

Automatic Rivet Feeding System

ARF-700

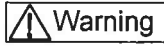
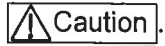
Operating Manual





LOBSTER




Safety Precautions

◆ Before using the rivet feeder, read and understand all the contents of “Safety Precautions.”

◆ The precautions described in this manual are classified into  **Warning** and  **Caution**.
The meaning of them is as follows:

 **Warning** : Indicates potential danger. Used to indicate that neglecting the procedures or instructions may cause death or severe injury.

 **Caution** : Indicates potential danger. Used to indicate that neglecting the procedures or instructions may cause injury or to property damage.

Note that neglecting the safety precautions described in  **Caution** may cause severe accidents. Always follow all the safety precautions described in  **Warning** and  **Caution**.
The safety precautions are very important information to eliminate or reduce the hazards.

◆ Always keep this manual close at hand for reference whenever necessary.

Warning

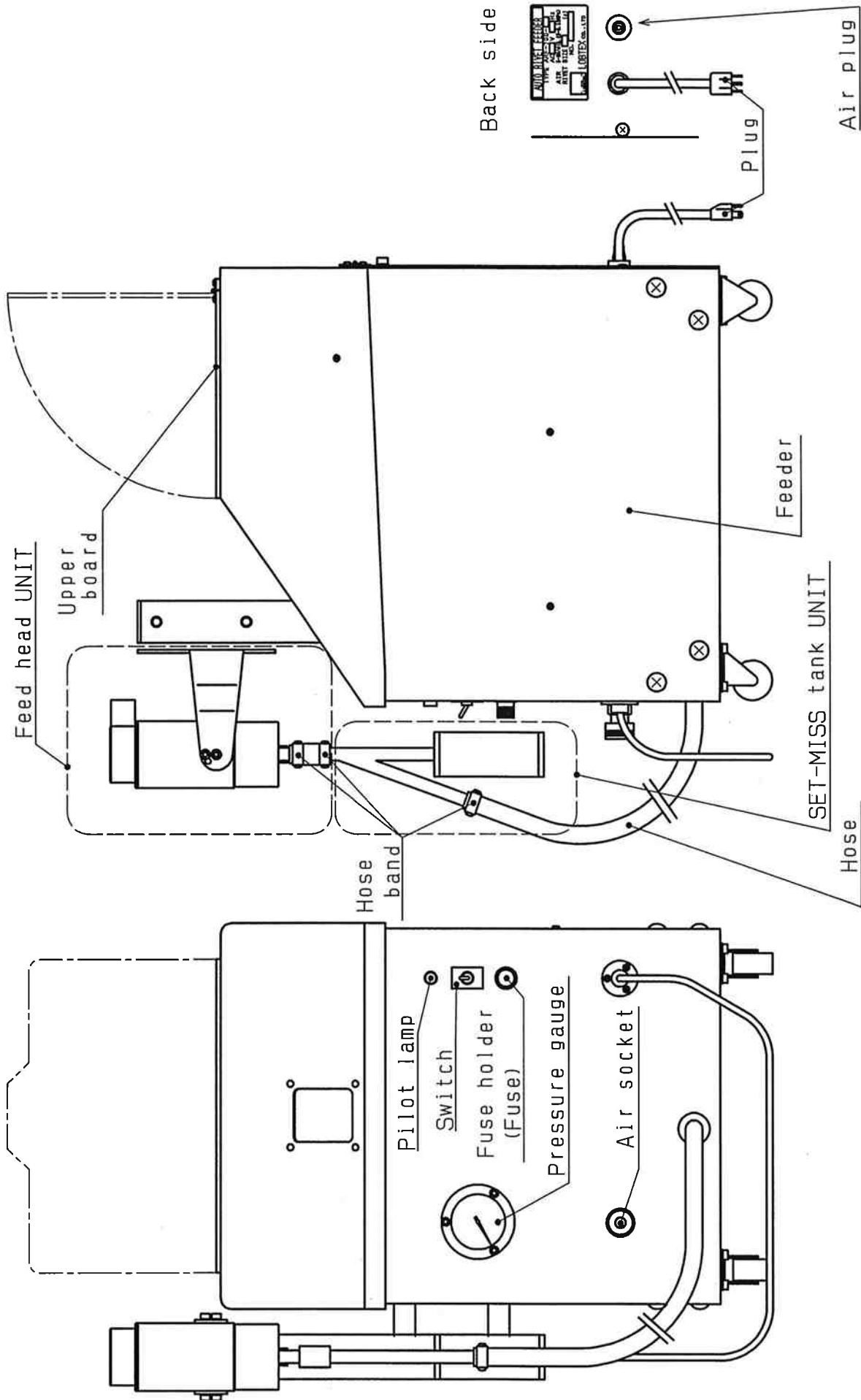
1. Operation voltage specified on the identification plate must be used.
 - Voltage greater than the specified voltage may cause malfunctions leading to an injury.
2. Ground clip must be connected with ground to prevent electric shock accidents.
3. Protect yourself from electric shock.
 - Do not touch anything that is grounding your body during operation.
4. Do not look inside to check the feeding head.
 - Rivets may be popped out and cause an injury.
5. Protection goggle must be used during operation.
 - Popping out of rivets or shafts (after cutting rivets) may cause an injury.
6. Air pressure must be 5 to 6 kgf/ cm² (0.49 to 0.59 MPa).
 - Higher air pressure may cause an accident or an injury.
7. Be sure to connect the hoses or the cable securely.
 - Disconnection of those during operation may cause popping out of rivets or electric leakage.
8. Keep your hand or head away from moving area such as the feed head, the escapement area, the truck and the cam arm when the power is on.
 - Popping out of rivets may cause injury, or enwinding your part of body may occur.
9. Workplace environment
 - Keep the rivet feeder away from rain or wet place.
 - Keep workplace well lit. Working in dark place may cause an accident.
 - Keep the rivet feeder away from flammable liquids or gases.
10. Switch off the rivet feeder and unplug from power source when:
 - The rivet feeder is not used or is repaired.
 - Any hazard can be expected.

 **Caution**

1. Keep your hand or finger away from cover in closing motion to prevent pinching.
 - Neglecting this caution may cause an injury.
2. The rivet feeder must be placed on flat place without slope.
 - Tumbling may cause an accident.
3. Transportation
 - Carrying the heavy system may throw out your back.
 - Protect your hand with gloves to lift the rivet feeder.
The sharp edge of the bottom area may hurt your hand.
4. Operate the rivet feeder with a good posture.
 - Be sure to have a good foothold and a good body balance.
5. Keep your workplace always clean.
 - Messy workplace or working bench may cause an accident.
6. Do not drop anything in case of high workplace.
 - Be sure to check no one is underneath. If someone is underneath, dropping materials such as rivets or shafts after cutting rivets may cause an accident.
7. Keep children away from workplace.
 - Do not allow anyone to touch the rivet feeder or the cable other than operators.
 - Keep any persons other than operators from the workplace.
8. Store the rivet feeder in good environment when it is not used.
 - Store it in dry condition. Keep it away from children.
9. Operate the rivet feeder with adequate capability.
 - Operate it with adequate speed for more safety and efficiency.
10. Operators must wear adequate clothes.
 - Do not wear baggy clothes or accessories such as necklaces because they may cause an accident such that they are enwound by rotor area.
 - Long hair must be covered by a cap or a hair cover.
11. Handle the cable with care.
 - Do not pull the cable to move the rivet feeder, or do not pull the cable to unplug from the power source.
 - Keep the cable away from heat, oils or sharp edge.
12. Keep up the rivet feeder with care.
 - Maintenance such as oil filling and attachments replacement must be done according to this operation manual.
 - The cable must be checked periodically. If any damage is found, request the repair to the sales representative you bought or Lobtex Co., Ltd.
 - In case of using an extension cable, check the cable periodically. If any damage is found, replace it with a new one.



13. Start up the rivet feeder with adequate process.
 - Do not cut power off while the switch is on.
 - Make sure that the switch is off before you put the plug to the power source.
14. Operate the rivet feeder with attention.
 - Operate the rivet feeder carefully paying attention to the handling method, the working method and the surrounding circumstances. Careless operation may cause an accident or an injury.
 - Outrageous actions may cause an accident or an injury.
15. Before using the rivet feeder, check any damage in each portion. If any damage is found, request the repair.
 - Before using the rivet feeder, check any damage in each portion carefully, and check if it operates normally and it fulfills its specified functions.
 - Do not use the rivet feeder if it can not be started or stopped by the switch.
16. Repairing service must be done at Lobtex Co., Ltd.
 - The rivet feeder complies with appropriate safety standard. Do not remodel it.
 - Be sure to request the repair to the sales representative you bought or to Lobtex Co., Ltd. Repair by an unauthorized agent may cause not only insufficient functions but also an accident or an injury.



Product Specification

Model name	ARF-700
Power Source	120V 220V 230V AC, 50/60 Hz
Power Consumption	60 W
Appropriate Air Pressure	0.49 to 0.59 MPa (5 to 6 kgf/ cm ²)
Air Consumption	5.7 Liter/ Rivet (Operation Time: 1 sec.)
Usable Rivet Size	Collar Diameter: 3.2 mm, 4.0 mm, 4.8 mm
Basket Capacity	2,000 Rivets (3.2 mm), 1,500 Rivets (4.0 mm), 1,000 Rivets (4.8 mm)

Operation Principle

Feeder (Main body)

1. The cam attached to the motor makes truck up and down to move rivets from the basket to the shoot, align them on the shoot and send them to the entrance of the escapement.
2. Signal sent from the feed head activates electromagnetic valve to send air to the escapement, make the selector forward and send air to the feed hose, and send a standby rivet to the feed head.
3. Signal sent from the feed head cuts air to make the selector backward, drop a rivet into the feed hose and make the rivet standby condition.
4. No signal sent from the feed head for 10 seconds stops the up-and-down movement of the truck. Once signal is sent, the truck resumes up-and-down movement.

Repeat the above action 1 through 4, to send rivets to the feed head.

Feed head

1. Inserting the frame head area of the riveter into the feed head makes the switch on and sends the signal to the main body.
2. Several seconds later, a rivets is mounted to the nosepiece. After that, pulling out the riveter stops air.

Miss-setup tank unit

1. In case that a rivet can not be setup at the riveter, the rivet drops into the tank and is stored in it.

Preparation before use

1. Place the miss-setup tank to the guide pipe of the feed head and fasten it with a hose band. Attach the feed head to the feed head pole or the working bench upward.
(Note) Be sure to attach the feed head upward. If it turns away, miss-setup tank can not be used.
 2. Insert the Tetron braid hose in Y-shape joint of the miss-setup tank and fasten it with a hose band.
 3. Place the feeder in any place and open the upper side of the feeder.
 4. Pass the hose joint area in the other end of the Tetron braid hose through the hole at the bottom of the front side of the feeder, insert it to the hole at the bottom of the escapement, and fix it with a butterfly bolt.
(Note) The length of the Tetron braid hose must be shorter because it affects the feeding time. The bent hose at a steep angle may cause blocking up of rivets.
 5. Close the upper side of the feeder.
 6. Use the cable with metal plugs in both ends. Connect one end with the feed head and connect the other end with the metal receptacle on the front face of the main body.
 7. Connect the air source with the back side of the main body, and adjust the air pressure in the range of between 0.49 to 0.59 MPa (5 to 6 kgf/cm²). (Air pressure must be checked with the pressure gauge on the front face of the main body.) Use the air coupler on the front face to supply air to the riveter.
(Note) Air filter, air regulator and lubricator must be mounted to the air source. Missing of those devices may shorten the machine life.
 8. Insert the power plug to the power source.
(Note) Be sure to connect the ground clip of the plug with ground securely.
- Vacuum mechanism must be incorporated in Riveter. (See below table)

Type	Model Number
Horizontal type	ARV-011M
	ARV-041M*1
	AR-2000SV*1
	AR-2000MV*1
Separate & Horizontal type	ARV-022M
Vertical type	ARV-015S
	ARV-015M
Separate & Vertical type	ARV-025M

(Note) Special frame head is needed to use these models(*1).

How to use

1. Open the acrylic cover on the top of the feeder and put rivets in the basket. Do not put rivets more than specified capacity. Excess rivets may cause blocking up of rivets.

Rivet Size	Capacity
3.2 mm Dia.	2,000
4.0 mm Dia.	1,500
4.8 mm Dia.	1,000

2. Turn on the switch on the front face of the feeder and align rivets on the shoot.
3. Insert the riveter to the feed head and press it for several seconds until rivets are set in the riveter.

(Note) First cycle of the operation feeds only air because a rivet is not standby at the bottom of the escapement. From second cycle, a rivet is fed.

In case that a rivet can not be setup at the riveter, the rivet drops into the miss-setup tank and is stored in it. Remove the rivets periodically.

4. Refill rivets when the remaining rivets in the basket are 50 or lower and the feeding speed goes down.

Troubleshooting

Problem	Possible Causes	Countermeasures
The truck does not move up and down when the switch is on.	The power plug is disconnected.	Connect the power plug securely.
	The fuse is blown out.	Replace the fuse with a new one (1 A) in the fuse holder on the front face of the feeder.
	The capacitor is broken. (In this case, the motor is groaning.) The resistance of the capacitor is zero.	Replace the capacitor with a new one.
	The motor is defective, such as disconnection.	Replace the motor with a new one.
	Disconnection of the wire to the motor.	Replace the disconnected wire with a new one.
	A foreign substance intervenes between the truck and the basket.	Remove the substance.
Air does not flow when the riveter is inserted to the feed head.	The air source is not connected with the feeder (main body).	Connect the air source with the plug on the back side of the feeder (main body).
	The fuse is blown out.	Replace the fuse with a new one (1 A) in the fuse holder on the front face of the feeder.
	The switch is defective inside of the feed head.	Replace the switch with a new one.
	The electromagnetic valve is defective inside of the feeder.	Replace the electromagnetic valve with a new one.
	The sequencer is defective.	Check the program of the sequencer. Replace the sequencer with a new one.
Air flows, but the selector does not move when the riveter is inserted to the feed head.	A foreign substance intervenes in the selector.	Remove the substance.
	Rivets are blocked out in the escapement in the main body.	Disconnect the Tetron braid hose, disconnect the hose joint and remove the blocked rivets.
	Air pressure is not sufficient.	Adjust the air pressure to the specified value.
	Misalignment between the exit of the basket and the entrance of the shoot.	Fix the misalignment.
Air flows and the selector moves, but a rivet is not set at the riveter when the riveter is inserted to the feed head.	The Tetron braid hose is folded down and rivets are blocked out in it	Remove the blocked rivets in the Tetron braid hose.
	Rivets are blocked out in the Y-shape joint.	Disassemble the Y-shape joint and remove the blocked rivets in it.

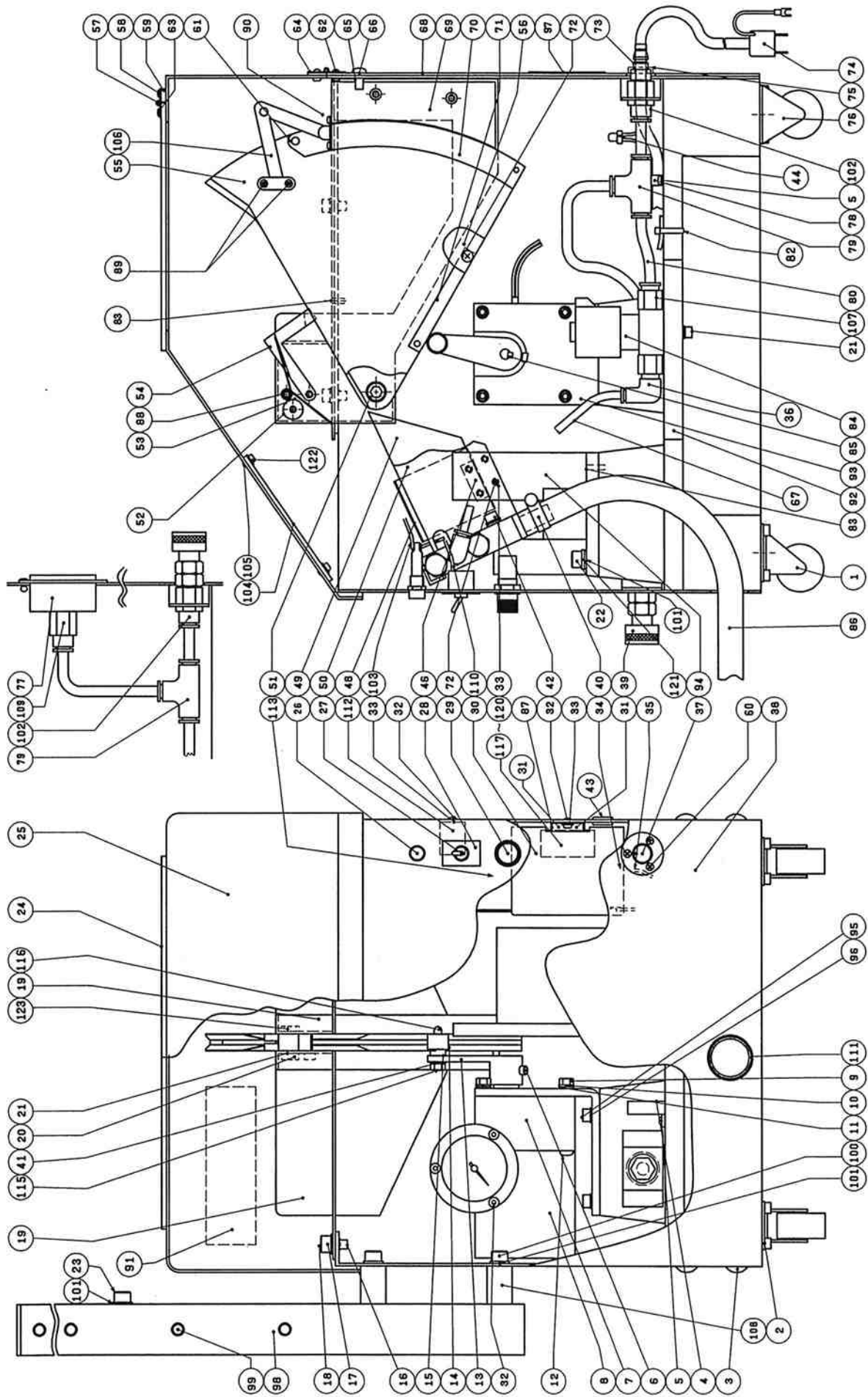
(Note) During operation, when the sequencer detects a defect inside of the main body caused by noise or a shock from outside, it makes all outputs zero and automatically halts the operation and the error lamp lights up on the front panel of the sequencer. In this case, call Lobtex.

Ordering Parts

Indicate the model, code No. and quantity as shown below when ordering.

Model	Part Name	Cord No.	Qty.
ARF700	Cam arm	18163	1
ARF700	Air joint	20928	1

*When parts are modified for improvement, the older parts are kept in stock for a period of five years.



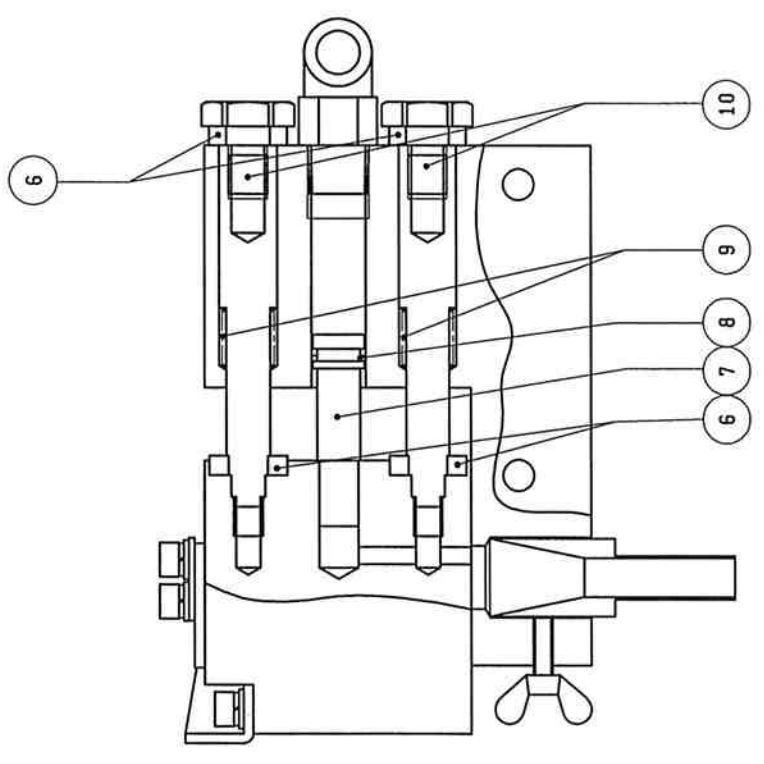
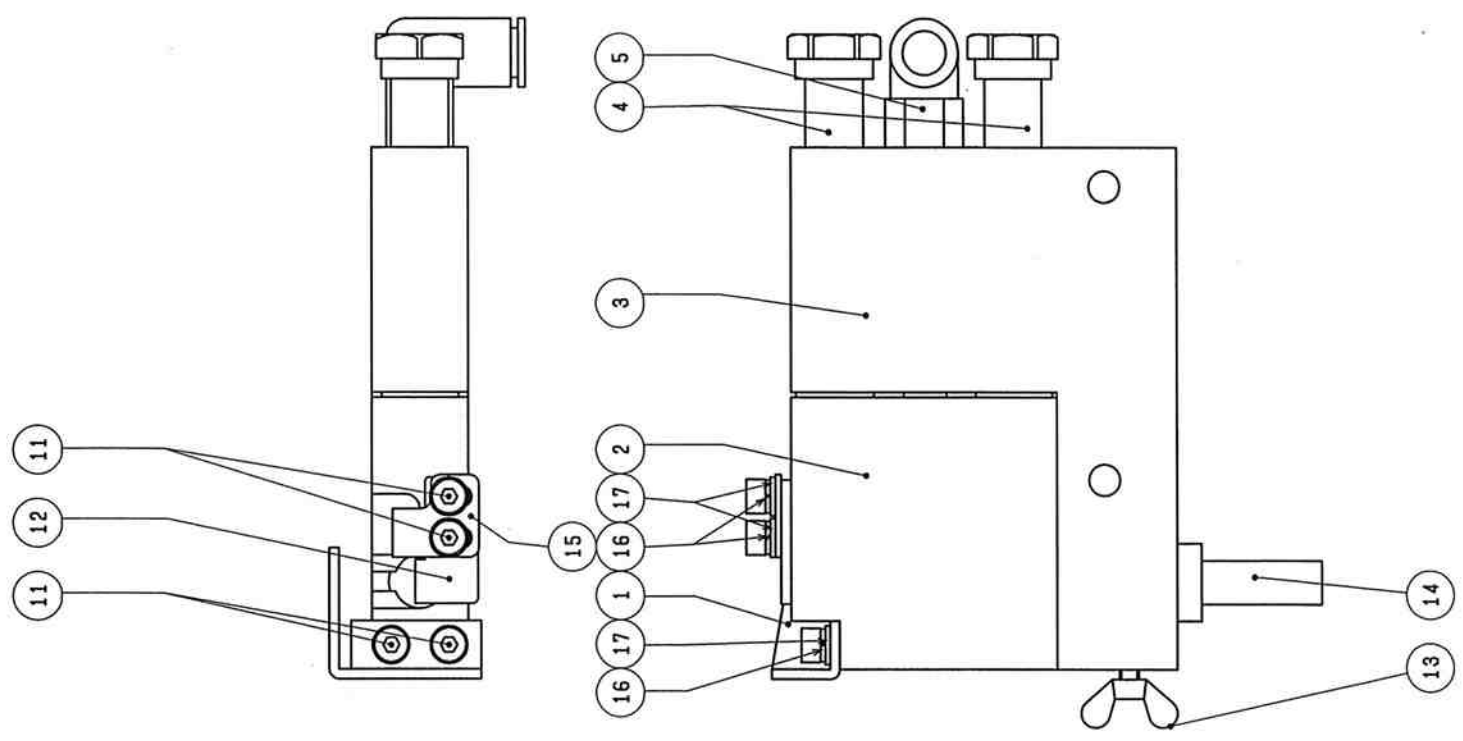
Feeder

Feeder part table

Index No.	Part name	Code No.
91	Name plate	20884
92	Base E.M unit	43587
93	Motor base	18162
94	Escapement base	18181
95	Hexagon socket head cap screw	20923
96	Plain washer	20911
97	Name plate	20940
98	Feed head pole	18160
99	Blind nut	—
100	Hexagon socket head cap screw	20867
101	Plain washer	25584
102	Air joint	20903
103	Insulated tube	25575
104	Window plate	20897
105	Blind rivet	—
106	Stay	20904
107	Air joint	20900
108	Pole spacer	18161
109	Air joint	20902
110	Insulated tube	25576
111	Flexible tube	20898
112	Wiring duct	20899
113	Short plate	25577
114	(Void)	—
115	Hexagon nut(M6)	—
116	Grease cup	—
117	End plate	28619
118	Number plate	28622
119	Terminal cover	28621
120	Fix plate	28623
121	Spring lock washer	20859
122	Plain washer	21539
123	Hexagon nut	25667

Index No.	Part name	Code No.
50	Shoot plate "R"	18171
51	Truck head pin	20886
52	Basket spacer "F"(4.8)	18205
53	Basket spacer "F"(4.0)	18201
54	Basket spacer "F"(3.2)	18190
55	Arm spring	20887
56	Arm(4.8)	20946
57	Arm(4.0)	20941
58	Arm(3.2)	20888
59	Truck plate "L"	18172
60	Truck plate "R"	18173
61	Hinge	20905
62	Blind rivet	—
63	Upper board spacer	18174
64	Cross recessed countersunk head screw	20914
65	Cross recessed countersunk head screw	20915
66	Cross recessed countersunk head screw	20915
67	Hinge	20906
68	Cross recessed countersunk head screw	20914
69	Blind nut	—
70	Cross recessed truss head screw	20916
71	Polyurethane tube	25574
72	Basket spacer "R"(4.8)	18175
73	Basket spacer "R"(4.0)	18196
74	Basket spacer "R"(3.2)	18176
75	Truck spacer "B"(4.8)	18207
76	Truck spacer "B"(4.0)	18197
77	Truck spacer "B"(3.2)	18177
78	Truck spacer "A"(4.8)	18208
79	Truck spacer "A"(4.0)	18198
80	Truck spacer "A"(3.2)	18178
81	Hexagon socket head cap screw	22862
82	Air joint	20889
83	Cable(VGT with plug)	28759
84	Ring	20890
85	Gaster	20869
86	Pressure gauge	20891
87	Cable clamp	20892
88	Air joint	20901
89	Polyurethane tube	20893
90	Hexagon socket head cap screw	20920
91	Cable band	14833
92	Spring pin	12914
93	Solenoid valve	28758
94	Square parallel key	—
95	Hose "10"	20885
96	Hose "12"	18277
97	Mouting rail	20895
98	Spacer	20896
99	Blind rivet	—
100	Cross recessed countersunk head screw	20917

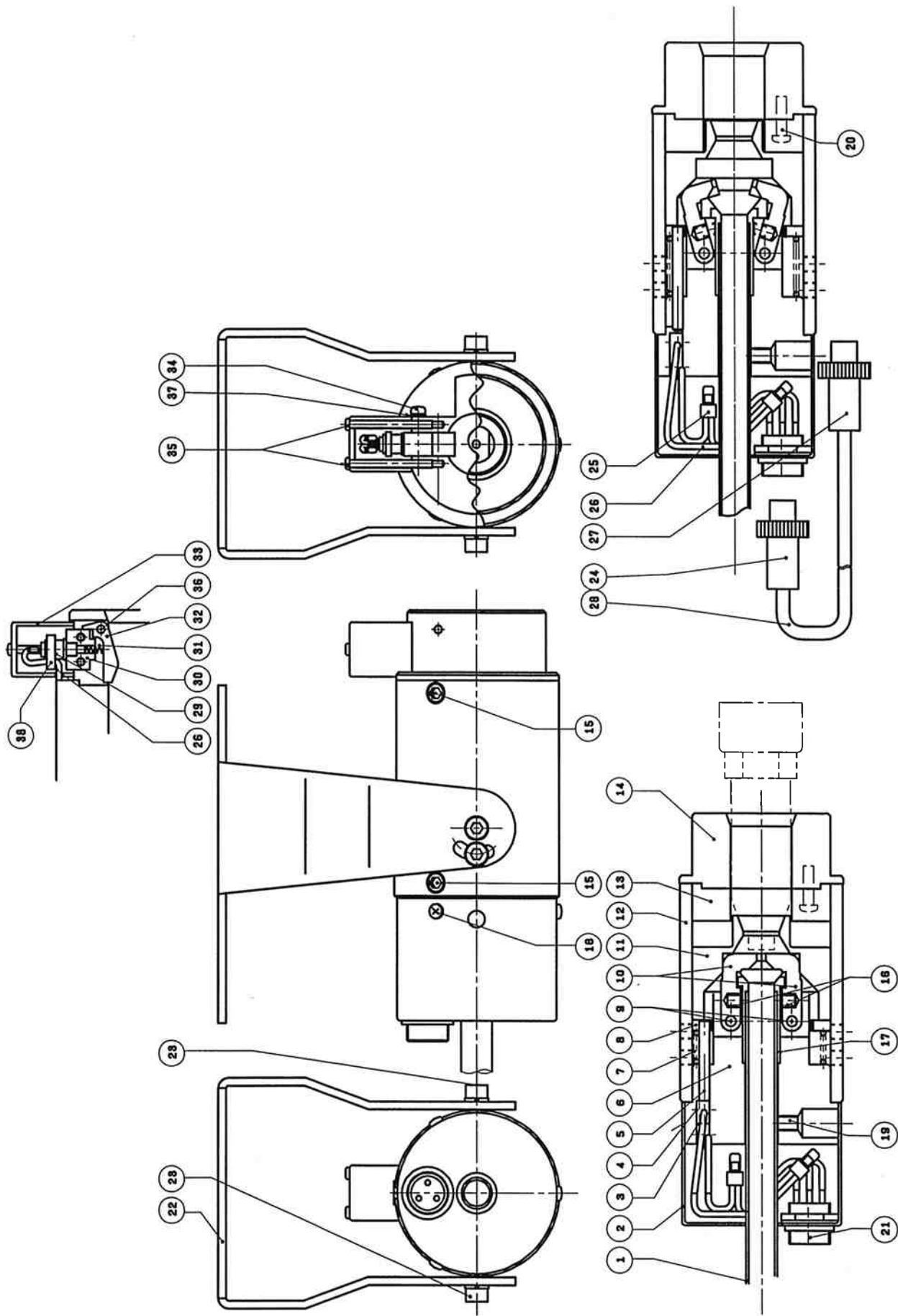
Index No.	Part name	Code No.
1	Gaster	20868
2	Hexagon socket head cap screw	20919
3	Cross recessed truss head screw	20916
4	Condenser	—
5	Cross recessed head screw	20912
6	Hexagon socket head cap screw	20918
7	Gear Head	47350
8	Motor(AG120V)	47349
9	Hexagon nut	—
10	Spring lock washer	20907
11	Plain washer	—
12	Cross recessed pan head screw	—
13	Cam arm	18163
14	Cam follower	20872
15	Plain washer	20911
16	Blind nut	—
17	Plain washer	42552
18	Hexagon socket head cap screw	20923
19	Basket unit	41276
20	Hexagon socket head cap screw	20920
21	Spring lock washer	20907
22	Hexagon socket head cap screw	15277
23	Hexagon socket head cap screw	20922
24	Upper board	20873
25	Cover	18166
26	Pilot lamp(Green)	20874
27	Switch	20875
28	Switch plate	18275
29	Fuse holder	20876
30	Fuse	18276
31	Programmable controller	20877
32	Terminal	28620
33	Blind rivet	—
34	Plain washer	20909
35	Insulated crimp-type terminal lug	20880
36	Cable(Yellow)	20879
37	Air joint	20928
38	Metal receptacle	25579
39	Body cover	18167
40	Air socket	20882
41	Hose band	20883
42	Spring lock washer	20908
43	Hexagon socket head cap screw	20924
44	Grommet	25573
45	Terminal lug	12846
46	(Void)	—
47	Shoot spacer(4.8)	18204
48	Shoot spacer(4.0)	18195
49	Shoot spacer(3.2)	18168
50	(Void)	—
51	Shoot cover	18169
52	Shoot plate "L"	18170



Escapement

Escapement parts table

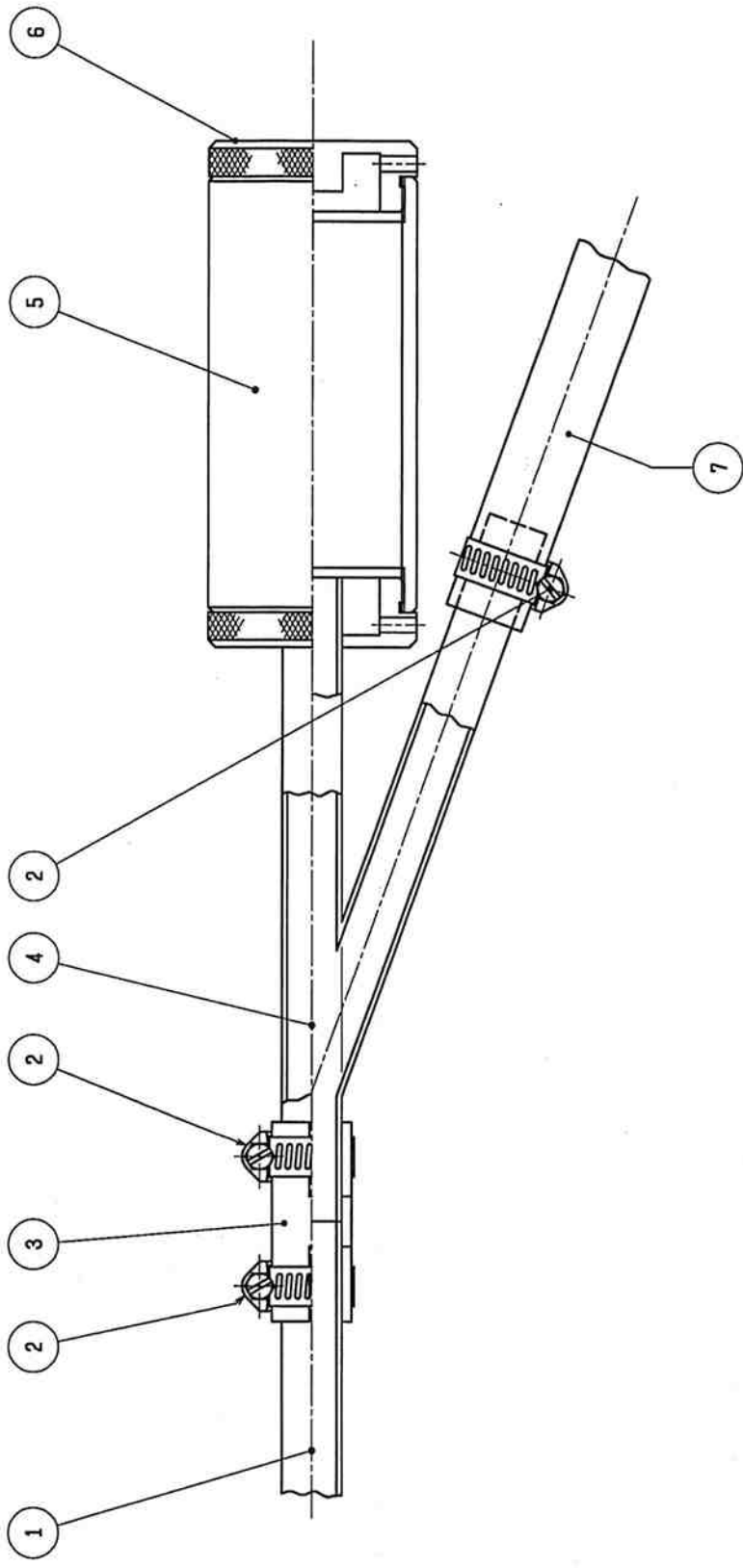
Index No.	Part name	Code No.
1	Selecter piece "3.2"	18182
	Selecter piece "4.8"	18199
2	Selecter	18183
3	Selecter base	18186
4	Guide rod	18187
5	Air joint	20928
6	Bumper	20925
7	Air piston	18185
8	O-ring	10366
9	Return spring	20926
10	Guide rod head	20927
11	Hexagon socket head cap screw	28979
12	Top plate(use only for 3.2)	18188
13	Wing bolt	20931
14	Hose joint "3.2"	18189
	Hose joint "4.8"	18210
15	Rivet guide	25572
16	Spring lock washer	20930
17	Plain washer	20909
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Feed head
14

Feed head parts table

Index No.	Part name	Code No.
1	Guide pipe(3.2)	18150
	Guide pipe(4.8)	18202
2	Cap	20851
3	Limit switch	44570
4	Cross recessed pan head screw	44955
5	Parallel pin	44712
6	Finger holder "LSW"	44569
7	Head return spring	18274
8	Pin holder	18156
9	Pin	25586
10	Finger(3.2)	18151
	Finger(4.8)	18203
11	Slider	18152
12	Frame	18153
13	Frame cap "B"	18154
14	Frame cap "A"	18155
15	Hexagon socket head cap screw	20918
16	Finger spring	20856
17	Holder collar	18157
18	Cross recessed pan head screw	20860
19	Hexagon socket set screw	20863
20	Cross recessed pan head screw	20913
21	Metal receptacle	47347
22	Head base	18158
23	Hexagon socket head cap screw	20862
24	Electric Metal plug	47348
25	Terminal lug	12846
26	Cable	20879
27	Electric Metal plug	20881
28	Cable	20935
29	Push switch "B"	25579
30	Switch base	25580
31	Switch spring "B"	12846
32	Switch lever	23984
33	Switch cover	25582
34	Cross recessed pan head screw	25587
35	Cross recessed pan head screw	25588
36	Spring pin	25589
37	Spring lock washer	12442
38	Cable band	15174
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Set—Miss tank

SET-MISS tank UNIT parts table

Index No.	Part name	Code No.
1	Guide pipe	-----
2	Hose band	20883
3	Pipe joint	20866
4	Y-Tipe Joint unit	28377
5	Tank	10261
6	Tank nut	10263
7	Hose	-----

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