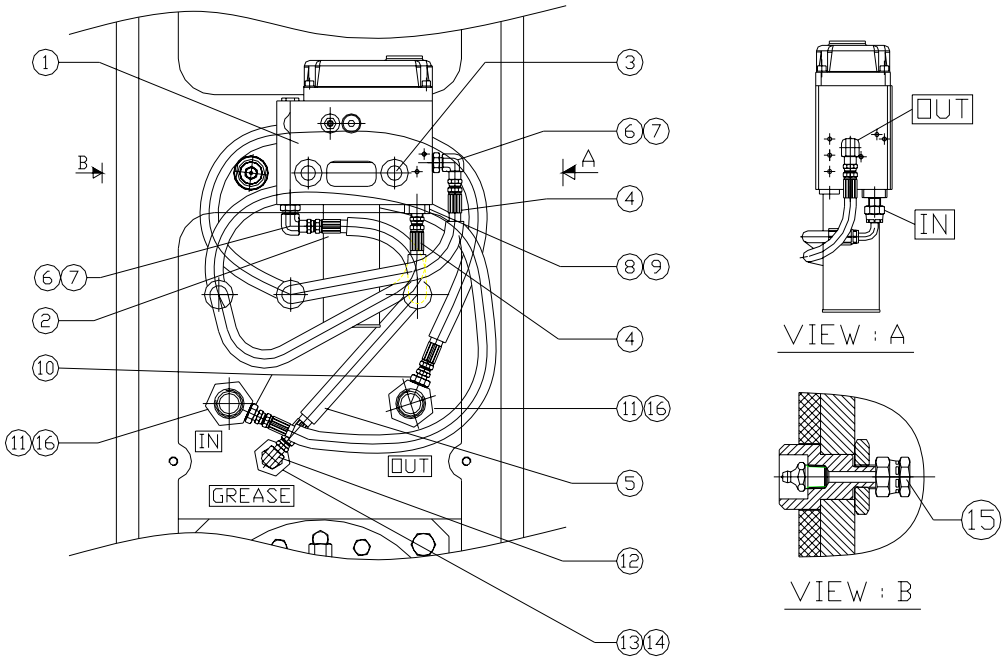
■ Auto lubrication kit installed in breaker (SB60～SB151)

No	Part No. **(SB60~SB100)**				Part No. **(SB121~SB151)**				Part Name
	#3	#4	#5	Q'ty	#3	#4	#5	Q'ty	
-	E95 013	E95 012	E95 008	1SET	C75 011	C75 010	C75 001	1SET	Auto Lubrication kit
1	C75 002	←	←	1	←	←	←	1	Grease Pump
2	C75 003	←	←	1	←	←	←	1	Grease Cartridge
3	4010120	←	←	2	←	←	←	2	Socket Bolt
4	2681044	←	←	2	←	←	←	2	H/Band Hose
5	2681034	←	←	1	←	←	←	1	H/Band Hose
6	2713100	←	←	2	←	←	←	2	H/Lock Adapter
7	2850010	←	←	2	←	←	←	2	O-Ring
8	C75 004	←	←	1	←	←	←	1	HP Adapter
9	2850016	←	←	1	←	←	←	1	O-RING
10	2710001	←	←	2	←	←	←	2	H/ Adapter
11	E95 009	E95 010	E95 011	2	E95 009	E95 010	E95 011	2	H/ Adapter
12	2713400	←	←	1	←	←	←	1	H/ Adapter
13	C23 412	←	←	1	←	←	←	1	G- Adapter
14	2851018	←	←	1	←	←	←	1	O-Ring
15	2715000	←	←	1	←	←	←	1	Union Cap
16	2856004	-	-	2	-	-	-	2	O-Ring



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13. Underwater Operation of the Breaker(Option)

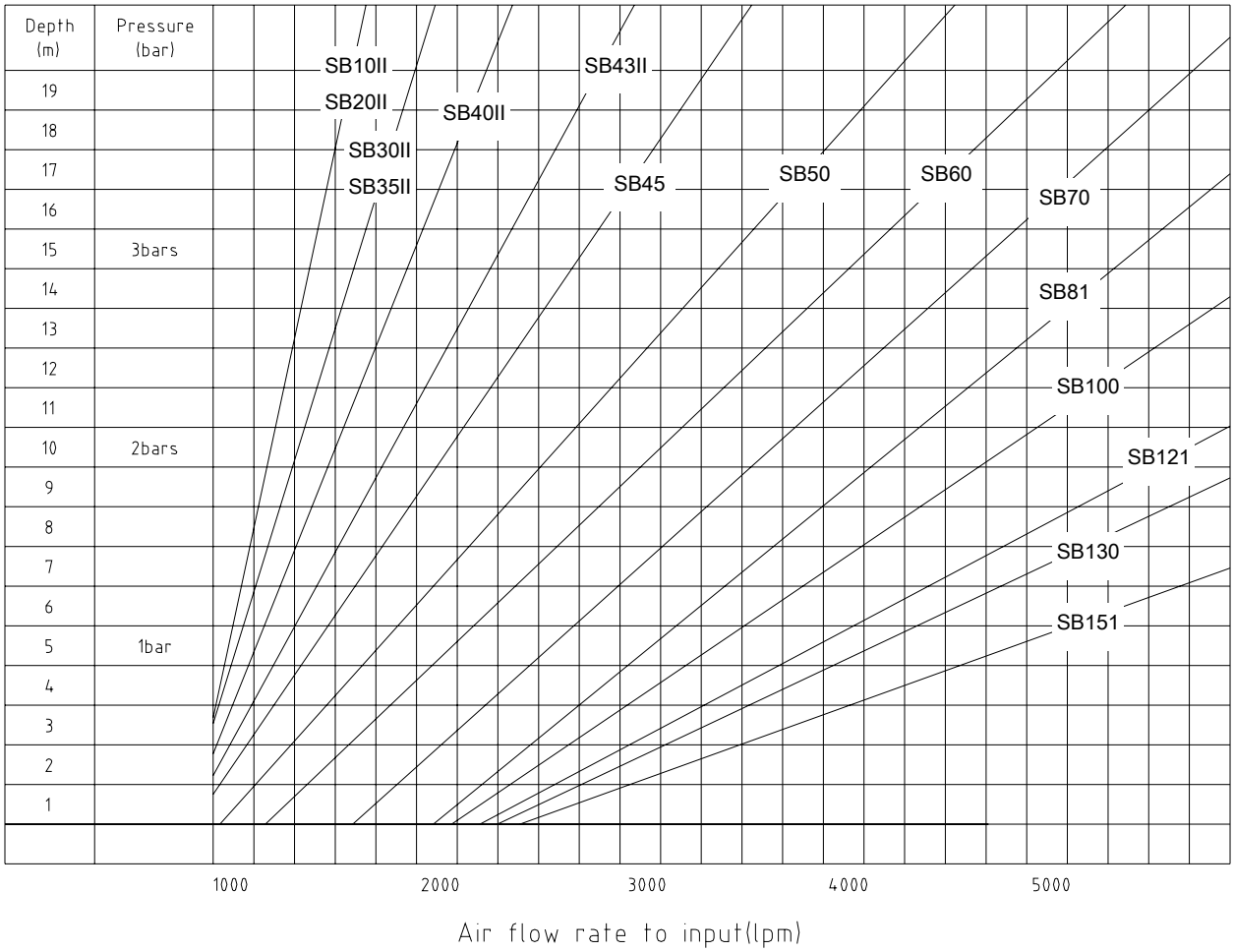
- Underwater operation of the breaker is possible to pour air into the striking area between the piston and the rod.
- For the sake of underwater operation the adapter is supplied as a standard part.
- For the sake of underwater operation the breaker is installed the air supply kit separately.
- Underwater usage of the breaker without the underwater kit and air compressor will cause serious damage to the hydraulic breaker.

■ Installing the Air supply kit

1) Clean the air check valve hole on the left-side of the cylinder.
   (Except SB40, the air check valve hole is located on the right-side)
2) Remove the air check valve with the standard tool.
3) Apply the O-ring to the cylinder's air check valve hole and install it.
4) Connect the hose to the air check valve hole and install it.
5) Before underwater operation, the breaker get into water pouring air into air check valve.

■ Air flow rate for underwater operation

The air capacity levels are in the following chart. Supply appropriate air flow rate in accordance with the breaker model and operating depth.



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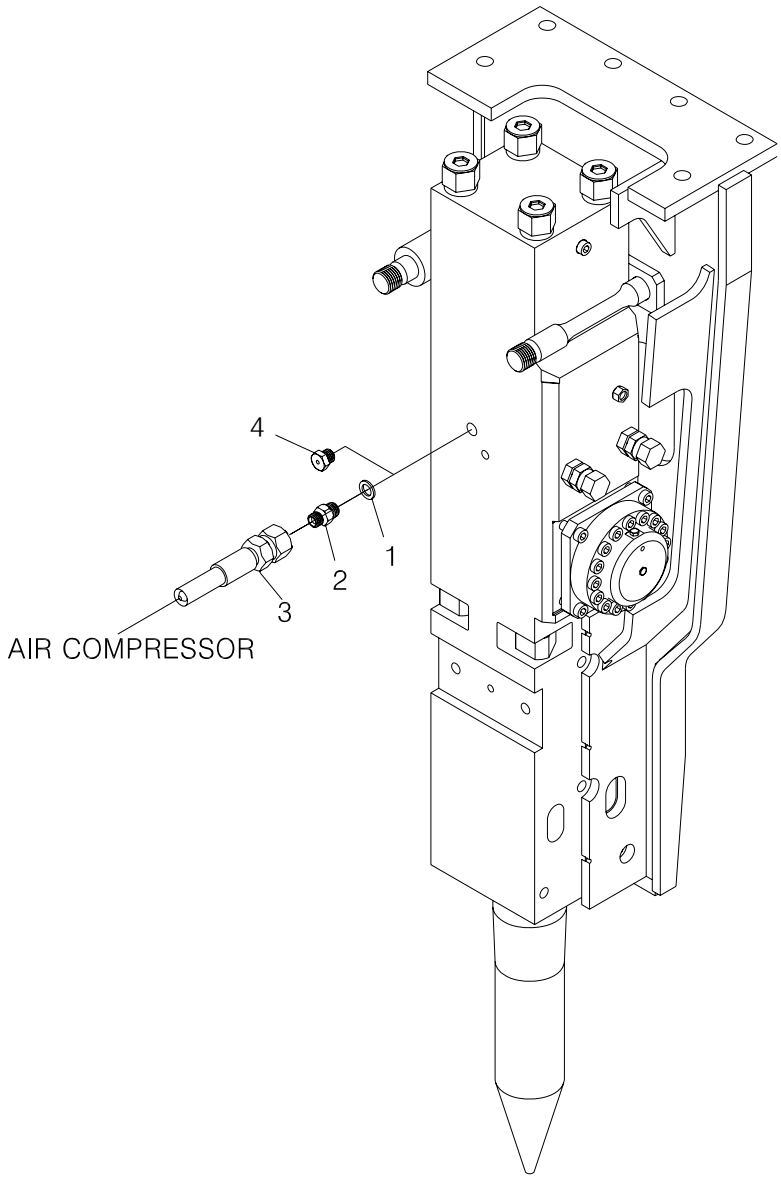
■ Illustration for installing Underwater Breaker(SB10II~SB151)

No	Part No.	Part Name	Q'ty
1	2850017	O-Ring	1
2	C01 158	W-Adapter	1
3	2551242	Hose	1
4	C01 162	Air Check Valve	1



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MAINTENANCE FOLLOW-UP

In order to follow the maintenance of a hydraulic breaker, a maintenance card presented below can be used

HYDRAULIC BREAKER SERVICE CARD NO._____

SOOSAN

Equipment _____ S/No._____

Model type _____ S/No._____

SERVICE IMFORMATION

Purpose of the service		Serviceman	
Service Date		Engine working hours	

Replaced parts			Part inspection				
Qty	Description	Part No.	Description	S/No.	Repaired	Replaced	OK
			Cylinder		☐	☐	☐
			Motor		☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐
					☐	☐	☐

Percussion mechanism tested ☐

Rotation mechanism tested ☐

Remarks

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SOOSAN HYDRAULIC BREAKER

PARTS LIST

SOOSAN

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FOREWORD

This parts list is composed of all parts of SB-Series breaker.
If you want to order parts, write down the followings and contact near service center.

a. Model Name :
b. Model Serial No. :
c. Parts No. and Parts Name :
d. Quantity :
e. Customer's Name and Address :

Please use genuine parts of SOOSAN to maintain the machine performance as a new one.
Take notice that SOOSAN won't guarantee the defects which may occur by using different parts from SOOSAN genuine parts.

☞ For the contents of this parts list, alteration is reserved without prior notice for the future improvement.

SOOSAN HEAVY INDUSTRIES CO., LTD.

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CONTENTS

OPERATION MANUAL

PART LIST

1. Main Body

▣ **SB10II,20II,30II,35II,40II,43II**

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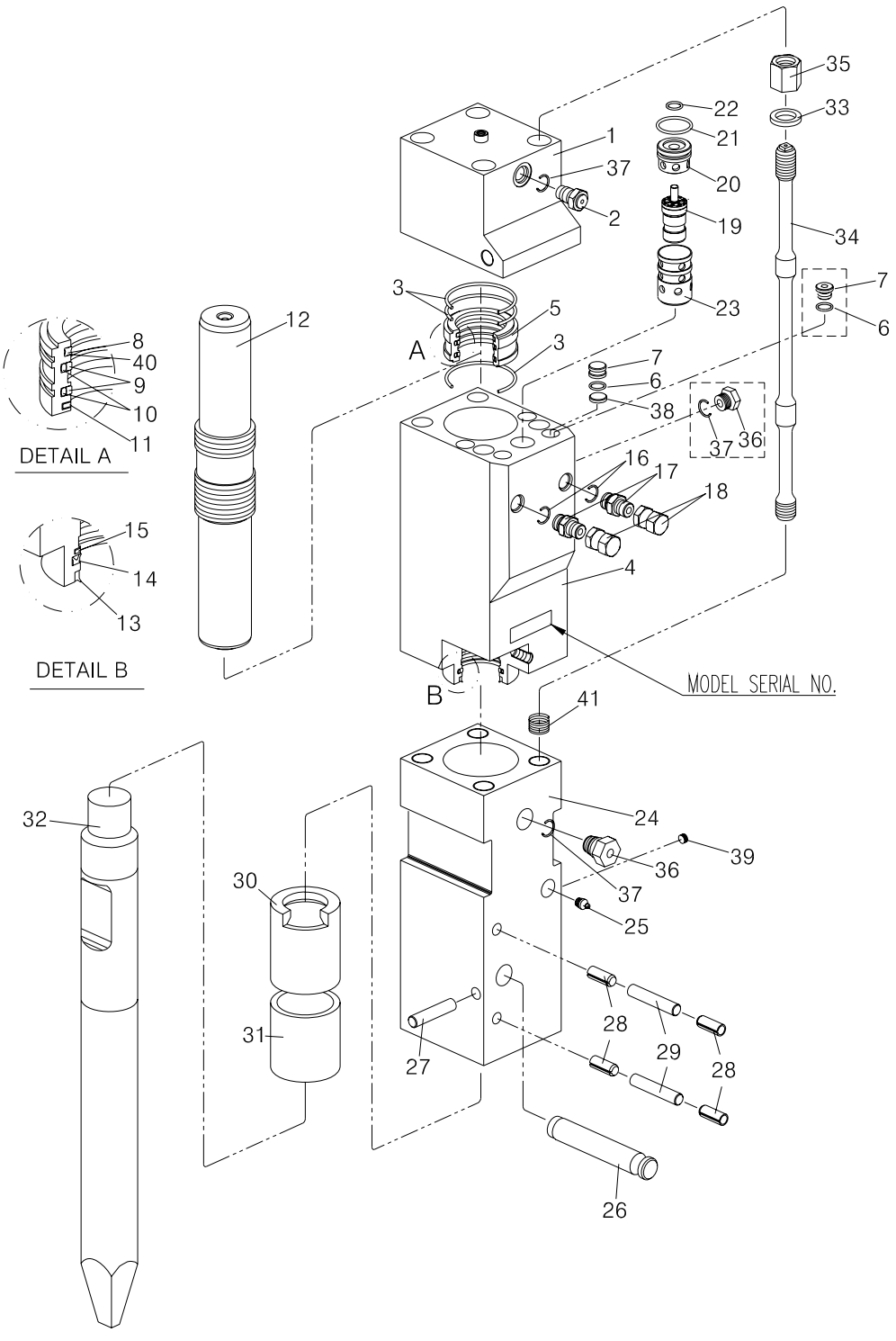

[ ] is applied to SB40II

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■ MAIN BODY (SB10II,20II,30II,35II,40II,43II)

NO	SB10II		SB20II		SB30II		SB35II		SB40II		SB43II		PARTS NAME	REMARK
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty		
	E81 002	1Set	F01 002	1Set	E71 002	1Set	F81 002	1Set	C01 005	1Set	F91 002	1Set	Main Body Ass'y	
1	E81 104	1	F01 108	1	E71 134	1	F81 104	1	C01 102	1	F91 104	1	Back Head	
2	C51 191	1	←	1	←	1	←	1	←	1	←	1	Charging Valve	
3	2851208	3	2851209	3	2851210	3	2851214	3	2856012	3	2851216	3	O-Ring	
4	E81 101	1	F01 101	1	E71 132	1	F81 101	1	C01 198	1	F91 101	1	Cylinder	
5	E81 109	1	F01 110	1	E71 138	1	F81 109	1	C91 125	1	F91 109	1	Seal Retainer	
6	2850010	3	←	3	←	3	2850014	3	2850016	3	←	3	O-Ring	
7	F01 129	3	←	3	←	3	F81 115	3	C91 124	3	←	3	Plug	
8	2835035	1	2835036	1	2835037	1	2835038	1	2835039	1	2835040	1	Gas Seal	
9	2811044	2	2811017	2	2811018	2	2811045	2	2811046	2	2811047	2	Step Seal	
10	-	-	-	-	-	-	-	-	-	-	-	-	O-Ring	
11	2819063	1	2819061	1	2819059	1	-	-	-	-	-	-	Buffer Seal	
12	E81 105	1	F01 109	1	E71 102	1	F81 105	1	C01 114	1	F91 105	1	Piston	
13	2831057	1	2831058	1	2831013	1	2831063	1	2831022	1	2831017	1	Dust Seal	
14	2811055	1	2811056	1	2821010	1	2811060	1	2811031	1	2811009	1	U-Packing	
15	2819062	1	2819060	1	2819058	1	2833011	1	2819056	1	2833012	1	Buffer Seal	
16	2851018	2	←	2	←	2	←	2	←	2	←	2	O-Ring	
17	C91 120	2	←	2	←	2	←	2	←	2	←	2	Adapter	
18	2715002	2	2715002	2	←	2	←	2	←	2	←	2	Union Cap	
19	F01 104	1	←	1	E71 105	1	←	1	C01 127	1	F91 106	1	Valve	
20	F01 106	1	←	1	E71 140	1	←	1	C01 188	1	F91 108	1	Valve Plug	
21	2851030	1	←	1	2851033	1	←	1	2851040	1	2851204	1	O-Ring	
22	2851201	1	←	1	←	1	←	1	←	1	←	1	O-Ring	
23	F01 105	1	←	1	E71 139	1	←	1	C01 193	1	F91 107	1	Valve Sleeve	
24	E81 136	1	F01 152	1	E71 156	1	F81 132	1	C01 216	1	F91 142	1	Front Head	
25	2700411	1	←	1	←	1	←	1	←	1	←	1	Grease Nipple	
26	E81 139	1	F01 155	1	E71 158	1	F81 134	1	C01 219	1	F91 143	1	Rod Pin	
27	4300132	1	←	1	←	1	4300150	1	C91 151	1	←	1	Spring Pin	
28	4300141	2	4300143	2	←	2	←	4	C91 110	4	←	4	Spring Pin	
29	E81 140	2	F81 135	2	←	-	←	-	C01 131	2	F91 121	2	Stop Pin	
30	E81 138	1	F01 153	1	E71 157	1	F81 133	1	C01 217	1	F91 110	1	Ring Bush	
31	E81 137	1	F01 154	1	E71 159	1	F81 111	1	C01 218	1	F91 111	1	Thrust Bush	
32	E81 141	1	F01 156	1	E71 160	1	F81 136	1	C01 220	1	F91 144	1	Rod(Moil Point)	
33	E81 120	4	F01 115	4	E71 116	4	←	4	C01 144	4	F91 114	4	Washer	
34	E81 118	4	F01 114	4	E71 114	4	F81 112	4	C01 145	4	F91 112	4	Through Bolt	
35	E81 119	4	F01 116	4	E71 115	4	←	4	C01 143	4	F91 113	4	Hex Nut	
36	C01 162	1	←	1	←	1	←	1	←	1	←	1	Air Check Valve	
37	2850017	2	←	2	←	2	←	2	←	2	←	2	O-Ring	
38	F01 128	3	←	3	←	3	F81 114	3	-	-	-	-	Cover Plate	
39	-	-	-	-	-	-	-	-	2702221	1	←	1	Hollow Hex Plug	
40	-	-	-	-	-	-	-	-	-	-	-	-	-	
41	-	-	-	-	-	-	-	-	-	-	-	-	Heli Sert Coil	U81 175
42	-	-	-	-	-	-	-	-	-	-	-	-	Hex Head Plug	2702193

*** ( ) is applied to SB40.**

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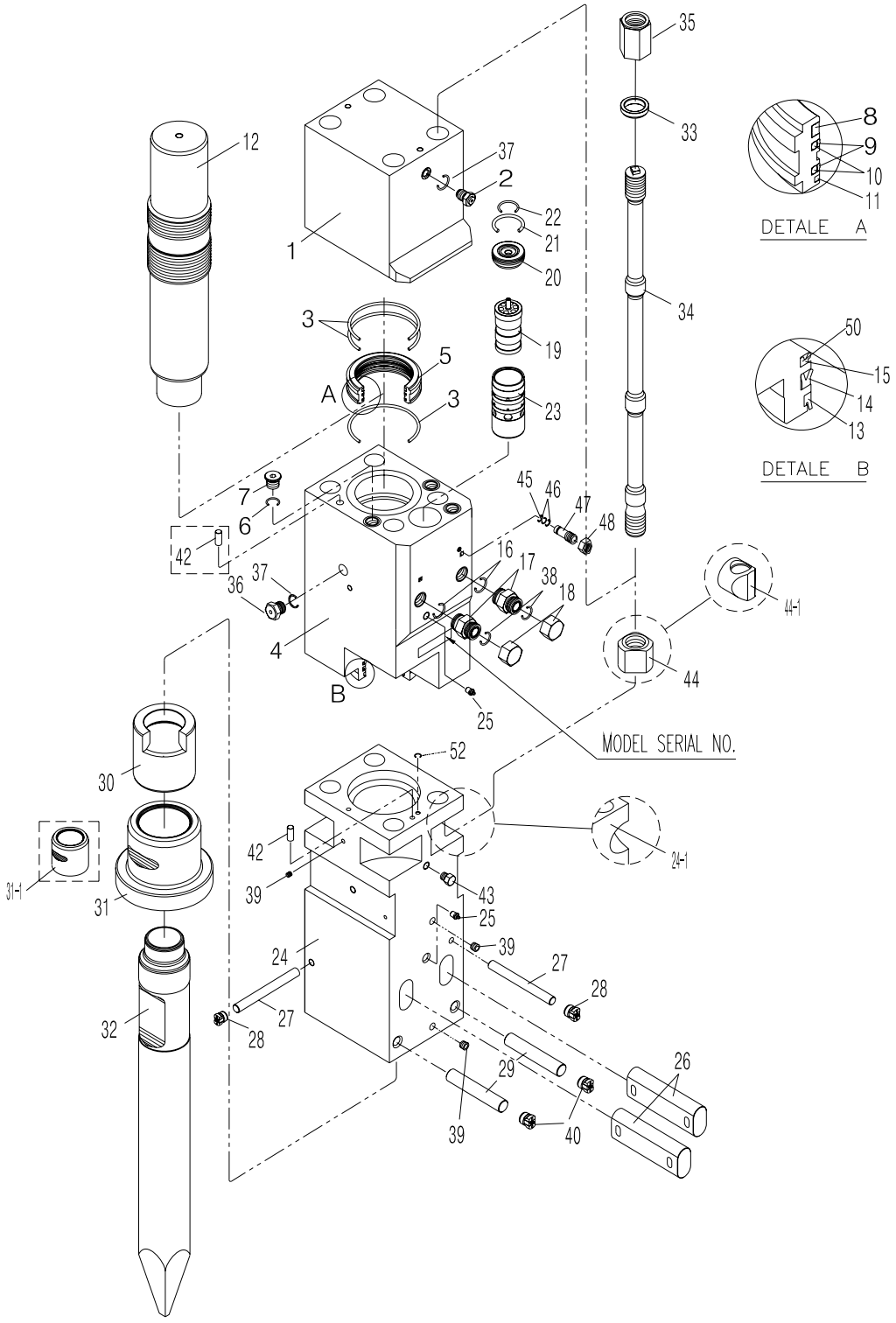
▣ SB45,50,60,70,81



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■ MAIN BODY (SB45,50,60,70,81)

NO	SB45		SB50		SB60		SB70		SB81		PARTS NAME	REMARK
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty		
	D41 001	1Set	C11 003	1Set	C21 002	1Set	L01 003	1Set	C31 007	1Set	Main Body Ass'y	
1	D41 110	1	C11 112	1	C21 101	1	L01 104	1	C31 101	1	Back Head	
2	C51 191	1	←	1	←	1	←	1	←	1	Charging Valve	
3	2851219	3	2851223	3	2851226	3	2851229	3	2851232	3	O-Ring	
4	D41 106	1	C11 192	1	C21 102	1	L01 101	1	C31 207	1	Cylinder	
5	D41 108	1	C11 119	1	C21 104	1	L01 109	1	C31 111	1	Seal Retainer	
6	2850017	3	2850020	3	2850021	3	←	3	2850024	3	O-Ring	
7	D41 109	3	C11 120	3	C21 106	3	←	3	C31 123	3	Socket Plug	
8	2835041	1	2835042	1	2835043	1	2835034	1	2835044	1	Gas Seal	
9	2811048	2	2811067	2	2811049	2	2811015	2	2811076	2	Step Seal	
10	-	-	-	-	-	-	-	-	-	-	O-Ring	
11	-	-	-	-	-	-	-	-	2819051	1	Buffer Seal	
12	D41 107	1	C11 194	1	C21 172	1	L01 146	1	C31 255	1	Piston	
13	2831068	1	2831023	1	2831073	1	2831018	1	2831103	1	Dust Seal	
14	2811064	1	2811032	1	2811007	1	2811014	1	2811071	1	U-Packing	
15	2833001	1	2833015	1	2833019	1	2833013	1	2833003	1	Buffer Seal	
16	2851023	2	←	2	2851028	2	←	2	2851038	2	O-Ring	
17	2710311	2	←	2	2710315	2	←	2	C31 193	2	Adapter	
18	2715003	2	←	2	2715004	2	←	2	←	2	Union Cap	
19	D41 113	1	C11 123	1	C21 108	1	L01 106	1	C31 171	1	Valve	
20	D41 111	1	C11 184	1	C21 107	1	L01 108	1	C31 172	1	Valve Plug	
21	2851205	1	2851051	1	2851208	1	2851209	1	2851210	1	O-Ring	
22	2851202	1	2851203	1	2851205	1	2851206	1	2851207	1	O-Ring	
23	D41 112	1	C11 183	1	C21 109	1	L01 107	1	C31 173	1	Valve Sleeve	
24	D41 148	1	C11 193	1	-	-	-	-	-	-	Front Head	
24-1	-	-	-	-	C21 174	1	L01 147	1	C31 256	1	Front Head	
25	2700411	2	←	1	←	2	←	2	←	2	Grease Nipple	
26	D41 147	2	C11 186	2	C21 153	2	L01 116	2	C31 226	2	Rod Pin	
27	D41 119	2	C11 131	2	C21 115	2	←	2	C31 127	2	Stop Pin	
28	D81 151	2	←	2	←	2	←	2	C31 246	2	Rubber Plug	
29	D41 118	2	C11 128	2	C21 113	2	E91 120	2	C31 126	2	Front Head Pin	
30	D41 141	1	C11 182	1	C21 151	1	L01 110	1	C31 225	1	Ring Bush	
31	D41 102	1	C11 127	1	C21 112	1	L01 111	1	C31 125	1	Front Cover	
31-1	D41 142	1	C11 181	1	C21 146	1	L01 123	1	C31 185	1	Front Cover	Silence
32	D41 101	1	C11 195	1	C21 114	1	L01 118	1	C31 211	1	Rod(Moil Point)	
33	D41 115	4	C11 141	4	C21 118	4	L01 115	4	C31 140	4	Washer	
34	D41 160	4	C11 220	4	C21 168	4	L01 142	4	C31 252	4	Through Bolt	
35	D41 161	4	C11 221	4	C21 169	4	L01 143	4	C31 253	4	Hex Nut	
36	C01 162	1	←	1	←	1	←	1	←	1	Air Check Valve	
37	2850017	2	←	2	←	2	←	2	←	2	O-Ring	
38	-	-	-	-	-	-	-	-	-	-	O-Ring	
39	2702221	3	←	1	←	3	←	3	←	3	Hollow Hex Plug	
40	C31 246	2	D81 150	2	←	2	←	2	C31 247	2	Rubber Plug	
41	-	-	-	-	-	-	-	-	-	-	Snap Ring	Not Use
42	U81 278	1	←	1	C21 173	2	←	2	←	2	Knock Pin	
43	-	-	-	-	-	-	-	-	-	-	Hex Head Plug	Not Use
44	D41 162	4	C11 222	4	-	-	-	-	-	-	Round Nut	
44-1	-	-	-	-	C21 175	4	L01 148	4	C31 257	4	Round Nut	
45	-	-	-	-	2850007	1	2850010	1	←	1	O-Ring	
46	-	-	-	-	2841218	2	2841217	2	←	2	Back-Up Ring	
47	-	-	-	-	C21 149	1	C31 210	1	←	1	Valve Adjuster	
48	-	-	-	-	4100305	1	4100306	1	←	1	Nut	
49	-	-	-	-	-	-	-	-	-	-	Socket Plug	Not Use
50	-	-	-	-	-	-	-	-	-	-	Square Ring	Not Use
51	-	-	-	-	-	-	-	-	-	-	Socket Plug	Not Use
52	2851007	1	-	-	2851014	1	←	1	←	1	O-Ring	

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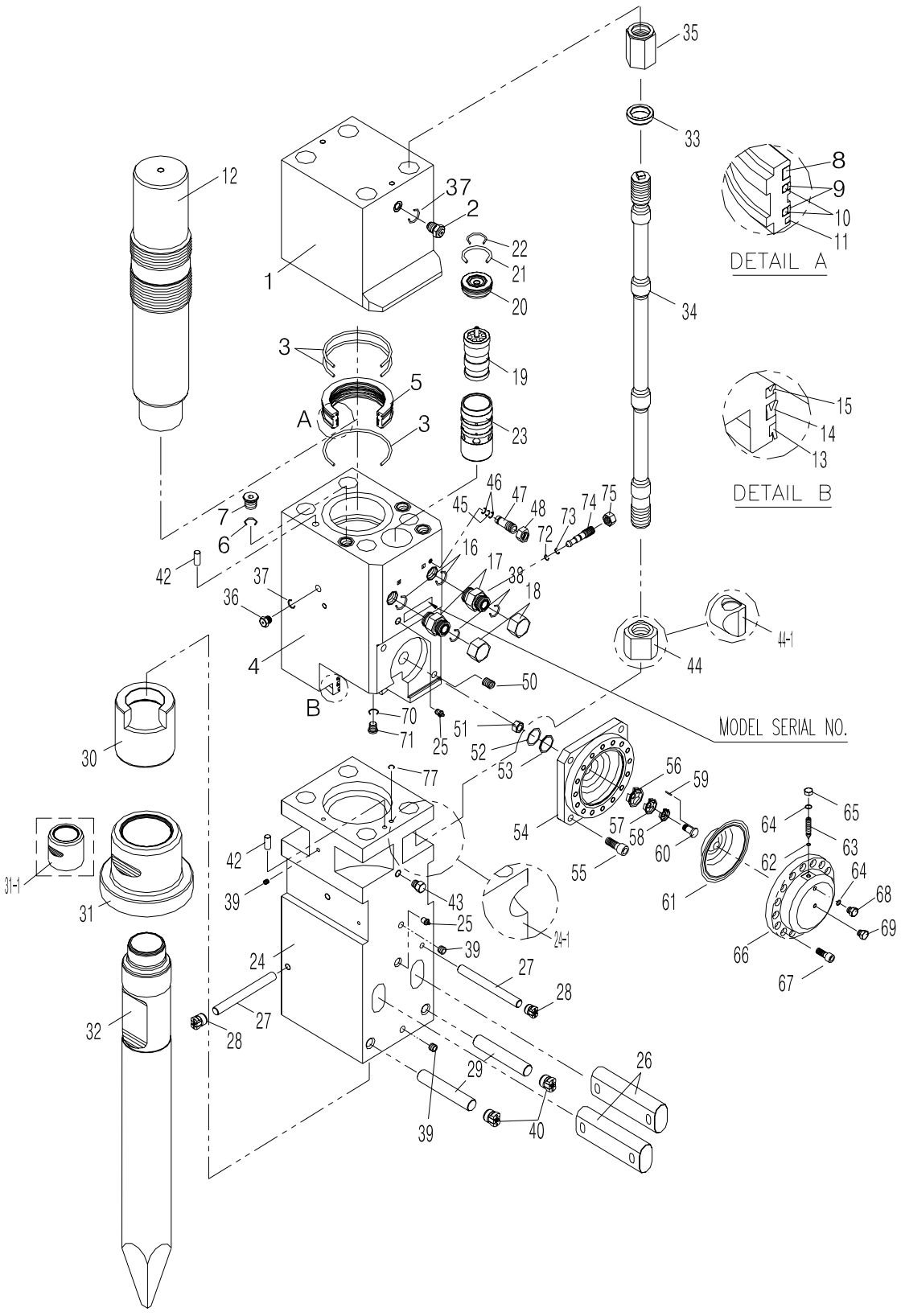
▣ SB81A,100,121,130,140,151



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■ MAIN BODY (SB81A,100,121,130,140,151)

NO	SB81A		SB100		SB121		SB130		SB140		SB151		PARTS NAME	REMARK
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty		
	C31 008	1Set	E91 002	1Set	C61 006	1Set	D81 005	1Set	L21 002	1Set	C71 002	1Set	Main Body Ass'y	
1	C31 101	1	E91 105	1	C61 121	1	D81 109	1	L21 104	1	C71 104	1	Back Head	
2	C51 191	1	←	1	←	1	←	1	←	1	←	1	Charging Valve	
3	2851232	3	2851234	3	2851235	4	2851237	3	2851237	3	←	4	O-Ring	
4	C31 216	1	E91 101	1	C61 225	1	D81 101	1	L21 101	1	C71 153	1	Cylinder	
5	C31 260	1	E91 141	1	C61 281	1	D81 178	1	L21 120	1	C71 205	1	Seal Retainer	
6	2850024	3	←	3	2850033	3	←	3	←	3	2850035	3	O-Ring	
7	C31 123	3	←	3	C61 146	3	←	3	←	3	C71 121	3	Socket Plug	
8	2835044	1	2835045	1	2835046	1	2835047	1	2835050	1	2835048	1	Gas Seal	
9	2811076	2	2811077	2	2811078	2	2811040	2	2811079	2	2811080	2	Step Seal	
10	-	-	-	-	-	-	-	-	-	-	-	-	O-Ring	
11	-	-	-	-	-	-	-	-	-	-	-	-	Buffer Seal	
12	C31 255	1	E91 136	1	C61 277	1	D81 174	1	L21 119	1	C71 199	1	Piston	
13	2831103	1	2831016	1	2831074	1	2831032	1	2831906	1	2831025	1	Dust Seal	
14	2811071	1	2811012	1	2811072	1	2811039	1	2811043	1	2811033	1	U-Packing	
15	2833003	1	2833010	1	2833004	1	2833020	1	2833021	1	2833017	1	Buffer Seal	
16	2851038	2	←	2	2851043	2	←	2	←	2	←	2	O-Ring	
17	C31 193	2	←	2	2710319	2	←	2	←	2	←	2	Adapter	
18	2715004	2	←	2	2715005	2	←	2	←	2	←	2	Union Cap	
19	C31 171	1	E91 107	1	C61 112	1	D81 111	1	L21 106	1	C71 202	1	Valve	
20	C31 172	1	E91 109	1	C61 110	1	D81 112	1	L21 108	1	C71 204	1	Valve Plug	
21	2851210	1	←	1	2851213	1	2851212	1	2851215	1	2851216	1	O-Ring	
22	2851207	1	←	1	←	1	←	1	2851209	1	2851212	1	O-Ring	
23	C31 173	1	E91 108	1	C61 111	1	D81 113	1	L21 107	1	C71 203	1	Valve Sleeve	
24	C31 256	1	E91 137	1	C61 278	1	D81 177	1	L21 111	1	C71 200	1	Front Head	
25	2700411	2	←	2	←	2	←	2	←	2	←	2	Grease Nipple	
26	C31 226	2	E91 119	2	C61 252	2	←	2	L21 116	2	C71 177	2	Rod Pin	
27	C31 127	2	E91 121	2	C61 169	2	←	2	←	2	C71 140	2	Stop Pin	
28	C31 246	2	D81 151	2	←	2	←	2	←	2	D81 150	2	Rubber Plug	
29	C31 126	2	E91 120	2	C61 168	2	←	2	←	2	C71 120	2	Front Head Pin	
30	C31 225	1	E91 111	1	C61 241	1	D81 124	1	←	1	C71 167	1	Ring Bush	
31	C31 125	1	E91 112	1	C61 167	1	D81 107	1	←	1	C71 108	1	Front Cover	
31-1	C31 185	1	E91 122	1	C61 213	1	D81 125	1	←	1	C71 169	1	Front Cover	Silence
32	C31 211	1	E91 113	1	C61 227	1	D81 115	1	D81 115	1	C71 157	1	Rod(Moil Point)	
33	C31 140	4	C61 188	4	←	4	←	4	C71 128	4	←	4	Washer	
34	C31 252	4	E91 134	4	C61 273	4	D81 171	4	L21 112	4	C71 197	4	Throug Bolt	
35	C31 253	4	C61 274	4	←	4	←	4	L21 117	4	←	4	Hex Nut	
36	C01 162	1	←	1	←	1	←	1	←	1	←	1	Air Check Valve	
37	2850017	2	←	2	←	2	←	2	←	2	←	2	O-Ring	
38	-	-	-	-	-	-	-	-	-	-	-	-	O-Ring	
39	2702221	3	←	2	←	3	←	3	←	3	←	3	Hollow Hex Plug	
40	C31 247	2	D81 150	2	←	2	←	2	←	2	C71 194	2	Rubber Plug	
41	-	-	-	-	-	-	-	-	-	-	-	-	Snap Ring	Not Use
42	C21 173	2	←	2	←	2	←	2	←	2	←	2	Knock Pin	
43	-	-	-	-	-	-	-	-	-	-	-	-	Hex Head Plug	Not Use
44	C31 257	4	E91 138	4	←	4	←	4	C71 201	4	←	4	Round Nut	
45	2850010	1	←	1	2850014	1	←	1	2850015	1	←	1	O-Ring	
46	2841217	2	←	2	2841202	2	←	2	2841216	2	←	2	Back-Up Ring	
47	C31 210	1	←	1	C61 233	1	←	1	C71 162	1	←	1	Valve Adjuster	
48	4100306	1	←	1	4100308	1	←	1	4100309	1	←	1	Nut	
49	-	-	-	-	-	-	-	-	-	-	-	-	Socket Plug	Not Use
50	4130039	4	←	4	←	4	←	4	←	4	4130041	4	Heli Sert Coil	

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■ MAIN BODY (SB81A,100,121,130,140,151)

NO	SB81A		SB100		SB121		SB130		SB140		SB151		PARTS NAME	REMARK
	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty	P/N	Q'ty		
	C31 008	1Set	E91 002	1Set	C61 006	1Set	D81 005	1Set	L21 002	1Set	C71 002	1Set	Main Body Ass'y	
51	U81 338	1	←	1	←	1	←	1	←	1	←	1	Hex Nut	
52	2851051	1	←	1	←	1	←	1	←	1	2851212	1	O-Ring	
53	2844901	1	←	1	←	1	←	1	←	1	2844003	1	Back-Up Ring	
54	C31 155	1	←	1	C61 138	1	←	1	←	1	C71 111	4	Accumulator Body	
55	4011147	4	←	4	←	4	←	4	←	4	4011186	4	Socket Bolt	
56	C61 141	1	←	1	←	1	←	1	←	1	C71 115	1	Holder (A)	
57	C61 142	1	←	1	←	1	←	1	←	1	C71 116	1	Holder (B)	
58	C61 143	1	←	1	←	1	←	1	←	1	C71 117	1	Holder (C)	
59	C61 145	1	←	1	←	1	←	1	←	1	C71 114	1	Center Pin	
60	C61 144	1	←	1	←	1	←	1	←	1	C71 118	1	Holder Pin	
61	U81 253	1	←	1	C61 139	1	←	1	←	1	C71 113	1	Diaphragm	
62	2850003	1	←	1	←	1	←	1	←	1	←	1	O-Ring	
63	U81 266	1	←	1	←	1	←	1	←	1	←	1	Charging V/V	
64	2850014	2	←	2	←	2	←	2	←	2	←	2	O-Ring	
65	U81 275	1	←	1	←	1	←	1	←	1	←	1	O-Ring Cap	
66	C31 154	1	←	1	C61 140	1	←	1	←	1	C71 112	1	Accumulator Cover	
67	4011366	12	←	12	4011108	16	←	16	←	16	4011147	16	Socket Bolt	
68	U81 276	1		1	←	1	←	1	←	1	←	1	O-Ring Plug	
69	U81 277	1	←	1	←	1	←	1	←	1	←	1	P.V.C Plug	
70	-	-	-	-	-	-	-	-	-	-	-	-	O-Ring	Not Use
71	-	-	-	-	-	-	-	-	-	-	-	-	Sockrt plug	Not Use
72	-	-	-	-	-	-	-	-	-	-	-	-	O-Ring	Not Use
73	-	-	-	-	-	-	-	-	-	-	-	-	Back-Up Ring	Not Use
74	-	-	-	-	-	-	-	-	-	-	-	-	Cylinder Adjuster	Not Use
75	-	-	-	-	-	-	-	-	-	-	-	-	Nut(4100308)	Not Use
76	-	-	-	-	-	-	-	-	-	-	-	-	Socket Plug	Not Use
77	2851014	1	←	1	←	1	←	1	←	1	←	1	O-Ring	
78														
79														
80														

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2. Seal kit

■ SEAL KIT (SB10II ~ SB50)

NO	PARTS NAME	SB10II		SB20II		SB30II		SB35II		SB40II		SB43II		SB45		SB50		REMARK
		P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	
	Seal Kit	E81 012	1	F01 012	1	E71 012	1	F81 012	1	CO1 012	1	F91 012	1	D41 011	1	C11 012	1	SET
3	O-Ring	2851208	3	2851209	3	2851210	3	2851214	3	2856012	3	2851216	3	2851219	3	2851223	3	
6	O-Ring	2850010	3	←	3	←	3	2850014	3	2850016	3	←	3	2850017	3	2850020	4	
8	Gas Seal	2835035	1	2835036	1	2835037	1	2835038	1	2835039	1	2835040	1	2835041	1	2835042	1	
9	Step Seal U-Packing	2811044	2	2811017	2	2811018	2	2811045	2	2811046	2	2811047	2	2811048	2	2811067	2	
11	Buffer Seal	2819063	1	2819061	1	2819059	1	-	-	-	-	-	-	-	-	-	-	
13	Dust Seal	2831057	1	2831058	1	2831013	1	2831063	1	2831022	1	2831017	1	2831068	1	2831023	1	
14	U-Packing	2811055	1	2811056	1	2811010	1	2811060	1	2811031	1	2811009	1	2811064	1	2811032	1	
15	Buffer Seal	2819062	1	2819060	1	2819058	1	2833011	1	2819056	1	2833012	1	2833001	1	2833015	1	
16	O-Ring	2851018	2	←	2	←	2	←	2	←	2	←	2	2851023	2	←	2	
21	O-Ring	2851030	1	←	1	2851033	1	←	1	2851040	1	2851204	1	2851205	1	2851051	1	
22	O-Ring	2851201	1	←	1	←	1	←	1	←	1	←	1	2851202	1	2851203	1	
37	O-Ring	2850017	2	←	2	←	2	←	2	←	2	←	2	←	2	←	2	
52	O-Ring	-	-	-	-	-	-	-	-	-	-	-	-	2851007	1	-	-	

■ SEAL KIT (SB60 ~ SB151) – For Steel Seal-Retainer

NO	PARTS NAME	SB60		SB70		SB81		SB81A		SB100		SB121		SB130		SB140		SB151	
		P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty
	Seal Kit	C21 011	1	L01 011	1	C31 012	1	C31 013	1	E91 011	1	C61 011	1	D81 014	1	L21 011	1	C71 010	1
3	O-Ring	2851226	3	2851229	3	2851232	3	←	3	2851234	3	2851235	4	2851237	3	2851237	3	←	4
6	O-Ring	2850021	3	←	3	2850024	3	←	3	←	3	2850033	3	←	3	←	3	2850035	3
8	Gas Seal	2835043	1	2835034	1	2835044	1	←	1	2835045	1	2835046	1	2835047	1	2835050	1	2835048	1
9	Step Seal	2811049	2	2811015	2	2811076	2	←	2	2811077	2	2811078	2	2811040	2	2811079	2	2811080	2
11	Buffer Seal	-	-	-	-	2819051	1	←	1	2819052	1	2819053	1	2819054	1	-	-	-	-
13	Dust Seal	2831073	1	2831018	1	2831103	1	←	1	2831016	1	2831074	1	2831032	1	2831906		2831025	1
14	U-Packing	2811007	1	2811014	1	2811071	1	←	1	2811012	1	2811072	1	2811039	1	2811043	1	2811033	1
15	Buffer Seal	2833019	1	2833013	1	2833003	1	←	1	2833010	1	2833004	1	2833020	1	2833021	1	2833017	1
16	O-Ring	2851028	2	←	2	2851038	2	←	2	←	2	2851043	2	←	2	←	2	←	2
21	O-Ring	2851208	1	2851209	1	2851210	1	←	1	←	1	2851213	1	2851212	1	2851215	1	2851216	1
22	O-Ring	2851205	1	2851206	1	2851207	1	←	1	←	1	←	1	←	1	2851209	1	2851212	1
37	O-Ring	2850017	2	←	2	←	2	←	2	←	2	←	2	←	2	←	2	←	2
45	O-Ring	2850007	1	2850010	1	←	1	←	1	←	1	2850014	1	←	1	2850015	1	←	1
46	Back-Up Ring	2841218	2	2841217	2	←	2	←	2	←	2	2841202	2	←	2	2841216	2	←	2
52	O-Ring	2851014	1	←	1	←	1	2851051	1	←	1	←	1	←	1	←	1	2851212	1
53	Back-Up Ring	-	-	-	-	-	-	2844901	1	←	1	←	1	←	1	←	1	2844003	1
62	O-Ring	-	-	-	-	-	-	2850003	1	←	1	←	1	←	1	←	1	←	1
64	O-Ring	-	-	-	-	-	-	2850014	2	←	2	←	2	←	2	←	2	←	2
77	O-Ring	-	-	-	-	-	-	2851014	1	←	1	←	1	←	1	-	-	←	1

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■ SEAL KIT (SB60 ~ SB151) – For Steel & Brass Seal-Retainer

NO	PARTS NAME	SB60		SB70		SB81		SB81A		SB100		SB121		SB130		SB140		SB151	
		P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty	P/ N	Q'ty
	Seal Kit	C21 012	1	L01 012	1	C31 014	1	C31 015	1	E91 012	1	C61 012	1	D81 015	1	L21 012	1	C71 012	1
3	O-Ring	2851226	2	2851229	2	2851232	2	←	2	2851234	3	2851235	2	2851237	3	2851237	3	←	4
6	O-Ring	2850021	3	←	3	2850024	3	←	3	←	3	2850033	3	←	3	←	3	2850035	3
8	Gas Seal	2835043	1	2835034	1	2835044	1	←	1	2835045	1	2835046	1	2835047	1	2835050	1	2835048	1
9	Step Seal	2811049	1	2811015	1	2811076	1	←	1	2811077	1	2811078	1	2811040	1	2811079	1	2811080	1
11	Buffer Seal	-	-	-	-	2819051	1	←	1	2819052	1	2819053	1	2819054	1	-	-	-	-
13	Dust Seal	2831073	1	2831018	1	2831103	1	←	1	2831016	1	2831074	1	2831032	1	2831906		2831025	1
14	U-Packing	2811007	1	2811014	1	2811071	1	←	1	2811012	1	2811072	1	2811039	1	2811043	1	2811033	1
15	Buffer Seal	2833019	1	2833013	1	2833003	1	←	1	2833010	1	2833004	1	2833020	1	2833021	1	2833017	1
16	O-Ring	2851028	2	←	2	2851038	2	←	2	←	2	2851043	2	←	2	←	2	←	2
21	O-Ring	2851208	1	2851209	1	2851210	1	←	1	←	1	2851213	1	2851212	1	2851215	1	2851216	1
22	O-Ring	2851205	1	2851206	1	2851207	1	←	1	←	1	←	1	←	1	2851209	1	2851212	1
37	O-Ring	2850017	2	←	2	←	2	←	2	←	2	←	2	←	2	←	2	←	2
45	O-Ring	2850007	1	2850010	1	←	1	←	1	←	1	2850014	1	←	1	2850015	1	←	1
46	Back-Up Ring	2841218	2	2841217	2	←	2	←	2	←	2	2841202	2	←	2	2841216	2	←	2
52	O-Ring	2851014	1	←	1	←	1	2851051	1	←	1	←	1	←	1	←	1	2851212	1
53	Back-Up Ring	-	-	-	-	-	-	2844901	1	←	1	←	1	←	1	←	1	2844003	1
62	O-Ring	-	-	-	-	-	-	2850003	1	←	1	←	1	←	1	←	1	←	1
64	O-Ring	-	-	-	-	-	-	2850014	2	←	2	←	2	←	2	←	2	←	2
77	O-Ring	-	-	-	-	-	-	2851014	1	←	1	←	1	←	1	-	-	←	1

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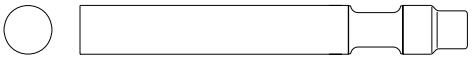
3. Rod type

PARTS NAME	SHAPE
MOIL POINT TYPE	
UNIVERSAL TYPE	
V-WEDGE TYPE	
H-WEDGE TYPE	
FLAT TYPE	

MODEL	TYPE	SIZE	PARTS No				
			MOIL	**UNIVERSAL**	**V-WEDGE**	**H-WEDGE**	**FLAT**
SB10II	LONG	D40 x L450	E81 141	E81 142	E81 143	E81 144	E81 145
	SHORT	D40 x L400	E81 146	E81 147	E81 148	E81 149	E81 150
SB20II	LONG	D45 x L500	F01 156	F01 157	F01 158	F01 159	F01 160
	SHORT	D45 x L450	F01 161	F01 162	F01 163	F01 164	F01 165
SB30II	LONG	D53 x L550	E71 160	E71 161	E71 162	E71 163	E71 164
	SHORT	D53 x L500	E71 165	E71 166	E71 167	E71 168	E71 169
SB35II	LONG	D60 x L600	F81 136	F81 137	F81 138	F81 139	F81 140
	SHORT	D60 x L550	F81 141	F81 142	F81 143	F81 144	F81 145
SB40II	LONG	D68 x L700	C01 220	C01 221	C01 222	C01 223	C01 224
	SHORT	D68 x L600	C01 225	C01 226	C01 227	C01 228	C01 229
SB43II	LONG	D75 x L800	F91 144	F91 145	F91 146	F91 147	F91 148
	SHORT	D75 x L700	F91 159	F91 160	F91 161	F91 162	F91 163
SB45	LONG	D85 x L900	D41 101	D41 122	D41 123	D41 124	D41 125
	SHORT	D85 x L800	D41 155	D41 156	D41 158	D41 159	D41 157
SB50	LONG	D100 x L1000	C11 195	C11 196	C11 198	C11 199	C11 197
	SHORT	D100 x L900	C11 205	C11 206	C11 208	C11 209	C11 207
SB60	LONG	D125 x L1100	C21 114	C21 127	C21 129	C21 128	C21 130
	SHORT	D125 x L1000	C21 163	C21 164	C21 166	C21 167	C21 165
SB70	LONG	D135 x L1200	L01 118	L01 119	L01 121	L01 122	L01 120
	SHORT	D135 x L1100	L01 124	L01 125	L01 127	L01 128	L01 126
SB81	LONG	D140 x L1300	C31 211	C31 212	C31 214	C31 213	C31 215
	SHORT	D140 x L1200	C31 241	C31 242	C31 244	C31 245	C31 243
SB100	LONG	D150 x L1400	E91 113	E91 114	E91 115	E91 116	E91 117
	SHORT	D150 x L1300	E91 129	E91 130	E91 132	E91 133	E91 131
SB121	LONG	D155 x L1500	C61 227	C61 228	C61 230	C61 229	C61 231
	SHORT	D155 x L1400	C61 268	C61 269	C61 271	C61 272	C61 270
SB130 SB140	LONG	D165 x L1600	D81 115	D81 118	D81 117	D81 116	D81 119
	SHORT	D165 x L1500	D81 152	D81 153	D81 155	D81 156	D81 154
SB151	LONG	D175 x L1600	C71 157	C71 158	C71 160	C71 159	C71 161
	SHORT	D175 x L1500	C71 189	C71 190	C71 192	C71 193	C71 191

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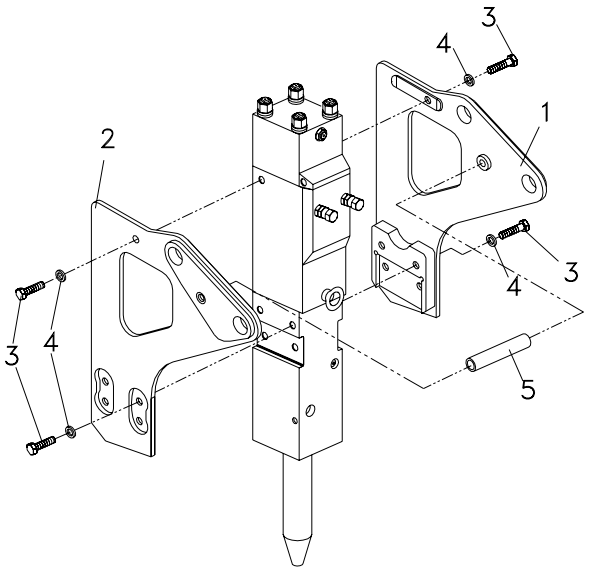
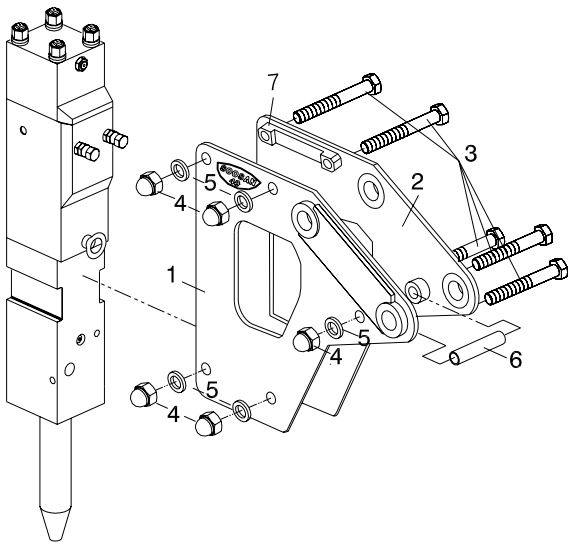
4. Side type

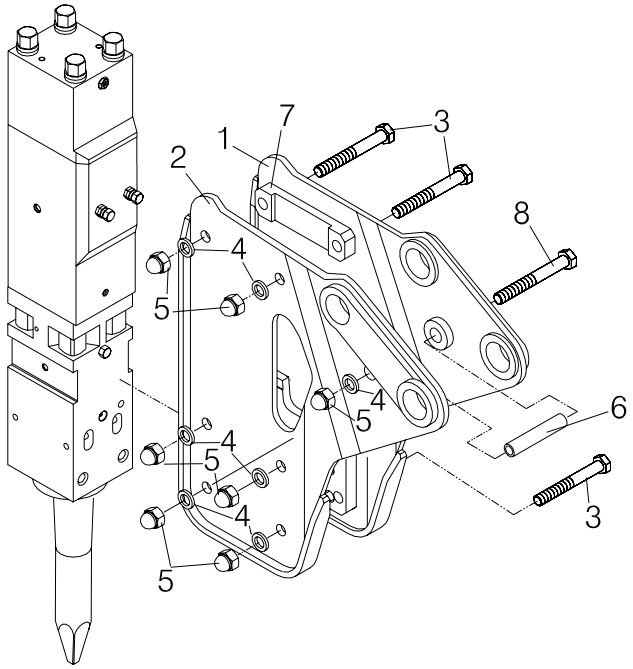
▣ SB10II,20II,30II,35II,43II



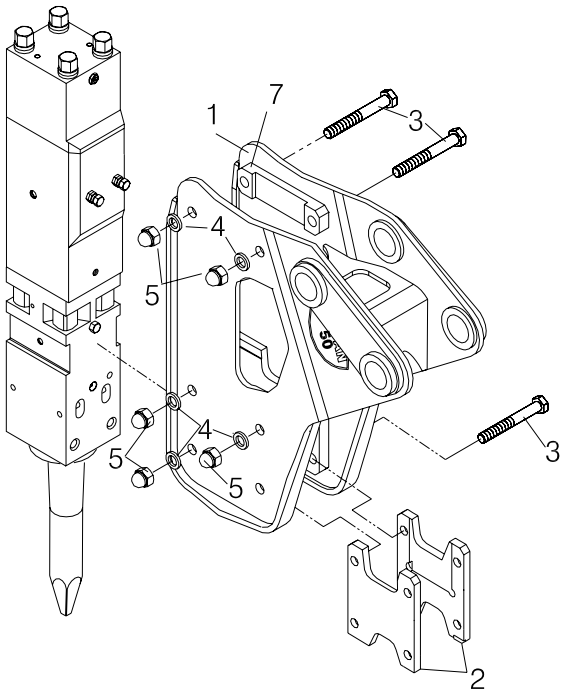
▣ SB40II



▣ SB45



▣ SB50



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■ SIDE TYPE (SB10 II ~ SB50)

NO	SB10 II		SB20 II		SB30 II		SB35 II	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Side Sub Ass'y E82 000	1Set	← F02 001	1Set	← E72 004	1Set	← F82 004	1Set
1	Side Bracket-R E82 100	1	← F02 100	1	← E72 119	1	← F832118	1
2	Side Bracket-L E82 101	1	← F02 103	1	← E72 120	1	← F82 119	1
3	Hex Bolt 4003118	12	← 4005146	12	← 4004318	12	← 4004321	12
4	Spring Washer 4211014	12	← 4211015	12	← 4211016	12	← 4211016	12
5	Spacer E83 135	1	← F02 107	1	← E73 160	1	← F82 111	1

NO	SB40 II		SB43 II		SB45		SB50	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Side Sub Ass'y C02 029	1Set	← F92 001	1Set	← D42 007(267) D42 011(225)	1Set	← C12 019 (275) C12 021 (330) C12 025 (290)	1Set
1	Side Bracket-R C02 241	1	← F92 100	1	← D42 161(267) D42 180(225)	1	Side Bracket C12 249 (275) C12 266 (330) C12 282 (290)	1
2	Side Bracket-L C02 242	1	← F92 101	1	← D42 162(267) D42 181(225)	1	Set Plate C12 250(275,330) C12 283 (290)	2
3	Hex Bolt 4003453	5	← 4004414	12	← 4003451	6	← 4003468(275,330) 4005464 (290)	6
4	Cap Nut 4143010	5	-	-	← 4143001	7	Hex Nut 4143013(275,330) 4101313(290)	6
5	Spring Washer 4210019	5	← 4210019	12	← 4210020	7	← 4211022	6
6	Spacer C02 156	1	← F93 102	1	Distance Pipe D43 120(267) D43 288(225)	1	-	-
7	Guide Plate C02 199	2	-	-	← D42 170	2	← C12 251(275,330) C12 284 (290)	2
8	-	-	-	-	Hex Bolt 4003452(267) 4003320(225)	1	-	-

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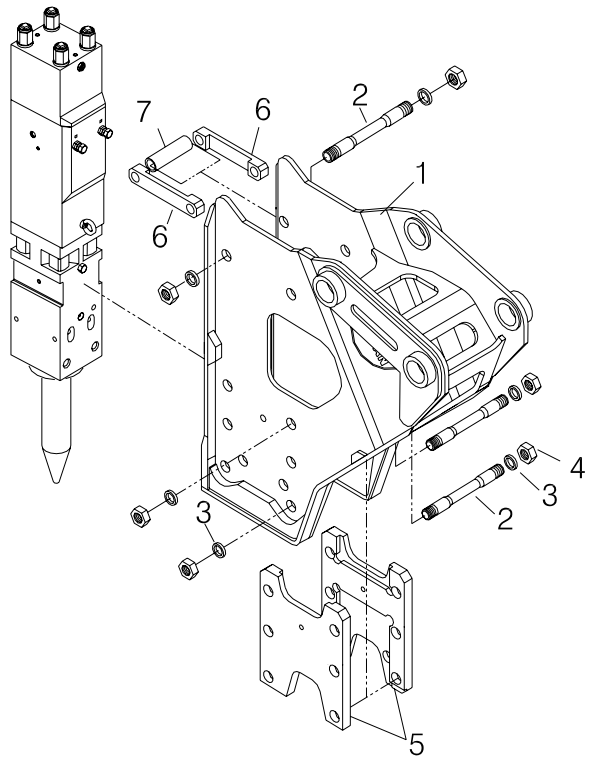
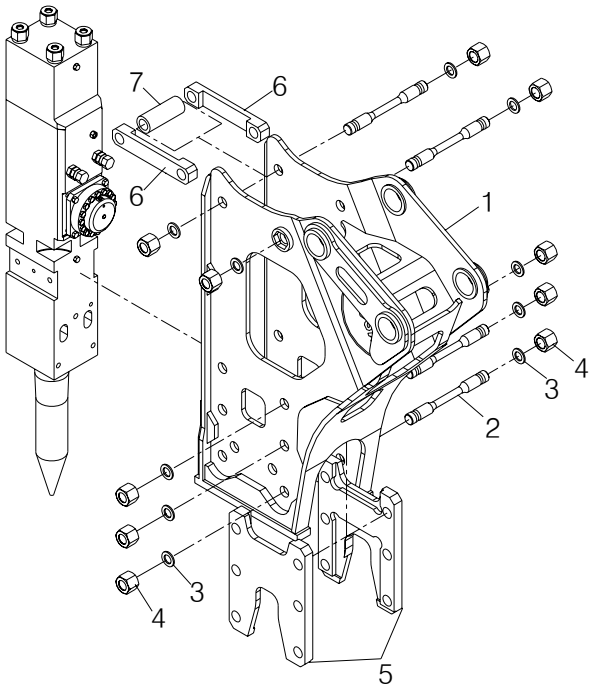
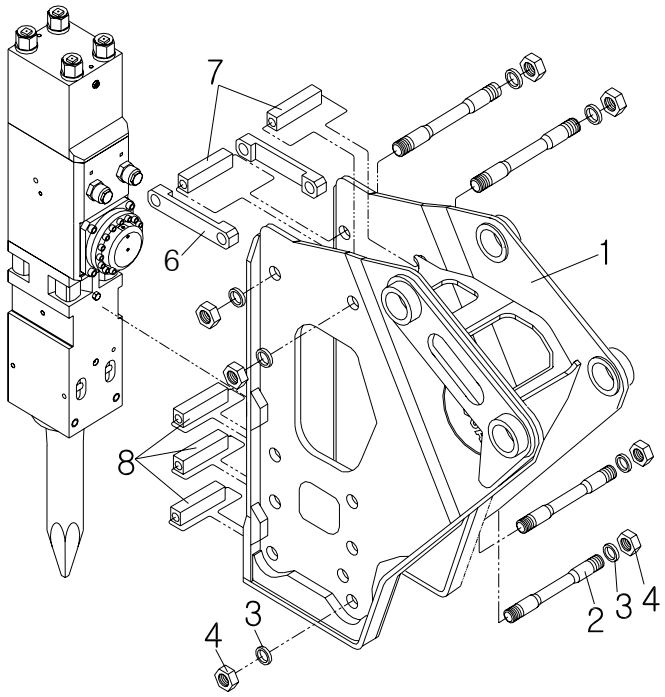
▣ SB60,70,81



▣ SB100,121,130,140



▣ SB151



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■ SIDE TYPE (SB60 ~ SB151)

NO	SB60		SB70		SB81		SB100	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Side Sub Ass'y C22 019	1Set	← L02 001	1Set	← C32 038	1Set	← E92 001	1Set
1	Side Bracket C22 212	1	← L02 100	1	← C32 263	1	← E92 100	1
2	Side Bolt C22 103	8	← L02 126	8	← C32 211	8	← E92 114	8
3	Washer C33 209	16	← L02 153	16	← C33 114	16	← C33 114	16
4	Side Nut C22 104	16	← L02 119	16	← C32 212	16	← C32 212	16
5	Set Plate C22 102	2	← L02 102	2	← C32 152	2	← E92 113	2
6	Guide Plate C22 213	2	← L02 101	2	← C32 378	2	← E92 116	2
7	Support Bar C22 225	1	← L02 115	1	← C32 257	1	← E92 115	2

NO	SB121		SB130		SB140		SB151	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Side Sub Ass'y C62 027	1Set	← D82 015	1Set	← L22 001	1Set	← C72 013	1Set
1	Side Bracke C62 276	1	← D82 178	1	← L22 100	1	← C72 185	1
2	Side Bolt D82 152	8	← D82 152	8	← L22 103	8	← C72 169	8
3	Washer D82 153	16	← D82 153	16	← D82 153	16	← C73 118	16
4	Side Nut C62 210	16	← C62 210	16	← C62 210	16	← C72 170	16
5	Set Plate C62 292	2	← D82 179	2	← L22 101	2	-	-
6	Guide Plate C62 293	2	← D82 154	2	← L22 102	2	← C72 199	2
7	Support Bar D82 112	1	← D82 112	1	← L22 104	1	Support Bar-H C72 120	2
8			-	-	-	-	Support Bar-L C722 200	3

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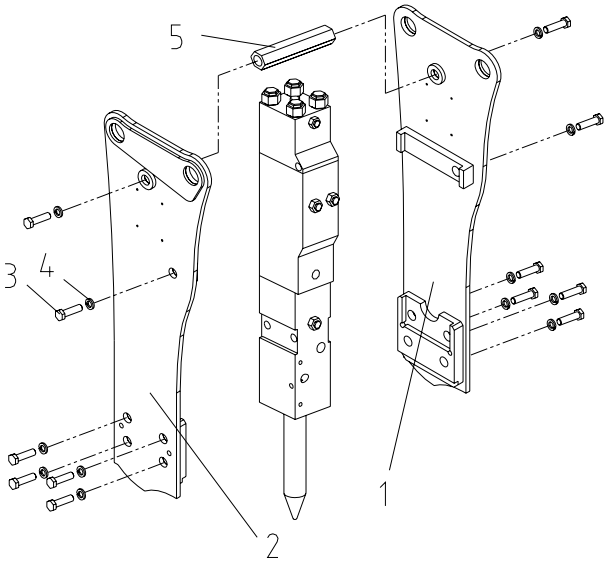
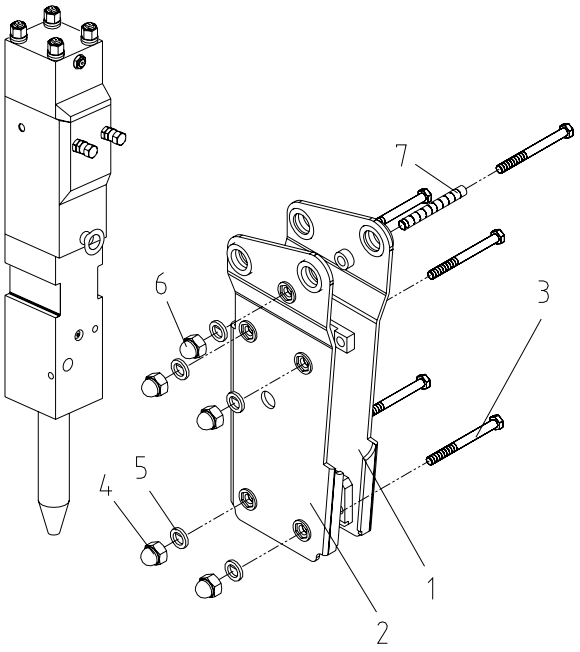
5. Standard top type(Direct mounting)

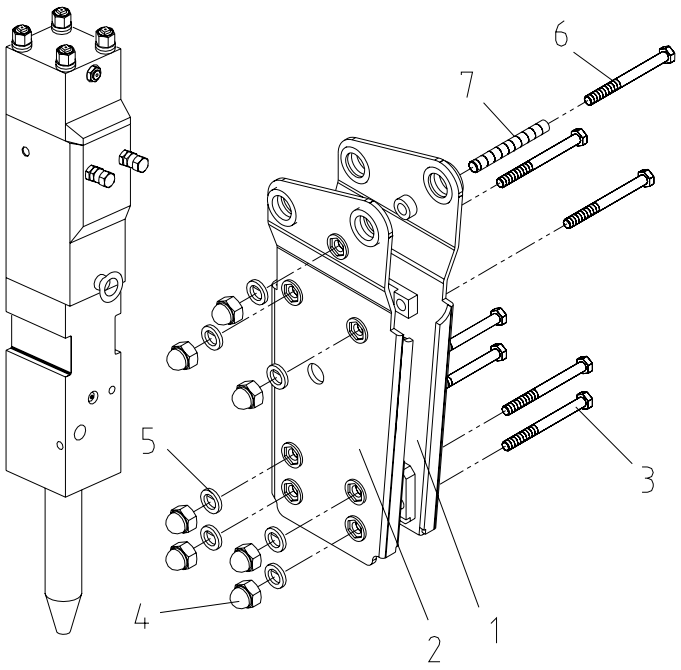
▣ SB10II,20II,30II,35II,43II



▣ SB40II



▣ SB45



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■ Standard top type(SB10 II ~ SB50) : Direct mounting

NO	SB10 II		SB20 II		SB30 II		SB35 II	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame ass'y E83 003	1Set	← F03 001	1Set	← E73 018	1Set	← F83 011	1Set
1	Frame-R E83 133	1	← F03 100	1	← E73 205	1	← F83 167	1
2	Frame-L E83 134	1	← F03 101	1	← E73 206	1	← F83 168	1
3	Hex Bolt 4003118	12	← 4005146	12	← 4004318	12	← 4004321	12
4	Spring Washer 4211014	12	← 4211015	12	← 4211016	12	← 4211016	12
5	Spacer E83 135	1	← F02 107	1	← E73 160	1	← E82 111	1

NO	SB40 II		SB43 II		SB45			
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y C03 056	1Set	← F93 010	1Set	← D43 010	1Set	-	-
1	Frame-R C03 377	1	← F93 164	1	← D43 129	1	-	-
2	Frame-L C03 378	1	← F93 159	1	← D43 130	1	-	-
3	Hex Bolt 4003453	4	← 4004414	12	← 4003452	6	-	-
4	Cap Nut 4143010	4	-	-	← 41430011	7	-	-
5	Spring Washer 4211019	4	← 4211019	10	← 4210020	7	-	-
6	Hex Bolt 4003292	1	-	-	← 4003451	1	-	-
7	Distance Pipe C02 158	1	-	-	← D43 120	1	-	-

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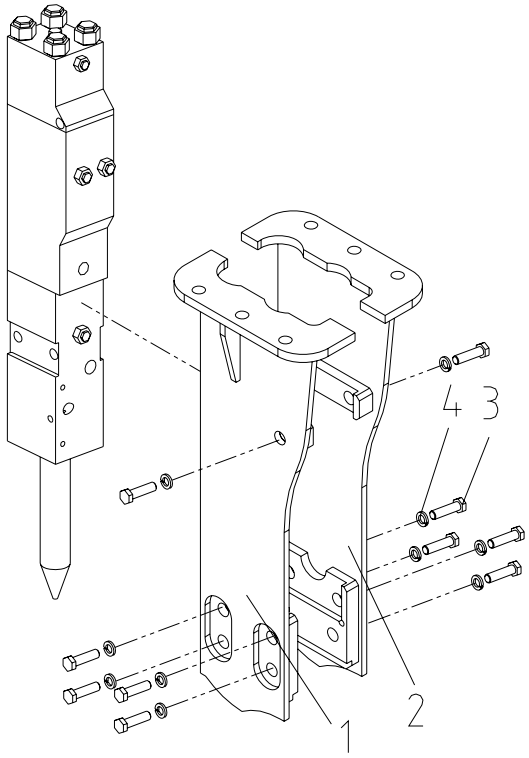
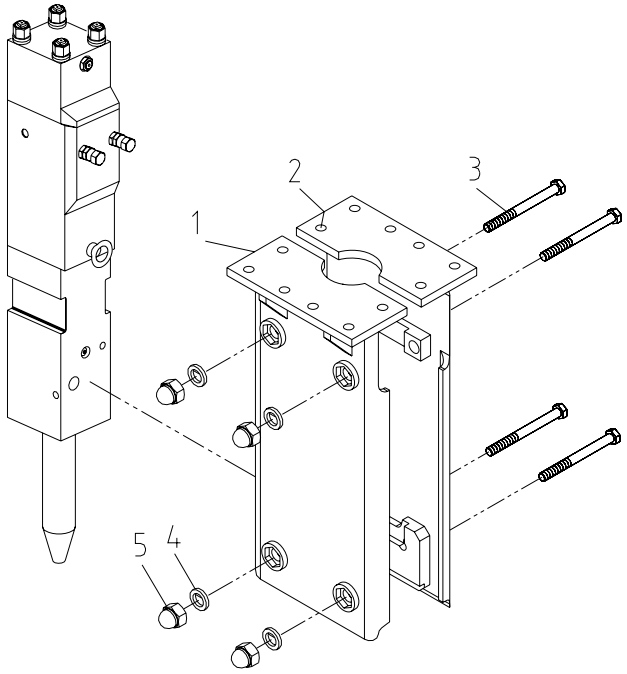
6. Standard top type(Cap mounting)

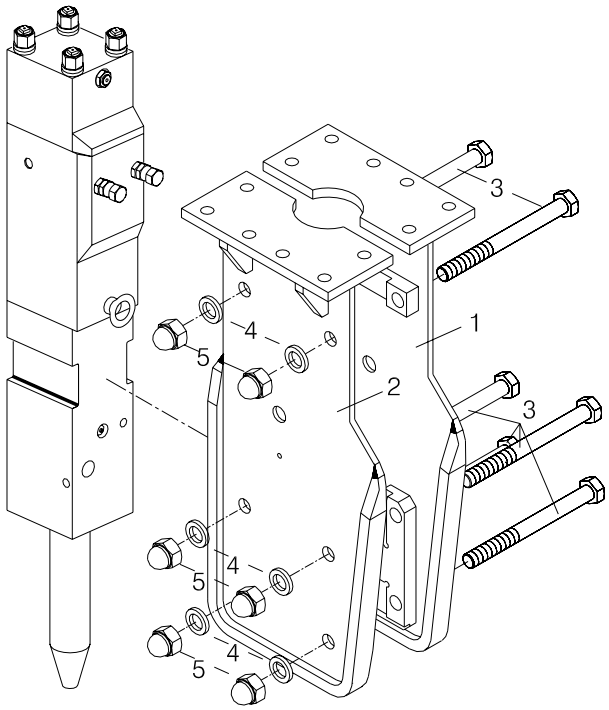
▣ SB10II,20II,30II,35II,43II



▣ SB40II



▣ SB45,50



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■ STANDARD TOP TYPE (SB10 II ~ SB50) : CAP MOUNTING

NO	SB10 II		SB20 II		SB30 II		SB35 II	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y E83 006	1Set	← F03 004	1Set	← E73 019	1Set	← F83 012	1Set
1	Frame-R E83 150	1	← F03 118	1	← E73 203	1	← F83 174	1
2	Frame-L E83 151	1	← F03 119	1	← E73 204	1	← F83 175	1
3	Hex Bolt 4003118	10	← 4005146	10	← 4004318	10	← 4004321	10
4	Spring Washer 4211014	10	← 4211015	10	← 4211016	10	← 4211016	10
5								
6	-	-	-	-	-	-	-	-

NO	SB40 II		SB43 II		SB45		SB50	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y C03 057	1Set	← F93 007	1Set	← D43 006	1Set	← C13 002	1Set
1	Frame-R C03 379	1	← F93 145	1	← D43 117	1	← C13 125	1
2	Frame-L C03 380	1	← F93 146	1	← D43 121	1	← C13 124	1
3	Hex Bolt 4003453	4	← 4004414	10	← 4003452	6	← 4005464	6
4	Spring Washer 4211019	4	← 4211019	10	← 4210020	6	← 4211022	6
5	Cap Nut 4143010	4	-	-	← 4143011	6	← 4143013	6
6	-	-	-	-	-	-	-	-

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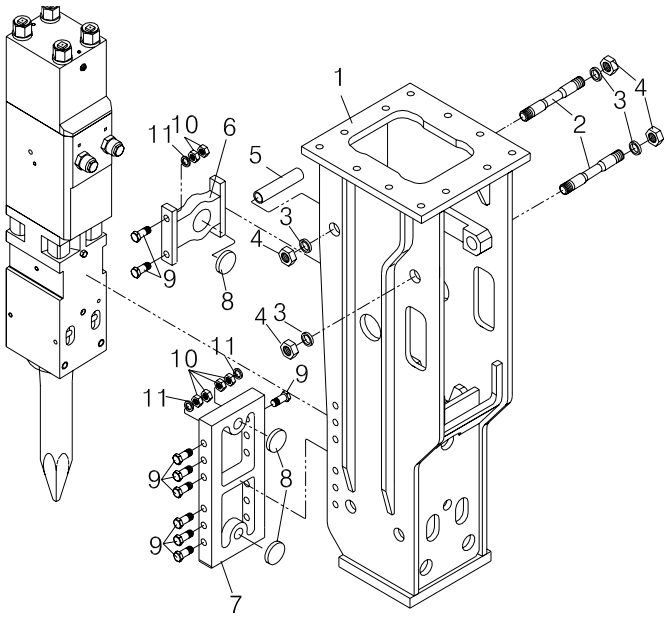
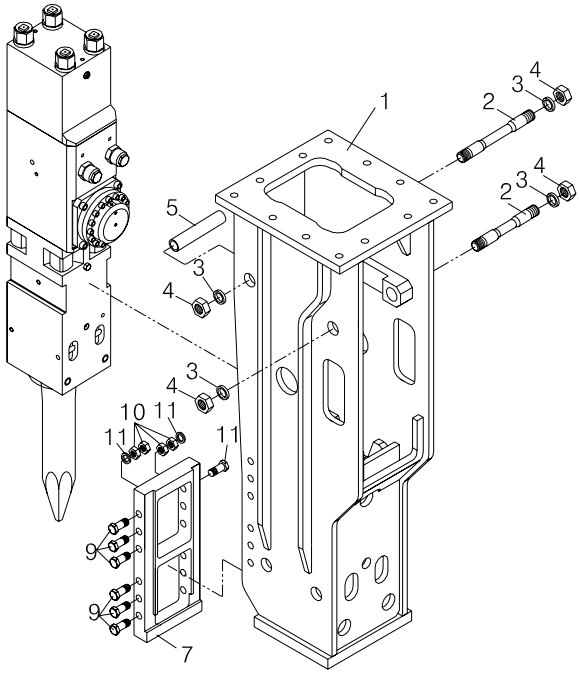
▣ SB60



▣ SB81



NO	SB60		SB81		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C23 012	1Set	← C33 018	1Set	
1	Frame C23 235	1	← C33 311	1	
2	Side Bolt C22 172	2	← C32 211	2	
3	Side Washer C33 209	4	← C33 114	4	
4	Side Nut C22 173	4	← C32 212	4	
5	Support Bar C23 115	1	← C33 116	1	
6	Support Plate-H C23 113	1	-	-	
7	Support Plate-L C23 111	1	← C33 453	1	
8	Side Damper C32 155	3	-	-	
9	Hex Bolt 4003250	14	- 4003457	23	
10	Hex Nut 4101309	28	- 4101309	24	
11	Spring Washer 4210018	14	- 4210018	12	
12	-	-	-	-	

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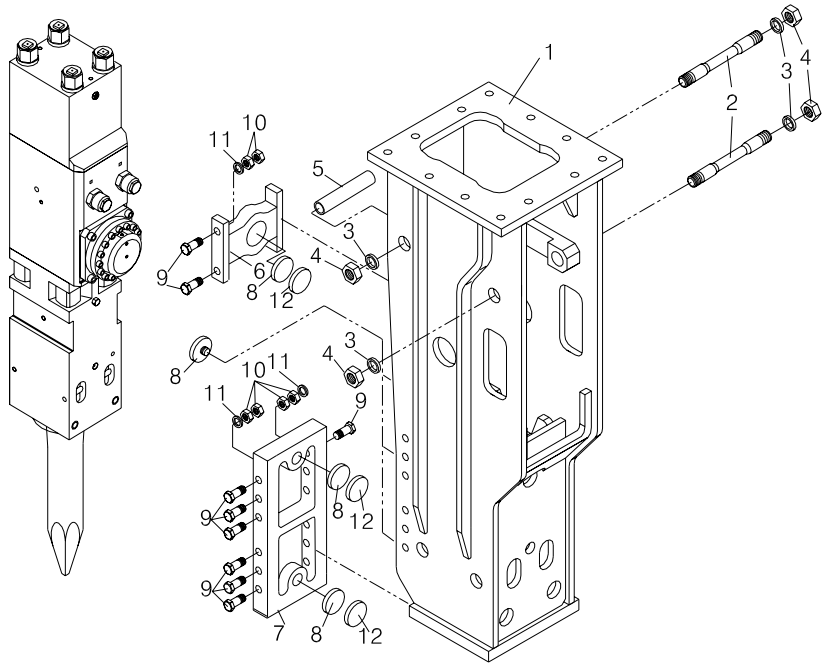
▣ SB121,130,151



NO	SB121		SB130		SB151		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C63 011	1Set	← D83 000	1Set	← C73 007	1Set	
1	Frame C63 159	1	← D83 100	1	← C73 150	1	
2	Side Bolt C62 209	2	← D82 152	2	← C73 117	2	
3	Side Washer D82 153	4	← D82 153	4	← C73 118	4	
4	Side Nut C62 210	4	← C62 210	4	← C73 119	4	
5	Support Bar C63 175	1	← D83 103	1	← C73 120	1	
6	Support Plate-H C63 174	1	← D83 102	1	← C73 165	1	
7	Support Plate-L C63 173	1	← D83 101	1	← C73 164	1	
8	Side Damper C32 155	6	-	-	-	-	
9	Hex Bolt 4005370	12	← 4005370	12	← 4003372	12	
10	Hex Nut 4101313	12	← 4101313	12	← 4101313	8	
11	Spring Washer 4210022	12	← 4211022	12	← 4210022	12	
12	Damper Pad C63 263	2	-	-	← C63 263	3	

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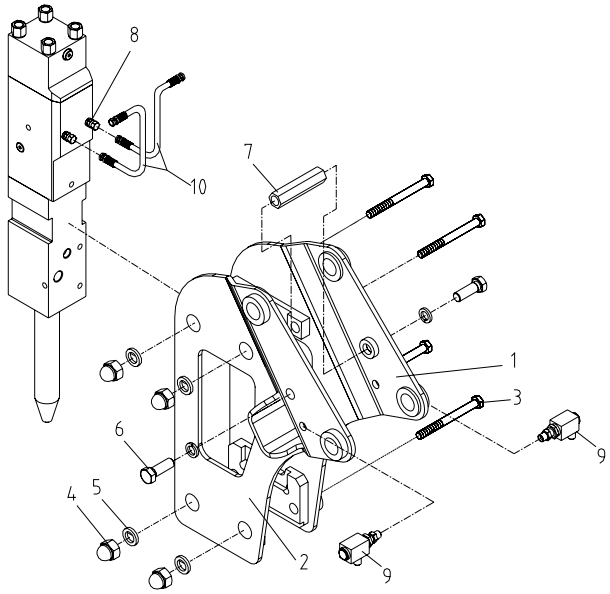
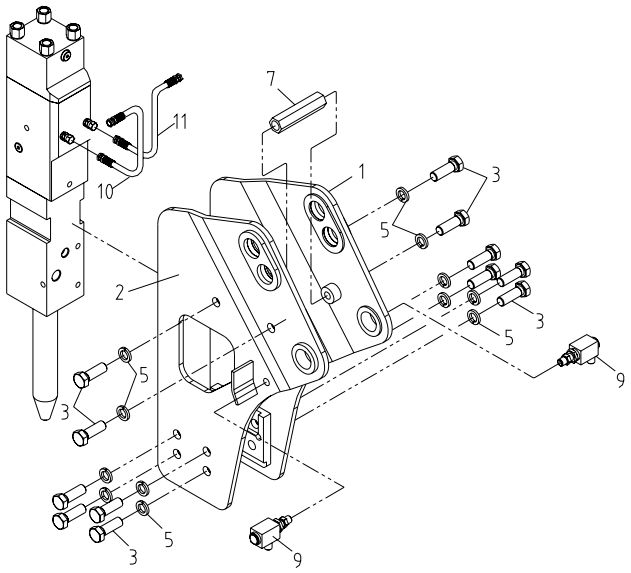
7. Backhoe type

▣ SB40 BACKHOE



▣ SB43 BACKHOE



NO	SB40 BACKHOE		SB43 BACKHOE		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C03 061	1Set	← F93 001	1Set	
1	Frame-R C03 402	1	← F93 100	1	
2	Frame-L C03 403	1	← F93 101	1	
3	Hex Bolt 4003453	4	← 4004414	12	
4	Hex Cap Nut 4143010	4	-	-	
5	Spring Washer 4211019	6	← 4211019	12	
6	Hex Bolt 4004414	2	-	-	
7	Spacer F93 102	1	← F93 102	1	
8	Union Cap 2715002	2	-	-	
9	Swivel Adapter C03 347	2	← C03 347	2	
10	Oil Hose 2555209	2	Oil Hose-L F93 149	1	
11	-	-	Oil Hose-R F93 152	1	

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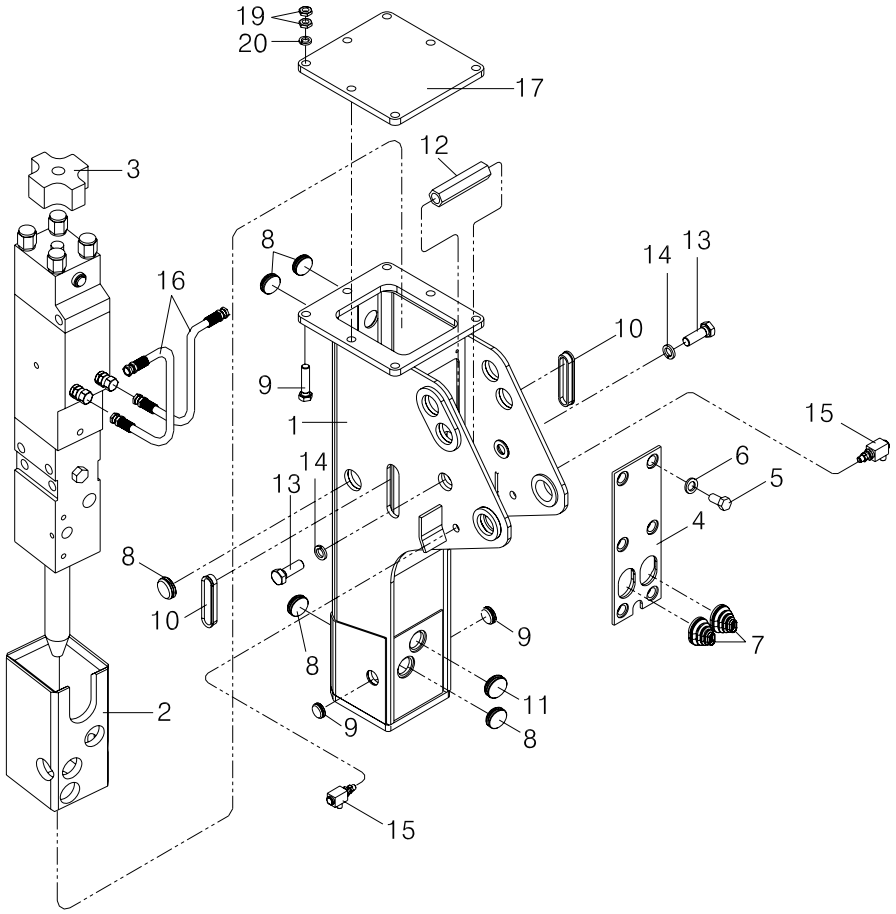
▣ SB43 SILENCED BACKHOE



NO	PARTS NAME	PARTS NO	Q'ty	REMARK
	Frame Ass'y	F93 013	1Set	
1	Frame	F93 169	1	
2	Down Cushion	F93 115	1	
3	Upper Cushion	C03 229	1	
4	Window Cover	F93 182	1	
5	Socket Bolt	4010060	6	
6	Washer	C03 282	6	
7	Hose Cover	C03 295	2	
8	Sound Plug 1	C03 228	5	
9	Sound Plug 2	E73 116	2	
10	Sound Plug 3	C13 318	2	
11	Sound Plug 4	L03 360	1	
12	Spacer	F93 102	1	
13	Hex Bolt	4002389	2	
14	Spring Washer	4211019	2	
15	Swivel Adapter	C03 347	2	
16	Oil Hose	2555209	2	
17	Cover Plate	F93 183	1	
18	Hex Bolt	4003182	7	
19	Hex Nut	4101307	14	
20	Spring Washer	4210016	7	

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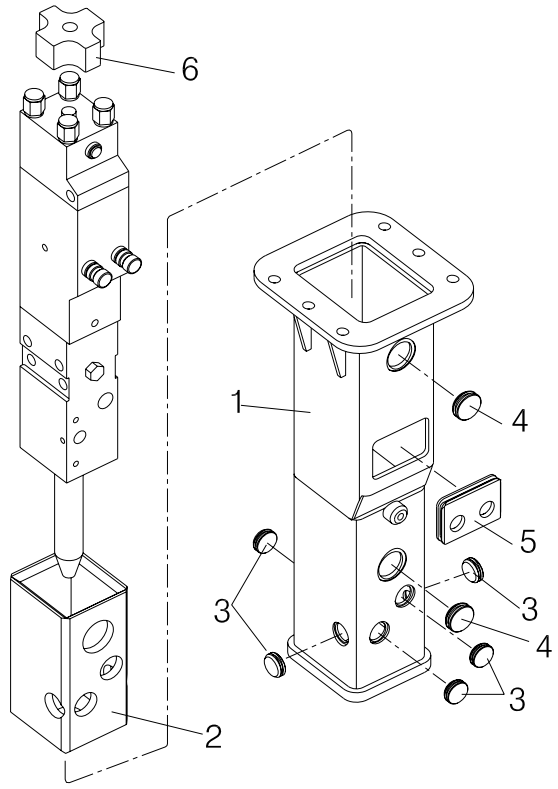
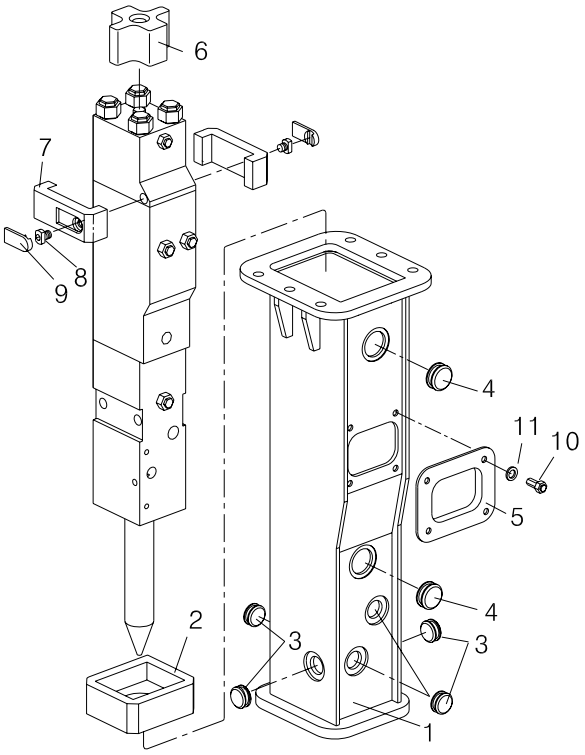
8. TS type

▣ SB20II TS



▣ SB30II TS



NO	SB20 II TS		SB30 II TS		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y FO3 017	1Set	← E73 020	1Set	
1	Frame FO3 179	1	← E73 207	1	
2	Down Cushion F03 115	1	← E73 113	1	
3	Sound Plug E73 116	5	← E73 116	5	
4	Sound Plug C03 228	2	← C03 228	2	
5	Window Cover F03 117	1	← E73 117	1	
6	Upper Cushion F03 116	1	← E73 114	1	
7	-	-	Guide Plate E73 208	2	
8	-	-	Socket Plug E73 118	2	
9	-	-	Socket Plug Holder E73 119	2	
10	-	-	Socket Bolt 4010060	4	
11	-	-	Spring Washer 4211011	4	

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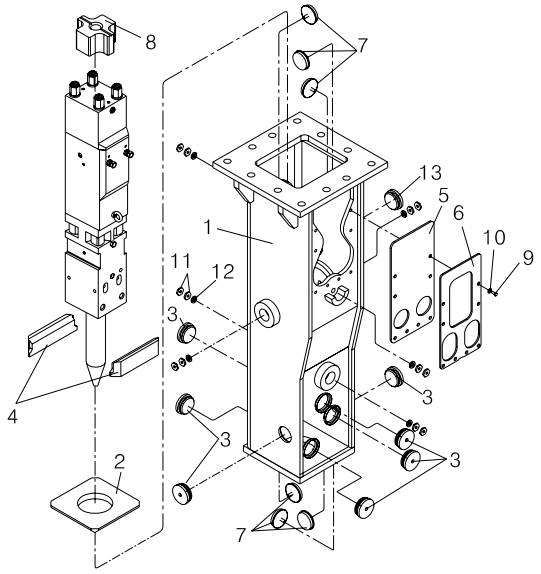
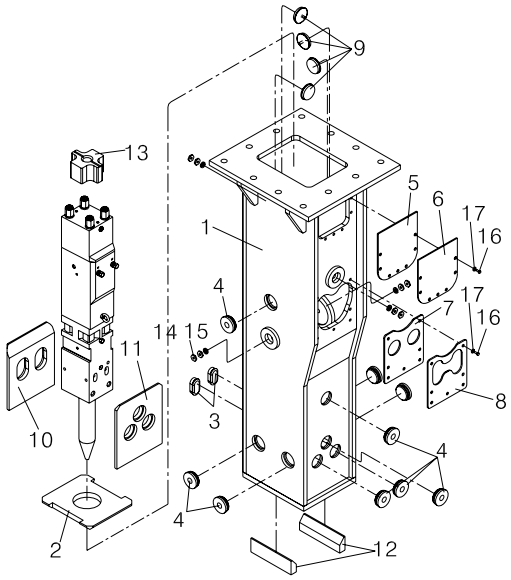
▣ SB40II TS



▣ SB45 TS



NO	SB40 II TS		SB45 TS		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C03 027	Q'ty	← D43 016	1Set	
1	Frame C03 222	1	← D43 146	1	
2	Down Cushion C03 227	1	← D43 137	1	
3	Sound Plug C03 228	8	Sound Plug-1 C13 196	2	
4	Wear Plate C03 246	2	Sound Plug C03 228	9	
5	Sound Plug C03 245	1	Window Cover-H D42 138	1	
6	Window Plate C03 244	1	Window Plate-H D42 139	1	
7	Side Damper C12 212	6	Window Cover-L D43 165	1	
8	Upper Cushion C03 229	1	Window Plate-L D43 164	1	
9	Hex Bolt 4002149	8	Side Damper C12 212	4	
10	Spring Washer 4211010	8	Front Wear Plate-R D42 152	1	
11	Hex Nut 4101213	12	Front Wear Plate-L D42 153	1	
12	Spring Washer 4211012	6	Side Wear Plate D42 154	2	
13			Upper Cushion D43 153	1	
14	-	-	Hex Nut 4101213	8	
15	-	-	Spring Washer 4211012	4	
16	-	-	Hex Bolt 4002153	14	
17	-	-	Spring washer 4211010	14	

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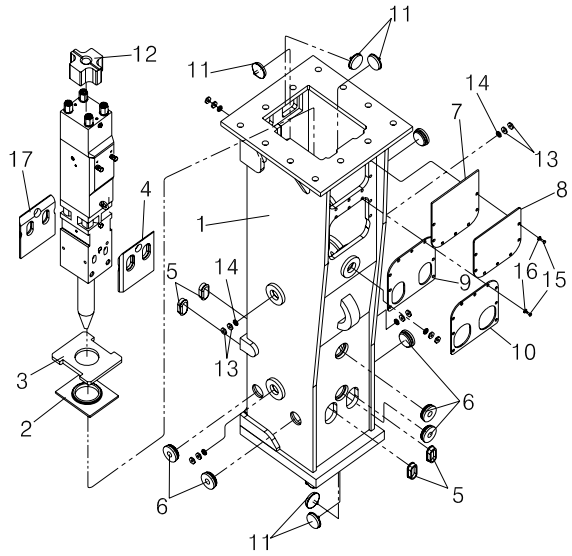
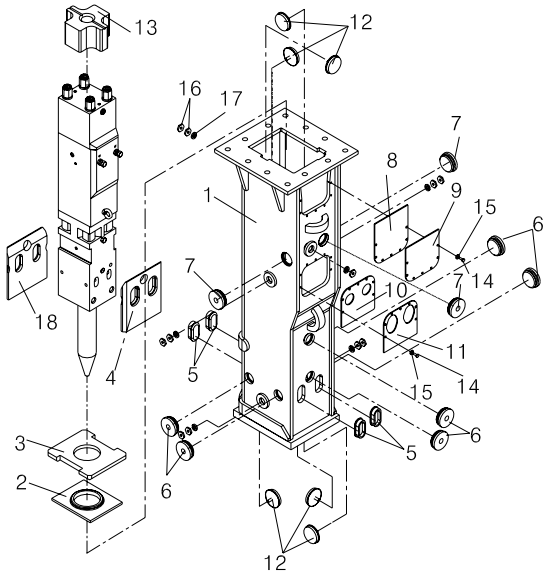
▣ **SB50 TS**



▣ **SB60 TS**



NO	SB50 TS		SB60 TS		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C13 014	1Set	← C23 021	1Set	
1	Frame C13 205	1	← C23 164	1	
2	Down Guide Plate C13 191	1	← C23 176	1	
3	Down Cushion C12 208	1	← C23 177	1	
4	Wear Plate C12 209	1	← C23 180	1	
5	Sound Plug-1 C13 196	4	← C23 181	4	
6	Sound Plug C03 228	7	← C03 228	6	
7	Window Cover-H C12 210	1	Sound Plug(L) C23 219	3	
8	Window Plate-H C12 211	1	Window Cover-H C23 182	1	
9	Window Cover-L C13 202	1	Window Plate-H C23 183	1	
10	Window Plate-L C13 201	1	Window Cover-L C23 179	1	
11	Side Damper C12 212	6	Window Plate-L C23 185	1	
12	Upper Cushion C13 204	1	Side Damper C12 212	6	
13	Hex Nut 4101213	12	Upper Cushion C23 184	1	
14	Spring Washer 4211012	6	Hex Bolt 4002151	14	
15	Hex Bolt 4002153	17	Spring Washer 4211010	14	
16	Spring Washer 4211010	17	Hex Nut 4101213	12	
17	Wear Plate C12 228	1	Spring Washer 4211012	6	
18	-	-	Wear Plate-1 C23 230	1	

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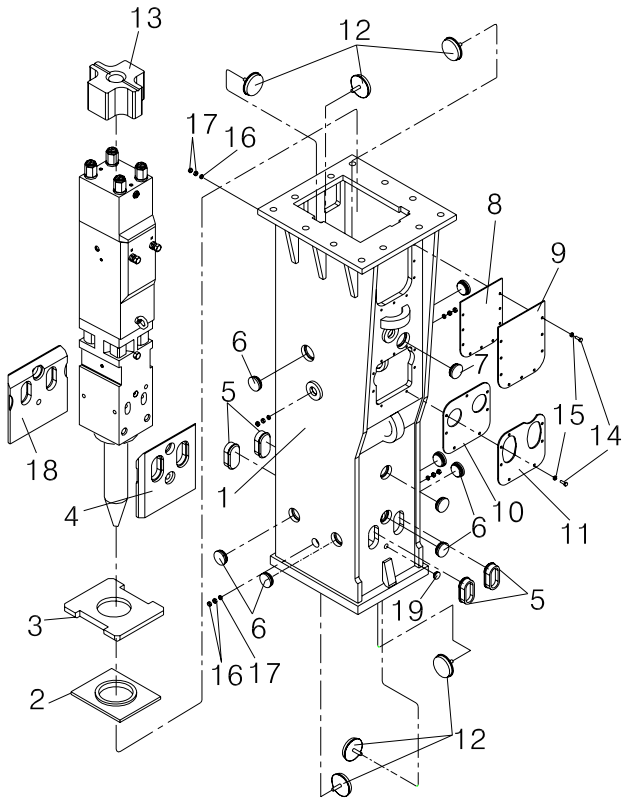
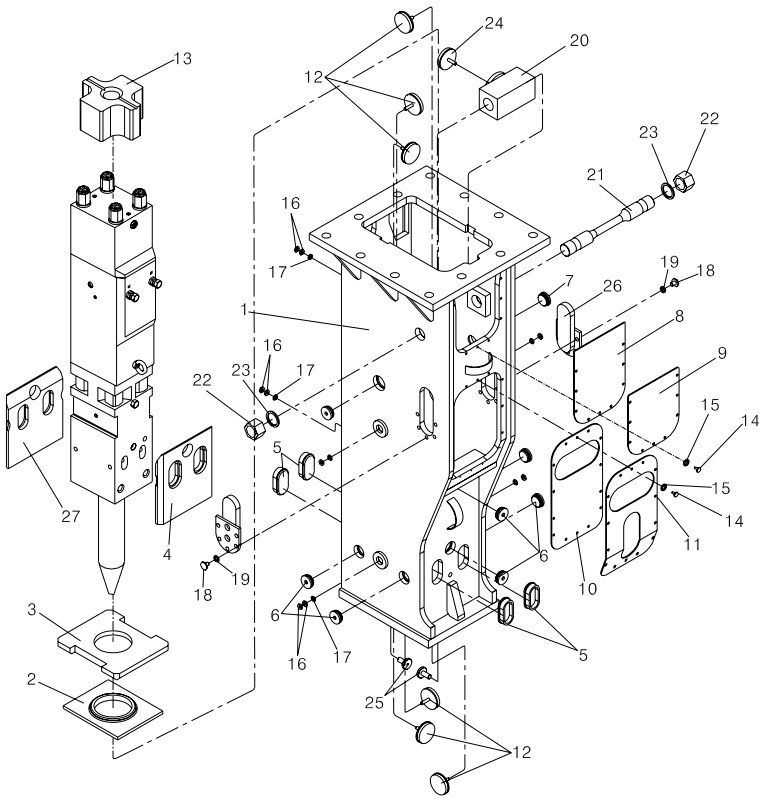
▣ SB81



▣ SB121 TS



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■ TS TYPE (SB81TS ~ SB121TS)

NO	SB81 TS		SB121 TS		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C33 044	1Set	← C63 037	1Set	
1	Frame C33 333	1	← C63 191	1	
2	Down Guide Plate C33 334	1	← C62 218	1	
3	Down Cushion C32 235	1	← C62 219	1	
4	Wear Plate C32 236	1	← C62 220	1	
5	Sound Plug-1 C33 339	4	← C63 211	4	
6	Sound Plug C03 228	6	← C03 228	6	
7	Sound Plug(L) C23 219	3	← C23 219	2	
8	Window Cover-H C33 343	1	← C63 206	1	
9	Window Plate-H C32 239	1	← C63 207	1	
10	Window Cover-L C33 335	1	← C63 214	1	
11	Window Plate-L C33 336	1	← C63 215	1	
12	Side Damper C33 344	6	← C33 344	6	
13	Upper Cushion C33 350	1	← C63 208	1	
14	Hex Bolt 4002153	17	← 4002153	23	
15	Spring Washer 4211010	17	← 4211010	23	
16	Spring Washer 4101213	12	← 4101213	12	
17	Spring Washer 4211012	6	← 4211012	6	
18	Wear Plate-1 C32 253	1	Hex Bolt 4003112	10	
19	Holder Plug C62 222	2	Spring Washer 4211014	10	
20	-	-	Push Bar C63 217	1	
21	-	-	Side Bolt C63 248	1	
22	-	-	Side Nut C63 250	2	
23	-	-	Side Washer C62 260	2	
24	-	-	Side Damper C32 155	1	
25	-	-	Holder Plug C62 222	2	
26	-	-	Sound Plug-3 C63 212	2	
27	-	-	Wear Plate-1 C62 253	1	

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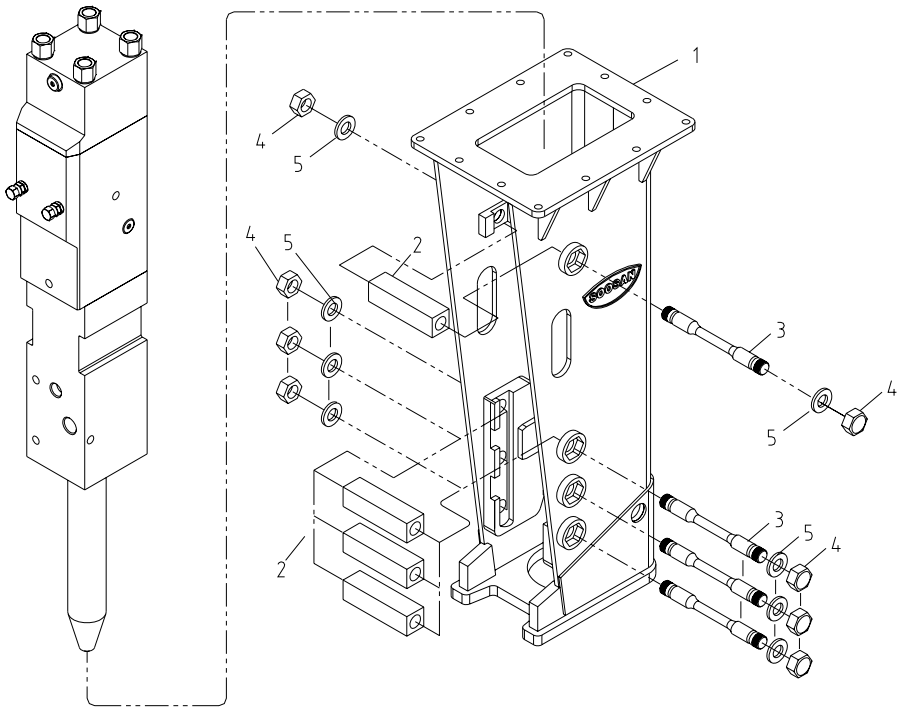
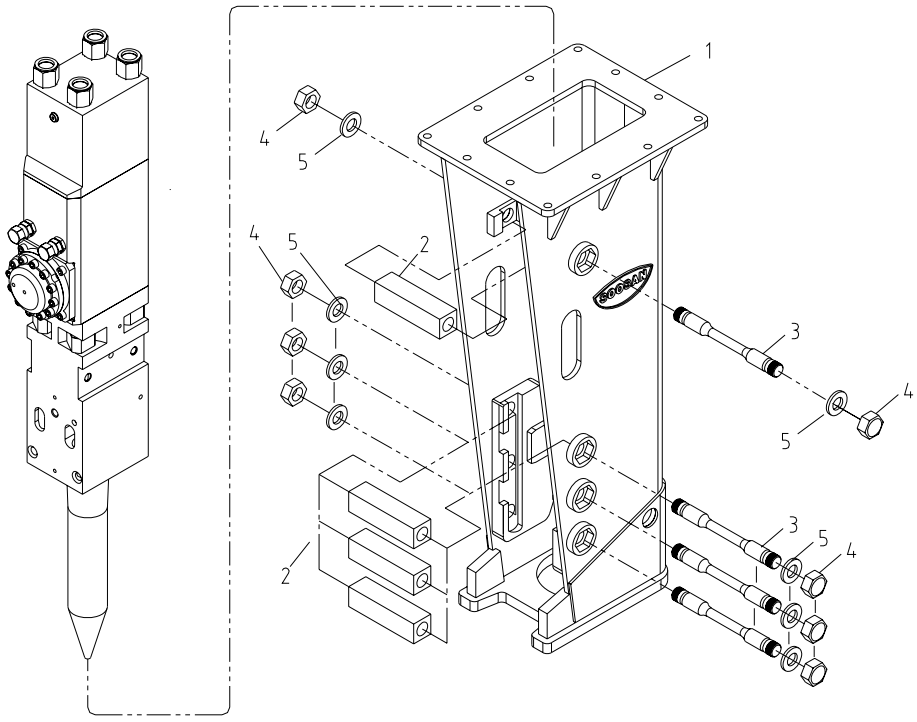
9. New Trench type

▣ SB60,70,81 NEW TRENCH



▣ SB100,121,130,140,151 NEW TRENCH



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■ New Trench type(SB60 ~ SB151)

NO	SB60		SB70		SB81		SB100	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y C23 049	1	← L03 002	1	← C33 086	1	← E93 007	1
1	Frame C23 355	1	← L03 197	1	← C33 648	1	← E93 229	1
2	Support bar C23 356	4	← L03 142	4	← L03 142	4	← E93 178	4
3	Side bolt C23 358	4	← C32 211	4	← C32 211	4	← E92 241	4
4	Side nut C22 173	8	← L02 119	8	← C32 212	8	← C32 212	8
5	Washer C33 209	8	← L03 153	8	← C33 114	8	← C33 114	8
6	-	-	-	-	-	-	-	-

NO	SB121		SB130		SB140		SB151	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y C63 058	1	← D83 023	1	← L23 003	1	← C73 019	1
1	Frame C63 375	1	← D83 242	1	← L23 120	1	← C73 299	1
2	Support bar C63 388	4	← D83 243	4	← L23 121	4	← C73 300	4
3	Side bolt D82 152	4	← L22 103	4	← L22 103	4	← C73 301	4
4	Side nut C62 210	8	← C62 210	8	← C62 210	8	← C73 119	8
5	Washer D82 153	8	← D82 153	9	← D82 153	8	← C73 118	8
6	-	-	-	-	-	-	-	-

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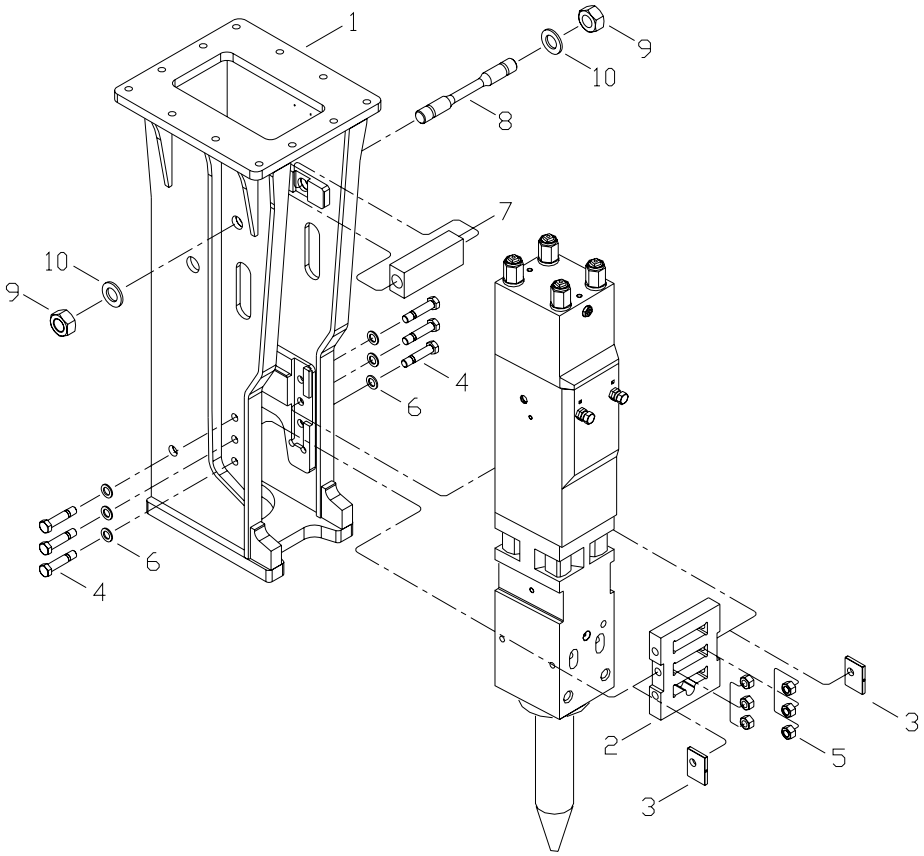
10. Trench Plus type

▣ SB70, 81, 100, 121



NO	SB 70		SB 81		SB 100		SB 100	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	FRAME ASS'Y L03 008	1	← C33 094	1	← E93 012	1	← C63 063	1
1	FRAME L03 221	1	← C33 693	1	← E93 254	1	← C63 435	1
2	SUPPORT PLATE L03 222	1	← C33 694	1	← E93 255	1	← C63 436	1
3	KEY L03 223	2	← C33 695	2	← E93 256	2	← C63 437	2
4	HEX BOLT 4005281	6	← 4005281	6	← 4005312	6	← 4005312	6
5	HEX NUT 4101310	6	← 4101310	6	← 4101311	6	← 4101311	6
6	SPRING WASHER 4211019	6	← 4211019	6	← 4211020	6	← 4211020	6
7	SUPPORT BAR L03 142	1	← L03 142	1	← E93 178	1	← C63 388	1
8	SIDE BOLT C32 211	1	← C32 211	1	← E93 241	1	← D82 152	1
9	SIDE NUT L02 119	2	← C32 212	2	← C32 212	2	← C62 210	2
10	WASHER L03 153	2	← C33 114	2	← C33 114	2	← D82 153	2

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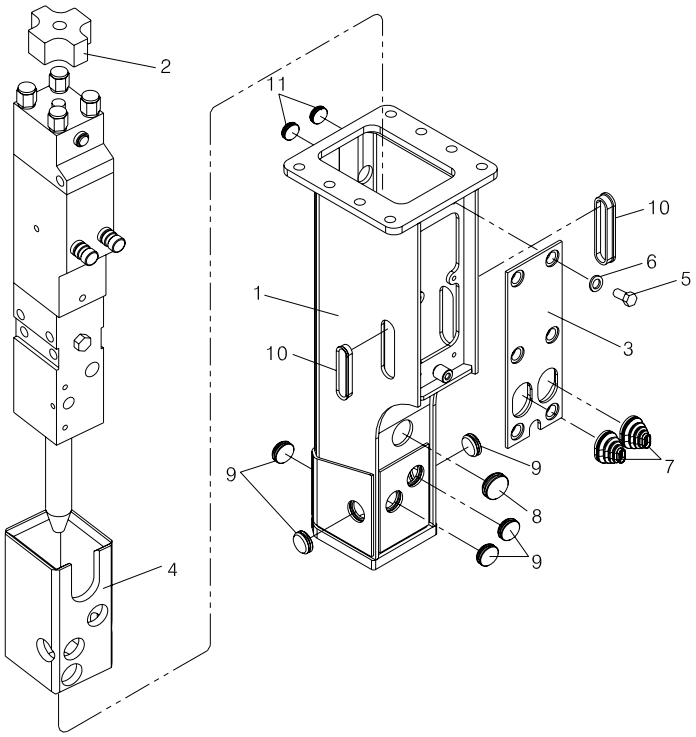
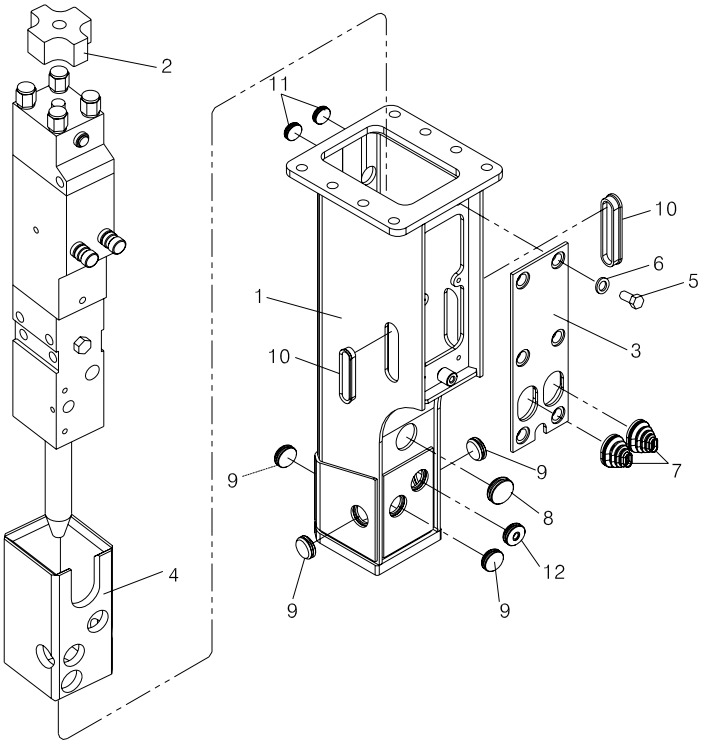
11. TS-P type

▣ SB10II,20II TS-P



▣ SB30II, SB35II TS-P



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■ TS-P TYPE (SB10 II TS-P ~ SB35 II TS-P)

NO	SB10 II TS-P		SB20 II TS-P		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y E83 011	1Set	← F03 018	1Set	
1	Frame E83 171	1	← F03 180	1	
2	Down Cushion E83 125	1	← F03 115	1	
3	Upper Cushion F03 116	1	← F03 116	1	
4	Window Cover E83 141	1	← F03 147	1	
5	Socket Bolt 4010060	6	← 4010060	6	
6	Washer C03 282	6	← C03 282	6	
7	Hose Cover C03 295	2	← C03 295	2	
8	Sound Plug-1 C03 228	1	← C03 228	1	
9	Sound Plug-2 E73 116	5	← E73 116	5	
10	Sound Plug-3 E73 187	2	← E73 187	2	
11	Sound Plug-4 E83 165	2	← E83 165	2	
12	-	-	-	-	

NO	SB30 II TS-P		SB35 II TS-P		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y E73 017	1Set	← F83 010	1Set	
1	Frame E73 201	1	← F83 165	1	
2	Down Cushion E73 202	1	← F83 166	1	
3	Upper Cushion E73 114	1	← F83 118	1	
4	Window Cover E73 173	1	← F83 119	1	
5	Socket Bolt 4010060	6	← 4010060	6	
6	Washer C03 282	6	← C03 282	6	
7	Hose Cover C03 295	2	← C03 295	2	
8	Sound Plug-1 C03 228	1	← C03 228	1	
9	Sound Plug-2 E73 116	4	← E73 116	4	
10	Sound Plug-3 E73 187	2	← F93 156	2	
11	Sound Plug-4 E83 165	2	← E83 165	2	
12	Sound Plug-5 C03 360	1	← C03 360	1	

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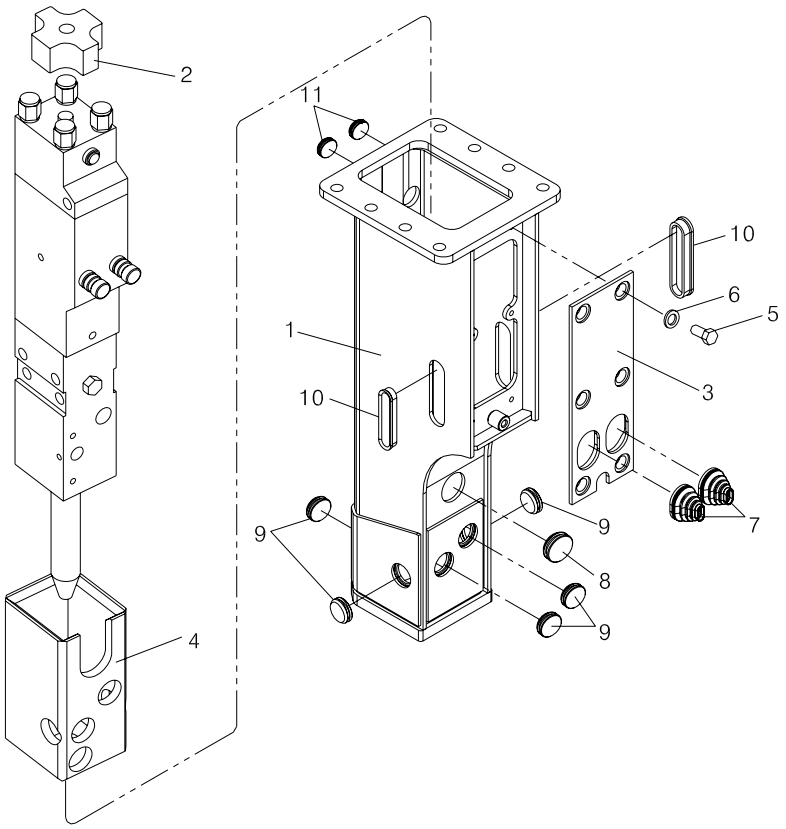
▣ SB40II,43II TS-P



NO	SB40 II TS-P		SB43 II TS-P		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y C03 055	1Set	← F93 012	1Set	
1	Frame C03 375	1	← F93 168	1	
2	Down Cushio C03 376	1	← F93 115	1	
3	Upper Cushion C03 229	1	← C03 229	1	
4	Window Cover C03 302	1	← F93 114	1	
5	Socket Bolt 4010060	6	← 4010060	6	
6	Washer C03 282	6	← C03 282	6	
7	Hose Cover C03 295	2	← C03 295	2	
8	Sound Plug-1 C03 228	5	← C03 228	5	
9	Sound Plug-2 E73 116	2	← E73 116	2	
10	Sound Plug-3 F93 156	2	← F93 156	2	
11	Sound Plug-4 C03 360	1	← C03 360	1	

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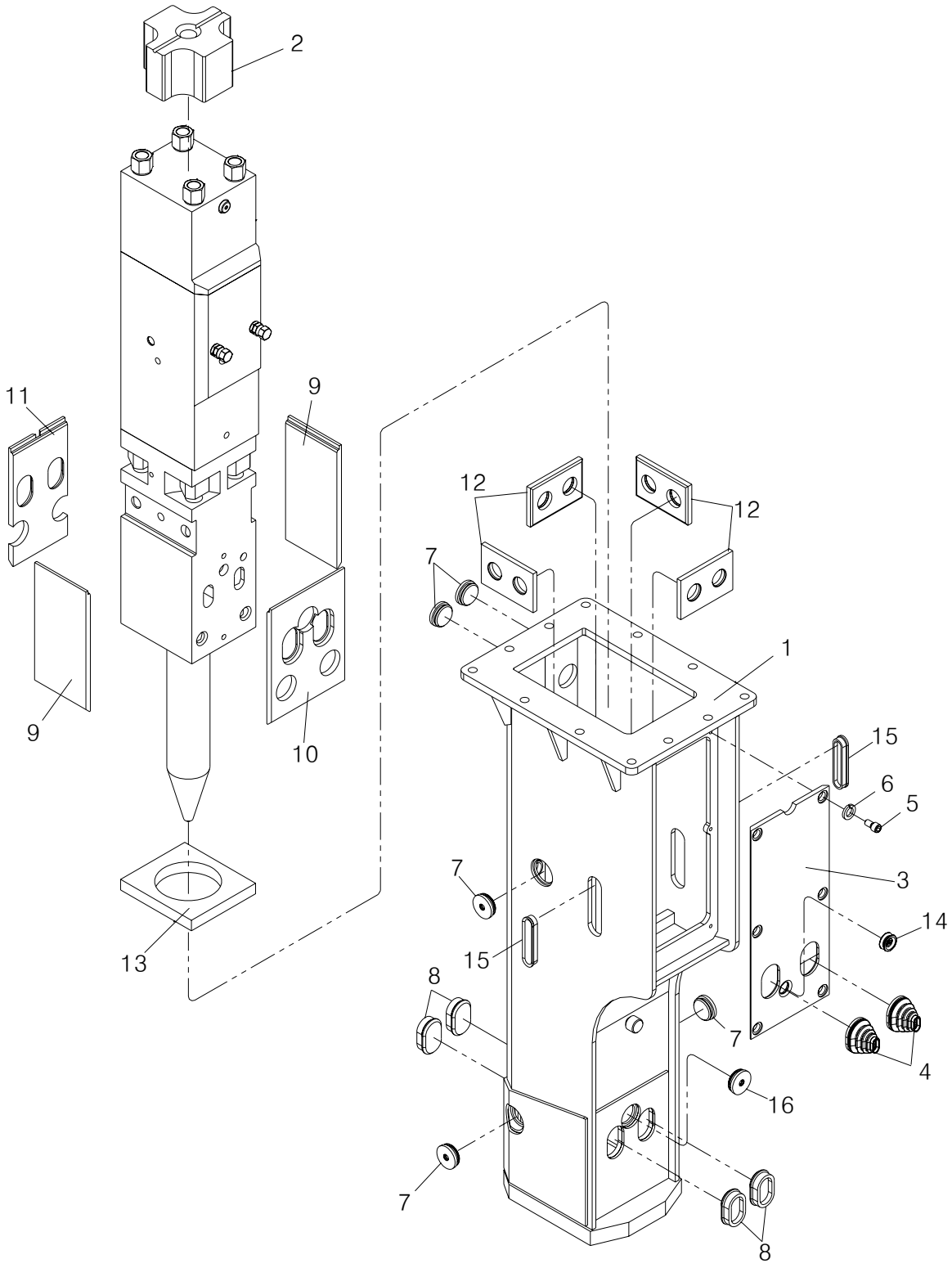
▣ SB45,50 TS-P



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■ TS-P TYPE (SB45TS-P ~ SB50TS-P)

NO	SB 45 TS-P		SB 50 TS-P		REMARK
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	
	Frame Ass'y D43 025	1Set	← C13 034	1Set	
1	Frame D43 228	1	← C13 291	1	
2	Upper Cushion D43 153	1	← C13 204	1	
3	Window Cover D43 244	1	← C13 302	1	
4	Hose Cover C13 261	2	← C13 261	2	
5	Socket Bolt 4010060	6	← 4010060	6	
6	Washer C03 282	6	← C03 282	6	
7	Pin Plug C03 228	3	← C03 228	3	
8	Sound Plug D43 249	2	← C13 196	4	
9	Wear Plate D43 245	2	← C13 267	2	
10	Wear Plate D43 246	1	← C13 268	1	
11	Wear Plate D43 247	1	← C13 269	1	
12	Wear Plate C13 270	4	← C13 270	4	
13	Down Cushion D43 292	1	← C13 331	1	
14	Window Plug C23 324	1	← C23 324	1	
15	Hose Plug C13 318	4	← C13 318	2	
16	Grease Plug C13 360	2	← C13 360	1	

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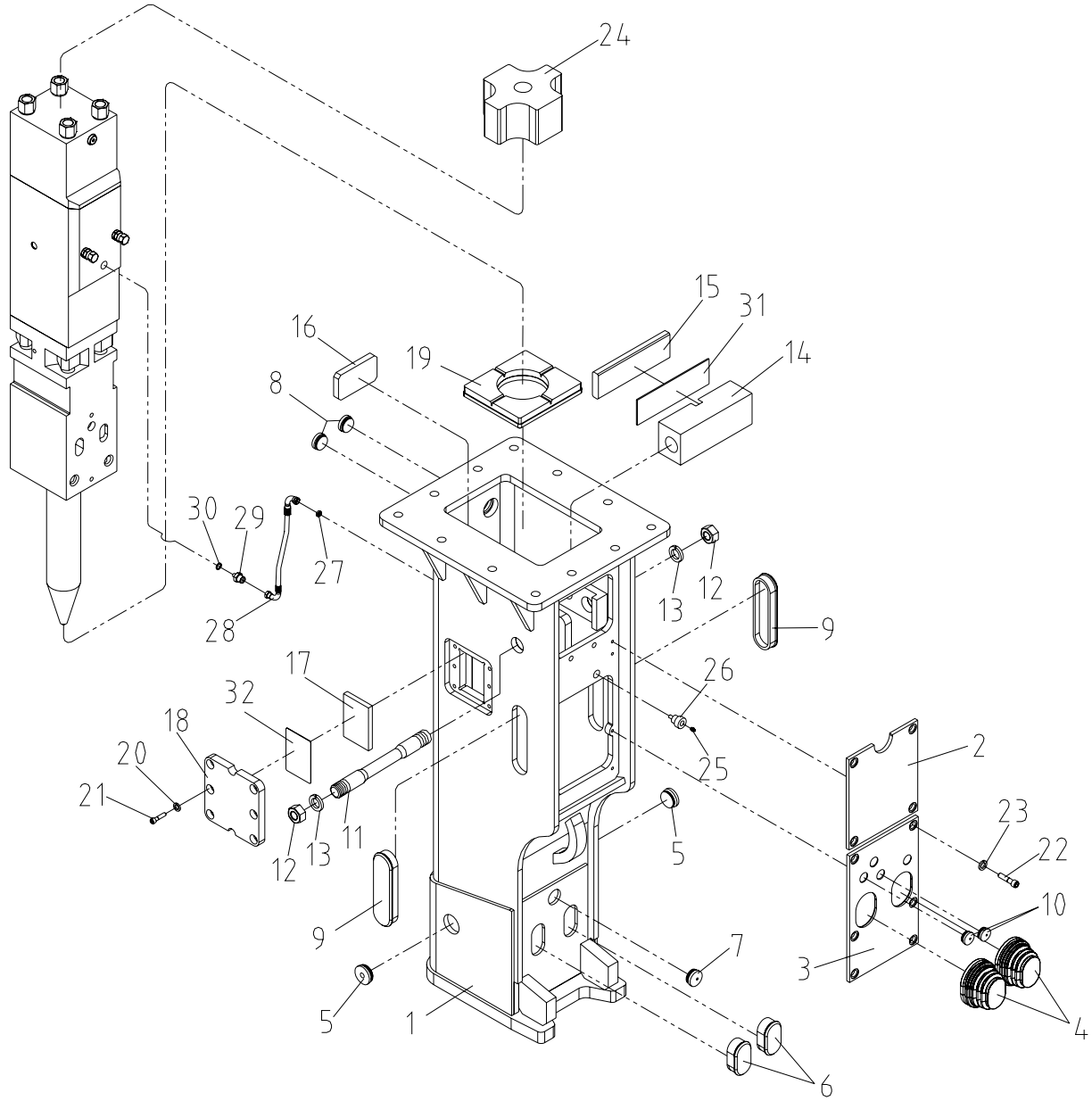
▣ SB60, 70,81,81A TS-P



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■ TS-P TYPE (SB60TS-P ~ SB81ATS-P)

NO	SB60TS-P		SB70TS-P		SB81,81A TS-P	
	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty	PARTS NAME & NO	Q'ty
	Frame Ass'y C23 052	1Set	← L03 006	1Set	← C33 089	1Set
1	Frame C23 414	1	← L03 163	1	← C33 621	1
2	Window Cover-H C23 394	1	← L03 181	1	← C33 639	1
3	Window Cover-L C23 395	1	← L03 182	1	← C33 640	1
4	Hose Cover C23 279	2	← C23 279	2	← C23 279	2
5	Pin Plug C03 228	2	← C03 228	2	← C03 228	2
6	Rod Plug C23 181	4	← C33 339	4	← C33 339	4
7	Grease Plug C03 360	1	← C03 360	1	← C03 360	1
8	Check Plug C23 219	3	← C23 219	3	← C23 219	3
9	Hose Plug C33 553	2	← C33 553	2	← C33 553	2
10	Window Plug C23 324	3	← C23 324	3	← C23 324	3
11	Side Bolt L02 126	1	← C32 211	1	← C32 211	1
12	Side Nut C22 235	2	← L02 135	2	← C32 212	2
13	Washer C22 236	2	← L03 153	2	← C33 114	2
14	Support Bar L03 199	1	← L03 199	1	← C33 649	1
15	Support Wear Plate L03 200	1	← L03 200	1	← C33 650	1
16	Inner Wear Plate L03 185	6	← L03 185	6	← L03 185	6
17	Side Wear Plate E93 235	2	← E93 235	2	← E93 235	2
18	W/P Holder L03 188	2	← L03 188	2	← L03 188	2
19	Down Cushion C23 408	1	← L03 204	1	← C33 669	1
20	Dish Spring Washer 4220006	12	← 4220006	12	← 4220006	12
21	Socket Bolt 4013105	12	← 4013105	12	← 4013105	12
22	Socket Bolt 4010060	8	← 4010060	10	← 4010060	10
23	Washer C03 282	8	← C03 282	10	← C03 282	10
24	Upper Cushion C23 184	1	← C03 101	1	← C33 350	1
25	Grease Nipple 2700403	1	← 2700403	1	← 2700403	1
26	Grease Adapter D83 288	1	← D83 288	1	← D83 288	1
27	Nut D83 289	1	← D83 289	1	← D83 289	1
28	Oil Hose C23 413	1	← C23 413	1	← C23 413	1
29	Adapter C23 412	1	← C23 412	1	← C23 412	1
30	O-Ring 2851018	1	← 2851018	1	← 2851018	1
31	Support Shim L03 202	-	← L03 202	-	← C33 652	-
32	W/P Shim L03 190	-	← L03 190	-	← L03 190	-

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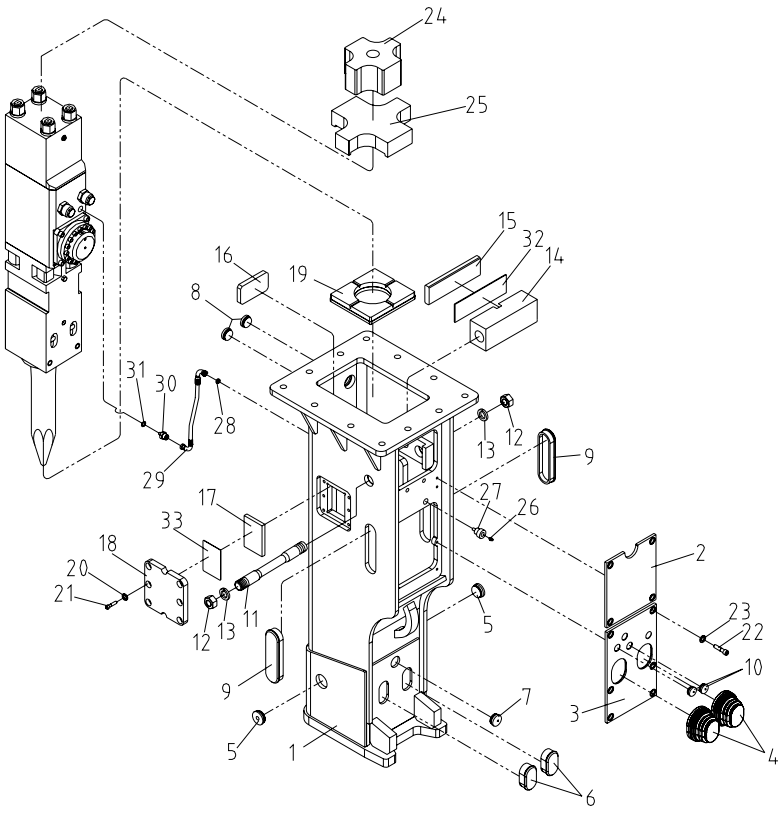
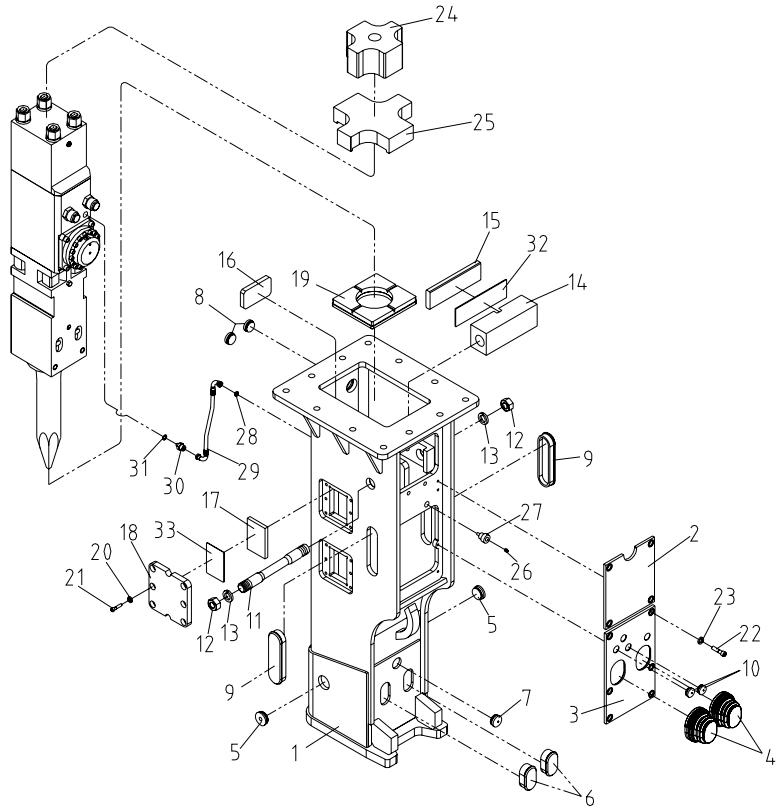
▣ SB100,121,130 TS-P



▣ SB140,151 TS-P



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■ TS-P TYPE (SB100TS-P ~ SB151TS-P)

No	SB100TS-P		SB121TS-P		SB130TS-P		SB140 TS-P		SB151TS-P	
	Parts Name & No	Q'ty	Parts Name & No	Q'ty	Parts Name & No	Q'ty	Parts Name & No	Q'ty	Parts Name & No	Q'ty
	Frame Ass'y E93 009	1Set	← C63 062	1Set	← D83 028	1Set	← L23 006	1Set	← C73 023	1Set
1	Frame E93 207	1	← C63 394	1	← D83 302	1	← L23 168	1	← C73 354	1
2	Window Cover-H E93 222	1	← C63 409	1	← D83 284	1	← L23 151	1	← C73 335	1
3	Window Cover-L E93 223	1	← C63 410	1	← D83 285	1	← L23 152	1	← C73 312	1
4	Hose Cover C23 279	2	← D83 152	2	← D83 152	2	← D83 152	2	← D83 152	2
5	Pin Plug C03 228	2	← C03 228	2	← C03 228	2	← C03 228	2	← C03 228	2
6	Rod Plug C63 211	4	← C63 211	4	← C63 211	4	← C63 211	4	← C63 211	4
7	Grease Plug C03 360	1	← C03 360	1	← C03 360	1	← C03 360	1	← C03 360	1
8	Check Plug C23 219	3	← C23 219	3	← C23 219	3	← C23 219	3	← C23 219	3
9	Hose Plug C33 553	2	← C63 339	2	← C63 339	2	← C63 339	2	← C73 267	2
10	Window Plug C23 324	3	← C23 324	3	← C23 324	3	-	-	← C23 324	3
11	Side Bolt E92 114	1	← D83 313	1	← D83 313	1	← L23 179	1	← C73 368	1
12	Side Nut C32 212	2	← C62 300	2	← C62 300	2	← C73 367	2	← C73 367	2
13	Washer C33 114	2	← C62 301	2	← C62 301	2	← C73 118	1	← C73 118	2
14	Support Bar C33 649	1	← C63 415	1	← C63 415	1	← C63 415	1	← C73 326	1
15	Support Wear Plate C33 650	1	← C63 416	1	← C63 416	1	← C63 416	1	← C73 327	1
16	Inner Wear Plate L03 185	6	← C73 313	6	← C73 313	6	← C73 313	6	← C73 313	6
17	Side Wear Plate E93 235	2	← C73 348	2	← C73 348	2	← C73 348	4	← C73 348	4
18	W/P Holder L03 188	2	← C73 366	2	← C73 366	2	← C73 366	4	← C73 366	4
19	Down Cushion E93 234	1	← C63 420	1	← D83 279	1	← L23 159	1	← C73 347	1
20	Dish Spring Washer 4220006	12	← 4220008	12	← 4220008	12	← 4220008	24	← 4220008	24
21	Socket Bolt 4013105	12	← 4011145	12	← 4011145	12	← 4011145	24	← 4011145	24
22	Socket Bolt 4010060	10	← 4010060	10	← 4010060	10	← 4010060	10	← 4010060	12
23	Washer C03 282	10	← C03 282	10	← C03 282	10	← C03 282	10	← C03 282	12
24	Upper Cushion C63 390	1	← C63 390	1	← D83 258	1	← D83 258	1	← C73 314	1
25	Upper Cushion Guide E93 224	1	← C63 391	1	← D83 259	1	← L22 142	1	← C73 320	1
26	Grease Nipple 2700403	1	← 2700403	1	← 2700403	1	-	-	← 2700403	1
27	Grease Adapter D83 288	1	← D83 288	1	← D83 288	1	-	-	← D83 288	1
28	Nut D83 289	1	← D83 289	1	← D83 289	1	-	-	← D83 289	1
29	Oil Hose D23 413	1	← D83 300	1	← D83 300	1	-	-	← D83 300	1
30	Adapter C23 412	1	← C23 412	1	← C23 412	1	-	-	← C23 412	1
31	O-Ring 2851018	1	← 2851018	1	← 2851018	1	-	-	← 2851018	1
32	Support Shim C33 652	-	← C63 419	-	← D83 296	-	← C73 334	-	← C73 334	-
33	W/P SHIM L03 190	-	← D83 263	-	← D83 263	-	← D83 263	-	← D83 263	-

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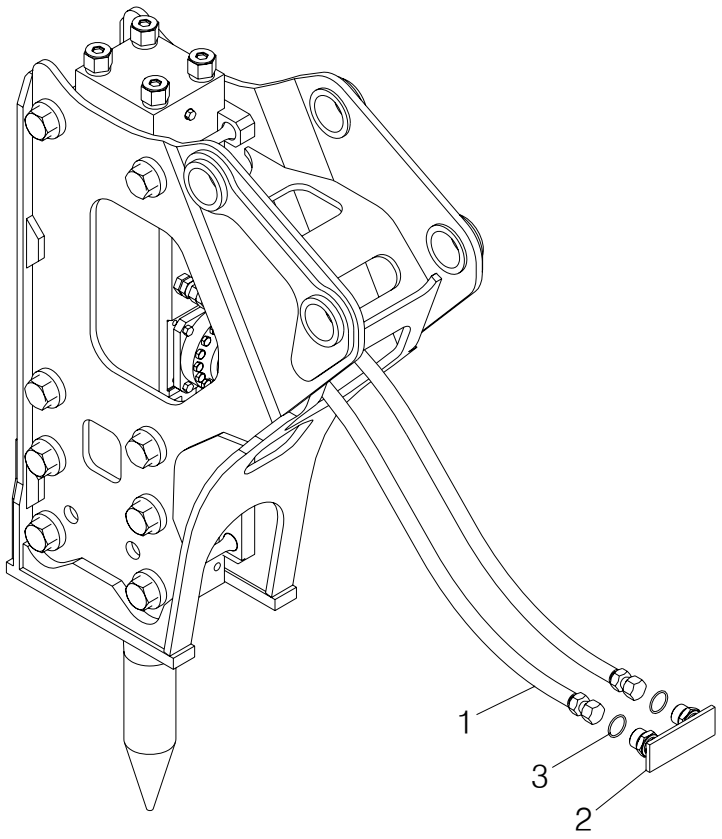
12. Oil Hose

No	Parts Name	SB10II	SB20II	SB30II	SB35II	SB40II	SB43II	SB45	SB50	Q'ty
		Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	
1	Spring Hose	2614146	2614246	←	2614250	←	2614252	2611352	2611360	2
2	Hose Plug	E84 100	C04 100	←	←	←	C14 100	←	←	1
3	O-ring	-	-	-	-	-	2856003	←	←	2

No	Parts Name	SB60	SB70	SB81	SB81A	SB100	SB121	SB130 SB140	SB151	Q'ty
		Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	Parts No.	
1	Spring Hose	2610466	←	←	←	2610470	2610571	←	←	2
2	Hose Plug	C34 100	←	←	←	←	C64 100	←	←	1
3	O-ring	2856004	←	←	←	←	2856005	←	←	2



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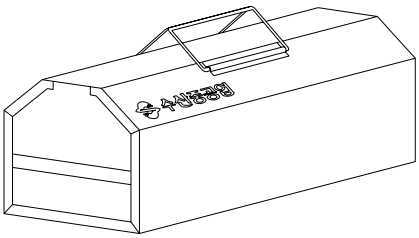
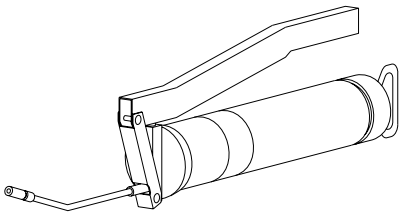
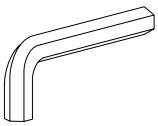
13. Tool set



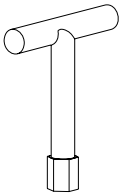
TOOL BOX



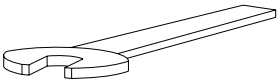
GREASE GUN



L-WRENCH

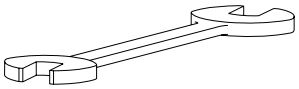


T-WRENCH

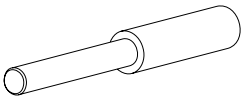


SINGLE SPANNER

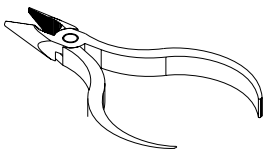
EYE BOLT



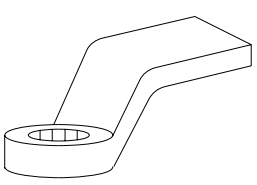
DOUBLE SPANNER



PIN BAR



PLIERS



SINGLE RING SPANNER

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■ Tool set (Side, Top, Back-hoe)

TOOL	Q'ty	SB10II	SB20II	SB30II	SB35II	SB40II	SB43II	SB45	SB50	SB60	SB70	SB81	SB81A	SB100	SB121	SB130	SB140 SB151
Tool set	1	E81020	F01020	E71020	F81020	C01020	F91020	D41020	C11020	C21020	L01020	C31020	C31021	E91020	C61020	C61020	C71020
Tool box	1	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003
Combination Spanner	1	-	27 ㎜ 8203161	30 ㎜ 8203162	30 ㎜ 8203162	-	-	-	-	-	-	-	-	-	-	-	-
Double spanner	1	-	-	-	-	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060
Double spanner	1	22*24 8203057	-	-	-	-	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057
Grease gun	1	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002
L-Wrench	1	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103
L-Wrench	1	-	-	-	-	-	-	-	-	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	12 ㎜ 8202107	12 ㎜ 8202107	12 ㎜ 8202107
L-Wrench	1	-	-	-	-	-	-	-	-	-	-	-	14 ㎜ 8202108	14 ㎜ 8202108	14 ㎜ 8202108	14 ㎜ 8202108	17 ㎜ 8202110
L-Wrench	1	-	-	-	-	-	-	-	-	-	-	-	17 ㎜ 8202110	17 ㎜ 8202110	17 ㎜ 8202110	17 ㎜ 8202110	19 ㎜ 8202111
Pin bar	1	D10 E71124	D10 E71124	D10 E71124	D13 F81131	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147
SINGLE RING SPANNER	1	-	-	-	-	-	-	50 ㎜ C11154	55 ㎜ C11155	65 ㎜ C11157	70 ㎜ C11158	75 ㎜ C11159	75 ㎜ C11159	75 ㎜ C11159	75 ㎜ C11159	75 ㎜ C11159	85 ㎜ C11161
SINGLE RING SPANNER	1	-	-	-	-	-	-	-	-	-	-	-	-	-	85 ㎜ C11161	85 ㎜ C11161	-
Single spanner	1	27 ㎜ 8203012	30 ㎜ 8203013	27 ㎜ 8203012	27 ㎜ 8203012	13 ㎜ 8203003	41 ㎜ 8203018	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	32 ㎜ 8203014	32 ㎜ 8203014	36 ㎜ 8203016
Single spanner	1	30 ㎜ 8203013	-	36 ㎜ 8203016	36 ㎜ 8203016	41 ㎜ 8203018	46 ㎜ 8203019	46 ㎜ 8203019	-	41 ㎜ 8203018	41 ㎜ 8203018	41 ㎜ 8203018	41 ㎜ 8203018	41 ㎜ 8203018	46 ㎜ 8203019	46 ㎜ 8203019	46 ㎜ 8203019
Single spanner	1	-	-	-	-	-	-	-	-	46 ㎜ 8203019	46 ㎜ 8203019	46 ㎜ 8203019	46 ㎜ 8203019	46 ㎜ 8203019	50 ㎜ 8203020	50 ㎜ 8203020	50 ㎜ 8203020
Single spanner	1	-	-	-	-	-	-	-	-	-	-	50 ㎜ 8203020	50 ㎜ 8203020	50 ㎜ 8203020	55 ㎜ 8203021	55 ㎜ 8203021	55 ㎜ 8203021
Pliers	1	-	-	-	-	-	-	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024
T-Wrench	1	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131

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■ Tool set (TS, TS-P)

TOOL	Q'ty	SB10II	SB20II	SB30II	SB35II	SB40II	SB43II	SB45	SB50	SB60	SB70	SB81	SB81A	SB100	SB121	SB130	SB140 SB151
Tool set	1	E81021	F01021	E71021	F81021	C01021	F91021	D41021	C11021	C21021	L01021	C31022	C31023	E91021	C61021	D81021	C71021
Tool box	1	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	M 8290002	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003	L 8290003
Double spanner	1	22*24 8203057					22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057	22*24 8203057
Double spanner	1					27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060	27*30 8203060
Eye bolt	1	M16 4020004	M16 4020004	M16 4020004	M16 4020004	M16 4020004	M16 4020004				M16 4020004	M16 4020004	M16 4020004	M16 4020004	M16 4020004	M16 4020004	M16 4020004
Eye bolt	2	M12 4020003	M12 4020003	M12 4020003	M12 4020003	M12 4020003	M12 4020003	M16 4020004	M16 4020004	M16 4020004	M24 4020006	M24 4020006	M24 4020006	M24 4020006	M30 4020007	M30 4020007	M30 4020007
Grease gun	1	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002	300cc 8214002
Long adapter	1	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137	110 ㎜ F01137
L-Wrench	1	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103	5 ㎜ 8202103
L-Wrench	1												14 ㎜ 8202108	14 ㎜ 8202108	14 ㎜ 8202108	14 ㎜ 8202108	17 ㎜ 8202110
L-Wrench	1												17 ㎜ 8202110	17 ㎜ 8202110	17 ㎜ 8202110	17 ㎜ 8202110	19 ㎜ 8202111
L-Wrench	1														12 ㎜ 8202107	12 ㎜ 8202107	12 ㎜ 8202107
L-Wrench	1	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105	8 ㎜ 8202105
Pin bar	1	D10 E71124	D10 E71124	D10 E71124	D13 F81 131	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147	D14 C01147
Single ring Spanner	1							50 ㎜ C11154	55 ㎜ C11155	65 ㎜ C11157	70 ㎜ C11158	75 ㎜ C11159	75 ㎜ C11159	75 ㎜ C11159	75 ㎜ C11159	75 ㎜ C11159	85 ㎜ C11161
Single spanner	1	27 ㎜ 8203012	27 ㎜ 8203012	27 ㎜ 8203012	36 ㎜ 8203016	41 ㎜ 8203018	46 ㎜ 8203019	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	36 ㎜ 8203016	32 ㎜ 8203014	32 ㎜ 8203014	36 ㎜ 8203016
Single spanner	1	30 ㎜ 8203013	30 ㎜ 8203013	30 ㎜ 8203013	27 ㎜ 8203012	13 ㎜ 8203003				41 ㎜ 8203018	41 ㎜ 8203018	41 ㎜ 8203018	41 ㎜ 8203018	41 ㎜ 8203018	36 ㎜ 8203016	46 ㎜ 8203019	46 ㎜ 8203019
Single spanner	1			36 ㎜ 8203016	30 ㎜ 8203013							50 ㎜ 8203020	50 ㎜ 8203020	50 ㎜ 8203020	50 ㎜ 8203020	50 ㎜ 8203020	50 ㎜ 8203020
Single spanner	1														55 ㎜ 8203021	55 ㎜ 8203021	55 ㎜ 8203021
Pliers	1							230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024	230 ㎜ 8204024
T-Wrench	1	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131	14 ㎜ 8202131

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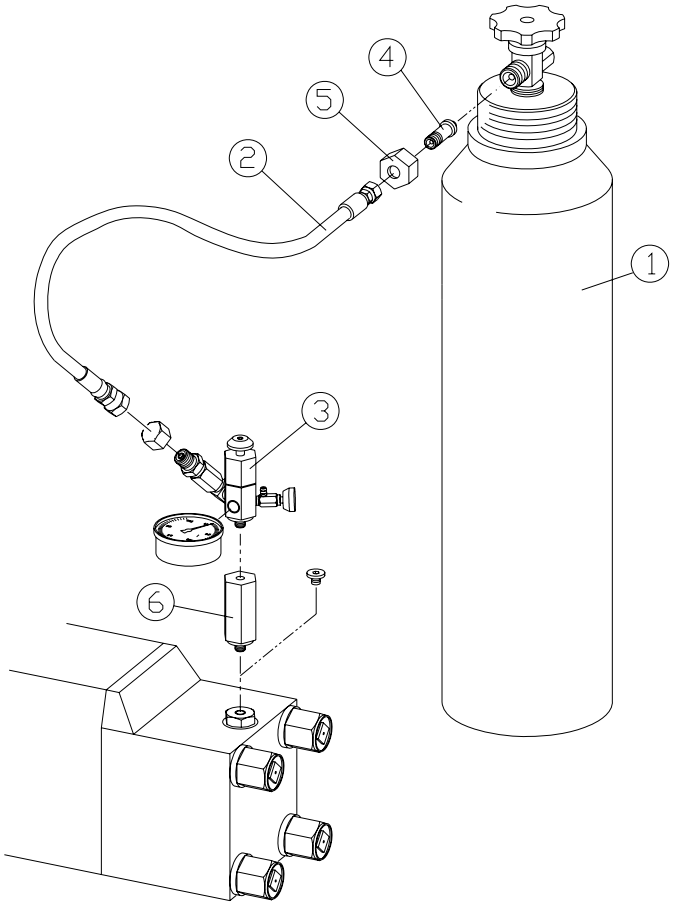
14. Back head gas charging kit(Option)

NO	PARTS No.	Q'ty	PARTS NAME
	C61 204	1set	N_2 Gas charging set
1	2900003	1	N_2 Gas cylinder
2	2651001	1	Synflex hose
3	C91 142	1	B-3Way valve assembly
4	C91 122	1	Bombe adapter
5	C91 121	1	Bombe adapter nut
6	F01 137	1	Long adapter : Use in TS & TS-P type



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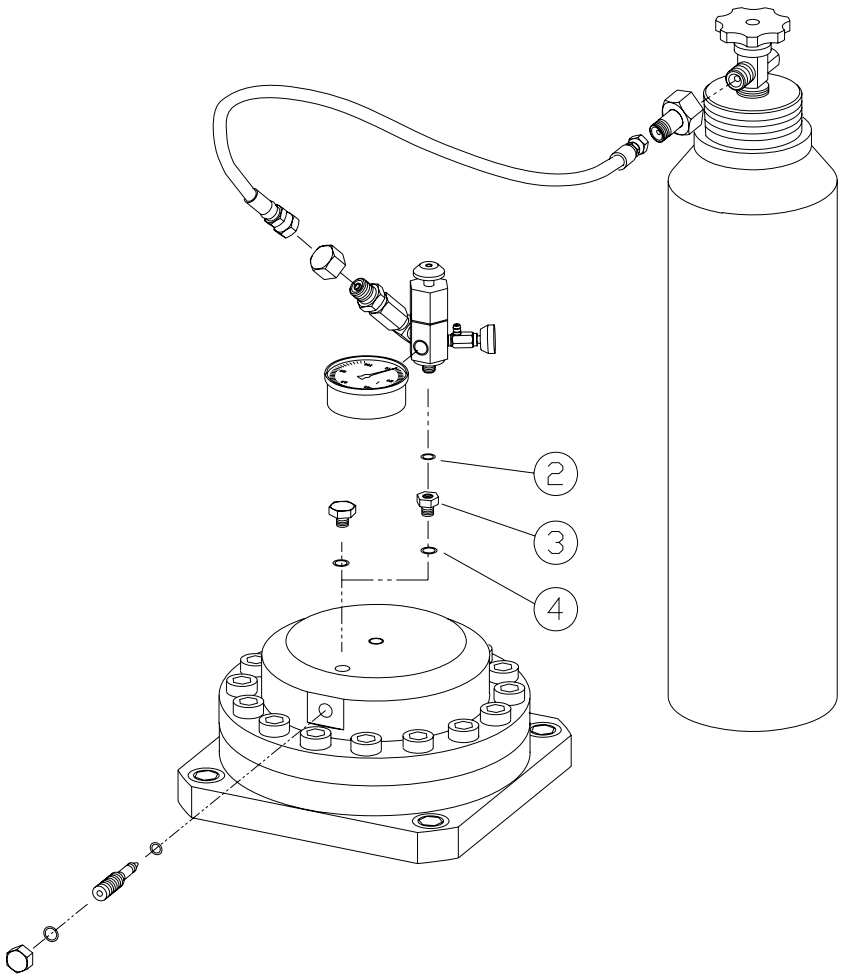
15. Accumulator charging Tool set

NO	PARTS No.	Q'ty	PARTS NAME
	C61 205	1set	Accumulator gas charging set
1	C61 204	1set	N_2 Gas charging set
2	2850010	1	O-Ring
3	U81 414	1	Hex bushing
4	2850014	1	O-RING



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Product Recording

Record information about your product in this page.

Demolition & Sorting Grab Model :

Serial Number :

Date of Delivery :

Dealer :

Address :

Phone No : FAX No :

Notes

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