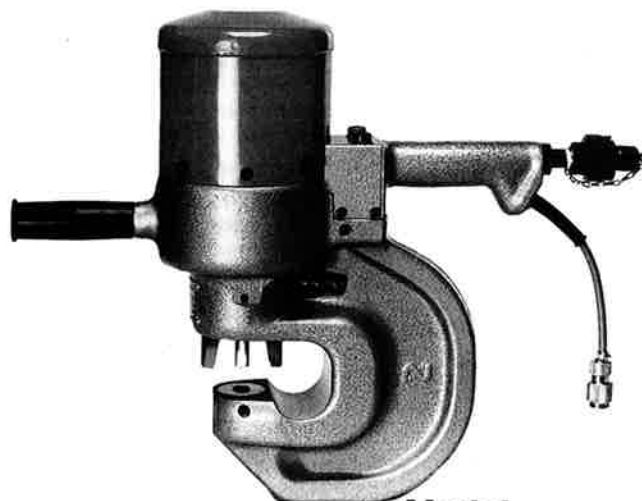


INSTRUCTION MANUAL



Model
A05-1018
A06-1322
A07-1624B
A11-1624A

SELFER

Specifications (Selfer)

	A05-1018	A06-1322	A07-1624B	A11-1624A
*Maximum Hole Capacity	φ18(23/32")	φ22(57/64")	φ24(31/32")	
Maximum Punching Thickness	t10(13/32")	t13(33/64")	t16(41/64")	
*Full Stroke Cycle Time	7 sec.	10 sec.	15 sec.	
Throat Depth	50mm(2")	60mm(2-13/32")	70mm(2-13/16")	110mm(4-13/32")
Allowable Maximum Pressure	700 kgf/cm ² (10000 psig)			
*Capacity	22 ton	31 ton	44 ton	
Weight	15.5kgf(34 lbs)	21 kgf(46 lbs)	28kgf(62 lbs)	35kgf(77 lbs)

*Maximum plate thickness, maximum hole capacity, material; ASTM-A7, BS3706, DIN-ST42.
 These specifications and the shape may be changed for improvement without prior notice.

Distributed by:



TOMORROW'S HAND TOOL ENGINEERING TODAY
NITTO
 NITTO KOHKI CO., LTD.

9-4, Nakaikegami 2-chome, Ohta-ku, Tokyo, Japan
 Tel: Tokyo 3755-1111 Cable Address: NITOHIND TOKYO
 Telex: 3246-6467 NITTO J

Thank you for purchasing Selfer. We are confident the machine will meet your every expectation in power and performance and provide years of efficient on-the-job service. We have designed it especially to help you do a better job quicker and with less effort through many unique speed and efficiency features. Complete after-sale servicing is provided by your dealer and Nitto Kohki agents. Contact either of these servicing representatives for servicing or answers to questions on machine operation and matters other than those covered in this booklet. Nitto Kohki is always ready to serve with machines that place modern hand-tool engineering on your side. Satisfaction is guaranteed.



Specifications (Pump)

Model			SC-05 (115V, 220/240V)
Operation Pressure, Max.			750 kgf/cm ² (10670 psig)
Pump Output	0 to 100 kgf/cm ² (0 to 1420 psig)	60Hz	1.44 l/min (87.87 in ³ /min)
		50Hz	1.2 l/min (73.23 in ³ /min)
	100 to 700kgf/cm ² (1420 to 10000psig)	60Hz	0.66 l/min (40.28 in ³ /min)
		50Hz	0.55 l/min (33.56 in ³ /min)
Motor			0.4 kw 4P 115V, 220/240V
Reservoir Capacity			5.0 l (305 in ³)
Weight			28.5 kgf (63 lbs)
Discharge Port			PT 3/8



1. Preface

Selfer is designed to use pump oil pressure as its energy source to make bolt or rivet holes in shape steel, sheet steel, etc.

Both Selfer and its Pump have been precision-machined and finished by our unique process to insure high operating efficiency. Incorrect handling will, however, affect both service life and performance. During punching operation, oil pressure as high as 700 kgf/cm² (10000 psig) is present in both Selfer and the Pump. We, therefore recommend that you carefully read this instruction booklet to gain thorough familiarity with operation prior to actual use.

2. Preliminary Check

Upon unpacking, check your machine for any damage, oil leakage, and other defects that might have occurred during shipment. Consult the dealer from whom you bought the machine if defects are found.

3. Operating Procedure

- (1) Connect Selfer and the Pump via hoses. One-touch connection and disconnection can be performed using Ultra-High-Pressure type Coupler. (See Fig. 1.) (Refer to 5. Coupler for connecting and disconnecting couplers.)
- (2) Connect the switch cord to Selfer and the Pump (See Fig. 1.)
- (3) Connect the plug on the Pump into a receptacle of the power source whose voltage is the same as described on the nameplate. (See Fig. 1.)

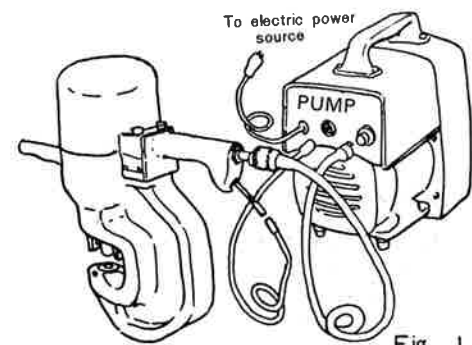


Fig. 1

- (4) Remove the plug on the Pump oiling port and install the oil cap (supplied with the machine). **Negligence of this step will cause pump overheating and can lead to an accident.** (See Fig. 2.)
- (5) Check and insure that the oil level is at least above the center of oil gauge. **If the level is low, refill with Nitto Genuine Oil (option).** (See Fig. 2.)

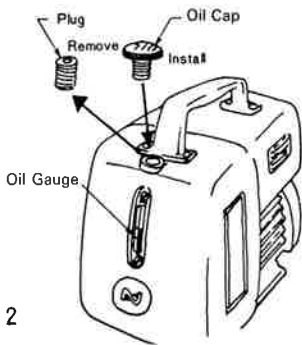


Fig. 2

- (6) Remove the lock nut, install the punch to the ram, and tighten the nut with the spanner (supplied with the machine). Loosen the setscrews on both sides of the machine body, push the die in with its edge-tip (smaller diameter) up, and tighten the setscrews. To remove, reverse these procedures. (See Fig. 3.)

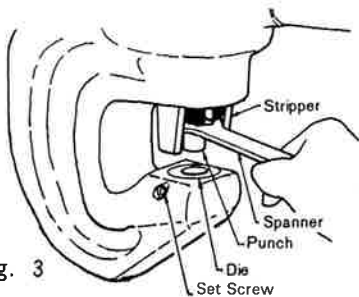


Fig. 3

- (7) Push the black button, and the Pump will start operating and the ram (punch) descending. Upon completion of punching, the Pump will stop operating and the ram return automatically. If a pause during work is desired, push the red button, and the ram will return. The switch need not to be held in the pressed position because it is a 'one-touch' type. (See Fig. 4.)

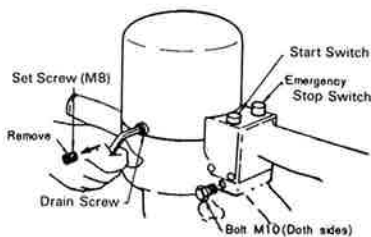


Fig. 4

- (8) Purge air from Selfer in the following manner.
With the setscrew (M8) removed from on a side of the machine body, loosen the drain screw about one turn, push the black button, wait about 2-3 seconds and then push the red button. Repeating this procedure a few times will purge air completely and allow only oil to flow out. After air purging tighten the drain screw and the setscrew securely. (See Fig. 4.) **Punching operations with air remaining inside the machine is very dangerous; air purging should be made after a new coupler or hose has been installed or Selfer disassembled and reassembled.**

4. Punching

- (1) Turn and adjust the stripper so that its bottom aligns with or is lower than the punch's cutting edge plane. Also, be sure to set the stripper above the workpiece.
- (2) With the punch tip aligned with the punch mark on the materials, push the black button.
- (3) Do not use Selfer with Nitto standard die and punch through I-steel, channel steel, or other tapered sheets, since punching such sheets could cause damage to the punch or stripper.
★ Special punches and dies are available on special order.
- (4) A minimum pitch of punched holes should be based on the following formula. A smaller pitch could not provide desired accuracy.

$$P = 1.5t + D$$

P : pitch

t : thickness of the sheet

D : diameter of the hole

- (5) Apply a small amount of spindle oil to the punch's cutting edge. This will assure good punch withdrawal and a long service life as well.
- (6) After completion of the work, be sure to attach the dust-proof cap (supplied with the machine) to the couplers of hose and the Pump.
- (7) Install bolts into the bolt M10 holes (on both sides) under the switch, and set a wire rope on these bolts and the sub-handle. This will give great conveniences for transportation or using a winch, balancer, etc. (The screw hole is not provided in case of A05-1018, A06-1322. See Fig. 4.)

5. Couplers

- (1) Connection : Align the arrows of the socket sleeve and plug, push the sleeve in the direction of the plug, and lock by turning 90° to the left or right. (See Fig. 5.)
Disconnection : Turn the sleeve 90° to the left or right and separate.
- (2) Using clean waste cloth, clean the plug and socket to remove all dust and mud before connecting the coupler.

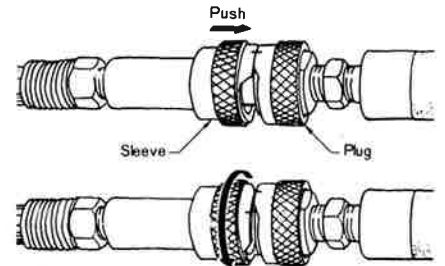


Fig. 5 Turn the sleeve 90° to the left or right

6. Cautions for use

6-1. Pump

- (1) Observe the following cautions when installing the Pump.
- Install the Pump in a place with good ventilation and with minimum humidity and dust.
 - Do not leave the Pump exposed directly to sunshine when used outdoors.
 - Install the Pump as horizontally as possible.
- (2) Note that a long pump electrical power cord will cause voltage reduction, affecting the performance of the Pump adversely. If the voltage decreases by more than 10%, the required pressure (700 kgf/cm² or 10000 psig) will not be achieved. When a large load is applied to the Pump with an undervoltage, the motor may fail to revolve. In such a case, turn off the switch immediately to prevent the motor from burning out. Always use a ground wire.
- (3) **Never apply oil pressure only to the Pump or to the hose without connection between Selfer and the Pump.**
- (4) The Pump should be used in an ambient temperature of from -5°C ~ +40°C (23°F ~ 104°F). If used at lower or higher temperature, effective pump performance may not be displayed. As the Pump runs, the motor will

become gradually heated. A pump temperatures should be under +75°C (169°F).

6-2 Selfer

- (1) Never do the work with the cover removed.
- (2) Observe the following two points when punching a material with Selfer.

(a) Confirm that W is within the capacity of each model as calculated from the following equation, depending upon the quality of the material and the thickness of the material to be punched, and upon the diameter of punching holes.

$$W = \pi \times D \times t \times \tau \text{ kgf (lbs)}$$

$$\pi \doteq 3.14$$

$D \doteq$ Hole diameter (diameter of punch used) mm (inch)

$t \doteq$ Material thickness mm (inch)

$\tau \doteq$ Shearing stress kgf/mm² (psig)

Model	Capacity
A05-1018	22 ton (48565 lbs)
A06-1322	31 ton (68433 lbs)
A07-1624B	44 ton (97130 lbs)
A11-1624A	44 ton (97130 lbs)

τ	ASTM	BS	DIN
35.2kgf/mm ² (50000psig)	A-7	BS3706	ST42
42.2kgf/mm ² (60000psig)	A-36	BS15	ST50
49.2kgf/mm ² (70000psig)	A-529	BS968	ST52

- (b) The equation given below shows the relation between the diameter of punch used and maximum thickness of material that can be punched. If material whose thickness is greater than the allowable maximum value shown, there may be the case where the punch is damaged. This should be kept in mind when a material having a high shearing stress is punched or a thick steel plate is punched with a slender punch.

$$t_{\max} = 28 \frac{D}{\tau} \text{ mm}$$

$$(t_{\max} = 40000 \frac{D}{\tau} \text{ inch})$$

Example : For ASTM-A7

$$t_{\max} = \frac{28}{35.2} D \doteq 0.8D$$

$$(t_{\max} = \frac{40000}{50000} D = 0.8D)$$

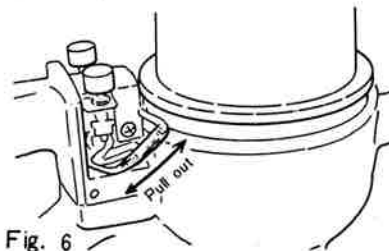
7. Maintenance (Disassembling, Cleaning, Reassembling)

7-1. Selfer

(1) Disassembling

Disassemble Selfer in the following sequence, referring to the disassembly drawings given in page 6 and 8.

- (a) Remove the cover and, using the spanner, loosen the nut and remove the spring.
- (b) Remove the coupler plug, set-screw, switch cover and bracket in that order. Then detach the connection plug from the receptacle (two points) with care taken not to cut the line. (See Fig. 6)
- (c) Remove the grip, then take off the cap.
- (d) During disassembling, be careful not to spill oil on electrical parts (switch, limit switch, etc.).



(2) Cleaning and reassembling

Using clean flushing oil, clean and check that no dust or scars are on the U-packing and mating sliding and engagement surfaces. Then assemble Selfer in the sequence reverse to disassembly.

(3) Storage

Leaving the machine outdoors or in a place with excessive humidity for a long time after use can cause rusting within the machine, leading to operational failure. If long-time storage is expected, remove the punch and dies from the machine and apply rust-inhibitive oil before storing in a proper position.

7-2. Pump

- (1) Disassembling the Pump electrical unit (See disassembly drawings, page 10.)

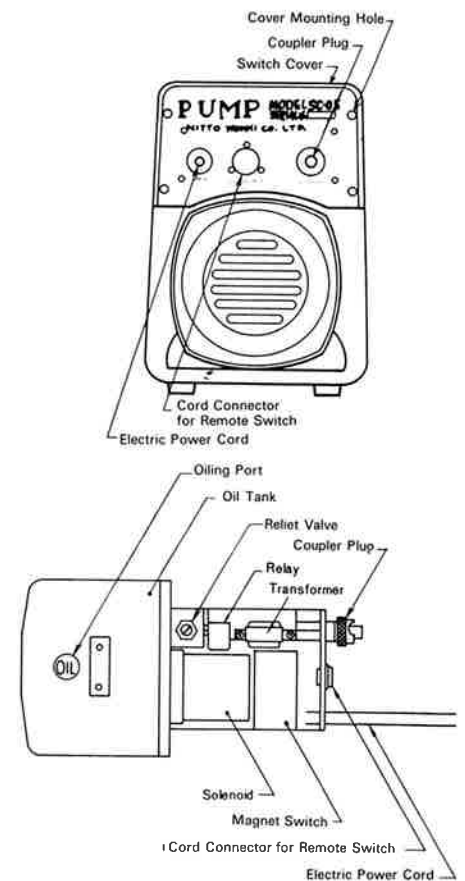
- (a) Remove the setscrew retaining the hand grip to the oil tank top.
- (b) Place a hexagon wrench key (special size) in each of the four corners of the nameplate on the electrical unit to loosen the bolts.
- (c) Hold up the hand grip and cover together. Then the cover will be disengaged and the interior accessible.

(2) Cleaning and Changing Oil

- (a) Occasionally clean the Pump to prevent dust build-up.
- (b) Change oil after about 50 hours of initial operation.

Thereafter, change every 500 hours of operation. Remove the drain screw at the tank bottom and clean its inside walls carefully before refilling the tank with fresh oil. (Use Nitto Genuine Oil.)

- (c) Oil of other brand, if selected from in the Recommended Oil List, may also be used. In that case, remove all old oil from Selfer, hoses and the Pump. **Blending of oils of different types should be avoided.**



8. Ordering Service Parts

- ★ For further operational and handling information or for replacement of parts and components, contact the sale agent from whom you purchased the machine or the service division of our company.
- ★ In ordering parts and components, give parts number(s), name and part quantities.
- ★ Operation of Selfer can be also performed by your foot using the foot switch. In case you need it, please order TA94386 Foot Switch Ass'y.

9. Other important points

(1) Solenoid

The solenoid is manufactured for use at 60 Hz, but may be used at 50 Hz.

(2) Overload protection

(a) To prevent the motor from being overloaded, the magnet switch uses a thermal relay. Should a current over the full-load value run to the motor, the thermal relay will operate to turn off the magnet switch. Since the relay is of an automatic reset type current will automatically run again into the magnet switch some time later. However, it is important to look into the cause of the overload and eliminate it before the switch is turned on again. Note that the thermal relay cannot prevent a short-circuiting fault.

(b) A relief valve is provided to protect the Pump against overloads. Pump pressure will therefore always be maintained at a pressure lower than that of the relief valve. **Never tamper the relief valve since its adjustment is extremely precise.**

(c) Do not turn on the switch while pump pressure remains high.

(3) Punch and Die

Various sizes of punch and die, in addition to the standard ones, are available as option. (Refer to Parts List.)

(4) Genuine Oil : wear-resistant, equivalent to #140 turbine oil

In case the machine is used in cold or tropical climate, following oil use is recommendable.

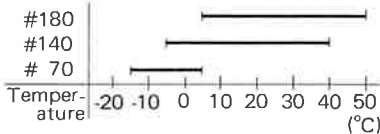
cold climate:

equivalent to #70 turbine oil

Tropical climate:

equivalent to #180 turbine oil

Standard	Viscosity No.		
	#70	#140	#180
SAE	5W	20W-20	30
ASTM	105	315	465
BSI	22	68	100
DIN	N16	N36	N49



10. Trouble-shooting

If trouble should occur with your machine, look into the possible causes referring to the following table. If correction necessitates disassembly, consult your dealer or Nitto Kohki agent.

10-1. Selfer

Trouble	Possible Cause	Remedy
Machine does not start	◦ Defective limit switch or start switch	Replace
Ram does not go down	◦ Disconnection	Re-connect in position
	◦ Pump defective	Refer to Trouble-shooting Table of Pump
Switching ON causes machine to start but turns OFF before punching	◦ Disconnection or incomplete contacting	Re-connect in position
Auto-return is ineffective	◦ Faulty limit switch	Replace
	◦ Limit switch installed in improper position	Correct the position
Limit switch ON again immediately after being switched OFF	◦ Defective start switch	Replace
	◦ Start switch button in contact with cover	Separate from cover
Inability to punch, or long time required for punching	◦ Pump defective	Refer to Trouble-shooting Table of Pump
	◦ Loose 700R coupler plug valve	Replace
	◦ Air is not purged	Purge air
Oil leakage	◦ Damaged U-packing at cap or ram	Replace

10-2. Pump

Trouble	Possible Cause	Remedy
Motor does not run (or runs irregularly or intermittently)	◦ Cord disconnected	Replace
	◦ Thermal relay being operating	Wait until reset
	◦ Magnet switch coil disconnected or incomplete contacting	Replace
	◦ Disconnection	Re-connect in position
Pump does not deliver oil Pressure is not built up	◦ Low oil level in oil tank	Refill with oil of specified type
	◦ Suction filter blocked	Clean filter
	◦ Leak from valve or piston	Disassemble and check Replace if valve or piston is worn or damaged
	◦ Spool valve clogged with dust	Disassemble and clean
	◦ Low relief valve setting value	Adjust relief valve set pressure
	◦ Relief valve ball seated improperly	Disassemble and check
	◦ Defective solenoid	Check for function or replace
	◦ Low voltage	Check voltage (must be higher than 90% of required voltage)
Insufficient flow	◦ Suction filter blocked	Clean filter
	◦ Leak from valve or piston	Disassemble and check
	◦ Leak from hydraulic circuit	Disassemble and check Replace if damaged
Pressure remains high	◦ Spool valve loaded with dust	Disassemble and clean
	◦ Return spring damaged	Replace
Noise from pump	◦ Tank air escape plugged (vent hole blocked)	Check oil cap
	◦ Motor fan in contact with cover	Separate from each other

11. Voltage Drop

If the extension power cord is used in addition to an accessory 5m power cord, the value of sectional area of total element wires should be carefully considered in accordance with the length of cord and the extension power cord with proper sectional area suggested in the following list must be selected.

If the value of the extension power cord to be used is lower than that of list, voltage will drop greatly and then lead to less performance of pump and shorter life of electrical parts. The higher value of sectional area than that of list is advisable to secure necessary voltage.

(a) Power source 115V

extension power cord sectional area	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
2.0mm ²	○	○	—	—	—	—	—	—	—	—
3.5mm ²	○	○	○	○	—	—	—	—	—	—
5.5mm ²	○	○	○	○	○	○	○	—	—	—
8.0mm ²	○	○	○	○	○	○	○	○	○	○

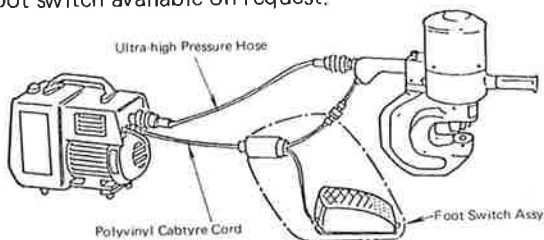
(b) Power source 220/240V

extension power cord sectional area	5m	10m	15m	20m	25m	30m	35m	40m	45m	50m
2.0mm ²	○	○	○	○	—	—	—	—	—	—
3.5mm ²	○	○	○	○	○	○	○	○	—	—
5.5mm ²	○	○	○	○	○	○	○	○	○	○
8.0mm ²	○	○	○	○	○	○	○	○	○	○

12. Optional Accessories

12-1 The Way to set the Foot Switch

*Foot switch available on request.



- (1) Set the foot switch assy as the above illustration.
- (2) After mounting Selfer on the workpiece, press down the foot switch, and the Pump will start operating and the ram(punch) descending. Upon completion of punching, the limit switch built in Selfer will work automatically to switch off Pump operation and to return the ram. Selfer can be also operated by pushing the black button with foot switch setted.

- (3) If an emergent stop during work is needed, push the red button, and the ram will return.

** The foot switch need not to be held in the pressed position because it is a 'one-touch' type.

12-2 The Way to Set and Center the Square and Oblong Punch/Die Set

*Square and oblong punch/die set are available on your request and can be fitted only A07-1624B and A11-1624A.

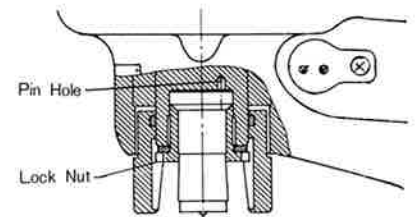


Fig. 7

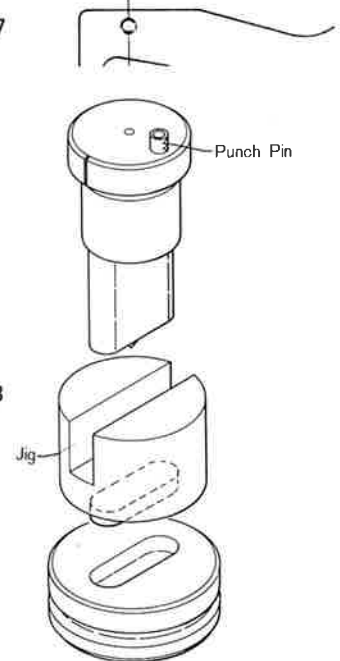




Fig. 8

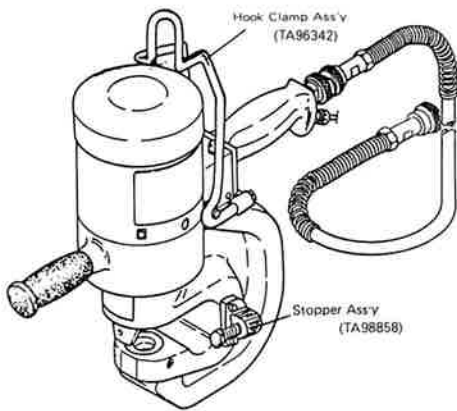
- (1) Remove the lock nut, fix the punch so that the punch pin can be inserted into the pin hole on the ram. Tighten the lock nut with the spanner. (The pin hole on the ram is positioned on the right side as shown in Fig. 7. Accordingly, the punch pin must be positioned as in Fig. 8.)
- (2) Loosen the retaining screws on both sides of the lower jaw. Set the die, placing the face with hole of smaller diameter up.
- (3) Fit the  part of the jig to the punch edge, and side down the jig. Insert the  part of the jig into the die, while turning round the die. Then tighten the retaining screws and fix the die.

12-3 TA98858 Stopper Ass'y TA96342 Hook Clamp Ass'y

Stopper Ass'y and Hook Clamp Ass'y are available on your request and can be fitted only to A07-1624B and A11-1624A.

- Precise position of punch holes, especially in case of oblong and square holes, are easily obtainable if stopper ass'y is set to Selfers.
- If Selfer is hung with Hook Clamp Ass'y, it can be worked for long hours without fatigue by operator.

See the following illustration of Selfer equipped with Stopper Ass'y and Hook.Clamp Ass'y.



SAVE THIS MANUAL

13. A05-1018 Parts List

No.	Part No.	Part Name	Q'ty	Price	No.	Part	Part Name	Q'ty	Price
1	TP14570	Cover	1		55	TP08189	Insulating Sleeve Receptacle 170889-1	2	
2	TP14588	Hex Bolt 6x10	4		56	TP08187	Receptacle 170021-1	2	
3	LP11607	Toothed Lock Washer BM6	4						
4	TP08301	Nut M24	1			TJ06692	D Punch φ14	1	
5	TP08300	Upper Plate	1			TJ11003	M Die φ14	1	
6	TP08299	Spring 25.5x83x96.5	1			TP01939	Hex Wrench Key 4	1	
7	TP08313	Back-up Ring 25x33x1.25 T2	2			TP06012	Spanner	1	
8	TP08312	U Packing UHS-25	2						
9	TP14582	Cap	1						
10	TP14578	Piston	1						
11	TP14580	OSI Packing FU2145LO	1		Optional Accessory				
12	TP14581	Back-up Ring BRT2-60713	1		59	TA93778	Switch Cord Ass'y	1set	
13	TP14579	Ram	1		60	•TP07795	Metal Receptacle Plug NCS-163-PM	1	
14	TP14576	Bushing	1		61	•TP07794	Cabtyre Cord Vinyl	1	
15	TP14575	Frame	1		62	•TP07796	Metal Receptacle Plug NCS-163-P	1	
16	(TA90586)	Side Handle Ass'y	1set		63	TP05184	Ultra-high Pressure Hose	1	
17	TP07843	Hex Set Screw 8x8	3		64	CA94118	700R-3S Ass'y	2sets	
18	TP08520	O Ring P-42	1			TA94386	Foot Switch Ass'y	1set	
19	TP08305	Stripper	1						
20	(TJ06684)	D Punch φ18	1		Optional Punches and Dies				
21	TP07009	Urethane Washer 31x40x3.1	1		Part No.	Part Name	Part No.	Part Name	
22	TP07888	Lock Nut	1		TJ06684	D Punch φ18	TJ11001	M Die φ18	
23	TP04689	Hex Set Screw 6x8	4		TJ06686	D Punch φ17	TJ12292	M Die φ17	
24	CP01181	Ball 5/32	1		TJ06688	D Punch φ16	TJ12186	M Die φ16	
25	TP05154	Drain Screw	1		TJ06690	D Punch φ15	TJ12188	M Die φ15	
26	TP14641	Adjust Bolt	4		TJ06692	D Punch φ14	TJ11003	M Die φ14	
27	TP13751	Push Button Switch MBU106F-11	2		TJ06694	D Punch φ13	TJ12294	M Die φ13	
28	TP13750	Bracket	1		TJ06696	D Punch φ12	TJ12190	M Die φ12	
29	TP05119	⊕ Screw 5x8	6		TJ06698	D Punch φ11	TJ11005	M Die φ11	
30	TP03508	Spring Washer M5	6		TJ06700	D Punch φ10	TJ12192	M Die φ10	
31	TP01460	Hex Socket Head Bolt 8x20	2		TJ11088	D Punch φ 9	TJ12206	M Die φ 9	
32	TP14574	⊖ Screw 3x6	1		TJ10778	D Punch φ 8	TJ12194	M Die φ 8	
33	TP14573	Spring 0.5x4.8x13	1						
34	TP14572	Push Rod	1						
35	(TJ11001)	M Die φ18	1						
36	TP14577	Pin 7x10	1						
37	TP07784	⊕ Screw 2.3x15	2						
38	TP07785	Spring Washer M2.3	2						
39	TA94091	Limit Switch Sub Ass'y	1						
40	TP08135	Paper for Electrical Insulation	1						
41	TP14584	Limit Switch Cover	1						
42	TP08139	Hex Nut M2.3	2						
43	TP02419	⊕ Screw 6x10	1						
44	TA96434	Switch Cover Ass'y	1set						
45	(CA94119)	700R-3P Ass'y	1set						
46	TP07793	Set Screw	1						
47	TP07792	Nipple PT3/8xPT3/8	1						
48	TA94434	Metal Receptacle Adapter Ass'y	1set						
49	TP09433	⊕ Screw 4x10	3						
50	TP12929	Stopper	1						
51	TP12928	Cord Sleeve	1						
52	TP12927	Grip	1						
53	TP08188	Insulating Sleeve Plug 170887-1	2						
54	TP08186	Connection Plug 17020-1	2						

Optional Accessory

No.	Part	Part Name	Q'ty	Price
59	TA93778	Switch Cord Ass'y	1set	
60	•TP07795	Metal Receptacle Plug NCS-163-PM	1	
61	•TP07794	Cabtyre Cord Vinyl	1	
62	•TP07796	Metal Receptacle Plug NCS-163-P	1	
63	TP05184	Ultra-high Pressure Hose	1	
64	CA94118	700R-3S Ass'y	2sets	
	TA94386	Foot Switch Ass'y	1set	

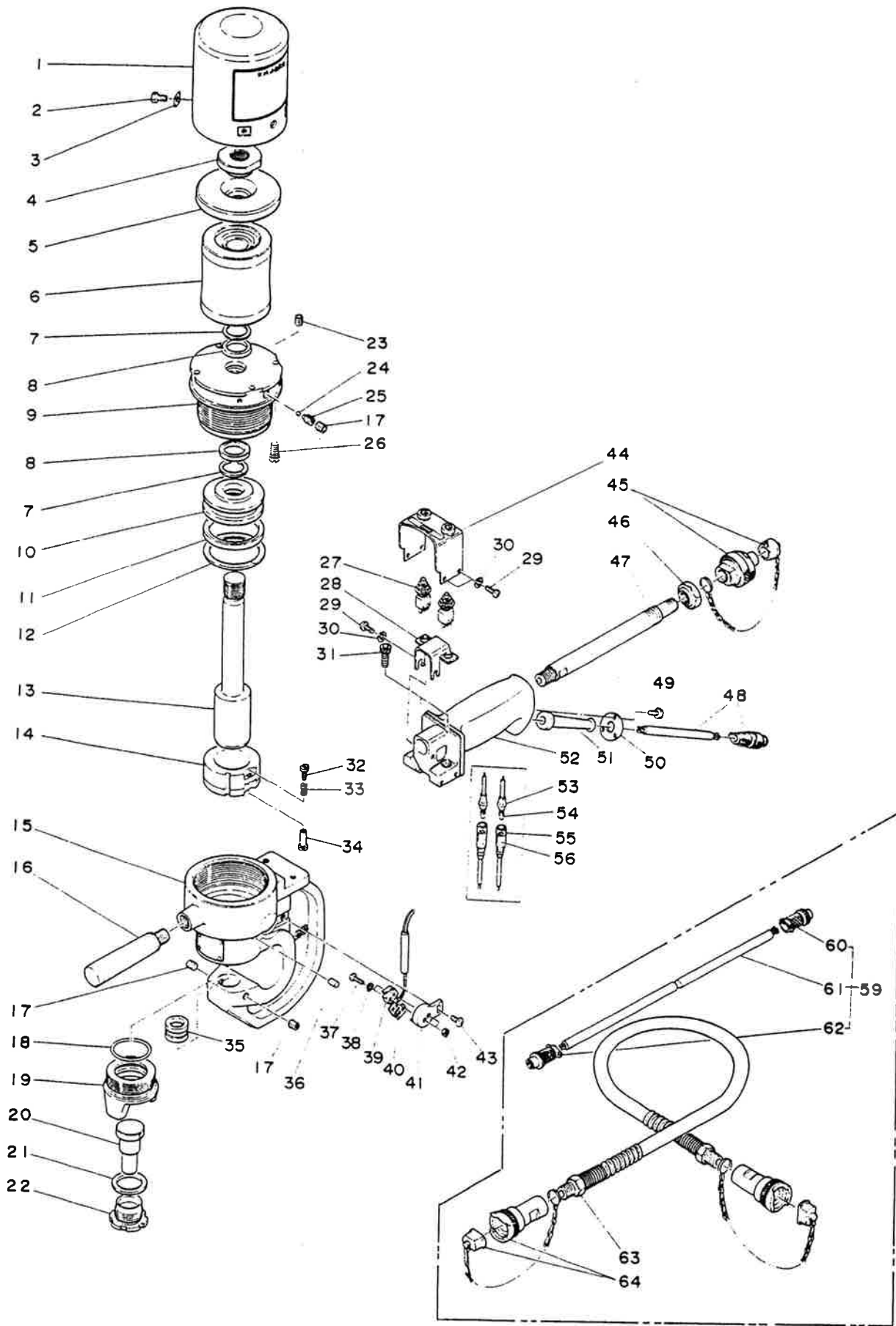
Optional Punches and Dies

Part No.	Part Name	Part No.	Part Name
TJ06684	D Punch φ18	TJ11001	M Die φ18
TJ06686	D Punch φ17	TJ12292	M Die φ17
TJ06688	D Punch φ16	TJ12186	M Die φ16
TJ06690	D Punch φ15	TJ12188	M Die φ15
TJ06692	D Punch φ14	TJ11003	M Die φ14
TJ06694	D Punch φ13	TJ12294	M Die φ13
TJ06696	D Punch φ12	TJ12190	M Die φ12
TJ06698	D Punch φ11	TJ11005	M Die φ11
TJ06700	D Punch φ10	TJ12192	M Die φ10
TJ11088	D Punch φ 9	TJ12206	M Die φ 9
TJ10778	D Punch φ 8	TJ12194	M Die φ 8

* The special die for tapered materials is available on your request.

* When ordering parts, never give symbol number, but parts number. Symbol number is attached only for pursuing the parts number.

14. A05-1018 Assembly



15. A06-1322 Parts List

No.	Part No.	Part Name	Q'ty	Price	No.	Part No.	Part Name	Q'ty	Price
1	TP13077	Cover	1		50	TP07784	⊕ Screw 2.3 x 15	2	
2	TP14588	Hex. Bolt 6 x 10	4		51	(TA93778)	Switch Cord Ass'y	1 set	
3	TP08301	Nut M24	1		52	(•TP07795)	Metal Receptacle Plug NCS-163-PM	1	
4	TP08300	Upper Plate	1		53	(•TP07794)	Cabtyer Cord Vinyl	1	
5	TP08299	Spring 25.5 x 83 x 96.5	1		54	(•TP07796)	Metal Receptacle Plug NCS-163-P	1	
6	TP08313	Back-up Ring 25 x 33 x 1.25 T2	2		55	(TP05184)	Ultra-high Pressure Hose	1	
7	TP08312	U Packing UHS-25	2		56	(CA94118)	700R-3S Ass'y	2 sets	
8	TP06258	Hex. Set Screw 5 x 8	4		57	TP07843	Hex. Set Screw 8 x 8	1	
9	TP09973	Cap	1		58	TP09433	⊕ Screw 4 x 10	3	
10	TP08303	Piston	1		59	TA94434	Metal Receptacle Adapter Ass'y	1 set	
11	TP08309	U Packing US-67	1		60	LP11607	Toothed Lock Washer BM6	4	
12	TP08310	Back-up Ring 67 x 82 x 2 T2	1		61	TP03508	Spring Lock Washer M5	6	
13	TP08308	Ram	1						
14	TP08307	Bushing	1			TP06012	Spanner	1	
15	TP08306	Frame	1			TP01939	Hex. Wrench Key 4	1	
16	TP06397	Hex. Set Screw 6 x 8	1						
17	(TA92089)	Subhandle Ass'y	1 set						
18	TP09458	Hex. Set Screw 8 x 14	2						
19	TP08520	O Ring P-42	1						
20	TP08305	Stripper	1						
21	(TJ06676)	D Punch $\phi 22$	1						
22	TP07009	Urethane Washer 31 x 40 x 3.1	1						
23	TP07888	Lock Nut	1						
24	CP01181	Ball 5/32	1						
25	TP05154	Drain Screw	1						
26	TA96434	Switch Cover Ass'y	1 set						
27	TP13751	Push Button Switch MBU106F-11	2						
28	TP13750	Bracket	1						
29	TP05119	⊕ Screw 5 x 8	6						
30	TP01460	Hex. Socket Head Bolt 8 x 20	2						
31	TA94558	Push Rod Ass'y	1 set						
32	(TJ06677)	D Die $\phi 22$	1						
33	TP08139	Hex. Nut M2.3	2						
34	TP07785	Spring Lock Washer M2.3	2						
35	TP11442	Limit Switch	1						
36	TP08135	Paper for Electrical Insulation	1						
37	TP07783	Limit Switch Cover	1						
38	(CA94119)	700R-3P Ass'y	1 set						
39	TP07793	Set Screw	1						
40	TP07792	Nipple PT 3/8 x PT 3/8	1						
42	TP12928	Cord Sleeve	1						
43	TP12929	Stopper	1						
44	TP12927	Hand Grip	1						
45	TP08188	Insulating Sleeve Plug 170887-1	2						
46	TP08186	Connection Plug 17020-1	2						
47	TP08189	Insulating Sleeve Receptacle 170889-1	2						
48	TP08187	Receptacle 170021-1	2						
49	TP02419	⊕ Screw 6 x 10	1						

Optional Accessory

Part No.	Part Name	Q'ty	Price
TA94386	Foot Switch Ass'y	1 set	

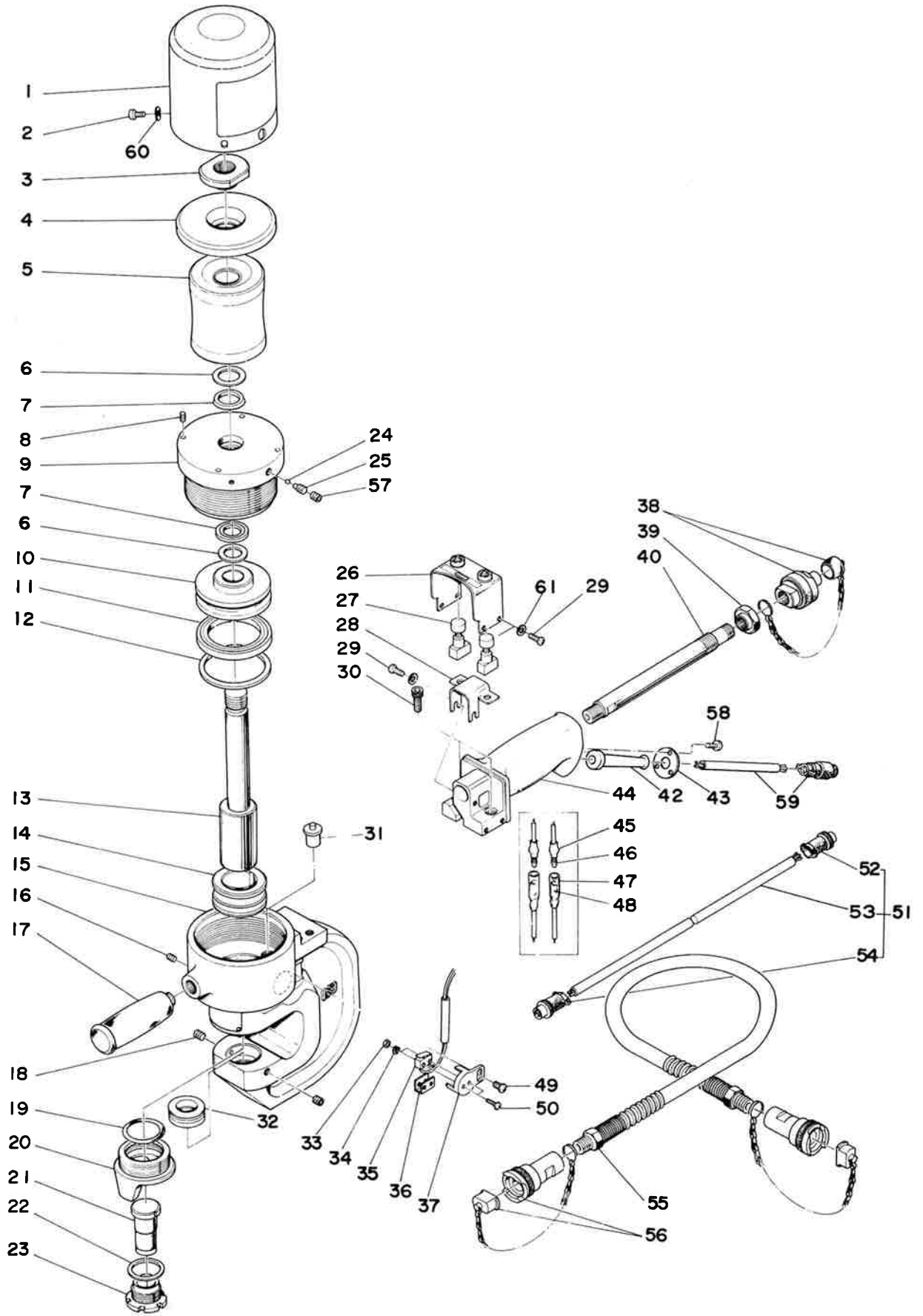
Optional Punches and Dies

Part No.	Part Name	Part No.	Part Name
TJ06676	D Punch $\phi 22$	TJ06677	D Die $\phi 22$
TJ06607	D Punch $\phi 20.5$	TJ06608	D Die $\phi 20.5$
TJ06609	D Punch $\phi 17.5$	TJ06610	D Die $\phi 17.5$
TJ06611	D Punch $\phi 14.5$	TJ06612	D Die $\phi 14.5$
TJ06674	D Punch $\phi 23$	TJ06675	D Die $\phi 23$
TJ06678	D Punch $\phi 21$	TJ06679	D Die $\phi 21$
TJ06680	D Punch $\phi 20$	TJ06681	D Die $\phi 20$
TJ06682	D Punch $\phi 19$	TJ06683	D Die $\phi 19$
TJ06684	D Punch $\phi 18$	TJ06685	D Die $\phi 18$
TJ06686	D Punch $\phi 17$	TJ06687	D Die $\phi 17$
TJ06688	D Punch $\phi 16$	TJ06689	D Die $\phi 16$
TJ06690	D Punch $\phi 15$	TJ06691	D Die $\phi 15$
TJ06692	D Punch $\phi 14$	TJ06693	D Die $\phi 14$
TJ06694	D Punch $\phi 13$	TJ06695	D Die $\phi 13$
TJ06696	D Punch $\phi 12$	TJ06697	D Die $\phi 12$
TJ06698	D Punch $\phi 11$	TJ06699	D Die $\phi 11$
TJ06700	D Punch $\phi 10$	TJ06701	D Die $\phi 10$

* The special die for tapered materials is available on your request.

* When ordering parts, never give symbol number, but parts number. Symbol number is attached only for pursuing the parts number.

16. A06-1322 Assembly



17. A07-1624B, A11-1624A Parts List

No.	Part No.	Part Name	Q'ty	Price
1	TP14588	Hex Bolt 6 x 10	4	
2	TP14083	Cover	1	
3	TP13074	Nut M27	1	
4	TP13073	Upper Plate	1	
5	TP08550	Spring 28.5 x 92 x 106.5	1	
6	TP07772	Back-up Ring 28 x 35.5 x 1.25 T2	2	
7	TP07771	U Packing UHS-28	2	
8	TP09972	Cap	1	
9	TP07768	U Packing UHS-85	1	
10	TP07769	Back-up Ring 85 x 100 x 2 T2	1	
11	TP08557	Piston	1	
12	TP13078	Ram	1	
13	TP14084	Bushing	1	
14	TP07765	Frame (A07-1624B)	1	
15	TP07976	Frame (A11-1624A)	1	
16	(TA92089)	Subhandle Ass'y	1 set	
17	TP06397	Hex Set Screw 6 x 8	1	
18	TA96435	Switch Cover Ass'y	1 set	
19	TP07793	Set Screw	1	
20	TP13751	Push Button Switch MBU106F-11	2	
22	TP13750	Bracket	1	
23	TP07792	Nipple PT 3/8 x PT 3/8	1	
24	TP01460	Hex Socket Head Bolt 8 x 20	2	
25	TP12927	Hand Grip	1	
26	TP07773	Hex Set Screw 6 x 12	4	
27	CP01181	Ball 5/32	1	
28	TP05119	⊕ Screw 5 x 8	6	
29	TP07843	Hex Set Screw 8 x 8	1	
30	TP05154	Drain Screw	1	
31	TP08188	Insulating Sleeve Plug 170887-1	2	
32	TP08186	Connection Plug 170020-1	2	
33	TP08189	Insulating Sleeve Receptacle 170889-1	2	
34	TP08187	Receptacle 170021-1	2	
35	TA93768	Push Rod Ass'y	1 set	
36	TP11442	Limit Switch	1	
37	TP07783	Limit Switch Cover	1	
38	TP02419	⊕ Screw 6 x 10	1	
39	TP07784	⊕ Screw 2.3 x 15	2	
40	TP08135	Paper for Electrical Insulation	1	
41	TP07785	Spring Lock Washer M2.3	2	
42	TP08139	Hex Nut M2.3	2	
43	(CA94119)	700R-3P Ass'y	1 set	
44	TP12928	Cord Sleeve	1	
45	TP12929	Stopper	1	
46	TP07786	O Ring P-46	1	
47	TP07774	Stripper	1	
48	(TJ06676)	D Punch φ22	1	

No.	Part No.	Part Name	Q'ty	Price
49	TP07009	Urethane Washer 31 x 40 x 3.1	1	
50	TP07888	Lock Nut	1	
51	(TJ06677)	D Die φ22	1	
52	(TA93778)	Switch Cord Ass'y	1 set	
53	(•TP07795)	Metal Receptacle Plug NCS-163-PM	1	
54	(•TP07794)	Cabtyer Cord Vinyl	1	
55	(•TP07796)	Metal Receptacle Plug NCS-163-P	1	
56	(TP05184)	Ultra-high Pressure Hose	1	
57	(CA94118)	700R-3S Ass'y	2 sets	
58	TP09458	Hex Set Screw 8 x 14	2	
59	TP09433	⊕ Screw 4 x 10	3	
60	TA94434	Metal Receptacle Adapter Ass'y	1 set	
61	LP11607	Toothed Lock Washer BM6	4	
62	TP03508	Spring Lock Washer M5	6	
63	TP12944	Slide Key 10 x 8 x 42	1	
64	TP06342	Hex Socket Head Bolt 4 x 10	2	
65	TP14090	Pin 7 x 12	1	
	TP06012	Spanner	1	
	TP01939	Hex Wrench Key 4	1	

Optional Accessory

Part No.	Part Name	Q'ty	Price
TA94386	Foot Switch Ass'y	1 set	

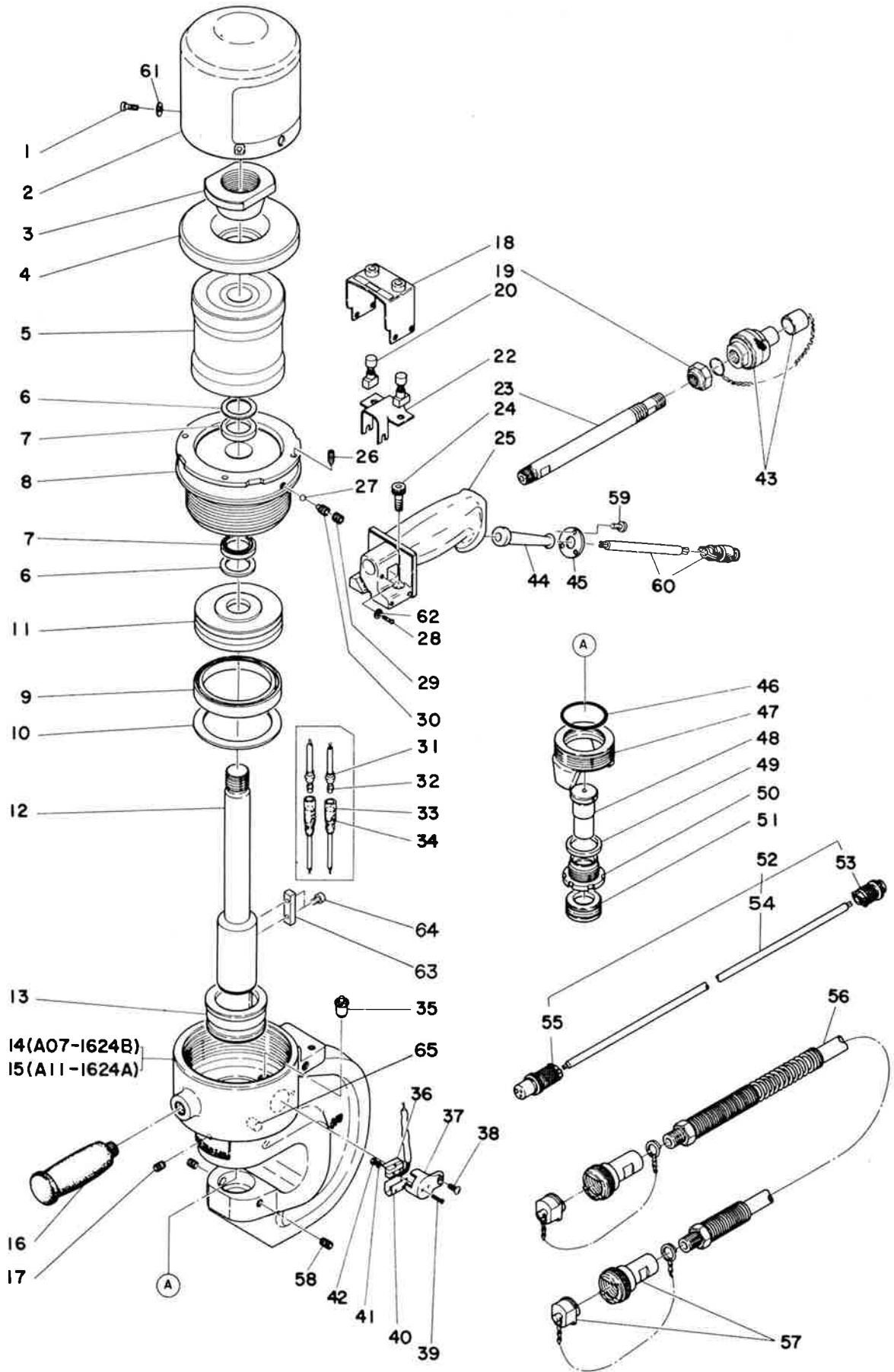
Optional Punches and Dies

Part No.	Part Name	Part No.	Part Name
TJ06566	D Punch φ23.5	TJ06569	D Die φ23.5
TJ06676	D Punch φ22	TJ06677	D Die φ22
TJ06607	D Punch φ20.5	TJ06608	D Die φ20.5
TJ06609	D Punch φ17.5	TJ06610	D Die φ17.5
TJ06611	D Punch φ14.5	TJ06612	D Die φ14.5
TJ06674	D Punch φ23	TJ06675	D Die φ23
TJ06678	D Punch φ21	TJ06679	D Die φ21
TJ06680	D Punch φ20	TJ06681	D Die φ20
TJ06682	D Punch φ19	TJ06683	D Die φ19
TJ06684	D Punch φ18	TJ06685	D Die φ18
TJ06686	D Punch φ17	TJ06687	D Die φ17
TJ06688	D Punch φ16	TJ06689	D Die φ16
TJ06690	D Punch φ15	TJ06691	D Die φ15
TJ06692	D Punch φ14	TJ06693	D Die φ14
TJ06694	D Punch φ13	TJ06695	D Die φ13
TJ06696	D Punch φ12	TJ06697	D Die φ12
TJ06698	D Punch φ11	TJ06699	D Die φ11
TJ06700	D Punch φ10	TJ06701	D Die φ10
TJ06748	D Punch φ24	TJ07749	D Die φ24

* The special die for tapered materials is available on your request.

* When ordering parts, never give symbol number, but parts number. Symbol number is attached only for pursuing the parts number.

18. A07-1624B, A11-1624A Assembly



19. SC-05 (115V, 220/240V) Parts List

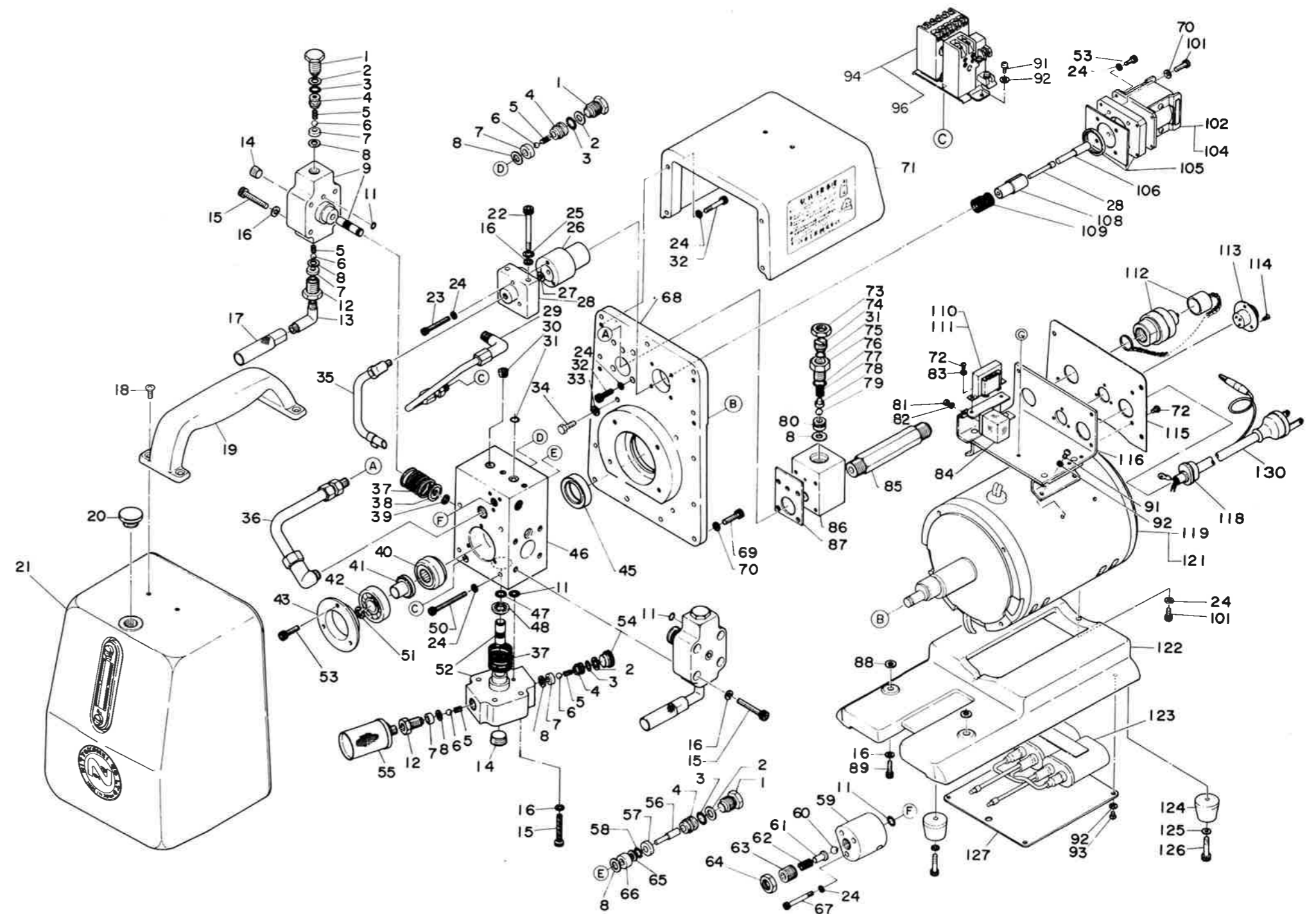
No.	No.	Part No.	Part Name	Q'ty	Price	No.	Part No.	Part Name	Q'ty	Price
1	1	TP05874	Check Set Plug	4		57	TP06620	Valve Sleeve Plate	1	
2	2	TP05873	Back-up Ring P-10	5		58	TP06617	O Ring P-6	1	
3	3	TP05872	O Ring P-10	5		59	TP06632	Unloader Valve	1	
4	4	TP05871	Delivery Valve	5		60	TP06633	Ball 5/16	1	
5	5	TP05870	Spring	7		61	TP07966	Ball Retainer	1	
6	6	CP00800	Ball 1/4	7		62	TP07967	Spring 2 x 7 x 25.2	1	
7	7	TP05869	Valve Seat	7		63	TP06636	Hex. Set Screw 12x25	1	
8	8	TP05868	Packing	9		64	TP05422	Hex. Nut M12	1	
9	9	TA9A586	Cylinder Piston Sub Ass'y	2 sets		65	TP06618	Back-up Ring P-6	1	
10	11	TP05878	O Ring P-8	3		66	TP06616	Valve Sleeve	1	
11	12	TP05875	Suction Valve	3		67	TP06637	Hex. Socket Head Bolt 5 x 40	3	
12	13	TP05876	Elbow PT 1/8 x PF 1/4	2		68	TP13432	Bracket	1	
13	14	TP05863	Hex. Set Screw PT 1/4	3		69	TP02863	Hex. Socket Head Bolt 5 x 20	13	
14	15	TP04197	Hex. Socket Head Bolt 6 x 30	12		70	TP05950	Copper Washer 5.5 x 8.5 x 1	17	
15	16	TP00629	Spring Lock Washer M6	16		71	TP12671	Switch Cover	1	
16	17	TP05877	Filter	2		72	TP00056	⊕ Screw 3 x 6	8	
17	18	TP05922	⊕ Screw 6 x 18	4		73	TP05893	Lock Nut	1	
18	19	TP05921	Hand Grip	1		74	TP05892	Adjust Screw	1	
19	20	(TP05929)	Oil Cap	1		75	TP05889	Relieve Valve	1	
20	21	TA97817	Oil Tank Ass'y	1 set		76	TP12010	O Ring P-14	1	
22	22	TP05903	Hex. Socket Head Bolt 6 x 60	2		77	TP05891	Relief Spring	1	
23	23	TP05882	Hex. Socket Head Bolt 5 x 35	3		78	TP05890	Ball Retainer	1	
24	24	TP00513	Spring Lock Washer M5	23		79	TP05948	Ball 9/32	1	
25	25	TP00629	Spring Lock Washer M6	2		80	TP05888	Relief Valve Seat	1	
26	26	TP05881	Plunger Guide	1		81	TP08266	Hex. Nut M2.6	1	
27	27	TP05880	Miniature Y Packing MY-3	1		82	TP08267	Toothed Lock Washer M2.6	1	
28	28	TA9A587	Valve Spool Sub Ass'y	1 set		83	TP00245	Spring Lock Washer M3	2	
29	29	TA94198	Steel Pipe Ass'y	1 set		84	TP08264	Relay RM2S-UG	1	
30	30	TP06597	Hex. Set Screw PT 1/8	1		85	TP05919	Nipple	1	
31	31	TP05949	O Ring P-7	3		86	TP05887	Relief Valve Body	1	
32	32	TP08013	Hex. Socket Head Bolt 5 x 25	8		87	TP05904	Gasket B	1	
33	33	TP05853	Seal Washer W5	4		89	TP03086	Hex. Socket Head Bolt 6 x 20	2	
34	34	TP13247	Hex. Bolt 5 x 22	4		91	TP02797	⊕ Screw 4 x 6	7	
35	35	TA92455	Copper Pipe Ass'y	1 set		92	TP04234	Spring Lock Washer M4	7	
36	36	TA92456	Steel Pipe Ass'y	1 set		94	TA98690	Magnet Switch BW4213202K(115V)	1	
37	37	TP05865	Piston Spring	3		96	TA98692	Magnet Switch BW4223306K(230V)	1	
38	38	TP05866	Spring Seat	2		101	TP02862	Hex. Socket Head Bolt 5 x 25	5	
39	39	TP05867	Retaining Ring E-64	2		102	TP08395	Solenoid AV40 (115V)	1	
40	40	TP09671	Roller Follower	1		104	TP07677	Solenoid AV40 (230V)	1	
41	41	TP09672	Distance Piece	1		105	TA94480	Plate Ass'y	1 set	
42	42	TP05928	Ball Bearing 6302	1		106	TP05886	Rod	1	
43	43	TP05861	Bearing Set Plate	1		108	TP05884	Plunger	1	
44	44	TPQ5856	Oil Seal S 25 x 38 x 8	1		109	TP05883	Return Spring	1	
45	45	TP13536	Pump Body	1		110	TP12354	Transformer EI-41 (100~115V)	1	
46	46	TP07962	Retaining Ring WR-11	1		111	TP12353	Transformer EI-41 (200~230V)	1	
47	47	TP07961	Spring Seat	1		112	(CA94119)	700R-3P Ass'y	1 set	
48	48	TP05857	Hex. Socket Head Bolt 5 x 70	4		113	TP07969	Metal Receptacle	1	
	51	TP09673	Retaining Ring 10	1		114	TP02902	⊕ Screw 3 x 6	3	
	52	TA9A603	(L) Cylinder Piston Sub Ass'y	1 set		115	TP08397	Name Plate	1	
	53	TP01945	Hex. Socket Head Bolt 5 x 12	7						
	54	TP07963	Check Set Plug	1						
	55	TP07964	Suction Filter	1						
	56	TP06619	Spool	1						

20. SC-05 (115V, 220/240V) Assembly

No.	Part No.	Part Name	Q'ty	Price
116	TQ00393	Switch Plate	1	
118	TP01757	Cord Stopper SR-7P-2	1	
119	TA97964	Motor Ass'y (115V)	1 set	
121	TA97968	Motor Ass'y (220/240V)	1 set	
122	TP14376	Base Plate	1	
123	TA98768	Condenser Ass'y	1 set	
124	TP05925	Rubber Foot	4	
125	TP05926	Washer 6.5 x 10 x 1	4	
126	TP07118	Hex. Socket Head Bolt 6 x 16	4	
127	TP06027	Condenser Cover	1	
128	TA92452	Plunger Ass'y (High)	2 sets	
129	TA93899	Plunger Ass'y (Low)	1 set	
130	TA9A758	Cabtyre Cable Ass'y (115V)	1 set	
	TA99025	Cabtyre Cable Ass'y (220/240V)	1 set	
	TP03249	Hex. Wrench Key 8	1	

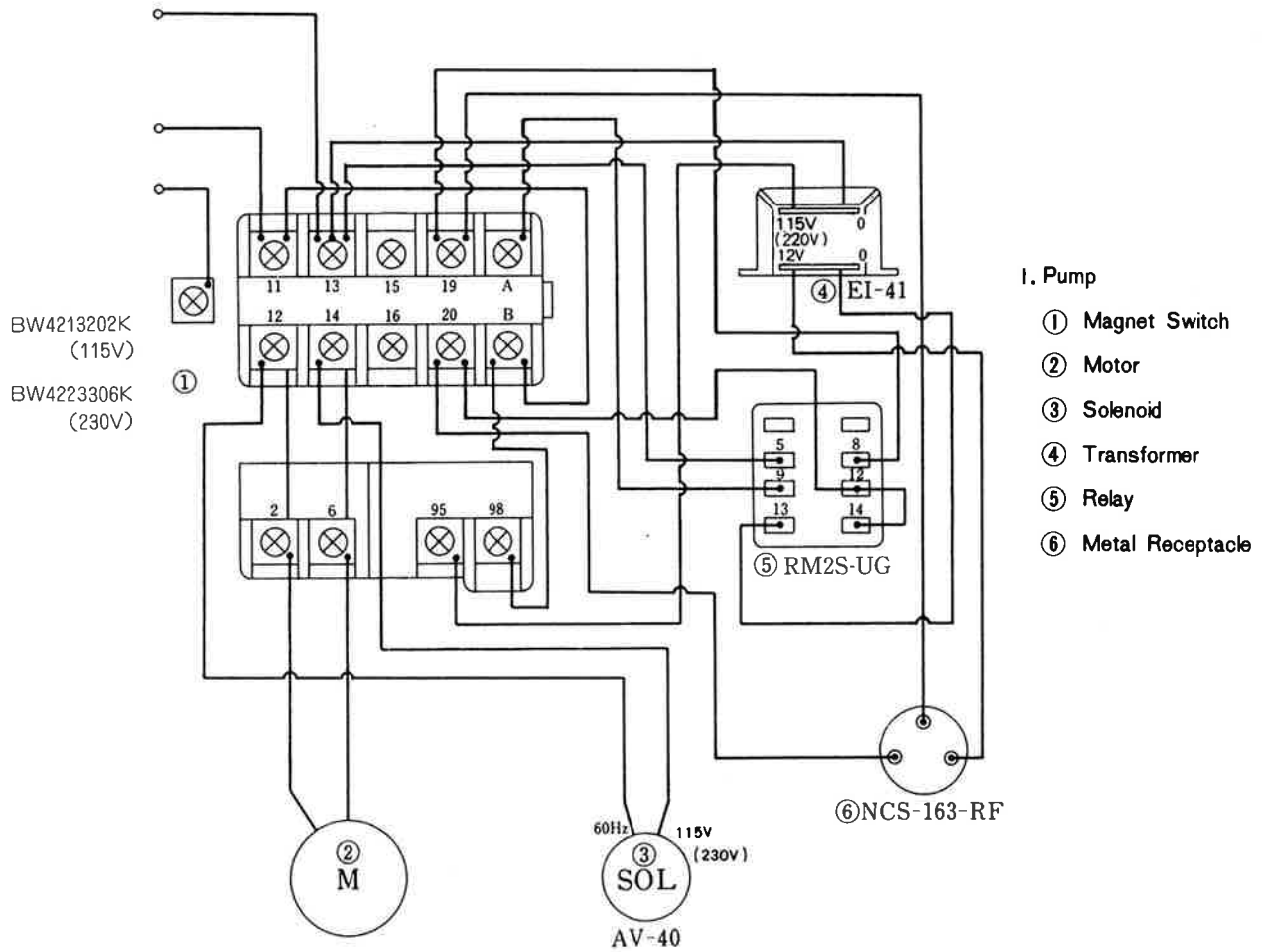
Optional Accessory			
TA92729	Auxiliary Oil Can Ass'y	1 set	

* When ordering parts, never give symbol number, but parts number. Symbol number is attached only for pursuing the parts number.

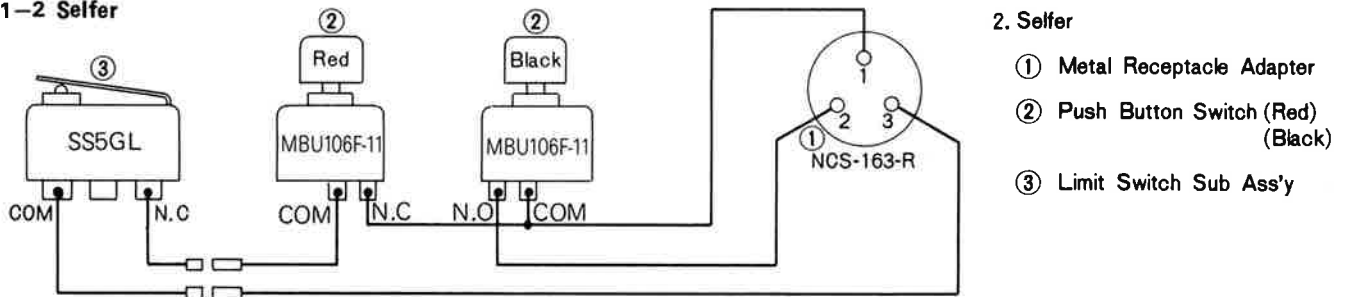


21. Wiring Diagram

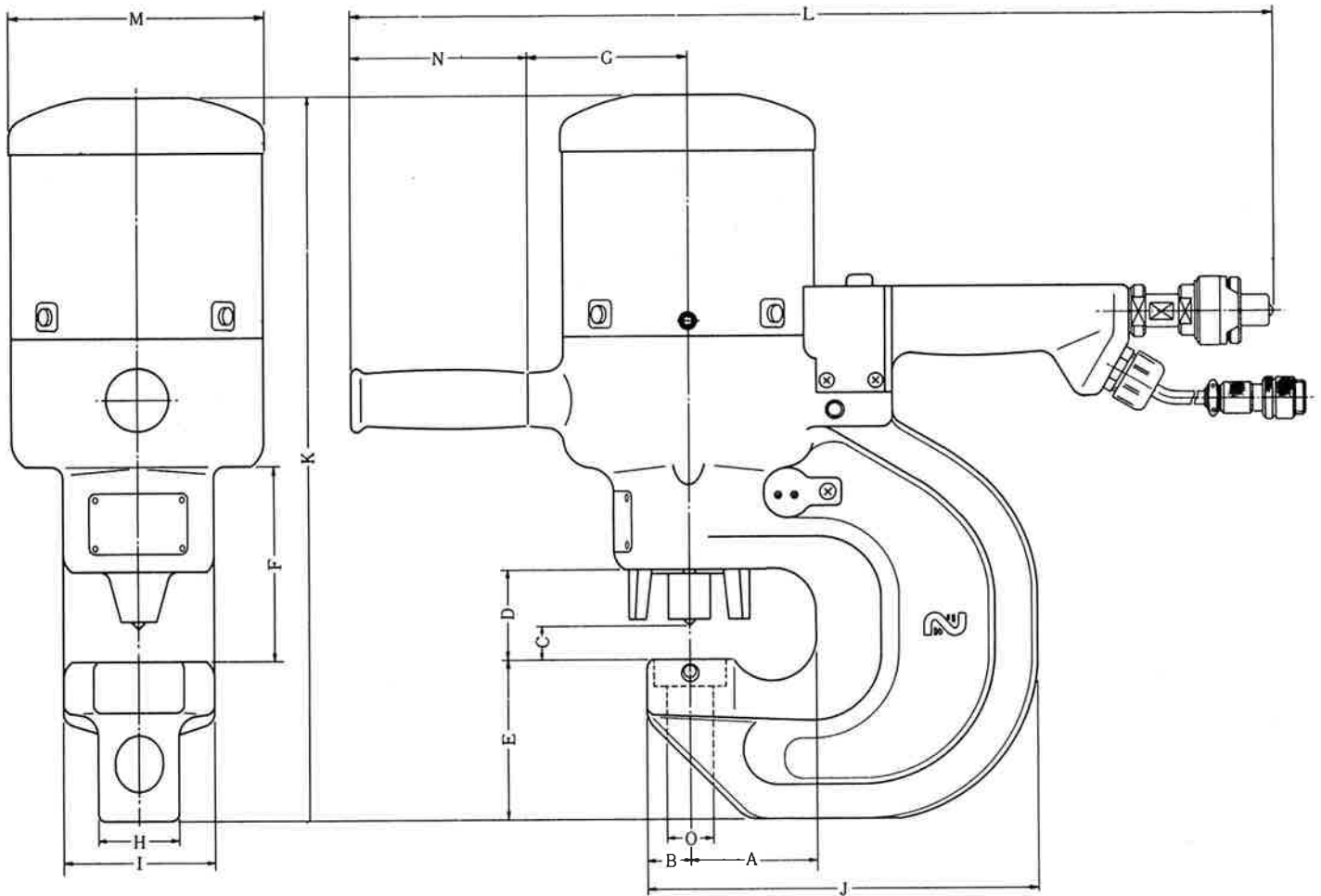
21-1 Pump



21-2 Selfer



22. Dimension



MODEL	A05-1018	A06-1322	A07-1624B	A11-1624A
A	50mm (2")	60mm (2-13/32")	70mm (2-13/16")	110mm (4-13/32")
B	17mm (11/16")	24mm (31/32")	24mm (31/32")	24mm (31/32")
C	12mm (31/64")	15mm (19/32")	18mm (23/32")	18mm (23/32")
D	51mm (2-3/64")	51mm (2-3/64")	51mm (2-3/64")	51mm (2-3/64")
E	71mm (2-27/32")	83mm (3-21/64")	92mm (3-11/16")	112mm (4-31/64")
F	93mm (3-23/32")	100mm (4")	110mm (4-13/32")	110mm (4-13/32")
G	75mm (3")	80mm (3-7/32")	91mm (3-41/64")	91mm (3-41/64")
H	40mm (1-37/64")	40mm (1-37/64")	45mm (1-13/16")	60mm (2-13/32")
I	70mm (2-13/16")	76mm (3-3/64")	85mm (3-13/32")	90mm (3-39/64")
J	153mm (6-7/64")	192mm (7-11/16")	217mm (8-11/16")	277mm (11-5/64")
K	355mm (14-3/16")	378mm (15-1/8")	412mm (16-31/64")	432mm (17-9/32")
L	490mm (19-19/32")	500mm (20")	522mm (20-7/8")	522mm (20-7/8")
M	φ112 (4-31/64")	φ124.5 (4-63/64")	φ142 (5-11/16")	φ142 (5-11/16")
N	103mm (4-7/64")	100mm (4")	100mm (4")	100mm (4")
O	φ20 (13/16")	φ25 (1")	φ27 (1-5/64")	φ27 (1-5/64")