



Foreword

We appreciate your purchasing FINE hydraulic breaker.

This manual explains the correct handling methods, inspection, repair, operation, assembly and disassembly in order to use your hydraulic breaker safely and efficiently.

Also, this manual fully illustrates all information you need to achieve the best performance and minimize down time of your hydraulic breaker.

Before using this hydraulic breaker, be sure to read and fully understand this manual.

If you do not follow this manual, a serious accident can be occurred.

WARNING

- The operator should read and fully understand this manual before installing, repairing or operating this hydraulic breaker.
- This manual should be kept near the hydraulic breaker, and those who use or manage the hydraulic breaker should read it periodically.
- When this hydraulic breaker is transferred, this manual must be attached to the hydraulic breaker.
- If this hydraulic breaker is used carelessly, a serious accident can occur such as seriously injure or kill a person.
- If this manual is lost or damaged, please contact to our dealer in your territory or Feel Industrial Engineering Co., Ltd in Korea.

☐ Foreword

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1. Safety Information

Before operation

Many accidents are caused by disregarding the basic rule of installation, operation and repair, or by neglecting the inspection before operation.

Before operation or repairing this hydraulic breaker, be sure to read and fully understand the preventive methods and warnings described on the hydraulic breaker or in this manual.

Safety labels and messages are classified as below so that the user may understand the warnings on the hydraulic breaker or in this manual.

DANGER

- Indicates a seriously dangerous situation which, if not avoided, will result in death or serious injury.
- This signal is to be limited to the most extreme situation.

WARNING

- Indicates a potentially dangerous situation which, if not avoided, could result in death or serious injury.

CAUTION

- Indicates a potentially dangerous situation which, if not avoided, may result in minor injury.

NOTICE

- Signs used to indicate a statement of company policy directly or indirectly related to the personnel safety or property protection.

Specified works

This hydraulic breaker can be used for breaking, demolishing and drilling in mines, stone breaking or building engineering work.

WARNING

- Do not use this hydraulic breaker for other works except the specified works.

WARNING

- **Keep the cautions and take a preventive measure for safety.**

Observance of safety rules in work place

- Observe all the rules, cautions and procedures for safety when the hydraulic breaker is operated or repaired.
- Fulfill the work according to the signals already decided when cooperative work or work by guide is done.

Wear the protective tools for safety

- Wear the clothes fit to your body not to be caught by the projection of the base machine or the any lever or pulled by the machine.
- Wear the helmet, safety shoes, earplug, etc. If necessary, wear a dustproof mask, protective glasses and gloves.
- Usually clean the machine and keep a clear environment for working.

Inspection for safety devices

- When the work is stopped or finished, be sure to set the safety lock of operation switch for the hydraulic breaker.
- When the operator gets out from the base machine, be sure to put the hydraulic breaker on the ground and stop the engine of base machine.

Be careful from the hydraulic oil pressure

- Before disconnecting or connecting hydraulic hoses, stop the engine of base machine, close stop valves "IN" and "OUT" connection, than operate the control level to release pressure trapped in the hoses and wait ten(10) minutes.

Safety from flying chips of rock during hydraulic breaker operation

- Protect yourself and your neighborhood against flying chips of rock.
Do not operate the hydraulic breaker or base machine if someone is too close.
- Keep the base machine's cab doors and windows closed during operation.
Window bars are recommended to protect the windows from flying chips of rock.

2. Specification

■ Specification Hydraulic Breaker (Silenced) X- Series, Close Type

Description		FINE 1X	FINE 2X	FINE 3X	FINE 4X	FINE 5X	FINE 6X	FINE 7BLX	FINE 7X	FINE 10X	FINE 12X
Operating Weight	kg	120	138	145	200	350	400	375	585	870	920
	lb	265	305	320	441	772	882	827	1,290	1,918	2,029
Overall Height	mm	1,105	1,105	1,271	1,420	1,586	2,338	1,535	1,946	2,338	2,400
	inch	43.5	43.5	49.6	55.4	61.9	91.2	60.4	75.9	91.2	93.6
Operating Pressure	bar	90-110	90-110	90-110	90-120	100-130	110-140	110-140	130-150	150-170	150-180
	psi	1,305-1,595	1,305-1,595	1,305-1,595	1,305-1,740	1,450-1,885	1,595-2,031	1,595-2,031	1,885-2,175	2,175-2,465	2,175-2,610
Required Oil Flow	lpm	15-30	15-30	20-40	20-50	30-50	45-90	30-50	45-90	80-110	90-120
	gpm	3-8	3-8	5-11	5-13	8-13	12-24	8-13	12-24	21-29	24-32
Impact Rate	bpm	700-1,300	700-1,300	600-1000	550-1,200	450-900	400-800	450-900	450-800	450-800	400-900
Impact Power	joule	210	210	248	480	849	1,250	849	1,764	2,443	3,000
	ft-lb	155	155	183	354	627	922	627	1,302	1,803	2,214
Tool Diameter	mm	Ø36	Ø40	Ø45	Ø53	Ø68	Ø72	Ø72	Ø85	Ø100	Ø110
	inch	1.4	1.6	1.8	2.1	2.7	2.8	2.8	3.4	3.9	4.3
Hose Diameter	mm	13	13	13	13	13	13	13	19	19	19
	inch	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4
Suitable Excavator	ton	0.8-2.5	0.8-2.5	1-3.0	1-3.5	3-6	5-7	5-8	7-9	9-12	12-14
	lb	1,764-5,511	1,764-5,511	2,205-6,613	2,205-7,716	6,613-13,227	11,023-15,432	11,023-17,637	15,432-19,842	19,842-26,455	26,455-30,865

* Above specifications are subject to change without notice.

■ Specification Hydraulic Breaker (Top Bracket) - Open Type

Description		FINE 4	FINE 5	FINE 6	FINE 6BL	FINE 7	FINE 10	FINE 12	FINE 16
Operating Weight	kg	150	310	400	320	560	870	920	1,250
	lb	331	684	882	705	1,235	1,918	2,029	2,756
Overall Height	mm	1,420	1,586	2,338	1,535	1,946	2,338	2,400	2,440
	inch	55.4	61.9	91.2	60.4	75.9	71.1	93.6	95.2
Operating Pressure	bar	90-120	90-120	90-130	90-120	130-150	150-170	150-180	150-180
	psi	1,305-1,740	1,305-1,740	1,305-1,885	1,305-1,740	1,885-2,175	2,175-2,465	2,175-2,610	2,175-2,610
Required Oil Flow	lpm	20-50	30-50	45-90	30-50	45-90	80-110	90-120	90-120
	gpm	5-13	8-13	12-24	8-13	12-24	21-29	24-32	24-32
Impact Rate	bpm	550-1,200	450-900	400-800	450-900	450-800	450-800	400-900	400-900
Impact Power	joule	480	849	1,250	849	1,764	2,443	3,000	4,234
	ft-lb	354	627	922	627	1,302	1,803	2,214	3,125
Tool Diameter	mm	Ø53	Ø68	Ø72	Ø72	Ø85	Ø100	Ø110	Ø120
	inch	2.1	2.7	2.8	2.8	3.4	3.9	4.3	4.7
Hose Diameter	mm	13	13	13	13	19	19	19	19
	inch	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Suitable Excavator	ton	1-3.5	3-6	5-7	5-8	7-9	9-12	12-14	13-18
	lb	2,205-7,716	6,613-13,227	11,023-15,432	11,023-17,637	15,432-19,842	19,842-26,455	26,455-30,865	28,660-39,683

* Above specifications are subject to change without notice.

■ Specification Hydraulic Breaker (Side Bracket) - Side Type

Description		FINE 4	FINE 5	FINE 5BL	FINE 6	FINE 7	FINE 10	FINE 12
Operating Weight	kg	140	237	300	430	735	760	920
	lb	309	523	661	948	1,621	1,676	2,029
Overall Height	mm	1,420	1,586	1,510	2,338	1,946	2,338	2,400
	inch	55.4	61.9	58.9	91.2	75.9	71.1	93.6
Operating Pressure	bar	90-120	90-120	90-120	90-130	130-150	150-170	150-180
	psi	1,305-1,740	1,305-1,740	1,305-1,740	1,305-1,885	1,885-2,175	2,175-2,465	2,175-2,610
Required Oil Flow	lpm	20-50	30-50	30-50	45-90	45-90	80-110	90-120
	gpm	5-13	8-13	8-13	12-24	12-24	21-29	24-32
Impact Rate	bpm	550-1,200	450-900	450-900	400-800	450-800	450-800	400-900
Impact Power	joule	480	849	849	1,250	1,764	2,443	3,000
	ft-lb	354	627	627	922	1,302	1,803	2,214
Tool Diameter	mm	Ø53	Ø68	Ø68	Ø72	Ø85	Ø100	Ø110
	inch	2.1	2.7	2.7	2.8	3.4	3.9	4.3
Hose Diameter	mm	13	13	13	13	19	19	19
	inch	1/2	1/2	1/2	1/2	3/4	3/4	3/4
Suitable Excavator	ton	1-3.5	3-6	3-6	5-7	7-9	9-12	12-14
	lb	2,205-7,716	6,613-13,227	6,613-13,227	11,023-15,432	15,432-19,842	19,842-26,455	26,455-30,865

* Above specifications are subject to change without notice.

■ Specification Hydraulic Breaker (Silenced) X- Series, Close Type

Description		FINE 16X	FINE 21X	FINE 22X Plus	FINE 23X Plus	FINE 36X	FINE 37X	FINE 45X	FINE 46X	FINE 50X	FINE 65X	FINE 80X
Operating Weight	kg	1,220	1,660	1,640	1,760	2,220	2,350	2,690	3,000	3,500	3,790	5,500
	lb	2,690	3,659	3,616	3,881	4,850	5,182	5,931	6,615	7,718	8,356	12,125
Overall Height	mm	2,440	2,500	2,640	2,707	2,958	3,100	3,258	3,532	3,726	3,775	4,252
	inch	95.2	97.5	103.0	105.6	115.4	120.9	127.1	137.7	145.3	148.6	167.4
Operating Pressure	bar	150-180	160-180	160-180	160-180	160-180	160-180	160-180	160-200	160-180	150-180	180-210
	psi	2,175-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,900	2,320-2,755	2,176-2,610	2,610-3,046
Required Oil Flow	lpm	90-120	100-160	140-160	120-180	160-190	180-220	190-250	190-250	250-310	250-350	300-400
	gpm	24-32	26-42	37-42	32-48	42-50	48-58	50-66	50-66	66-82	66-92.5	79-105
Impact Rate	bpm	400-900	350-600	400-800	350-550	350-700	300-500	300-600	300-700	250-450	200-400	180-350
Impact Power	joule	4,234	5,300	5,600	6,200	7,433	8,550	9,970	11,040	13,125	13,630	16,598
	ft-lb	3,125	4,005	4,133	4,576	4,990	6,273	7,330	8,147	9,686	10,059	12,242
Tool Diameter	mm	Ø120	Ø135	Ø135	Ø140	Ø140	Ø155	Ø160	Ø165	Ø175	Ø180	Ø200
	inch	4.7	5.3	5.3	5.5	5.5	6.1	6.3	6.5	6.9	7.1	7.9
Hose Diameter	mm	19	25	25	25	25	32	32	32	32	32	38
	inch	3/4	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2
Suitable Excavator	ton	13-18	18-24	20-26	22-26	28-35	36-40	40-49	40-49	50-65	50-65	65-85
	lb	28,660-39,683	39,683-52,911	44,092-57,320	48,502-57,320	61,729-77,162	79,366-88,185	88,185-108,027	88,185-108,027	110,231-143,301	110,231-143,301	143,300-187,393

* Above specifications are subject to change without notice.

■ Specification Hydraulic Breaker (Top Bracket) - Open Type

Description		FINE 20	FINE 22	FINE 23 Plus	FINE 35	FINE 37	FINE 45	FINE 46	FINE 50
Operating Weight	kg	1,650	1,850	1,865	2,270	2,650	2,860	3,100	3,700
	lb	3,638	4,079	4,112	5,004	5,843	6,306	6,836	8,159
Overall Height	mm	2,773	2,640	2,707	3,046	3,100	3,258	3,532	3,726
	inch	108.1	103.0	105.6	118.8	120.9	127.1	137.7	145.3
Operating Pressure	bar	160-180	160-180	160-180	160-180	160-180	160-180	160-200	160-180
	psi	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,900	2,320-2,610
Required Oil Flow	lpm	130-150	140-160	120-180	180-200	180-220	190-250	190-250	250-310
	gpm	34-40	37-42	32-48	48-53	48-58	50-66	50-66	66-82
Impact Rate	bpm	400-800	400-800	350-550	350-700	300-500	300-600	300-700	250-450
Impact Power	joule	5,290	5,600	6,200	7,433	8,550	9,970	11,040	13,125
	ft-lb	3,904	4,133	4,576	4,990	6,273	7,330	8,147	9,686
Tool Diameter	mm	Ø135	Ø135	Ø135	Ø150	Ø155	Ø160	Ø165	Ø175
	inch	5.3	5.3	5.3	5.9	6.1	6.3	6.5	6.9
Hose Diameter	mm	25	25	25	25	32	32	32	32
	inch	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
Suitable Excavator	ton	18-24	20-26	22-26	28-35	36-40	40-49	40-49	50-65
	lb	39,683-52,911	44,092-57,320	48,502-57,320	61,729-77,162	79,366-88,185	88,185-108,027	88,185-108,027	110,231-143,301

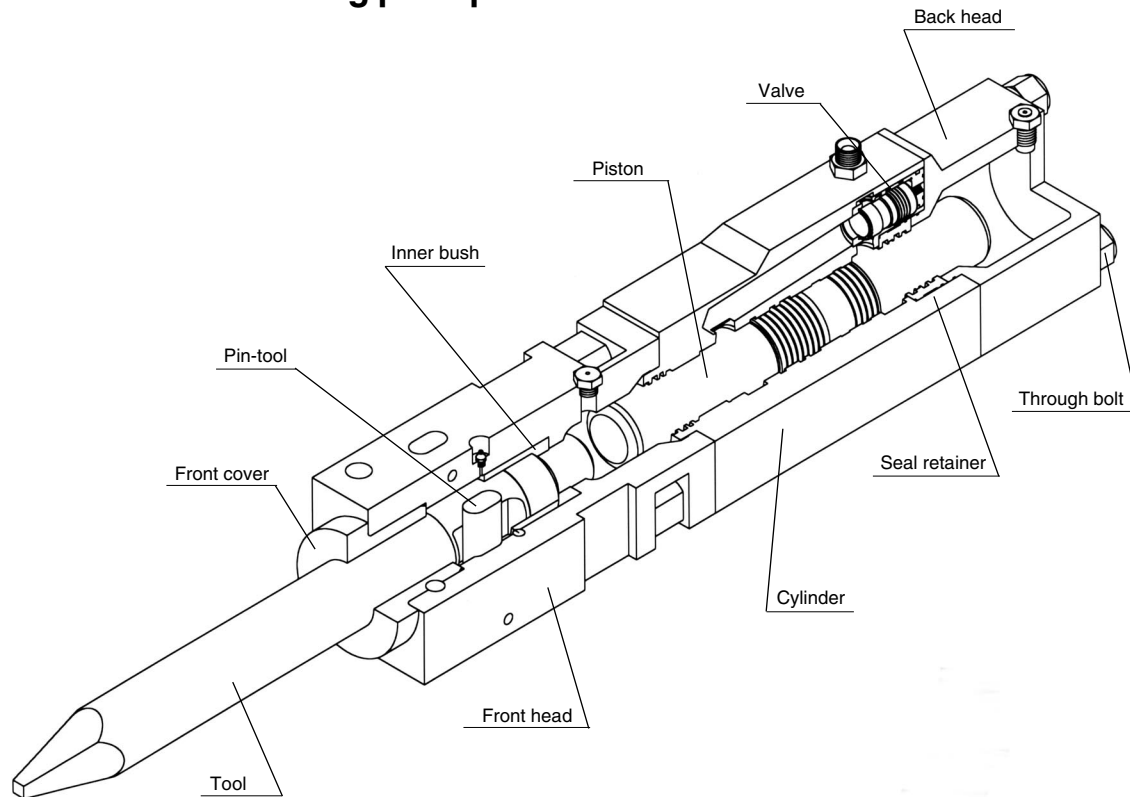
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■ Specification Hydraulic Breaker (Side Bracket) - Side Type

Description		FINE 16	FINE 23 Plus	FINE 35	FINE 37	FINE 45	FINE 46	FINE 50	FINE 65
Operating Weight	kg	1,250	1,665	2,100	2,350	2,500	3,000	3,500	3,590
	lb	2,756	3,671	4,631	5,182	5,513	6,615	7,718	7,915
Overall Height	mm	2,440	2,707	3,046	3,100	3,258	3,532	3,726	3,725
	inch	95.2	105.6	118.8	120.9	127.1	137.7	145.3	146.7
Operating Pressure	bar	150-180	160-180	160-180	160-180	160-180	160-200	160-180	150-180
	psi	2,175-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,610	2,320-2,900	2,320-2,610	2,176-2,610
Required Oil Flow	lpm	90-120	120-180	180-200	180-220	190-250	190-250	250-310	250-350
	gpm	24-32	32-48	48-53	48-58	50-66	50-66	66-82	66-92.5
Impact Rate	bpm	400-900	350-550	350-700	300-500	300-600	300-700	250-450	200-400
Impact Power	joule	4,234	6,200	7,433	8,550	9,970	11,040	13,125	14,300
	ft-lb	3,125	4,576	4,990	6,273	7,330	8,147	9,686	10,547
Tool Diameter	mm	Ø120	Ø135	Ø150	Ø155	Ø160	Ø160	Ø175	Ø180
	inch	4.7	5.3	5.9	6.1	6.3	6.3	6.9	7.1
Hose Diameter	mm	19	25	25	32	32	32	32	32
	inch	3/4	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Suitable Excavator	ton	13-18	22-26	28-35	36-40	40-49	40-49	50-65	50-65
	lb	28,660-39,683	48,502-57,320	61,729-77,162	79,366-88,185	88,185-108,027	88,185-108,027	110,231-143,301	110,231-143,301

* Above specifications are subject to change without notice.

3. Structure and Working principle



1) Cylinder

This contains the moving piston which strikes the tool. The seals for both ends of the piston are also located in the cylinder. The seals for the upper end of the piston are located in a removable seal retainer while the seals for the lower end of the piston are located in pre-machined grooves directly into the cylinder.

2) Piston

The piston transfers impact power to the tool, generated by hydraulic power.

3) Seal retainer

The seal retainer has oil seals to seal Nitrogen (N₂) gas in the back head, and to prevent hydraulic oil leakage.

4) Valve

The valve controls reciprocal piston action with hydraulic fluid distribution.

5) Front head assembly

This retains the tool, using the tool pins. By removing these pins, the tool can be changed.

6) Inner bush

This guides the tool; the inner bush limits the uppermost position of the tool.

They are consumable parts, which should be checked for wear limits. If needed, they should be replaced.

7) Tool

This transfers piston impact power to the objects.

We recommend that various tool shapes be used according to working circumstances.

8) Pin-tool

This is installed on the front head, and stops the tool from coming off.

9) Back head assembly

This contains the cushion chamber charged with nitrogen (N₂) gas that compresses during upward strokes of the piston, and serves to provide maximum absorption of piston recoil, efficiently storing this energy for the next blow.

10) Through bolts

These are used to assemble the front head, and the cylinder and the back head. They have to be constantly tightened to specified torque. Inspect the bolts for loosening, and re-tighten them weekly.

1) Set Up

The relation between the area (A1) affecting the pressure from the upper chamber of the piston and the (A2) affecting the pressure from the lower chamber of the piston is $A1 > A2$ and high pressure always applies to A2. When A1 change from high to low pressure or vice versa, Piston C1 reciprocates. Inside of back head is change with the high pressure gas and gas energy stored in the up stroke of the C1 effectively acts on the piston C1 during the impact.

2) Piston Conversion

When piston C1 reaches top dead center, high pressure oil from valve high-pressure port B3 applies to upper chamber of the piston A1 to change the piston stroke from upstroke to impact. At this time the relation between the area(A3) affecting the pressure from valve high pressure changes and the area(A4) of the valve change chamber is $A4 > A3$. The high pressure always applies to A4 and valve C2 remains in the upper position.

3) Valve Conversion

When cylinder low pressure port B1 is connected to cylinder change port B2, the pressure in valve change port B4 lowers. As force acting port C2 is the only pressure in valve high pressure chamber A3, valve C2 starts lowering. During the valve lowering stroke, valve high pressure port B3 is closed and valve low pressure port B5 is opened to the lower the pressure in the upper chamber of the piston A1.

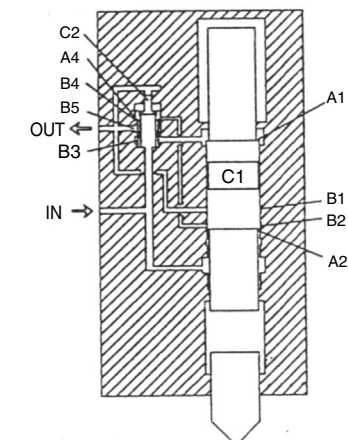
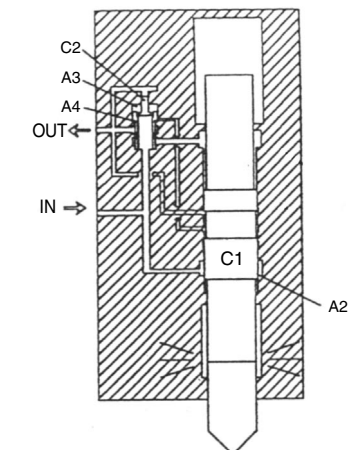
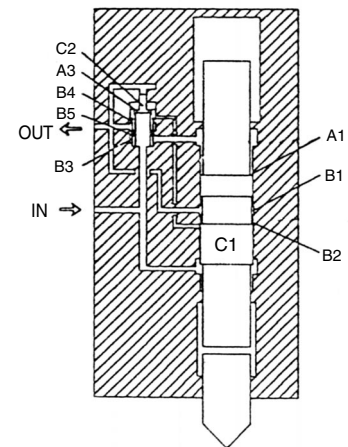
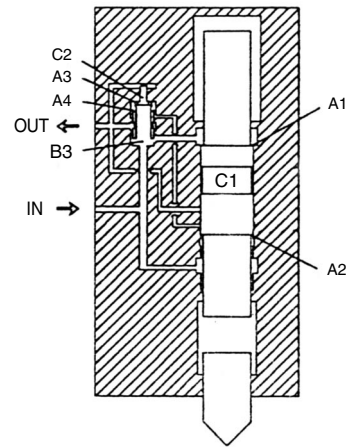
4) Impact

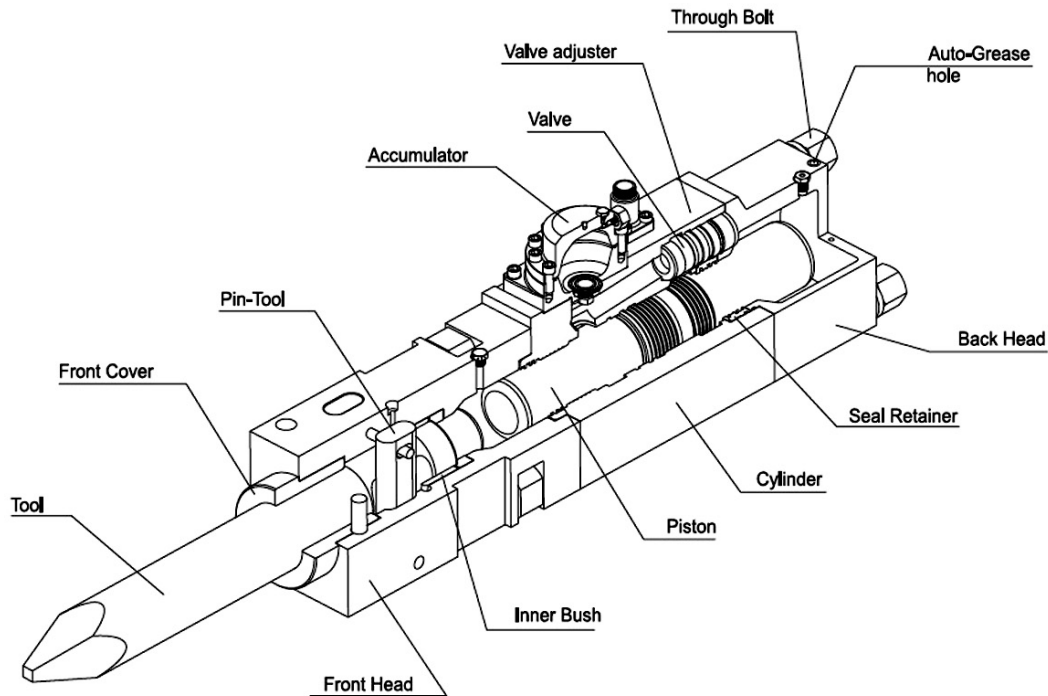
When piston C1 reaches impact point, kinetic energy obtained by piston C1 during the impact stroke is transmitted to the tool for the impact energy required to hydraulic breaker . At this time, as high pressure applies only to the lower chamber of the piston A2, piston C1 starts reversing. Further, as high pressure applies only to the valve high pressure chamber A3, valve C2 is remaining in the lower position.

5) Piston Raise

When cylinder change port B2 is connected to cylinder lower pressure port B1, high pressure oil applies to low pressure outlet Port valve C2 time valve low pressure port A1 this time valve low pressure port B5 is closed and valve high pressure B3 is opened the upper chamber of the piston A1 to rise the pressure in the lower chamber of the piston A1.

A1: Piston upper chamber	B1: Cylinder low pressure port	C1: Piston
A2: Piston lower chamber	B2: Cylinder conversion port	C2: Valve
A3: Valve high pressure chamber	B3: Valve high pressure port	
A4: Valve conversion chamber	B4: Valve conversion port	
	B5: Valve low pressure port	





1) Cylinder assembly

This contains the moving piston which strikes the tool. The seals for both ends of the piston are also located in the cylinder. The seals for the upper end of the piston are located in a removable seal retainer while the seals for the lower end of the piston are located in grooves machined directly into the cylinder.

2) Piston

The piston transfers impact power to the tool, generated by hydraulic power.

3) Seal retainer

The seal retainer has oil seals to seal Nitrogen(N₂) gas in back head, and to prevent hydraulic oil leakage.

4) Valve

The valve controls reciprocal piston action with hydraulic fluid distribution.

5) Valve adjuster

When the base machine supplies insufficient hydraulic oil to hydraulic breaker, this valve adjuster can obtain the rated working pressure by reducing number of blows, and in the reverse, when excessive oil flow from base machine, the increasing number of blows, by this valve adjuster can keep the rated working pressure.

6) Accumulator assembly

The accumulator is a gas charged storage device designed to hold a reserve quantity of hydraulic fluid under pressure. In a hydraulic circuit, minor variations or lags in pump output that might otherwise cause unsteady or irregular operation are made up from the supply of pressurized oil in the accumulator. Accumulators are solidly constructed to resist high operating pressure.

7) Front head assembly

This retains the tool, using the tool pins. By removing these pins, the tool can be changed.

8) Inner bush

This guide the tool, inner bush limits the uppermost position of the tool.

They are consumable parts, which should be checked for wear limits. If needed, they should be replaced.

9) Tool

This transfers piston impact power to the objects. We recommend that various tool shapes according to working circumstance.

10) Pin-tool

This is installed on the front head, and stops the tool from coming off.

11) Back head assembly

This contains the cushion chamber charged with nitrogen(N₂) gas that compresses during upward strokes of the piston, and serves to provide maximum absorption of piston recoil, efficiently storing this energy for the next blow.

12) Through bolts

These are used to assemble the front head, and the cylinder and the back head. They have to be constantly tightened to specified torque. Inspect the bolts for loosening, and re-tighten them weekly.

13) Auto-Grease hole

It's useful hole for Auto-grease function.

14) Auto-Stop

It's Protected impact area for the blank fire working.

1) Set Up

The relation between the area (A1) affecting the pressure from the upper chamber of the piston and the (A2) affecting the pressure from the lower chamber of the piston is $A1 > A2$ and high pressure always applies to A2. When A1 change from high to low pressure or vice versa, Piston C1 reciprocates. Inside of back head is change with the high pressure gas and gas energy stored in the up stroke of the C1 effectively acts on the piston C1 during the impact.

2) Piston Conversion

When piston C1 reaches top dead center, high pressure oil from valve high-pressure port B3 applies to upper chamber of the piston A1 to change the piston stroke from upstroke to impact.

At this time the relation between the area(A3) affecting the pressure from valve high pressure changes and the area(A4) of the valve change chamber is $A4 > A3$. The high pressure always applies to A4 and valve C2 remains in the upper position.

3) Valve Conversion

When cylinder low pressure port B1 is connected to cylinder change port B2, the pressure in valve change port B4 lowers. As force acting port C2 is the only pressure in valve high pressure chamber A3, valve C2 starts lowering. During the valve lowering stroke, valve high pressure port B3 is closed and valve low pressure port B5 is opened to the lower the pressure in the upper chamber of the piston A1.

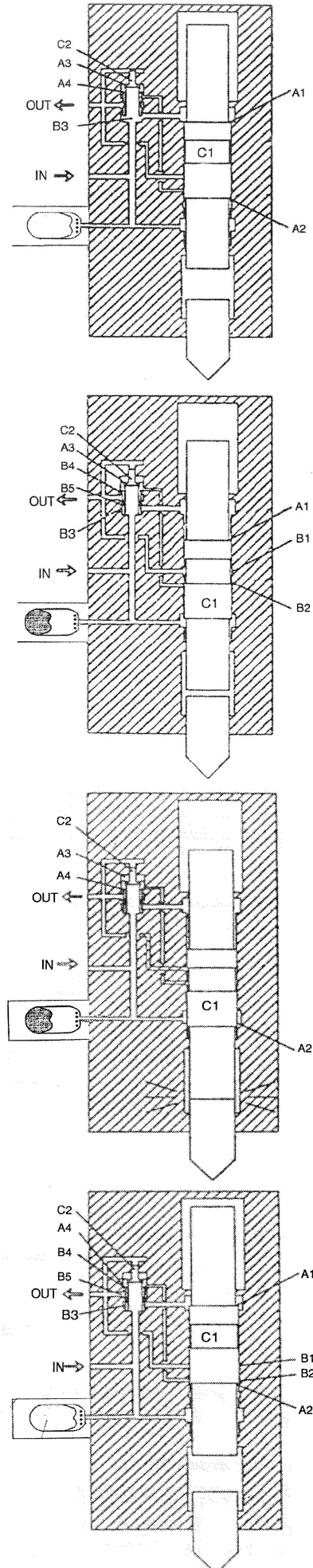
4) Impact

When piston C1 reaches impact point, kinetic energy obtained by piston C1 during the impact stroke is transmitted to the tool for the impact energy required to hydraulic breaker. At this time, as high pressure applies only to the lower chamber of the piston A2, piston C1 starts reversing. Further, as high pressure applies only to the valve high pressure chamber A3, valve C2 is remaining in the lower position.

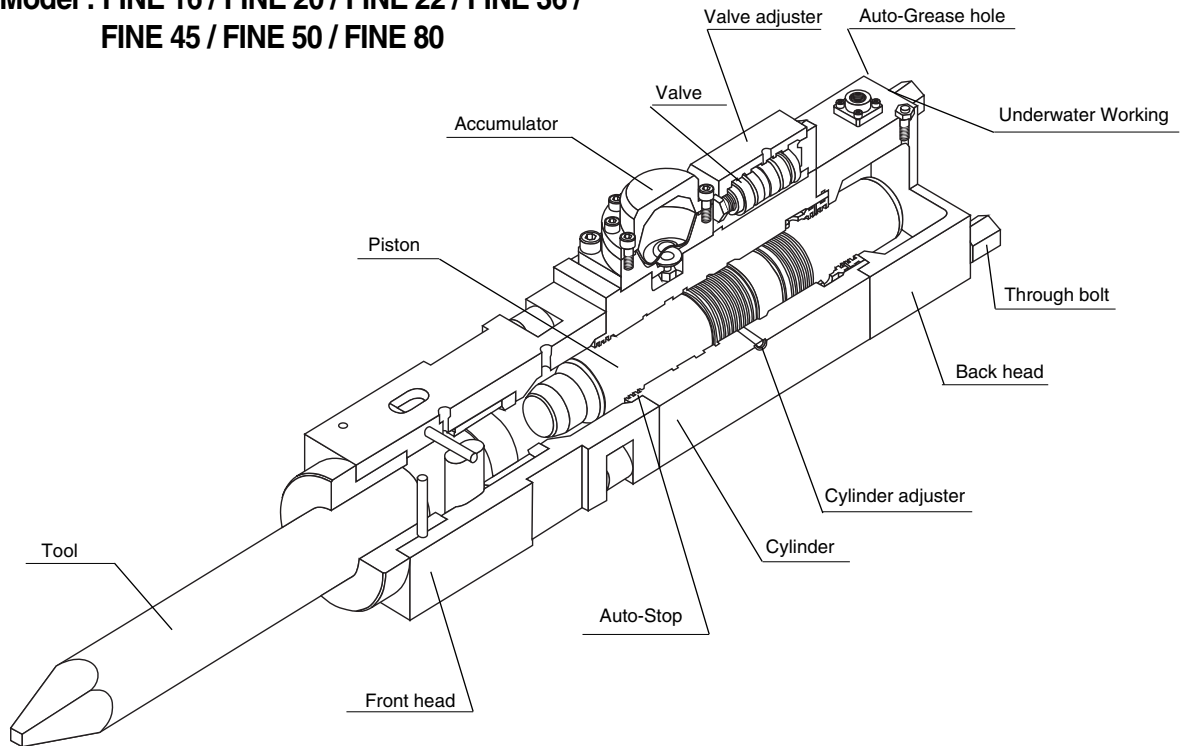
5) Piston Raise

When cylinder change port B2 is connected to cylinder lower pressure port B1, high pressure oil applies to low pressure outlet Port valve C2 time valve low pressure port A1 this time valve low pressure port B5 is closed and valve high pressure B3 is opened the upper chamber of the piston A1 to rise the pressure in the lower chamber of the piston A1.

A1: Piston upper chamber	B1: Cylinder low pressure port	C1: Piston
A2: Piston lower chamber	B2: Cylinder conversion port	C2: Valve
A3: Valve high pressure chamber	B3: Valve high pressure port	
A4: Valve conversion chamber	B4: Valve conversion port	
	B5: Valve low pressure port	



**Model : FINE 16 / FINE 20 / FINE 22 / FINE 36 /
FINE 45 / FINE 50 / FINE 80**



1) Cylinder assembly

This contains the moving piston which strikes the tool. The seals for both ends of the piston are also located in the cylinder. The seals for the upper end of the piston are located in a removable seal retainer while the seals for the lower end of the piston are located in grooves machined directly into the cylinder.

2) Piston

The piston transfers impact power to the tool, generated by hydraulic power.

3) Seal retainer

The seal retainer has oil seals to seal Nitrogen(N₂) gas in back head, and to prevent hydraulic oil leakage.

4) Valve housing

This guides the main valve movement.

5) Valve

The valve controls reciprocal piston action with hydraulic fluid distribution.

6) Valve adjuster

When the base machine supplies insufficient hydraulic oil to hydraulic breaker, this valve adjuster can obtain the rated working pressure by reducing number of blows, and in the reverse, when excessive oil flow from base machine, the increasing number of blows, by this valve adjuster can keep the rated working pressure.

7) Cylinder adjuster

Turn the setting screw clockwise to decrease blows rate of hydraulic breaker, counterclockwise to increase blows rate of hydraulic breaker.

8) Accumulator assembly

The accumulator is a gas charged storage device designed to hold a reserve quantity of hydraulic fluid under pressure. In a hydraulic circuit, minor variations or lags in pump output that might otherwise cause unsteady or irregular operation are made up from the supply of pressurized oil in the accumulator. Accumulators are solidly constructed to resist high operating pressure.

9) Front head assembly

This retains the tool, using the tool pins. By removing these pins, the tool can be changed.

10) Inner bush

This guide the tool, inner bush limits the upper position of the tool. They are consumable parts, which should be checked for wear limits. If needed, they should be replaced.

11) Tool

This transfers piston impact power to the objects. We recommend that various tool shapes according to working circumstance.

12) Pin-tool

This is installed on the front head, and stops the tool from coming off.

13) Back head assembly

This contains the cushion chamber charged with nitrogen(N₂) gas that compresses during upward strokes of the piston, and serves to provide maximum absorption of piston recoil, efficiently storing this energy for the next blow.

14) Through bolts

These are used to assemble the front head, and the cylinder and the back head. They have to be constantly tightened to specified torque. Inspect the bolts for loosening, and re-tighten them weekly.

15) Auto-Grease hole

(For FINE 23X, 36X, 37X, 46X, 65X, 80X)
It's useful hole for Auto-grease function.

16) Underwater Working

Through supply air, able to work under water.

17) Auto-Stop

It's Protected impact area for the blank fire working.

1) Set Up

Chambers C3, C2 always maintain low pressure, Because they are connected to the output line. Chambers V3, V1, C1 and accumulator always maintain high pressure, because they are connected to the input line. Chamber V2 pressure is changed to low pressure or high pressure depending on piston position.

2) Piston Raise

Oil enters to "IN" port, and begins to accumulate force to raise piston ; hydraulic force is applied on A1 of piston lower flange, and piston begins to raise. When the piston begins to raise, oil from C4 chamber returns to the output line through the control valve.

3) Valve Raise

When piston raises to around upper limits, A1 of piston lower flange reaches chamber C2, and the back head nitrogen(N₂) gas is compressed. At this time, oil from chamber C2 goes to chamber V2.

A3 area is larger than A4 area, but applied pressure of area A3 is the same as applied pressure of A4.

Therefore, the valve begins to raise, because of the area difference between A4 and A3.

4) Piston Descent

When the valve reaches the upper limits, chamber C4 becomes high pressure area, because oil from the working pump goes to chamber C2 through the control valve holes. A2 area is larger than A1 area, but pressure applied to A4 area is the same as the pressure applied to A1.

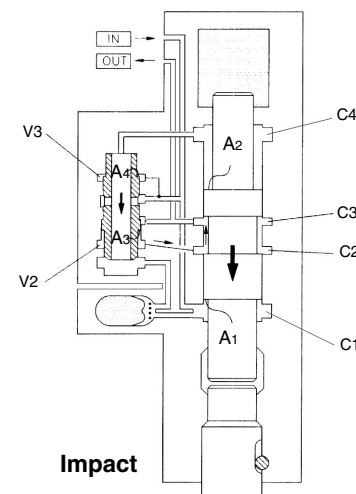
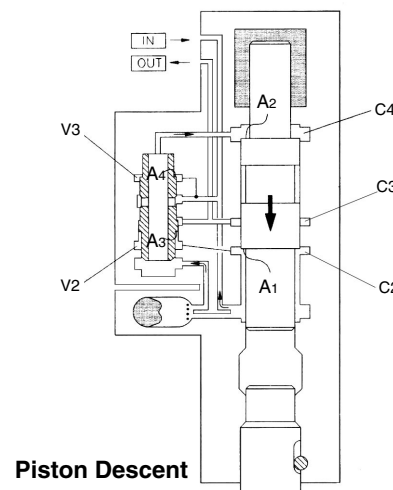
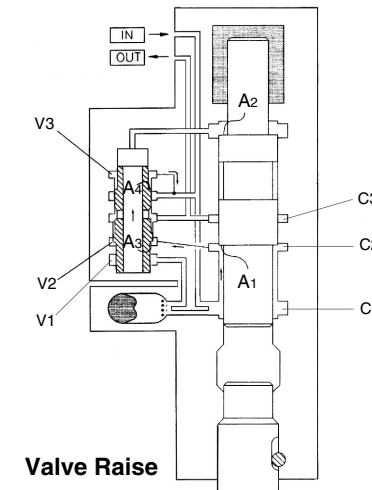
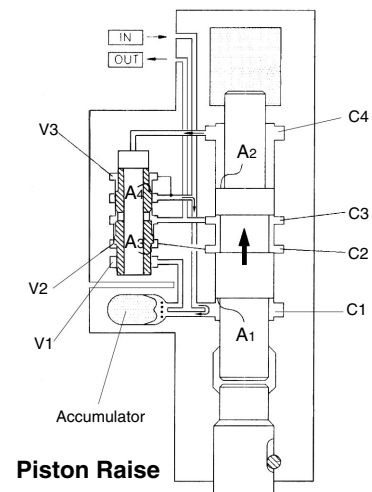
Therefore, the piston begins to descend, because of the area difference between A2 and A1. At this time, piston descent speed is accelerated by compressed nitrogen(N₂) gas pressure and piston weight.

5) Impact

Chamber V2 is changed in low pressure as chamber C2 is connected with C3 during piston descent. But V3 is always high pressure. Therefore, the valve begins to descend.

6) Continuous Strike

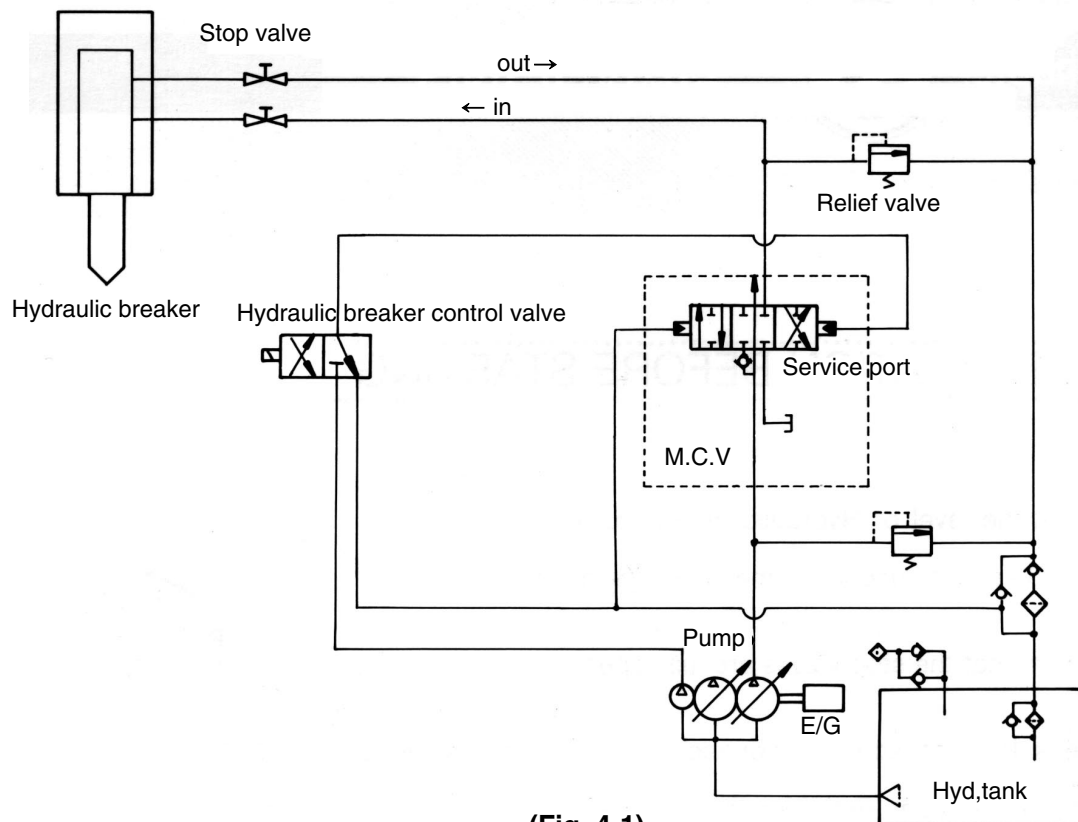
After the piston strikes the tool, the status of all circuits are changed to "Piston Raising". The piston begins to raise via status flowing into "IN" port, and the cycle is repeated again.



4. Installation and Removal

4-1. Fundamental circuit

When piping installation on base machine, it is important to know the fundamental circuit to which the piping belongs. Then the piping can be connected correctly, properly and quickly.



(Fig. 4-1)

Fig.4-1 is shown the one of simplest hydraulic circuit in case of installation a service port into the main control valve of base machine.

NOTICE

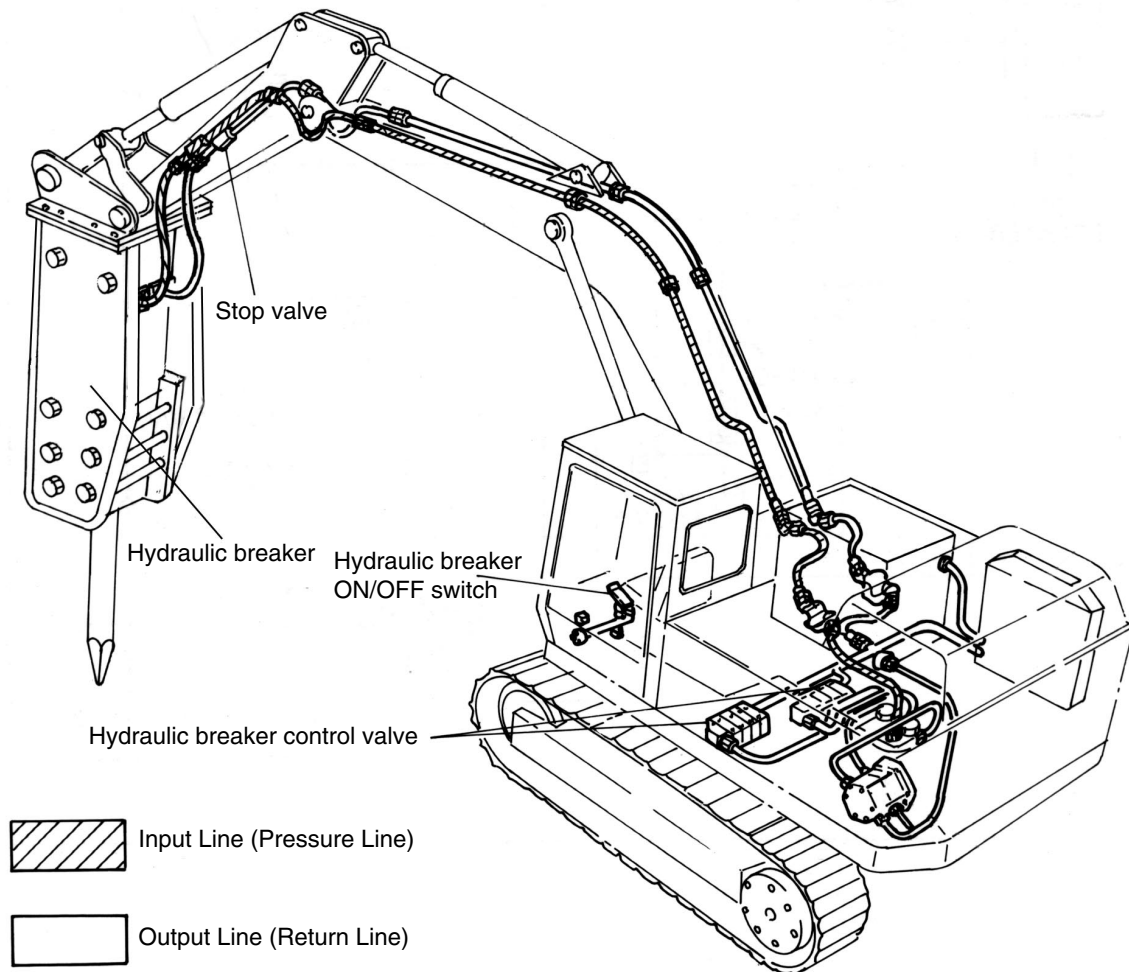
- If the piping method is different with Fig.4-1, consult us or attachment manufacturer.

4-2. General view

NOTICE

- Check the piping lines for correctness of such as pressure, flows or pressure loss, if the base machine is installed hydraulic breaker pipe lines.
- A pressure control valve has to be installed, if there is no pressure control valve on the main control valve of base machine.

Standard view of installation is as shown in Fig. 4-2



(Fig. 4-2)

4-3. Installation

CAUTION

- Never insert your hand or fingers into the pin hole or looking into it.

WARNING

- While aligning the arm hole, or moving the bucket, make sure that there are no person in the vicinity of arm or bucket of base machine.
- It is dangerous to move the base machine suddenly during installation.
- Wear the safety shoes to protect feet.

NOTICE

- Be careful so that dust may not enter the hydraulic breaker and base machine.
- Install or remove the hydraulic breaker on horizontal ground without mud or dust.

- 1) Set the hydraulic breaker on horizontal ground.
- 2) Remove the bucket from the base machine after disassembling the two pins.

NOTICE

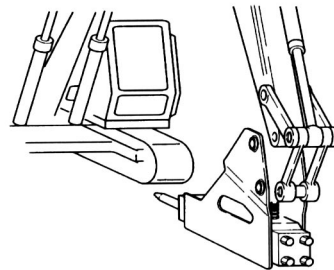
- If the bucket cylinder is retracted, the work to install the will be easier.

- 3) Move the base machine in the vicinity of hydraulic breaker, and align the pin hole of arm with the pin hole of hydraulic breaker, and then, insert the pins.
- 4) After the arm pin is inserted, lift the boom, reset the hydraulic breaker on the wood blocks like as 4-3-3. Extend the bucket cylinder, fit it to the bucket link's hole and insert the pins.
- 5) Install the stop rings, align the bolt holes and insert the bolts. Mutually lock double nut.

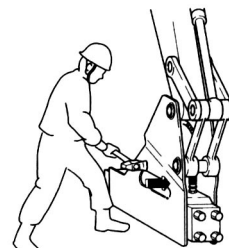
NOTICE

- If the stop rings are secured with one nut only, the service life of the bolt may be shortened or the bolt may be loosened out very quickly.

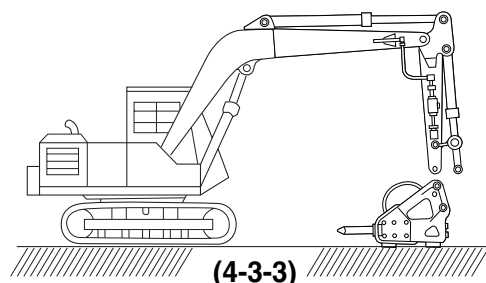
- 6) Stop the engine of the base machine, turn off the main switch and discharge the air pressure in the hydraulic oil tank.
- 7) Remove the union caps from the hydraulic breaker pipe of the arm end, and connect the hoses after disassembling the hose plug.



(4-3-1)



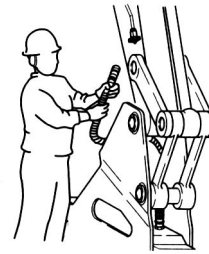
(4-3-2)



(4-3-3)

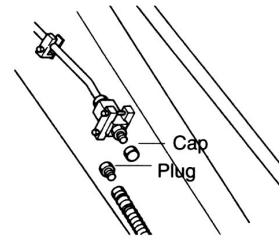
NOTICE

- Do not allow the oil to drop onto the ground.
- Store the union cap and hose plug which removed ones in the tool box.
- When installing or removing the oil hose and union cap, clean them fully prevent the dust and mud entering the hydraulic breaker or the base machine.



(4-3-4)

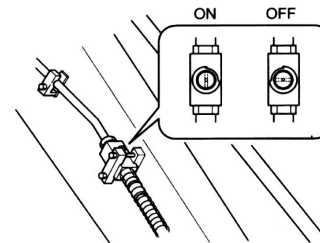
- 8) Connect the hoses to stop valves at both sides of arm.
- 9) Turn on the engine of the base machine, left the boom, operate the bucket cylinder and check the hose of hydraulic breaker is connected correctly.
- 10) Starts warm up the base machine.



(4-3-5)

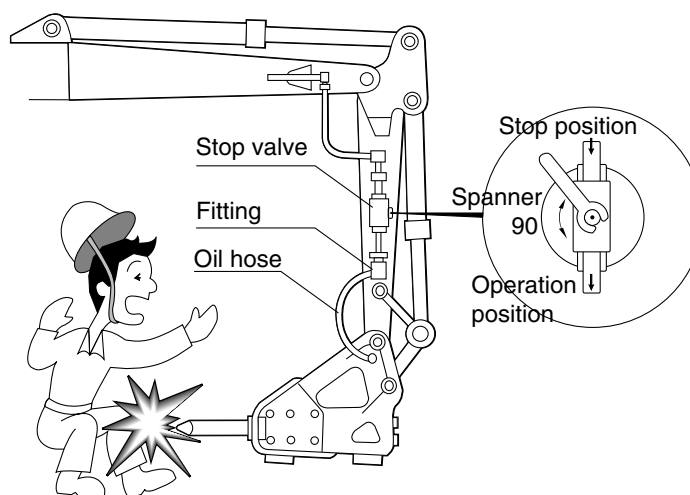
NOTICE

- Warm up the base machine by idling for 5 minutes after starting the engine.
- Move the boom and arm for approx. 5 minutes after warm up operation to rise the hydraulic oil temperature of base machine.



(4-3-6)

- 11) Turn the stop valves to "ON" position.



CAUTION

- The tool may come out under oil pressure in the pipe line. Do not stand near of hydraulic breaker.

4-4. Removal

⚠ CAUTION

- Personal injury can result from dropping pins during removal.

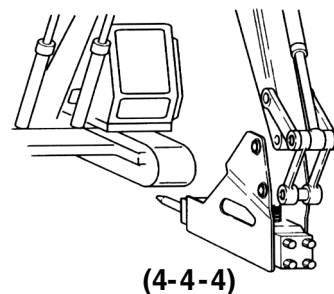
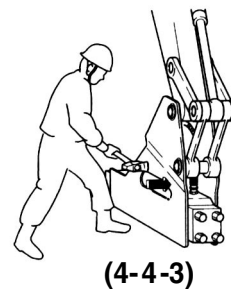
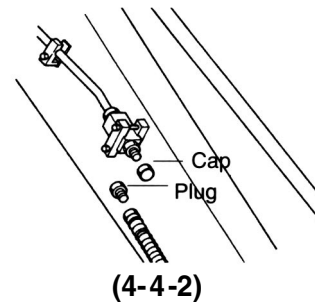
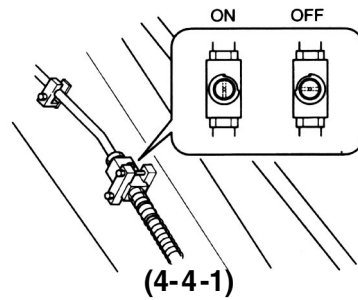
⚠ WARNING

- Wear safety shoes to protect feet.

- 1) Set the hydraulic breaker on clean and horizontal ground. Lock the parking brake of base machine.
- 2) Stop the engine.
- 3) Turn stop valve to "OFF" position.
- 4) Disconnect hoses from stop valves. Ensure no leakage occurs from hoses and stop valves.
- 5) Apply union cap and plug to hose ends fittings to prevent
- 6) Remove pins fixing fasteners.
- 7) Remove pins.
- 8) When pins have been withdrawn, move operating joystick slightly, to take weight off remaining link pin.
- 9) Lift arm away from hydraulic breaker so that hydraulic breaker can be carried away, or another attachment mounted on base machine.

NOTICE

- Cover the hydraulic breaker already removed with sheet, and then store it in doors.



5. Maintenance

5-1. Serial numbering system

The unit serial number is stamped on the bracket left side by steel name plate (P/no.FB-80003). It is very important for management of repairing or spare parts ordering.

Structure of serial number is following :

F XX A 000

F XX : Hydraulic breaker model
(1, 2, 3, 4, 5, 5BL, 6, 6BL, 7, 8BL, 10, 12, 16, 20, 21, 22, 23, 36, 37, 45, 46, 50, 65)



A : Version number
(Version update : A, B, C, D,...)

000 : Identification number of hydraulic breaker
(cylinder number & hydraulic breaker modification number)
It has main body's own code.

B : Bracket type
S : side bracket
T : top bracket excepted mount cap
T+B : top bracket included mount cap
TB : box bracket excepted mount cap
TBOC : box bracket included mount cap
BL : backhoe loader
MB : main body only





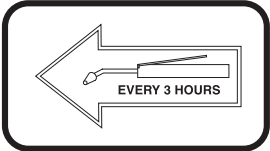




Example : F23A 123

Breaker model is FINE 23, Breaker version is A, main body's own code is 123

 FINE Hydraulic Breaker	
Model	FINE
Serial Number	
Manufacturing Date	
Working Weight	kg
Operating Pressure	bar
Required Oil Flow	L/min
Manufactured by  FEELENG® FEEL INDUSTRIAL ENGINEERING CO., LTD. #13-3, Ssangsong-Ri, Mado-Myeon, Hwasung-City, Kyunggi, Korea	

P/no. P98000000

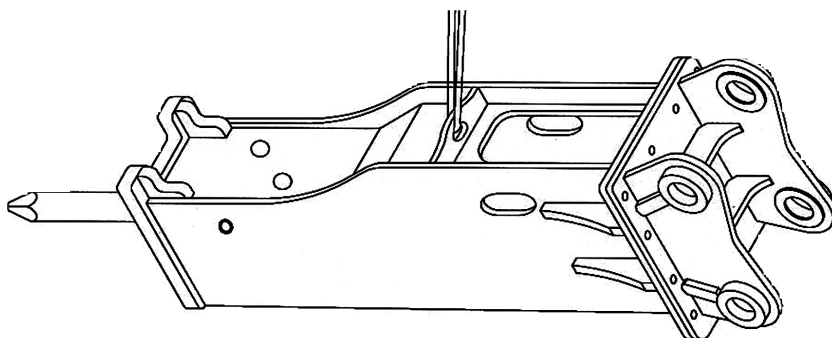
5-2 Safety label

	 <p>KEEP AWAY</p>
<p>1) (P/no. FB-80001)</p>	<p>2) Flying debris warning label (P/no. FB-80002)</p>
	
<p>3) High noise level warning label (P/no. FB-80004)</p>	<p>4) Discharge warning label for back head(P/no. FB-80005)</p>
	
<p>5) Greasing label (P/no. FB-80006)</p>	<p>6) Accumulator serial no. label (P/no. FB-80008)</p>
	
<p>7) Accumulator high pressure warning label (P/no. FB-80009)</p>	<p>8) Accumulator not charged warning label (P/no. FB-80010)</p>
	
<p>9) Back head not charged warning label (P/no. FB-80011)</p>	

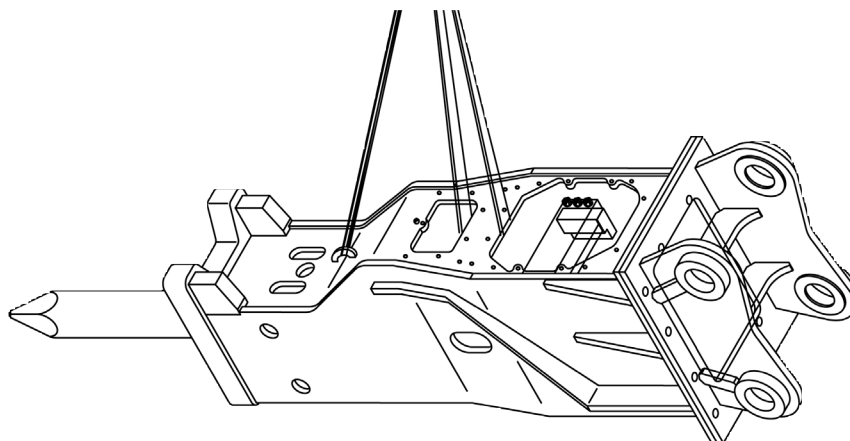
5-3. Moving and lifting

⚠ WARNING

Always use eye-bolts when lifting & moving the hydraulic breaker, after fasten up to bracket. Fasten the ropes to the shackles(four pieces) and lift the hydraulic breaker up. Remove the eye-bolts before hydraulic breaker operation.



Model	Wire Rope
FINE 1	16mm
FINE 2	16mm
FINE 3	16mm
FINE 4	16mm
FINE 5	16mm
FINE 6	16mm
FINE 7	16mm
FINE 10	16mm



Model	Wire Rope
FINE 12	19mm
FINE 16 & FINE 21	19mm
FINE 20 & FINE 22	19mm
FINE 36 & FINE 37	19mm
FINE 45 & FINE 46	19mm
FINE 50 & FINE 65	19mm
FINE 80	22mm

5-4. Maintenance intervals

NOTICE

- Before hydraulic breaker operation, be sure to check the following points.

■ Every 3 hours

- Apply the grease in front head.
- Check hydraulic oil temperature, piping and hose connections, and working condition.
- Check tightness of fasteners.

■ Every 10 Hours, or Daily

- If rough skin on the tool and tool pins have found, its must be removed.
- Check the nitrogen gas pressure in back head.
- Retighten the bracket bolts.

■ Every 50 Hours, or Weekly

- Check the clearance between tool and front cover.
- Check hydraulic hoses.
- Retighten the through bolts.

■ Every 1000 hours, or Six(6) Months

- Factory inspection by authorized service personnel recommended.
- All hydraulic pipe and hose connections.
- Hose interference from carrier movement.
- Conditions of oil filter, accumulator diaphragm, through bolts and tool pins.

■ Every 2000 hours, or Annually

- All hydraulic pipe and hose connections.
- Hose interference with excavator boom.
- Conditions of oil filter, accumulator diaphragm and through bolts.
- All seals.
- Conditions of piston, front cover, inner bush.

5-5. Hydraulic oil

■ Recommended hydraulic oil

Normally, any hydraulic oil originally intended for base machine can be used in the hydraulic breaker. However, since working with hydraulic breaker will heat the oil much more than in normal excavation works. Therefore, oil viscosity must be checked.

When hydraulic breaker is used continuously, the oil temperature normalizes at certain levels, depending on conditions and carrier.

At such temperatures, hydraulic oil viscosity should be 20-40 cST.

NOTICE

- Usually, the hydraulic oil temperature of hydraulic breaker and base machine must be controlled between 40°C and 60°C.
- When you have operated the hydraulic breaker while the oil temperature exceeds 80°C, you must check the seals.

Maker	Hydraulic oil	
	ISO VG 68	ISO VG 46
Esso	Nuto H68	Univis N 46
Shell	Tellus oil 68	Tellus oil 46
Mobile	DTE 16	DTE 15
Gulf	Harmony 68	Harmony 46
	For hot weather use	For cold weather use

■ Replacement of hydraulic oil & oil filter

Contamination of hydraulic oil may result in part damage, not only in hydraulic breaker, but also in carrier main components. We recommend hydraulic oil and oil filters replacement as shown in the following table, which is based on 100% hydraulic breaker operation.

Hydraulic oil	First 250 hours Every 600 hours	Based on 100% hydraulic breaker operation
Oil filters	First 50 hours Every 100 hours	

■ Hydraulic oil viscosity

Hydraulic breaker must not be started if hydraulic oil viscosity exceeds 1000 cST, nor operated when hydraulic oil viscosity falls 15 cST.

Oil viscosity too high

- Start up difficulty
- Operation stiffness
- Irregular hydraulic breaker impact
- Danger of cavitation in pumps and hydraulic breaker
- Valve sticking
- If the filter is very contaminated, hydraulic components could be damaged, due to open bypass valve

Oil viscosity too low

- Efficiency losses from internal leakage
- Damage to seals, o-rings
- Accelerated wearing of parts, because of decreased lubrication efficiency

■ Cooling

Maximum permitted hydraulic oil temperature range in continuous hydraulic breaker use is 50-80°C (120-175°F), depending on viscosity of oil in the system.

Therefore, a reliable hydraulic oil thermometer is necessary.

If there is no thermometer on the carrier, one must be installed. Hydraulic oil temperature depends on ambient conditions, carrier cooling system efficiency, and on hydraulic breaker use.

When hydraulic breaker is used continuously, it is necessary to have a cooling system with extra cooling capacity, as compared with normal excavation work.

■ Hydraulic oil temperature

The normal temperature of hydraulic oil operating is -20°C+80°C (-4°F+175°F).

If the temperature is lower than -20°C(-4°F), the hydraulic oil have to be preheated before operation, in order to avoid breakage of the accumulator diaphragm.

To preheat hydraulic oil, operate the base machine(without running hydraulic breaker), until oil temperature rises specified temperature range.

During operation, oil will remain warm.

If hydraulic oil temperature exceeds specified limits, please stop equipment and don't restart operation until oil has cooled to specified operating temperature range.

5-6. Greasing

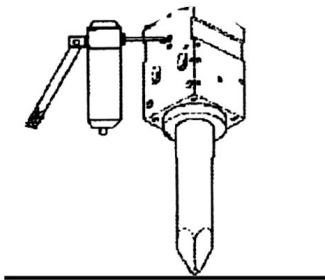
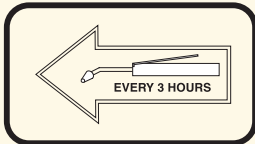
⚠ WARNING

- Insufficient greasing may cause abnormal wear of front cover and tool, and tool breakage.

- Apply grease to grease nipple on front head every 3 hours.
- Adapt grease interval and amounts to tool wear rates and working conditions.

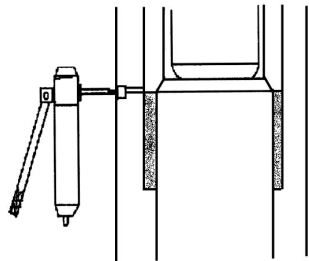
NOTICE

- Tool shank must be well lubricated before installed in front head.
- Greasing label(P/no. FB-80006)



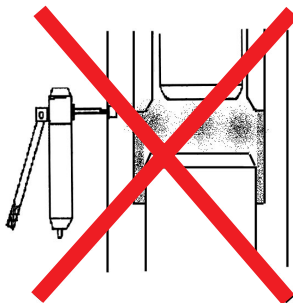
NOTICE

- While greasing, hydraulic breaker must be upright against the tool, to ensure that grease will penetrate between tool and inner bush.



Recommended lubricant greases (NIGI No.2)

Maker	Grease
Esso	Beacon Q2
Shell	Retinax AM
Mobile	Mobile Grease special



5-7. Inspection and charging of Nitrogen(N2) gas

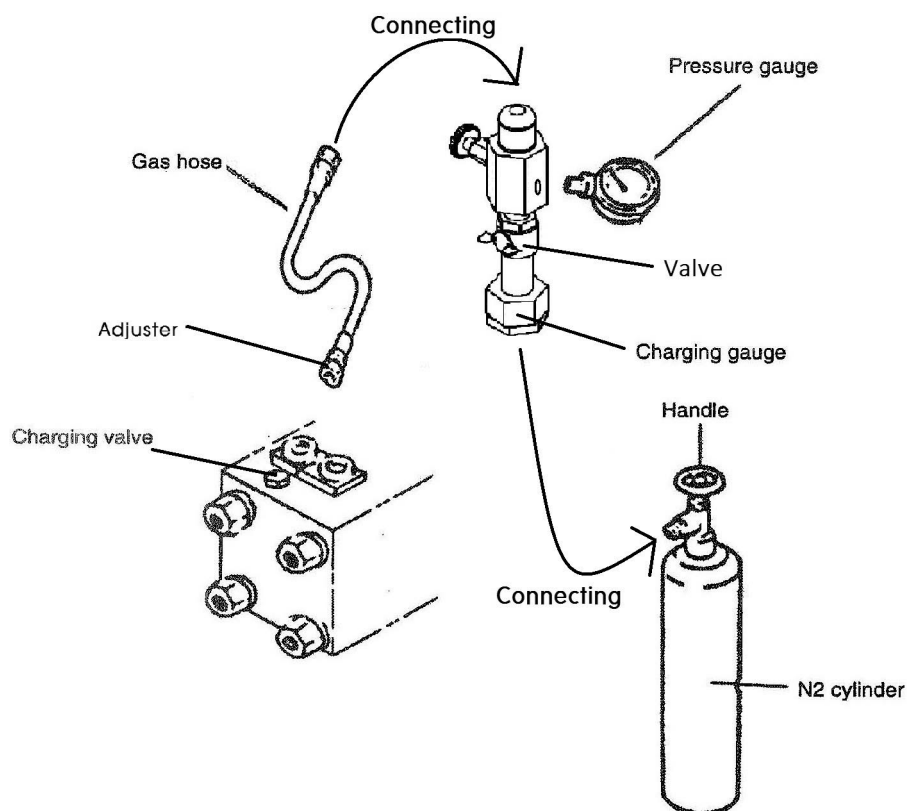
5-7-1. Back head

⚠ CAUTION

- Do not stand in front of the tool while nitrogen gas is charged in back head.
- The nitrogen gas in back head must be discharged completely when a through bolt is replaced or a main body is disassembled.

⚠ WARNING

- Use nitrogen gas only.
- The temperature of the hydraulic breaker main body must normal when inspection or charging of nitrogen gas in back head.



(Fig. 5-7-1)

- (1) Connect gas hose to N2 gas cylinder.
- (2) Turn the handle of charging gauge counterclockwise before install the charging gauge.
- (3) Install charging gauge to charging valve.
(Make sure that O-rings are installed on charging gauge.)
- (4) Connect other end of gas hose to charging gauge.
- (5) Slowly turn the handle of charging gauge clockwise to set charging pressure and turn handle of N2 gas cylinder clockwise.
- (6) Turn the handle of charging gauge counterclockwise, and then turn the handle of N2 gas cylinder counterclockwise to close.

NOTICE

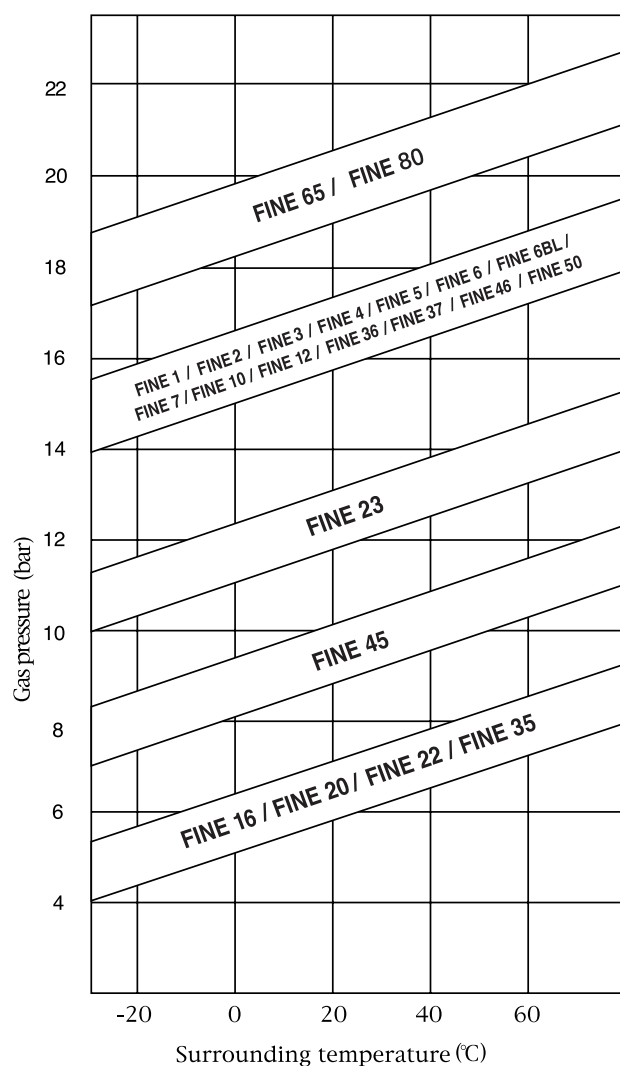
- For N2 gas sealing pressure, refer to Fig. 5-7-2

- (7) Close the cap of charging gauge after gas hose is relieve from charging gauge.
- (8) Recheck charging pressure in back head as turning the handle of charging gauge clockwise.

NOTICE

- When nitrogen gas is charged in back head completely by following procedures (1) through (8), disconnect charging gauge from charging valve of back head after turn the handle of charging gauge counterclockwise. But, if need to adjust the pressure of charging gas in back head by following procedures (9) through (13) mentioned below.

- (9) Disconnect the gas hose from charging gauge.
- (10) Install charging gauge on charging valve of back head completely.
- (11) When turn the handle of charging gauge clockwise, gas pressure in back head is indicated on pressure gauge.
- (12) If gas pressure is low, again perform operations (1) through (8). Repeat until gas pressure rises to specified pressure.
- (13) If gas pressure is excessive, slowly turn the adjuster of charging gauge counterclockwise, then gas pressure leaks from back head. When correct amount of gas pressure is shown, close the adjuster clockwise.
When gas pressure is excessively high, breaker will not operate.
Ensure that gas pressure is at specified pressure and o-ring in charging gauge is installed.



(Fig. 5-7-2)

Model	Charging pressure (bar)
FINE 1 / 2	16 ~ 17
FINE 3 / 4	16 ~ 17
FINE 5/6/6BL	16 ~ 17
FINE 7/8BL	16 ~ 17
FINE 10 / 12	16 ~ 17
FINE 16	6 ~ 7
FINE 20 / 22	6 ~ 7
FINE 21	16 ~ 17
FINE 23	12 ~ 13
FINE 35	6 ~ 7
FINE 36	16 ~ 17
FINE 37	16 ~ 17
FINE 45	9 ~ 10
FINE 46 / 50	16 ~ 18
FINE 65	20 ~ 21
FINE 80	18 ~ 20

5-7-2. Accumulator

⚠ CAUTION

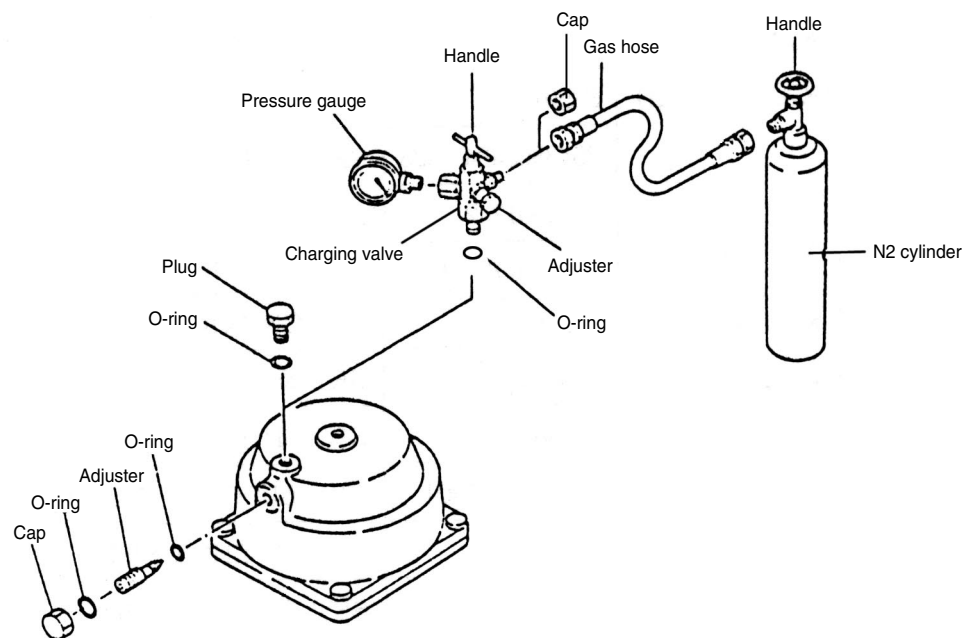
- Must be tightened the accumulator body and accumulator cover before charging the nitrogen gas in accumulator assembly.

⚠ WARNING

- Use nitrogen gas only.
- The temperature of the hydraulic breaker main body must normal when inspection or charging of nitrogen gas in accumulator.

⚠ NOTICE

- Be sure to use a charging gauge for charging the nitrogen gas.
(If the nitrogen gas is charged from gas cylinder without charging gauge, the diaphragm may be damaged)



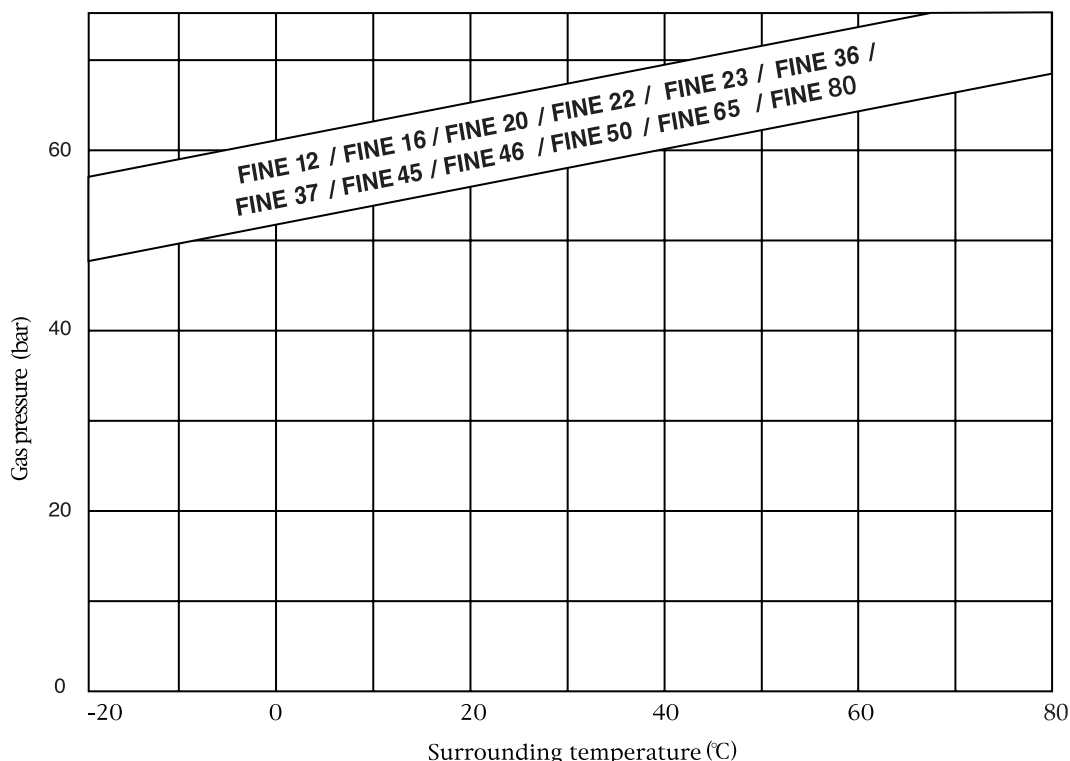
(Fig. 5-7-3)

A) Inspection of charging pressure

- (1) Turn the handle of charging gauge counterclockwise.
- (2) Remove the plug on the accumulator and tighten charging gauge completely.
- (3) Remove the cap of adjuster from accumulator.
- (4) Turn the adjuster counterclockwise slowly to indicate accumulator charging pressure.
- (5) Remove charging gauge and tighten plug and cap.
(Ensure O-rings must be installed in plug and cap.)

B) Charging accumulator with nitrogen gas

- (1) After performing steps same inspection of charging pressure.
- (2) Connect gas hose to charging gauge and N2 gas cylinder.
- (3) Turn the adjuster counterclockwise after remove the cap from adjuster.
- (4) Slowly turn handle of N2 gas cylinder counterclockwise to charge accumulator with N2 gas. For gas charging pressure, refer in Fig. 5-7-4
- (5) When accumulator is charged with N2 gas completely, close the adjuster fully.
- (6) Turn the handle of N2 gas cylinder clockwise to close.
- (7) Loosen adjuster of charging gauge to discharge N2 gas remaining in gas hose.
- (8) Remove the gas hose from charging gauge to N2 gas cylinder.
- (9) After removing gas hose, adjust the pressure referring **A) Inspection of charging pressure**
- (10) After charged accumulator with N2 gas, check gas leakage from adjuster, plug hole of accumulator.



(Fig. 5-7-4)

5-8. Pressure setting

The pressure setting for hydraulic breaker must be lower than the base machine pressure setting in order to protect the main pump of base machine.

Normally, set the pressure for hydraulic breaker about 5-10kg/cm² lower than base machine pressure setting, when the main pressure of base machine is lower than below table.

if hydraulic breaker setting pressure higher than below table :

will be shorten durable of main pump and shorten service life of seals & tool in hydraulic breaker.

if hydraulic breaker setting pressure lower than below table :

hydraulic breaker performance will be downed.

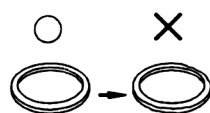
Recommended Setting pressure and Operating pressure for hydraulic breaker(bar)		
Model	Setting pressure	Operating pressure
FINE 1 / 2 / 3	150 ~ 170	90 ~ 110
FINE 4	150 ~ 170	90 ~ 120
FINE 5 / 6BL / 7BL	160 ~ 180	90 ~ 120(FINE 5, 6BL) 90 ~ 130(FINE 7BLX)
FINE 6	160 ~ 180	110 ~ 140
FINE 7 / 8BL	170 ~ 190	130 ~ 150
FINE 10	180 ~ 200	150 ~ 170
FINE 12	180 ~ 200	150 ~ 180
FINE 16	180 ~ 200	150 ~ 180
FINE 20	190 ~ 210	160 ~ 180
FINE 21	180 ~ 200	160 ~ 180
FINE 22 / 23	190 ~ 210	160 ~ 180
FINE 35 / 36	200 ~ 220	160 ~ 180
FINE 37	200 ~ 220	160 ~ 180
FINE 45	210 ~ 230	160 ~ 180
FINE 46 / 50 / 65	210 ~ 230	160 ~ 200(FINE 46) 160 ~ 180(FINE 50 / 65)
FINE 80	220 ~ 260	180 ~ 210

5-9. Seal inspection

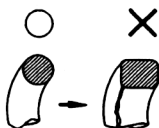
⚠ WARNING

- Replace seals every 2000 hours of actual operation.

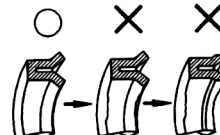
- 1) If any hydraulic oil leakage from hydraulic breaker is discovered, faulty seals should be replaced.
To figure where seals are bad, refer to following drawings:



Back up ring -
worn, distorted



O-ring & dust seal-
worn, deteriorated



U-packing & Buffer ring -
deformed, worn, distorted, perished

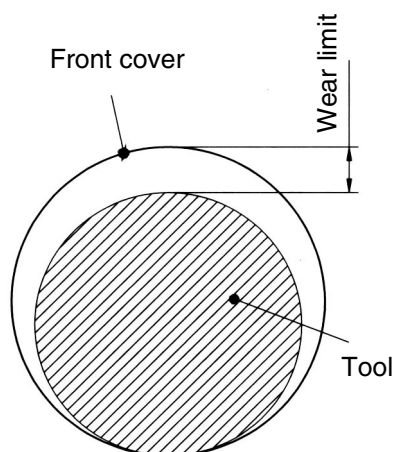
- 2) When bad seal is found, the cause of the damage must be determined and rectified.
When seal is changed, apply grease to seal and seal seat, and hold seal firmly with thumb, index and middle fingers, as per marking.
Be careful not to break seal through excessive deformation.

5-10. Wear inspection

5-10-1. Front cover

If the clearance between tool and front cover is too big, this could cause of damage, or breakage of tool through piston irregular contact.

The following table is shown the wear limit of hydraulic breaker tool and front cover for reference purposes.



Model	Wear Limit (mm)
FINE 1 / 2 / 3 / 4 / 5 / 5BL / 6 / 6BL / 7 / 8BL	4
FINE 10 / 12 / 16 / 20 / 21 / 22 / 23	6
FINE 36 / 37 / 45 / 46 / 50 / 65 / 80	8

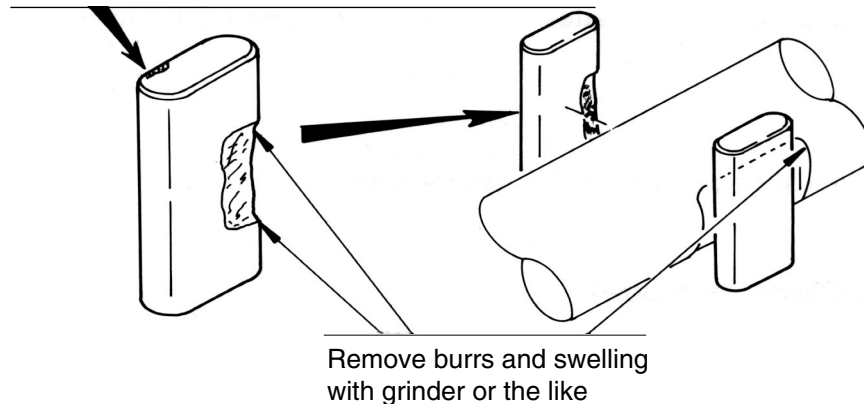
5-10-2. Tool pin

NOTICE

- Change the face of tool pins every 100 to 150 hours of actual operation.
- Replace tool pins every 500 hours of actual operation.

- A) When each tool pin is excessively deformed, it is difficult to replace the tool, therefore, after operate the hydraulic breaker every 100 to 150 hours, change the face of each pin which comes in contact with the tool(the faces of each pin can be used).
- B) When replacing each tool pin, check each parts for wear, breakage, scores, etc., especially, and remove burrs and swelling on tool pins.
- C) Replace tool after grinding the worn parts of front cover and tool pins.

When changing tool pins direction, place tool pins by opposite side.

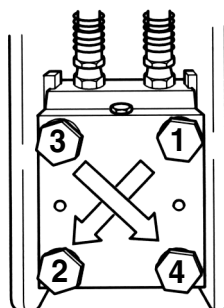


5-11. Inspection and replacement of through bolt

CAUTION

- Discharge completely N2 gas in back head prior to loosen through bolts.

- 1) Discharge nitrogen(N2) gas in back head completely prior to loosen through bolts.
- 2) Remove all through bolts, and inspect for presence of any cracks and damages on through bolts.
- 3) When through bolts are assembled, tighten bolts one turn at a time in diagonal sequence; not each nut completely all at once turn of times, not completely at once.
- 4) Use torque wrench of specified range. (Refer to torque table)



5-12 Torque table

- (1) Before starting the hydraulic breaker operation, check all kind of bolts and nuts for tightness including the through bolts, socket bolts for accumulator, valve housing socket bolts, valve cover socket bolts and bracket bolts.

Also be sure tighten again any loose bolts and nuts to the specified torque.

Using the hydraulic breaker with loose bolts and nuts will cause not only oil leakages but also damages to the screw threads and breakage to the bolts. These can lead also defective operation.

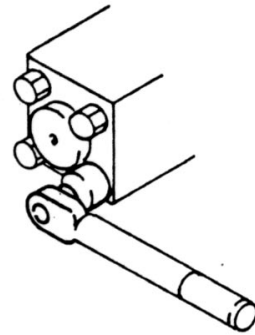
- (2) After first 10 hours of operating, retighten the bolts and nuts of all components and sections.

- (3) At first, lightly tighten the bolts and nuts by referring to the following torque force.

The bolts and nuts should be screwed down alternately and diagonally until the bolts and nuts are tightened to the uniform torque.

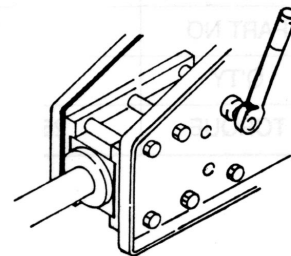
■ Through bolt

Model	Torque (Kg-m)
FINE 1 / 2 / 3 / 4	35
FINE 5 / 5BL / 6BL	40
FINE 7 / 8BL	100
FINE 10	150
FINE 12 / 16	170
FINE 20 / 21 / 22 / 23	250
FINE 36	350
FINE 37 / 45	450
FINE 46	480
FINE 50	500
FINE 65	550
FINE 80	750



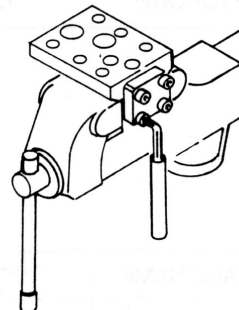
■ Bracket bolt

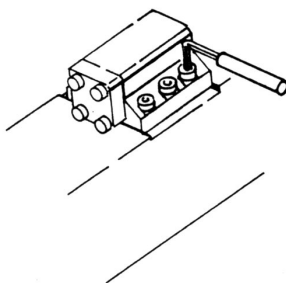
Model	Torque (Kg-m)
FINE 1 / 2 / 3 / 4	35
FINE 5 / 5BL / 6BL	40
FINE 7 / 8BL	100
FINE 10	150
FINE 12 / 16	170
FINE 20 / 22	250
FINE 21 / 23 / 36	350
FINE 37 / 45 / 46	450
FINE 50 / 65	500
FINE 80	750



■ Socket bolt - valve cover

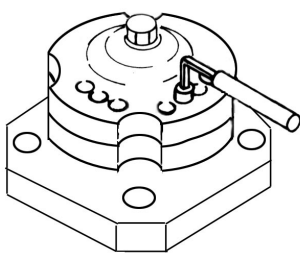
Model	Torque (Kg-m)
FINE 16 / 20 / 22	60
FINE 35 / 36 / 45 / 50	35
FINE 80	60





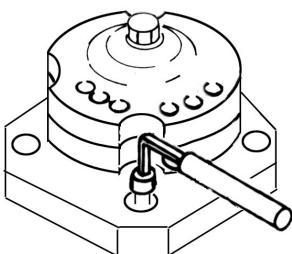
■ Socket bolt - valve housing

Model	Torque (Kg-m)
FINE 16	35
FINE 20 / 22	35
FINE 35 / 36	35
FINE 45 / 50	35
FINE 80	100



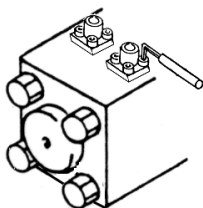
■ Socket bolt - accumulator cover

Model	Torque (Kg-m)
FINE 12 / 16	20
FINE 20 / 21 / 22 / 23	25
FINE 35 / 36 / 37	35
FINE 45 / 46 / 50 / 65	35
FINE 80	60



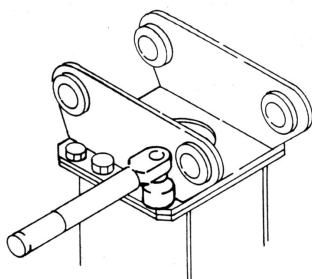
■ Accumulator body

Model	Torque (Kg-m)
FINE 12 / 16	60
FINE 20 / 21 / 22 / 23	60
FINE 35 / 37	100
FINE 36 / 45 / 46 / 50	60
FINE 65	100
FINE 80	170



■ Flange adaptor

Model	Torque (Kg-m)
FINE 16	15
FINE 20 / 21 / 22 / 23	15
FINE 35 / 36 / 37	15
FINE 45 / 46 / 50 / 65	15
FINE 80	35



■ Bolt-mount cap

Model	Torque (Kg-m)
FINE 1 / 2 / 3 / 4	20
FINE 5	20
FINE 6 / 7	30
FINE 10	30
FINE 12 / 16	55
FINE 20 / 21	55
FINE 22 / 23	95
FINE 35 / 36 / 37	95
FINE 45	95
FINE 46 / 50 / 65 / 80	120

5-13. Storage

■ When operation is interrupted or after operation

When operation is interrupted or after finishing the work, move the base machine on level ground . Remove mud from the hydraulic breaker and set the hydraulic breaker on wood blocks.

CAUTION

- Do not touch the tool when hydraulic breaker just stop to work, because very hot.

- Check whether oil leaks from hydraulic system and whether the tool is damaged.
- If the hydraulic breaker is operated in river, dry the hydraulic breaker body and apply the grease to the front head.

■ When hydraulic breaker is not used for a long time-3 weeks more

CAUTION

- If the following procedures are neglected, the rust is generated in the main body to cause serious troubles.

- Discharge the nitrogen gas with the back head and accumulator, and then push the piston to avoid rust into the cylinder.
- Assemble the tool and store the hydraulic breaker indoors after applying the grease to every part, especially internal parts, of front head.

6. Operation

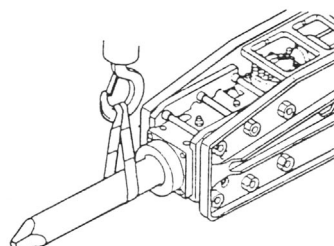
Before starting the base machine which the hydraulic breaker is mounted, check to use the machine safely and to prevent any trouble.

6-1. Tool installation

■ Installation

⚠ CAUTION

- Personal injury can result from dropping the tool during replacement.
- Be sure to use a crane when handing the tool and such heavy parts.



⚠ WARNING

- Wear the safety shoes to protect feet.

- 1) Set the hydraulic breaker horizontally on wood blocks so that the accumulator may be upper side.
- 2) Remove the rubber plug or spring pin ① and the stop pin ② into front head from opposite side by using a hammer and a press pin. (Press pin is stored in tool box)

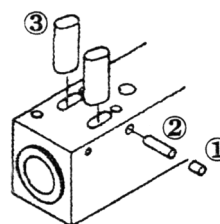
NOTICE

- Before tapping the stop pin, make sure that there is no person where they come out.
- After the rubber plug ① removed and installed 2 or 3 times, the rubber plug ① by new ones.

- 3) Lift up the tool pins ③ after insert the press pin into the hole of tool pin from bottom side, and remove the tool pins from front head.
- 4) Insert the tool into front head.

NOTICE

- Apply the grease on the surface of shank area and impact area of tool.



- 5) Insert tool pins, and then assemble the stop pin and rubber plug or spring pin in front head.
- 6) Using a hammer and a press pin, fasten the rubber plug or spring pin into front head.

■ Removal

The removal of tool in reverse order of installation.

6-2. Safety operation

1) Precautions for safety operation

⚠ CAUTION

- Injury or death can result from improper operation or poor maintenance.
- Make sure of the safety from any trouble or any accident around the base machine before starting.

Inspection

Check the base machine and the hydraulic breaker to use safely and to prevent any trouble before operation.

Warming up the machine

Especially in winter or cold area, warm up the base machine at first before the breaker operation.

Safety maintenance

Before starting the work, examine the geological and geographical features of work site and be careful of the ground crack or the building collapse.

2) Cautions, when driving or stopping base machine

Driving

Carry out driving while the hydraulic breaker is kept horizontally with ground and is 40 to 50cm above ground.

Cautions on slope driving

When driving down on the slope, decrease the engine rpm and keep the angles with boom and arm 90° to 110°.

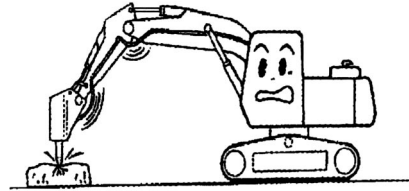
Stopping

When the machine is stopped, the hydraulic breaker stand vertically and set the tool end on the ground.

3) Safety operation

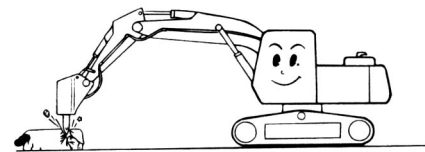
Stop to work the hydraulic breaker, if hydraulic hoses vibrate excessively.

Check the N2 gas pressure into accumulator & back head of hydraulic breaker.

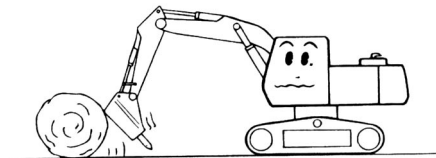


Stop the hydraulic breaker operation as soon as the object is broken.

If operation continued, idle blows, could result in excessive wear of major components, or parts damage such as inner bush or piston.

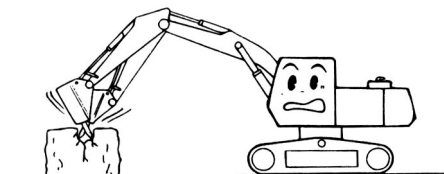


Do not use hydraulic breaker to move rocks with end of tool or with hydraulic breaker body.

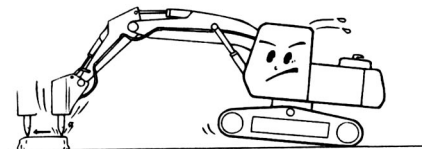


Do not use tool as a lever.

Hydraulic breaker could be damaged at through bolt, tool, front head, inner bush and front cover.



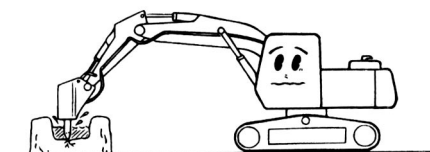
Move impact point of object, if the object does not break within 30 seconds.



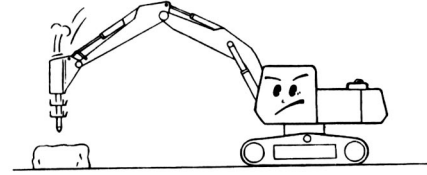
Do not use hydraulic breaker in water. Corrosion of hydraulic breaker, or non-lubrication, could result in further damage of the hydraulic components.

- Under water kit must be installed when hydraulic breaker for working in water.

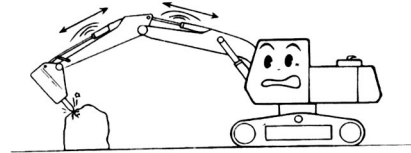
Please contact to our dealer, if you need.



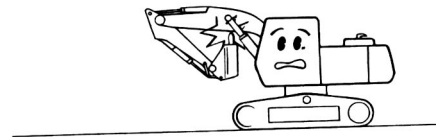
Do not use hydraulic breaker as hammering.
Because of hydraulic breaker is much heavier than excavator bucket , such usage could result in damage of the front head or swing mechanism of the base machine.



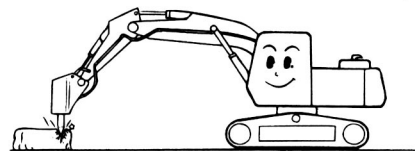
Do not operate hydraulic breaker with boom or arm cylinders fully extended(bottomed out).
This may result in hydraulic breaker shock, and damage to the base machine.
Maintain 100mm cylinder stroke of base machine at least.



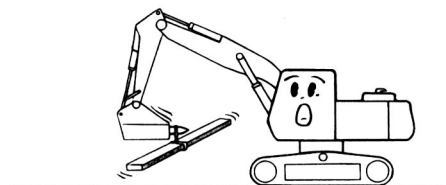
Do not curl the tool tip into arm or boom of base machine when travelling or parking carrier.



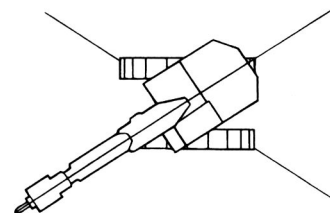
Do not strike in one spot for more than 30 seconds.
If object dose not break, stop breaking after than change the spot of object.
Working too long in one spot will create excessive stone dust under tool. Dust dampens impact effect, and can be damage piston seal.



Never use hydraulic breaker as a transporter.
This could result in tipping carrier, or damaging on base machine.



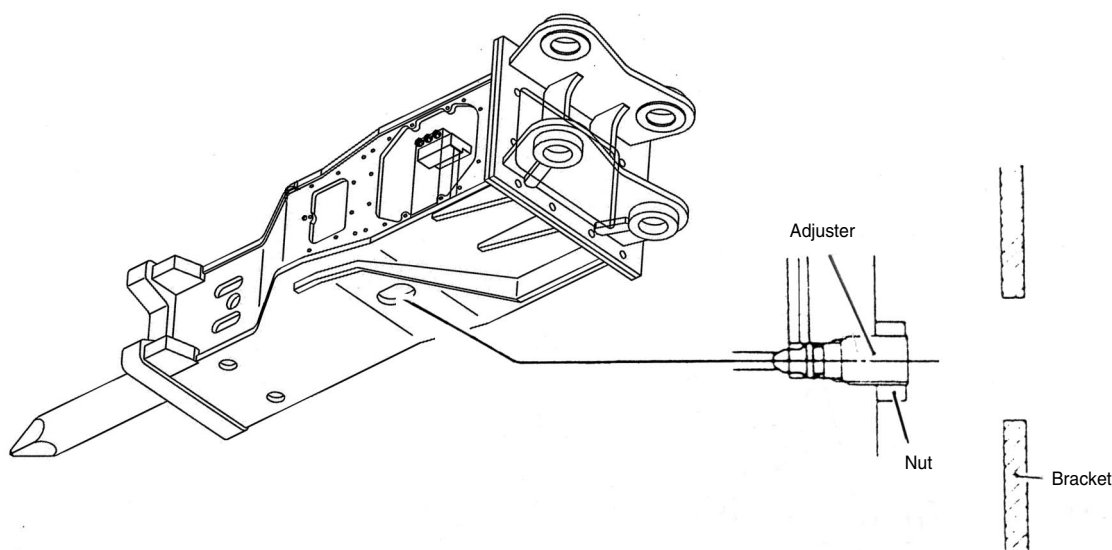
Operate the hydraulic breaker only to the front and rear of base machine.
Do not use hydraulic breaker at either side of base machine.
This may result in tipping excavator, or in damaging carrier swing device.



6-3. Function of adjuster (FINE 16 / 20 / 22 / 35 / 36 / 45 / 46)

6-3-1. Cylinder adjuster

The FINE hydraulic breaker is designed so that the bpm (blows per minute) can be adjusted with the operating pressure and oil consumption kept constant by changing the piston stroke, enabling the hydraulic breaker to be used widely. However when the bpm is increased, the impact force will decrease. Therefore the bpm must be adjusted in accordance with job condition.



The cylinder adjuster is installed to the right side of the cylinder.

NOTICE

- The cylinder adjuster is fully tightened when the breaker is delivered.

When the cylinder adjuster is tightened fully, the piston stroke become maximum and the impact blows(bpm) becomes the minimum.

The other way, when the adjuster is loosened about two turns, the piston stroke becomes the minimum and the impact blows(bpm) becomes the maximum.

NOTICE

- Even the adjuster is loosened over two turns, the impact blows does not increase.

6-3-2. Valve adjuster

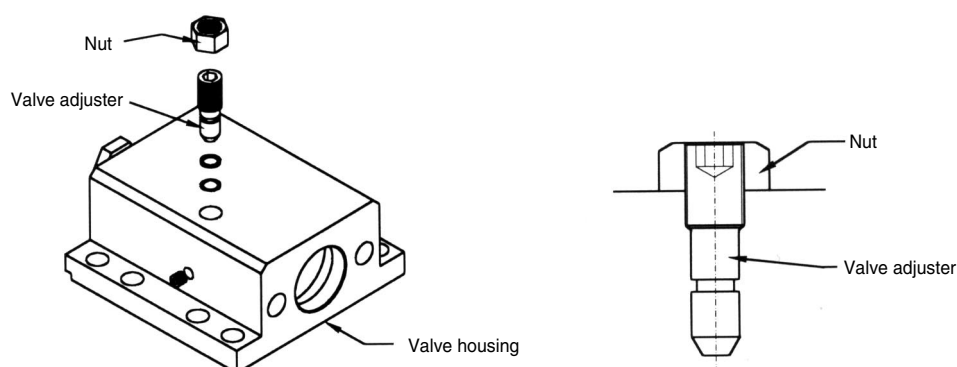
The valve adjuster is installed on the valve housing.

The impact blows and the oil consumption increase when the adjuster is opened and when it is closed, the impact blows and the oil consumption decrease.

When the oil flow from base machine is lower or when the hydraulic breaker has been installed on large base machine, the valve adjuster can control amount of oil flow artificially.

NOTICE

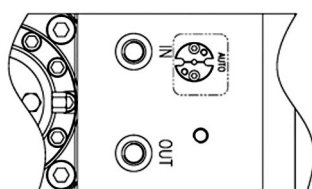
- The hydraulic breaker do not operate if the valve adjuster is fully closed.



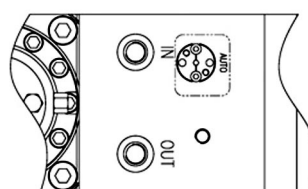
Adjustment

Adjusting items	Procedure	Oil flow rate	Operating pressure	Bpm	Impact power	At delivery
Cylinder adjuster	Open	No change	No change	Increase	Decrease	Fully closed
	Closed	No change	No change	Decrease	Increase	
Valve adjuster	Open	Increase	Decrease	Increase	Decrease	2 1/2
	Closed	Decrease	Increase	Decrease	Increase	Turn out
Charging pressure in back head	Increase	Decrease	Increase	Decrease	Increase	Specified
	Decrease	Increase	Decrease	Increase	Decrease	

6-4. Function of auto stop on/off control.(FINE5 / 12 / 23 / 37 / 46 / 65 / 80)



Auto Stop On



Auto Stop Off

7. Trouble -Shooting

This trouble-shooting guide has been prepared to aid the operator to locate the probable cause and then remedy when trouble has occurred. If trouble has been caused, obtain details as following check points and contact your local service shop or distributor.

NOTICE

- Check below mentioned items and contact service shop to check and repair any item which operator cannot remedy.

■ Check point

Check point(Cause)	Remedy
1. Spool stroke is insufficient. After stop engine, depress the pedal and check if spool moves full stroke.	✧ Adjust pedal link and control cable joint.
2. Hose vibration becomes bigger at hydraulic breaker operation. ✧ High pressure line oil hose vibrate excessively. (Accumulator gas pressure is lowered) ✧ Low pressure line oil hose vibrate excessively. (Back head gas pressure is lowered)	✧ Recharge with nitrogen gas or check. ✧ Recharge with gas. If accumulator or back head is recharged but gas leaks at once, diaphragm or charging valve may be damaged.
3. Piston operates but does not strike tool.(Tool shank is damaged or seizing.)	✧ Pull out tool and check. If the tool is seizing, repair with grinder or change the tool and/or tool pins.
4. Hydraulic oil is insufficient.	✧ Refill hydraulic oil.
5. Hydraulic oil is deteriorated or contaminated. ✧ Hydraulic oil color change to white or no viscous. (White colored oil contain air bubbles or water.)	✧ Change all hydraulic oil in hydraulic system of base machine.
6. Line filter element is clogged.	✧ Wash or replace the filter element.
7. Impact rate increases excessively.(Breakage or misadjustment of valve adjuster or nitrogen gas leakage from back head.)	✧ Adjust or replace damaged part and check nitrogen gas pressure in back head.
8. Impact rate decreases extremely.(Back head gas pressure is excess.)	✧ Adjust nitrogen gas pressure in back head.
9. Base machine meander or weak at traveling. (Base machine pump is defective or improper set of main relief pressure.)	✧ Contact base machine service shop.


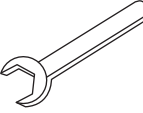
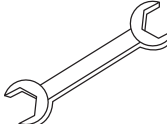






Trouble shooting guide

Symptom	Cause	Required action
No blow out	<ol style="list-style-type: none"> 1.Excessive nitrogen gas pressure of back head 2.Stop valve(s) closed 3.Lack of hydraulic oil 4.Wrong pressure adjustment from relief valve 5.Faulty hydraulic hose connection 6.Hydraulic oil in back head infection 	<ol style="list-style-type: none"> 1.Re-adjust nitrogen gas pressure in back head 2.Open stop valve 3.Fill hydraulic oil 4.Re-adjust setting pressure 5.Tighten or replace 6.Replace back head o-ring, or seal retainer seals
Low impact power	<ol style="list-style-type: none"> 1.Line leakage or blockage 2.Clogged tank return line filter 3.Lack of hydraulic oil 4.Hydraulic oil contamination, or heat deterioration 5.Poor main pump performance 6.Nitrogen gas in back head lower 7.Low flow rate by mis-adjustment of valve adjuster 8.Tool out of range for blowing position 	<ol style="list-style-type: none"> 1.Check lines 2.Wash filter, or replace 3.Fill hydraulic oil 4.Replace hydraulic oil 5.Contact authorized service shop 6.Refill nitrogen gas 7.Re-adjust valve adjuster 8.Push down tool by excavator operation
Irregular impact	<ol style="list-style-type: none"> 1.Low nitrogen gas pressure in accumulator 2.Bad piston or valve sliding surface 3.Piston moves down/up to blank blow hammer chamber. 	<ol style="list-style-type: none"> 1.Refill nitrogen gas and check accumulator.Replace diaphragm if need 2.Contact authorized local distributor 3.Push down tool by excavator operation
Bad tool movement	<ol style="list-style-type: none"> 1.Tool diameter incorrect 2.Tool and tool pins would be jammed by tool pins wear 3.Jammed inner bush and tool 4.Deformed tool and piston impact area. 	<ol style="list-style-type: none"> 1.Replace tool with genuine parts 2.Smoothen rough surface of tool 3.Smoothen rough surface of inner bush. Replace inner bush if need 4.Replace tool by new
Sudden reduction power and pressure line vibration	<ol style="list-style-type: none"> 1.Gas leakage from accumulator 2.Diaphragm damage 	<ol style="list-style-type: none"> 1.Replace diaphragm if need
Oil leakage from front cover	<ol style="list-style-type: none"> 1.Cylinder seal worm 	<ol style="list-style-type: none"> 1.Replace seals by new
Gas leakage from back head	<ol style="list-style-type: none"> 1.O-ring and / or gas seal damage 	<ol style="list-style-type: none"> 1.Replace related seals by new

8. Service tools


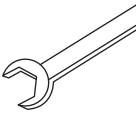
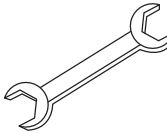






8-1. Standard service tools

B : BOX TYPE, T : TOP TYPE, S : SIDE TYPE

Description	Dimension (mm)	Application																				
		FINE 1			FINE 2			FINE 3			FINE 4			FINE 5			FINE 5BL	FINE 6			FINE 6BL	
		B	T	S	B	T	S	B	T	S	B	T	S	B	T	S		S	B	T	S	B
 Tool Box	Medium	1			1			1			1	1	1	1	1	1	1	1			1	1
	Large	-			-			-			-	-	-	-	-	-	-	-			-	-
 Spanner-single	27	1			1			1			1	1	1	1	1	1	1	1			1	1
	30	-			-			-			-	-	-	-	-	-	-	-			-	-
	32	-			-			-			-	-	-	-	-	-	-	-			-	-
	36	-			-			-			-	-	-	-	-	-	-	-			-	-
	41	-			-			-			-	-	-	-	-	-	-	-			-	-
	46	-			-			-			-	-	-	-	-	-	-	-			-	-
	50	-			-			-			-	-	-	-	-	-	-	-			-	-
 Spanner-double	19x22	1			1			1			1	1	1	1	1	1	1	-			-	-
	22x24	-			-			-			-	-	-	-	-	-	-	-			-	-
	24x27	-			-			-			-	-	-	-	-	-	-	-			-	-
	27x30	-			-			-			-	-	-	-	-	-	-	1			-	-
	30x32	-			-			-			-	-	-	-	-	-	-	-			-	-
	32x36	-			-			-			-	-	-	-	-	-	-	-			-	-
	46x50	-			-			-			-	-	-	-	-	-	-	-			-	-
Spanner-ring	27	1			1			1(30)			-	-	-	-	-	-	-	-			-	-
	36	-			-			-			1	1	1	-	-	-	-	-			-	-
	41	-			-			-			-	-	-	1	1	1	1	1			1	1
 Slugging-wrench	46	-			-			-			-	-	-	-	-	-	-	-			-	1
	60	-			-			-			-	-	-	-	-	-	-	-			-	-
	65	-			-			-			-	-	-	-	-	-	-	-			-	-
	70	-			-			-			-	-	-	-	-	-	-	-			-	-
	75	-			-			-			-	-	-	-	-	-	-	-			-	-
	85	-			-			-			-	-	-	-	-	-	-	-			-	-
		-			-			-			-	-	-	-	-	-	-	-			-	-
 L-wrench	5	1			1			1			1	1	1	1	1	1	1	1			1	1
	6	-			-			-			-	-	-	1	1	1	1	1			1	1
	8	-			-			-			-	-	-	-	-	-	-	-			-	-
	10	-			-			-			-	-	-	-	-	-	-	-			-	-
	12	-			-			-			-	-	-	-	-	-	-	-			-	-
	14	-			-			-			-	-	-	-	-	-	-	-			-	-
	17	-			-			-			-	-	-	-	-	-	-	-			-	-
	19	-			-			-			-	-	-	-	-	-	-	-			-	-
	21	-			-			-			-	-	-	-	-	-	-	-			-	-
 T-wrench	14	-			-			-			-	-	-	-	-	-	-			-	-	
 Eye-bolt	12	-			-			-			-	-	-	-	-	-	-	-			-	-
	16	-			-			-						-	-	-	-	-			-	-
	20	-			-			-			-	-	-	-	-	-	-	-			-	-
 Grease gun	400cc	1			1			1			1	1	1	1	1	1	1	1			1	1
 Pin bar	Ø10	1			1			1			-	-	-	-	-	-	-	-			-	-
	Ø14	-			-			-			1	1	1	1	1	1	1	1(12)			1	1


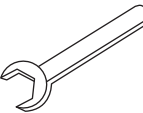
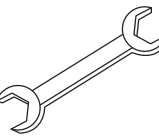
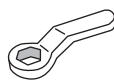


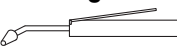

Standard service tools

B : BOX TYPE, T : TOP TYPE, S : SIDE TYPE

Description	Dimension (mm)	Application																				
		FINE 7			FINE 10			FINE 12			FINE 16			FINE 20			FINE 21			FINE 22		
		B	T	S	B	T	S	B	T	S	B	T	S	B	T	S	B	T	S	B	T	S
 Tool Box	Medium	1	1	1	1	1	1	1	1		-	-	-		-	-	-	-		-	-	
	Large	-	-	-	-	-	-	-	-		1	1	1		1	1	1	1		1	1	
 Spanner-single	27	-	-	-	-	-	-	1	1		-	-	-		-	-	1	1		1	1	
	30	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	32	-	-	-	-	-	-	-	-		-	-	-		1	1	-	-		-	-	
	36	1	1	1	1	1	1	1	1		-	-	-		-	-	-	-		-	-	
	41	-	-	-	-	-	-	-	-		1	1	1		1	1	-	-		-	-	
	46	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	50	-	-	-	-	-	-	-	-		-	-	-		-	-	1	1		1	1	
 Spanner-double	19x22	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1		1	1	
	22x24	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	24x27	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	27x30	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	30x32	-	-	-	-	-	-	-	-		1	1	1		-	-	-	-		-	-	
	32x36	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	46x50	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
Spanner-ring	36	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	46	1	1	1	-	1	1	-	-		-	-	-		-	-	-	-		-	-	
	50	-	1	1	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
 Slugging-wrench	55	-	-	-	1	1	1	1	1		1	1	1		-	-	-	-		-	-	
	60	-	-	-	-	-	-	-	-		-	1	1		-	-	-	1		-	-	
	65	-	-	-	-	-	-	-	-		-	-	-		1	1	1	1		1	1	
	75	-	-	-	-	-	-	-	-		-	-	-		1	1	-	-		-	1	
	80	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	85	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	90	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
 L-wrench	5	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1		1	1	
	6	-	-	-	1	1	1	1	1		-	-	-		-	-	-	-		1	1	
	8	-	-	-	-	-	-	1	1		-	-	-		-	-	1	1		1	1	
	10	-	-	-	-	-	-	-	-		1	1	1		-	-	-	-		-	-	
	12	-	-	-	-	-	-	-	-		-	-	-		1	1	-	-		-	-	
	14	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	17	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	19	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	21	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
 T-wrench	14	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
 Eye-bolt	12	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	16	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
	20	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	
 Grease gun	400cc	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1		1	1	
 Pin bar	Ø14	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1		1	1	
	Ø15	-	-	-	-	-	-	-	-		-	-	-		-	-	-	-		-	-	


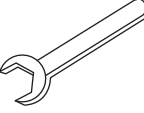
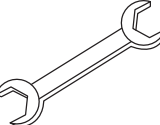
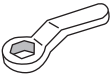


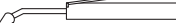

Standard service tools

B : BOX TYPE, T : TOP TYPE, S : SIDE TYPE

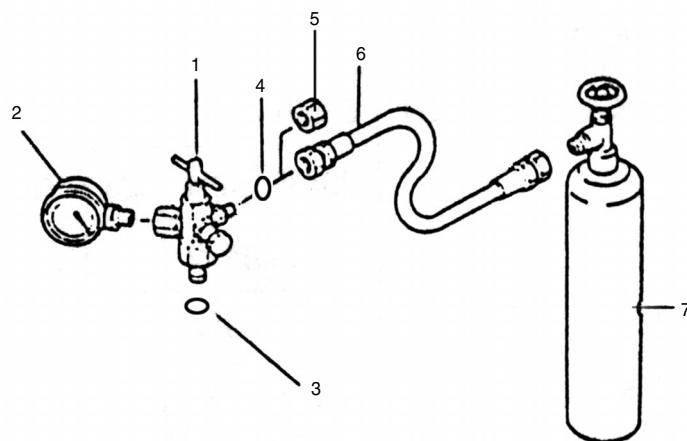
Description	Dimension (mm)	Application																				
		FINE 23			FINE 35			FINE 36			FINE 37			FINE 45			FINE 46			FINE 50		
		B	T	S	B	T	S	B	T	S	B	T	S	B	T	S	B	T	S	B	T	S
 Tool Box	Medium	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	Large	1	1		1	1	1	1	1		1	1		1	1	1	1			1	1	1
 Spanner-single	27	1	1		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	30	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	32	-	-		-	1	1	1	1		1	1		-	-	-	1			-	-	-
	36	-	-		-	-	-	-	-		-	-		1	1	1	-			1	1	1
	41	-	-		-	1	1	-	1		-	-		-	-	-	-			-	-	-
	46	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	50	1	1		-	-	-	1	-		1	1		1	1	1	1			1	1	1
 Spanner-double	14x17	-	-		-	-	-	-	-		-	-		1	1	1	-			1	1	1
	19x22	1	1		1	1	1	1	1		1	1		1	1	1	1			1	1	1
	24x27	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	27x30	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	30x32	-	-		-	-	-	-	-		-	-		-	-	-	1			-	-	-
	32x36	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	46x50	-	-		-	-	-	-	-		-	-		-	-	-	1			-	-	-
Spanner-ring	36	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	46	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	50	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
 Slugging-wrench	55	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	70	-	-		1	1	1	1	1		-	-		-	-	-	-			-	-	-
	75	1	1		-	1	1	-	1		1	1		1	1	1	-			-	-	-
	80	-	-		-	-	-	-	-		-	-		-	-	-	1			-	-	-
	85	-	-		-	-	-	-	-		-	-		-	1	1	-			1	1	1
	105	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	120	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
 L-wrench	5	1	1		1	1	1	1	1		1	1		1	1	1	1			1	1	1
	6	1	1		-	-	-	-	-		1	1		-	-	-	1			-	-	-
	8	1	1		-	-	-	-	-		-	-		-	-	-	1			-	-	-
	10	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	12	-	-		1	1	1	1	1		1	1		-	-	-	1			-	-	-
	14	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	17	-	-		-	-	-	-	-		-	-		-	-	-	1			-	-	-
	19	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	21	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
T-wrench	14																					
Socket	1/2" x 30	1	-		-	-	-	-	-		1	-		-	-	-	1			-	-	-
Socket Wrench	1/2" x 380	1	-								1	-					1					
 Eye-bolt	12	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
	16																					
	20	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-
 Grease gun	400cc	1	1		1	1	1	1	1		1	1		1	1	1	1			1	1	1
 Pin bar	Ø14	1	1		1	1	1	1	1		1	1		1	1	1	1			1	1	1
	Ø15	-	-		-	-	-	-	-		-	-		-	-	-	-			-	-	-

Standard service tools

B : BOX TYPE, T : TOP TYPE, S : SIDE TYPE

Description	Dimension (mm)	Application																	
		FINE 65			FINE 80														
		B	T	S	B	T	S	B	T	S	B	T	S	B	T	S	B	T	S
Tool Box 	Medium	-		-	-														
	Large	1		1	1														
Spanner-single 	27	-		-	-														
	30	-		-	-														
	32	-		-	-														
	36	1		1	1														
	41	-		-	-														
	46	-		-	-														
	55	1		1	1														
Spanner-double 	14x17	-		-	1														
	19x22	1		1	1														
	24x27	-		-	-														
	27x30	-		-	-														
	30x32	-		-	-														
	32x36	-		-	-														
	46x50	-		-	-														
Slugging-wrench 	36	-		-	-														
	46	-		-	-														
	50	-		-	-														
	55	1		1	-														
	60	-		-	-														
	75	-		-	-														
	80	-		-	-														
	85	1		1	-														
	105	-		-	1														
L-wrench 	5	1		1	1														
	6	1		1	1														
	8	-		-	-														
	10	-		-	-														
	12	1		1	1														
	14	-		-	-														
	17	-		-	-														
	19	-		-	-														
	21	-		-	-														
T-wrench	14	-		-	-														
Socket	3/4" x 36	1		1	1														
Socket Wrench	3/4"	1		1	1														
Eye-bolt 	12	-		-	-														
	16	-		-	-														
	20	-		-	-														
Grease gun 	400cc	1		1	1														
Pin bar 	Ø14	1		1	1														
	Ø15	-		-	-														

8-2. Nitrogen gas charging kit (P/No. B00000082000)



Charging kit assembly

No.	Part Name	Part No.	Q'ty
-	Charging kit assembly	B00000082000	1set

Charging kit detail

No.	Part Name	Part No.	Q'ty
1	Charging gauge	P05000003000	1
	Charging gauge(Only FINE15)	P05000005000	
2	Pressure gauge	P46010010000	1
3	O-ring	P20700011000	1
4	O-ring	P20700008000	1
5	Cap	F00511132200	1
6	Gas hose	F2G25A300	1
7	N2 gas cylinder	B04000080000(3.4 l)	1
		B15000080000(10.2 l)	

9. Tool selection

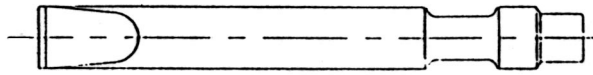
9-1. Guide to tool choice

⚠ WARNING

- The correct choice of the most suitable tool for a certain job is crucial not only in increasing hydraulic breaker productivity, but also for the life of the tool itself.



A

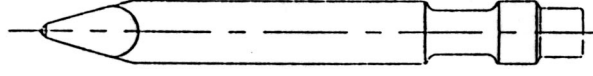


A : Wedge Chisel

- Suitable for all kinds of digging or narrow trenching on soft/medium stratified rocks.



B

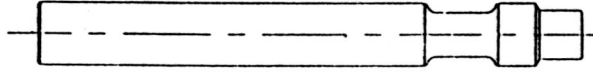


B : Moil Point Tool

- Suitable for fine/medium concrete demolition or for soft, non stratified rocks.
- Second mining of soft/medium hard blocks.



C



C : Blunt Tool

- Suitable for breaking blocks of up to medium hardness or to reduce the size of small blocks.

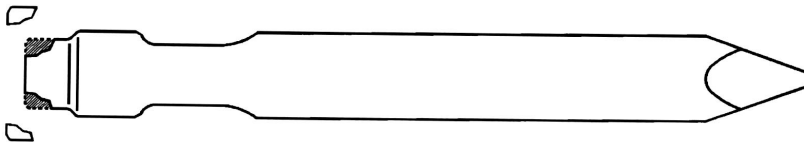
9-2. Tool claim judgment

Hence, to help users use our products correctly, and ensure long operating life, these claim judgement criteria present defect examples that can occur during use, and the disposition standards applicable in each case.

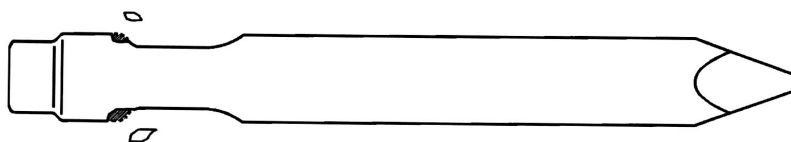
■ Breakage of piston impact area or tool pins contact corners

(Fig.1 and 2)

Breakage of piston impacting point or of tool pins contact corners is extremely rare. This phenomenon occurs or when striking force is being concentrated on the tool corners due to unsatisfactory flatness of piston and tool impacting point. If such defect occurs, affected tools may not be accepted under warranty.



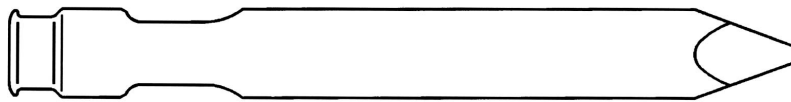
(Fig. 1)



(Fig. 2)

■ Plastic deformation of piston impact area(Fig.3)

The possibility of tool tip plastic deformation occurring due to piston is extremely slim. Such defects may occur due to material strength deficiency, or brittleness, resulting from unsatisfactory heat-treatment. If such defect occurs, affected products may be accepted under warranty.

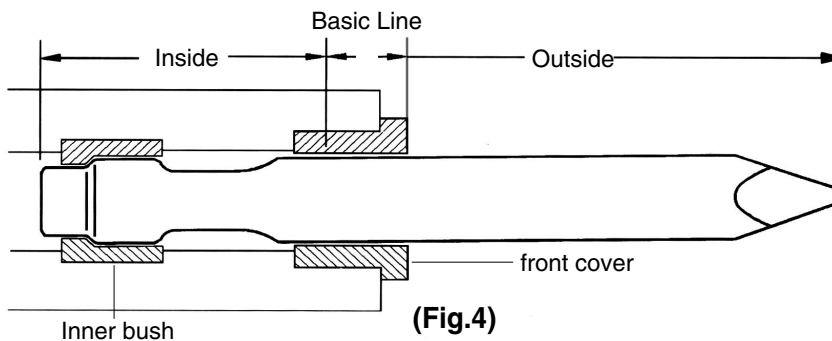


(Fig.3)

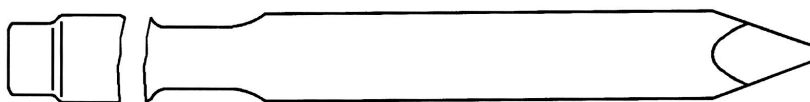
■ Breakage inside basic line(Fig.4 and 5)

Should product breakage occur in any direction at a point inside the front cover, as shown in<Fig.5>, from the basic line shown in<Fig.4>, this may be due to defective material, defective heat-treatment; tool deformation, or unsatisfactory shaping of tool neck. Should such defect occur, affected products may be accepted under warranty.

In addition to the causes described above, product breakage inside the basic line may also occur if the interval between the front cover and tool widens due to excessive wear of front cover, coupled with excessive bending load being applied to hydraulic breaker. If any trace of seizure, caused by friction between the front cover and tool, is observed on the surface of the tool body, and if it is clear that product breakage is centered around the area of such seizure, affected products may be rejected under warranty.



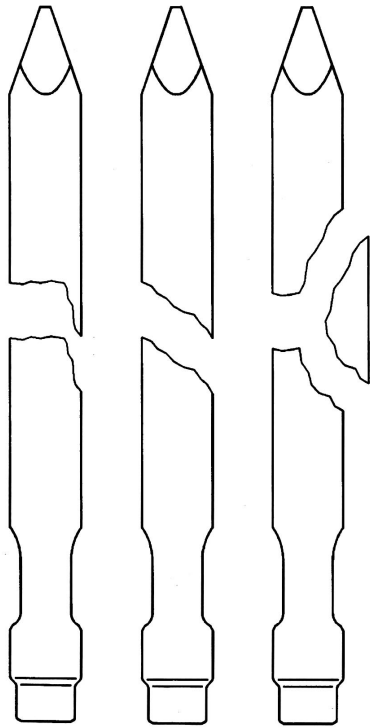
(Fig.4)



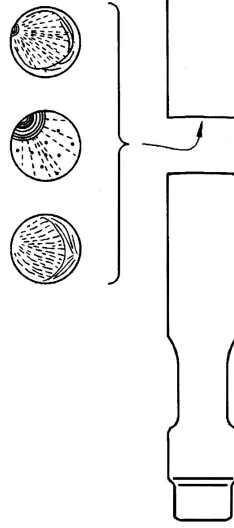
(Fig.5)

■ B

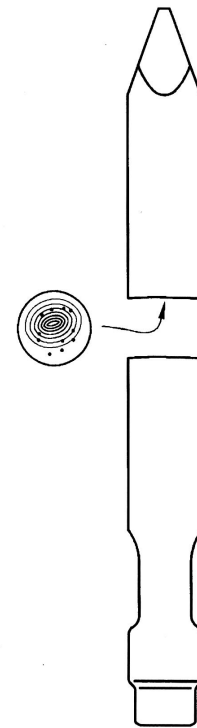
Should product breakage occur at a point outside the front cover, as shown in <Fig.6>, from the basic line shown in <Fig.4>, this may be due to excessive bending load being applied to the tool. Such bending load occurs when, after tool has been inserted into material, the tool is pulled or pushed, or when the tool is struck and pushed when it is not perfectly perpendicular to the surface of the material being worked on. Fractures, in general, are of the form shown in <Fig.7>. Fatigue breakage, of clamshell form, develops in the areas near breakage start points, caused by stress concentration resulting from bending loads, and then quickly radiates outward. Such type of breakage may also occur due to scarring of the tool body during use. As breakage occurring outside the basic line are caused by improper working habits, as explained above, products incurring such defects shall not be accepted under warranty. However, if a fatigue fracture start point occurs within the tool body, instead of on the surface of tool as shown in <Fig.8>, affected products will be accepted under warranty, as such breakage indicates material defect.



(Fig. 6)



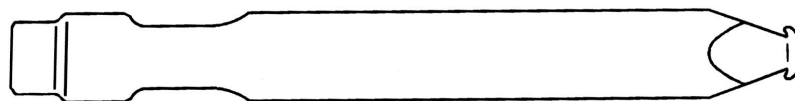
(Fig. 7)



(Fig. 8)

■ Crushing of tool tip (Fig.9)

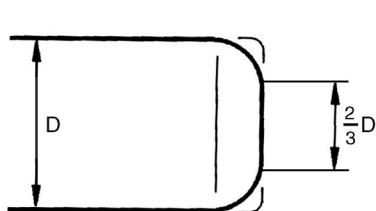
Breaker tools are heat-treated to exhibit high breakage-and wear-resistance; and defects such as crushing of the tool tip<Fig.9> are not to be expected under normal operating conditions. However, if a tool is hammering continuously for a long period of time without crushing or puncturing the material being worked on, the temperature of the tip rises extremely high, inducing annealing of the heat-treated material, and bringing on plastic deformation(crushing), rather than wear. As explained above, crushing of the tool tip is caused by improper working methods, and, therefore, affected products will be rejected under warranty.



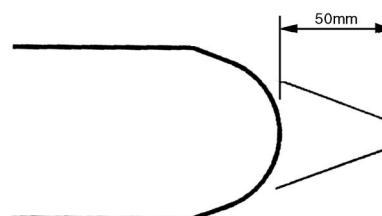
(Fig. 9)

■ Tool tip wear (Fig.10)

The rates and types of tool tip wear vary with work material and work method. If the diameter of the worn tip of a chisel point tool is less than $\frac{2}{3}$ of the tool body diameter, as shown in <Fig.10>; and if the tip of a new pointed tool is worn down in excess of 50mm lengthwise from the tip, this is considered normal tool wear. Hence, tools exhibiting such normal wear, as shown in <Fig.10>, will be rejected warranty claim.



Chisel point tool

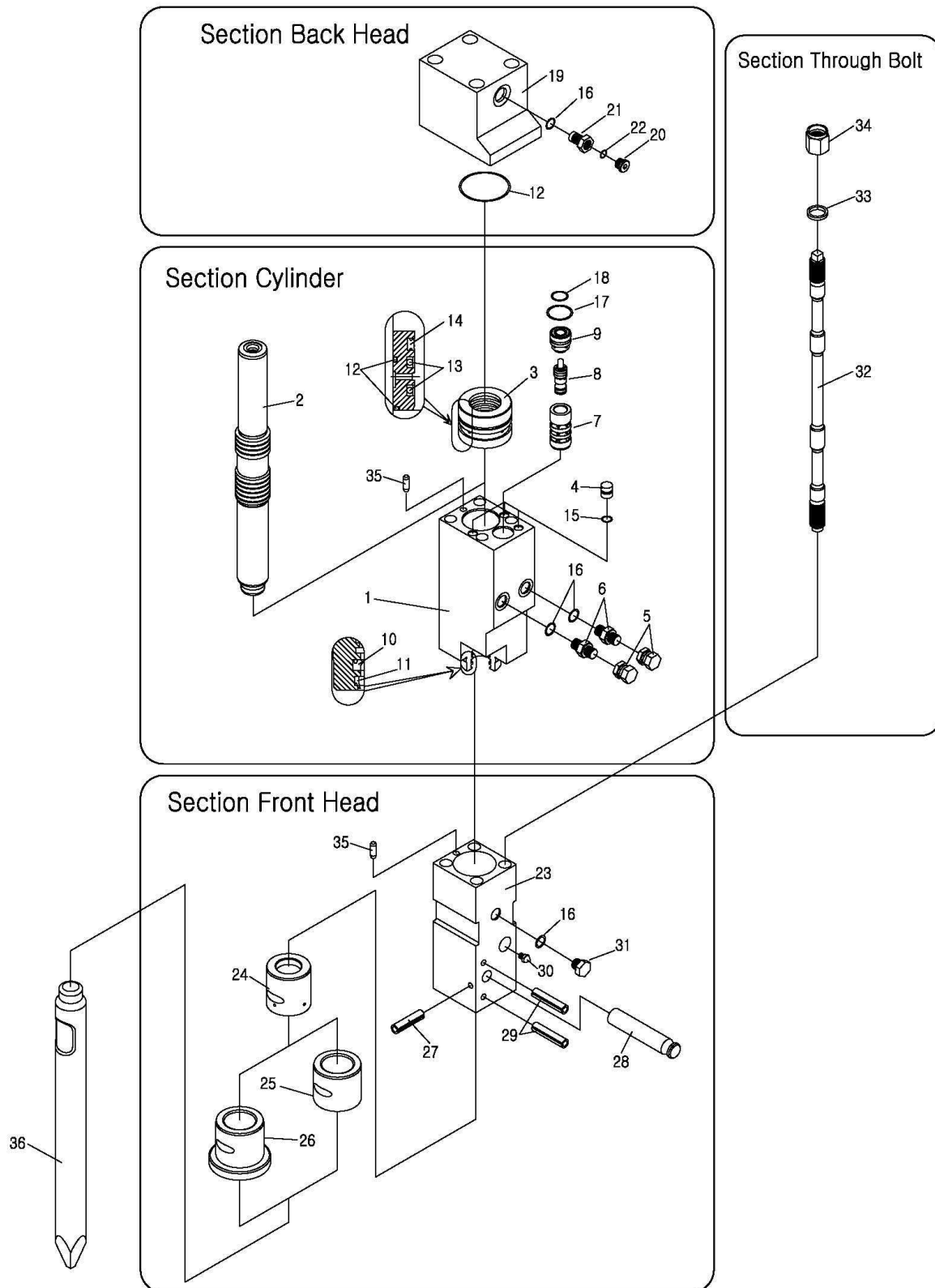


Pointed tool

(Fig. 10)



Exploded View of *FINE 1X*



Parts List for Main Body

Model : FINE 1X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B01110010	B01110000100	1SET		
***	Assembly-Cylinder	B02111000	B02110010000	1SET	including no. 1~9	
1	Cylinder	B02111100	B02110011000	1		
2	Piston	B02111200	B02110012000	1		
3	Seal-Retainer	B02111300	B02110013000	1		
4	Plug-Teflon	B02111620	B02110016200	3	Ø15x14L	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F00511133300	2	PF1/2"	
6	Adapter	F01113330	F00111133300	2	PF1/2"	
***	Assembly-Valve	B02114000	B02110040000	1SET	including no. 7~9	
7	Valve-Guide	B02114250	B02110042500	1		
8	Valve	B02114100	B02110041000	1		
9	Valve-Plug	B02114200	B02110042000	1		
10	U-Packing	P21200401	P20102040000	1	ISI 40	
11	Seal-Dust	P22200401	P20202040000	1	DSI 40	
12	O-Ring	P2710060G	P20701060000	2	G60-1B	
13	Seal-Step	P25000370	P20500037000	2	SPNS37	
-	O-Ring	-	-	2		
14	Seal-Gas	P24000370	P20400037000	1	PPY37	
15	O-Ring	P2700011P	P20700011000	3	P11-1B	
16	O-Ring	P2700018P	P20700018000	2	P18-1B	
17	O-Ring	P2700030P	P20700030000	1	P30-1B	
18	O-Ring	P2710025G	P20701025000	1	G25-1B	
***	Assembly-Back Head	B02113000	B02110030000	1SET	including no. 19~21	
19	Back Head	B02113100	B02110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 20,21	
20	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
21	Charging Valve	B15113210	B15110032100	1		
12	O-Ring	P2710060G	P20701060000	1	G60-1B	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
22	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B01112010	B01110020100	1SET	including no. 23~26,29~31	
23	Front Head	B01112100	B01110021000	1		
24	Inner Bush	B01112300	B01110023000	1	Ø55x54L	
25	Front Cover	B01112210	B01110022100	1	BOX TYPE	
26	Front Cover	B01112200	B01110022000	1	TOP TYPE	
29	Pin-Spring	P08110080	P08101008000	2	Ø10x80L	
30	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
31	Air Cap	B00002700	B00000027000	1	PF1/2"	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	

Parts List for Main Body

Model : FINE 1X

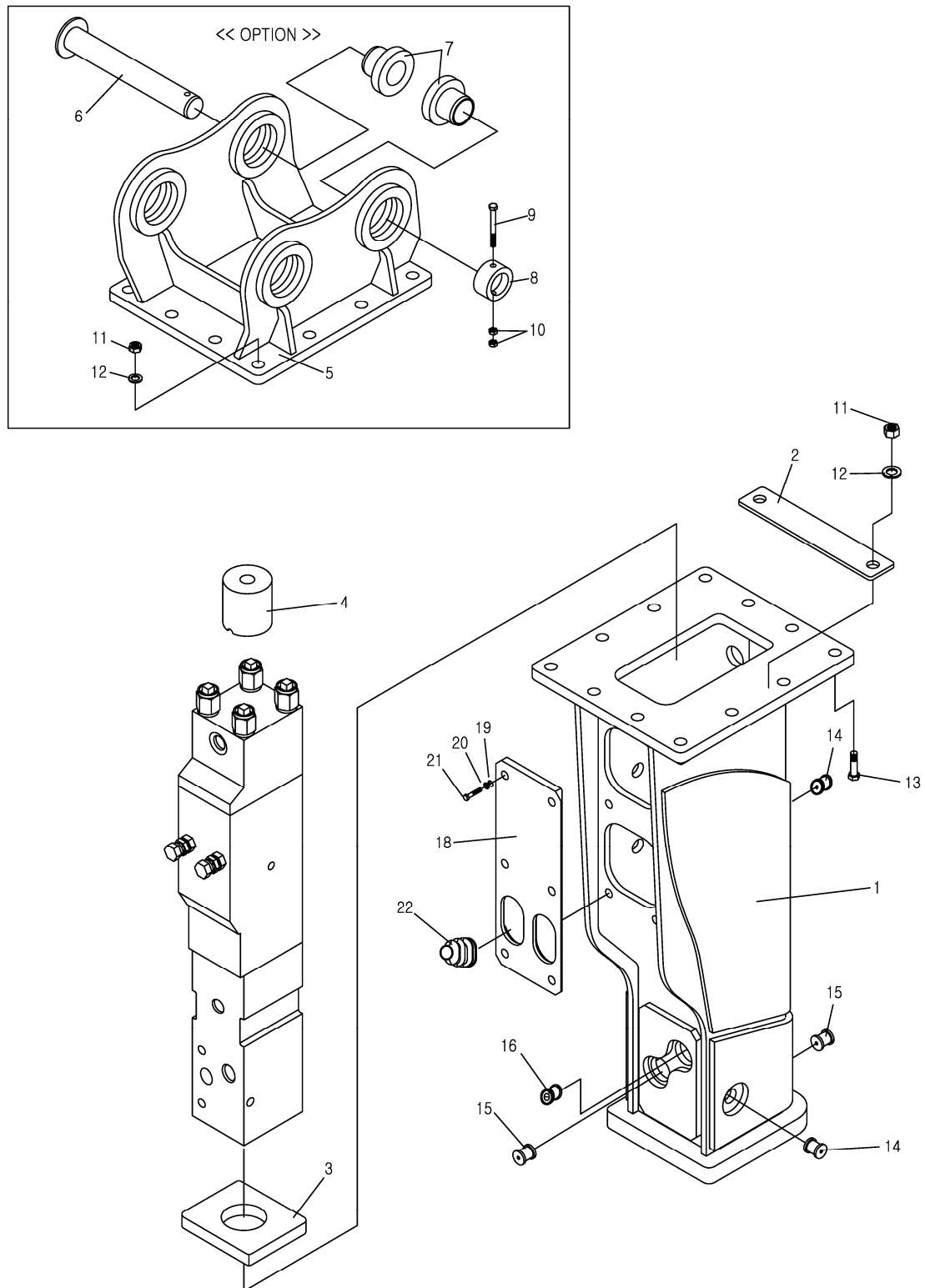
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Through Bolt	B02115000	B02110050000	4SET	including no. 32~34	
32	Through Bolt	B02115100	B02110051000	4		
33	Washer	B02115200	B02110052000	4		
34	Nut-Upper	B02115300	B02110053000	4		
27	Pin-Spring	P08110060	P08101006000	1	Ø10x60L	
28	Pin-Tool	B02112400	B02110024000	1	Ø24x117L	
35	Pin-Knock	B04111400	B04110014000	2	Ø8x23L	
36	Tool-Moil Point	B01112510	B01110025100	1	Alternative	
-	Tool-Wedge Point	B01112520	B01110025200	1	Alternative	
-	Tool-Blunt End	B01112540	B01110025400	1	Alternative	
***	Seal Kit-Complete	B02117000	B02110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B0200800T	B0200008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B0200800B	B0200008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008101	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 1X(New Design)*



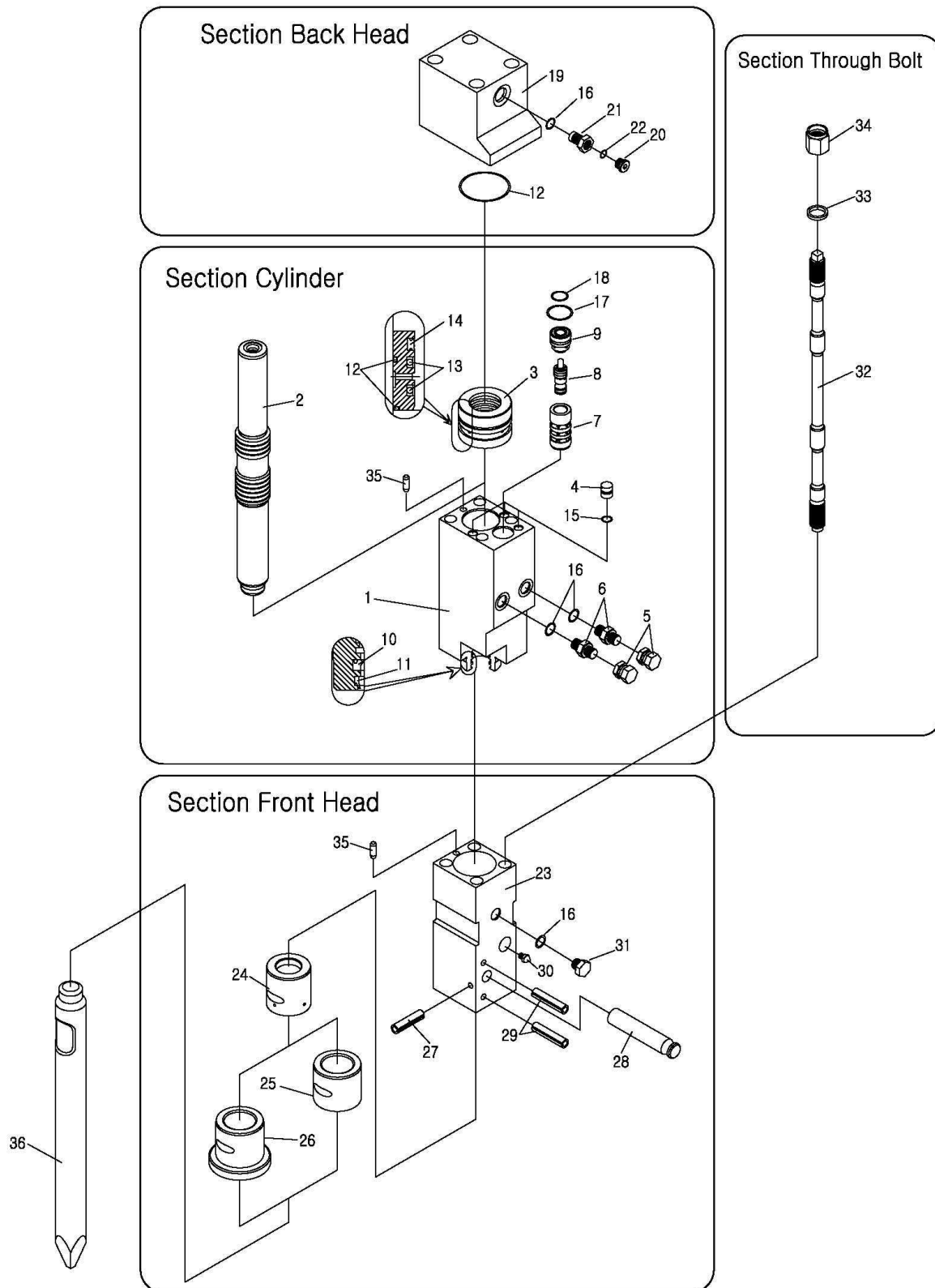
Parts List for Box-New Design

Model : FINE 1X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B01560010000	1		
2	Plate-Cover	-	B02560020000	1		
3	Damper-Bottom	-	B01510052000	1		
4	Damper-Upper	-	B02510051000	1		
***	Assembly-Mount Cap	-	B02660000000	1	including no. 5~13	
5	Mount Cap	-	B02660010000	1	OPTION	
6	Pin-Bracket	-	P43030295250	2	Alternative	
7	Bush-Bracket	-	P44030060380	4	Alternative	
8	Ring-Stop	-	P45030070250	2	Alternative	
9	Bolt-Hex	-	P11010101000	2	M10*100L	
10	Nut-Hex	-	P12010100000	4	M10	
***	Assembly-Bolt-Hex	-	B02410050000	12SET	including no. 11~13	
11	Nut-Hex Nylon	-	P12020140000	12	M14	
12	Washer-Spring	-	P13021140000	12	M14	
13	Bolt-Hex	-	P11010140500	12	M14*50L	
14	Plug-Rubber	-	B04560064400	1	Ø20x9(Stop Pin)	Low noise type (option)
15	Plug-Rubber	-	B04560064200	4	Ø34x9	
16	Plug-Rubber	-	B05560064300	1	Ø34x9 (Grease)	
18	Cover	-	B02560061000	1		
19	Washer-Plain	-	P13010100000	6	M10	
20	Washer-Spring	-	P13021100000	6	M10	
21	Bolt-Hex	-	P11010100300	6	M10x30L	
22	Hose Belloss	-	B05530063000	2	1/2"	



Exploded View of *FINE 2X*



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 2X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B02110010	B02110000100	1SET		
***	Assembly-Cylinder	B02111000	B02110010000	1SET	including no. 1~9	
1	Cylinder	B02111100	B02110011000	1		
2	Piston	B02111200	B02110012000	1		
3	Seal-Retainer	B02111300	B02110013000	1		
4	Plug-Teflon	B02111620	B02110016200	3	Ø15x14L	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F00511133300	2	PF1/2"	
6	Adapter	F01113330	F00111133300	2	PF1/2"	
***	Assembly-Valve	B02114000	B02110040000	1SET	including no. 7~9	
7	Valve-Guide	B02114250	B02110042500	1		
8	Valve	B02114100	B02110041000	1		
9	Valve-Plug	B02114200	B02110042000	1		
10	U-Packing	P21200401	P20102040000	1	ISI 40	
11	Seal-Dust	P22200401	P20202040000	1	DSI 40	
12	O-Ring	P2710060G	P20701060000	2	G60-1B	
13	Seal-Step	P25000370	P20500037000	2	SPNS37	
-	O-Ring	-	-	2		
14	Seal-Gas	P24000370	P20400037000	1	PPY37	
15	O-Ring	P2700011P	P20700011000	3	P11-1B	
16	O-Ring	P2700018P	P20700018000	2	P18-1B	
17	O-Ring	P2700030P	P20700030000	1	P30-1B	
18	O-Ring	P2710025G	P20701025000	1	G25-1B	
***	Assembly-Back Head	B02113000	B02110030000	1SET	including no. 19~21	
19	Back Head	B02113100	B02110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 20,21	
20	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
21	Charging Valve	B15113210	B15110032100	1		
12	O-Ring	P2710060G	P20701060000	1	G60-1B	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
22	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B02112010	B02110020100	1SET	including no. 23~26, 29~31	
23	Front Head	B02112100	B02110021000	1		
24	Inner Bush	B02112300	B02110023000	1	Ø60x58L	
25	Front Cover	B02112210	B02110022100	1	BOX TYPE	
26	Front Cover	B02112200	B02110022000	1	TOP TYPE	
29	Pin-Spring	P08110080	P08101008000	2	Ø10x80L	
30	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
31	Air Cap	B00002700	B00000027000	1	PF1/2"	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	

Parts List for Main Body

Model : FINE 2X

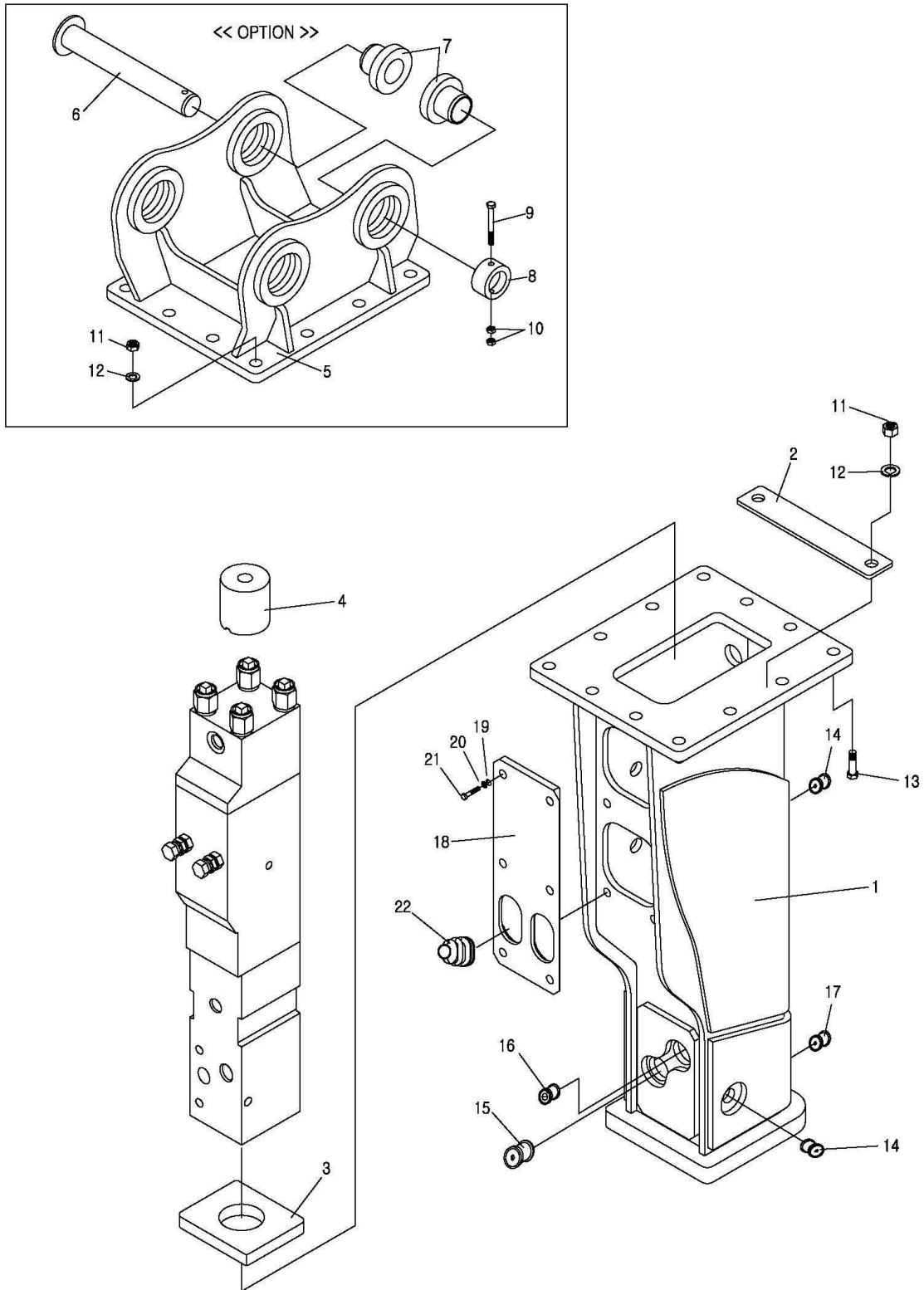
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Through Bolt	B02115000	B02110050000	4SET	including no. 32~34	
32	Through Bolt	B02115100	B02110051000	4		
33	Washer	B02115200	B02110052000	4		
27	Pin-Spring	P08110060	P08101006000	1	Ø10x60L	
28	Pin-Tool	B02112400	B02110024000	1	Ø24x117L	
35	Pin-Knock	B04111400	B04110014000	2	Ø8x23L	
36	Tool-Moil Point	B02112510	B02110025100	1	Alternative	
-	Tool-Wedge Point	B02112520	B02110025200	1	Alternative	
-	Tool-Blunt End	B02112540	B02110025400	1	Alternative	
***	Seal Kit-Complete	B02117000	B02110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B0200800T	B0200008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B0200800B	B0200008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008101	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 2X(New Design)*



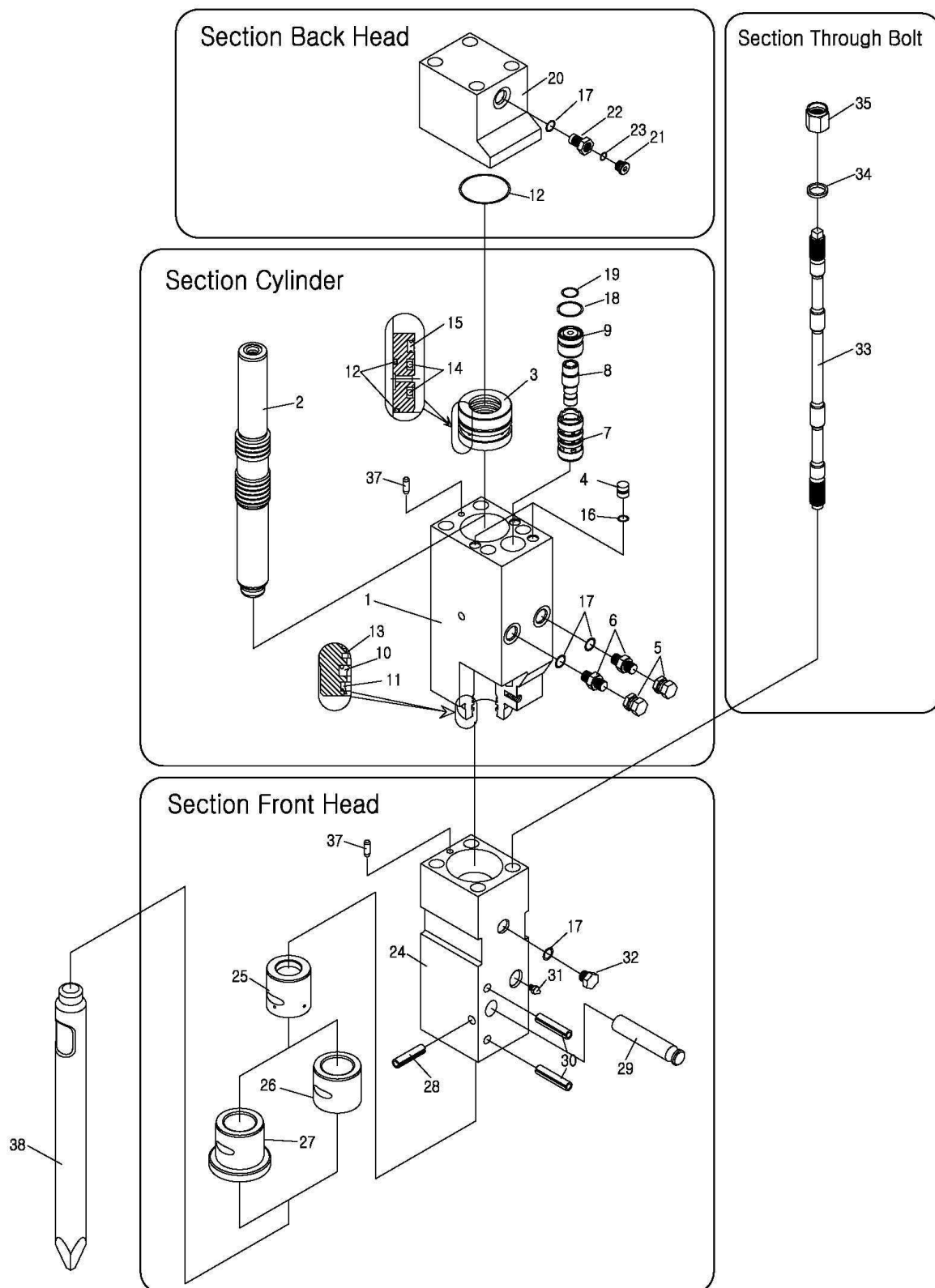
Parts List for Box-New Design

Model : FINE 2X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B02560010000	1		
2	Plate-Cover	-	B02560020000	1		
3	Damper-Bottom	-	B02510052000	1		
4	Damper-Upper	-	B02510051000	1		
***	Assembly-Mount Cap	-	B02660000000	1	including no. 5~13	
5	Mount Cap	-	B02660010000	1	OPTION	
6	Pin-Bracket	-	P43030295250	2	Alternative	
7	Bush-Bracket	-	P44030060380	4	Alternative	
8	Ring-Stop	-	P45030070250	2	Alternative	
9	Bolt-Hex	-	P11010101000	2	M10*100L	
10	Nut-Hex	-	P12010100000	4	M10	
***	Assembly-Bolt-Hex	-	B02410050000	12SET	including no. 11~13	
11	Nut-Hex Nylon	-	P12020140000	12	M14	
12	Washer-Spring	-	P13021140000	12	M14	
13	Bolt-Hex	-	P11010140500	12	M14*50L	
14	Plug-Rubber	-	B04560064100	4	Ø30x9	Low noise type (option)
15	Plug-Rubber	-	B04560064200	1	Ø40x9	
16	Plug-Rubber	-	B04560064300	1	Ø35x9 (Grease)	
17	Plug-Rubber	-	B04560064400	1	Ø20x9	
18	Cover	-	B02560061000	1		
19	Washer-Plain	-	P13010100000	6	M10	
20	Washer-Spring	-	P13021100000	6	M10	
21	Bolt-Hex	-	P11010100300	6	M10x30L	
22	Hose Belloss	-	B05530063000	2	1/2"	



Exploded View of *FINE* 3X



Parts List for Main Body

Model : FINE 3X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B03110000100	B03110000101	1SET		
***	Assembly-Cylinder	B03110010000	B03110010001	1SET	including no. 1~9	
1	Cylinder	B03110011000	B03110011001	1		
2	Piston	B03111200	B03110012000	1		
3	Seal-Retainer	B03111300	B03110013000	1		
4	Plug-Teflon	B04111620	B04110016200	3	Ø15x16L	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F00511133300	2	PF1/2"	
6	Adapter	F01113330	F00111133300	2	PF1/2"	
***	Assembly-Valve	B03114000	B03110040000	1SET	including no. 7~9	
7	Valve-Guide	B03114250	B03110042500	1		
8	Valve	B03114100	B03110041000	1		
9	Valve-Plug	B03114200	B03110042000	1		
10	U-Packing	P21200451	P20102045000	1	ISI 45	
11	Seal-Dust	P22200451	P20202045000	1	DSI 45	
12	O-Ring	P2710065G	P20701065000	2	G65-1B	
13	Seal-Buffer	P23000451	P20301045000	1	Ø45x50.4x3t	
14	U-Packing	P21200421	P20102042200	2	Ø42.2	
15	Seal-Gas	P24000422	P20400042200	1	Ø42.2	
16	O-Ring	P2700011P	P20700011000	3	P11-1B	
17	O-Ring	P2700018P	P20700018000	2	P18-1B	
18	O-Ring	P2700030P	P20700030000	1	P30-1B	
19	O-Ring	P2710025G	P20701025000	1	G25-1B	
***	Assembly-Back Head	B03110030000	B03110030001	1SET	including no. 20~22	
20	Back Head	B03110031000	B03110031001	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 21,22	
21	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
22	Charging Valve	B15113210	B15110032100	1		
12	O-Ring	P2710065G	P20701065000	1	G65-1B	
17	O-Ring	P2700018P	P20700018000	1	P18-1B	
23	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B03110020100	B03110020101	1SET	including no. 24~27, 30~32	
24	Front Head	B03110021000	B03110021001	1		
25	Inner Bush	B03112300	B03110023000	1	Ø65x66L	
26	Front Cover	B03112210	B03110022100	1	BOX TYPE	
27	Front Cover	B03112200	B03110022000	1	TOP TYPE	
30	Pin-Spring	P08110080	P08101008000	2	Ø10x80L	
31	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
32	Air Cap	B00002700	B00000027000	1	PF1/2"	
17	O-Ring	P2700018P	P20700018000	1	P18-1B	

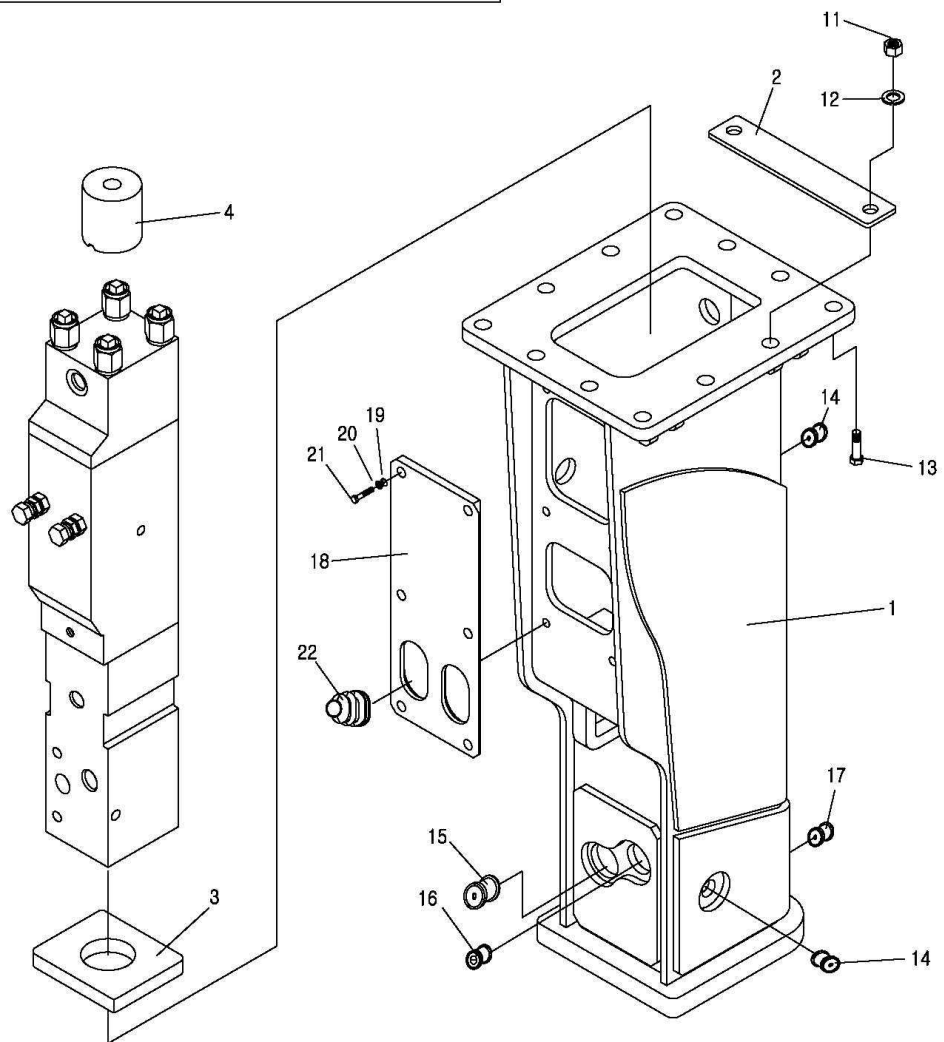
Parts List for Main Body

Model : FINE 3X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Through Bolt	B03115000	B03110050000	4SET	including no. 33~35	
33	Through Bolt	B03115100	B03110051000	4		
34	Washer	B03115200	B03110052000	4		
35	Nut-Upper	B03115300	B03110053000	4		
28	Pin-Spring	P08110060	P08101006000	1	Ø10x60L	
29	Pin-Tool	B03112400	B03110024000	1	Ø24x117L	
37	Pin-Knock	B04111400	B04110014000	2	Ø8x23L	
38	Tool-Moil Point	B03112510	B03110025100	1	Alternative	
-	Tool-Wedge Point	B03112520	B03110025200	1	Alternative	
-	Tool-Blunt End	B03112540	B03110025400	1	Alternative	
***	Seal Kit-Complete	B03117000	B03110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B0300800T	B0300008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B0300800B	B0300008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Bracket-Box type-New Design type: Unit serial no.

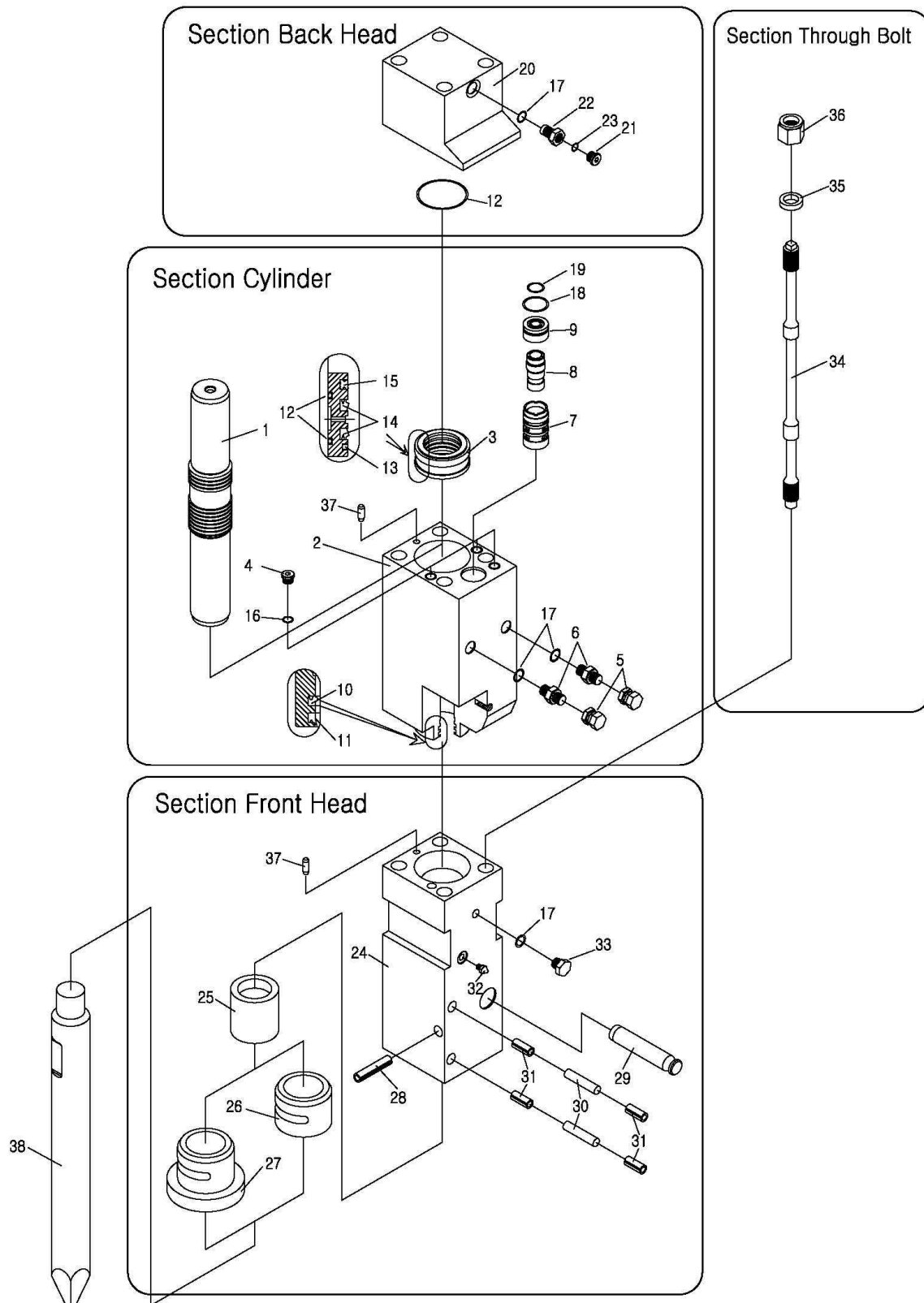
Parts List for Box-New Design

Model : FINE 3X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B03560010000	1		
2	Plate-Cover	-	B03560020000	1		
3	Damper-Bottom	-	B03510052000	1		
4	Damper-Upper	-	B03560051000	1		
***	Assembly-Mount Cap	-	B03660000000	1	including no. 5~13	
5	Mount Cap	-	B03660010000	1	OPTION	
6	Pin-Bracket	-	P43045305300	2	Alternative	
7	Bush-Bracket	-	P44045060271	4	Alternative	
8	Ring-Stop	-	P45045080300	2	Alternative	
9	Bolt-Hex	-	P11014121100	2	M12x110L	
10	Nut-Hex	-	P12010120000	4	M12	
***	Assembly-Bolt-Hex	-	B04410050000	12SET	including no. 10~13	
11	Nut-Hex Nylon	-	P12020160000	12	M16	
12	Washer-Spring	-	P13021160000	12	M16	
13	Bolt-Hex	-	P11010160600	12	M16x60L	
14	Plug-Rubber	-	B05560064100	4	Ø30x9 (Stop Pin)	Low noise type (option)
15	Plug-Rubber	-	B04560064200	1	Ø40x9 (Tool Pin)	
16	Plug-Rubber	-	B04560064300	1	Ø35x9 (Grease)	
17	Plug-Rubber	-	B04560064400	1	Ø20x18(Tool Pin-Rear)	
18	Cover	-	B03560061000	1		
19	Washer-Plain	-	P13010100000	6	M10	
20	Washer-Spring	-	P13021100000	6	M10	
21	Bolt-Hex	-	P11010100300	6	M10x30L	
22	Hose Belloss	-	B05530063000	2	1/2"	



Exploded View of *FINE 4, 4X, 4T*



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 4, 4X, 4T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B04110010	B04110000100	1SET		
***	Assembly-Cylinder	B04111000	B04110010000	1SET	including no. 1~9	
1	Piston	B04111200	B04110012000	1		
2	Cylinder	B04111100	B04110011000	1		
3	Seal-Retainer	B04111300	B04110013000	1		
4	Socket Plug	P19102011	P14020010011	3	PF 1/4" (Ø18x4t)	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F00511133300	2	PF1/2"	
6	Adapter	F01113330	F00111133300	2	PF1/2"	
***	Assembly-Valve	B04114000	B04110040000	1SET	including no. 7~9	
7	Valve-Guide	B04114250	B04110042500	1		
8	Valve	B04114100	B04110041000	1		
9	Valve-Plug	B04114200	B04110042000	1		
10	U-Packing	P21200531	P20102053000	1	ISI 53	
11	Seal-Dust	P22200531	P20202053000	1	DSI 53	
12	O-Ring	P2710070G	P20701070000	2	G70-1B	
13	Seal-Buffer	P23000501	P20301050000	1	Ø50x57x3.4t	
14	U-Packing	P21200501	P20102050000	2	ISI 50	
15	Seal-Gas	P24000500	P20400050000	1	B/SHAMBAN50.17*5.33	
16	O-Ring	P2700011P	P20700011000	3	P11-1B	
17	O-Ring	P2700018P	P20700018000	2	P18-1B	
18	O-Ring	P2700032P	P20700032000	1	P32-1B	
19	O-Ring	P2710025G	P20701025000	1	G25-1B	
***	Assembly-Back Head	B04113000	B04110030000	1SET	including no. 20~22	
20	Back Head	B04113100	B04110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 21,22	
21	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
22	Charging Valve	B15113210	B15110032100	1		
12	O-Ring	P2710070G	P20701070000	1	G70-1B	
17	O-Ring	P2700018P	P20700018000	1	P18-1B	
23	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B04112010	B04110020100	1SET	including no. 24~27, 30~33	
24	Front Head	B04112100	B04110021000	1		
25	Inner Bush	B04112300	B04110023000	1		
26	Front Cover	B04112210	B04110022100	1	BOX TYPE	
27	Front Cover	B04112200	B04110022000	1	TOP TYPE	
30	Pin-Stop	B04112610	B04110026100	2	Ø16x65L	
31	Pin-Spring	P08116030	P08101603000	4	Ø16x30L	
32	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
33	Air Cap	B00002700	B00000027000	1	PF1/2"	
17	O-Ring	P2700018P	P20700018000	1	P18-1B	

Parts List for Main Body

Model : FINE 4, 4X, 4T

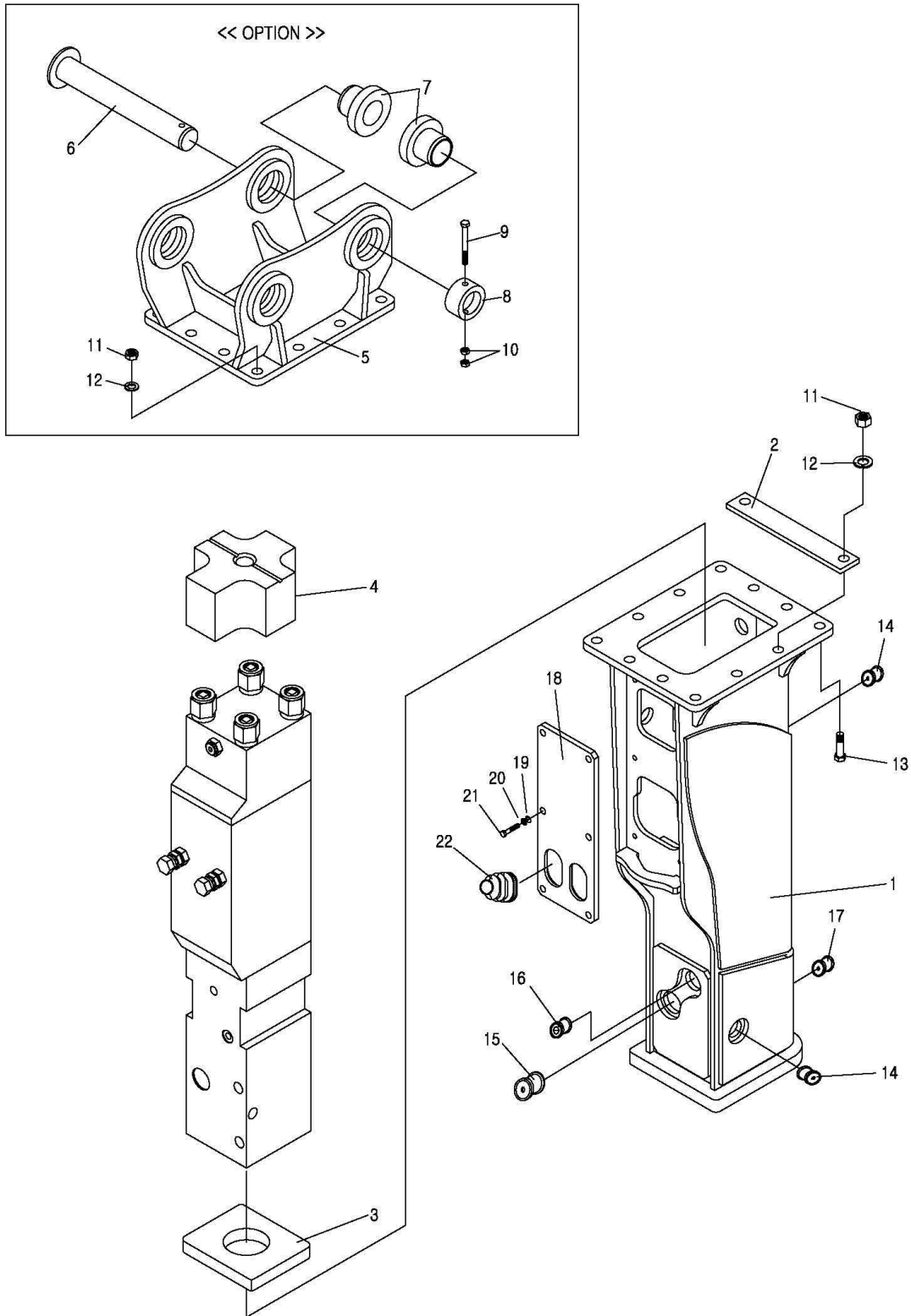
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Through Bolt	B04115000	B04110050000	4SET	including no. 34~36	
34	Through Bolt	B04115100	B04110051000	4		
35	Washer	B04115200	B04110052000	4		
36	Nut-Upper	B04115300	B04110053000	4		
28	Pin-Spring	P08116080	P08101608000	1	Ø16x80L	
29	Pin-Tool	B04112400	B04110024000	1	Ø30x129L	
37	Pin-Knock	B04111400	B04110014000	2	Ø8x23L	
38	Tool-Moil Point	B04112510	B04110025100	1	Alternative	
-	Tool-Wedge Point	B04112520	B04110025200	1	Alternative	
-	Tool-Blunt End	B04112540	B04110025400	1	Alternative	
***	Seal Kit-Complete			1SET		~ s/no.04/2249
***	Seal Kit-Complete	B04117000	B04110070000	1SET		s/no.04/2250~

Accessories

A-1	Box Set-Service Tools	B0400800T	B0400008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B0400800B	B0400008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 4X(New Design)*



Bracket-Box type-New Design type: Unit serial no.

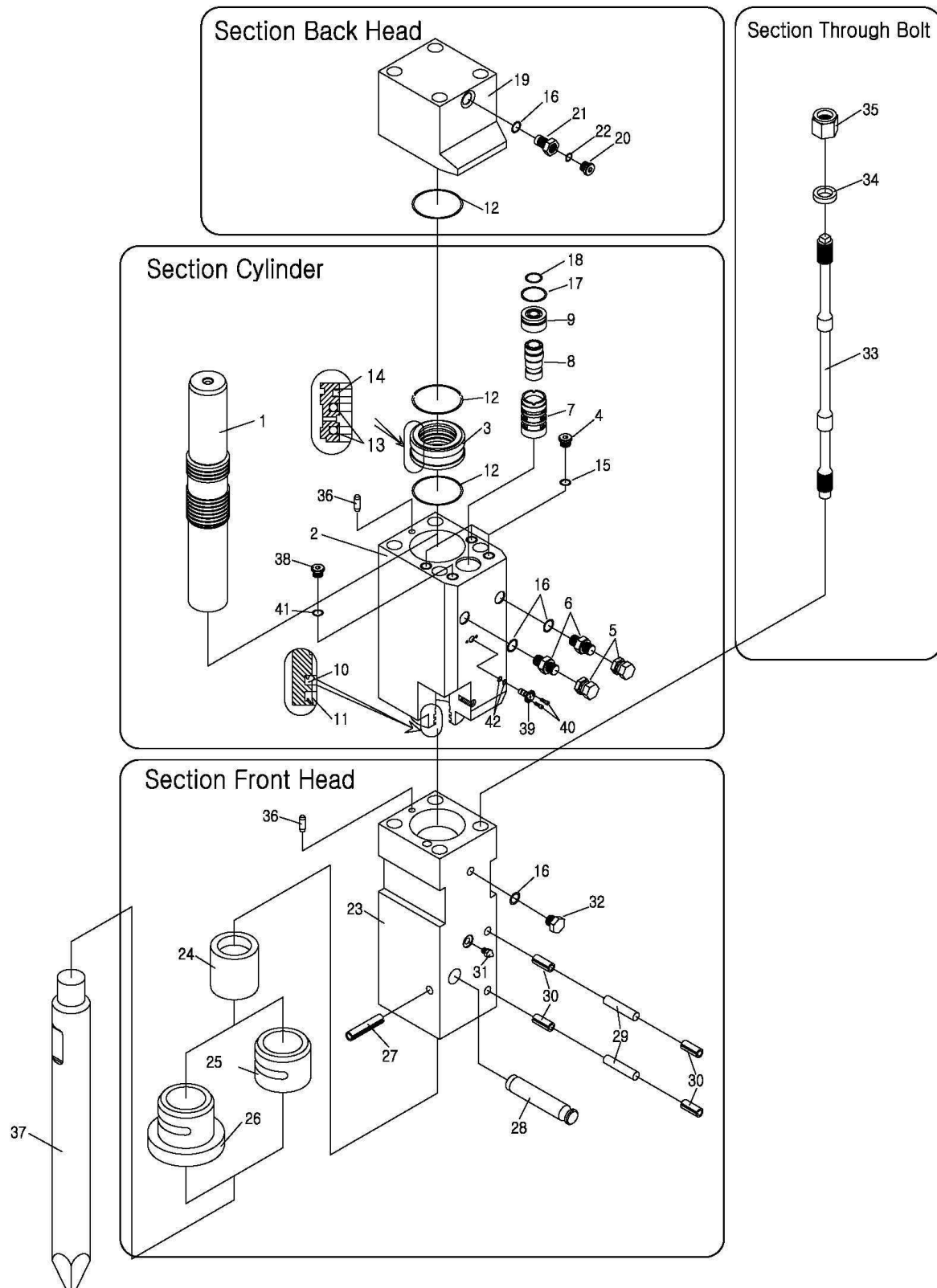
Parts List for Box-New Design

Model : FINE 4X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B04560010000	1		
2	Plate-Cover	-	B04560020000	1		
3	Damper-Bottom	-	B04510052000	1		
4	Damper-Upper	-	B04510051001	1		
***	Assembly-Mount Cap	-	B04660000000	1	including no. 5~13	
5	Mount Cap	-	B04660010000	1	OPTION	
6	Pin-Bracket	-	P43045305300	2	Alternative	
7	Bush-Bracket	-	P44045060271	4	Alternative	
8	Ring-Stop	-	P45045080300	2	Alternative	
9	Bolt-Hex	-	P11010121100	2	M12x110L	
10	Nut-Hex	-	P12010120000	4	M12	
***	Assembly-Bolt-Hex	-	B04410050000	12SET	including no. 11~13	
11	Nut-Hex Nylon	-	P12020160000	12	M16	
12	Washer-Spring	-	P13021160000	12	M16	
13	Bolt-Hex	-	P11010160600	12	M16x60L	
14	Plug-Rubber	-	B05560064100	4	Ø30x9 (Stop Pin)	Low noise type (option)
15	Plug-Rubber	-	B04560064200	1	Ø40x9 (Tool Pin)	
16	Plug-Rubber	-	B04560064300	1	Ø35x9 (Grease)	
17	Plug-Rubber	-	B04560064400	1	Ø20x9 (Tool Pin-Rear)	
18	Cover	-	B04530061000	1		
19	Washer-Plain	-	P13010100000	6	M10	
20	Washer-Spring	-	P13021100000	6	M10	
21	Bolt-Hex	-	P11010100300	6	M10x30L	
22	Hose Belloss	-	B05530063000	2	1/2"	



Exploded View of *FINE 5, 5X, 5T, 5S, 5BL*



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 5, 5X, 5T, 5S,5BL

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B05110012	B05110000102	1SET		
***	Assembly-Cylinder	B05111001	B05110010001	1SET	including no. 1~9, 39, 40	
1	Piston	B05111200	B05110012000	1		
2	Cylinder	B05111101	B05110011001	1		
3	Seal-Retainer	B05111300	B05110013000	1		
4	Socket Plug	P19101810	P14023180010	3	M18xP1.5	
38	Socket Plug	P19102011	P14020010011	1	PF1/4" (Ø18*4t)	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F00511133300	2	PF1/2"	
6	Adapter	F01113330	F00111133300	2	PF1/2"	
***	Assembly-Valve	B05114000	B05110040000	1SET	including no. 7~9	
7	Valve-Guide	B05114250	B05110042500	1		
8	Valve	B05114100	B05110041000	1		
9	Valve-Plug	B05114200	B05110042000	1		
39	Auto Stop Valve	B05111700	B05110017000	1		
40	Bolt-Socket	P12008020	P11020080200	2	M8xP1.25x20L	
10	U-Packing	P21200701	P20102070000	1	ISI 70	
11	Seal-Dust	P22200701	P20202070000	1	DSI 70	
12	O-Ring	P27202390	P20702239000	2	AS568-239	
13	Seal-Step	P25000680	P20500068000	2	Ø68	
-	O-Ring			2		
14	Seal-Gas	P24000680	P20400068000	1	Ø68	
15	O-Ring	P2700016P	P20700016000	3	P16-1B	
16	O-Ring	P2700018P	P20700018000	2	P18-1B	
17	O-Ring	P2710040G	P20701040000	1	G40-1B	
18	O-Ring	P2710025G	P20701025000	1	G25-1B	
41	O-Ring	P2700011P	P20700011000	1	P11-1B	
42	O-Ring	P2700012P	P20700012000	2	P12-1B	
***	Assembly-Back Head	B05113000	B05110030000	1SET	including no. 19~21	
19	Back Head	B05113100	B05110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 20,21	
20	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
21	Charging Valve	B15113210	B15110032100	1		
12	O-Ring	P27202390	P20702239000	1	AS568-239	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
22	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B05112011	B05110020101	1SET	including no. 23~26, 29~32	
23	Front Head	B05112101	B05110021001	1		
24	Inner Bush	B05112301	B05110023001	1		s/no.05/1701 ~
25	Front Cover	B05112210	B05110022100	1	BOX TYPE	
26	Front Cover	B05112200	B05110022000	1	TOP TYPE	

Parts List for Main Body

Model : FINE 5, 5X, 5T, 5S,5BL

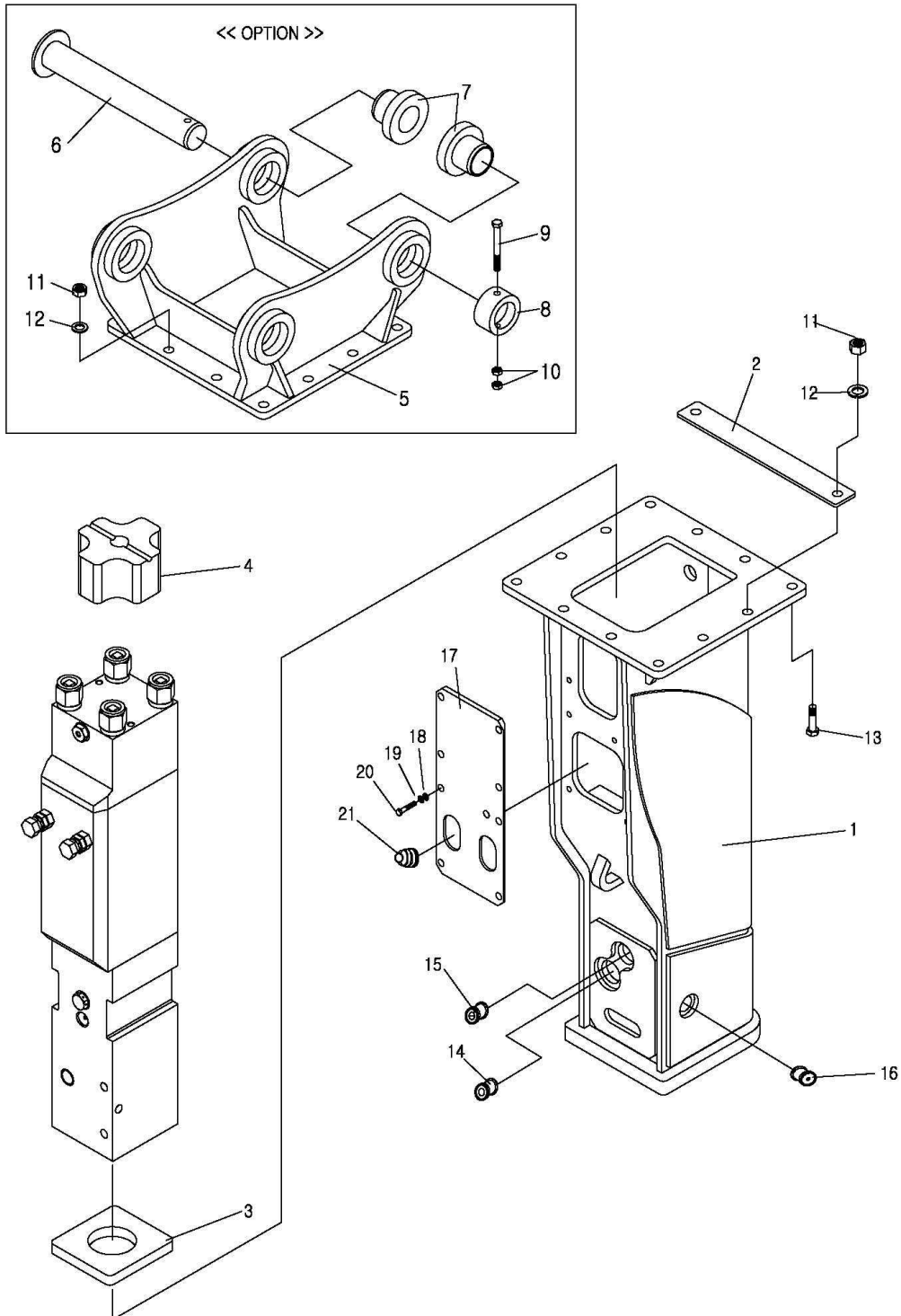
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
29	Pin-Stop	B05112610	B05110026100	2	Ø16 * 75.5L	
30	Pin-Spring	P08116040	P08101604000	4	Ø16x40L	
31	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
32	Air Cap	B00002700	B00000027000	1		~s/no.05/170
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B05115000	B05110050000	4SET	including no. 33~35	
33	Through Bolt	B05115100	B05110051000	4		
34	Washer	B05115200	B05110052000	4		
35	Nut-Upper	B05115300	B05110053000	4		
27	Pin-Spring	P08116080	P08101608000	1	Ø16x80L	
28	Pin-Tool	B05112401	B05110024001	1	Ø38 * 155L	
36	Pin-Knock	B04111400	B04110014000	2		
37	Tool-Moil Point	B05112512	B05110025102	1	Alternative	
-	Tool-Wedge Point	B05112522	B05110025202	1	Alternative	
-	Tool-Blunt End	B05112542	B05110025402	1	Alternative	
***	Seal Kit-Complete	B05117000	B05110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B0500800B	B0500008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B0500800T	B0500008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 5X(New Design)*



Bracket-Box type-New Design : Unit serial no.

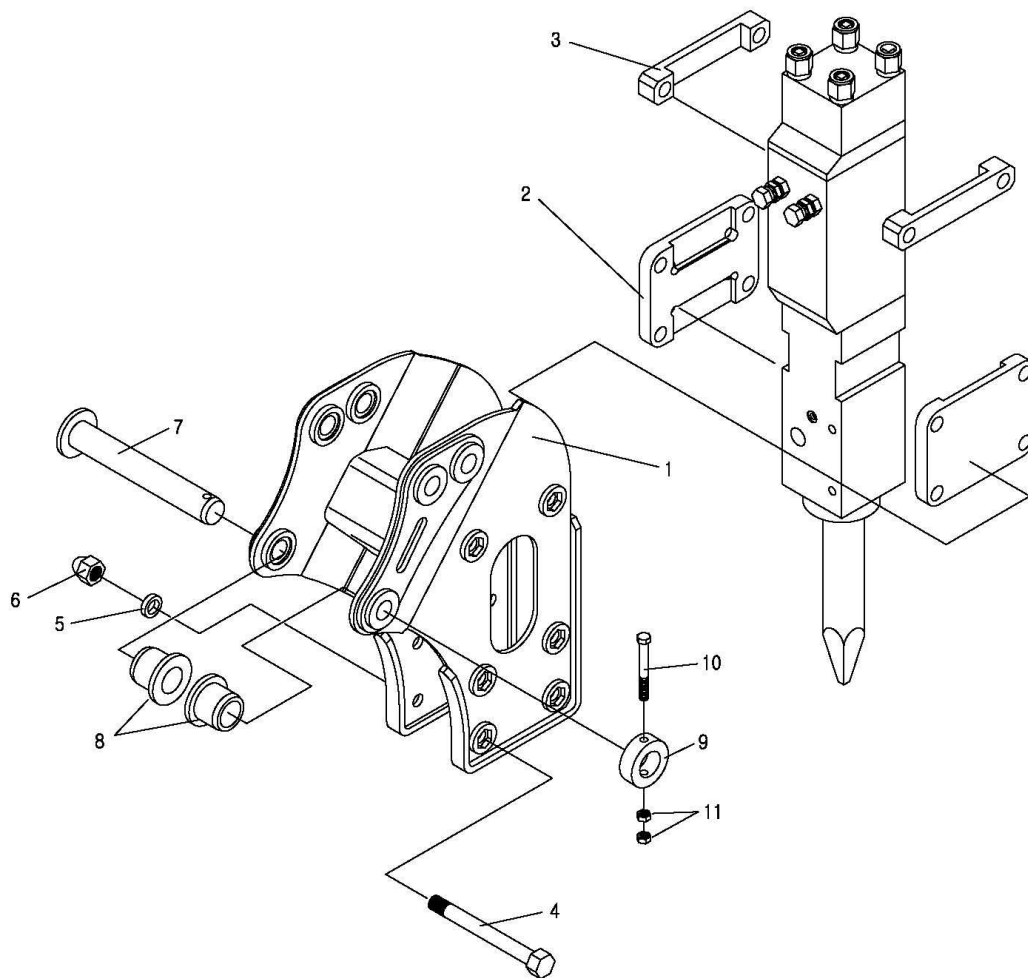
Parts List for Box-New Design

Model : FINE 5X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket		B05560010000	1SET	BOX TYPE	New Design
2	Plate-Cover		B05560020000	1		
3	Damper-Bottom		B05510052000	1		
4	Damper-Upper		B05510051000	1		
***	Assembly-Mount Cap		B05660000000	1SET	including no. 5~13	
5	Mount Cap		B05660010000	1SET	OPTION	
6	Pin-Bracket		P43045435300	2	Alternative	
7	Bush-Bracket		P44045075700	4	Alternative	
8	Ring-Stop		P45045100300	2	Alternative	
9	Bolt-Hex		P11014121100	2	M12x110L	
10	Nut-Hex		P12010120000	4	M12	
***	Assembly-Bolt-Hex		B04410050000	12SET	including no. 11~13	
11	Nut-Hex Nylock		P12020160000	12	M16	
12	Washer-Spring		P13021160000	12	M16	
13	Bolt-Hex		P11015160600	12	M16x60L	
14	Plug-Rubber		B05560064200	1	Ø45x12(Tool Pin)	Low noise type(option)
15	Plug-Rubber		B05560064300	1	Ø40x12(Grease)	
16	Plug-Rubber		B05560064100	4	Ø30x12(Stop Pin)	
17	Cover		B05560061000	1		
18	Washer-Plain		P13010120000	9	M12	
19	Washer-Spring		P13021120000	9	M12	
20	Bolt-Hex		P11010120350	9	M12x35L	
21	Hose Belloss		B05530063000	2	1/2"	



Exploded View of *FINE 5BL*



Parts List for BL Bracket

Model : FINE 5BL

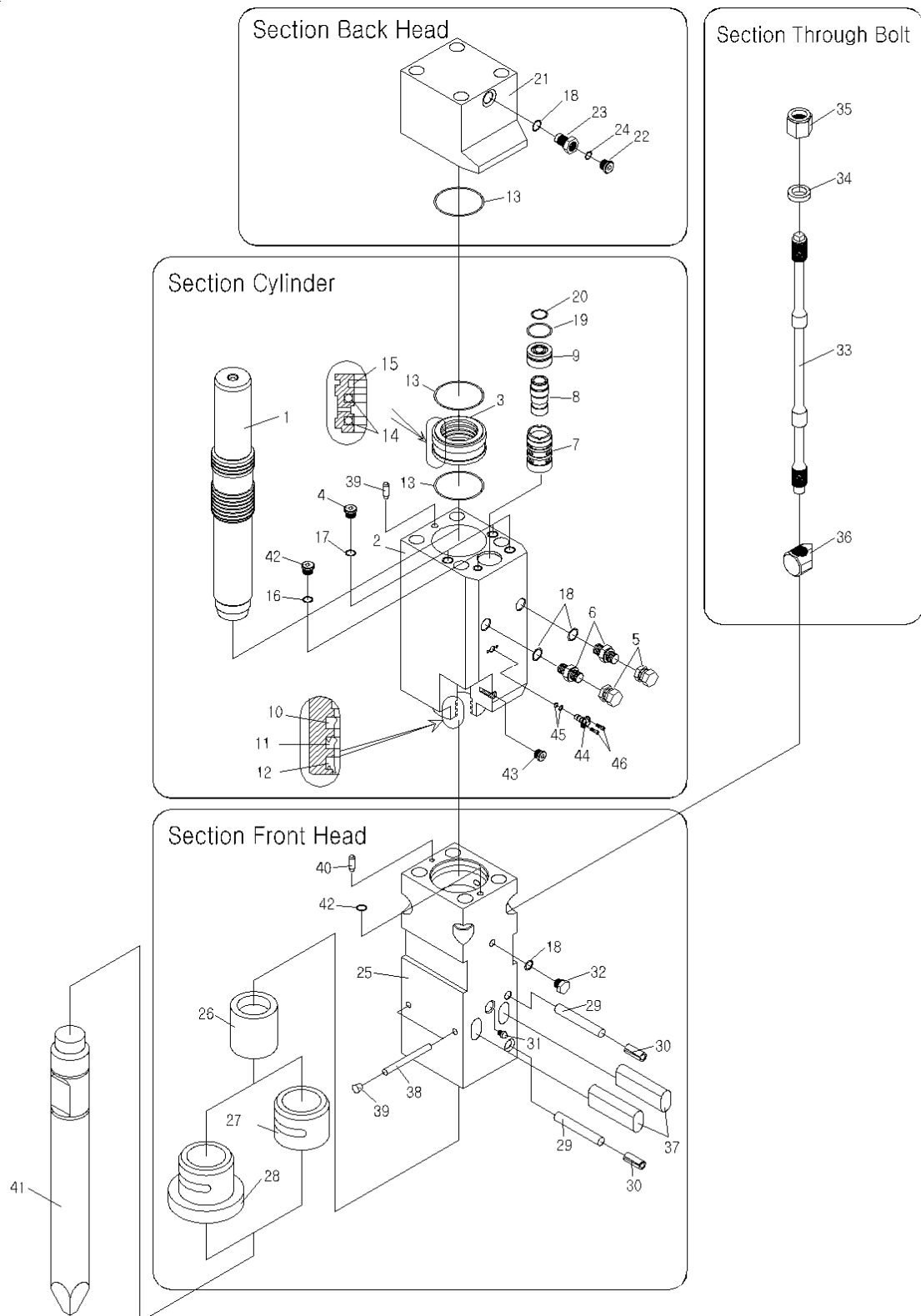
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket BL	L05221000	L05210010000	1SET		
2	Set-Plate	L05223000	L05210030000	2		
3	Guide-Plate	L05224000	L05210040000	2		
***	Assembly-Bracket Bolt	B05315000	B05310050000	6SET	including no. 4~6	
4	Bolt-Hex	P11527240	P11015272400	6	M27xP2.0x240L	
5	Washer-Spring	P15127000	P13021270000	6	M27	
6	Nut-Cap	P13C27000	P12030270000	6	M27	
7	Pin-Bracket	P43045407	P43045407300	2	Alternative	
8	Bush-Bracket	P44045400	P44045064400	4	Alternative	
9	Ring-Stop	P45045300	P45045080300	2	Alternative	
10	Bolt-Hex	P11012110	P11010121100	2	M12x110L	
11	Nut-Hex	P13012000	P12010120000	4	M12	

목 록

FINE6 MainBody.....	1
FINE6 Box-New Design.....	2



Exploded View of *FINE 6X*



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 6X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B06110000101	B06110000102	1SET		
***	Assembly-Cylinder	B06111010	B06110010001	1SET	including no. 1~9,43	
1	Piston	B06111200	B06110012000	1		
2	Cylinder	B06111100	B06110011001	1		
3	Seal-Retainer	B06111300	B06110013000	1		
4	Socket Plug	P19101810	P14023180010	3	M18xP1.5	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F00511133300	2	PF1/2"	
6	Adapter	F01113330	F00111133300	2	PF1/2"	
***	Assembly-Valve	B06114000	B06110040000	1SET	including no. 7~9	
7	Valve-Guide	B06114250	B06110042500	1		
8	Valve	B06114100	B06110041000	1		
9	Valve-Plug	B06114200	B06110042000	1		
10	Seal-Buffer	P23000751	P20301075000	1	HBV 75	
11	U-Packing	P21200751	P20102075000	1	ISI 75	
12	Seal-Dust	P22100751	P20202075000	1	DSI 75	
13	O-Ring	P2710100G	P20701100000	2	G100-1B	
14	Seal-Step	P25000730	P20500073000	2	Ø73	
-	O-Ring			2		
15	Seal-Gas	P24000730	P20400073000	1	Ø73	
16	O-Ring	P2700011P	P20700011000	1	P11-1B	
17	O-Ring	P2700016P	P20700016000	3	P16-1B	
18	O-Ring	P2700018P	P20700018000	2	P18-1B	
19	O-Ring	P2700042P	P20700042000	1	P42-1B	
20	O-Ring	P2710025G	P20701025000	1	G25-1B	
***	Assembly-Back Head	B06113001	B06110030001	1SET	including no. 21~23	
21	Back Head	B06113100	B06110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 22,23	
22	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
23	Charging Valve	B15113210	B15110032100	1		
13	O-Ring	P2710100G	P20701100000	1	G100-1B	
18	O-Ring	P2700018P	P20700018000	1	P18-1B	
24	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B06110020001	B06110020002	1SET	including no. 25~33	
25	Front Head	B06110021001	B06110021002	1		
26	Inner Bush	B06112301	B06110023001	1		
27	Front Cover	B06112211	B06110022101	1	BOX TYPE	
28	Front Cover	B06112201	B06110022001	1	TOP TYPE	
29	Pin-Front Head	B06112620	B06110026200	2	Ø16x110L	
30	Pin-Spring	P08116040	P08101604000	2	Ø16x40L	
31	Grease Nipple	P10201000	P10201000000	1	PT1/4"	

Parts List for Main Body

Model : FINE 6X

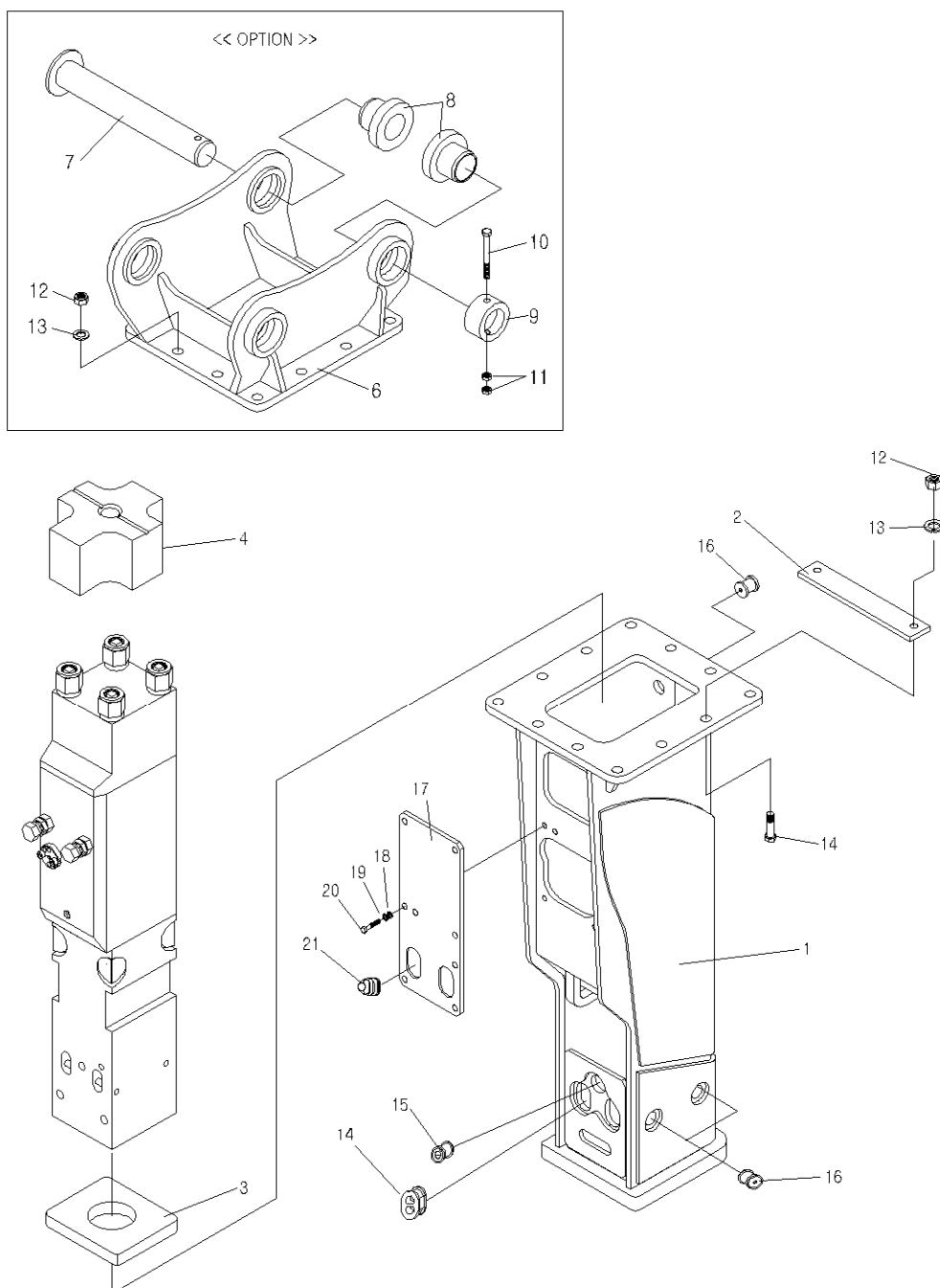
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
32	Air Cap	B00002700	B00000027000	1		
18	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B06110050000	B06110050001	4SET	including no. 33~36	
33	Through Bolt	B06110051000	B06110051001	4		
34	Washer	B05115200	B05110052000	4		
35	Nut-Upper	B05115300	B05110053000	4		
36	Nut-Bottom	B06110054000		4	M27*P2.0	
37	Pin-Tool	B06112400	B06110024000	2		
38	Pin-Stop	B06112610	B06110026100	2	Ø16x127L	
39	Plug-Rubber	B07112810	B07110028100	2	Ø17xØ21x14	
40	Pin-Knock	B04111400	B04110014000	2	Ø8x23L	
41	Tool-Moil Point	B06112512	B06110025102	1	Alternative	
-	Tool-Wedge Point	B06112522	B06110025202	1	Alternative	
-	Tool-Blunt End	B06112542	B06110025402	1	Alternative	
42	O-Ring	P2700014P	P20700014000	1	P14-1B	
43	Socket Plug	P19102011	P14020010011	2	PF 1/4"(Ø18*4t)	
44	Auto Stop Valve		B05110017000	1	Ø44*48L	
45	O-Ring		P20700012000	2	P12-1B	
46	Bolt-Socket		P11020080200	2	M8*20L	
***	Seal Kit-Complete	B06117000	B06110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B0600801B	B0600008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B06008010	B0600008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 6X(New Design)*



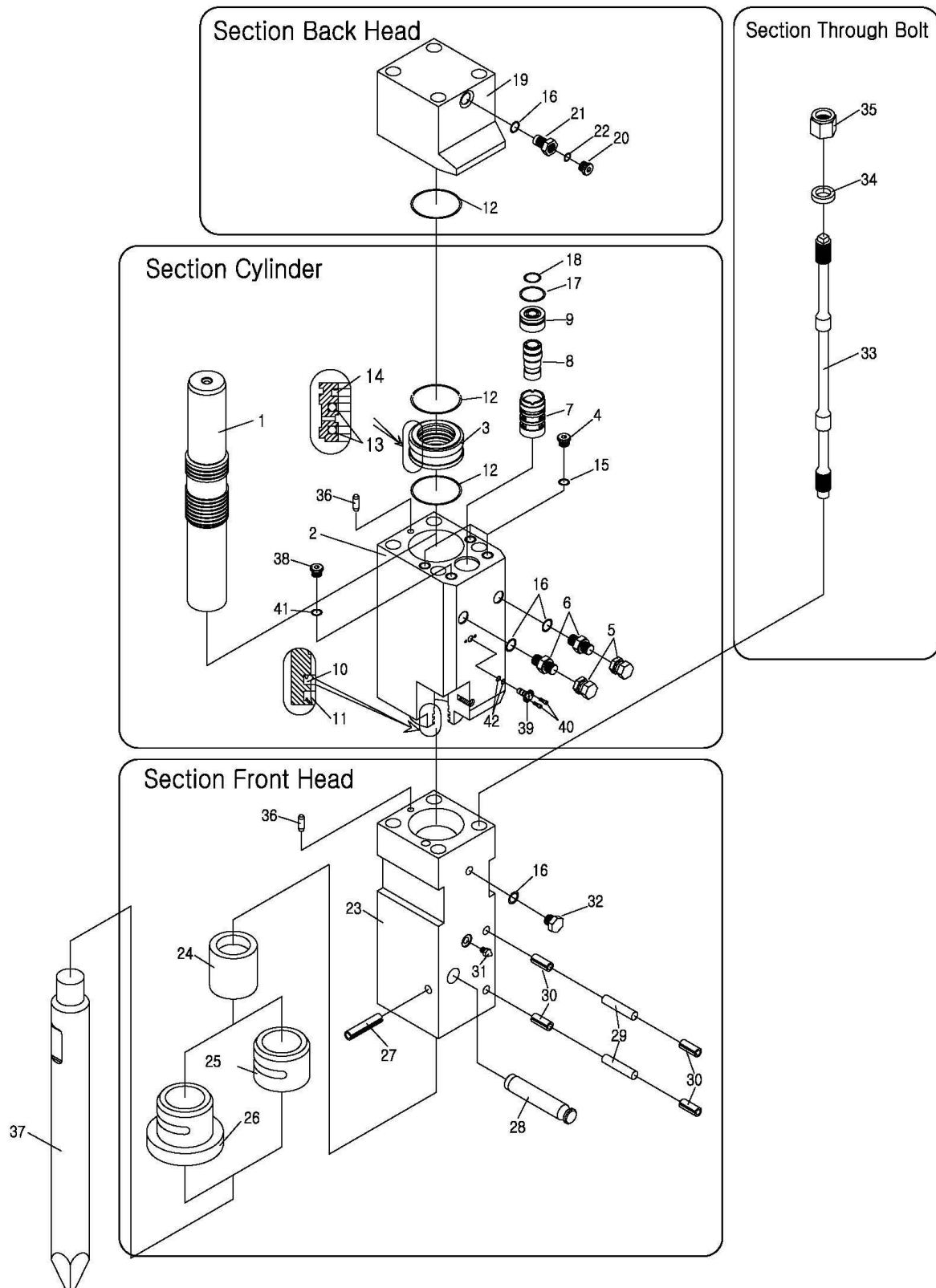
Parts List for Box-New Design

Model : FINE 6X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket		B06560010000	1SET	BOX TYPE	New Design
2	Plate-Cover		B05560020000	1		
3	Damper-Bottom		B06510052000	1		
4	Damper-Upper		B05510051000	1		
***	Assembly-Mount Cap		B06660000000	1SET	including no. 5~13	
5	Mount Cap		B06660010000	1SET	OPTION	
6	Pin-Bracket		P43045435300	2	Alternative	
7	Bush-Bracket		P44045075700	4	Alternative	
8	Ring-Stop		P45045100300	2	Alternative	
9	Bolt-Hex		P11010121100	2	M12x110L	
10	Nut-Hex		P12010120000	4	M12	
***	Assembly-Bolt-Hex		B07410050000	12SET	including no. 11~13	
11	Nut-Hex Nylock		P12020200000	12	M20	
12	Washer-Spring		P13021200000	12	M20	
13	Bolt-Hex		P11010200700	12	M20x70L	
14	Plug-Rubber		B06560064200	2	Ø40x56x12(Tool Pin)	Low noise type(option)
15	Plug-Rubber		B05560064300	1	Ø40x12(Grease)	
16	Plug-Rubber		B05560064100	8	Ø30x12(Stop Pin)	
17	Cover		B06560061000	1		
18	Washer-Plain		P13010120000	9	M12	
19	Washer-Spring		P13021120000	9	M12	
20	Bolt-Hex		P11010120350	9	M12x35L	
21	Hose Belloss		B05530063000	2	1/2"	



Exploded View of *FINE* 6BL, 7BLX



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 6BL, 7BLX

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	L06110000	L06110000001	1SET		
***	Assembly-Cylinder	B05111001	B05110010001	1SET	including no. 1~9	
1	Piston	B05111200	B05110012000	1		
2	Cylinder	B05111101	B05110011001	1		
3	Seal-Retainer	B05111300	B05110013000	1		
4	Socket Plug	P19101810	P14023180010	3	M18xP1.5	
38	Socket Plug	P19102011	P14020010011	1	PF1/4"(Ø18*4t)	
***	Assembly-Adapter Flange	B04113300	B04110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103330	F005111133300	2	PF1/2"	
6	Adapter	F01113330	F001111133300	2	PF1/2"	
***	Assembly-Valve	B05114000	B05110040000	1SET	including no. 7~9	
7	Valve-Guide	B05114250	B05110042500	1		
8	Valve	B05114100	B05110041000	1		
9	Valve-Plug	B05114200	B05110042000	1		
39	Auto Stop Valve	B05111700	B05110017000	1		
40	Bolt-Socket	P12008020	P11020080200	2	M8xP1.25x20L	
10	U-Packing	P21200701	P20102070000	1	ISI 70	
11	Seal-Dust	P22100701	P20202070000	1	DSI 70	
12	O-Ring	P27202390	P20702239000	2	AS568-239	
13	Seal-Step	P25000680	P20500068000	2	Ø68	
-	O-Ring			2		
14	Seal-Gas	P24000680	P20400068000	1	Ø68	
15	O-Ring	P2700016P	P20700016000	4	P16-1B	
16	O-Ring	P2700018P	P20700018000	2	P18-1B	
17	O-Ring	P2700040P	P20700040000	1	P40-1B	
18	O-Ring	P2710025G	P20701025000	1	G25-1B	
41	O-Ring	P2700011P	P20700011000	1	P11-1B	
42	O-Ring	P2700012P	P20700012000	2	P12-1B	
***	Assembly-Back Head	B05113000	B05110030000	1SET	including no. 19~21	
19	Back Head	B05113100	B05110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 20,21	
20	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
21	Charging Valve	B15113210	B15110032100	1		
12	O-Ring	P27202390	P20702239000	1	AS568-239	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
22	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	L06112000	L06110020000	1SET	including no. 23~26, 29~32	
23	Front Head	L06112100	L06110021000	1		
24	Inner Bush	L06112300	L06110023000	1		s/no.05/1701 ~
25	Front Cover	L06112210	L06110022100	1	BOX TYPE	
26	Front Cover	L06112200	L06110022000	1	TOP TYPE	

Parts List for Main Body

Model : FINE 6BL, 7BLX

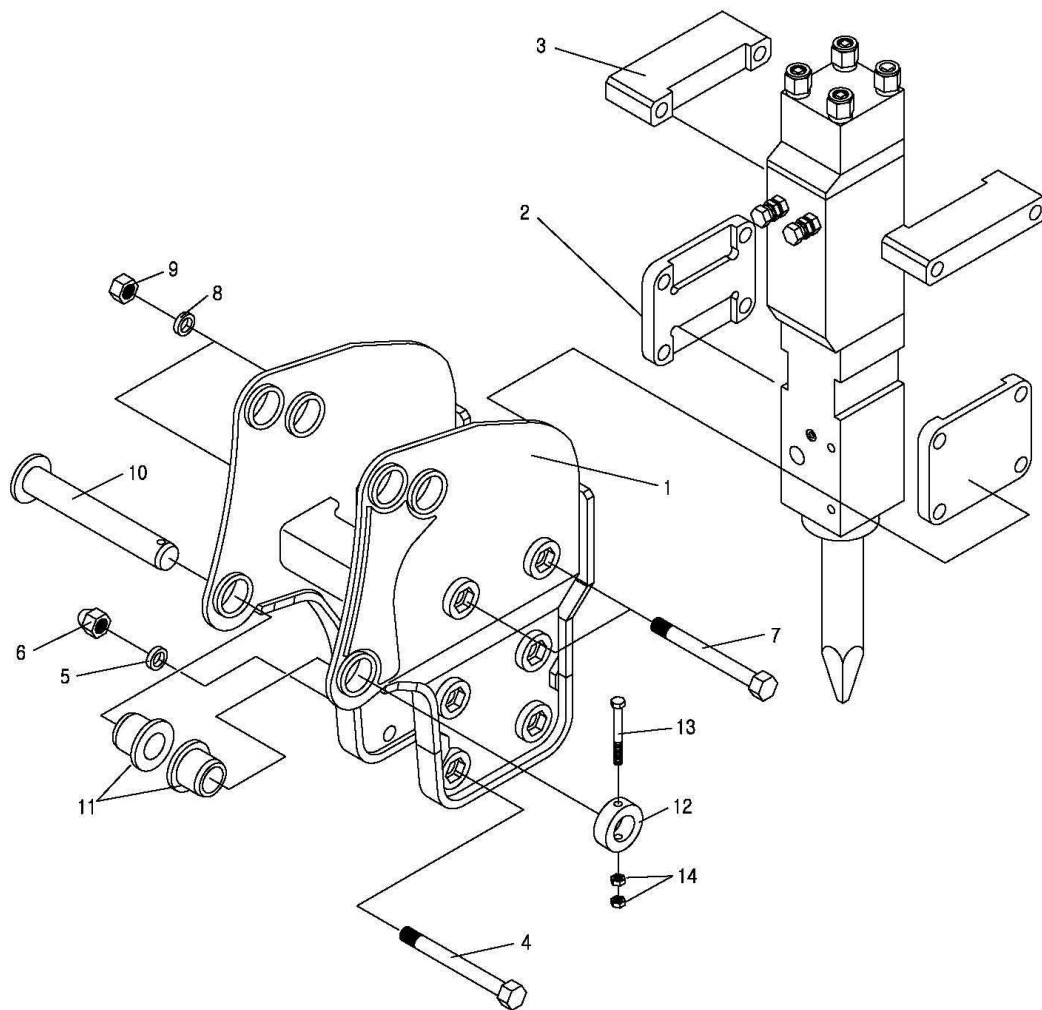
Item No.	Description	Part No.	Part No.	Q'ty	Remarks	Application
29	Pin-Stop	B05112610	B05110026100	2	Ø16 * 75.5L	
30	Pin-Spring	P08116040	P08101604000	4	Ø16x40L	
31	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
32	Air Cap	B00002700	B00000027000	1		~s/no.05/170
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B05115000	B05110050000	4SET	including no. 33~35	
33	Through Bolt	B05115100	B05110051000	4		
34	Washer	B05115200	B05110052000	4		
35	Nut-Upper	B05115300	B05110053000	4		
27	Pin-Spring	P08116080	P08101608000	1	Ø16x80L	
28	Pin-Tool	B05112400	B05110024000	1	Ø30x156L	
36	Pin-Knock	B04111400	B04110014000	2		
37	Tool-Moil Point	L06112511	L06110025101	1	Alternative	
-	Tool-Wedge Point	L06112521	L06110025201	1	Alternative	
-	Tool-Blunt End	L06112541	L06110025401	1	Alternative	
***	Seal Kit-Complete	B05117000	B05110070000	1SET		

Accessories

A-1	Box Set-Service Tools	L0600800B	L0600008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	L06008000	L0600008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 6BL*



Bracket-Backhoe Loader: Unit serial no.

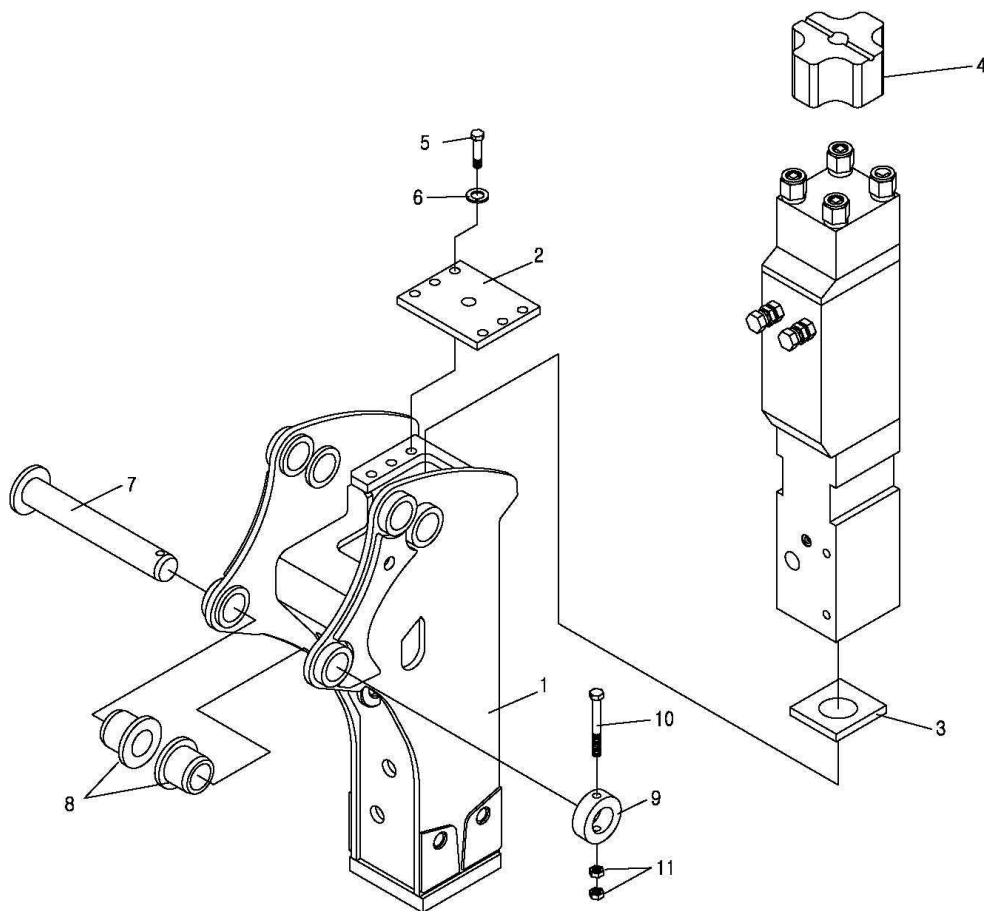
Parts List for BL Bracket

Model : FINE 6BL

Item no.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-BL Bracket	L06311000	L06310010000	1SET		
2	Set-Plate	L06313000	L06310030000	2		
3	Guide-Plate	L06314000	L06310040000	2		
***	Assembly-Bracket Bolt	B05315000	B05310050000	4SET	including no. 4~6	
4	Bolt-Hex	P11527240	P11015272400	4	M27xP2.0x240L	
5	Washer-Spring	P15127000	P13021270000	4	M27	
6	Nut-Cap	P13C27000	P12030270000	4	M27	
***	Assembly-Bracket Bolt	L06315000	L06310050000	2SET	including no. 7~9	s/no. 05/2281~
7	Bolt-Hex	P11530350	P11015303500	2	M30xP2.0x350L	s/no. 05/2281~
8	Washer-Spring	P15130000	P13021300000	2	M30	s/no. 05/2281~
9	Nut-Cap	P13C30000	P12030300000	2	M30	s/no. 05/2281~
10	Pin-Bracket	P43045407	P43045407300	2	Alternative	
11	Bush-Bracket	P44045400	P44045064400	4	Alternative	
12	Ring-Stop	P45045300	P45045080300	2	Alternative	
13	Bolt-Hex	P11012110	P11010121100	2	M12x110L	
14	Nut-Hex	P13012000	P12010120000	4	M12	



Exploded View of *FINE 7BLX*



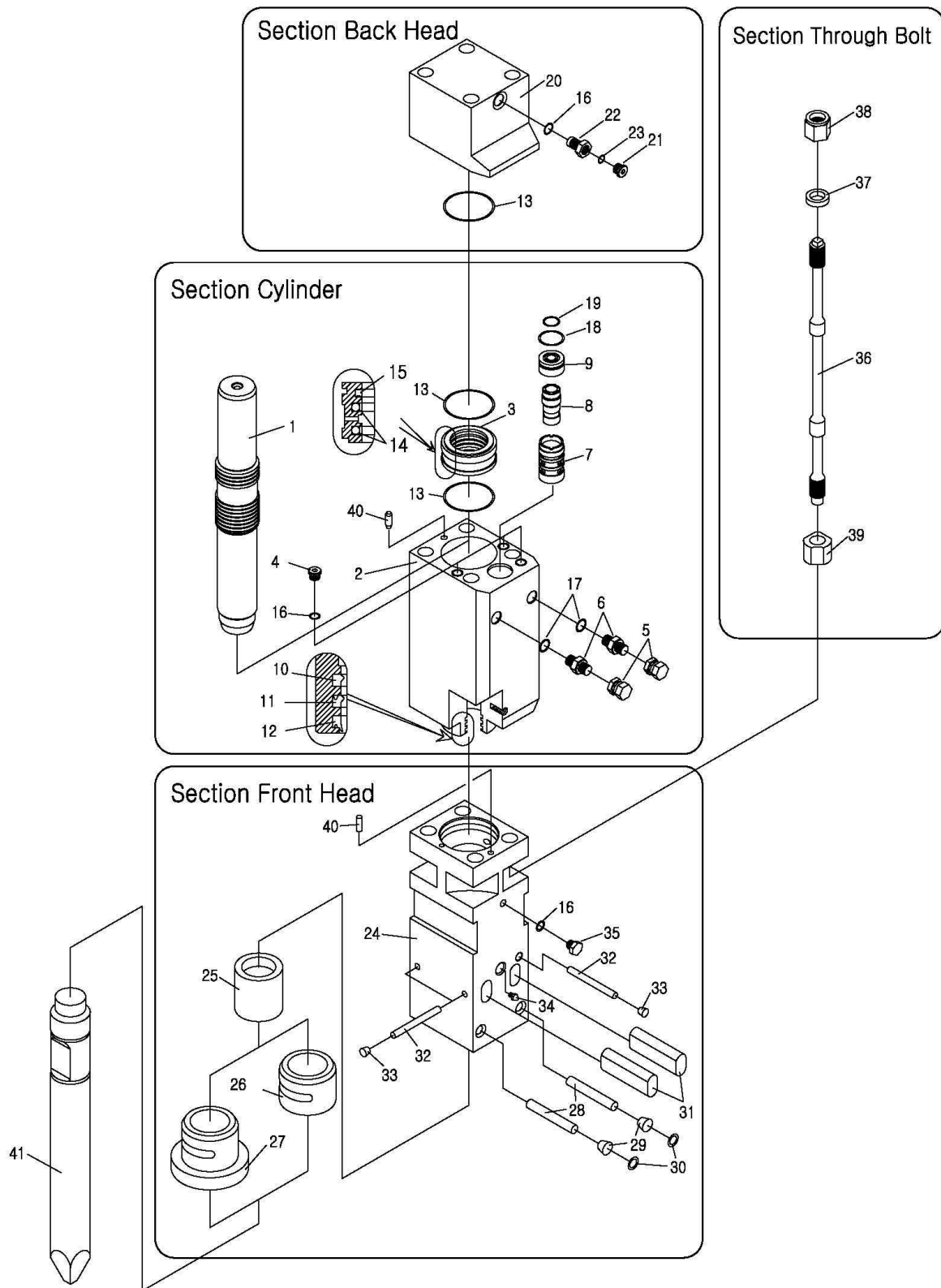
Parts List for BL Bracket

Model : FINE 7BLX

Item no.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket(BL)	L07510000	L07510000000	1SET		
2	Plate-Cover	L07512000	L07510020000	1		
3	Damper-Bottom	B05500020	B05510052000	1		
4	Damper-Upper	B05500010	B05510051000	1		
5	Bolt-Hex	P11020045	P11010200450	6	M20*45L	
6	Washer-Spring	P15120000	P13021200000	6	M20	
7	Pin-Bracket	P43045407	P43045407300	2	Alternative	
8	Bush-Bracket	P44045400	P44045064400	4	Alternative	
9	Ring-Stop	P45045300	P45045080300	2	Alternative	
10	Bolt-Hex	P11012110	P11010121100	2	M12x110L	
11	Nut-Hex	P13012000	P12010120000	4	M12	



Exploded View of *FINE 7X, 7T, 7S, 8BL*



Parts List for Main Body

Model : FINE 7X, 7T, 7S, 8BL

Item no.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B07110010	B07110000100	1SET		
***	Assembly-Cylinder	B07111000	B07110010000	1SET	Including no. 1~9	
1	Piston	B07111200	B07110012000	1		
2	Cylinder	B07111100	B07110011000	1		
3	Seal-Retainer	B07111300	B07110013000	1		
4	Socket Plug	P19104010	P14020050010	3	PF1/2"	
***	Assembly-Adapter Flange	B07113300	B07110033000	2SET	Including no. 5,6	
5	Cap-Adapter	F05103440	F00511134400	2	PF3/4"	
6	Adapter	F01113440	F00111134400	2	PF3/4"	
***	Assembly-Valve	B07114000	B07110040000	1SET	Including no. 7~9	
7	Valve-Guide	B07114250	B07110042500	1		
8	Valve	B07114100	B07110041000	1		
9	Valve-Plug	B07114200	B07110042000	1		
10	Seal-Buffer	P23000851	P20301085000	1	HBV 85	
11	U-Packing	P21200851	P20102085000	1	ISI 85	
12	Seal-Dust	P22200851	P20202085000	1	DSI 85	
13	O-Ring	P2710115G	P20701115000	2	G115-1B	
14	Seal-Step	P25000835	P20500083500	2	SPNS 83.5	
-	O-Ring			2		
15	Seal-Gas	P24000835	P20400083500	1	PPY 83.5	
16	O-Ring	P2700018P	P20700018000	3	P18-1B	
17	O-Ring	P2700024P	P20700024000	2	P24-1B	
18	O-Ring	P2710045G	P20701045000	1	G45-1B	
19	O-Ring	P2710030G	P20701030000	1	G30-1B	
***	Assembly-Back Head	B07113000	B07110030000	1SET	Including no. 20~22	
20	Back Head	B07113100	B07110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	Including no. 21,22	
21	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
22	Charging Valve	B15113210	B15110032100	1		
13	O-Ring	P2710115G	P20701115000	1	G115-1B	
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
23	O-Ring	P2700008P	P20700008000	1	P8-1B	
***	Assembly-Front Head	B07112010	B07110020100	1SET	Including no. 24~30, 32~35	
24	Front Head	B07112100	B07110021000	1		
25	Inner Bush	B07112300	B07110023000	1		
26	Front Cover	B07112210	B07110022100	1	BOX TYPE	
27	Front Cover	B07112200	B07110022000	1	TOP TYPE	
28	Pin-Front Head	B07112620	B07110026200	2		
29	Plug-Rubber	B07112820	B07110028200	2	Ø20xØ23x14	
30	Snap Ring	P07150200	P07010102100	2		
32	Pin-Stop	B07112610	B07110026100	1		

Parts List for Main Body

Model : FINE 7X, 7T, 7S, 8BL

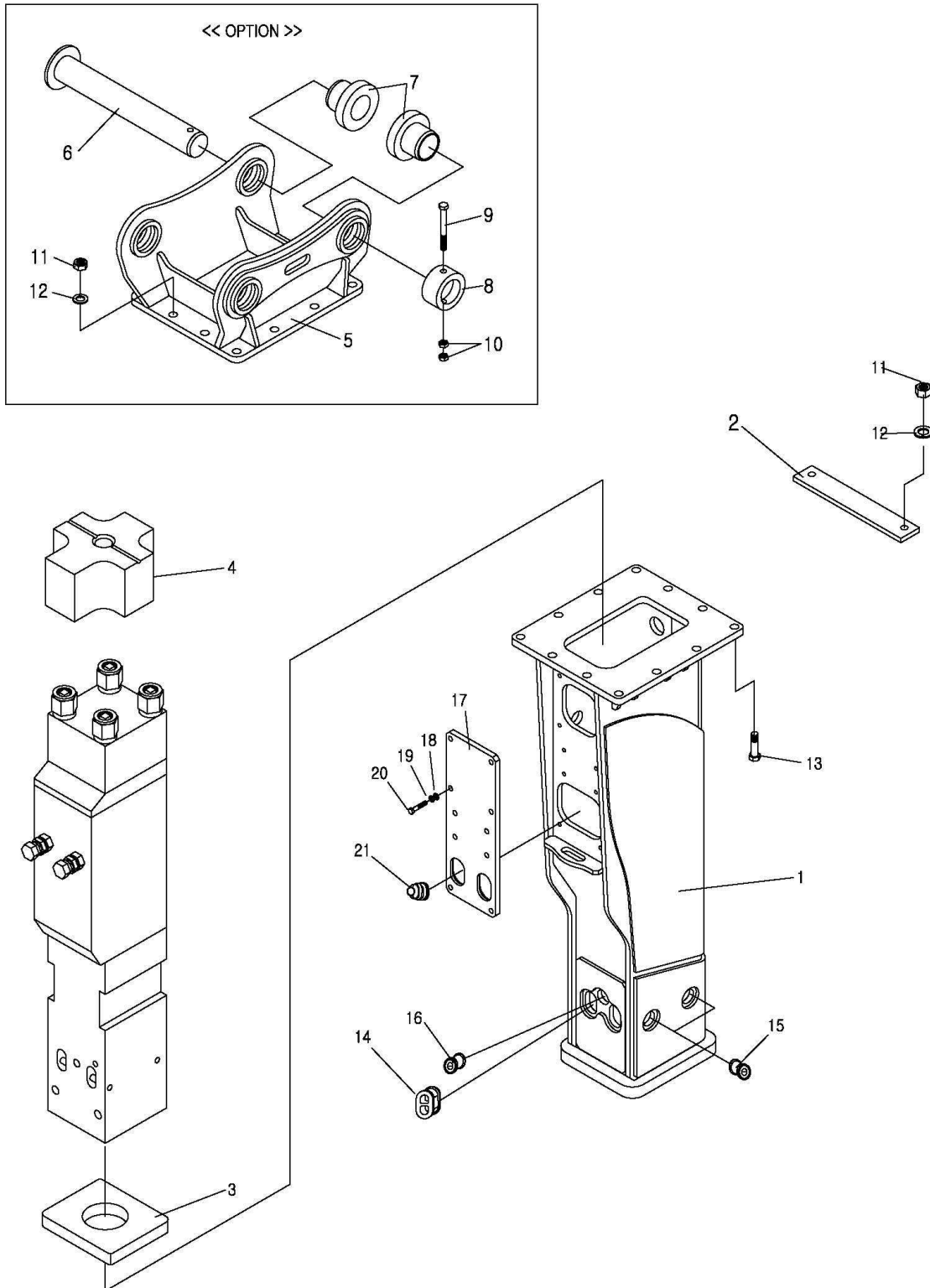
Item no.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
33	Plug-Rubber	B07112810	B07110028100	1	Ø17xØ21x14	
34	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
35	Air Cap	B00002700	B00000027000	1		
16	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B07115000	B07110050000	4SET	Including no. 36~39	
36	Through Bolt	B07115100	B07110051000	4		
37	Washer	B07115200	B07110052000	4		
38	Nut-Upper	B07115300	B07110053000	4		
39	Nut-Bottom	B07115400	B07110054000	4		
31	Pin-Tool	B07112400	B07110024000	2		
32	Pin-Stop	B07112610	B07110026100	2		
33	Plug-Rubber	B07112810	B07110028100	2	Ø17xØ21x14	
40	Pin-Knock	B15111400	B15110014000	2		
41	Tool-Moil Point	B07112511	B07110025101	1	Alternative	
-	Tool-Wedge Point	B07112521	B07110025201	-	Alternative	
-	Tool-Blunt End	B07112541	B07110025401	-	Alternative	
***	Seal kit-Complete	B07117000	B07110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B0700800B	B0700008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B0700800T	B0700008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 7X(New Design)*



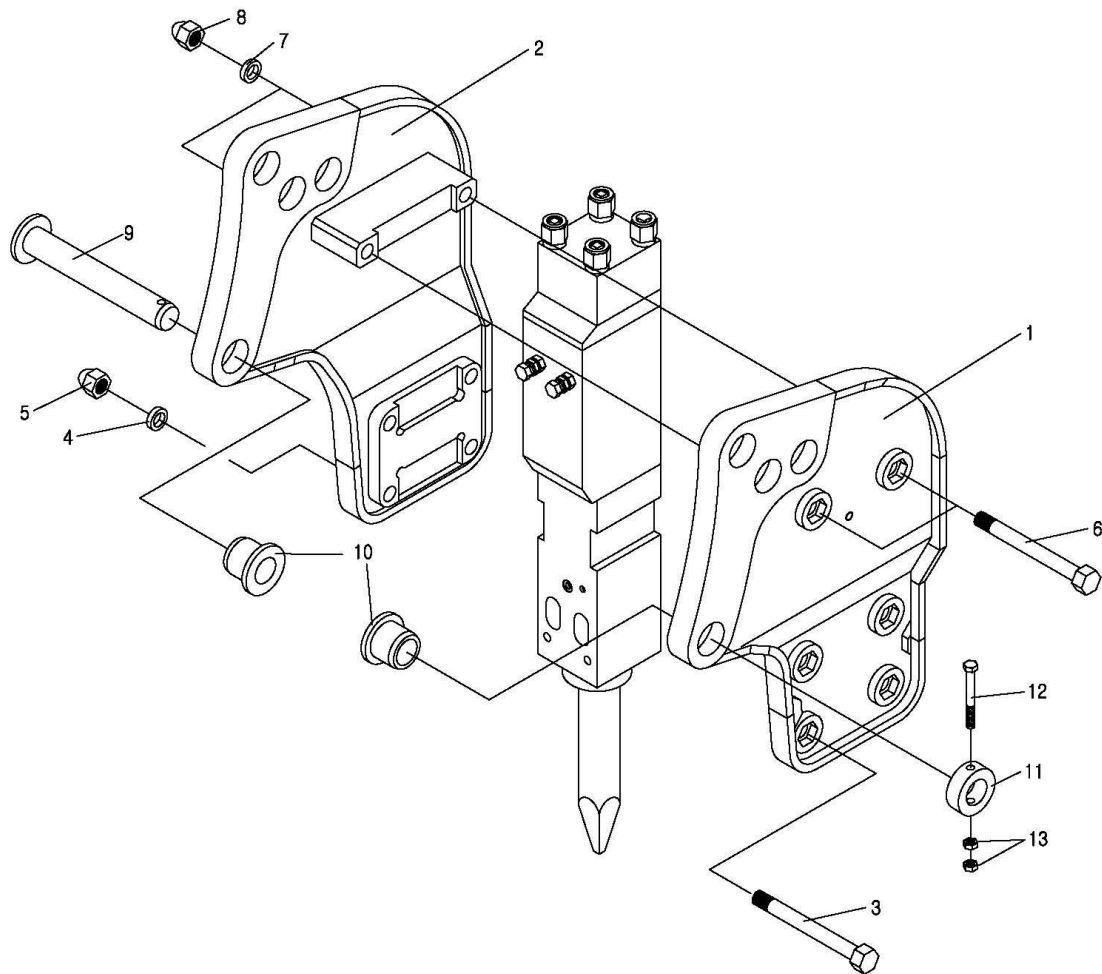
Parts List for Box-New Design

Model : FINE 7X

Item no.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B07560010000	1SET		
2	Plate-Cover	-	B07560020000	1		
3	Damper-Bottom	-	B07510052000	1		
4	Damper-Upper	-	B07510051000	1		
***	Assembly-Mount Cap	-	B07660000000	1SET	Including no. 5~13	
5	Mount Cap	-	B07660010000	1SET	OPTION	
6	Pin-Bracket	-	P43050445300	2	Alternative	
7	Bush-Bracket	-	P44050075520	4	Alternative	
8	Ring-Stop	-	P45050100300	2	Alternative	
9	Bolt-Hex	-	P11010121300	2	M12x130L	
10	Nut-Hex	-	P12014120000	4	M12	
***	Assembly-Bolt-Hex	-	B07410050000	12SET	Including no. 11~13	
11	Nut-Hex Nylock	-	P12020200000	12	M20	
12	Washer-Spring	-	P13021200000	12	M20	
13	Bolt-Hex	-	P11010200700	12	M20x70L	
14	Plug-Rubber	-	B07560064200	2	50x74x24	Low noise type(option)
15	Plug-Rubber	-	B12560064100	8	Ø45x30	
16	Plug-Rubber	-	B12560064300	1	Ø50x32	
17	Cover	-	B07560061000	1		
18	Washer-Plain	-	P13010120000	10	M12	
19	Washer-Spring	-	P13021120000	10	M12	
20	Bolt-Hex	-	P11010120350	10	M12x35L	
21	Hose Belloss	-	B10530063000	2	3/4"	



Exploded View of *FINE 8BL*



Bracket-Backhoe Loader: Unit serial no.

Parts List for BL Bracket

Model : FINE 8BL

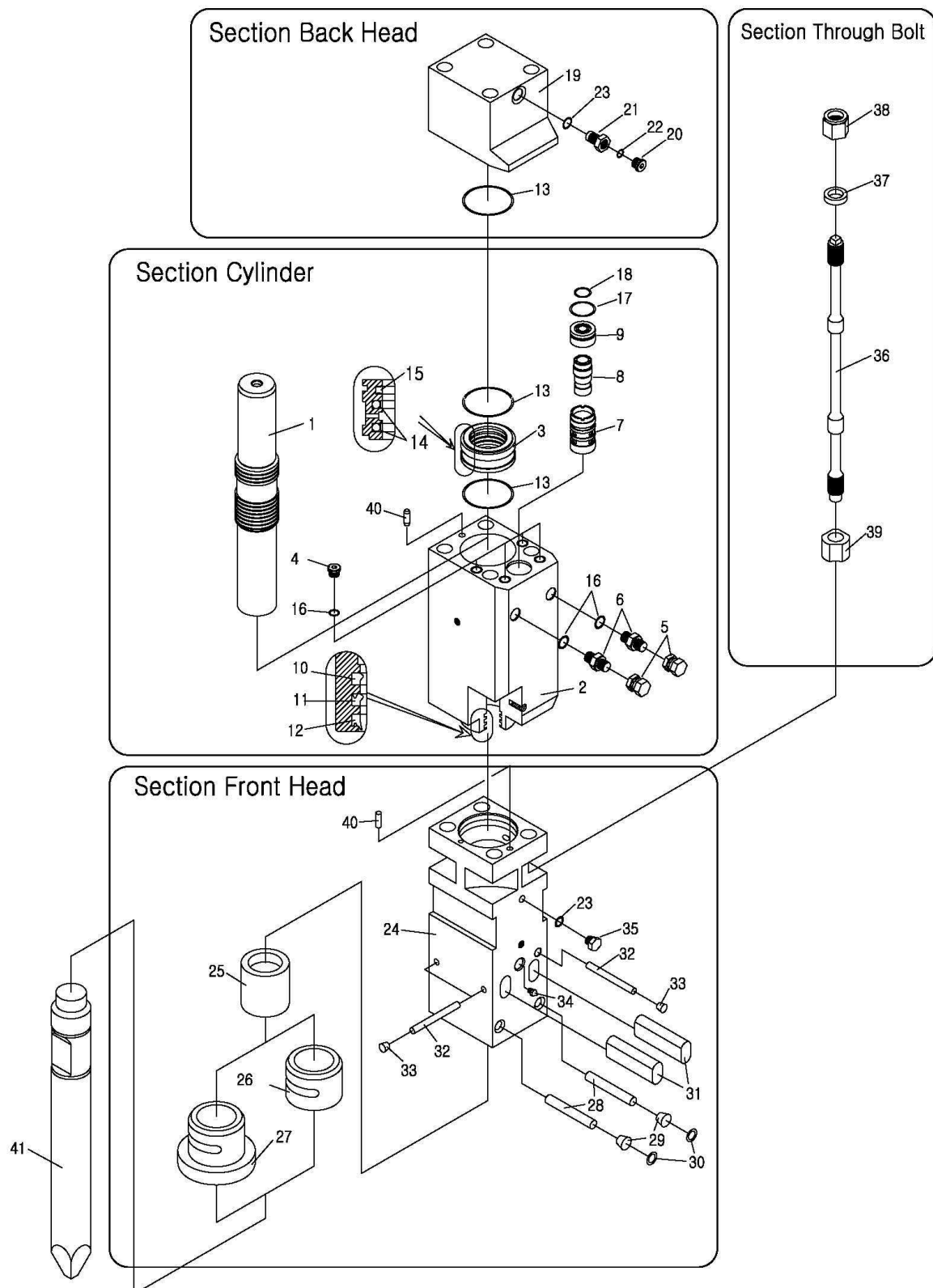
Item no.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	L08312000	L08310020000	1		
2	Assembly-Bracket, LH	L08311000	L08310010000	1		
***	Assembly-Bracket Bolt	B07315000	B07310050000	4SET		
3	Bolt-Hex	P11530280	P11015302800	4	M30x280	
4	Washer-Spring	P15130000	P13021300000	4	M30	
5	Nut-Cap	P13C30000	P12030300000	4	M30	
***	Assembly-Bracket Bolt	L08315000	L08310050000	2SET	including no. 6~8	
6	Bolt-Hex	P11530330	P11015303300	2	M30x330	
7	Washer-Spring	P15130000	P13021300000	2	M30	
8	Nut-Cap	P13C30000	P12030300000	2	M30	
9	Pin-Bracket	P43050410	P43050407300	2	Alternative	
10	Bush-Bracket	P44050350	P44050075350	4	Alternative	
11	Ring-Stop	P45050300	P45050100300	2	Alternative	
12	Bolt-Hex	P11012130	P11010121300	2	M12x130L	
13	Nut-Hex	P13012000	P12010120000	4	M12	

목 록

FINE10 MainBody.....	1
FINE10 Box-New Design.....	2



Exploded View of *FINE* 10X, 10T, 10S



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 10X, 10T, 10S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B10110010	B10110000100	1SET		
***	Assembly-Cylinder	B10111000	B10110010000	1SET	including no. 1~9	
1	Piston	B10111200	B10110012000	1		
2	Cylinder	B10111100	B10110011000	1		
3	Seal-Retainer	B10111300	B10110013000	1		
4	Socket Plug	P19105010	P14020070010	4	PF3/4"	
***	Assembly-Adapter Flange	B07113300	B07110033000	2SET	including no. 5,6	
5	Cap-Adapter	F05103440	F00511134400	2	PF3/4"	
6	Adapter	F01113440	F00111134400	2	PF3/4"	
***	Assembly-Valve	B10114000	B10110040000	1SET	including no. 7~9	
7	Valve-Guide	B10114250	B10110042500	1		
8	Valve	B10114100	B10110041000	1		
9	Valve-Plug	B10114200	B10110042000	1		
10	Seal-Buffer	P23001001	P20301100000	1	HBV 100	
11	U-Packing	P21201001	P20102100000	1	ISI 100	
12	Seal-Dust	P22201001	P20202100000	1	DSI 100	
13	O-Ring	P2710135G	P20701135000	2	G135-1B	
14	U-Packing	P21200981	P20102098000	2	ISI 98	s/no.10/2000~
15	Seal-Gas	P24000980	P20400098000	1	PPY 98	
16	O-Ring	P2700024P	P20700024000	6	P24-1B	
17	O-Ring	P2700052P	P20700052000	1	P52-1B	
18	O-Ring	P2710035G	P20701035000	1	G35-1B	
***	Assembly-Back Head	B10113000	B10110030000	1SET	including no. 19~21	
19	Back Head	B10113100	B10110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 20,21	
20	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
21	Charging Valve	B15113210	B15110032100	1		
13	O-Ring	P2710135G	P20701135000	1	G135-1B	
22	O-Ring	P2700008P	P20700008000	1	P8-1B	
23	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Front Head	B10112010	B10110020100	1SET	including no. 24~30, 32~35	
24	Front Head	B10112100	B10110021000	1		
25	Inner Bush	B10112300	B10110023000	1		
26	Front Cover	B10112210	B10110022100	1	BOX TYPE	
27	Front Cover	B10112200	B10110022000	1	TOP TYPE	
28	Pin-Front Head	B15112620	B15110026200	2		
29	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20	
30	Snap Ring	P07150260	P07010102600	2	Ø26 HOLE TYPE	
32	Pin-Stop	B10112610	B10110026100	1		
33	Plug-Rubber	B07112810	B07110028100	1	Ø17xØ21x14	
34	Grease Nipple	P10201000	P10201000000	1	PT1/4"	

Parts List for Main Body

Model : FINE 10X, 10T, 10S

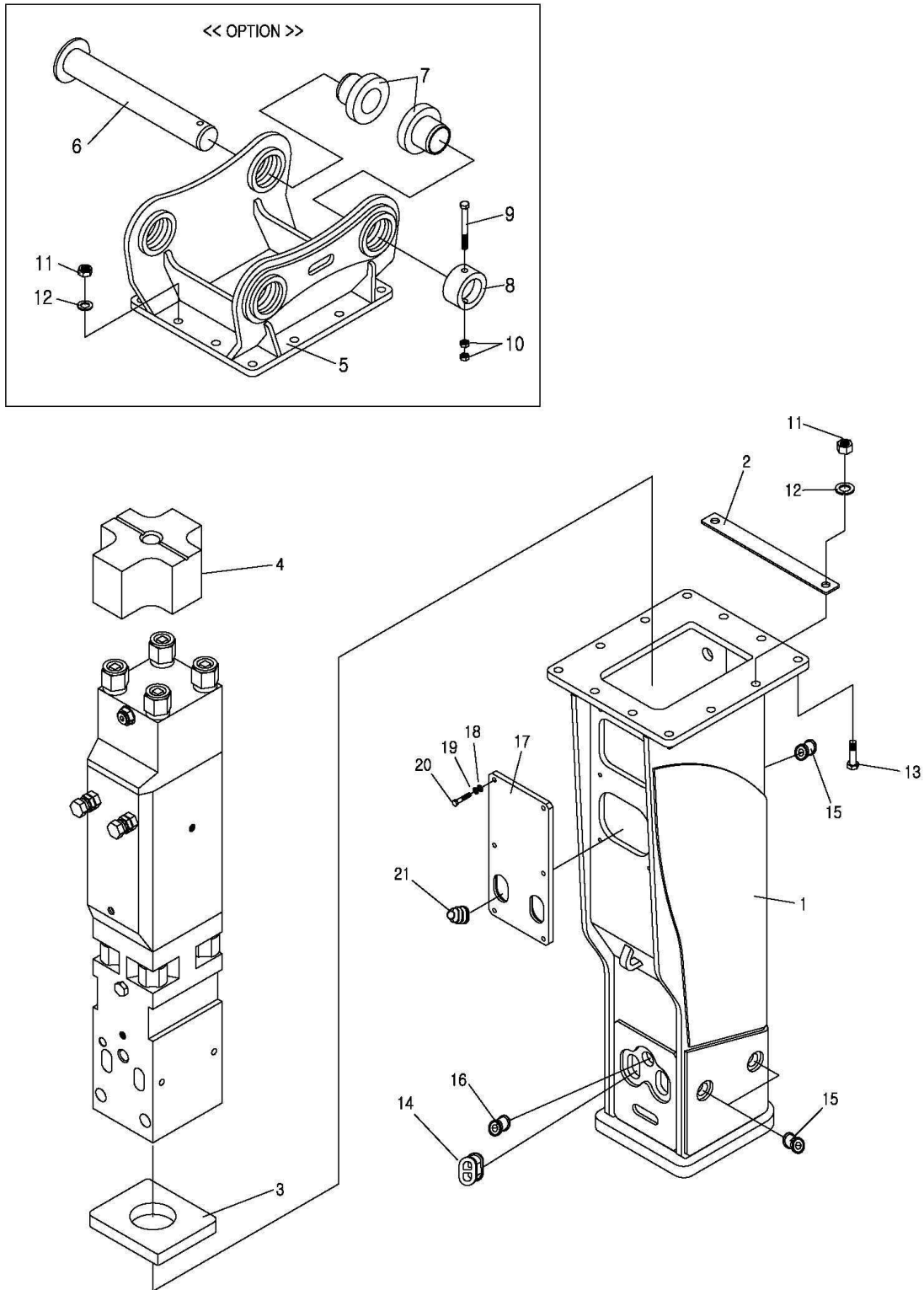
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
35	Air Cap	B00002700	B00000027000	1		
23	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B10115000	B10110050000	4SET	including no. 36~39	
36	Through Bolt	B10115100	B10110051000	4		
37	Washer	B10115200	B10110052000	4		
38	Nut-Upper	B10115300	B10110053000	4		
39	Nut-Bottom	B10115400	B10110054000	4		
31	Pin-Tool	B10112401	B10110024001	2		
32	Pin-Stop	B10112610	B10110026100	2		
33	Plug-Rubber	B07112810	B07110028100	2	Ø17xØ21x14	
40	Pin-Knock	B15111400	B15110014000	2		
41	Tool-Moil Point	B10112511	B10110025101	1	선택, Alternative	
-	Tool-Wedge Point	B10112521	B10110025201	-	선택, Alternative	
-	Tool-Blunt End	B10112541	B10110025401	-	선택, Alternative	
***	Seal kit-Complete	B10117000	B10110070000	1SET		s/no.10/2000~
***	Seal kit-Complete			1SET		~s/no.10/1000

Accessories

A-1	Box Set-Service Tools	B1000800B	B1000008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B1000800T	B1000008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 10X(New Design)*



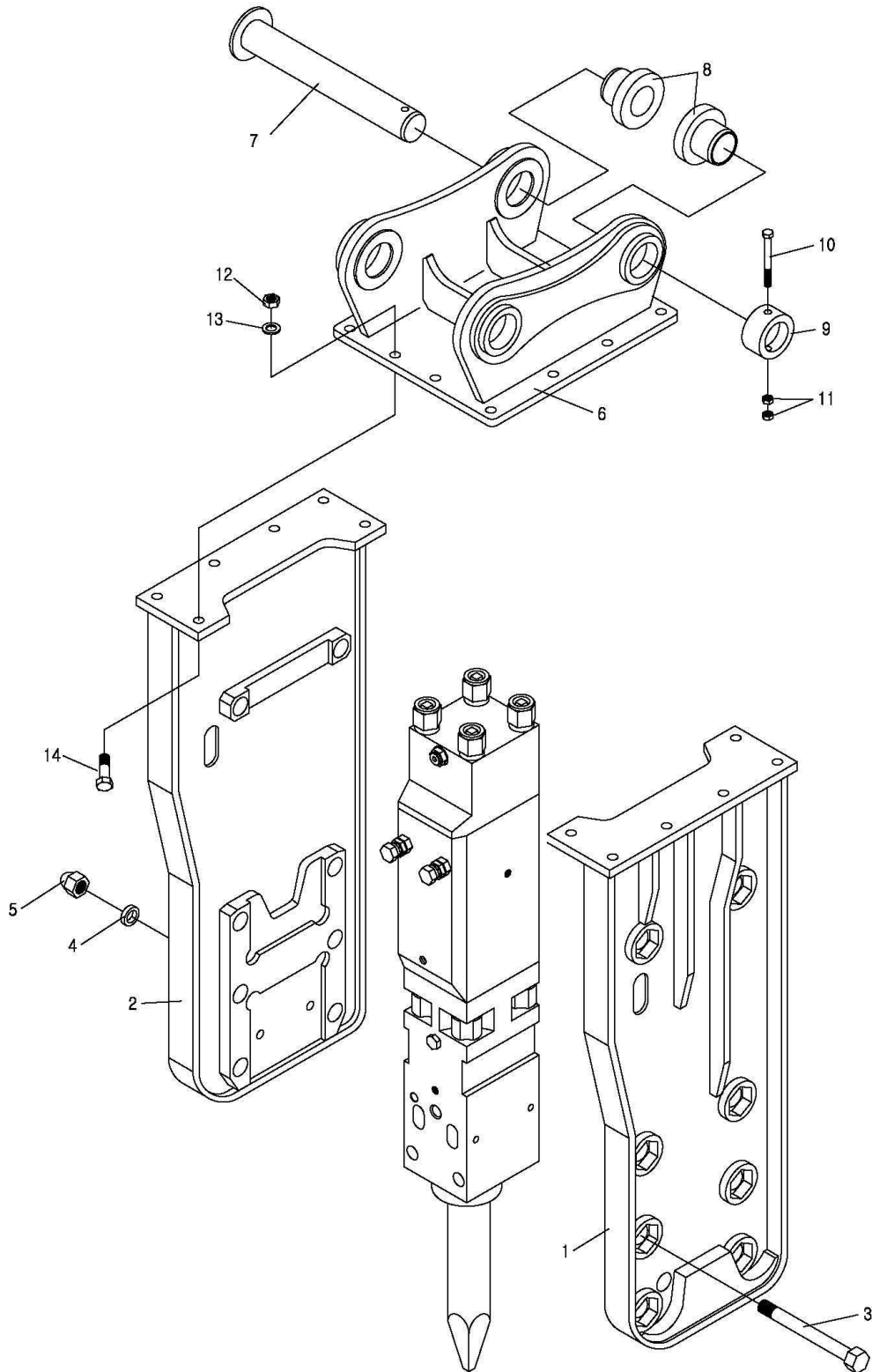
Parts List for Box-New Design

Model : FINE 10X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B10560010000	1SET		
2	Plate-Cover	-	B10510020000	1		
3	Damper-Bottom	-	B10510052000	1		
4	Damper-Upper	-	B10510051000	1		
***	Assembly-Mount Cap	-	B10660000000	1SET	including no. 5~13	
5	Mount Cap	-	B10660010000	1SET	OPTION	
6	Pin-Bracket	-	P43060485300	2	Alternative	
7	Bush-Bracket	-	P44060095400	4	Alternative	
8	Ring-Stop	-	P45060120300	2	Alternative	
9	Bolt-Hex	-	P11010121500	2	M12x150L	
10	Nut-Hex	-	P12010120000	4	M12	
***	Assembly-Bolt-Hex	-	B07410050000	12SET	including no. 11~13	
11	Nut-Hex Nylock	-	P12020200000	12	M20	
12	Washer-Spring	-	P13021200000	12	M20	
13	Bolt-Hex	-	P11010200700	12	M20x70L	
14	Plug-Rubber	-	B12560064200	2	71X43X16	Low noise type(option)
15	Plug-Rubber	-	B12560064100	8	Ø45x30	
16	Plug-Rubber	-	B12560064300	1	Ø50x32	
17	Cover	-	B12560061000	1		
18	Washer-Plain	-	P13010120000	6	M12	
19	Washer-Spring	-	P13021120000	6	M12	
20	Bolt-Hex	-	P11010120350	6	M12x35L	
21	Hose Belloss	-	B10530063000	2	3/4"	



Exploded View of *FINE 10T*



Bracket-Top (open type): Unit serial no.

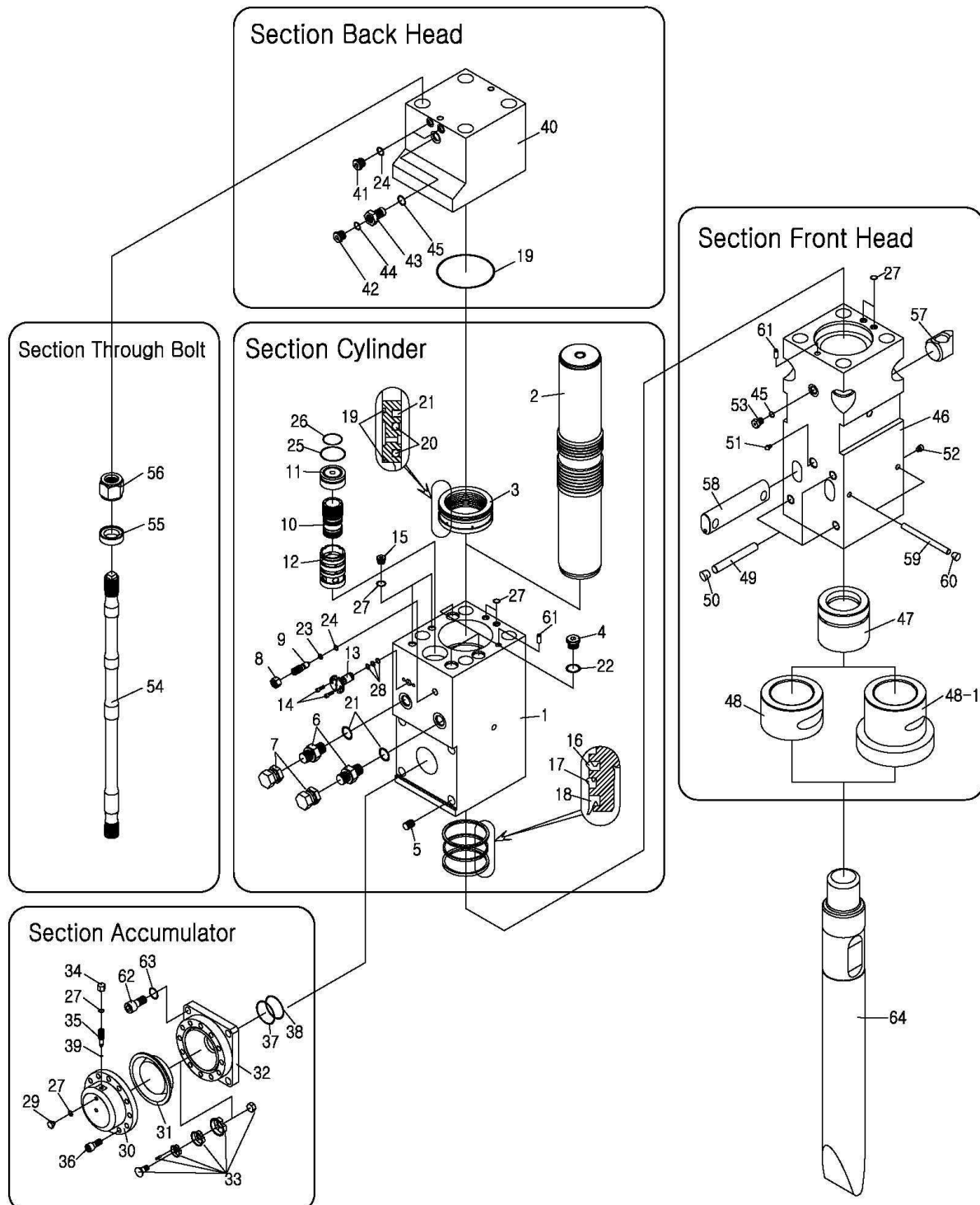
Parts List for Top Bracket

Model : FINE 10T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	B10312001	B10310020001	1	NEW	
2	Assembly-Bracket, LH	B10311001	B10310010001	1	NEW	
***	Assembly-Bracket Bolt	B10315000	B10310050000	8SET	including no. 3~5	
3	Bolt-Hex	P11530310	P11015303100	8	M30xP2.0x310L	
4	Washer-Spring	P15130000	P13021300000	8	M30	
5	Nut-Cap	P13C30000	P12030300000	8	M30	
***	Assembly-Mount Cap	-	B10410000001	1SET	including no. 6~14	
6	Mount Cap	B10410001	B10410010001	1SET	OPTION	
7	Pin-Bracket	P43060440	P43060440300	2	Alternative	
8	Bush-Bracket	P44060150	P44060080150	4	Alternative	
9	Ring-Stop	P45060300	P45060120300	2	Alternative	
10	Bolt-Hex	P11012150	P11010121500	2	M12x150L	
11	Nut-Hex	P13012000	P12010120000	4	M12	
***	Assembly-Bolt-Hex	B10415000	B07410050000	12SET	including no. 12~14	
12	Nut-Hex Nylock	P14020000	P12020200000	12	M20	
13	Washer-Spring	P15120000	P13021200000	12	M20	
14	Bolt-Hex	P11020070	P11010200700	12	M20xP2.5x70L	



Exploded View of *FINE* 12X



Main body: Unit serial no.

Part List for Main Body

Model : FINE 12X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B12110012	B12110000102	1SET		
***	Assembly-Cylinder	B12111000	B12110010000	1SET	including no. 1~14	
1	Cylinder	B12111102	B12110011002	1		
2	Piston	B12111200	B12110012000	1		
3	Seal-Retainer	B12111300	B12110013000	1		
4	Socket Plug	P19105010	P14020070010	3	PF3/4"	
5	Insert Coil	P16724360	P15007243600	4	M24xP3.0x1.5D	
***	Assembly-Adapter Flange	B20113310	B20110034000	2SET	BOX TYPE	
6	Adapter	F01113440	F00111134400	2	PF3/4"	
7	Cap-Adapter	F05103440	F00511134400	2	PF3/4"	
***	Assembly-Valve Adjuster	B23114600	B23110046000	1SET	including no. 8,9	
8	Nut-Hex	P13318000	P12013180000	1	M18xP1.5	
9	Valve-Adjuster	B23114610	B23110046100	1	NUT 포함	
***	Assembly-Valve	B12114000	B12110040000	1SET	including no. 10~12	
10	Valve	B12114101	B12110041001	1		
11	Plug-Valve	B12114200	B12110042000	1		
12	Guide-Valve	B12114251	B12110042501	1		
13	Auto Stop Valve	B12111700	B12110017000	1		
14	Bolt-Socket	P12008020	P11020080200	2	M8xP1.25x20L	
15	Socket Plug	P19103010	P14020030010	2	PF3/8"	
16	Seal-Buffer	P23101101	P20301110000	1	HBV 110	
17	U-Packing	P21201101	P20102110000	1	ISI 110	
18	Seal-Dust	P22201101	P20202110000	1	DSI 110	
19	O-Ring	P2710135G	P20701135000	2	G135-1B	
20	Seal-Step	P25001080	P20500108000	2	Ø108	
-	O-Ring			2		
21	Seal-Gas	P24001080	P20400108000	1	Ø108	
22	O-Ring	P2700024P	P20700024000	5	P24-1B	
23	Back Up Ring	P28PS0110	P20801011000	1	P11-T2	
24	O-Ring	P2700011P	P20700011000	1	P11-1B	
25	O-Ring	P2710060G	P20701060000	1	G60-1B	
26	O-Ring	P2710045G	P20701045000	1	G45-1B	
27	O-Ring	P2700014P	P20700014000	4	P14-1B	
28	O-Ring	P2700016P	P20700016000	3	P16-1B	
***	Assembly-Accumulator	B15116000	B15110060000	1SET	including no. 29~36	
29	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
30	Cover-Accumulator	B15116200	B15110062000	1		
31	Diaphragm	B15117400	B15110064000	1	Ø150	
32	Body-Accumulator	B15116100	B15110061000	1		
33	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
34	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
35	Charging-Adjuster	B15116500	B15110065000	1	M12xP1.25	
36	Bolt-Socket	P12316040	P11023160400	12	M16xP1.5x40L	
27	O-Ring	P2700014P	P20700014000	2	P14-1B	
37	Back Up Ring	P28GF0800	P20812080000	1	G80(85x87.4x2.4)-T3	
38	O-Ring	P2710080G	P20701080000	1	G80-1B	

Part List for Main Body

Model : FINE 12X

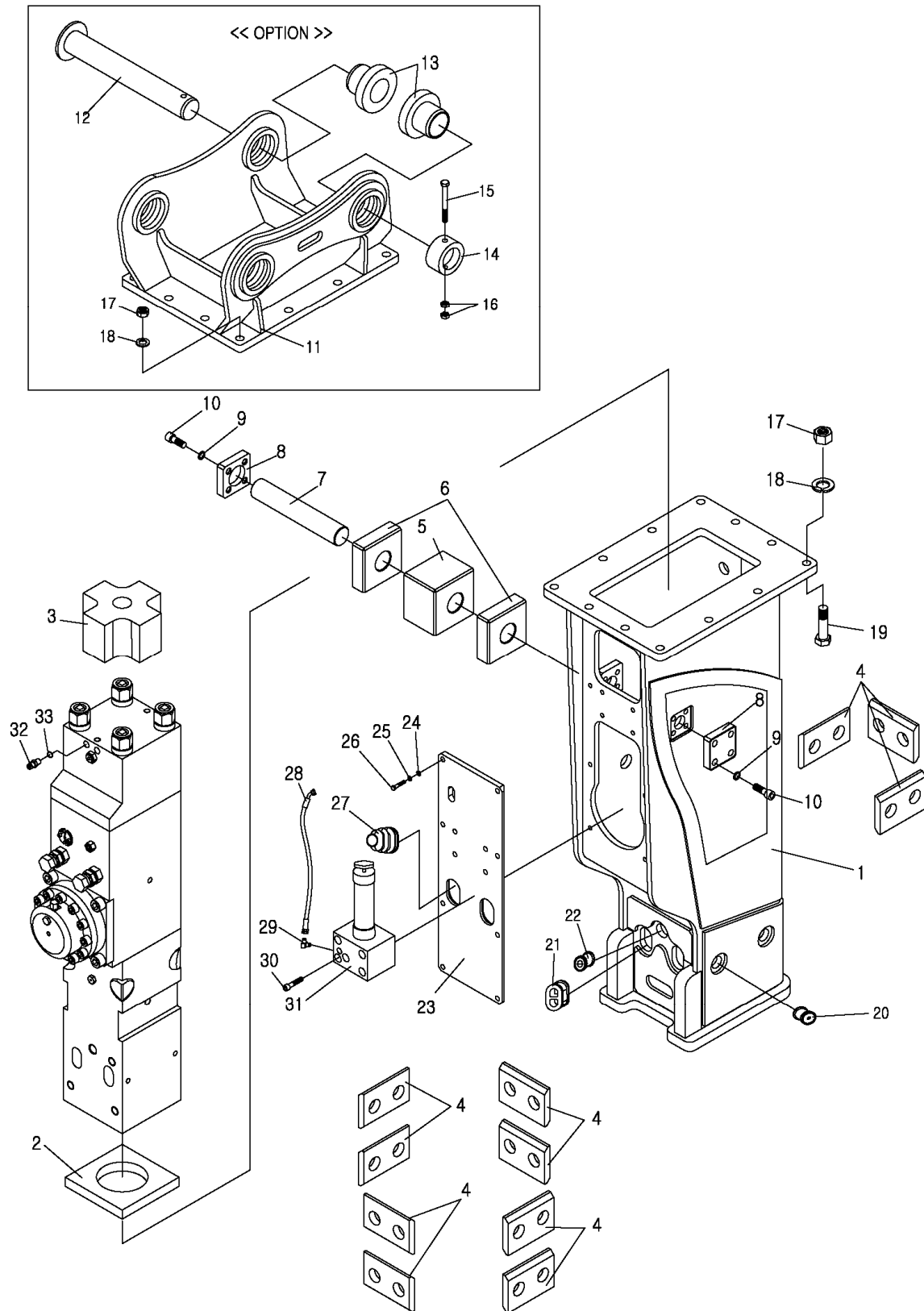
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
39	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B12113000	B12110030000	1SET	including no. 40~43	
40	Back Head	B12113100	B12110031001	1		
41	Socket Plug	P19102010	P14020010010	2	PF1/4" (10mm)	
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 42, 43	
42	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
43	Charging Valve	B15113210	B15110032100	1		
19	O-Ring	P2710135G	P20701135000	1	G135-1B	
24	O-Ring	P2700011P	P20700011000	2	P11-1B	
44	O-Ring	P2700008P	P20700008000	1	P8-1B	
45	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Front Head	B12112010	B12110020100	1SET	including no. 46~53	
46	Front Head	B12112100	B12110021000	1		
47	Inner Bush	B12112300	B12110023000	1		
48	Front Cover	B12112210	B12110022100	1	Box Type	
48-1	Front Cover	B12112200	B12110022000	1	Side Top Type	
49	Pin-Front Head	B12112620	B12110026200	3	Ø20x154L	
50	Plug-Rubber	B07112820	B07110028200	3	Ø20xØ23x14t	
51	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
52	Hollow Plug	P17001000	P16000010000	3	PT1/4"	
53	Air Cap	B00002700	B00000027000	1	PF1/2"	
45	O-Ring	P2700018P	P20700018000	1	P18-1B	
27	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Through Bolt	B12115000	B12110050001	4SET	including no. 54~57	
54	Through Bolt	B15115100	B12110051000	4		
55	Washer	B15115200	B12110052000	4		
56	Nut-Upper	B15115300	B12110053000	4		
57	Nut-Bottom	B12115400	B12110054001	4		
58	Pin-Tool	B12112400	B12110024000	2		
59	Pin-Stop	B12112610	B12110026100	2	Ø17.5x179L	
60	Plug-Rubber	B07112810	B07110028100	2	Ø17xØ21x14t	
61	Pin-Knock	B15111400	B15110014000	2	Ø12x30L	
62	Bolt-Socket	P12024060	P11020240600	4	M24xP3.0x60L	
63	Washer-Node lock	P15424000	P13034240000	4	M24	
64	Tool-Moil Point	B12112511	B12110025101	1	Alternative	
-	Tool-Wedge Point	B12112521	B12110025201	1	Alternative	
-	Tool-Blunt End	B12112541	B12110025401	1	Alternative	
***	Seal Kit-Complete	B12117000	B12110070001	1SET		

Accessories

A-1	Box Set-Service Tools	B1200800B	B1200008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B1200800T	B1200008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B04008200	B04000080000	1		3.4liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 12X(New Design)*



Bracket-Box type-New Design type: Unit serial no.

Parts List for Box-New Design

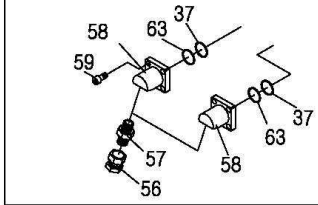
Model : FINE 12X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket		B12560010000	1SET		
2	Damper-Bottom		B12510052000	1	Urethane	
3	Damper-Upper		B15510051000	1	Urethane	
4	Damper-Plate		B12510053000	11	Urethane	
5	Damper-Support		B12560054000	1	Urethane	
6	Block-Support		B12560033001	2	Urethane	
7	Pin-Support		B12560031000	1		
8	Stopper-Pin		B12560032000	2		
9	Washer-Node lock		P13034160000	8	M14	
10	Bolt-Socket		P11020140300	8	M14x30L	
***	Assembly-Mount Cap		B12660000000	1SET	including no. 11~19	
11	Mount Cap		B12660010000	1SET	OPTION	
12	Pin-Bracket		P43060485300	2	Alternative	
13	Bush-Bracket		P44060090400	4	Alternative	
14	Ring-Stop		P45060120300	2	Alternative	
15	Bolt-Hex		P11014121500	2	M12x150L	
16	Nut-Hex		P12014120000	4	M12	
***	Assembly-Bolt-Hex		B12410050000	12SET	including no. 15~17	
17	Nut-Hex Nylock		P12020200000	12	M20	
18	Washer-Spring		P13021200000	12	M20	
19	Bolt-Hex		P11010200800	12	M20x80L	
20	Plug-Rubber	-	B12560064100	8	Ø35x16(Stop Pin)	Low noise type (option)
21	Plug-Rubber	-	B12560064200	2	71x43x16(Tool Pin)	
22	Plug-Rubber	-	B12560064300	1	Ø40x16(Grease)	
23	Cover	-	B12560061000	1		
24	Washer-Plain	-	P13010120000	14	M12	
25	Washer-Spring	-	P13021120000	14	M12	
26	Bolt-Hex	-	P11010120350	14	M12	
27	Hose Belloss	-	B10530063000	2		
28	Hose(5#X45 5#)	-	F10211110080	1	1/4"(70BAR)x400L	AUTO GREASE(option)
29	90 Elbow	-	F00321231100	1	PT1/4"xPF1/4"5#	
30	Bolt-Socket	-	P11020121100	4	M12x110L	
31	Auto Grease unit	-	P42040010000	1	Inter Lube	
32	Connector	-	F00111131100	1	PF1/4"(O-RING)xPF1/4"5#	
33	O-Ring	-	P20700011000	1	P11-1B	

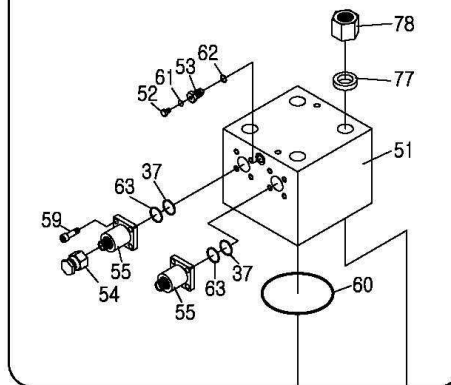


Exploded View of *FINE* 16X, 16T, 16S

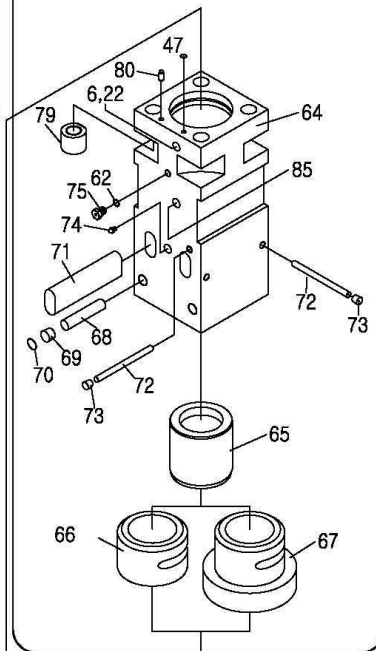
OPEN TYPE FLANGE



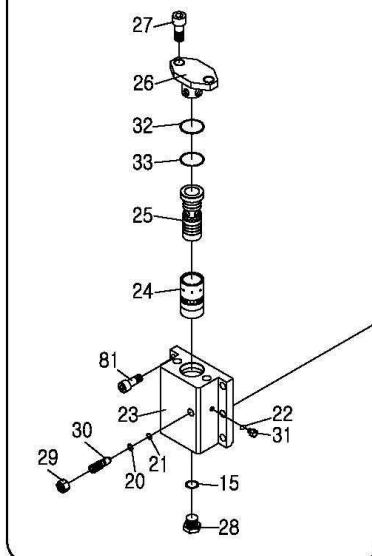
Section Back Head



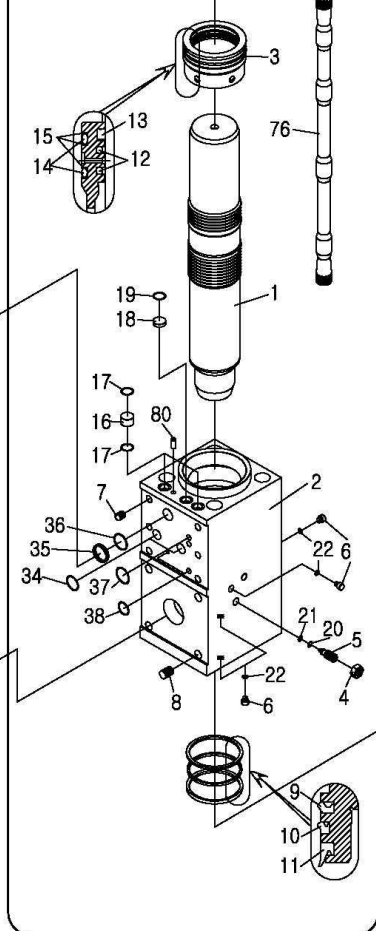
Section Front Head



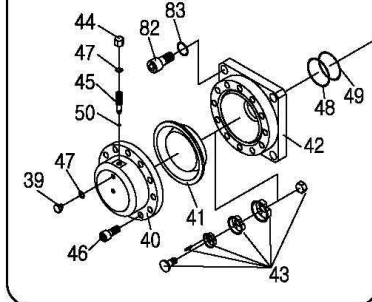
Section Valve Housing



Section Cylinder



Section Accumulator



Main body: Unit serial no.

Part List for Main Body

Model : FINE 16X, 16T, 16S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	-	B16110000100	1SET		
***	Assembly-Cylinder	-	B16110010000	1SET	including no. 1~8	
1	Piston	B15111200	B15110012000	1		
2	Cylinder	-	B16110011001	1		
3	Seal-Retainer	B15111300	B15110013000	1		
***	Assembly-Cylinder Adjuster	B15111500	B15110015000	1SET	including no. 4,5	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
5	Cylinder-Adjuster	B15111510	B15110015100	1		
6	Socket Plug	P19102010	P14020010010	4	PF1/4" (10mm)	
7	Insert Coil	P16620300	P15006203000	6	M20xP2.5x1.5D	
8	Insert Coil	P16724360	P15007243600	4	M24xP3.0x1.5D	
9	Seal-Buffer	P23001241	P20301124000	1	HBV 124	
10	U-Packing	P21101241	P20101124000	1	IDI 124	
11	Seal-Dust	P22301241	P20203124000	1	LPI 124	
12	Seal-Step	P25001200	P20500120000	2	SPNS 120	
-	O-Ring			2		
13	Seal-Gas	P24001200	P20400120000	1	Ø120	
14	O-Ring	P2700145P	P20700145000	2	P145-1B	
15	Back Up Ring	P28PS1450	P20801145000	3	P145-T2	
16	Bush-Teflon	B15111610	B15110016100	2	Ø32xØ22x24L	
17	O-Ring	P2700026P	P20700026000	4	P26-1B	
18	Plug-Teflon	B15111620	B15110016200	1	Ø30x15L	
19	O-Ring	P2700024P	P20700024000	1	P24-1B	
20	Back Up Ring	P28PS0120	P20801012000	1	P12-T2	
21	O-Ring	P2700012P	P20700012000	1	P12-1B	
22	O-Ring	P2700011P	P20700011000	4	P11-1B	
***	Assembly-Valve Housing	B15114000	B15110040000	1SET	including no. 23~31	
23	Valve-Housing	B15114300	B15110043000	1		
24	Valve	B15114100	B15110041000	1		
25	Valve-Plug	B15114200	B15110042000	1		
26	Cover-Housing, Valve	B15114510	B15110045100	1		
27	Bolt-Socket	P12524055	P11025240550	2	M24xP2.0x55L	
28	Plug-Housing, Valve	B15114400	B15110044000	1		
***	Assembly-Valve Adjuster	B15114600	B15110046000	1SET	including no. 29,30	
29	Nut-Hex	P13320000	P12013200000	1	M20xP1.5 Adjuster	
30	Valve-Adjuster	B15114610	B15110046100	1		
31	Socket Plug	P19102011	P14020010011	2	PF1/4" (4mm)	
20	Back Up Ring	P28PS0120	P20801012000	1	P12-T2	
21	O-Ring	P2700012P	P20700012000	1	P12-1B	
22	O-Ring	P2700011P	P20700011000	1	P11-1B	
32	Back Up Ring	P28GS0550	P20811055000	1	G55-T2	

Part List for Main Body

Model : FINE 16X, 16T, 16S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
33	O-Ring	P2710055G	P20701055000	1	G55-1B	
34	O-Ring	P2710035G	P20701035000	2	G35-1B	
35	Back Up Ring	P28GF0450	P20812045000	1	G45(50x52.4x2.4)-T3	
36	O-Ring	P2710045G	P20701045000	1	G45-1B	
37	O-Ring	P2710040G	P20701040000	1	G40-1B	
38	O-Ring	P2710025G	P20701025000	2	G25-1B	
***	Assembly-Accumulator	B15116000	B15110060000	1SET	including no. 39~46	
39	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
40	Cover-Accumulator	B15116200	B15110062000	1		
41	Diaphragm	B15117400	B15110064000	1	Ø150	
42	Body-Accumulator	B15116100	B15110061000	1		
43	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
44	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
45	Charging-Adjuster	B15116500	B15110065000	1	M12xP1.25	
46	Bolt-Socket	P12316040	P11023160400	12	M16xP1.5x40L	
47	O-Ring	P2700014P	P20700014000	2	P14-1B	
48	Back Up Ring	P28GF0800	P20812080000	1	G80(85x87.4x2.4)-T3	
49	O-Ring	P2710080G	P20701080000	1	G80-1B	
50	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	-	B16110030000	1SET	including no. 51~59	
51	Back Head	-	B16110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 52,53	
52	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
53	Charging Valve	B15113210	B15110032100	1		
***	Assembly-Adapter Flange	B20113310	B20110034000	2SET	BOX TYPE	
54	Cap-Adapter	F05263C00	F0053163C000	2	M42xP2.0	
55	Adapter-Flange	B20123310	B20110033300	2	M42xP2.0 (BOX TYPE)	
***	Assembly-Adapter Flange	B20113300	B20110033000	2SET	SIDE TOP TYPE	
56	Cap-Adapter	F05103500	F00511135000	2	PF1"x5#	
57	Adapter	F01434550	F00121245500	2	PT1"x PF1"5#	
58	Adapter-Flange	B20113320	B20110038100	2	30도 (SIDE TOP TYPE)	
59	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
37	O-Ring	P2710040G	P20701040000	2	G40-1B	
60	O-Ring	P2710180G	P20701180000	1	G180-1B	
61	O-Ring	P2700008P	P20700008000	1	P8-1B	
62	O-Ring	P2700018P	P20700018000	1	P18-1B	
63	Back Up Ring	P28GS0400	P20811040000	2	G40-T2	
***	Assembly-Front Head	-	B16110020100	1SET	including no. 64~70, 72~75, 6	
64	Front Head	-	B16110021001	1		
65	Inner Bush	B15112300	B15110023000	1		
66	Front Cover	B15112210	B15110022100	1		for Box Type & "E" serie

Part List for Main Body

Model : FINE 16X, 16T, 16S

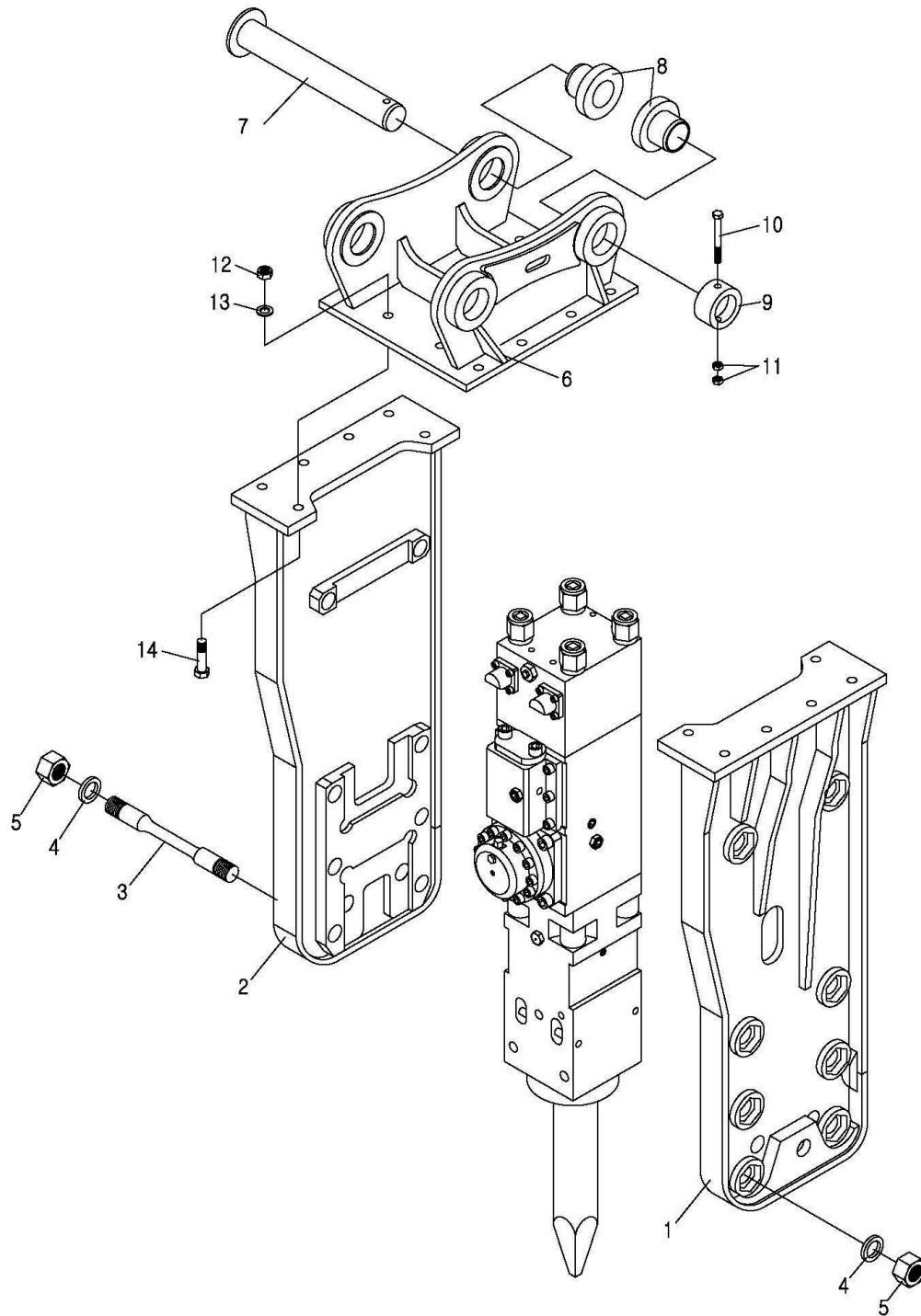
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
67	Front Cover	B15112200	B15110022000	1		for Open Type
68	Pin-Front Head	B15112620	B15110026200	2	Ø26x135L	
69	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20	
70	Snap Ring	P07150260	P07010102600	2	Ø26 HOLE TYPE	
72	Pin-Stop	B15112610	B15110026100	1		
73	Plug-Rubber	B07112810	B07110028100	1	Ø17xØ21x14	
74	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
75	Air Cap	B00002700	B00000027000	1		
6	Socket Plug	P19102010	P14020010010	1	PF1/4" (10mm)	
22	O-Ring	P2700011P	P20700011000	1	P11-1B	
47	O-Ring	P2700014P	P20700014000	1	P14-1B	
62	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	-	B16110050000	4SET	including no. 76~79	
76	Through Bolt	-	B16110051000	4		
77	Washer	-	B16110052000	4		
78	Nut-Upper	-	B16110053000	4		
79	Nut-Bottom	-	B16110054000	4		
71	Pin-Tool	B15112401	B15110024001	2		
72	Pin-Stop	B15112610	B15110026100	2	(Only Old Type, Top&Side Type)	
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
73	Plug-Rubber	B07112810	B07110028100	2	Ø17xØ21x14(Only Old Type, Top&Side Type)	
80	Pin-Knock	B15111400	B15110014000	2		
81	Bolt-Socket	P12020055	P11020200550	6	M20xP2.5x55L	
82	Bolt-Socket	P12024060	P11020240600	4	M24xP3.0x60L	
83	Washer-Node lock	P15424000	P13034240000	4	M24	
84	Tool-Moil Point	B15112511	B15110025101	1	Alternative	
-	Tool-Wedge Point	B15112521	B15110025201	-	Alternative	
-	Tool-Blunt End	B15112541	B15110025401	-	Alternative	
***	Seal Kit-Complete	B15117000	B15110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B1500800B	B1500008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B1500800T	B1500008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008101	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 16T*



Bracket-Top (open type): Unit serial no.

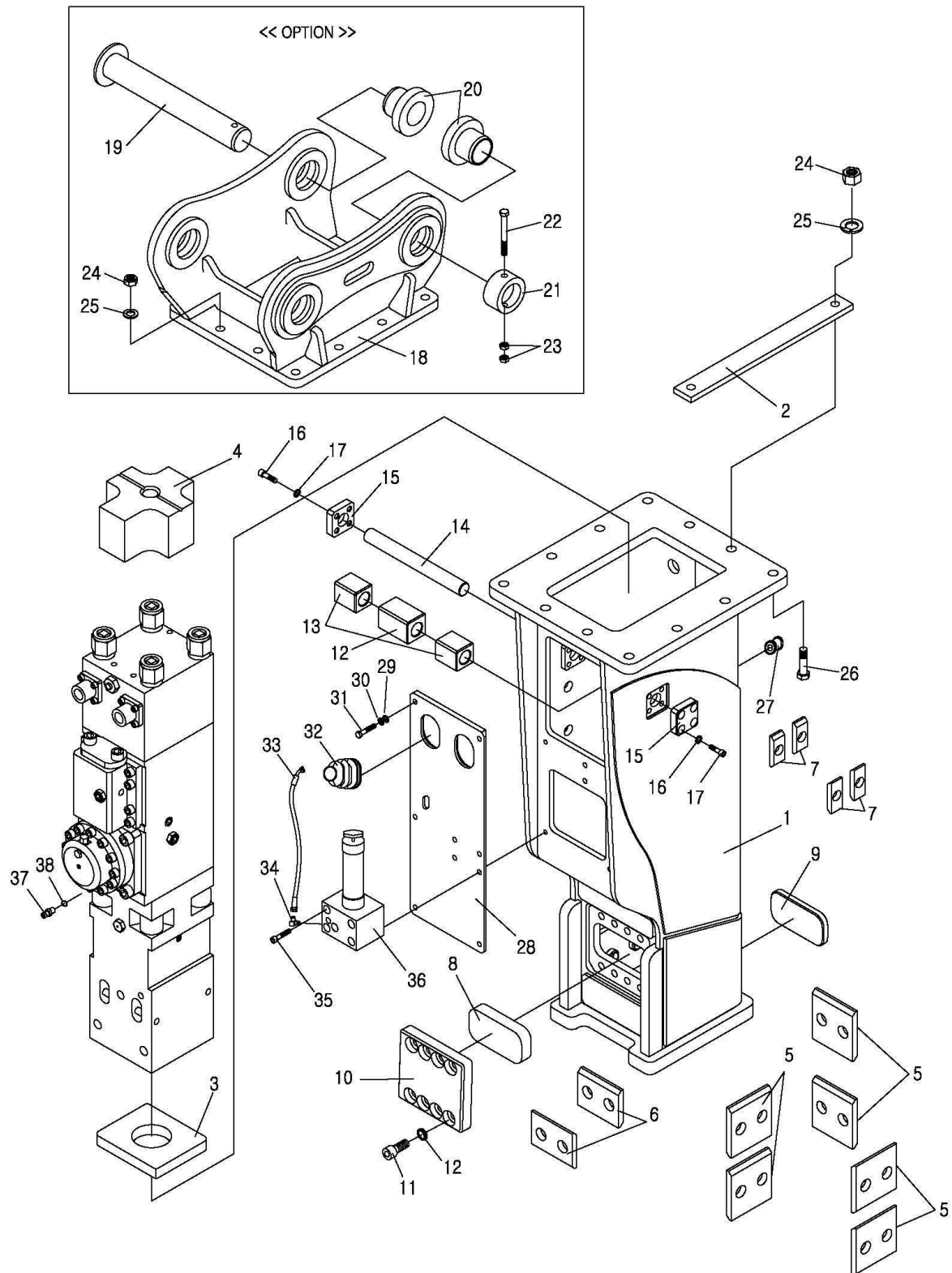
Parts List for Top Bracket

Model : FINE 16T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	B15312001	B15310020001	1		
2	Assembly-Bracket, LH	B15311001	B15310010001	1		
***	Assembly-Bracket Bolt	B15315000	B15310050000	8SET	including no. 3~5	
3	Bolt-Bracket	B15315100	B15310051000	8		
4	Washer-Bracket	B15315200	B15310052000	16		
5	Nut-Bracket	B15315300	B15310053000	16		
***	Assembly-Mount Cap	-	B15410000001	1SET	including no. 6~14	
6	Mount Cap	B15410003	B15410010003	1SET	OPTION	
7	Pin-Bracket	P43080560	P43080560400	2	Alternative	
8	Bush-Bracket	P44080140	P44080950140	4	Alternative	
9	Ring-Stop	P45080400	P45080140400	2	Alternative	
10	Bolt-Hex	P11016180	P11015161800	2	M16x180L	
11	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B20415002	B20410050002	12SET	including no. 12~14	
12	Nut-Hex Nylock	P14024000	P12020240000	12	M24	
13	Washer-Spring	P15124000	P13021240000	12	M24	
14	Bolt-Hex	P11724100	P11017241000	12	M24xP3.0x100L	



Exploded View of *FINE 16X(New Design)*



Bracket-Box type-New Design type: Unit serial no.

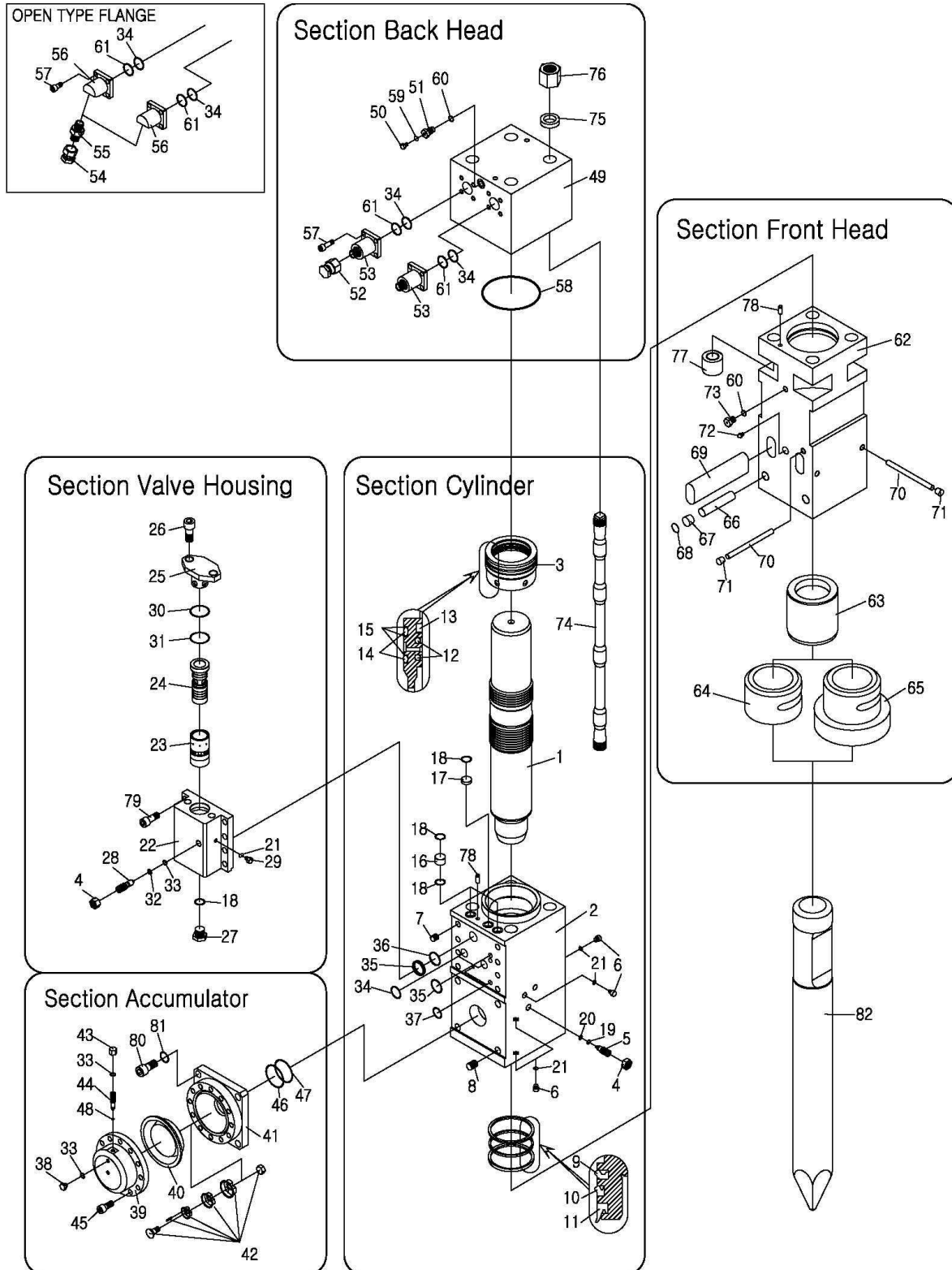
Parts List for Box-Low noise

Model : FINE 16X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket		B1556000000	1SET	BOX TYPE	Low noise type
2	Plate-Cover		B15560020000	1		
3	Damper-Bottom		B15510052000	1	Urethane	
4	Damper-Upper		B15510051000	1	Urethane	
5	Damper-Plate		B20510053000	6	Urethane	
6	Damper-Plate		B12510053000	2	Urethane	
7	Damper-Back		B15510056000	4	Urethane	
8	Damper-Front		B15560057000	1	Urethane	
9	Damper-Rear		B23560058001	1	Urethane	
10	Cover-Damper		B15560057100	1		
11	Bolt-Socket		P11020160250	8	M16x25L	
12	Washer-Node Lock		P13034160000	8	M16	
***	Assembly-Support Plate	-	B15560030000	1SET	Including no. 12~17	
12	Damper-Support		B15560054000	1	Urethane	
13	Block-Support		B15560033000	2	Urethane	
14	Pin-Support		B15560031000	1		
15	Stopper-Pin		B12560032000	2		
16	Bolt-Socket		P11020140300	8	M14x30L	
17	Washer-Node Lock		P13034140000	8	M14	
***	Assembly-Mount Cap		B15660000000	1SET	including no. 18~26	
18	Mount Cap		B15660010000	1SET	OPTION	
19	Pin-Bracket		P43080560400	2	Alternative	
20	Bush-Bracket		P44080950140	4	Alternative	
21	Ring-Stop		P45080140400	2	Alternative	
22	Bolt-Hex		P11015161800	2	M16x180L	
23	Nut-Hex		P12010160000	4	M16	
***	Assembly-Bolt-Hex		B20410050002	12SET	including no. 24~26	
24	Nut-Hex Nylock		P12020240000	12	M24	
25	Washer-Spring		P13021240000	12	M24	
26	Bolt-Hex		P11017241000	12	M24x100L	
27	Plug-Rubber		B12510064100	2	Round Type Ø48x35	Low noise type(option)
28	Cover		B15560061000	1		
29	Washer-Plain		P13010120000	9	M12	
30	Washer-Spring		P13021120000	9	M12	
31	Bolt-Hex		P11010120350	9	M12X35L	
32	Hose Belloss		B20530063000	2		
33	Hose(5#X45 5#)		F10211110090	1	1/4"(70BAR)x450L	AUTO GREASE(option)
34	90 Elbow		F00321231100	1	PT1/4"xPF1/4"5#	
35	Bolt-Socket		P11020121100	4	M12x110L	
36	Auto Grease unit		P42040010000	1	Inter Lube	
37	Connector		F00111131100	1	PF1/4"(O-RING)xPF1/4"	
38	O-Ring		P20700011000	1	P11-1B	



Exploded View of *FINE* 20T, 20S



Main body: Unit serial no.

Part List for Main Body

Model : FINE 20T, 20S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B20110000	B20110000000	1SET		
***	Assembly-Cylinder	B20111000	B20110010000	1SET	including no. 1~8	
1	Piston	B20111200	B20110012000	1		
2	Cylinder	B20111100	B20110011000	1		
3	Seal-Retainer	B20111300	B20110013000	1		
***	Assembly-Cylinder Adjuster	B15111500	B15110015000	1SET	including no. 4,5	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
5	Cylinder-Adjuster	B15111510	B15110015100	1		
6	Socket Plug	P19102010	P14020010010	4	PF1/4" (10mm)	
7	Insert Coil	P16620300	P15006203000	8	M20xP2.5x1.5D	
8	Insert Coil	P16724360	P15007243600	4	M24xP3.0x1.5D	
9	Seal-Buffer	P23001401	P20301140000	1	HBV 140	
10	U-Packing	P21101401	P20101140000	1	IDI 140	
11	Seal-Dust	P22301401	P20203140000	1	LPI 140	
12	Seal-Step	P25001350	P20500135000	2	Ø135	
-	O-Ring			2		
13	Seal-Gas	P24001350	P20400135000	1	Ø135	
14	O-Ring	P2710165G	P20701165000	2	G165-1B	
15	Back Up Ring	P28GS1650	P20811165000	3	G165-T2	
16	Bush-Teflon	B20111610	B20110016100	2	Ø35xØ25x26L	
17	Plug-Teflon	B20111620	B20110016200	1	Ø35x13L	
18	O-Ring	P2700029P	P20700029000	5	P29-1B	
19	Back Up Ring	P28PS0120	P20801012000	1	P12-T2	
20	O-Ring	P2700012P	P20700012000	1	P12-1B	
21	O-Ring	P2700011P	P20700011000	4	P11-1B	
***	Assembly-Valve Housing	B20114000	B20110040000	1SET	including no. 4,22~29	
22	Valve-Housing	B20114300	B20110043000	1		
23	Valve	B20114100	B20110041000	1		
24	Valve-Plug	B20114200	B20110042000	1		
25	Cover-Housing, Valve	B20114510	B20110045100	1		
26	Bolt-Socket	P12524055	P11025240550	2	M24xP2.0x55L	
27	Plug-Housing, Valve	B20114400	B20110044000	1		
***	Assembly-Valve Adjuster	B20114600	B20110046000	1SET	including no. 4,28	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
28	Valve-Adjuster	B20114610	B20110046100	1		
29	Socket Plug	P19102011	P14020010011	1	PF1/4" (3mm)	
18	O-Ring	P2700029P	P20700029000	1	P29-1B	
21	O-Ring	P2700011P	P20700011000	1	P11-1B	
30	Back Up Ring	P28GS0600	P20811060000	1	G60-T2	
31	O-Ring	P2710060G	P20701060000	1	G60-1B	
32	Back Up Ring	P28PS0140	P20801014000	1	P14-T2	

Part List for Main Body

Model : FINE 20T, 20S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
33	O-Ring	P2700014P	P20700014000	1	P14-1B	
34	O-Ring	P2710040G	P20701040000	2	G40-1B	
35	Back Up Ring	P28GF0450	P20812045000	1	G45(50x52.4x2.4)-T3	
36	O-Ring	P2710045G	P20701045000	2	G45-1B	
37	O-Ring	P2710030G	P20701030000	2	G30-1B	
***	Assembly-Accumulator	B20116000	B20110060000	1SET	including no. 38~45	
38	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
39	Cover-Accumulator	B20116200	B20110062000	1		
40	Diaphragm	B20117400	B20110074000	1	Ø170	
41	Body-Accumulator	B20116100	B20110061000	1		
42	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
43	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
44	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25	
45	Bolt-Socket	P12318050	P11023180500	12	M18xP1.5x50L	
33	O-Ring	P2700014P	P20700014000	2	P14-1B	
46	Back Up Ring	P28GF0800	P20812080000	1	G80(85x87.4x2.4)-T3	
47	O-Ring	P2710080G	P20701080000	1	G80	
48	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B20113000	B20110030000	1SET	including no. 49~57	
49	Back Head	B20113100	B20110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no.50,51	
50	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
51	Charging Valve	B15113210	B15110032100	1		
***	Assembly-Adapter Flange	B20113310	B20110034000	2SET	BOX TYPE	
52	Cap-Adapter	F05263C00	F0053163C000	2	M42xP2	
53	Adapter-Flange	B20123310	B20110033300	2	M42xP2 (BOX TYPE)	
54	Cap-Adapter	F05103500	F00511135000	2	PF1"5#	
***	Assembly-Adapter Flange	B20113300	B20110033000	2SET	SIDE TOP TYPE	
55	Adapter	F01434550	F00121245500	2	PT1"x PF1"5#	
56	Adapter-Flange	B20113320	B20110038100	2	PT1"(Side) 30ド	
57	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
34	O-Ring	P2710040G	P20701040000	2	G40-1B	
58	O-Ring	P2710200G	P20701200000	1	G200-1B	
59	O-Ring	P2700008P	P20700008000	1	P8-1B	
60	O-Ring	P2700018P	P20700018000	1	P18-1B	
61	Back Up Ring	P28GS0400	P20811040000	2	G40-T2	
***	Assembly-Front Head	B20112000	B20110020000	1SET	including no. 62~68, 70~73	
62	Front Head	B20112100	B20110021000	1		
63	Inner Bush	B20152300	B20150023000	1		s/no. 20/101 ~ 20/3159
64	Front Cover	B20112210	B20110022100	1		for Box Type & "E" serie
65	Front Cover	B20112200	B20110022000	1		for Open Type

Part List for Main Body

Model : FINE 20T, 20S

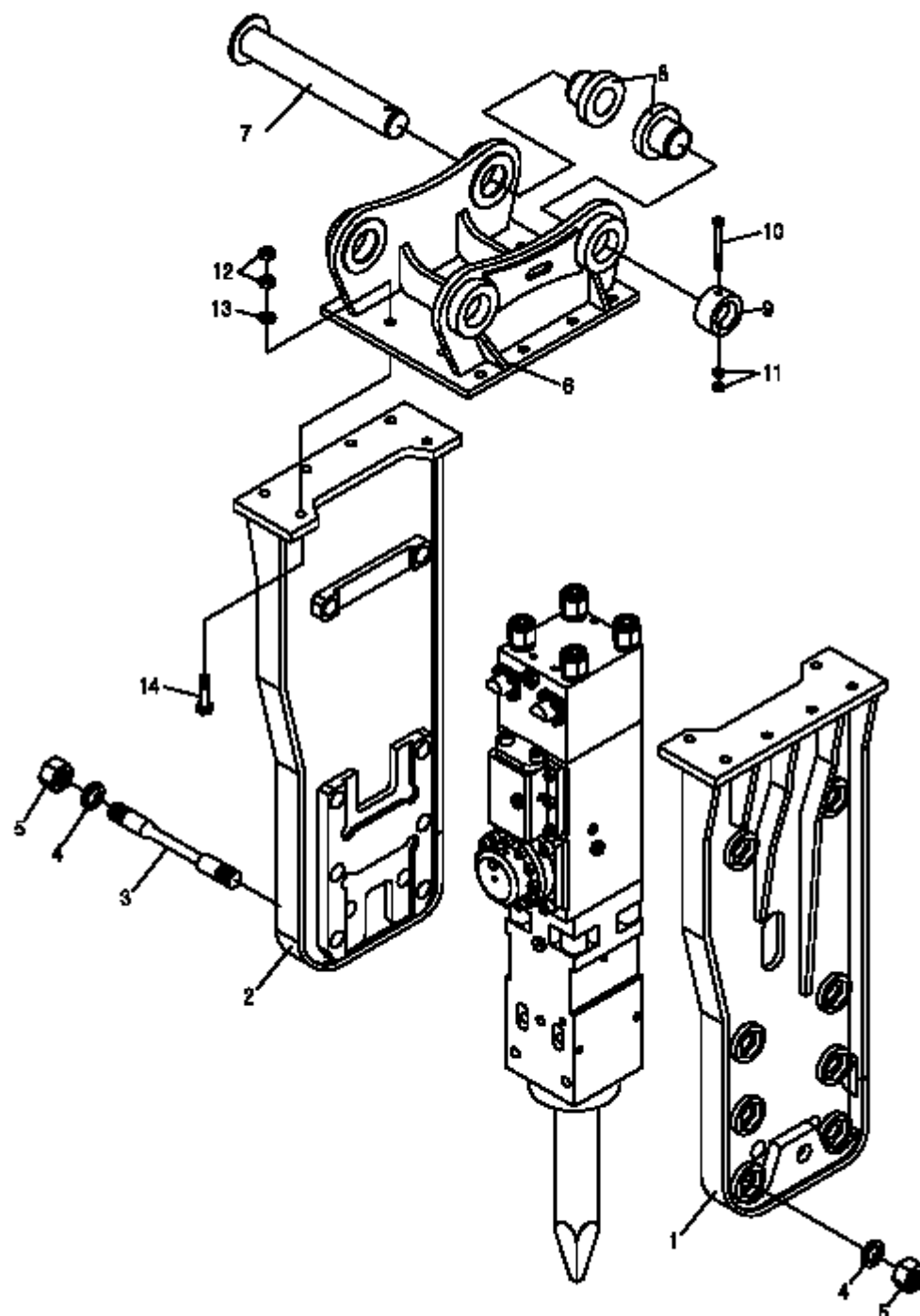
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
66	Pin-Front Head	B20112620	B20110026200	2	Ø30x145L	
67	Plug-Rubber	B20112820	B20110028200	2	Ø29xØ32x24	
68	Snap Ring	P07150300	P07010103000	2	Ø30 HOLE TYPE	
70	Pin-Stop	B20112610	B20110026100	1	Ø20x219L	
71	Plug-Rubber	B07112820	B07110028200	1	Ø20xØ23x14	
72	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
73	Air Cap	B00002700	B00000027000	1		
60	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B20115001	B20110050001	4SET	including no. 74~77	s/no.20/3160 ~
74	Through Bolt	B20115100	B20110051000	4		
75	Washer	B20115200	B20110052000	4		s/no.20/3160 ~
76	Nut-Upper	B20115300	B20110053000	4		s/no.20/3160 ~
77	Nut-Bottom	B20115401	B20110054001	4		
69	Pin-Tool	B20112400	B20110024000	2		
70	Pin-Stop	B20112610	B20110026100	2	Ø20x219L	
71	Plug-Rubber	B07112820	B07110028200	2	Ø20xØ23x14	
78	Pin-Knock	B15111400	B15110014000	2		
79	Bolt-Socket	P12020055	P11020200550	8	M20xP2.5x55L	
80	Bolt-Socket	P12024060	P11020240600	4	M24xP3.0x60L	
81	Washer-Node lock	P15424000	P13034240000	4	M24	
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
82	Tool-Moil Point	B20112511	B20110025101	1	Alternative	
-	Tool-Wedge Point	B20112521	B20110025201	-	Alternative	
-	Tool-Blunt End	B20112541	B20110025401	-	Alternative	
***	Seal Kit-Complete	B20117000	B20110070000	1SET		STD.

Accessories

A-1	Box Set-Service Tools	B200080TS	B2000008S000	1SET	TRENCH TYPE	
-	Box Set-Service Tools	B2000800B	B2000008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B2000800T	B2000008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 20T*



Bracket-Top (open type): Unit serial no.

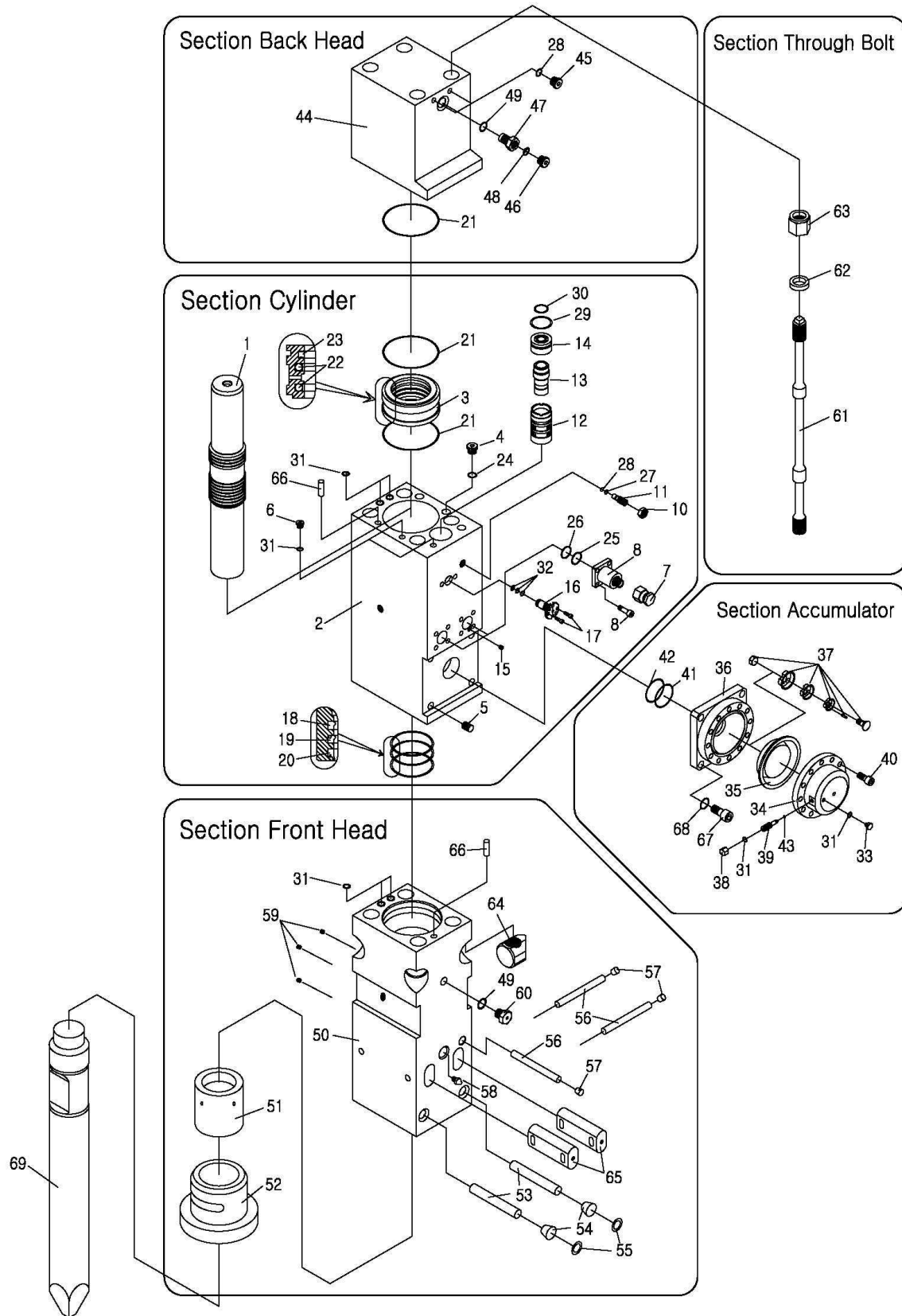
Parts List for Top Bracket

Model : FINE 20T, 22T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	B20312001	B20310020002	1	NEW	
2	Assembly-Bracket, LH	B20311001	B20310010002	1	NEW	
***	Assembly-Bracket Bolt	B20315000	B20310050000	8SET	including no. 3~5	
3	Bolt-Bracket	B20315100	B20310051000	8		
4	Washer-Bracket	B20315200	B20310052000	16		
5	Nut-Bracket	B20315300	B20310053000	16		
***	Assembly-Mount Cap	-	B20410000002	1SET	including no. 6~14	
6	Mount Cap	B20410001	B20410010003	1SET	OPTION	
7	Pin-Bracket	P43080560	P43080560400	2	Alternative	
8	Bush-Bracket	P44080140	P44080095140	4	Alternative	
9	Ring-Stop	P45080400	P45080140400	2	Alternative	
10	Bolt-Hex	P11016180	P11015161800	2	M16x180L	
11	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B20415002	B20410050002	12SET	including no. 12~14	
12	Nut-Hex		P12010240000	24	M24	
13	Washer-Spring	P15124000	P13021240000	12	M24	
14	Bolt-Hex	P11724100	P11017241100	12	M24xP3.0x110L	



Exploded View of *FINE* 23X, 23T, 23S



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 23X, 23T, 23S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B23110011	B23110000101	1SET		
***	Assembly-Cylinder	B23111001	B23110010001	1SET	Including no. 1~17	
1	Piston		B23110012002	1		
2	Cylinder	B23151101	B23150011001	1		
3	Seal-Retainer	B23111300	B23110013000	1		
4	Socket Plug	P19102110	P14025270010	3	M27xP2.0	
5	Insert Coil	P16724360	P15007243600	4	M24x3.0x1.5D	
6	Socket Plug	P19103010	P14020030010	2	PF3/8"	
***	Assembly-Adapter Flange	B20113310	B20110034000	2SET	BOX TYPE	
7	Cap-Adapter	F05263C00	F0053163C000	2	M42xP2	
8	Adapter-Flange	B20123310	B20110033300	2	M42xP2	
9	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
***	Assembly-Valve Adjuster	B23114600	B23110046000	1SET	Including no. 10,11	
10	Nut-Hex	P13318000	P12013180000	1	M18xP1.5	
11	Valve-Adjuster	B23114610	B23110046100	1	NUT포함	
***	Assembly-Valve	B23114000	B23110040000	1SET	Including no. 12~14	
12	Guide-Valve	B23114300	B23110043000	1		
13	Valve	B23114100	B23110041000	1		
14	Plug-Valve	B23114200	B23110042000	1		
15	Hollow Plug	P17008000	P16000080000	1	PT1/8"	
16	Auto Stop Valve	B12111700	B12110017000	1		
17	Bolt-Socket	P12008020	P11020080200	2	M8xP1.25x20L	
18	Seal-Buffer	P23001401	P20301140000	1	HBV 140	
19	U-Packing	P21201401	P20102140000	1	ISI 140	
20	Seal-Dust	P22201401	P20202140000	1	DSI 140	
21	O-Ring	P2710170G	P20701170000	3	G170-1B	
22	Seal-Step	P25001380	P20500138000	2	SPNS 138	
-	O-Ring			2		
23	Seal-Gas	P24001380	P20400138000	1	PPY 138	
24	O-Ring	P2700024P	P20700024000	3	P24-1B	
25	Back Up Ring	P28GS0400	P20811040000	2	G40-T2	
26	O-Ring	P2710040G	P20701040000	2	G40-1B	
27	Back Up Ring	P28PS0110	P20801011000	1	P11-T2	
28	O-Ring	P2700011P	P20700011000	1	P11-1B	
29	O-Ring	P2710070G	P20701070000	1	G70-1B	
30	O-Ring	P2710045G	P20701045000	1	G45-1B	
31	O-Ring	P2700014P	P20700014000	4	P14-1B	
32	O-Ring	P2700016P	P20700016000	3	P16-1B	
***	Assembly-Accumulator	B20116000	B20110060000	1SET	Including no. 33~40	
33	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
34	Cover-Accumulator	B20116200	B20110062000	1		
35	Diaphragm	B20117400	B20110074000	1	Ø170	
36	Body-Accumulator	B20116100	B20110061000	1		
37	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
38	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
39	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25x48L	
40	Bolt-Socket	P12318050	P11023180500	12	M18xP1.5x50Lx12.9T	
31	O-Ring	P2700014P	P20700014000	2	P14-1B	
41	Back Up Ring	P28GF0800	P20812080000	1	G80(85x87.4x2.4)-T3	

Parts List for Main Body

Model : FINE 23X, 23T, 23S

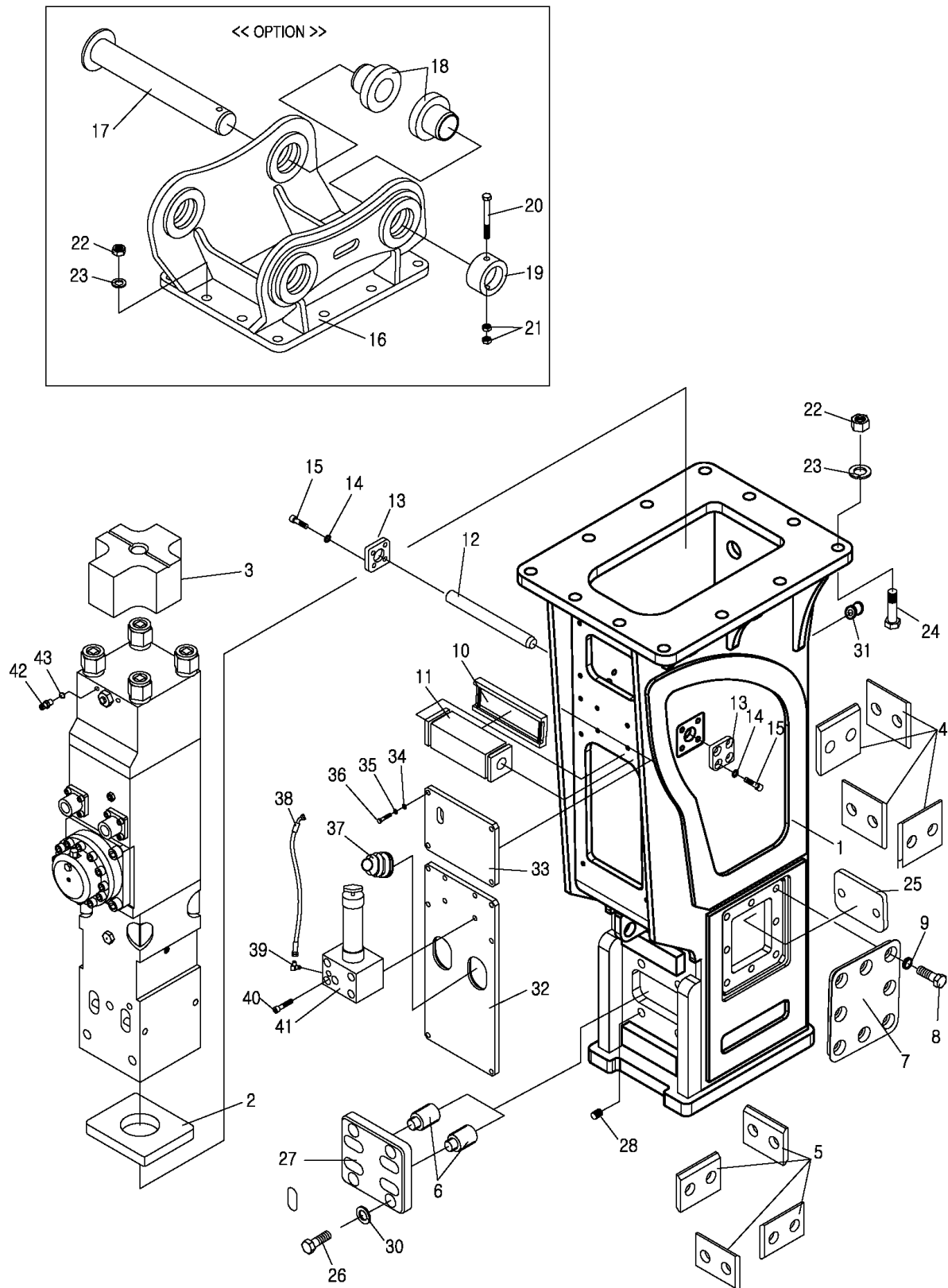
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
42	O-Ring	P2710080G	P20701080000	1	G80-1B	
43	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B23113000	B23110030000	1SET	Including no. 44~47	
44	Back Head	B23153100	B23150031000	1		
45	Socket Plug	P19102010	P14020010010	2	PF1/4"	
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	Including no. 46, 47	
46	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
47	Charging Valve	B15113210	B15110032100	1		
21	O-Ring	P2710170G	P20701170000	1	G170-1B	
28	O-Ring	P2700011P	P20700011000	2	P11-1B	
48	O-Ring	P2700008P	P20700008000	1	P8-1B	
49	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Front Head	B23112011	B23110020101	1SET	Including no. 50~60	
50	Front Head	B23152103	B23150021003	1		
51	Inner Bush	B23152300	B23150023000	1	일체형(신형)	
52	Front Cover	B23112201	B23110022001	1	BOX	
52-1	Front Cover	B20112200	B20110022000	1	TOP	
53	Pin-Front Head	B20112620	B20110026200	2	Ø30xL145	
54	Plug-Rubber	B20112820	B20110028200	2	Ø29xØ32x24T	
55	Snap Ring	P07150300	P07010103000	2	Ø30 HOLE TYPE	
56	Pin-Stop	B20112610	B20110026100	1		
57	Urethane Plug	B20112810	B23110028100	1		
58	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
59	Hollow Plug	P17001000	P16000010000	3	PT1/4"	
60	Air Cap	B00002700	B00000027000	1	PF1/2"	
49	O-Ring	P2700018P	P20700018000	1	P18-1B	
31	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Through Bolt	B23115001	B23110050001	4SET	Including no. 61~64	
61	Through Bolt	B23115100	B23110051000	4		
62	Washer	B23115200	B23110052000	4		
63	Nut-Upper	B23115300	B23110053000	4		
64	Nut-Bottom	B23115401	B23110054001	4		
65	Pin-Tool	B23112400	B23110024000	2		
56	Pin-Stop	B20112610	B20110026100	2	(Only Old Type, Top&Side Type)	
57	Plug-Rubber	B07112820	B07110028200	2	Ø20 * Ø23 * 14T (Only Old Type, Top&Side Type)	
66	Pin-Knock	B15111400	B15110014000	2	Ø12 x L30	
67	Bolt-Socket	P12024060	P11020240600	4	M24xP3.0x60L	
68	Washer-Node lock	P15424000	P13034240000	4	M24	
69	Tool-Moil Point	B23112511	B23110025101	1	선택, Alternative	
-	Tool-Wedge Point	B23112521	B23110025201	-	선택, Alternative	
-	Tool-Blunt End	B23112541	B23110025401	-	선택, Alternative	
***	Seal kit-Complete	-	B23110070001	1SET		

Accessories

A-1	Box Set-Service Tools	B2300800B	B2300008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B2300800T	B2300008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 23X(New Design)*



Parts List for Box-New Design

Model : FINE 23X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B23560010004	1SET	BOX TYPE	New Design
2	Damper-Bottom	-	B23510052001	1	Urethane	
3	Damper-Upper	-	B20510051000	1	Urethane	
4	Damper-Plate	-	B20510053000	4	Urethane	
5	Damper-Plate	-	B12510053000	4	Urethane	
6	Damper-Front	-	B23560057001	1	Urethane	
7	Damper-Side	-	B23560055001	2		
8	Bolt-Hex	-	P11010200400	16	M20x40L	
9	Washer-Spring	-	P13021200000	16	M20	
***	Assembly-Support Plate	-	B23510030000	1SET	Including no. 10~15	
10	Block-Support	-	B23560033000	2	MC NYLON	
11	Damper-Support	-	B23560054000	1	Urethane	
12	Pin-Support	-	B23510031002	1		
13	Stopper-Pin	-	B23510032002	2		
14	Washer-Node lock	-	P13034160000	8	M16	
15	Bolt-Socket	-	P11020160400	8	M16x40L	
***	Assembly-Mount Cap	-	B23660000000	1SET	Including no. 16~23	
16	Mount Cap	-	B23660010001	1SET	OPTION	
17	Pin-Bracket	-	P43080655400	2	Alternative	
18	Bush-Bracket	-	P44080120640	4	Alternative	
19	Ring-Stop	-	P45080140400	2	Alternative	
20	Bolt-Hex	-	P11015161800	2	M16x180L	
21	Nut-Hex	-	P12015160000	4	M16	
***	Assembly-Bolt-Hex	-	B22410050000	12SET	Including no. 22~24	
22	Nut-Hex Nylock	-	P12020300000	12	M30	
23	Washer-Spring	-	P13021300000	12	M30	
24	Bolt-Hex	-	P11018301100	12	M30x110	
25	Damper-Rear	-	B23560058002	1	Urethane	
26	Bolt-Hex	-	P11010200500	4	M20x50L	
27	Cover-Damper	-	B23560057104	1		
28	Insert Coil	P16620300	P15006203000	4	M20x2.5x1.5D	
9	Washer-Spring	-	P13021200000	4	M20	
31	Plug-Rubber	-	B23560064100	2	Round Type	Low noise type (option)
32	Cover-Bottom	-	B23560062000	1		
33	Cover-Upper	-	B23560061000	1		
34	Washer-Plain	-	P13010120000	14	M12	
35	Washer-Spring	-	P13021120000	14	M12	
36	Bolt-Hex	-	P11010120350	14	M12	
37	Hose Belloss	-	B20530063000	2		

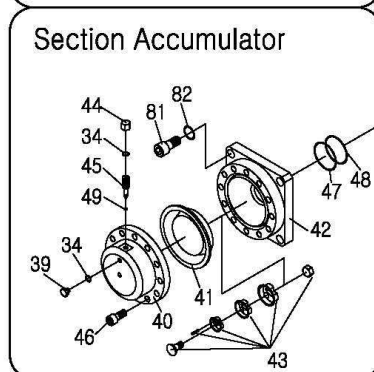
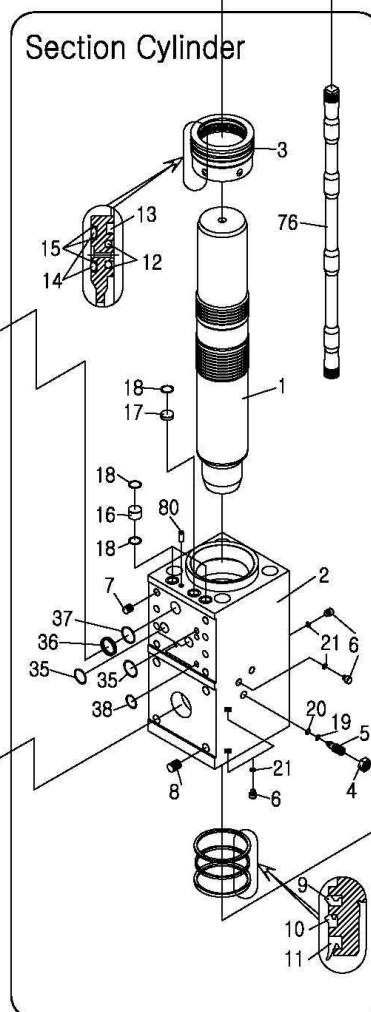
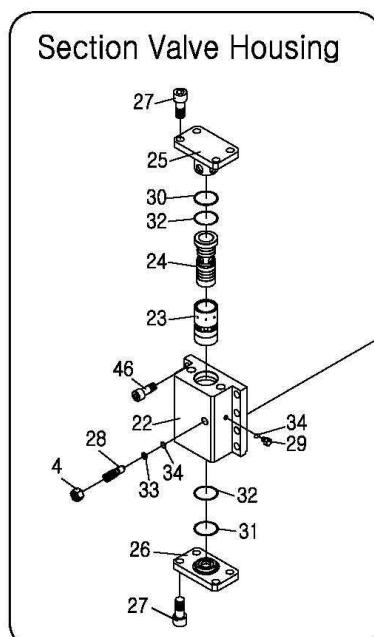
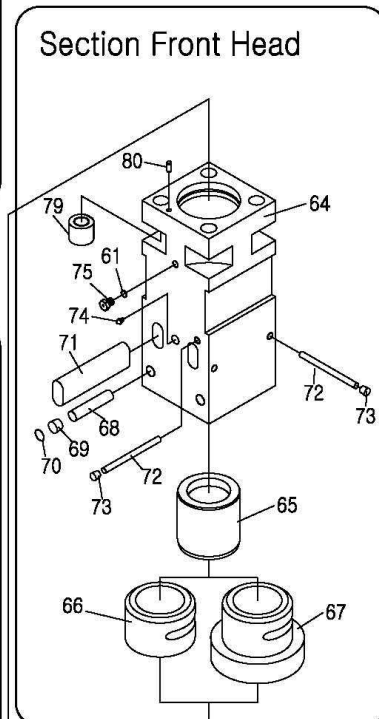
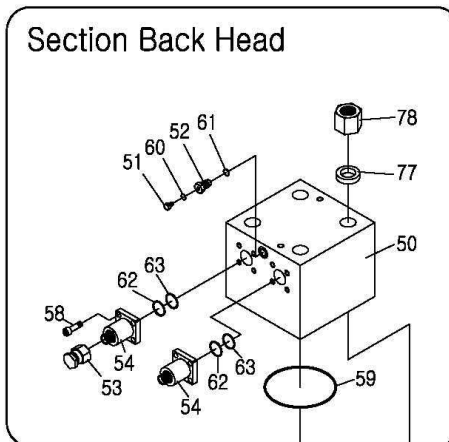
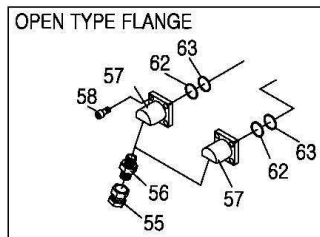
Parts List for Box-New Design

Model : FINE 23X

38	Hose(5#X45 5#)	-	F10211110114	1	1/4"(70BAR)x600L	AUTO GREASE(option)
39	90 Elbow	-	F00321231100	1	PT1/4"xPF1/4"5#	
40	Bolt-Socket	-	P11020121100	4	M12x110L	
41	Auto Grease unit	-	P42040010000	1	Inter Lube	
42	Connector	-	F00111131100	1	PF1/4"(O-RING)xPF1/4"5#	
43	O-Ring	-	P20700011000	1	P11-1B	



Exploded View of *FINE 35T, 35S*



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 35T, 35S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B35110002	B35110000002	1SET		
***	Assembly-Cylinder	B35111002	B35110010002	1SET	including no. 1~8	
1	Piston	B35111200	B35110012000	1		
2	Cylinder	B35111102	B35110011002	1	S/R 107mm	
3	Seal-Retainer	B35111301	B35110013001	1	107mm	
***	Assembly-Cylinder Adjuster	B15111500	B15110015000	1SET	including no. 4,5	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
5	Cylinder-Adjuster	B15111510	B15110015100	1		
6	Socket Plug	P19102010	P14020010010	4	PF1/4" (10mm)	
7	Insert Coil	P16620300	P15006203000	8	M20xP2.5x1.5D	
8	Insert Coil	P16830300	P15008303000	4	M30xP3.5x1.0D	
9	Seal-Buffer	P23001551	P20301155000	1	HBV 155	
10	U-Packing	P21101551	P20101155000	1	IDI 155	
11	Seal-Dust	P22301551	P20203155000	1	LPI 155	
12	Seal-Step	P25001500	P20500150000	2	Ø150	
-	O-Ring			2		
13	Seal-Gas	P24001500	P20400150000	1	Ø150	
14	O-Ring	P2710180G	P20701180000	2	G180-1B	
15	Back Up Ring	P28GS1800	P20811180000	3	G180-T2	
16	Bush-Teflon	B35111610	B35110016100	2	Ø38xØ28x28L	
17	Plug-Teflon	B35111620	B35110016200	1	Ø38x14L	
18	O-Ring	P2700032P	P20700032000	5	P32-1B	
19	Back Up Ring	P28PS0120	P20801012000	1	P12-T2	
20	O-Ring	P2700012P	P20700012000	1	P12-1B	
21	O-Ring	P2700011P	P20700011000	4	P11-1B	
***	Assembly-Valve Housing	B35114000	B35110040000	1SET	including no. 4,22~29	
22	Valve-Housing	B35114300	B35110043000	1		
23	Valve	B35114100	B35110041000	1		
24	Valve-Plug	B35114200	B35110042000	1		
25	Cover-Upper, Valve	B35114510	B35110045100	1		
26	Cover-Bottom, Valve	B35114520	B35110045200	1		
27	Bolt-Socket	P12020050	P11020200500	8	M20xP2.5x50L	
***	Assembly-Valve Adjuster	B35114600	B35110046000	1SET	including no. 4,28	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
28	Valve-Adjuster	B35114610	B35110046100	1		
29	Socket Plug	P19103010	P14020030010	1	PF3/8" (3mm)	
30	Back Up Ring	P28GS0650	P20811065000	1	G65-T2	
31	Back Up Ring	P28GF0650	P20812065000	1	G65(70x72.4x2.4)-T3	
32	O-Ring	P2710065G	P20701065000	2	G65-1B	
33	Back Up Ring	P28PS0140	P20801014000	1	P14-T2	
34	O-Ring	P2700014P	P20700014000	2	P14-1B	

Parts List for Main Body

Model : FINE 35T, 35S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
35	O-Ring	P2710045G	P20701045000	3	G45-1B	
36	Back Up Ring	P28GF0550	P20812055000	1	G55(60x62.4x2.4)-T3	
37	O-Ring	P2710055G	P20701055000	1	G55-1B	
38	O-Ring	P2710030G	P20701030000	2	G30-1B	
***	Assembly-Accumulator	B35116000	B35110060001	1SET	including no. 39~46	
39	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
40	Cover-Accumulator	B35116201	B35110062001	1		
41	Diaphragm	B35117400	B35110074000	1	Ø190	
42	Body-Accumulator	B35116101	B35110061001	1		
43	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
44	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
45	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25	
46	Bolt-Socket	P12020055	P11020200550	12	M20xP2.5x55L	
34	O-Ring	P2700014P	P20700014000	2	P14-1B	
47	Back Up Ring	P28PF0950	P20802095000	1	P95(105x109x4.6)-T3	
48	O-Ring	P2700095P	P20700095000	1	P95-1B	
49	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B35113000	B35110030000	1SET	including no. 50~58	
50	Back Head	B35113100	B35110031000	1		s/no.35/280~
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 51,52	
51	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
52	Charging Valve	B15113210	B15110032100	1		
***	Assembly-Adapter Flange	B20113310	B20110034000	2SET	BOX TYPE	
53	Cap-Adapter	F05263C00	F0053163C000	2	M42xP2(BOX TYPE)	
54	Adapter-Flange	B20123310	B20110033300	2	M42xP2 (BOX TYPE)	
***	Assembly-Adapter Flange	B20113300	B20110033000	2SET	SIDE TOP TYPE	
55	Cap-Adapter	F05103500	F00511135000	2	PF1"5#	
56	Adapter	F01434550	F00121245500	2	PT1"x PF1"5#	
57	Adapter-Flange	B20113320	B20110038100	2	30도 (SIDE TOP TYPE)	
58	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
59	O-Ring	P2710215G	P20701215000	1	G215-1B	
60	O-Ring	P2700008P	P20700008000	1	P8-1B	
61	O-Ring	P2700018P	P20700018000	1	P18-1B	
62	Back Up Ring	P28GS0400	P20811040000	2	G40-T2	
63	O-Ring	P2710040G	P20701040000	2	G40-1B	
***	Assembly-Front Head	B35112000	B35110020000	1SET	including no. 64~70, 72~75	
64	Front Head	B35112100	B35110021000	1		
65	Inner Bush	B35112300	B35110023000	1		~ s/no. 35/255
66	Front Cover	B35112210	B35110022100	1		for Box Type & "E" Serise
67	Front Cover	B35112200	B35110022000	1		for Open Type
68	Pin-Front Head	B20112620	B20110026200	2		

Parts List for Main Body

Model : FINE 35T, 35S

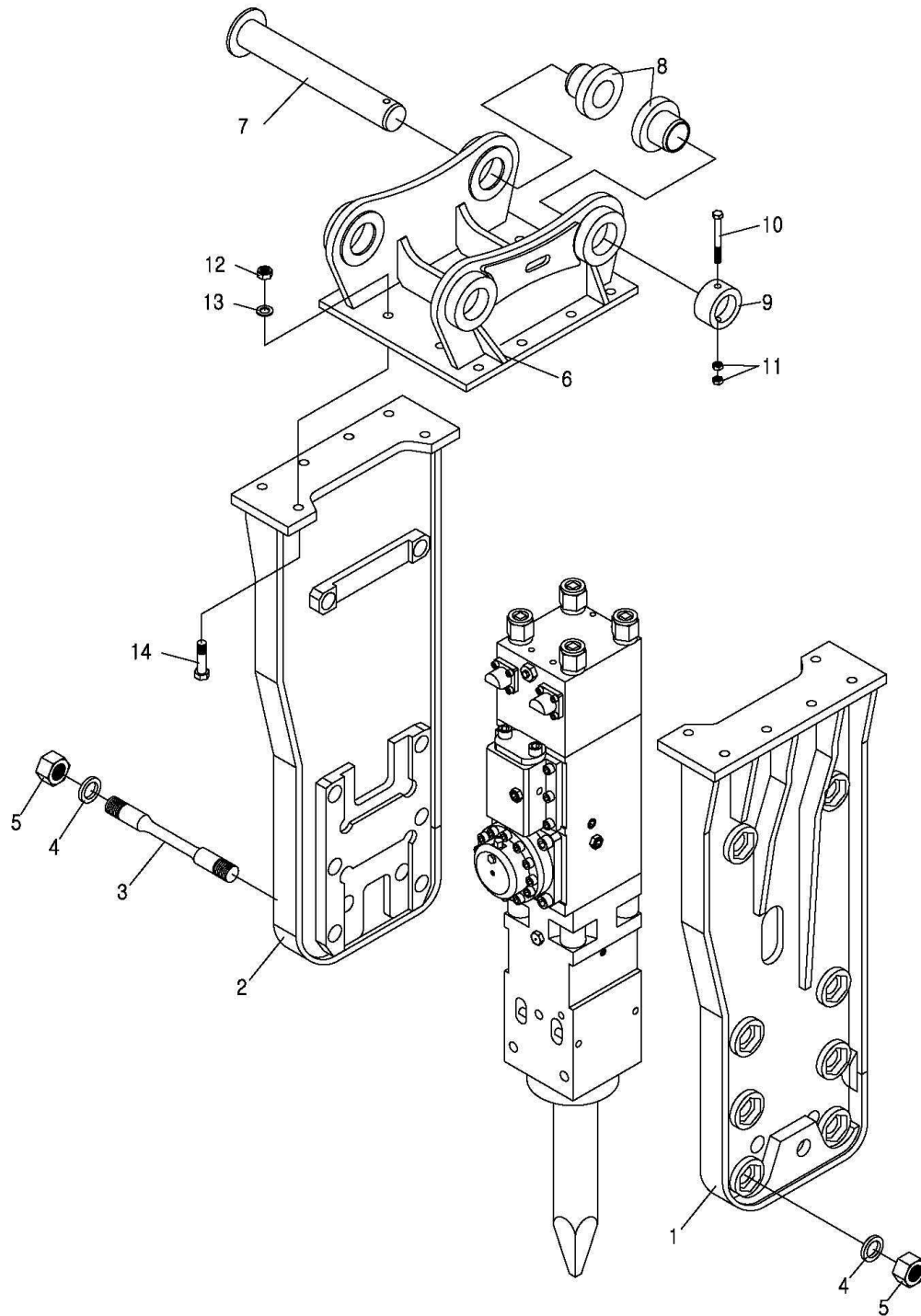
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
69	Plug-Rubber	B20112820	B20110028200	2	Ø29xØ32x24	
70	Snap Ring	P07150300	P07010103000	2	Ø30 HOLE TYPE	
72	Pin-Stop	B35112610	B35110026100	1		
73	Plug-Rubber	B07112820	B07110028200	1	Ø20xØ23x14	
74	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
75	Air Cap	B00002700	B00000027000	1		
61	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B35115000	B35110050000	4SET	including no. 76~79	s/no.35/280~
76	Through Bolt	B35115100	B35110051000	4		
77	Washer-Through Bolt	B35115200	B35110052000	4		s/no.35/280~
78	Nut-Upper	B35115300	B35110053000	4		
79	Nut-Bottom	B35115400	B35110054000	4		
46	Bolt-Socket	P12020055	P11020200550	8	M20xP2.5x55L	
71	Pin-Tool	B35112400	B35110024000	2		
72	Pin-Stop	B35112610	B35110026100	2		
73	Plug-Rubber	B07112820	B07110028200	2	Ø20xØ23x14	
80	Pin-Knock	B15111400	B15110014000	2		
81	Bolt-Socket	P12030070	P11020300800	4	M30xP3.0x80L	
82	Washer-Node lock	P15430000	P13034300000	4	M30	
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
83	Tool-Moil Point	B35112511	B35110025101	1	Alternative	
-	Tool-Wedge Point	B35112521	B35110025201	-	Alternative	
-	Tool-Blunt End	B35112541	B35110025401	-	Alternative	
***	Seal Kit-Complete	B35117000	B35110070000	1SET		STD.
***	Seal Kit-Complete	B35117100	B35110071000	1SET	Alternative	

Accessories

A-1	Box Set-Service Tools	B3500800T	B3500008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B3500800B	B3500008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 35T*



Bracket-Top (open type): Unit serial no.

Parts List for Top Bracket

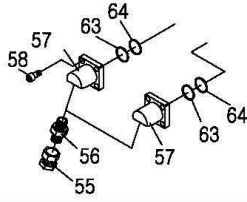
Model : FINE 35T, 36T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	B36312000	B36310020000	1	NEW	
2	Assembly-Bracket, LH	B36311000	B36310010000	1	NEW	
***	Assembly-Bracket Bolt	B35315000	B35310050000	8SET	including no. 3~5	
3	Bolt-Bracket	B35315100	B35310051000	8		
4	Washer-Bracket	B35315200	B35310052000	16		
5	Nut-Bracket	B35315300	B35310053000	16		
***	Assembly-Mount Cap	-	B35410000001	1SET	including no. 6~14	
6	Mount Cap	B35410001	B35410010001	1SET	OPTION	
7	Pin-Bracket	P43090640	P43090640400	2	Alternative	
8	Bush-Bracket	P44090450	P44090120450	4	Alternative	
9	Ring-Stop	P45090400	P45090140400	2	Alternative	
10	Bolt-Hex	P11016180	P11015161800	2	M16x180L	
11	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B22415000	B22410050000	12SET	including no. 12~14	
12	Nut-Hex Nylock	P14030000	P12020300000	12	M30	
13	Washer-Spring	P15130000	P13021300000	12	M30	
14	Bolt-Hex	P11830110	P11018301100	12	M30xP3.5x110L	

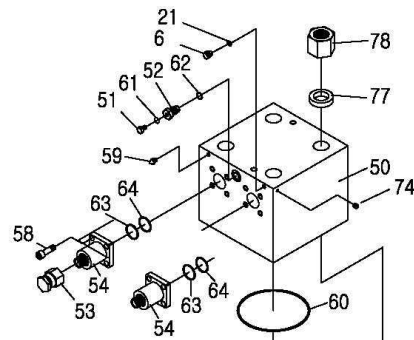


Exploded View of *FINE* 36X, 36T

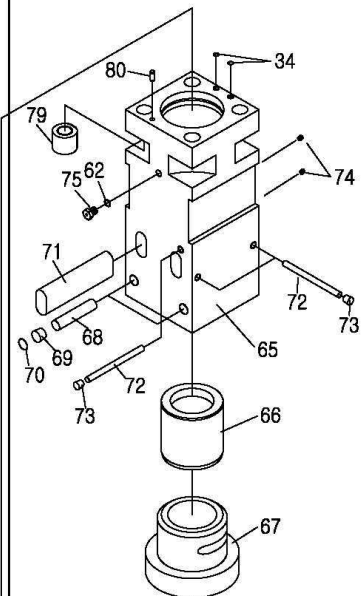
OPEN TYPE FLANGE



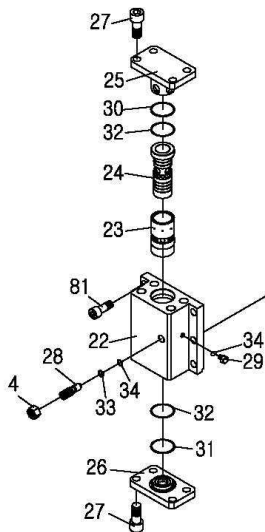
Section Back Head



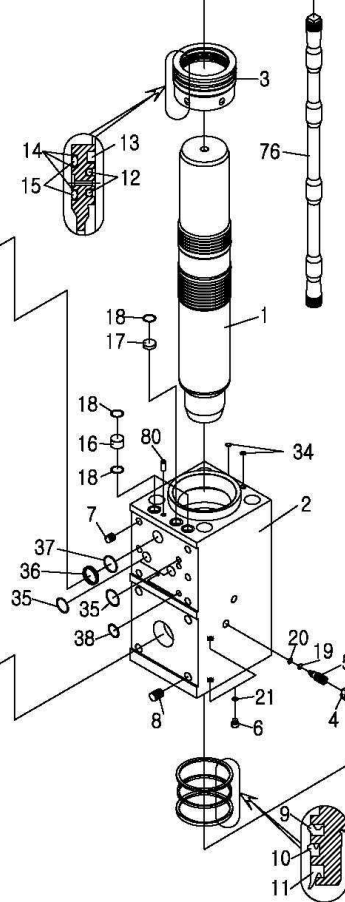
Section Front Head



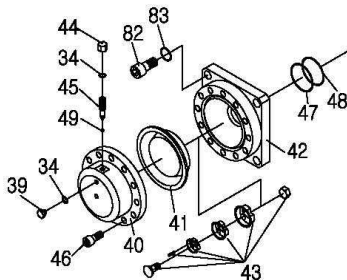
Section Valve Housing



Section Cylinder



Section Accumulator



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 36X, 36T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B36110000	B36110000000	1SET		
***	Assembly-Cylinder	B36111000	B36110010000	1SET	including no. 1~8	
1	Piston	B36111200	B36110012000	1		
2	Cylinder	B36151100	B36150011000	1		
3	Seal-Retainer	B36111300	B36110013000	1		
***	Assembly-Cylinder Adjuster	B15111500	B15110015000	1SET	including no. 4,5	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
5	Cylinder-Adjuster	B15111510	B15110015100	1		
6	Socket Plug	P19102010	P14020010010	4	PF1/4" (10mm)	
7	Insert Coil	P16620300	P15006203000	8	M20xP2.5x1.5D	
8	Insert Coil	P16724360	P15007243600	4	M24xP3x1.5D	
9	Seal-Buffer	P23001401	P20301140000	1	HBV 140	
10	U-Packing	P21101401	P20101140000	1	IDI 140	
11	Seal-Dust	P22301401	P20203140000	1	LPI 140	
12	Seal-Step	P25001350	P20500135000	2	SPNS 135	
-	O-Ring			2		
13	Seal-Gas	P24001350	P20400135000	1	PPY 135	
14	O-Ring	P2710185G	P20701185000	2	G185-1B	
15	Back Up Ring	P28GS1850	P20811185000	3	G185-T2	
16	Bush-Teflon	B35111610	B35110016100	2	Ø38xØ28x28L	
17	Plug-Teflon	B35111620	B35110016200	1	Ø38x14L	
18	O-Ring	P2700032P	P20700032000	5	P32-1B	
19	Back Up Ring	P28PS0120	P20801012000	1	P12-T2	
20	O-Ring	P2700012P	P20700012000	1	P12-1B	
21	O-Ring	P2700011P	P20700011000	4	P11-1B	
34	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Valve Housing	B35114000	B35110040000	1SET	including no. 4,22-29	
22	Valve-Housing	B35114300	B35110043000	1		
23	Valve	B35114100	B35110041000	1		
24	Plug-Valve	B35114200	B35110042000	1		
25	Cover-Upper, Valve	B35114510	B35110045100	1		
26	Cover-Bottom, Valve	B35114520	B35110045200	1		
27	Bolt-Socket	P12020050	P11020200500	8	M20xP2.5x50L	
***	Assembly-Valve Adjuster	B35114600	B35110046000	1SET	including no. 4,28	
4	Nut-Hex	P13322000	P12013220000	1	M22xP1.5 Adjust	
28	Valve-Adjuster	B35114610	B35110046100	1		
29	Socket Plug	P19103010	P14020030010	1	PF3/8" (3mm)	
30	Back Up Ring	P28GS0650	P20811065000	1	G65-T2	
31	Back Up Ring	P28GF0650	P20812065000	1	G65(70X72.4X2.4)-T3	
32	O-Ring	P2710065G	P20701065000	2	G65-1B	
33	Back Up Ring	P28PS0140	P20801014000	1	P14-T2	

Parts List for Main Body

Model : FINE 36X, 36T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
34	O-Ring	P2700014P	P20700014000	2	P14-1B	
35	O-Ring	P2710045G	P20701045000	3	G45-1B	
36	Back Up Ring	P28GF0550	P20812055000	1	G55(60x62.4x2.4)-T3	
37	O-Ring	P2710055G	P20701055000	1	G55-1B	
38	O-Ring	P2710030G	P20701030000	2	G30-1B	
***	Assembly-Accumulator	B20116000	B20110060000	1SET	including no. 39~46	
39	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
40	Cover-Accumulator	B20116200	B20110062000	1		
41	Diaphragm	B20117400	B20110074000	1	Ø170	
42	Body-Accumulator	B20116100	B20110061000	1		
43	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
44	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
45	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25x48L	
46	Bolt-Socket	P12318050	P11023180500	12	M18xP1.5x50Lx12.9T	
34	O-Ring	P2700014P	P20700014000	2	P14-1B	
47	Back Up Ring	P28GF0800	P20812080000	1	G80(85x87.4x2.4)-T3	
48	O-Ring	P2710080G	P20701080000	1	G80-1B	
49	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B36113000	B36110030000	1SET	including no. 6,74,50~59	
6	Socket Plug	P19102010	P14020010010	1	PF1/4" (10mm)	
50	Back Head	B36153100	B36150031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 51,52	
51	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
52	Charging Valve	B15113210	B15110032100	1		
***	Assembly-Adapter Flange	B36113310	B36110034000	2SET	BOX TYPE	
53	Cap-Adapter	F05263C00	F0053163C000	2	M42xP2 (BOX TYPE)	
54	Adapter-Flange	B36123310	B36110033300	2	M42xP2 (BOX TYPE)	
***	Assembly-Adapter Flange	B20113300	B20110033000	2SET	SIDE TOP TYPE	
55	Cap-Adapter	F05103500	F00511135000	2	PF1"5# (SIDE TOP)	
56	Adapter	F01434550	F00121245500	2	PT1"x PF1"5# (SIDE TOP)	
57	Adapter-Flange	B20113320	B20110038100	2	30도 (SIDE TOP TYPE)	
58	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
59	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
74	Hollow Plug	P17001000	P16000010000	4	PT1/4"	
21	O-Ring	P2700011P	P20700011000	1	P11-1B	
60	O-Ring	P2710215G	P20701215000	1	G215-1B	
61	O-Ring	P2700008P	P20700008000	1	P8-1B	
62	O-Ring	P2700018P	P20700018000	1	P18-1B	
63	Back Up Ring	P28GS0400	P20811040000	2	G40-T2	
64	O-Ring	P2710040G	P20701040000	2	G40-1B	
***	Assembly-Front Head	B36112000	B36110020000	1SET	including no. 65~70,72~75	

Parts List for Main Body

Model : FINE 36X, 36T

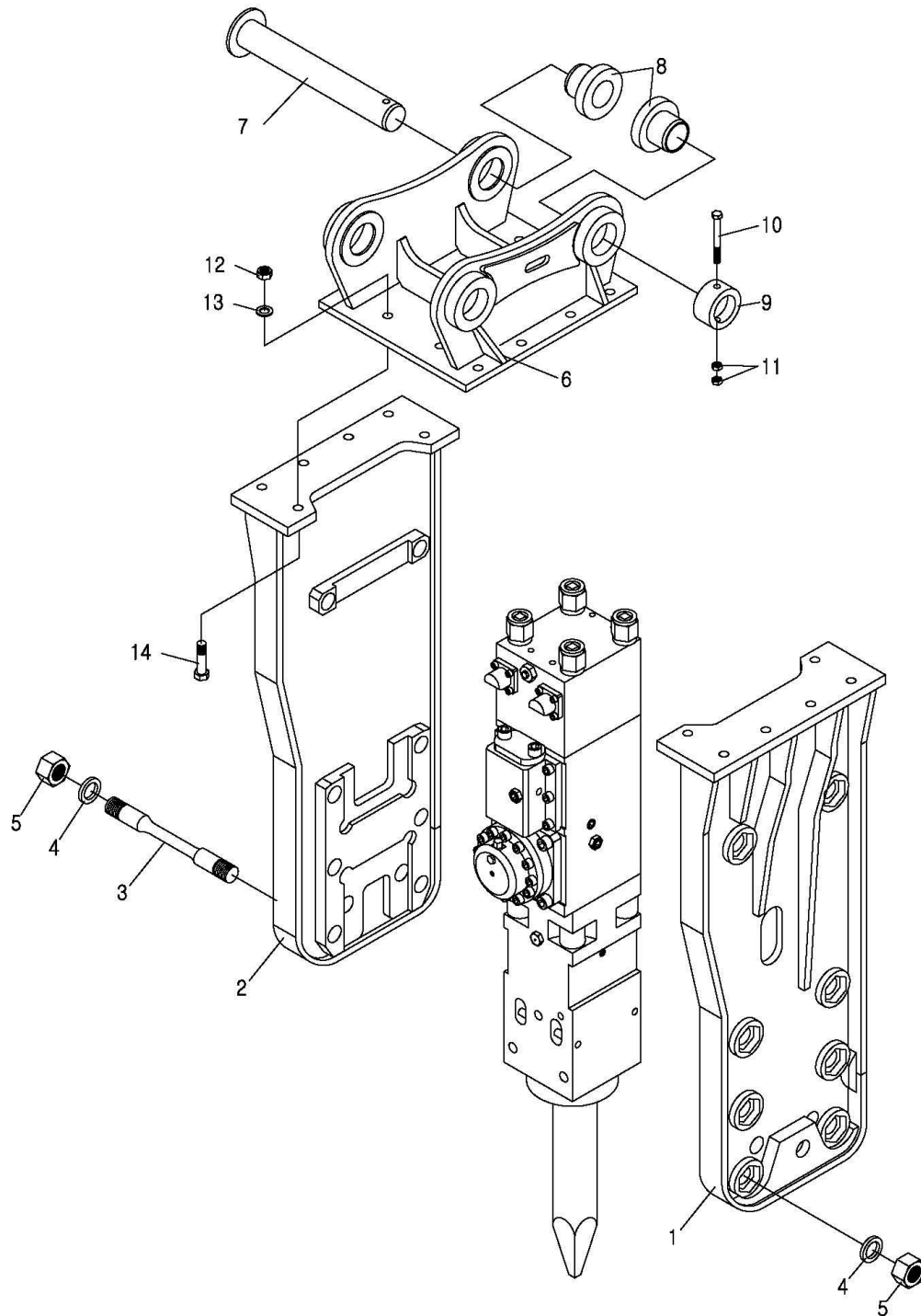
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
65	Front Head	B36152101	B36150021001	1		
66	Inner Bush	B36112300	B36110023000	1		
67	Front Cover	B36112200	B36110022000	1	BOX	
67-1	Front Cover	B30111220	B30110012200	1	TOP	
68	Pin-Front Head	B20112620	B20110026200	2		
69	Plug-Rubber	B20112820	B20110028200	2	Ø29xØ32x24T	
70	Snap Ring	P07150300	P07010103000	2	Ø30 HOLE TYPE	
72	Pin-Stop	B35112610	B35110026100	1		
73	Plug-Rubber	B07112820	B07110028200	1	Ø20xØ23x14T	
74	Hollow Plug	P17001000	P16000010000	3	PT1/4"	
75	Air Cap	B00002700	B00000027000	1		
62	O-Ring	P2700018P	P20700018000	1	P18-1B	
34	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Through Bolt	B35115000	B35110050000	4SET	including no. 76~79	
76	Through Bolt	B35115100	B35110051000	4		
77	Washer-Through Bolt	B35115200	B35110052000	4		
78	Nut-Upper	B35115300	B35110053000	4		
79	Nut-Bottom	B35115400	B35110054000	4		
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
71	Pin-Tool	B36112401	B36110024001	2		
72	Pin-Stop	B35112610	B35110026100	2		
73	Plug-Rubber	B07112820	B07110028200	2	Ø20xØ23x14T	
80	Pin-Knock	B15111400	B15110014000	2		
81	Bolt-Socket	P12020055	P11020200550	8	M20xP2.5x55L	
82	Bolt-Socket	P12024060	P11020240600	4	M24xP3.0x60L	
83	Washer-Node lock	P15424000	P13034240000	4	M24	
84	Tool-Moil Point	B36112511	B36110025101	1	Alternative	
-	Tool-Wedge Point	B36112521	B36110025201	-	Alternative	
-	Tool-Blunt End	B36112541	B36110025401	-	Alternative	
***	Seal Kit-Complete	B36117000	B36110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B3600800T	B3600008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B3600800B	B3600008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 36T*



Bracket-Top (open type): Unit serial no.

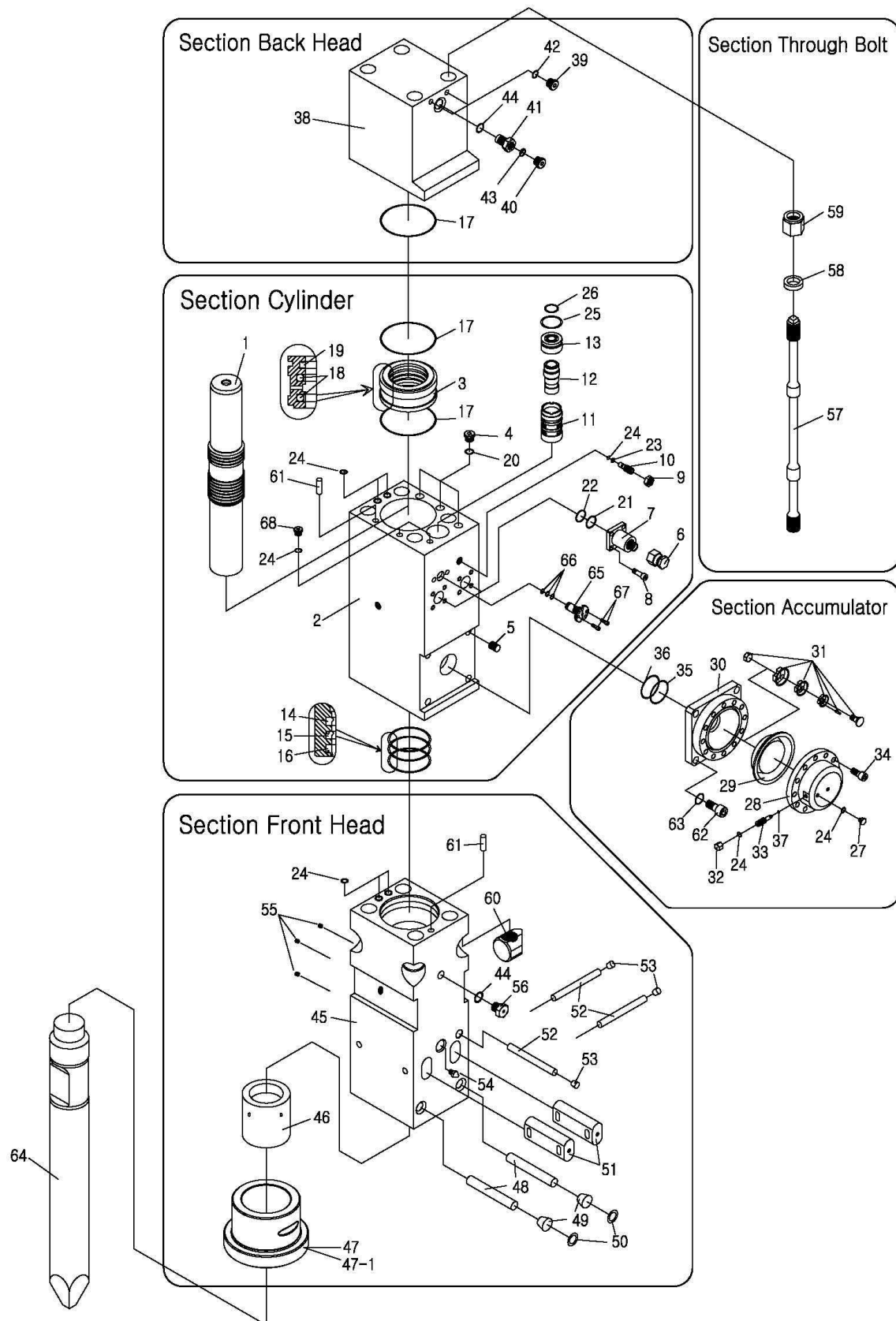
Parts List for Top Bracket

Model : FINE 35T, 36T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	B36312000	B36310020000	1	NEW	
2	Assembly-Bracket, LH	B36311000	B36310010000	1	NEW	
***	Assembly-Bracket Bolt	B35315000	B35310050000	8SET	including no. 3~5	
3	Bolt-Bracket	B35315100	B35310051000	8		
4	Washer-Bracket	B35315200	B35310052000	16		
5	Nut-Bracket	B35315300	B35310053000	16		
***	Assembly-Mount Cap	-	B35410000002	1SET	including no. 6~14	
6	Mount Cap	B35410002	B35410010002	1SET	OPTION	
7	Pin-Bracket	P43090640	P43090640400	2	Alternative	
8	Bush-Bracket	P44090450	P44090120450	4	Alternative	
9	Ring-Stop	P45090400	P45090140400	2	Alternative	
10	Bolt-Hex	P11016180	P11015161800	2	M16x180L	
11	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B22415000	B22410050000	12SET	including no. 12~14	
12	Nut-Hex Nylock	P14030000	P12020300000	12	M30	
13	Washer-Spring	P15130000	P13021300000	12	M30	
14	Bolt-Hex	P11830110	P11018301100	12	M30xP3.5x110L	



Exploded View of *FINE* 37X, 37T



Main body: Unit serial no.

Parts List for Main Body

Model : FINE 37X, 37T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B37110013	B37110000103	1SET		
***	Assembly-Cylinder	B37111002	B37110010002	1SET	Including no. 1~13	
1	Piston	B37111200	B37110012000	1		
2	Cylinder	B37151102	B37150011002	1		
3	Seal-Retainer	B37111300	B37110013000	1		
4	Socket Plug	P19102310	P14027360010	3	M36xP3.0	
5	Insert Coil	P16830450	P15008304500	4	M30x3.5x1.5D	
68	Socket Plug	P19103010	P14020030010	2	PF3/8"	
***	Assembly-Adapter Flange	B37113310	B37110034000	2SET	BOX TYPE	
6	Cap-Adapter	F05263C00	F0053163C000	2	M42xP2	
7	Adapter-Flange	B37123310	B37110033300	2	M42xP2	
8	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
***	Assembly-Valve Adjuster	B37114600	B37110046000	1SET	Including no. 9,10	
9	Nut-Hex	P13322000	P12013220000	1	M22xP1.5	
10	Valve-Adjuster	B37114610	B37110046100	1	NUT 포함	
***	Assembly-Valve	B37114000	B37110040000	1SET	Including no. 11~13	
11	Guide-Valve	B37114300	B37110043000	1		
12	Valve	B37114101	B37110041001	1		
13	Plug-Valve	B37114201	B37110042001	1		
65	Auto Stop Valve	-	B37110017000	1		
67	Bolt-Socket	-	P11020080250	2	M8xP1.25x25L	
14	Seal-Buffer	P23001601	P20301160000	1	HBV 160	
15	U-Packing	P21201601	P20102160000	1	ISI 160	
16	Seal-Dust	P22201601	P20202160000	1	DSI 160	
17	O-Ring	P2710195G	P20701195000	2	G195-1B	
18	Seal-Step	P25001570	P20500157000	2	SPNS 157	
-	O-Ring			2		
19	Seal-Gas	P24001570	P20400157000	1	PPY 157	
20	O-Ring	P2700032P	P20700032000	3	P32-1B	
21	Back Up Ring	P28GS0450	P20811045000	2	G45-T2	
22	O-Ring	P2710045G	P20701045000	2	G45-1B	
23	Back Up Ring	P28PS0140	P20801014000	1	P14-T2	
24	O-Ring	P2700014P	P20700014000	1	P14-1B	
25	O-Ring	P2710085G	P20701085000	1	G85-1B	
26	O-Ring	P2710055G	P20701055000	1	G55-1B	
24	O-Ring	P2700014P	P20700014000	2	P14-1B	
66	O-Ring	P2700016P	P20700016000	3	P16-1B	
***	Assembly-Accumulator	B35116000	B35110060001	1SET	including no. 27~34	
27	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
28	Cover-Accumulator	B35116201	B35110062001	1		
29	Diaphragm	B35117400	B35110074000	1	Ø190	
30	Body-Accumulator	B35116101	B35110061001	1		
31	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
32	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
33	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25	
34	Bolt-Socket	P12020055	P11020200550	12	M20xP2.5x55L	
24	O-Ring	P2700014P	P20700014000	2	P14-1B	

Parts List for Main Body

Model : FINE 37X, 37T

35	Back Up Ring	P28PF0950	P20802095000	1	P95(105x109x4.6)-T3
36	O-Ring	P2700095P	P20700095000	1	P95-1B
37	O-Ring	P2700005P	P20700005000	1	P5-1B
***	Assembly-Back Head	B37113000	B37110030000	1SET	Including no. 38~41

Parts List for Main Body

Model : FINE 37X, 37T

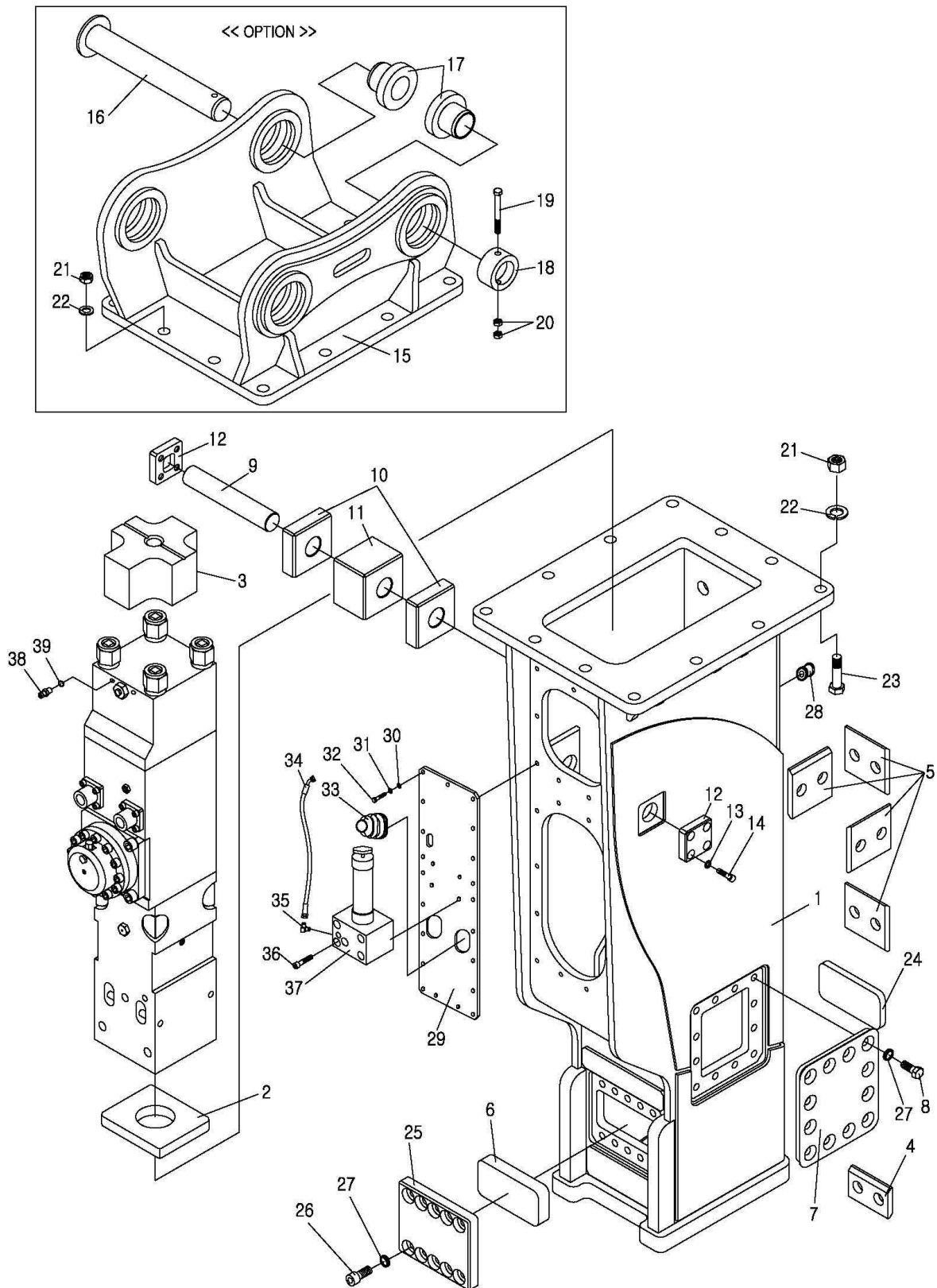
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
38	Back Head	B37153100	B37150031000	1		
39	Socket Plug	P19102010	P14020010010	2	PF1/4"	
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	Including no. 40,41	
40	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
41	Charging Valve	B15113210	B15110032100	1		
17	O-Ring	P2710195G	P20701195000	1	G195-1B	
42	O-Ring	P2700011P	P20700011000	2	P11-1B	
43	O-Ring	P2700008P	P20700008000	1	P8-1B	
44	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Front Head	B37112010	B37110020100	1SET	Including no. 45~50, 52~56	
45	Front Head	-	B37150021002	1		
46	Inner Bush	B37112300	B37110023000	1	일체형(신형)	
47	Front Cover	-	B37110022101	1	BOX	
47-1	Front Cover	-	B37110022001	1	TOP	
48	Pin-Front Head	B37112620	B37110026200	2	Ø26xL253	
49	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20T	
50	Snap Ring	P07150260	P07010102600	2	Ø26 HOLE TYPE	
52	Pin-Stop	B35112610	B35110026100	1	Ø20xL239	
53	Plug-Rubber	B07112820	B07110028200	1	Ø20 * Ø23 * 14T	
54	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
55	Hollow Plug	P17001000	P16000010000	3	PT1/4"	
56	Air Cap	B00002700	B00000027000	1	PF1/2"	
44	O-Ring	P2700018P	P20700018000	1	P18-1B	
24	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Through Bolt	-	B37110050001	4SET	Including no. 57~60	
57	Through Bolt	-	B37110051001	4		
58	Washer	B37115200	B37110052000	4		
59	Nut-Upper	-	B37110053001	4		
60	Nut-Bottom	-	B37110054001	4		
51	Pin-Tool	B37112400	B37110024000	2		
52	Pin-Stop	MA	B35110026100	2	Ø20xL239 (Only Old Type, Top&Side Type)	
53	Plug-Rubber	B07112820	B07110028200	2	Ø20 * Ø23 * 14T (Only Old Type, Top&Side Type)	
61	Pin-Knock	B15111400	B15110014000	2	Ø12 x L30	
62	Bolt-Socket	P12030080	P11020300800	4	M30*P3.5*80L	
63	Washer-Node lock	P15430000	P13034300000	4	M30	
64	Tool-Moil Point	B37112511	B37110025101	1	선택, Alternative	
-	Tool-Wedge Point	B37112521	B37110025201	-	선택, Alternative	
-	Tool-Blunt End	B37112541	B37110025401	-	선택, Alternative	
***	Seal kit-Complete	B37117000	B37110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B3700800B	B3700008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B3700800T	B3700008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 37X(New Design)*



Parts List for Box-New Design

Model : FINE 37X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B37560000001	1SET	BOX TYPE	New Design
2	Damper-Bottom	-	B37510052001	1	Urethane	
3	Damper-Upper	-	B35510051000	1	Urethane	
4	Damper-Plate	-	B12510053000	1	Urethane	
5	Damper-Plate	-	B20510053000	7	Urethane	
6	Damper-Front	-	B37560057000	1	Urethane	
7	Damper-Side	-	B37560055001	2		
8	Bolt-Hex	-	P11010200400	24	M20x40L	
***	Assembly-Support Plate	-	B37560030000	1SET	Including no. 9~14	
9	Pin-Support	-	B37560052000	1		
10	Block-Support	-	B37560033000	2	Urethane	
11	Damper-Support	-	B37560054000	1	Urethane	
12	Stopper-Pin	-	B37560053000	2		
13	Washer-Node lock	-	P13034160000	8	M16	
14	Bolt-Socket	-	P11020160450	8	M16x45L	
***	Assembly-Mount Cap	-	B37660000000	1SET	Including no. 15~23	
15	Mount Cap	-	B37660010000	1SET	OPTION	
16	Pin-Bracket	-	P43090655400	2	Alternative	
17	Bush-Bracket	-	P44090130550	4	Alternative	
18	Ring-Stop	-	P45090140400	2	Alternative	
19	Bolt-Hex	-	P11015161800	2	M16x180L	
20	Nut-Hex	-	P12015160000	4	M16	
***	Assembly-Bolt-Hex	-	B22410050000	12SET	Including no. 21~23	
21	Nut-Hex Nylock	-	P12020300000	12	M30	
22	Washer-Spring	-	P13021300000	12	M30	
23	Bolt-Hex	-	P11018301100	12	M30x110L	
24	Damper-Rear	-	B37560058000	1	Urethane	
25	Cover-Damper	-	B37560057101	1		
26	Bolt-Socket	-	P11020200400	10	M20x40L	
27	Washer-Node lock	-	P13034200000	34	M20	
28	Plug-Rubber	-	B20530064100	2	Round Type	LOW NOISE(option)
29	Cover	-	B37530061001	1		
30	Washer-Plain	-	P13010120000	21	M12	
31	Washer-Spring	-	P13021120000	21	M12	
32	Bolt-Hex	-	P11010120350	21	M12x35L	
33	Hose Belloss	-	B20530063000	2		
34	Hose(5#X45 5#)	-	F10211110114	1	1/4"(70BAR)x600L	AUTO GREASE(option)
35	90 Elbow	-	F00321231100	1	PT1/4"xPF1/4"5#	
36	Bolt-Socket	-	P11020121100	4	M12x110L	
37	Auto Grease unit	-	P42040010000	1	Inter Lube	

Parts List for Box-New Design

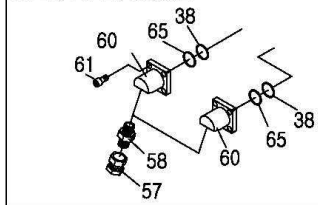
Model : FINE 37X

38	Connector	-	F00111131100	1	PF1/4"(O-RING)xPF1/4"
39	O-Ring	-	P20700011000	1	P11-1B

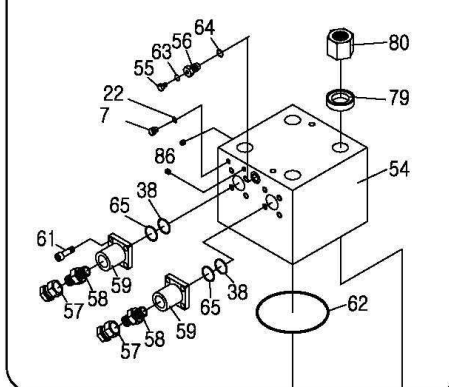


Exploded View of *FINE 45X, 45T, 45S*

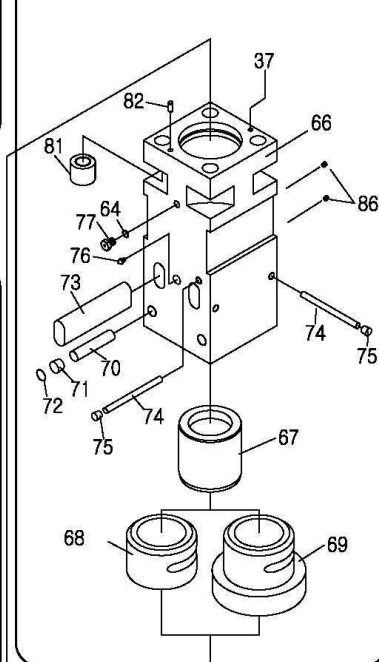
OPEN TYPE FLANGE



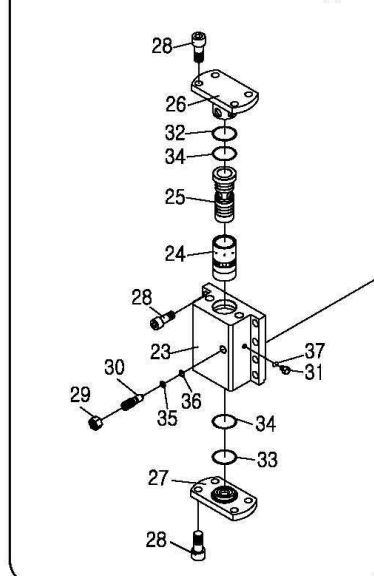
Section Back Head



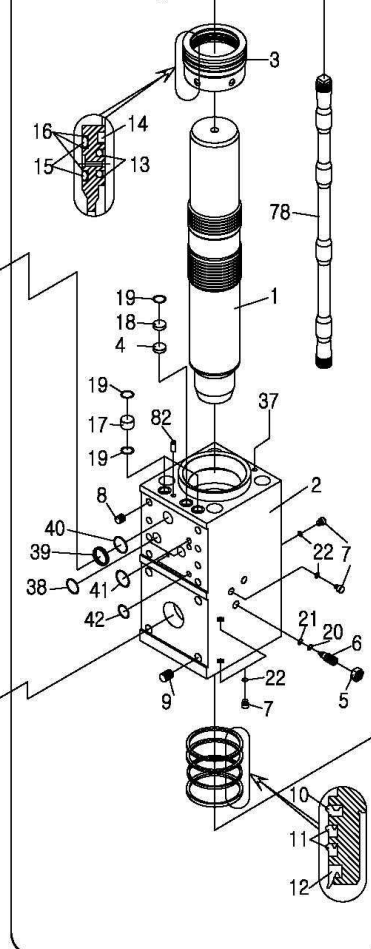
Section Front Head



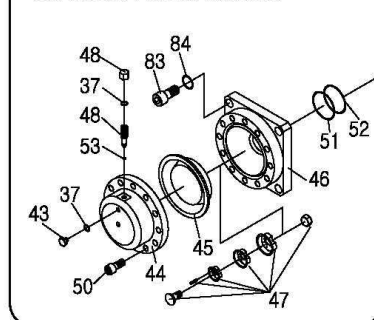
Section Valve Housing



Section Cylinder



Section Accumulator



Part List for Main Body

Model : FINE 45X, 45T, 45S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B45150010	B45150000100	1SET		
***	Assembly-Cylinder	B45111000	B45150010000	1SET	including no. 1~9	
1	Piston	B45111201	B45110012001	1		
2	Cylinder	B45111100	B45150011000	1		
3	Seal-Retainer	B45111300	B45110013000	1		
4	Plate-Cover	B45111630	B45110016300	1	Ø42x4.2T	
***	Assembly-Cylinder Adjuster	B15111500	B15110015000	1SET	including no. 5,6	
5	Nut-Hex	P13322000	P12013220000	1	M22xP1.5	
6	Cylinder-Adjuster	B15111510	B15110015100	1		
7	Socket Plug	P19102010	P14020010010	4	PF1/4" (10mm)	
8	Insert Coil	P16620300	P15006203000	8	M20xP2.5x1.5D	
9	Insert Coil	P16724360	P15007243600	4	M24xP3x1.5D	
10	Seal-Buffer	P23001701	P20301170000	1	HBV 170	
11	U-Packing	P21201701	P20102170000	1	ISI 170	
12	Seal-Dust	P22201701	P20202170000	1	DSI 170	
13	Seal-Step	P25001700	P20500165000	2	Ø165	
-	O-Ring			2		
14	Seal-Gas	P24001650	P20400165000	1	Ø165	
15	O-Ring	P2710195G	P20701195000	2	G195-1B	
16	Back Up Ring	P28GS1950	P20811195000	3	G195-T2	
17	Bush-Teflon	B45111610	B45110016100	2	Ø42xØ32x30L	
18	Plug-Teflon	B45111620	B45110016200	1	Ø42x10.5L	
19	O-Ring	P2700036P	P20700036000	5	P36-4D	
20	Back Up Ring	P28PS0120	P20801012000	1	P12-T2	
21	O-Ring	P2700012P	P20700012000	1	P12-1B	
22	O-Ring	P2700011P	P20700011000	4	P11-1B	
37	O-Ring	P2700014P	P20700014000	1	P14-1B	
***	Assembly-Valve Housing	B45114000	B45110040000	1SET	including no. 23~31	
23	Valve-Housing	B45114300	B45110043000	1		
24	Valve	B45114100	B45110041000	1		
25	Valve-Plug	B45114200	B45110042000	1		
26	Cover-Upper, Valve	B45114510	B45110045100	1		
27	Cover-Bottom, Valve	B45114520	B45110045200	1		
28	Bolt-Socket	P12020060	P11020200600	8	M20xP2.5x60L	
***	Assembly-Valve Adjuster	B45114600	B45110046000	1SET	including no. 29,30	
29	Nut-Hex	P13524000	P12015240000	1	M24xP2.0	
30	Valve-Adjuster	B45114610	B45110046100	1		
31	Socket Plug	P19103010	P14020030010	1	PF3/8" (3mm)	
32	Back Up Ring	P28GS0700	P20811070000	1	G70-T2	
33	Back Up Ring	P28GF0700	P20812070000	1	G70(75x77.4x2.4)-T3	
34	O-Ring	P2710070G	P20701070000	2	G70-4D	

Part List for Main Body

Model : FINE 45X, 45T, 45S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
35	Back Up Ring	P28PS0160	P20801016000	1	P16-T2	
36	O-Ring	P2700016P	P20700016000	1	P16-1B	
37	O-Ring	P2700014P	P20700014000	1	P14-1B	
38	O-Ring	P2710045G	P20701045000	2	G45-1B	
39	Back Up Ring	P28GF0550	P20812055000	1	G55(60x62.4x2.4)-T3	
40	O-Ring	P2710055G	P20701055000	1	G55-1B	
41	O-Ring	P2710050G	P20701050000	1	G50-1B	
42	O-Ring	P2710025G	P20701025000	2	G25-1B	
***	Assembly-Accumulator	B45116000	B45110060000	1SET	including no. 43~50	
43	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
44	Cover-Accumulator	B45116200	B45110062000	1		
45	Diaphragm	B45117400	B45110064000	1	Ø208	
46	Body-Accumulator	B45116100	B45110061000	1		
47	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
48	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
49	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25	
50	Bolt-Socket	P12020060	P11020200600	12	M20xP2.5x60L	
37	O-Ring	P2700014P	P20700014000	2	P14-1B	
51	Back Up Ring	P28PF0950	P20802095000	1	P95(105x109x4.6)-T3	
52	O-Ring	P2700095P	P20700095000	1	P95-1B	
53	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B45113000	B45150030000	1SET	including no. 54~61	
54	Back Head	B45113100	B45150031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 55,56	
55	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
56	Charging Valve	B15113210	B15110032100	1		
***	Assembly-Adapter Flange	B45113310	B45110034000	2SET	including no. 57,58,59 BOX TYPE	
57	Cap-Adapter	F05103600	F00511136000	2	PF1 1/4"5#	
58	Adapter	F01433660	F00121236600	2	PF1 1/4"5#	
59	Adapter-Flange	B45113350	B45110033600	2		for Box Type & "E" Serise
***	Assembly-Adapter Flange	B45113300	B45110033000	2SET	including no. 57,58,60 SIDE TOP TYPE	
60	Adapter-Flange	B45113330	B45110034600	2		for Open Type
61	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5x40L	
86	Hollow Plug	P17008000	P16000080000	2	PT1/8"	
7	Socket Plug	P19102010	P14020010010	1	PF1/4" (10mm)	
22	O-Ring	P2700011P	P20700011000	1	P11-1B	
38	O-Ring	P2710045G	P20701045000	2	G45-1B	
62	O-Ring	P2710235G	P20701235000	1	G235-1B	
63	O-Ring	P2700008P	P20700008000	1	P8-1B	
64	O-Ring	P2700018P	P20700018000	1	P18-1B	
65	Back Up Ring	P28GS0450	P20811045000	2	G45-T2	

Part List for Main Body

Model : FINE 45X, 45T, 45S

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Front Head	-	B45150020101	1SET	including no. 66~72,74~77	
66	Front Head	-	B45150021001	1		
67	Inner Bush	B45112300	B45110023000	1		~s/no. 45/242
68	Front Cover	B45112210	B45110022100	1		for Box Type & "E" Serise
69	Front Cover	B45112200	B45110022000	1		for Open Type
70	Pin-Front Head	B45112620	B45110026200	2		
71	Plug-Rubber	B45112820	B45110028200	2	Ø36xØ38x25	
72	Snap Ring	P07150360	P07010103600	2	Ø36 HOLE TYPE	
74	Pin-Stop	B45112610	B45110026100	1		
75	Plug-Rubber	B10112820	B10110028200	1	Ø25xØ27x20	
76	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
77	Air Cap	B00002700	B00000027000	1	PF1/2"	
86	Hollow Plug	P17008000	P16000080000	2	PT1/8"	
37	O-Ring	P2700014P	P20700014000	1	P14-1B	
64	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	-	B45110050001	4SET	including no. 78~81	
78	Through Bolt	B45115100	B45110051000	4		
79	Washer	B45115200	B45110052000	4		
80	Nut-Upper	B45115300	B45110053000	4		
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
81	Nut-Bottom	-	B45110054001	4		
28	Bolt-Socket	P12020055	P11020200550	8	M20xP2.5x55L	
73	Pin-Tool	B45112401	B45110024001	2		
74	Pin-Stop	B45112610	B45110026100	2		
75	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20	
82	Pin-Knock	B45111400	B45110014000	2		
83	Bolt-Socket	P12024075	P11020240750	4	M24xP3.0x75L	
84	Washer-Node lock	P15424000	P13034240000	4	M24	
85	Tool-Moil Point	B45112511	B45110025101	1	Alternative	
-	Tool-Wedge Point	B45112521	B45110025201	-	Alternative	
-	Tool-Blunt End	B45112541	B45110025401	-	Alternative	
***	Seal Kit-Complete	B45117000	B45110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B4500800T	B4500008T000	1SET	TOP TYPE	
-	Box Set-Service Tools	B4500800B	B4500008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Parts List for Top Bracket

Model : FINE 45T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	-	B45310020002	1	new	
2	Assembly-Bracket, LH	-	B45310010002	1	new	
***	Assembly-Bracket Bolt	B45315000	B45310050000	8SET	including no. 3~5	
3	Bolt-Bracket	B45315100	B45310051000	8		
4	Washer-Bracket	B45315200	B45310052000	16		
5	Nut-Bracket	B45315300	B45310053000	16		
***	Assembly-Mount Cap	-	B45410000003	1SET	including no. 6~14	
6	Mount Cap	-	B45410010003	1SET	OPTION	
7	Pin-Bracket	P43100670	P43100670400	2	Alternative	
8	Bush-Bracket	P44100440	P44100120440	4	Alternative	
9	Ring-Stop	P45100400	P45100140400	2	Alternative	
10	Bolt-Hex	P11016200	P11010162000	2	M16x180L	
11	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B22415000	B22410050000	12SET	including no. 12~14	
12	Nut-Hex Nylock	P14030000	P12020300000	12	M30	
13	Washer-Spring	P15130000	P13021300000	12	M30	
14	Bolt-Hex	P11830110	P11018301100	12	M30xP3.5x110L	



Parts List for Main Body

Model : FINE 46X, 46T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B46110000	B46110000000	1SET		
***	Assembly-Cylinder	B46111000	B46110010000	1SET	Including no. 1~14	
1	Piston	B46111200	B46110012000	1		
2	Cylinder	B46151101	B46150011001	1		
3	Seal-Retainer	B46111300	B46110013000	1		
4	Socket Plug	P19102310	P14027360010	3	M36xP3.0	
5	Insert Coil	P16830450	P15008304500	4	M30x3.5x1.5D	
69	Socket Plug	P19103010	P14020030010	2	PF3/8"	
***	Assembly-Adapter Flange	B45113310	B45110034000	2SET	including no. 6,7,8,9	
6	Cap-Adapter	F05103600	F00511136000	2	PF1 1/4"5#	
7	Adapter	F01433660	F00121236600	2	PF1 1/4"5#	
8	Adapter-Flange	B45113350	B45110033600	2		
9	Bolt-Socket	P12314040	P11023140400	8	M14x40L	
***	Assembly-Valve Adjuster	B37114600	B37110046000	1SET	Including no. 10,11	
10	Nut-Hex	P13322000	P12013220000	1	M22xP1.5	
11	Valve-Adjuster	B37114610	B37110046100	1	NUT포함	
***	Assembly-Valve	B46114000	B46110040000	1SET	Including no. 12~14	
12	Guide-Valve	-	B46110043001	1		
13	Valve	-	B46110041001	1		
14	Plug-Valve	-	B46110042001	1		
66	Auto Stop Valve	-	B37110017000	1		
68	Bolt-Socket	-	P11020080250	2	M8xP1.25x25L	
15	Seal-Buffer	P23001751	P20301175000	1	HBV 175	
16	U-Packing	P21201751	P20102175000	1	ISI 175	
17	Seal-Dust	P22201751	P20202175000	1	DSI 175	
18	O-Ring	P2710205G	P20701205000	3	G205-1B	
19	Seal-Step	P25001720	P20500172000	2	SPNS 172	
-	O-Ring			2		
20	Seal-Gas	P24001720	P20400172000	1	PPY 172	
21	O-Ring	P2700032P	P20700032000	3	P32-1B	
22	Back Up Ring	P28GS0450	P20811045000	2	G45-T2	
23	O-Ring	P2710045G	P20701045000	2	G45-1B	
24	Back Up Ring	P28PS0140	P20801014000	1	P14-T2	
25	O-Ring	P2700014P	P20700014000	3	P14-1B	
67	O-Ring	P2700016P	P20700016000	3	P16-1B	
26	O-Ring	P2710095G	P20701095000	1	G95-1B	
27	O-Ring	P2710065G	P20701065000	1	G65-1B	

Parts List for Main Body

Model : FINE 46X, 46T

***	Assembly-Accumulator	B46116000	B46110060000	1SET	including no. 28~38	
28	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
29	Cover-Accumulator	B45116200	B45110062000	1		
30	Diaphragm	B45117400	B45110064000	1	Ø208	
31	Body-Accumulator	B46116100	B46110061000	1		
32	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
33	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
34	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25	
35	Bolt-Socket	P12020060	P11020200600	12	M20xP2.5x60L	
25	O-Ring	P2700014P	P20700014000	2	P14-1B	
36	Back Up Ring	P28PF0950	P20802095000	1	P95(105x109x4.6)-T3	
37	O-Ring	P2700095P	P20700095000	1	P95-1B	
38	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B46113000	B46110030000	1SET	Including no. 39~42	
Item No.	Description	Part No.	Part No.	Q'ty	Remarks	Application
39	Back Head	B46153100	B46150031000	1		
40	Socket Plug	P19102010	P14020010010	2	PF1/4"	
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	Including no. 41,42	
41	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
42	Charging Valve	B15113210	B15110032100	1		
18	O-Ring	P2710205G	P20701205000	1	G205-1B	
43	O-Ring	P2700011P	P20700011000	2	P11-1B	
44	O-Ring	P2700008P	P20700008000	1	P8-1B	
45	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Front Head	B46112000	B46110020000	1SET	Including no. 46~51, 53~57	
46	Front Head	B46152100	B46150021000	1		
47	Inner Bush	B46112300	B46110023000	1		
48	Front Cover	B46112210	B46110022100	1	BOX	
48-1	Front Cover	B46112200	B46110022000	1	TOP	
49	Pin-Front Head	B37112620	B37110026200	2	Ø26xL253	
50	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20T	
51	Snap Ring	P07150260	P07010102600	2	Ø26 HOLE TYPE	
53	Pin-Stop	B46112610	B46110026100	1	Ø20xL259	
54	Plug-Rubber	B07112820	B07110028200	1	Ø20 * Ø23 * 14T	
55	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
56	Hollow Plug	P17001000	P16000010000	3	PT1/4"	
57	Air Cap	B00002700	B00000027000	1	PF1/2"	
45	O-Ring	P2700018P	P20700018000	1	P18-1B	
25	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Through Bolt	-	B46110050002	4SET	Including no. 58~61	
58	Through Bolt	-	B46110051002	4		
59	Washer	-	B46110052001	4		
60	Nut-Upper	-	B46110053002	4		
61	Nut-Bottom	-	B46110054001	4		

Parts List for Main Body

Model : FINE 46X, 46T

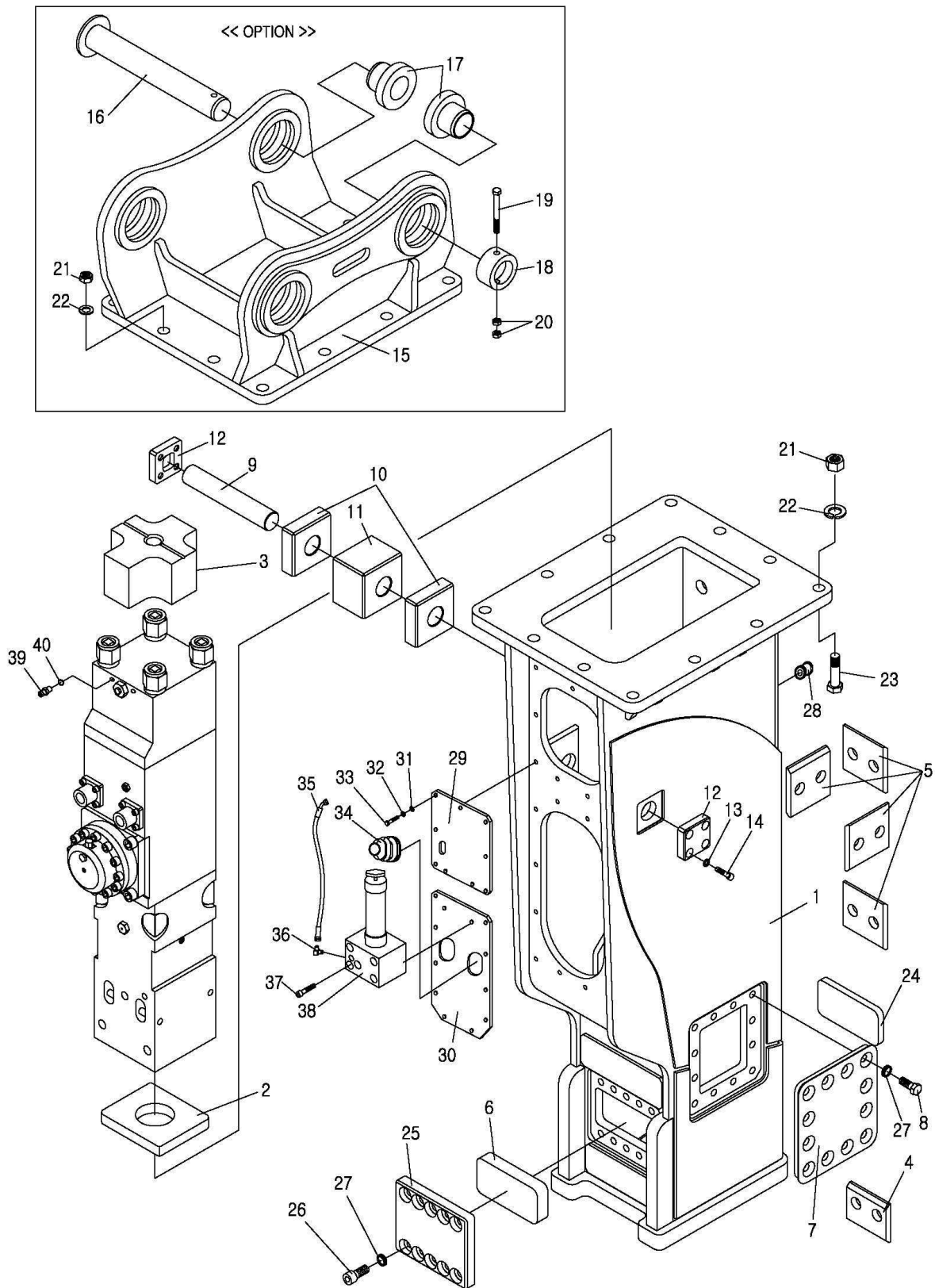
52	Pin-Tool	B46112400	B46110024000	2	
53	Pin-Stop	B46112610	B46110026100	2	Ø20xL259(Only Old Type, Top&Side Type)
54	Plug-Rubber	B07112820	B07110028200	2	Ø20 * Ø23 * 14T(Only Old Type, Top&Side Type)
62	Pin-Knock	B45111400	B45110014000	2	Ø18 x L38
63	Bolt-Socket	P12030080	P11020300800	4	M30xP3.5x80L
64	Washer-Node lock	P15430000	P13034300000	4	M30
65	Tool-Moil Point	B46112510	B46110025100	1	선택, Alternative
-	Tool-Wedge Point	B46112520	B46110025200	-	선택, Alternative
-	Tool-Blunt End	B46112540	B46110025400	-	선택, Alternative
***	Seal kit-Complete	B46117000	B46110070000	1SET	

Accessories

A-1	Box Set-Service Tools	B4600800B	B4600008B000	1SET	BOX TYPE
-	Box Set-Service Tools	B4600800T	B4600008T000	1SET	TOP TYPE
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET	New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1	10.2liter
A-4	Manual Book	FB100000	FB0100000000	1	



Exploded View of *FINE 46X(New Design)*



Bracket-Box type-New Design type: Unit serial no.

Parts List for Box-New Design

Model : FINE 46X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	-	B46560000000	1SET	BOX TYPE	New Design
2	Damper-Bottom	-	B46510052000	1	Urethane	
3	Damper-Upper	-	B46510051000	1	Urethane	
4	Damper-Plate	-	B36510053000	1	Urethane	
5	Damper-Plate	-	B20510053000	9	Urethane	
6	Damper-Front	-	B37560057000	1	Urethane	
7	Damper-Side	-	B37560055001	2		
8	Bolt-Hex	-	P11010200400	24	M20x40L	
***	Assembly-Support Plate	-	B46560030000	1SET	Including no. 9~14	
9	Pin-Support	-	B46560031000	1		
10	Block-Support	-	B46560033000	2	Urethane	
11	Damper-Support	-	B46560054000	1	Urethane	
12	Stopper-Pin	-	B46560032000	2		
13	Washer-Node lock	-	P13034160000	8	M16	
14	Bolt-Socket	-	P11020160350	8	M16x35L	
***	Assembly-Mount Cap	-	B46660000000	1SET	Including no. 15~23	
15	Mount Cap	-	B46660010000	1SET	OPTION	
16	Pin-Bracket	-	P43100725400	2	Alternative	
17	Bush-Bracket	-	P44100150740	4	Alternative	
18	Ring-Stop	-	P45100140400	2	Alternative	
19	Bolt-Hex	-	P11015161800	2	M16x180L	
20	Nut-Hex	-	P12015160000	4	M16	
***	Assembly-Bolt-Hex	-	B46410050000	12SET	including no. 21~23	
21	Nut-Hex Nylock	-	P12020360000	12	M36XP4	
22	Washer-Spring	-	P13021360000	12	M36	
23	Bolt-Hex	-	P11010361300	12	M36xP4x130L	
24	Damper-Rear		B37560058000	1	Urethane	
25	Cover-Damper		B37560057101	1		
26	Bolt-Socket	-	P11020200400	10	M20x40L	
27	Washer-Node lock	-	P13034200000	34	M20	
28	Plug-Rubber	-	B20530064100	2	Round Type	LOW NOISE(option)
29	Cover-Upper	-	B46530061000	1		
30	Cover-Bottom	-	B46530062000	1		
31	Washer-Plain	-	P13010120000	24	M12	
32	Washer-Spring	-	P13021120000	24	M12	
33	Bolt-Hex	-	P11010120400	24	M12x40L	
34	Hose Belloss	-	B45530063000	2		
35	Hose(5#X45 5#)	-	F10211110140	1	1/4"(70BAR)x700L	AUTO GREASE(option)
36	90 Elbow	-	F00321231100	1	PT1/4"xPF1/4"5#	
37	Bolt-Socket	-	P11020121100	4	M12x110L	
38	Auto Grease unit	-	P42040010000	1	Inter Lube	

Parts List for Box-New Design

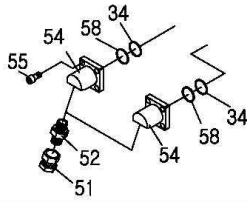
Model : FINE 46X

39	Connector	-	F00111131100	1	PF1/4"(O-RING)xPF1/4"
40	O-Ring	-	P20700011000	1	P11-1B

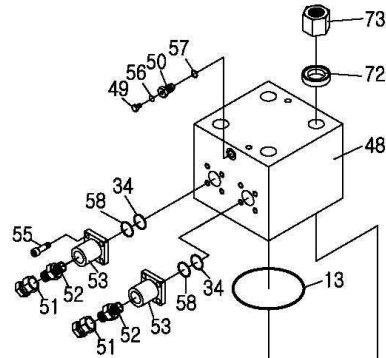


Exploded View of *FINE 50X, 50T*

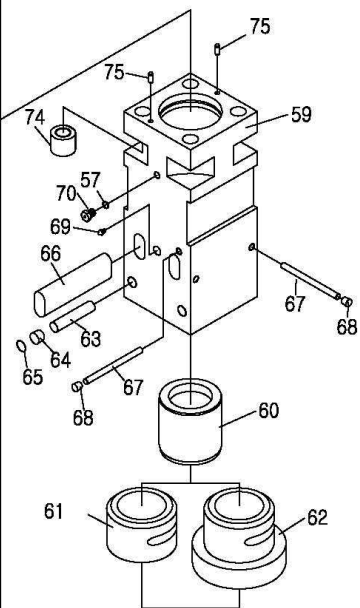
OPEN TYPE FLANGE



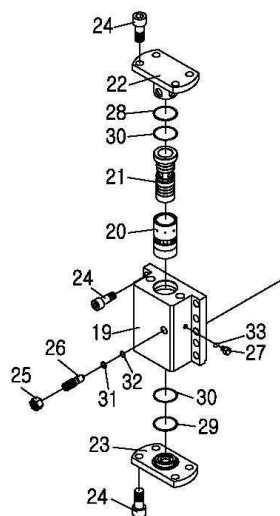
Section Back Head



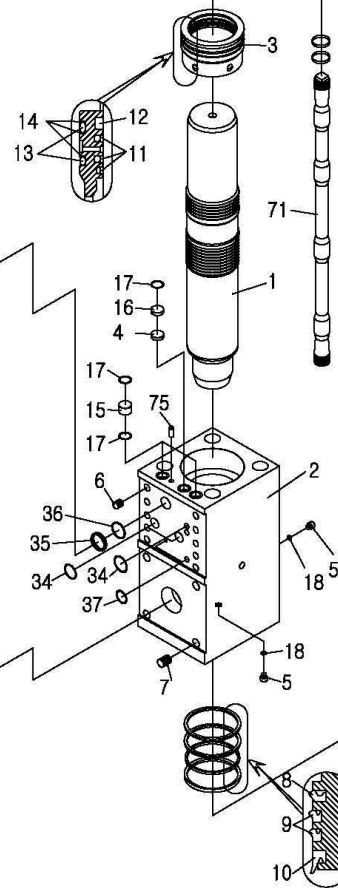
Section Front Head



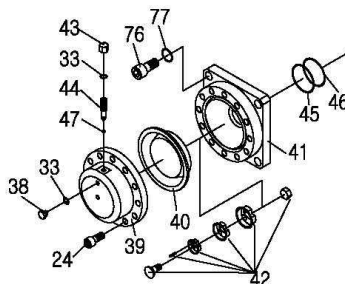
Section Valve Housing



Section Cylinder



Section Accumulator



Main body: Unit serial no.

Part List for Main Body

Model : FINE 50X, 50T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B50110010	B50110000100	1SET		
***	Assembly-Cylinder	B50111000	B50110010000	1SET	including no. 1~7	
1	Piston	B50111200	B50110012000	1		
2	Cylinder	B50111100	B50110011000	1		
3	Seal-Retainer	B50111300	B50110013000	1		
4	Plate-Cover	B45111630	B45110016300	1	Ø42x4.2T	
5	Socket Plug	P19102010	P14020010010	2	PF1/4" (10mm)	
6	Insert Coil	P16620300	P15006203000	10	M20XP2.5X1.5D	
7	Insert Coil	P16724360	P15007243600	4	M24XP3X1.5D	
8	Seal-Buffer	P23001801	P20301180000	1	HBV 180	
9	U-Packing	P21201801	P20102180000	1	ISI 180	
10	Seal-Dust	P22201801	P20202180000	1	DSI 180	
11	Seal-Step	P25001770	P20500177000	3	Ø177	
-	O-Ring			3		
12	Seal-Gas	P24001770	P20400177000	1	Ø177	
13	O-Ring	P2710220G	P20701220000	2	G220-1B	
14	Back Up Ring	P28GS2200	P20811220000	3	G220-T2	
15	Bush-Teflon	B45111610	B45110016100	2	Ø42xØ32x30L	
16	Plug-Teflon	B45111620	B45110016200	1	Ø42x10.5L	
17	O-Ring	P2700036P	P20700036000	5	P36-4D	
18	O-Ring	P2700011P	P20700011000	2	P11-1B	
***	Assembly-Valve Housing	B50114000	B50110040000	1SET	including no. 19~27	
19	Valve-Housing	B50114300	B50110043000	1		
20	Valve	B50114100	B50110041000	1		
21	Valve-Plug	B50114200	B50110042000	1		
22	Cover-Upper, Valve	B50114510	B50110045100	1		
23	Cover-Bottom, Valve	B50114520	B50110045200	1		
24	Bolt-Socket	P12020060	P11020200600	8	M20xP2.5x60L	
***	Assembly-Valve Adjuster	B45114600	B45110046000	1SET	including no. 25,26	
25	Nut-Hex	P13524000	P12015240000	1	M24xP2.0	
26	Valve-Adjuster	B45114610	B45110046100	1		
27	Socket Plug	P19103010	P14020030010	1	PF3/8" (3mm)	
28	Back Up Ring	P28PS0700	P20801070000	1	P70-T2	
29	Back Up Ring	P28PF0700	P20802070000	1	P70(80X83.6X4.6)-T3	
30	O-Ring	P2700070P	P20700070000	2	P70-4D	
31	Back Up Ring	P28PS0160	P20801016000	1	P16-T2	
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
32	O-Ring	P2700016P	P20700016000	1	P16-1B	
33	O-Ring	P2700014P	P20700014000	1	P14-1B	
34	O-Ring	P2710045G	P20701045000	2	G45-1B	
35	Back Up Ring	P28GF0550	P20812055000	1	G55(60X62.4X2.4)-T3	
36	O-Ring	P2710055G	P20701055000	2	G55-1B	
37	O-Ring	P2710030G	P20701030000	2	G30-1B	

Part List for Main Body

Model : FINE 50X, 50T

***	Assembly-Accumulator	B45116000	B45110060000	1SET	including no. 24,38~44	
24	Bolt-Socket	P12020060	P11020200600	12	M20xP2.5x60L	
38	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
39	Cover-Accumulator	B45116200	B45110062000	1		
40	Diaphragm	B45117400	B45110064000	1	Ø208	
41	Body-Accumulator	B45116100	B45110061000	1		
42	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
43	Cap-Accumulator	B15116510	B15110065100	1	M12XP1.25	
44	Charging-Adjuster	B20116500	B20110065000	1	M12XP1.25	
33	O-Ring	P2700014P	P20700014000	2	P14-1B	
45	Back Up Ring	P28PF0950	P20802095000	1	P95(105X109X4.6)-T3	
46	O-Ring	P2700095P	P20700095000	1	P95-1B	
47	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B50113000	B50110030000	1SET	including no. 48~55	
48	Back Head	B50113100	B50110031000	1		
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 49,50	
49	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
50	Charging Valve	B15113210	B15110032100	1		
***	Assembly-Adapter Flange	B45113310	B45110034000	2SET	including no. 51,52,53 BOX TYPE	
51	Cap-Adapter	F05103600	F00511136000	2	PF1 1/4"5#	
52	Adapter	F01433660	F00121236600	2	PF1 1/4"5#	
53	Adapter-Flange	B45113350	B45110033600	2	PF1 1/4"5# for Box Type & "E" Serise	
***	Assembly-Adapter Flange	B45113300	B45110033000	2SET	including no. 51,52,54 SIDE TOP TYPE	
54	Adapter-Flange	B45113330	B45110034600	2	30도 PF1 1/4"5# for Open Type	
55	Bolt-Socket	P12314040	P11023140400	8	M14xP1.5X40	
13	O-Ring	P2710220G	P20701220000	1	G220-1B	
34	O-Ring	P2710045G	P20701045000	2	G45-1B	
56	O-Ring	P2700008P	P20700008000	1	P8-1B	
57	O-Ring	P2700018P	P20700018000	1	P18-1B	
58	Back Up Ring	P28GS0450	P20811045000	2	G45-T2	
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Front Head	B50112010	B50110020100	1SET	including no. 59~65, 67~70	
59	Front Head	B50152100	B50150021000	1		
60	Inner Bush	B50112300	B50110023000	1		
61	Front Cover	B50112210	B50110022100	1	for Box Type & "E" Serise	
62	Front Cover	B50112200	B50110022000	1	for Open Type	
63	Pin-Front Head	B50112620	B50110026200	2		
64	Plug-Rubber	B45112820	B45110028200	2	Ø36xØ38x25	
65	Snap Ring	P07150300	P07010103000	2	Ø30 HOLE TYPE	
67	Pin-Stop	B50112610	B50110026100	1		
68	Plug-Rubber	B10112820	B10110028200	1	Ø25xØ27x20	
69	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
70	Air Cap	B00002700	B00000027000	1	PF1/2"	
57	O-Ring	P2700018P	P20700018000	1	P18-1B	

Part List for Main Body

Model : FINE 50X, 50T

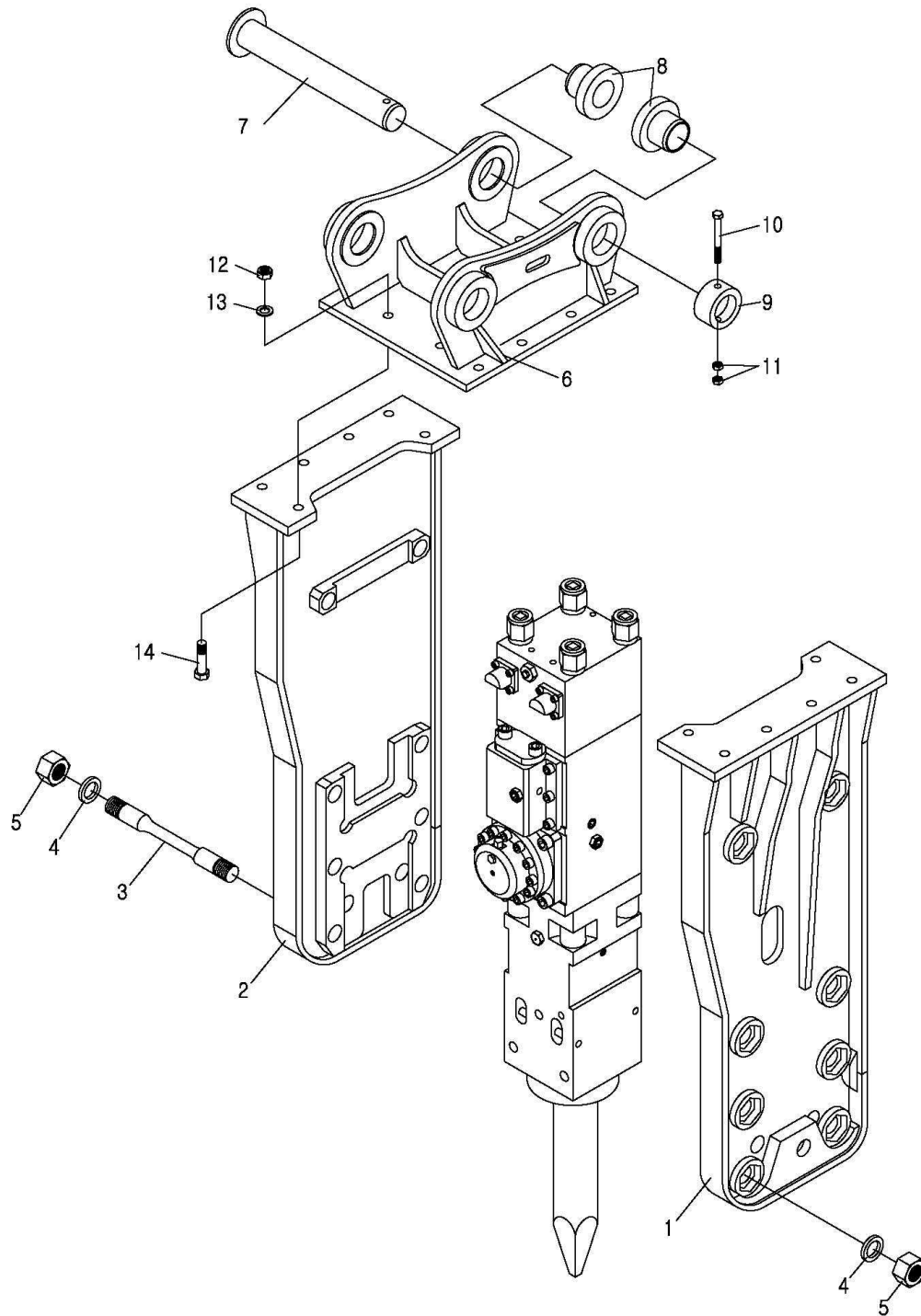
***	Assembly-Through Bolt	B50115000	B50110050000	4SET	including no. 71~74
71	Through Bolt	B50115100	B50110051000	4	
72	Washer	B50115200	B50110052000	4	
73	Nut-Upper	B50115300	B50110053000	4	
74	Nut-Bottom	B50115400	B50110054000	4	
24	Bolt-Socket	P12020060	P11020200600	10	M20xP2.5x60L
66	Pin-Tool	B50112401	B50110024001	2	
67	Pin-Stop	B50112610	B50110026100	2	
68	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20
75	Pin-Knock	B45111400	B45110014000	3	Ø18
76	Bolt-Socket	P12024065	P11020240650	4	M24xP3.0x65L
77	Washer-Node lock	P15424000	P13034240000	4	M24
78	Tool-Moil Point	B50112510	B50110025100	1	Alternative
-	Tool-Wedge Point	B50112520	B50110025200	-	Alternative
-	Tool-Blunt End	B50112540	B50110025400	-	Alternative
***	Seal Kit-Complete	B50117000	B50110070000	1SET	

Accessories

A-1	Box Set-Service Tools	B5000800B	B5000008B000	1SET	BOX TYPE
-	Box Set-Service Tools	B5000800T	B5000008T000	1SET	TOP TYPE
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET	New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1	10.2liter
A-4	Manual Book	FB100000	FB0100000000	1	



Exploded View of *FINE 50T*



Bracket-Top (open type): Unit serial no.

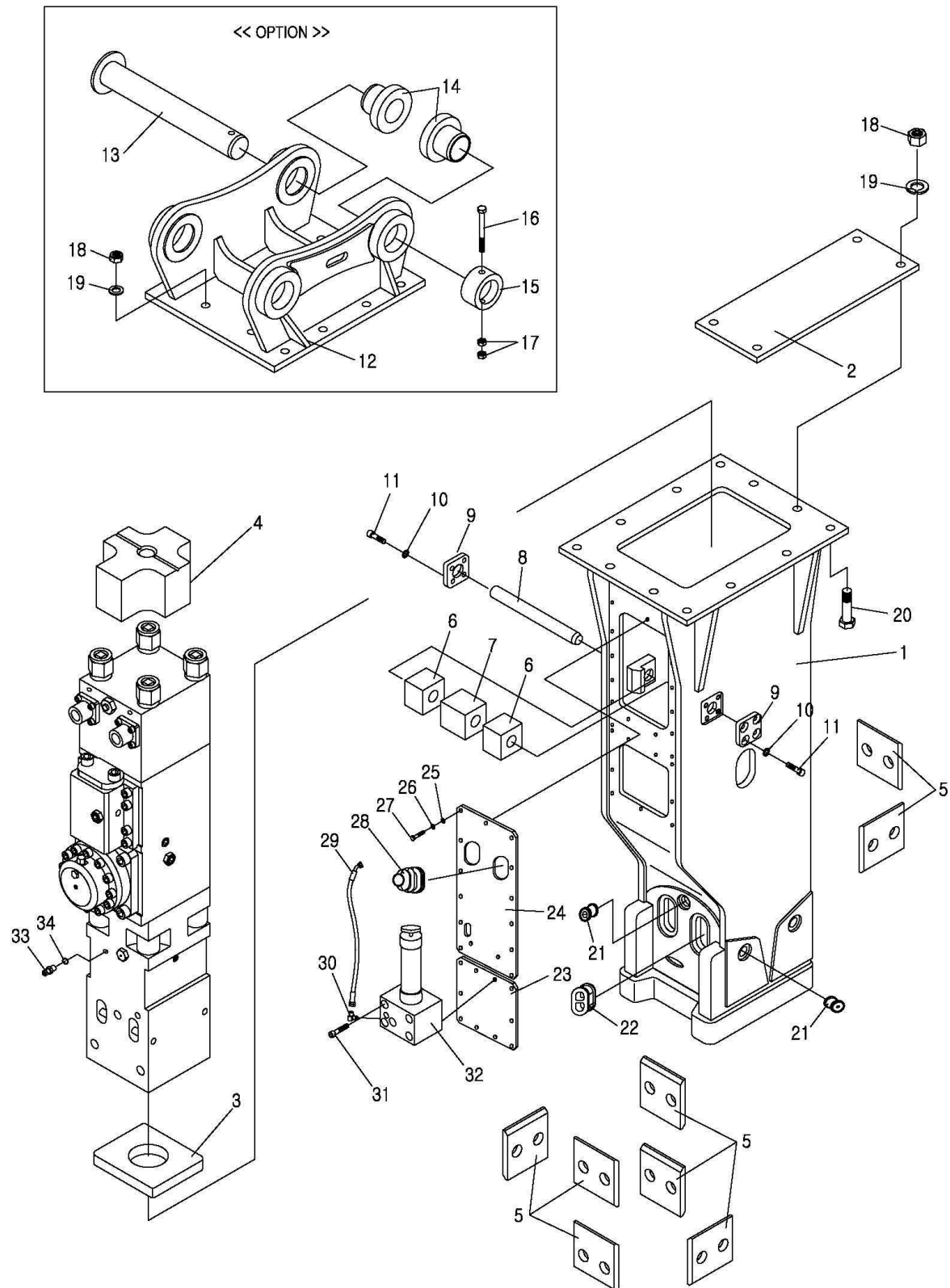
Parts List for Top Bracket

Model : FINE 50T

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Bracket, RH	B50312000	B50310020000	1		
2	Assembly-Bracket, LH	B50311000	B50310010000	1		
***	Assembly-Bracket Bolt	B50315000	B50310050000	8SET	including no. 3~5	
3	Bolt-Bracket	B50315100	B50310051000	8		
4	Washer-Bracket	B50315200	B50310052000	16		
5	Nut-Bracket	B50315300	B50310053000	16		
***	Assembly-Mount Cap	-	B50410000001	1SET	including no. 6~14	
6	Mount Cap	B50410002	B50410010002	1SET	OPTION	
7	Pin-Bracket	P43120710	P43120710400	2	Alternative	
8	Bush-Bracket	P44120120	P44120140120	4	Alternative	
9	Ring-Stop	P45120400	P45120160400	2	Alternative	
10	Bolt-Hex	P11016200	P11010162000	2	M16x200L	
11	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B46415000	B46410050000	12SET	including no. 12~14	
12	Nut-Hex Nylock	P14036000	P12020360000	12	M36XP4	
13	Washer-Spring	P15136000	P13021360000	12	M36	
14	Bolt-Hex	P11036130	P11010361300	12	M36xP4X130L	



Exploded View of *FINE 50X*



Parts List for Box-Low noise

Model : FINE 50X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket	B50530000	B50530000000	1SET	BOX TYPE	Low noise type
2	Plate-Cover	B50512000	B50510020000	1		
3	Damper-Bottom	B50515200	B50510052000	1		
4	Damper-Upper	B50515100	B50510051000	1		
5	Damper-Plate	B36515310	B36510053000	15		
***	Assembly-Support Plate	B50513000	B50510030000	1SET	including no. 6~11	
6	Block-Support	B50505440	B50500033000	2		
7	Damper-Support	B50505430	B50510054000	1		
8	Pin-Support	B50513101	B50510031001	1		
9	Stopper-Pin	B50513201	B50510032001	2		
10	Washer-Node lock	P15416000	P13034160000	8	M16	
11	Bolt-Socket	P12016045	P11020160450	8	M16x45L	
***	Assembly-Mount Cap	-	B50620100000	1SET	including no. 12~20	
12	Mount Cap	B50621000	B50620110000	1SET	OPTION	
13	Pin-Bracket	P43120710	P43120710400	2	Alternative	
14	Bush-Bracket	P44120120	P44120140120	4	Alternative	
15	Ring-Stop	P45120400	P45120160400	2	Alternative	
16	Bolt-Hex	P11016200	P11010162000	2	M16x200L	
17	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B46415000	B46410050000	12SET	including no. 18~20	
18	Nut-Hex Nylock	P14036000	P12020360000	12	M36	
19	Washer-Spring	P15136000	P13021360000	12	M36	
20	Bolt-Hex	P11036130	P11010361300	12	M36x130L	
21	Plug-Rubber	B50534100	B50530064100	8	Round Type	
22	Plug-Rubber	B50534200	B50530064200	3	Ellipsoid Type	
23	Cover-Bottom	B50536201	B50530062001	1		LOW NOISE(option)
24	Cover-Upper	B50536101	B50530061001	1		
25	Washer-Plain	P15012000	P13010120000	25	M12	
26	Washer-Spring	P15112000	P13021120000	25	M12	
27	Bolt-Hex	P11012035	P11010120350	25	M12x35L	
28	Hose Belloss	B45536300	B45530063000	2		AUTO GREASE(option)
29	Hose(5#X45 5#)	F22111114	F10211110114	1	1/4"(70BAR)x600L	
30	90 Elbow	F03433110	F00321231100	1	PT1/4"xPF1/4"5#	
31	Bolt-Socket	P12012110	P11020121100	4	M12x110L	
32	Auto Grease unit	P42110000	P42040010000	1	Inter Lube	
33	Connector	F01113110	F00111131100	1	PF1/4"(O-RING)xPF1/4"5#	
34	O-Ring	P2700011P	P20700011000	1	P11-1B	



Parts List for Main Body

Model : FINE 65X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body	B65110000	B65110000000	1SET		
***	Assembly-Cylinder	B65111000	B65110010000	1SET	Including no. 1~14	
1	Piston	B65111200	B65110012000	1		
2	Cylinder	B65151100	B65110011000	1		
3	Seal-Retainer	B65111300	B65110013000	1		
4	Socket Plug	P19102310	P14027360010	3	M36xP3.0	
5	Insert Coil	P16830450	P15008304500	4	M30x3.5x1.5D	
69	Socket Plug	P19103010	P14020030010	2	PF3/8"	
***	Assembly-Adapter Flange	B45113310	B45110034000	2SET	including no. 6,7,8,9	
6	Cap-Adapter	F05103600	F00511136000	2	PF1 1/4"5#	
7	Adapter	F01433660	F00121236600	2	PF1 1/4"5#	
8	Adapter-Flange	B45113350	B45110033600	2		
9	Bolt-Socket	P12314040	P11023140400	8	M14x40L	
***	Assembly-Valve Adjuster	B37114600	B37110046000	1SET	Including no. 10,11	
10	Nut-Hex	P13322000	P12013220000	1	M22xP1.5	
11	Valve-Adjuster	B37114610	B37110046100	1	NUT포함	
***	Assembly-Valve	B65114000	B65110040000	1SET	Including no. 12~14	
12	Guide-Valve	-	B65110043000	1		
13	Valve	-	B65110041000	1		
14	Plug-Valve	-	B65110042000	1		
66	Auto Stop Valve		B37110017000	1		
68	Bolt-Socket	P12008025	P11020080250	2	M8xP1.25x25L	
15	Seal-Buffer	P23001801	P20301180000	1	HBV 180	
16	U-Packing	P21201801	P20102180000	1	ISI 180	
17	Seal-Dust	P22201801	P20202180000	1	DSI 180	
18	O-Ring	P2710215G	P20701215000	3	G215-1B	
70	Seal-Step	P25001800	P20500180000	1	SPNS 180	
-	O-Ring			1		
19	Seal-Step	P25001760	P20500176000	3	SPNS 176	
-	O-Ring			3		
20	Seal-Gas	P24001760	P20400176000	1	PPY 176	
21	O-Ring	P2700032P	P20700032000	3	P32-1B	
22	Back Up Ring	P28GS0450	P20811045000	2	G45-T2	
23	O-Ring	P2710045G	P20701045000	2	G45-1B	
24	Back Up Ring	P28PS0140	P20801014000	1	P14-T2	
25	O-Ring	P2700014P	P20700014000	5	P14-1B	
26	O-Ring	P2710095G	P20701095000	1	G95-1B	
27	O-Ring	P2710065G	P20701065000	1	G65-1B	
67	O-Ring	P2700016P	P20700016000	3	P16-1B	

Parts List for Main Body

Model : FINE 65X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Accumulator	B65116000	B65110060000	1SET	including no. 28~38	
28	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
29	Cover-Accumulator	B45116200	B65110062000	1		
30	Diaphragm	B45117400	B65110064000	1	Ø240	
31	Body-Accumulator	B65116100	B65110061000	1		
32	Assembly-Poppet Valve	B15116300	B15110063000	1SET		
33	Cap-Accumulator	B15116510	B15110065100	1	M12xP1.25	
34	Charging-Adjuster	B20116500	B20110065000	1	M12xP1.25	
35	Bolt-Socket	P12020060	P11020200600	12	M20xP2.5x60L	
25	O-Ring	P2700014P	P20700014000	2	P14-1B	
36	Back Up Ring	P28PF0950	P20802095000	1	P95(105x109x4.6)-T3	
37	O-Ring	P2700095P	P20700095000	1	P95-1B	
38	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head	B65113000	B65110030000	1SET	Including no. 39~42	
39	Back Head	B65153100	B65150031000	1		
40	Socket Plug	P19102010	P14020010010	2	PF1/4"	
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	Including no. 41,42	
41	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
42	Charging Valve	B15113210	B15110032100	1		
18	O-Ring	P2710215G	P20701215000	1	G215-1B	
43	O-Ring	P2700011P	P20700011000	2	P11-1B	
44	O-Ring	P2700008P	P20700008000	1	P8-1B	
45	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Front Head	B65112000	B65110020000	1SET	Including no. 46~51, 53~57	
46	Front Head	B65152100	B65150021000	1		
47	Inner Bush	B65112300	B65110023000	1		
48	Front Cover	B65112210	B65110022100	1	BOX	
48-1	Front Cover	B65112200	B65110022000	1	TOP	
49	Pin-Front Head	B37112620	B37110026200	2	Ø26xL253	
50	Plug-Rubber	B10112820	B10110028200	3	Ø25xØ27x20T	
51	Snap Ring	P07150260	P07010102600	2	Ø26 HOLE TYPE	
53	Pin-Stop	B65112610	B65110026100	1	Ø20xL259	
55	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
56	Hollow Plug	P17001000	P16000010000	3	PT1/4"	
57	Air Cap	B00002700	B00000027000	1	PF1/2"	
45	O-Ring	P2700018P	P20700018000	1	P18-1B	
25	O-Ring	P2700014P	P20700014000	2	P14-1B	
***	Assembly-Through Bolt	-	B65110050000	4SET	Including no. 58~61	
58	Through Bolt	-	B65110051000	4		
59	Washer	-	B65110051000	4		
60	Nut-Upper	-	B65110053000	4		
61	Nut-Bottom	-	B65110054000	4		

Parts List for Main Body

Model : FINE 65X

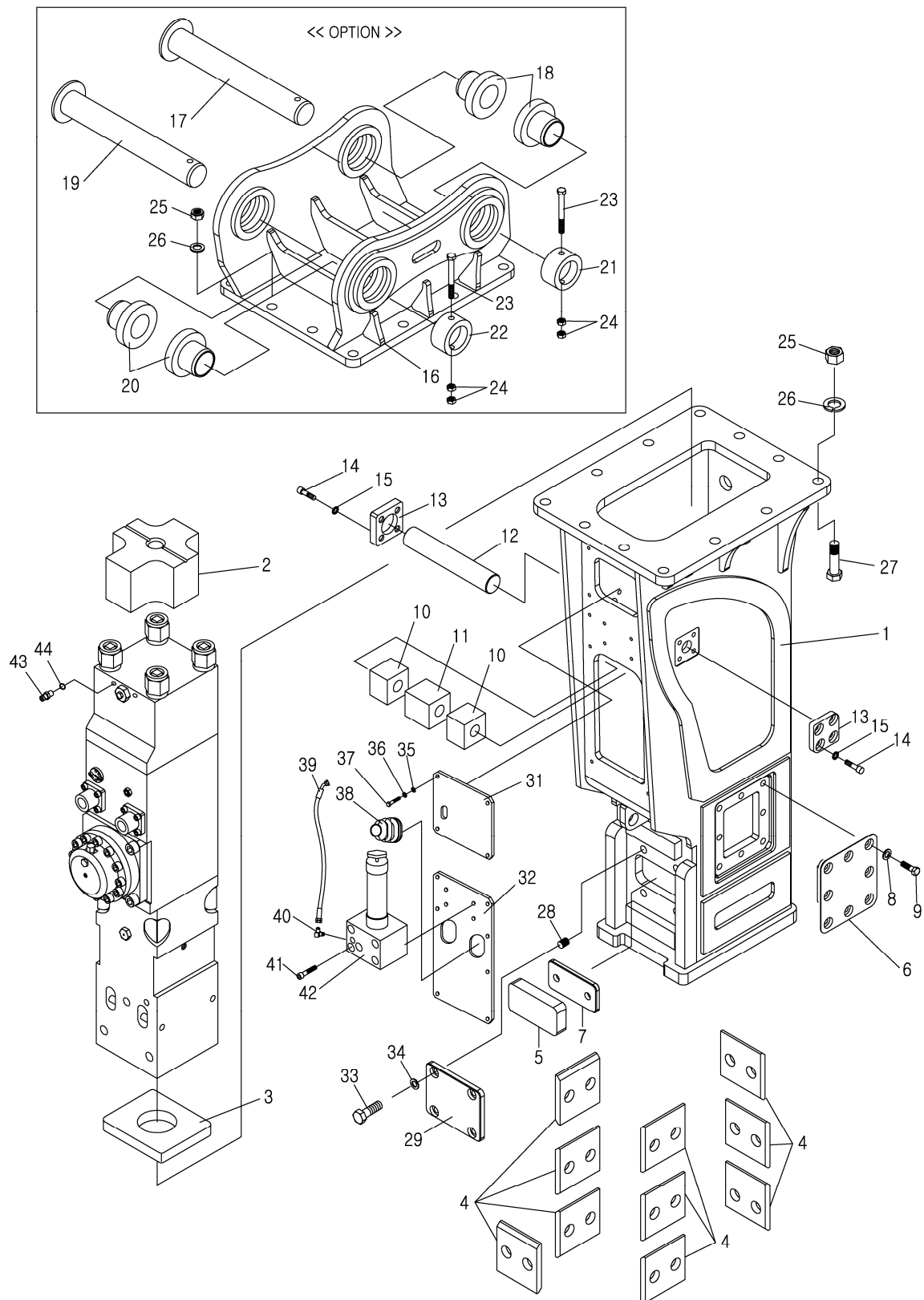
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
52	Pin-Tool	B65112400	B65110024000	2		
53	Pin-Stop	B65112610	B65110026100	2	Ø20xL253(Only Top&Side Type)	
50	Plug-Rubber	B10112820	B10110028200	2	Ø25xØ27x20T(Only Top&Side Type)	
62	Pin-Knock	B45111400	B45110014000	2	Ø18 x L38	
63	Bolt-Socket	P12030080	P11020300800	4	M30xP3.5x80L	
64	Washer-Node lock	P15430000	P13034300000	4	M30	
65	Tool-Moil Point	B65112510	B65110025100	1	선택, Alternative	
-	Tool-Wedge Point	B65112520	B65110025200	-	선택, Alternative	
-	Tool-Blunt End	B65112540	B65110025400	-	선택, Alternative	
***	Seal kit-Complete	B65117000	B65110070000	1SET		

Accessories

A-1	Box Set-Service Tools	B6500800B	B6500008B000	1SET	BOX TYPE	
-	Box Set-Service Tools	B6500800T	B6500008T000	1SET	TOP TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 65X*



Parts List for Box-New Design

Model : FINE 65X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket		B65560010001	1SET	BOX TYPE	Low noise type
2	Damper-Upper	B46515100	B46510051000	1	Urethane	
3	Damper-Bottom		B65560052000	1	Urethane	
4	Damper-Plate	B20515310	B20510053000	10	Urethane	
5	Damper-Front		B65560057000	1	Urethane	
6	Damper-Side		B65560055000	2	-	
7	Damper-Rear		B65560058001	1	-	
8	Washer-Spring		P13021240000	16	M24	
9	Bolt-Socket		P11020240500	16	M24*12.9T*50L	
***	Assembly-Support Plate		B65560030000	1SET	Including no. 10~15	
10	Block-Support		B65560033000	2	MC Nylon	
11	Damper-Support		B65560054000	1	Urethane	
12	Pin-Support		B65560031000	1	SCM440	
13	Stopper-Pin		B65510032000	2	SS400	
14	Bolt-Socket		P11020200600	8	M20*60L	
15	Washer-Node Lock		P13034200000	8	M20	
***	Assembly-Mount Cap		B65660000000	1SET	OPTION	
16	Mount Cap		B65660010000	1SET	OPTION	
17	Pin-Bracket		P43110800400	1	Alternative	CAT349D(Link)
18	Bush-Bracket		P44110150300	2	Alternative	CAT349D(Link)
19	Pin-Bracket		P43120800400	1	Alternative	CAT349D(Arm)
20	Bush-Bracket		P44120150300	2	Alternative	CAT349D(Arm)
21	Ring-Stop	P45110400	P45110180400	1	Alternative	CAT349D(Link)
22	Ring-Stop	P45120400	P45120180400	1	Alternative	CAT349D(Arm)
23	Bolt-Hex	P11016200	P11015162000	2	M16x200L	
24	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B50415000	B50410050000	12SET	including no. 25~27	
25	Nut-Hex Nylock	P14036000	P12020360000	12	M36XP4	
26	Washer-Spring	P15136000	P13021360000	12	M36	
27	Bolt-Hex	P11036130	P11010361300	12	M36xP4x130L	
28	Insert Coil		P15007243600	4	M24x3.0x1.5D	
29	Cover-Damper		B65560057101	1	SS400	
33	Bolt-Hex		P11010240600	4	M24*10.9T*60L	
34	Washer-Spring		P13021240000	4	M24	
31	Cover-Upper		B65560061001	1	MC Nylon	LOW NOISE(option)
32	Cover-Bottom		B65560062001	1	MC Nylon	
35	Washer-Plain	P15012000	P13010120000	10	M12	
36	Washer-Spring	P15112000	P13021120000	10	M12	
37	Bolt-Hex	P11012040	P11010120400	10	M12x40L	
38	Hose Belloss	B45536300	B45530063000	2		

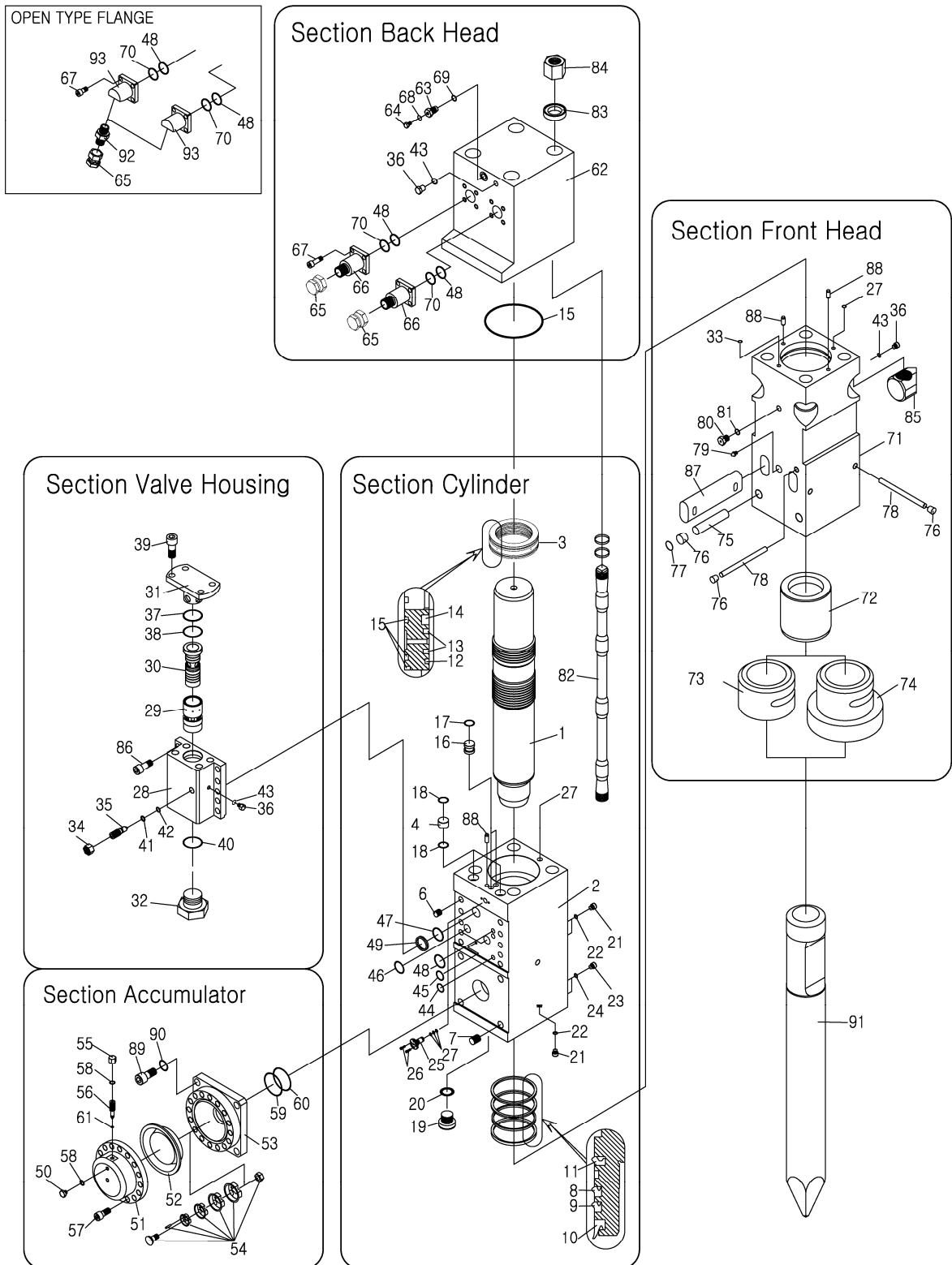
Parts List for Box-New Design

Model : FINE 65X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
39	Hose(5#X45 5#)	F22111140	F10211110140	1	1/4"(70BAR)x700L	AUTO GREASE(option)
40	90 Elbow	F03433110	F00321231100	1	PT1/4"xPF1/4"5#	
41	Bolt-Socket	P12012110	P11020121100	4	M12x110L	
42	Auto Grease unit	P42110000	P42040010000	1	Inter Lube	
43	Connector	F01113110	F00111131100	1	PF1/4"(O-RING)xPF1/4"	
44	O-Ring	P2700011P	P20700011000	1	P11-1B	



Exploded View of *FINE 80X*



Main body: Unit serial no.

Part List for Main Body

Model : FINE 80X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Main Body		B80110000000	1SET		
***	Assembly-Cylinder		B80150010000	1SET	including no. 1~7	
1	Piston		B80110012000	1		
2	Cylinder		B80110011000	1		
3	Seal-Retainer		B80110013000	1		
4	Bush-Teflon		B80110016100	2		
6	Insert Coil		P15006304500	10	M30*P3.5*1.5D	
7	Insert Coil		P15007365400	4	M36*P4.0*1.5D	
8	Seal-Buffer		P20301200000	1	HBV 200	
9	U-Packing		P20102200000	1	ISI 200	
10	Seal-Dust		P20202200000	1	DSI 200	
11	Seal-Step		P20500200000	1	Ø200	
12	Seal-Sliding		P20900195000	1	KBDS Ø195	
13	Seal-Step		P20500195000	2	STEP Ø195	
	O-Ring		P20701200000	2	G200	
14	Seal-Gas		P20400195000	1	SKY Ø195	
15	O-Ring		P20701250000	4	G250	
16	Plate-Cover		B80110016200	2	Ø20x15T	
17	O-Ring		P20700016000	2	P16-T2	
18	O-Ring		P20700048000	4	P48-1B	
19	Socket Plug		P14020130010	1	PF 1 1/2"	
20	O-Ring		P20700045000	1	P45-1B	
21	Socket Plug		P14020030010	3	PF 3/8"	
22	O-Ring		P20700014000	3	P14-1B	
23	Socket Plug		P14020010010	2	PF1/4"	
24	O-Ring		P20700011000	2	P11-1B	
25	Auto Stop Valve	-	B80110017000	1		
26	Bolt-Socket	-	P11020080250	2	M8xP1.25x25L	
27	O-Ring	P2700016P	P20700016000	4	P16-1B	
***	Assembly-Valve Housing		B80110040000	1SET	including no. 28~36	
28	Housing-Valve		B80110043001	1		
29	Valve		B80110041000	1		
30	Valve-Plug		B80110042000	1		
31	Cover-Upper, Valve		B80110045000	1		
32	Valve Hausing Plug		B80110044000	1		

Part List for Main Body

Model : FINE 80X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Valve Adjuster		B45110046000	1SET	including no. 34,35	
34	Adjuster Nut-Valve		B45110046200	1	M24xP2.0	
35	Valve-Adjuster		B45110046100	1	M24xP2.0	
36	Socket Plug		P14020050010	1	PF1/2"	
37	Back Up Ring		P20801090000	1	P90-T2	
38	O-Ring		P20700090000	1	P90-4D	
39	Bolt-Socket		P11020240700	4	M24xP3.0x70L	
40	O-Ring		P20700038000	1	P38-1B	
41	Back Up Ring	P28PS0160	P20801016000	1	P16-T2	
42	O-Ring	P2700016P	P20700016000	1	P16-1B	
43	O-Ring		P20700018000	1	P18-1B	
44	O-Ring		P20701030000	1	G30-1B	
45	O-Ring		P20701040000	1	G40-1B	
46	O-Ring		P20701055000	2	G55-1B	
47	O-Ring		P20700075000	1	P75-1B	
48	O-Ring		P20701065000	1	G65-1B	
49	Back Up Ring		P20802075000	1	P75 Flange	
***	Assembly-Accumulator	B45116000	B80110060000	1SET	including no. 50~57	
50	Plug-Accumulator	B15116520	B15110065200	1	M10xP1.0	
51	Cover-Accumulator		B80110062000	1		
52	Diaphragm		B80110064000	1	Ø237	
53	Body-Accumulator		B80110061000	1		
54	Assembly-Poppet Valve		B80110063000	1SET		
55	Cap-Accumulator	B15116510	B15110065100	1	M12XP1.25	
56	Charging-Adjuster	B20116500	B20110065000	1	M12XP1.25	
57	Bolt-Socket		P11020240650	12	M24*P3*65L	
58	O-Ring	P2700014P	P20700014000	2	P14-1B	
59	Back Up Ring	P28PF0950	P20802095000	1	P95(105X109X4.6)-T3	
60	O-Ring	P2700095P	P20700095000	1	P95-1B	
61	O-Ring	P2700005P	P20700005000	1	P5-1B	
***	Assembly-Back Head		B80150030000	1SET	including no. 36,62~67,92~93	
62	Back Head		B80150031000	1		
36	Socket Plug		P14020050010	1	PF1/2"	
43	O-Ring		P20700018000	1	P18-1B	
15	O-Ring		P20701250000	1	G250-1B	
***	Assembly-Charging Valve	B15113200	B15110032000	1SET	including no. 63,64	
63	Socket Plug	P19108010	P14021100010	1	M10xP1.0	
64	Charging Valve	B15113210	B15110032100	1		
68	O-Ring	P2700008P	P20700008000	1	P8-1B	
69	O-Ring	P2700018P	P20700018000	1	P18-1B	

Part List for Main Body

Model : FINE 80X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Assembly-Adapter Flange		B80110034000	2SET	including no. 65~67	NEW BOX TYPE
65	Cap-Adapter		F00511137000	2	PF1 1/2"5#	
66	Adapter-Flange		B80110033801	2	PF1 1/2"5#	for New Box Type
***	Assembly-Adapter Flange		B80110033000	2SET	including no. 65,67,92,93	SIDE TOP TYPE
92	Adapter		F00121237700	2	PF1 1/2"-PF1 1/2"5#	
93	Adapter-Flange		B80110034700	2	45° PT1 1/2"	for Open Type
67	Bolt-Socket		P11023200400	8	M20xP2.5X40	
48	O-Ring		P20701065000	2	G65-1B	
70	Back Up Ring		P20811065000	2	G65-T2	
***	Assembly-Front Head		B80150020000	1SET	including no. 71~80	
71	Front Head		B80150021000	1		
72	Inner Bush		B80110023000	1		
73	Front Cover		B80110022100	1		for Box Type & "E" Serise
74	Front Cover		B80110022000	1		for Open Type
75	Pin-Front Head		B80110026200	2		
76	Plug-Rubber	B20112820	B20110028200	2	Ø32*Ø29*24t	
77	Snap Ring	P07150300	P07010103000	2	Ø30 HOLE TYPE	
78	Pin-Stop		B80110026100	1	Box Type	
76	Plug-Rubber	B20112820	B20110028200	1	Ø32*Ø29*24t	
79	Grease Nipple	P10201000	P10201000000	1	PT1/4"	
80	Air Cap	B00002700	B00000027000	1	PF3/4"(Spool Type)	
81	O-Ring	P2700024P	P20700024000	1	P24-1B	
36	Socket Plug		P14020050010	1	PF1/2"	
33	O-Ring	P2700012P	P20700012000	1	P12-1B	
27	O-Ring	P2700016P	P20700016000	1	P16-1B	
43	O-Ring	P2700018P	P20700018000	1	P18-1B	
***	Assembly-Through Bolt	B80115000	B80110050000	4SET	including no. 82~85	
82	Through Bolt	B80115100	B80110051000	4		
83	Washer	B80115200	B80110052000	4		
84	Nut-Upper	B80115300	B80110053000	4		
85	Nut-Bottom	B80115400	B80110054000	4		
86	Bolt-Socket		P11020301000	10	M30xP3.5x100L	
87	Pin-Tool		B80110024000	2		
78	Pin-Stop		B80110026100	2		Open Type
76	Plug-Rubber	B20112820	B20110028200	2	Ø32*Ø29*24t	Open Type
88	Pin-Knock	B45111400	B45110014000	3	Ø18	
89	Bolt-Socket		P11020360800	4	M36xP4.0x80L	
90	Washer-Node lock		P13034360000	4	M36	
91	Tool-Moil Point		B80110025100	1	Alternative	
-	Tool-Wedge Point		B80110025200	-	Alternative	
-	Tool-Conical Point		B80110025300	-	Alternative	
-	Tool-Blunt End		B80110025400	-	Alternative	

Part List for Main Body

Model : FINE 80X

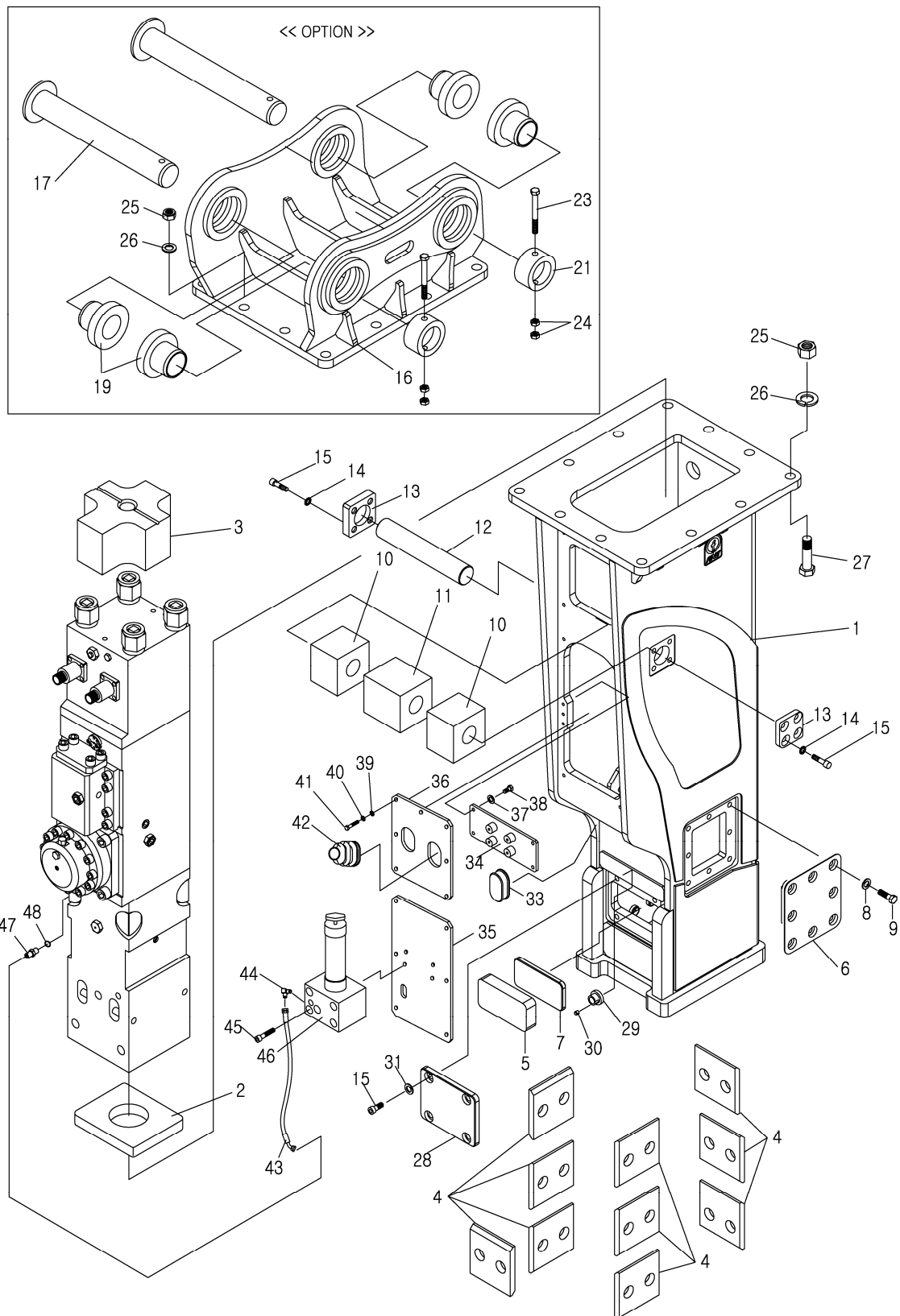
Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
***	Seal Kit-Complete		B80110070000	1SET		

Accessories

A-1	Box Set-Service Tools		B8000008B000	1SET	BOX TYPE	
A-2	Gauge Set-N2 Charging	B00008100	B00000082000	1SET		New Type
A-3	Cylinder-N2 Gas	B15008200	B15000080000	1		10.2liter
A-4	Manual Book	FB100000	FB0100000000	1		



Exploded View of *FINE 80X*



Bracket-Box type-New Design type: Unit serial no.

Parts List for Box-New Design

Model : FINE 80X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
1	Assembly-Box Bracket		B80560010000	1SET	NEW BOX TYPE	
2	Damper-Bottom		B80560052000	1	Urethane	
3	Damper-Upper		B80560051000	1	Urethane	
4	Damper-Plate		B80560053000	10	Urethane	
5	Damper-Front		B80560057000	1	Urethane	
6	Damper-Side		B80560055000	2		
7	Damper-Rear		B80560058000	1	Urethane	
8	Bolt-Hex	-	P11010240501	16	M24x50L	
9	Washer-Spring	-	P13021240000	16	M24	
***	Assembly-Support Plate	B80563000	B80560030000	1SET	including no. 10~15	
10	Block-Support		B80560033000	2	MC Nylon	
11	Damper-Support		B80560054000	1	Urethane	
12	Pin-Support		B80560031000	1		
13	Stopper-Pin		B80560032000	2		
14	Washer-Node lock		P13034240000	8	M24	
15	Bolt-Socket		P11020240800	8	M24x80L	
***	Assembly-Mount Cap	-	B80660010000	1SET	including no. 16~24	
16	Mount Cap		B80620110000	1SET	OPTION	
17	Pin-Bracket	P43120710	P43120710400	2	Alternative	
19	Bush-Bracket	P44120120	P44120140120	4	Alternative	
21	Ring-Stop	P45120400	P45120160400	2	Alternative	
23	Bolt-Hex	P11016200	P11010162200	2	M16x220L	
24	Nut-Hex	P13016000	P12010160000	4	M16	
***	Assembly-Bolt-Hex	B80415000	B80410050000	12SET	including no. 25~27	
25	Nut-Hex Nylock	P14036000	P12020360000	12	M36	
26	Washer-Spring	P15136000	P13021360000	12	M36	
27	Bolt-Hex	P11036140	P11010361400	12	M36x140L	
28	Cover-Damper	-	B80560057100	1		
29	F_Damper Bush	-	B23560057200	4		
30	Knock Pin	-	B23560057300	4		
31	Washer-Spring		P13060240000	4	M24	
15	Bolt-Socket		P11020240500	4	M24x50L	

Parts List for Box-New Design

Model : FINE 80X

Item No.	Description	Part No.	New Part No.	Q'ty	Remarks	Application
33	Plug-Rubber		B80560064200	1	Ellipsoid Type	LOW NOISE(option)
34	Plate-Support		B80560035000	1		
35	Cover-Bottom		B80560062000	1		
36	Cover-Upper		B80560061000	1		
37	Washer-Spring		P13021140000	4	M14	
38	Bolt-Hex		P11010140350	4	M14x35L	
39	Washer-Plain		P13010120000	10	M12	
40	Washer-Spring		P13021120000	10	M12	
41	Bolt-Hex		P11010120400	10	M12x40L	
42	Hose Belloss		B80560063000	2		
43	Hose(5#X45 5#)	F22111114	F10211110114	1	1/4"(70BAR)x600L	AUTO GREASE(option)
44	90 Elbow	F03433110	F00321231100	1	PT1/4"xPF1/4"5#	
45	Bolt-Socket	P12012110	P11020121100	4	M12x110L	
46	Auto Grease unit	P42110000	P42040010000	1	Inter Lube	
47	Connector	F01113110	F00111131100	1	PF1/4"(O-RING)xPF1/4"5#	
48	O-Ring	P2700011P	P20700011000	1	P11-1B	