Instruction Manual

Pallet Truck with Scale

Note: Owner/Operator must read and understand this instruction manual before using the pallet truck with scale.

Thank you for using this hand pallet truck with scale. For your safety and correct operation of the scale, please read these instructions carefully before using it.

NOTE: (1) All of the information reported herein is based on data available at the moment of printing. The factory reserves the right to modify its own products at any moment without notice and incurring any sanction. So it is suggested to always verify possible updates.

(2) Prior to use this hand pallet truck with scale, the battery of scale must be charged enough.

1. GENERAL SPECIFICATIONS

Model	Capacity	Graduation	Weighing Accuracy	Fork size		
				Length	Width over forks	Fork Width
ZF20S	2000 kg	1 kg	± 0.1%	1150mm	555mm	180mm
ZF20L	2000 kg	1 kg	± 0.1%	1150mm	690mm	180mm
ZFP20S	2000kg	1 kg	± 0.1%	1150mm	555mm	180mm
ZFP20L	2000kg	1 kg	± 0.1%	1150mm	690mm	180mm

Materials and specifications are subject to change without notice.

2. TO ATTACH HANDLE TO PUMP UNIT

2.1 Loosen the setting screw (140H) on the crank link (139H).

2.2 Remove three screws (H109) and three spring washers (H110) from the base (103).

2.3 Place the handle (H101) on the base (103), please note: Feed the rod and chain (H107) through the centre of the base (103) and axle (109).

2.4 Insert three screws (H109) with spring washers (H110) into the base (103). Then tighten them securely.

2.5 Raise the crank link (139H) and put the pin on rod and chain (H107) into the groove of crank link (139H).

3. TO ADJUST RELEASE DEVICE

On the handle of the pallet truck, you will find the control lever (H106) which can be set in three positions (See Fig. 1): LOWER=to lower the forks; NEUTRAL=to move the load; ASCENT=to raise the forks. After assembling the handle, you can adjust the three positions.

3.1 First tighten the setting screw (140H) on the crank link (139H) until the LOWER position function works.

3.2 If the forks elevate while pumping in the NEUTRAL position, turn the setting screw (140H) clockwise until pumping the handle does not raise the forks and the NEUTRAL position functions correctly.

3.3 If the forks descend while pumping in the NEUTRAL position, turn the setting screw (140H) counter-clockwise until the forks do not lower.

3.4 If the forks do not descend when the control lever (H106) is in the LOWER position, turn the setting screw (140H) clockwise until raising the control lever (H106) lowers the forks. Then check the NEUTRAL position as per item 3.2 and 3.3.

3.5 If the forks do not lift while pumping in the ASCENT position, turn the setting screw (140H) counter-clockwise until the forks elevate while pumping in the ASCENT position. Then check the NEUTRAL and LOWER position as per item 3.2, 3.3 and 3.4.

4. MAINTENANCE

4.1 Oil

Please check the oil level every six months. The volume of oil is about 0.3lt. Use the hydraulic type oil according to temperature scale below.

Temperature	Oil
-5℃~+45℃	L-HM68 Hydraulic oil (equivalent to ISO VG68)
-15℃~-5℃	L-HM46 Hydraulic oil (equivalent to ISO VG46)

4.2 How to expel air from the pump unit

Air may get into the hydraulics during transportation or when a pump is stored upside down. This can prevent the forks from lifting while pumping with the lever in the ASCENT position. The air can be expelled in the following way: Lift the control lever (H106) to the LOWER position, then move the handle (H1501) up and down several times.

4.3 Daily check and maintenance

Daily check of the pallet truck will limit wear as much as possible. Give special attention to the wheels (127, F116 or F117), the axles (F114, F118, F121, F122), the handle (H101), the forks (F110) and lift and lower control. The forks should be unloaded and lowered in the lowest position when the job is over.

4.4 Lubrication

Use motor oil or grease to lubricate all moveable parts.

5. GUIDE TO SAFE OPERATION

For safe operation of the truck, please read all warning signs and instructions here and on the truck before using this truck.

5.1 Do not operate the pallet truck unless you are familiar with it and have been trained or authorised to do so.

5.2 Do not operate the truck unless you have checked its condition. Give special attention to the wheels, the handle assembly, the forks, lift and the lower control.

5.3 Do not use the truck on sloping ground.

5.4 Never place any part of your body in the lifting mechanism or under the forks or load. Do not carry passengers.

5.5 The operator should wear gloves and safety shoes for protection.

5.6 Do not handle unstable or loosely stacked loads.

5.7 Do not overload the truck.

5.8 Do not subject to unbalanced load, either side to side or along the length of the frame (refer to Fig. 2/B).

5.9 The capacity of the truck assumes an evenly distributed load with the centre of the load being at the halfway point of the length of the forks (refer to Fig. 2)

5.10 Make sure that length of the forks matches the length of the pallet.

5.11 Lower the forks to lowest height when the truck is not being used.

5.12 At other specific conditions or places, the operator should operate the pallet truck carefully.

6. TROUBLE SHOOTING

NO	TROUBLE	CAUSE	SOLUTION
1	The forks cannot be lifted to max. height.	-There is not enough hydraulic oil.	- Pour in enough filtered oil.
2	The forks do not lift up.	-There is no hydraulic oil. -The oil has impurities. -Discharge valve is out of adjustment. -Air in the hydraulic oil.	-Pour in more filtered oil. -Change the oil. -Adjust the setting screw (140H) (See item 3.5). -Expel the air (See item 4.2).
3	The forks cannot be lowered.	-The rod (102) and the cylinder (159H) becomes deformed due to serious unbalanced load. -Component deformation due to unbalanced load. -The forks were kept at high position for long time with rod (102) bared which became rusty. -The setting screw (140H) is not in the correct position.	-Replace the rod (102) or cylinder (159H). -Repair or replace component to make it run smoothly. -Remove the rust on the rod (102). Keep the forks at lowered when not in use. -Adjust the setting screw (140H) (See item 3.4)

4	Leaks	-Seals worn out or damaged. -Some parts may be cracked or worn out.	-Replace seals with new ones. -Check and replace with new ones.
5	The forks descend without being lowered.	-Impurities in the oil cause the discharge valve (B) to fail to close. -Air in the oil. -Seals worn or damaged. -Discharge valve (B) is out of adjustment.	-Replace with filtered oil. -Expel the air (See item 4.2). -Replace with new ones. -Adjust the setting screw (140H) (See item 3.3).

***NOTE: DO NOT ATTEMPT TO REPAIR THE PALLET TRUCK UNLESS YOU ARE TRAINED AND AUTHORIZED TO DO SO.**

7. WEIGHING OPERATION

7.1 Put the control lever in the LOWER position and lower the truck to lowest position.

7.2 Press the ① key to turn the system on. After the start-up sequence the indicator will display the weight.

7.3 Weighing method for gross weight::
Press the →0← key to set the gross weight to 0. Put the forks under the pallet and check that the load is properly balanced. Put the control lever in the ASCENT position, pump the handle to make the forks rise until the pallet has left the ground. When the indicator is stable, the gross weight of the goods (total weight of the pallet and the goods) is shown.

7.4 Weighing method for net weight:
To display the weight of the goods without the weight of the pallet (or other container):

7.4.1 Weigh single standard pallet, for example: weight of pallet: 40kg.

7.4.2 Press the →0← key, the indicator will display “0kg”.

7.4.3 Remove the pallet from the forks, the indicator will display “-40kg”.

7.4.4 Weigh the goods on the pallet as shown in 7.3, when the indicator is stable, the net weight of the goods is shown.

7.5 Switch between kg and lb.
When the weight is shown in kg’s, press the lb/kg key shortly and the unit shown will switch to lb. Press the lb/kg key again and the unit shown will switch back to kg.

7.6 Totalling:

7.6.1 Press the Σ to add the weight of the pallet to the total weight. If there is a printer, the weight of the pallet will be printed.

7.6.2 Press and hold the Σ key to display the total weight. The weight of the pallet will not be added to total weight.

7.6.3 When the total is shown, press the Σ shortly to reset the total weight to 0. If there is a printer, the total weight will be printed.

7.7 Turn off the Indicator
Press the ① key until the indicator displays “OFF”. Releasing the key will turn off the indicator.

8. BATTERY POWER DATA AND REPLACEMENT

The indicator on the pallet truck scale uses 4 “AA” size batteries as power. You are recommended to use alkaline battery. Also you can use rechargeable battery, which we recommend when there is a printer. Change the batteries when ▭ is shown in the display.

8.1 How to change batteries:

8.1.1 Loosen the screws on the battery cover and remove the cover.

8.1.2 Replace the 4 “AA” batteries in the battery holder, taking care to place them in the same direction.

8.1.3 Screw the battery cover plate back into position.

Fig.1

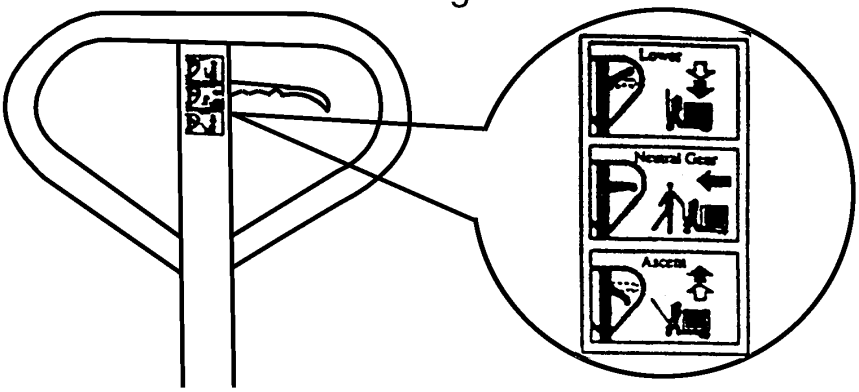
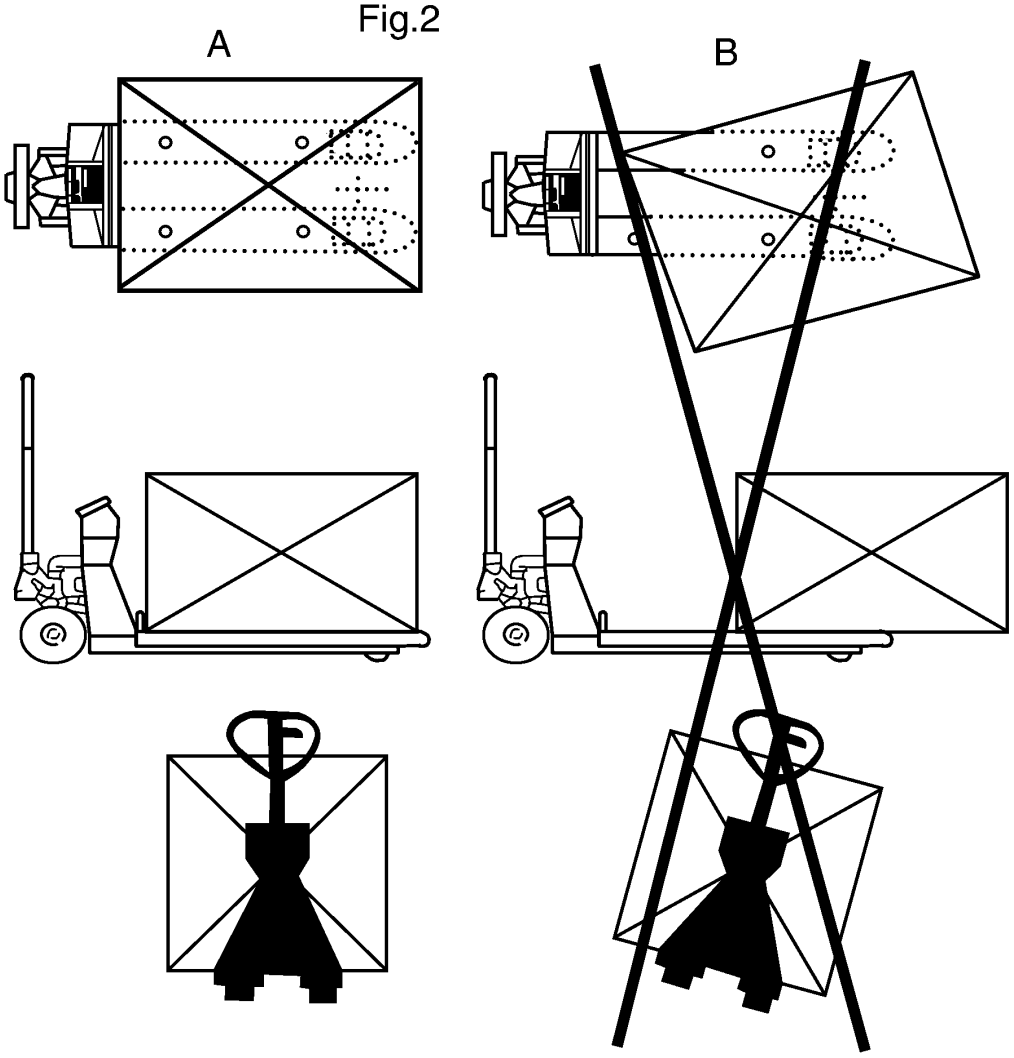
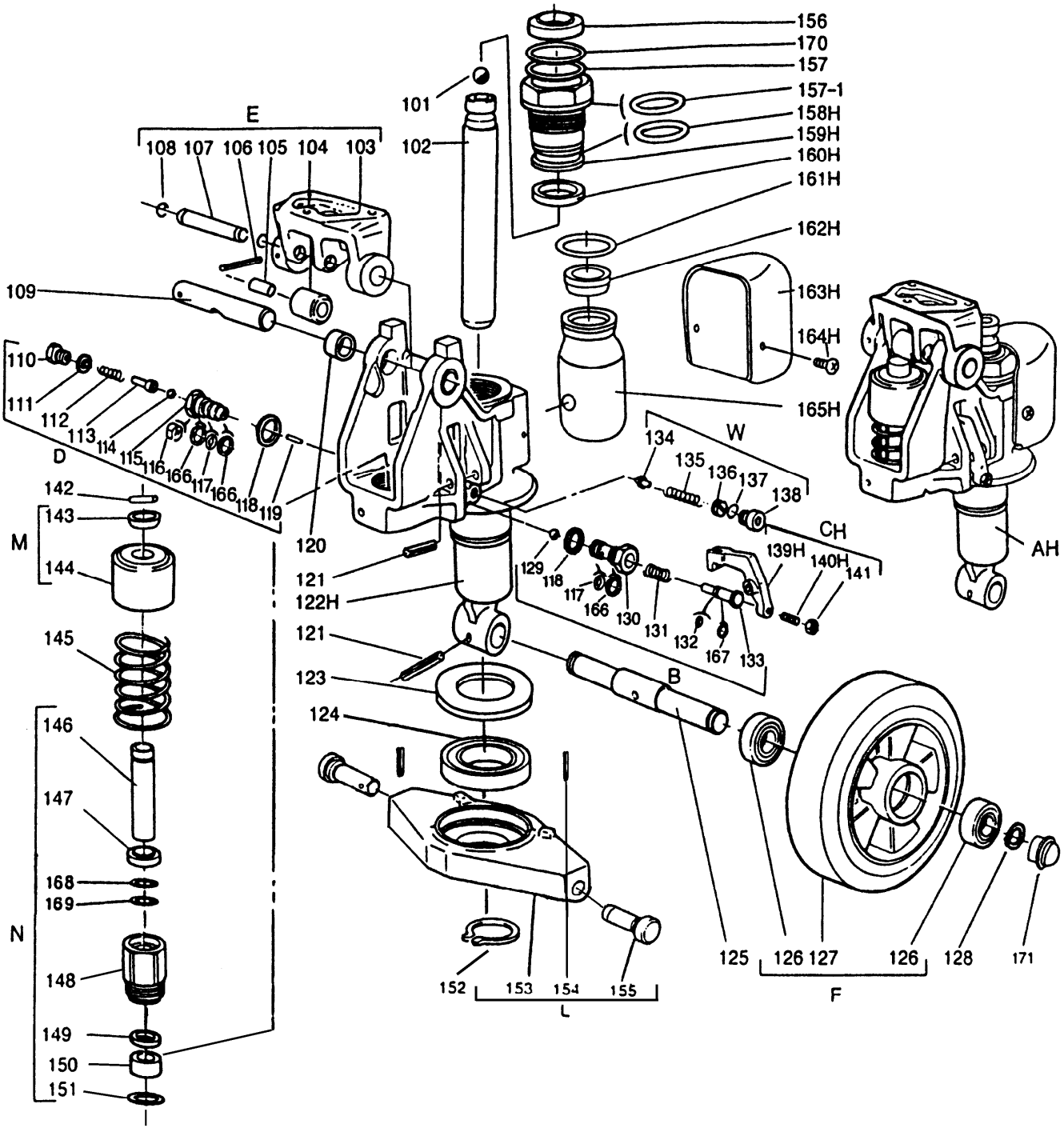


Fig.2



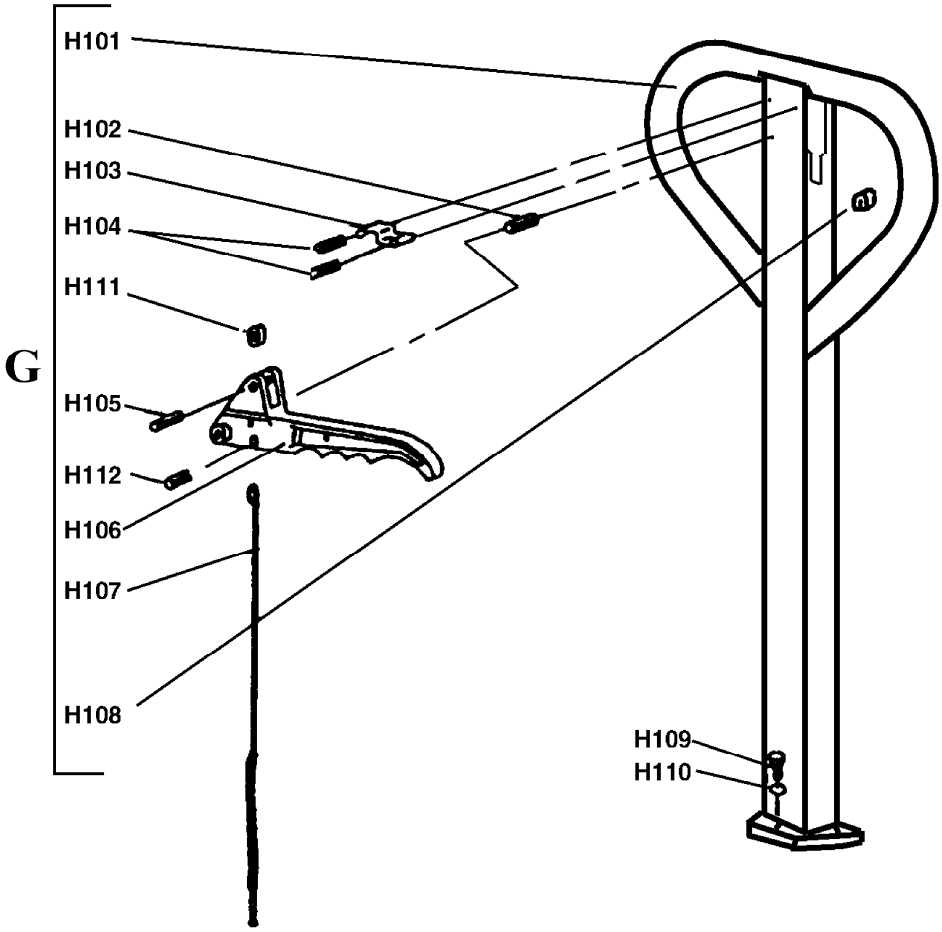
PARTS DRAWING OF PUMP ASSEMBLY



PARTS LIST OF PUMP ASSEMBLY

No.	Description	Q'ty	No.	Description	Q'ty
101	Steel ball	1	136	Pressure regulating screw O-ring	1
102	Rod	1	137	Screw	1
103	Base	1	138	Crank link	1
104	Steel roller	1	139H	Setting screw	1
105	Bushing	1	140H	Nut	1
106	Pin	1	141	Parallel pin	1
107	Shaft	2	142	Retaining cover	1
108	Retaining ring	1	143	Spring cover	1
109	Axle	1	144	Spring	1
110	Screw	1	145	Pump rod	1
111	Washer	1	146	Dust proof ring	1
112	Spring	1	147	Pump cylinder	1
113	Pressure rod	1	148	Seal ring	1
114	Steel ball	1	149	Nylon bushing	1
115	Pressure valve body	1	150	Red copper washer	1
116	Split ring	1	151	Retaining ring	1
117	O-ring	2	152	Rhombus plate	1
118	Washer	2	153	Pin	1
119	Steel needle	1	154	Dowel pin	2
120	Bushing	2	155	Dust proof ring	2
121	Pin	2	156	O-ring	1
122H	Pump body	1	157	O-ring	1
123	Dust cover	1	157-1	O-ring	1
124	Bearing	1	158H	Cylinder	1
125	Steering wheel axle	1	159H	Seal ring	1
126	Bearing	4	160H	O-ring	1
127A	Steering wheel, Nylon	2	161H	Filler plug	1
127B	Steering wheel, Polyurethane	2	162H	Reservoir cover	1
127C	Steering wheel, Poly/Nylon	2	163H	Screw	1
127D	Steering wheel, Rubber	2	164H	Reservoir	2
128	Retaining ring	2	165H	Retainer	1
129	Steel ball	1	166	Retainer	3
130	Discharge valve body	1	167	Retainer	1
131	Spring	1	168	O-ring	1
132	O-ring	1	169	Retainer	1
133	Discharge valve shaft	1	170	Dust cover	1
134	Valve taper core	1	171	Bearing Cover	2
135	Spring	1			

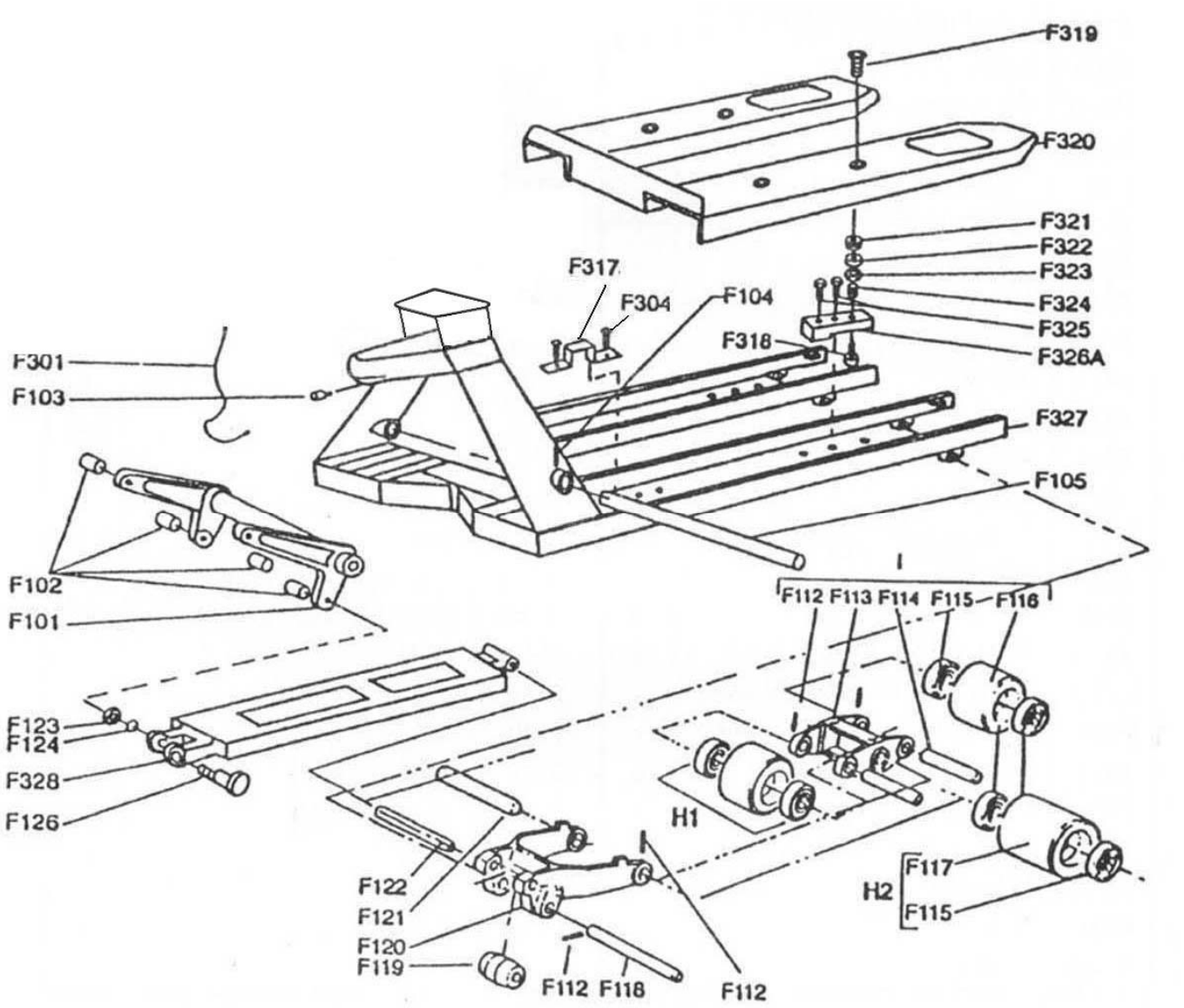
PARTS DRAWING OF HANDLE



PARTS LIST OF HANDLE

No.	Description	Q'ty	No.	Description	Q'ty
H101	Handle	1	H107	Rod and chain	1
H102	Spring pin	1	H108	Rubber cushion	1
H103	Spring leaf	1	H109	Screw	3
H104	Spring pin	2	H110	Spring washer	3
H105	Spring pin	1	H111	Nylon roller	1
H106	Control lever	1	H112	Spring pin	1

PARTS DRAWING OF FRAME

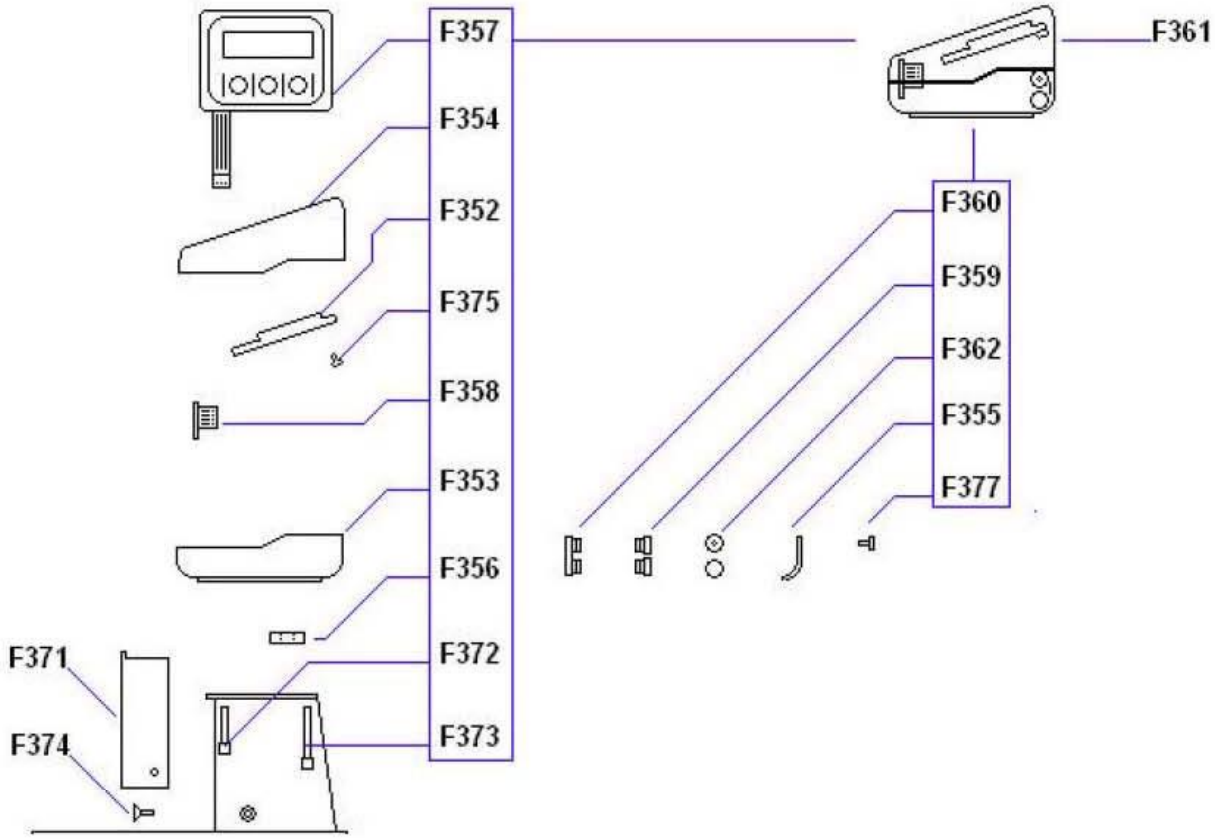


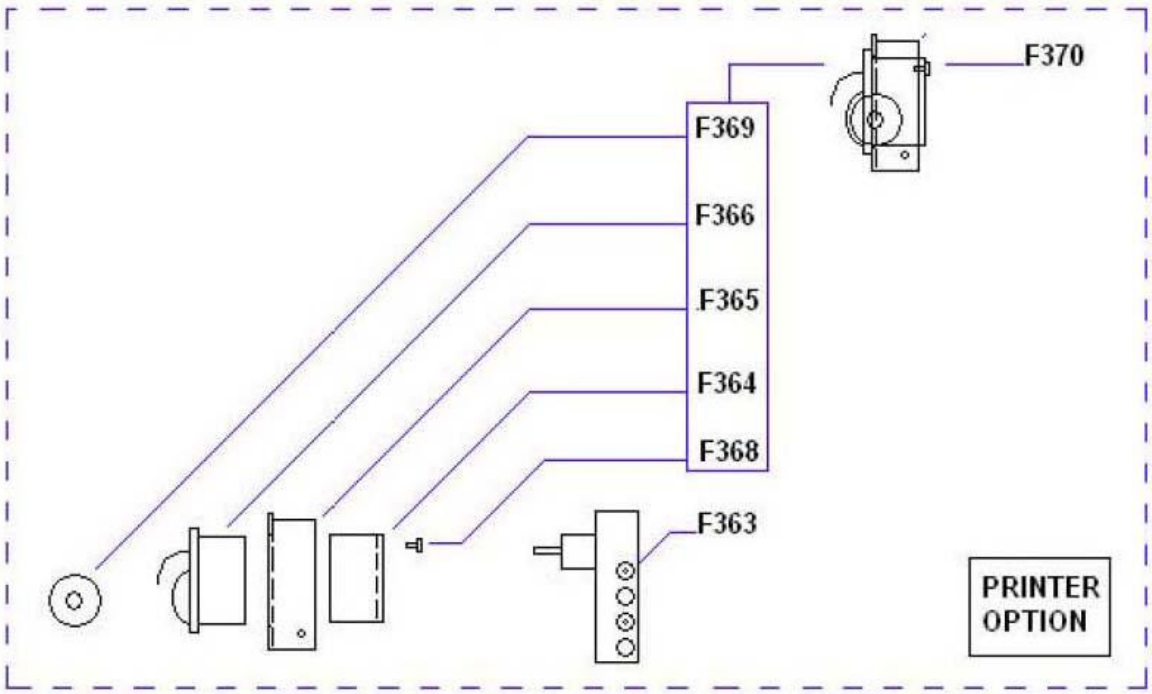
PARTS LIST OF FRAME

No.	Description	Q'ty	No.	Description	Q'ty
F301	Signal wire	1	F101	Torsion tube assembly	1
F304	Screw	8	F102	Bushing	4
F317	Wire clip	2	F103	Hexagon socket screw	1
F318	Screw	4	F104	Spring pin	1
F319	Fix screw	4	F105	Torsion tube shaft	1
F320S	Cover plate assembly (555mm)	1	F112	Spring pin	8/4*
F320L	Cover plate assembly (690mm)	1	F113	H-link	2
F321	Convex spherical washer	4	F114	Load roller axle	4
F322	Concave spherical washer	4	F115	Bearing	8/4*
F323	Nut	4	F116B	Poly load roller, tandem type	4
F324	Set screw	4	F117B	Poly load roller, single type	2
F325	Bolt	8	F118	Axle	2
F326A	Load cell	4	F119	Roller	2
F327S	Frame (555mm)	1	F120	Wheel frame	2
F327L	Frame (690mm)	1	F121	H-link axle	2
F328	Pull rod	2	F122	Pull rod axle	2
			F123	Nut	2
			F124	Spring washer	2
			F126	Eccentric pin	2

Note*: Quantity for tandem roller is 8, for single roller is 4.

PARTS DRAWING OF INDICATOR





PARTS LIST OF INDICATOR

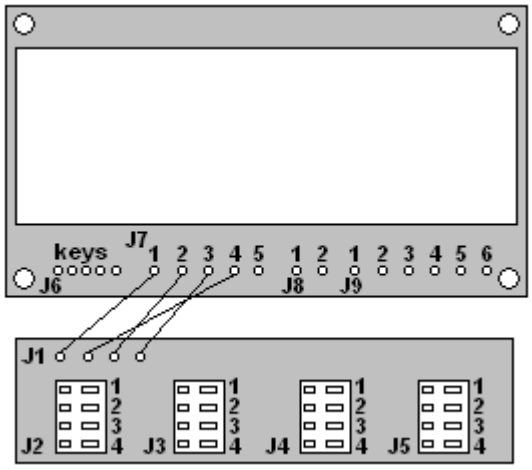
NO.	Description	Quantity
F353	Lower part of display housing	1
F354	Upper part of display housing	1
F356	Rubber for cable enclosure	1
F357	Touch panel	1
F358	Load cell connection board	1
F359	Battery contact clamp	2
F360	Battery contact clamp (double)	1
F361	Complete indicator (for system without printer)	1
	Complete indicator (for system with printer)	1
F362	Battery	4
	Rechargeable battery	4
F363	Charger including 4 rechargeable batteries	1
F364	Printer bracket	1
F365	Mounting support for printer	1
F366	Printer module	1
F368	Screw for printer	3
F369	Printer paper roll	package of 5 rolls
F370	Complete printer module	1
F371	Cover (systems without printer)	1
F372	Bolt M5x25	2
F373	Bolt M5x40	2
F374	Bolt M4x8	2
F377	Bolt M3 x 8	

ASSEMBLY LIST

Assembly	Description
AH	Pump unit
B	Lowering valve assembly
CH	Lowering screw assembly
D	Hydraulic valve assembly
E	Handle seat assembly
F2	Polyurethane steering wheel assembly
G	Handle assembly
H1B	Polyurethane load roller assembly (tandem type)
H2B	Polyurethane load roller (single type)
I2	Tandem Polyurethane load roller system assembly
L	Rhombus plate assembly
M	Spring cover assembly
N	Pump piston assembly
W	Safety valve assembly
SH	*Seal kit

*Note: Seal kit include following parts: 111, 117, 118, 132, 137, 147, 149, 151, 156H, 157, 158H, 160H, 161H.

9. WIRING DIAGRAM OF SCALE, JUNCTION BOX, SENSOR



J1 – Conneciton to indicator board		
1	brown	Ex-
2	yellow	Ex+
3	white	sig-
4	green	sig+
J2 – J4 Connection from load cells		
1	green	sig+
2	white	sig-
3	red	Ex+
4	black	Ex-
J6 – Connection to touch panel		
J7 – Connection from load cell board		
1	brown	Ex-
2	white	sig-
3	green	sig+
4	yellow	Ex+
5		Sh
J8 – Connection from power supply		
1	black	Gnd
2	red	+6v
J8 – Connection to printer		
1		
2	red	+
3	green	TX
4	white	RX
5	black	CTS
6	yellow	RTS

10. CHANGING THE PAPER

10.1 Pull the lever to open the cover of the printer. Place the paper roll. Make sure the flap is at the top of the printer, facing towards you. Hold on to the paper when closing the printer. Push the cover closed firmly.

11. TROUBLE SHOOTING OF WEIGHING UNIT

NO	TROUBLE	CAUSE	SHOOTING
1	HELP1 in the display	-The load is too big for the scale	-Remove the load immediately.
2	Text is not printed clearly on the ticket	-Battery voltage is too low	-Charge the batteries.
3	The scale is not accurate	-The fork shoe is touching the bottom part of the scale -Cable in junction box is loose. -1 of the load cells is broken	-Remove anything that restricts the movement of the scale. -Check the connection in junction box after confirming safe. -Stand on the 4 corners of the scale. The load cell in the corner with a different weight should be replaced.

4	Indicator can't be turned on.	-Battery voltage is too low. -Battery life is complete. -Charger is damaged.	-Charge the batteries. -Replace rechargeable battery with new ones. -Check charger output voltage replace charger with new one.
5	Battery can't be charged.	-Battery is damaged. -Charger is damaged.	-Replace rechargeable battery with new ones. -Check charger output voltage replace charger with new one.