

HYDRAULIC HAMMERS USER MANUAL



WWW.DIESELEQUIP.COM SYRACUSE, NEW YORK

PREFACE

Thank you very much for purchasing our product.

DIESEL "**DE**" series Hydraulic Hammer is a high-performance machine, which is successfully developed with the latest technology and years of our experiences.

This machine is designed and manufactured to ensure durability even under the harshest working conditions. However, if it is not regularly maintained or properly handled, the performance of the machine will not be able to give full play, the service life of each part will be shortened, and finally the entire machine will be damaged.

Before using this machine, please do read carefully this *User Manual*, which points out the correct operation & maintenance, so as to obtain the best working performance.

Most accidents are caused by failure to observe basic safety rules, so accidents are usually avoidable.

Before any operation, maintenance or repairing, please read and understand all safety rules and warnings. If these warnings are ignored, special dangers may occur, causing injury or death to the operator or others. These warnings are marked with a "M" symbol in this manual.

For some operations that may damage the machine, this manual is marked with "Warning".

Warning

Improper operation, maintenance or repairing of this machine will be dangerous, which may result in injury or death.

Before reading and understanding this Operating Manual, no operation, maintenance or repairing jobs are allowed to be done on this machine.

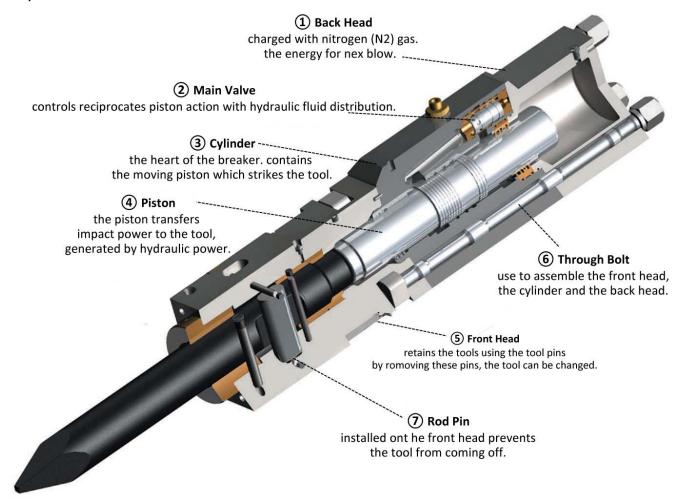
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CHAPTER 1 MAIN SPECIFICATIONS

Description	Unit	DE-SSL	DE-35	DE-50	DE-80	DE-120	DE-140	DE-200	DE-300
Operating	kg	152	152	295	375	861	861	1795	2635
Weight	lb	335	335	650	827	1898	1898	3957	5809
Weight of	Kg	86	86	151	210	471	471	846	1283
Main Body	lb	190	190	333	463	1038	1038	1865	2828
Required Oil	l/min	25~50	25~50	40~70	50~90	80~110	80~110	120~180	180~240
Flow	gal/min	6.6~13.2	6.6~13.2	10.5~18.5	13~14	21~29	21~29	32~48	48~63
Operating	bar	90~120	90~120	110~140	120~150	150~170	150~170	160~180	160~180
Pressure	psi	1280~1706	1280~1706	1565~1991	1707~21344	2134~2418	2134~2418	2276~2560	2276~2560
Impact Rate	bpm	600~1100	600~1100	550~950	400~800	350~700	350~700	350~500	300~450
Hose Diameter	inch	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"	1 1/4"
Tool Diameter	mm	53	53	68	75	100	100	140	155
rooi Diameter	inch	2.087	2.087	2.677	2.953	3.937	3.937	5.511	6.102
Applicable Carrier Weight	ton	2.5~4.5	2.5~4.5	4~7	6~9	11~16	11~16	18~26	28~35
Impact Energy Class	ft.lbs	350	350	500	1100	3250	3250	4900	6500

CHAPTER 2 STRUCTURE, FEATURES



CHAPTER 3 INSTALLATION, DISMANTLING, STORING

3.1 INSTALLATION

Hydraulic hammer is connected to the excavator with two oil hoses and two pins.

- Lower down the excavator arm slowly, align the pin holes, and fix the pin and pin stopper. Operate the bucket cylinder, so as to fix the other pin.
- Remove the end caps of oil hoses, make sure the hoses clean. Connect to the hammer at one end and to the excavator pipeline at the other end. Finally, open up the Stop Valve on the excavator arm.



If slowing down the engine, it will be much easier to align the pin holes.

3.2 DISMANTLING

Shut off the **Stop Valve** on the excavator arm. Remove the two **Oil Hoses** from excavator pipeline. Remove the two **Pins** from hammer shell. **Excavator Arm** goes up slowly, and then the Hammer will be free. Fasten the **End Caps** to the hammer and excavator pipeline to prevent dirt.

3.3 STORING

If the Hammer not be used temporarily, please keep it well as per the following instructions: Remove the chisel. Empty the N2 chamber, and strike piston back to cylinder. Lubricate the Front Head by grease.



After loosing end caps of oil hoses, piston can go back easily.

A

Place Hammer on crossties, covered by raincoat; or indoor warehoused.

CHAPTER 4 OPERATION, WARNINGS

4.1 BEFORE & AFTER

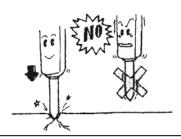
Checking If	Detailed Items
Bolts & Nuts	Through Bolt, Side Bolt, Accumulator Body Bolt, Accumulator
Loosing, Missing or Damage	Cover Bolt, etc.
Chisel &Surroundings	Chisel, Chisel Pin, Stop Pin, Inner & Outer Bushes, Rubber
Missing or damage	Plug, Cir clip, etc.
Pipe & Hose	Steel Pipe, Rubber Hose, Connectors, and the Whole Pipeline,
Loosing or Leaking	etc.
Oil Leaking	Between Chisel & Bush, Back Head & Cylinder, Accumulator &
	Cylinder, etc.
Lubrication	Lubricate with grease after every 2 or 3 working hours.
Hydraulic Oil	If it is hammer's first running, please change new oil within
Clean, Sufficient or not	250 working hours, and change new oil filter within 50
	working hours. After the first changing, please change new oil
(#46 Hydraulic Oil for hot weather)	within 600 working hours, and new oil filter within 100
(#68 Hydraulic Oil for cold weather)	working hours.

4.2 OPERATION

- ➤ The Chisel should be pressed hard and vertically to the object to be broken.
- > Step on the pedal, the hammer will strike.
- Once object is broken, stop striking immediately.

Don't work continuously in hot summer, to prevent too high temperature of hydraulic oil. If oil temperature reaches 80 degrees centigrade, must stop working, until the temperature lowers down.

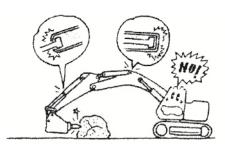
4.3 WARNINGS!



Forbid any idle running of the Hammer. Idle running means, the Hammer strikes while the chisel not yet pressed hard to the object for breaking. It will cause damages to chisel, bush, through bolt, accumulator, etc.



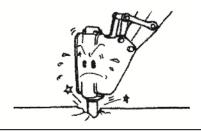
Don't use the chisel to move rock or use as a lever to pry rock. It will damage through bolts, chisel, bush, etc.



Don't strike when piston is at the stroke limit, otherwise, excavator will be damaged.



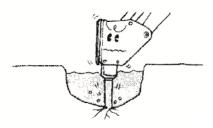
Don't use the hammer to lift or carry object, which will damage the hammer or excavator.



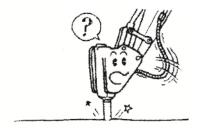
Don't strike the same position continuously, which will cause abnormal wearing & damages. If striking the same position for more than 1 minute and the object still not broken, please try striking another position.



Don't heavily hit the object, which will cause excavator damage. The correct is, slowly press the chisel hard to the object and start striking.



Don't locate the Hammer into water, which will cause damages of the Hammer.



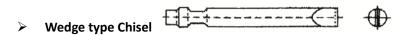
If the oil hose vibrates abnormally, please stop working immediately and find possible problems.

CHAPTER 5 CHISELS

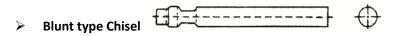
5.1 CHISEL TYPE



It is specially used for quick breaking very hard object, but not breaking into pieces. If breaking object into pieces, the Blunt type will be more efficient.



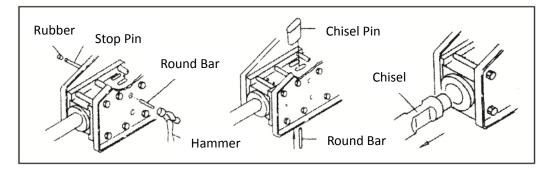
It is usually used for Civil Engineering, such as Trenching, Asphalt Concrete Road, etc., or splitting Rocks. However, if breaking object into pieces, the Blunt type will be more efficient.



It is usually used for Demolition Work, such as breaking Rocks, Boulders and Construction Buildings, etc. into pieces quickly. However, if the object is too hard, the Moil Point type will be more efficient.

5.2 CHISEL & CHISEL PINS REPLACEMENT

Clean surroundings of the Chisel Pins. Place the Hammer horizontally, from the opposite side of Rubber, hammer out the Stop Pin, Rubber and Chisel Pin with the Round Bar (packed in the Tool Box). Before fixing new Chisel, please firstly lubricate the groove of Chisel by heat-resisting Albany Grease.



➤ It'll be difficult to replace new Chisel if the Chisel Pin is badly deformed, thus, every 100~500 working hours, please dismantle and exchange the Chisel Pins to different interfaces, so as to avoid pins' single-face worn or deformation. If the Bush or Chisel Pin is worn or deformed, please firstly repair. It's allowed to grind the deformed parts.

5.3 CHISEL QUALITY ASSURANCE

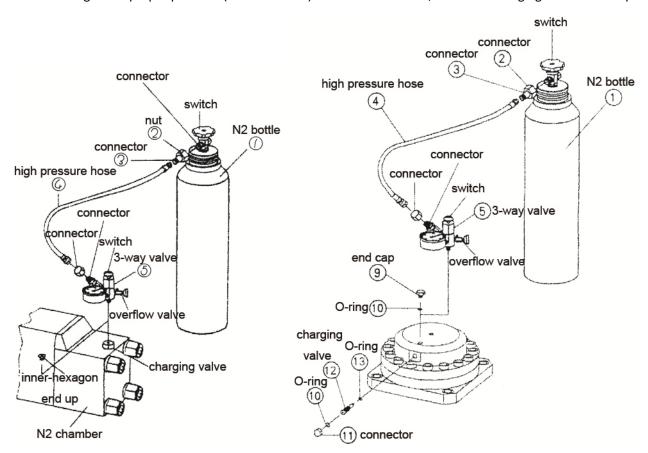
Please refer to our warranty details.

CHAPTER 6 NITROGEN GAS RECHARGING

Usually, Nitrogen Gas has already been charged and pressure has been adjusted before leaving factory, but it is necessary to check again before first use. Gas Pressure should be checked regularly every two months.

6.1 N2 CHAMBER NITROGEN RECHARGING

Screw off anticlockwise the Charging Valve's End Cap, and connect the 3-way Valve to the N2 Chamber. Shut off the Overflow Valve. Keep the N2 Bottle closed, and press the Switch of 3-way Valve to check the pressure. If pressure is too high, please discharge some N2 via the Overflow Valve. If the pressure too low, keep pressing the Switch of 3-way Valve, meanwhile open the N2 Bottle to charge until proper pressure (around 16 Bar). Close the N2 Bottle, and close Charging Valve's End Cap.



6.2 ACCUMULATOR NITROGEN RECHARGING

Screw off anticlockwise the End Cap (#9 & #11), and connect the 3-way Valve to #9 position. Shut off the Overflow Valve. Keep the N2 Bottle closed, press the Switch of 3-way Valve, meanwhile loose anticlockwise the Charging Valve (#12) a little to check the pressure. If pressure is too high, discharge it via the Overflow Valve. If the pressure too low, keep pressing the Switch of 3-way Valve, meanwhile open the N2 Bottle to charge until proper pressure (around 60 Bar). Close the N2 Bottle, Charging Valve (#12), and End Caps (#11 & #9).

CHAPTER 7 MAINTENANCE

7.1 BOLTS & NUTS

All bolts & nuts should be checked before every using, please fasten in orders accordingly (Unit: kg.m).

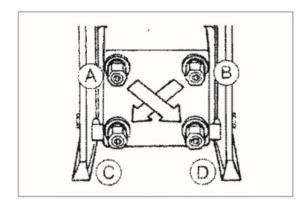
Items	Unit	Through Bolt	Side Bolt	Charging Valve	Acc. Body	Acc. Cover
DE-SSL	Kg.m	40	100	35	*	*
DE-35	Kg.m	40	100	35	*	*
DE-50	Kg.m	40	100	35	*	*
DE-80	Kg.m	40	145	35	*	*
DE-120	Kg.m	40	170	35	*	*
DE-140	Kg.m	160	180	35	*	*
DE-200	Kg.m	240	280	35	*	*
DE-300	Kg.m	280	300	35	60	45



Warnings!

When replacing more than two through bolts or dismantling the Hammer, please follow the steps:

- ➤ Before all, empty the Nitrogen in the N2 chamber.
- Loose all bolts, including the bolts no replacing needed.
- Fasten the bolts in orders, $A \rightarrow D \rightarrow B \rightarrow C$.



7.2 N2 CHAMBER & ACCUMULATOR

(See Chapter 6)

7.3 HYDRAULIC OIL

Please choose *No.68* hydraulic oil for *Cold* weather and *No.46* hydraulic oil for *hot* weather. Oil should be clean & sufficient during working. Dirty oil will cause damages to the Hammer. When oil leaks, please change seal kit in time.

7.4 CHISEL &SURROUNDINGS

Before every using, check if the chisel, chisel pin & bush are in good conditions. Check regularly the clearance between bush and chisel, too much clearance will cause piston & chisel broken. If chisel diameter abrades more than 3mm, or bush inner diameter abrades more than 6mm, please replace new ones.

7.5 LUBRICATION

Lubricate with grease before every using or after every 2 or 3 working hours.

7.6 REPLACE WEARING PARTS REGULARLY

Please replace wearing parts in time. When buying Hammers, customers are suggested to buy extra wearing parts as below for regular replacement.

Item	Replacement
Chisel	According to the actual working conditions
Rod Pin	Every 30 days to change different interfaces to fix the chisel
Stop Pin	Every four months
Rubber Cap	Worn, missing or damaged. Please replace new ones.
Oil Seal	Every six months
Cylinder Through Bolts & Nuts	Every six months
Hammer Shell Bolts & Nuts	Every six months
Hydraulic Hose	Every six months
Outer Bush	Every three months
Inner Bush	Every four months

All wearing parts are not guaranteed in the warranty policy.

CHAPTER 8. TROUBLE SHOOTING

Problems	Possible causes	Solution
Too weak striking	1. Engine rotation speed low.	1. Regulate it.
	2. Gas pressure too low in N2 Chamber.	2. Check and recharge.
	3. Gas pressure too low in Accumulator.	3. Check and recharge.
	4. Set wrong pressure, or overflow valve broken.	4. Check and regulate.
	5. Chisel broken.	5. Grind the damages of chisel or bushing.
	6. Hydraulic Oil not enough or not clean	6. Check, add or change new oil
No striking	Wrong pressure of overflow valve.	1. Regulate to proper pressure.
	2. Gas pressure too high in N2 chamber.	2. Regulate to proper pressure.
	3. Oil leaks to chamber.	3. Replace oil seal.
	4. Cylinder, piston or valves damaged.	4. Repair surface by abrasive paper.
Unsteady striking	1. Gas pressure too high in N2 chamber.	1. Regulate to proper pressure.
	2. Pressure low of overflow valve.	2. Regulate to proper pressure.
	3. Chisel or bush damaged.	3. Grind to repair the damaged part.
	4. Cylinder, piston or valves damaged.	4. Repair surface by abrasive paper.
Nitrogen leaks	1. Inlet leaks.	1. Replace bushing O seal ring.
	2. Air valve leaks.	2. Replace valve O seal ring.
	3. N2 chamber leaks.	3. Fasten the through bolts.
	4. Dismantle the oil-return hose, if air bubble	4. Replace the seal.
	exists in the oil, means air seal damaged.	

DIESEL "DE" SERIES HYDRAULIC HAMMERS

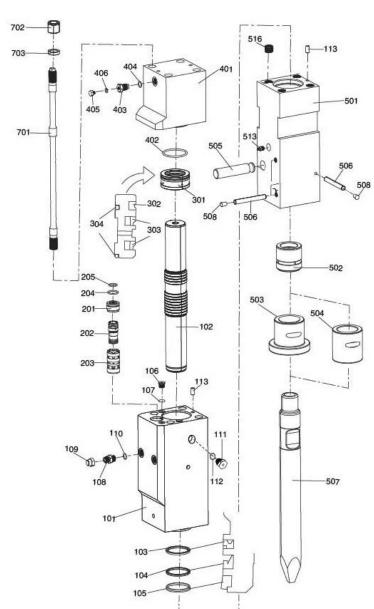
PART LIST

	DE-SSL Main Body 15
>	DE-35 Main Body 15
>	DE-50 Main Body 15
>	DE-80 Main Body 16
>	DE-120 Main Body 17
>	DE-140 Main Body
>	DE-200 Main Body18
>	DE-300 Main Body19

DE-SSL, DE-35, DE-50 Main Body Part List

NUMBER	NAME
100	CYLINDER ASSEMBLY
101	CYLINDER.
102	PISTON
103	BUFFER RING
104	U-PACKING
105	DUST SEAL
106	CYLINDER PLUG
107	CYLINDER PLUG O-RING
108	IN/OUT ADAPTER
109	IN/OUT ADAPTER COVER
110	IN/OUT ADAPTER O-RING
111	EXHAUST VALVE
112	O-RING
113	GUIDEPIN
200	VALVE ASSEMBLY
201	VALVE COVER
202	VALVE
203	VALVE SLEEVE
204	0-RING
205	0-RING
300	PISTON BUSH ASSEMBLY
301	PISTON BUSH
302	GAS SEAL
303	STEP SEAL
304	0-RING
400	BACK HEAD ASSEMBLY
401	BACK HEAD
402	0-RING
403	GAS CHARGING VALVE
404	0-RING
405	GAS CHARGING VALVE COVER
406	0-RING
500	FRONT HEAD ASSEMBLY
501	FRONT HEAD
502	THRUST BUSH
503	CHISEL BUSH

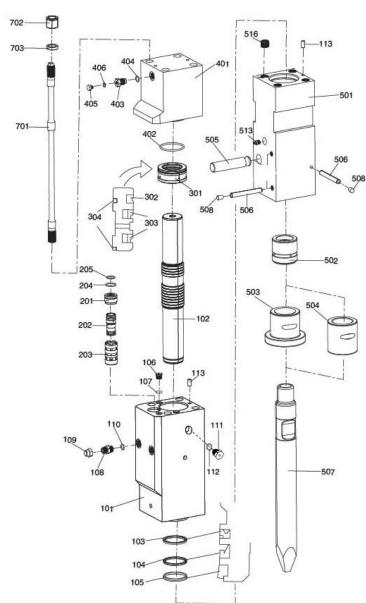
NUMBER	NAME
504	(SILENCED CHISEL BUSH)
505	CHISEL PIN
506	LOCKING PIN
507	CHISEL
508	RUBBER PLUG
513	GREASENIPPLE
515	PROCESS PLUG
516	BOLT
700	THROUGH BOLT ASSEMBLY
701	THROUGH BOLT
702	SCREWNUT(UPPER)
703	WASHER



DE-80 Main Body Part List

NUMBER.	NAME
100	CYLINDER ASSEMBLY
101	CYLINDER
102	PISTON
103	BUFFER RING
104	U-PACKING
105	DUST SEAL
106	CYLINDER PLUG
107	CYLINDER PLUG O-RING
108	IN/OUT ADAPTER
109	IN/OUT ADAPTER COVER
110	IN/OUT ADAPTER O-RING
111	EXHAUST VALVE
112	O-RING
113	GUIDE PIN
200	VALVE ASSEMBLY
201	VALVE COVER
202	VALVE
203	VALVE SLEEVE
204	0-RING
205	0-RING
300	PISTON BUSH ASSEMBLY
301	PISTON BUSH
302	GAS SEAL
303	STEP SEAL
304	0-RING
400	BACK HEAD ASSEMBLY
401	BACK HEAD
402	0-RING
403	GAS CHARGING VALVE
404	0-RING
405	GAS CHARGING VALVE COVER
406	0-RING
500	FRONT HEAD ASSEMBLY
501	FRONT HEAD
502	THRUST BUSH
503	CHISEL BUSH

NUMBER	NAME
504	(SILENCED CHISEL BUSH)
505	CHISEL PIN
506	LOCKINGPIN
507	CHISEL
508	RUBBER PLUG
513	GREASENIPPLE
515	PROCESS PLUG
516	BOLT
700	THROUGH BOLT ASSEMBLY
701	THROUGH BOLT
702	SCREWNUT(UPPER)
703	WASHER.



DE-120, DE-140 Main Body Part List

101 CULINDER 504 SILENCED CHISEL RUNH 102 PRITON 506 CHISEL PIN 103 BUFFRE RING 507 CHISEL 104 CULINDER RING 507 CHISEL 105 CULINDER RING 508 RUBBER FULGO 105 CULINDER RING 500 CHISEL RING FON 105 CULINDER RING 500 CHISEL RING FON 107 CULINDER RING CRING 510 RUBBER FULGO 107 CULINDER RING CRING 511 LOCKING PIN 108 DNOUT ADAPTER COURS 513 GREASENDRIE 513 GREASENDRIE 513 GREASENDRIE 514 STANT VALUE ORING 515 PROCESS FULGO 106 AUDIG					P	NAME	NUMBER	NAME	NUMBER
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107 CYLINDER FILIG O-RING 511 LOCKING PIN 108 NOUT ADAPTER 513 GERASE INDEE 515 PROCESS FILIG 515 PROCESS FILIG 515 PROCESS FILIG 516 SNAP RING 518 SNAP RING 500 SOAD				405 - 600 0	703—	CHISEL BUSH PIN	509	DUST SEAL	105
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116	500	500	508						
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301 PISTON BUSH 703 WASHER 112 151 0 116 15 302 GAS SEAL 704 SCREWNUT(LOWER) 153 0 152 154 0 0 108 110 109 109 100 110 100 100 110 100 100			113	T107-7		THROUGH BOLT	701	0-RING	205
302 GAS SEAL 704 SCREWNUT(LOWER) 153 154 155 154 109 109 108 110				111-00		SCREWNUT(UPPER)	702	PISTON BUSH ASSEMBLY	300
303 STED SEAL 304 O-RING			116	112 151 6		WASHER.	703	PISTON BUSH	301
303 STEP SEAL 304 0-RING 109 0 100 100 100 100 100 100 100 100 10				153_000000000000000000000000000000000000		SCREWNUT(LOWER)	704	GAS SEAL	302
304 0-RING 100 100 100 100 100 100 100 100 100 10				154 0 0	83		i and	STEP SEAL	303
400 BACK HEAD ASSEMBLY			101	109-00				0-RING	304
				100				BACK HEAD ASSEMBLY	400
401 BACK HEAD								BACK HEAD	401
402 0-RING	_			· +				0-RING	402
403 GAS CHARGING VALVE	No.	507	T	Ţ				GAS CHARGING VALVE	403
404 0-RING								0-RING	404
405 GASCHARGING VALVE COVER				103					
406 0-RING		\bigvee							406
500 FRONT HEAD ASSEMBLY 105				/ :				FRONT HEAD ASSEMBLY	500
501 FRONT HEAD		Ψ	1					FRONT HEAD	501
502 THRUST BUSH			(mys ~ 1)					THRUST BUSH	502

DE-200 Main Body Part List

NUMBER	NAME	NUMBER	NAME	
100	CYLINDER ASSEMBLY	504	SILENCED CHISEL BUSH	1
101	CYLINDER	505	CHISEL PIN	
102	PISTON	506	BUSHING PIN	401
103	BUFFER RING	507	CHISEL	702 404 113
104	U-PACKING	508	RUBBER PLUG1	406 515 501
105	DUST SEAL	509	CHISEL BUSH PIN	703—9 405—90
106	CYLINDER PLUG	510	RUBBER PLUG2	403
107	CYLINDER PLUG O-RING	511	LOCKING PIN	
108	IN/OUT ADAPTER	513	GREASE NIPPLE	
109	IN/OUT ADAPTER COVER	515	PROCESS PLUG	704 513
110	IN/OUT ADAPTER O-RING	518	SNAP RING	402 505 511
111	EXHAUST VALVE	1		301 303
112	EXHAUST VALVE O-RING	1		701
113	GUIDE PIN	1		506 0 508
	plant and			506
115	PLUG	1		302
116	0-RING			518 510 509
150	VALVE ADJUSTER ASSEMBLY			
151	FRONT VALVE			502
152	FRONT VALVENUT			205
153	FRONT VALVE O-RING			204
154	FRONT VALVE O-RING			201
200	VALVE ASSEMBLY			504
201	VALVE COVER.			102
202	VALVE			I
203	VALVE SLEEVE			106
204	0-RING	700	THROUGH BOLT ASSEMBLY	203
205	0-RING	701	THROUGH BOLT	
300	PISTON BUSH ASSEMBLY	702	SCREW NUT (UPPER)	111-0,
301	PISTON BUSH	703	WASHER	112 151 0 0 116
302	GAS SEAL	704	SCREWNUT(LOWER)	153-0-0-0
303	STEP SEAL			152 154
304	0-RING			109 109 110
400	BACK HEAD ASSEMBLY			
401	BACK HEAD			
402	0-RING			
403	GAS CHARGING VALVE			507
404	0-RING	1		
405	GAS CHARGING VALVE COVER			103
406	0-RING			104
500	FRONT HEAD ASSEMBLY			105
501	FRONT HEAD			
502	THRUST BUSH			

DE-300 Main Body Part List

NAME

CHISEL

WASHER

O-RING

O-RING

RUBBER

JUMP RING

PIN

O-RING

BUSHING

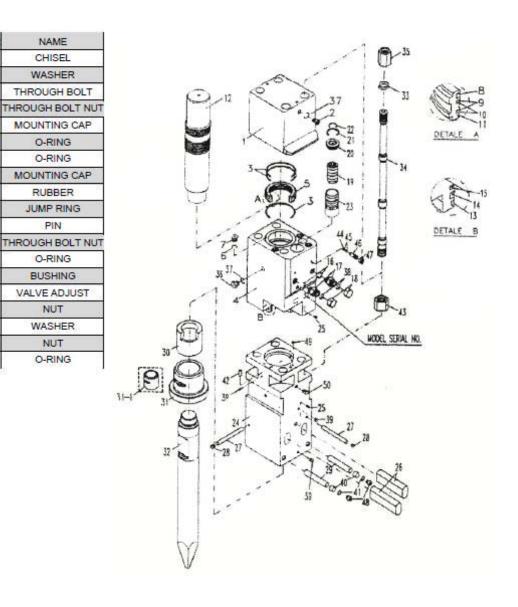
VALVE ADJUST

NUT WASHER

NUT

O-RING

NUMBER	NAME	NUMBER
1	BACK HEAD	32
2	N2 CHARGING NIPPLE	33
3	O-RING	34
4	CYLINDER	35
5	SEA RING FIXER	36
6	O-RING	37
7	MOUNTING HEAD	38
8	N2 SEAL	39
9	SEAL	40
10	O-RING	41
11	SEAL	42
12	PISTON	43
13	ANTI-DIRT SEAL	44
14	U BUSHING	45
15	SEAL	46
16	O-RING	47
17	CONNECTOR	48
18	END CAP	49
19	MAIN VALVE	50
20	VALVE HAED	
21	O-RING	
22	O-RING	
23	VALVE SHELL	
24	FRONT HAED	
25	CONNECTOR	
26	CHISEL PIN	
27	STOP PIN	
28	RUBBER	
29	PIN	
30	ROUND BUSHING	
31	FIXER BUSHING	
31-1	FIXER BUSHING	



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