SERVICE MANUAL
ILLUSTRATED PARTS LIST

FPi 5000
Inserting System

FRANCOTYP-POSTALIA

FPI 5000 I
FPI 5000 C

FPI 5000 Collator

rev. 01.0 - 01/2002

Contents

General

Contents

Used symbols

In this manual the following symbols are used.

Warning, this symbol indicates a wrong action which can cause a hazard to health or damage the machine.

Warning, this symbol indicates a hazard to life because of high voltage.

1 Function

The FPI 5000 C is a document processing device that transports, collates and aligns documents from one or two feed stations (each equipped with two feeding devices) and feeds the documents with or without folding to the inserter (FPI 5000 C).

General note. This documents describes the feed- and folding device FPI 5000 C. No specific part number is given to the FPI 5000 C as this device can be configured in several ways.

2 Specifications

2.1 Machine specifications

Model		: FPI 5000 C		
Type		: document processing device for medium office use.		
Overall Dimensions		2-station module	4-station module	6-station module
	height	: 735 mm (22.4 inch)	735 mm (29.3 inch)	920 mm (36.2 inch)
	width	: 460mm (16.5 inch)		
	length	: 750 mm (29.5 inch)		
Weight		: 2-station module approx. 54 kg (119 lbs) 4-station module approx. 63 kg (138.8 lbs) 6-station module approx. 74.0 kg (163 lbs)		
Noise level		: refer to FPI 5000 I Inserter noise level.		
Theoretical max. speed		: refer to FPI 5000 I Inserter theoretical max. speed.		
Operating temperature		: 10 - 40°C (50 - 104°F)		
Humidity		: 10 - 80%		
Power consumption		: low voltage supplied by the inserter.		
Approvals		: conforms to IEC 950 and derivatives. UL listed ITE, File E153801 BS EN60950, File KM11322		

2.2 Paper insert specifications

Paper sizes		minimum	maximum
	width*	: 130 mm (5.1 inch)	236 mm (9.5 inch)
	length	: 90 mm (3.5 inch)	356 mm (14.0 inch)
		Booklets depending on envelope size (inserter)	
Quality**		: 60 gr/m² (15 lb bond)	250 gr/m² (62.5 lb bond)
		Booklets up to approximately 2 mm (0.08 inch) thickness, depending on stiffness.	

* When folded max. 230 mm (9.1 inch)

** When folded max. 170 gr/m^2.

Folding capacity : 8 sheets (max. 80 gr/m²)

2.3 Envelope insert specifications

Envelope sizes : Standard BRE (Business Reply Envelopes)

Quality	: 80 gr/m² (20 lb bond)	120 gr/m² (30 lb bond)

Remarks

- Self-copying paper may cause rubber parts to wear quicker. The rubber used in this machine has the best resistance to Wiggins Teape material.
- The specification of the paper handling equipment is often wider than that of the envelopes and documents handled. The condition of material handled will limit the specified environmental conditions.
- We recommend that materials to be handled are stored at a temperature of 20°C (68°F) with a relative humidity factor of 50%. If difference in temperature occurs between store room and mailing area, the material has to be stored near the machine at least 24 hours before use.

3 Preparing the machine for use

First the machine must be unpacked. Then it must be mechanically and electrically hooked up with the FPI 5000 I Inserter of which the paper processing configuration as a whole exists. After unpacking and installing, the machine is ready for use.

3.1 Unpacking

3.2 Unpacking instruction

4 Preventive maintenance

Recommended preventive maintenance checkpoints

In the following it is assumed that if any unscheduled service call is less than a month prior to a preventive maintenance call, it will replace that latter.

1 Ask how the machine has worked and use that information as a guide for checking the equipment.
2 Ask if there has been change in use of the machine, such as high production or change of material.
3 Check the machine adjustments and check materials and, if necessary, instruct the operator(s) again. (Many service calls are caused by wrong adjustments or wrong material, and sometimes there is a quick succession of operators. Here a five or ten minutes refresher course would save unnecessary and embarrassing service calls in the future).
4 Test the proper functioning of the safety switches of the vertical transport track and the folder.
5 Check condition of the separation rollers, adjust or replace if necessary.
6 Check the tension and condition of the belts, adjust or replace if necessary
7 Check the condition of the rubber rollers, clean or replace if worn.
8 Check the condition of the pulleys and gears, replace if necessary.
9 Remove paper dust from photocells (LEDs and receivers).
10 Test the system hardware and software using the service software.

If available make a test run with “users” material; if not, use own material for the test run.

Process description

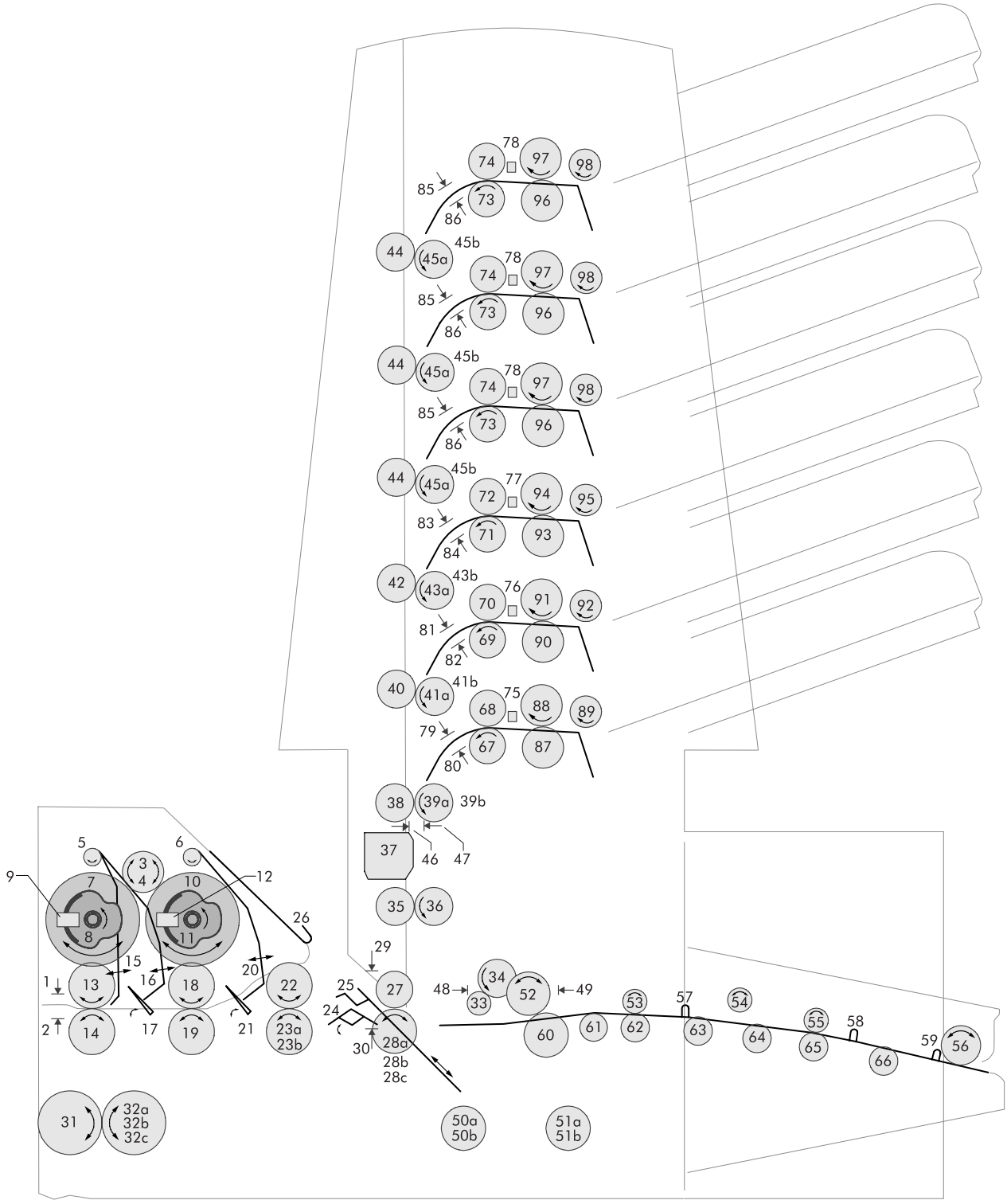
Contents

1 Overview

The processing of documents by the FPI 5000 C and its attached feeders can be divided into a number of distinct sequential partial processes. These processes will be discussed in some more detail:

- Feeding documents (the Vario Feed concept).
- Vertical document transport.
- Transport to and from the collator area.
- The Divert & Go divert process (only if the optional divert subsystem is present).
- The multifeed shunt process (only if the optional divert subsystem is present).
- The Eight in One folding process, including exit to the FPI 5000 I.

The figure on the foldout page 520.01-6 shows a schematic overview of the process. All mechanical items that are strictly necessary to explain the process are projected on the LH side of the machine. This implies that not all auxiliary mechanical items (such as gears, belts et cetera) are shown; using the concept of LH projection, this would make this figure pretty unreadable. However, some global information on the main mechanical drive systems is included in this process description. Refer to the FPI 5000 C mechanical description (document 520.02) for full details on the FPI 5000 C mechanics.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23a
23b
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32a
32b
32c
50a
50b
51a
51b

figure 1.1

2 Legend

Note 1. Parts with an arrow are mechanically driven (by the FPI 5000 I or by a DC motor).

Note 2. For reasons of cross-reference the nomenclature for sensors and actuators as used in the electrical description (document 134.03) is mentioned here as well. (Tx = transmitter; Rx = receiver.)

1	Folder output photocell VPH4: Tx (led)
2	Folder output photocell VPH4: Rx (sensor)
3	Second fold table clutch VCL4 (LH). Drives 7.
4	First fold table clutch VCL3 (RH). Drives 10.
5	Control axle for second fold table. Hinge for 15 and 16. Moves the lever that in its turn moves the flap actuator of 17 upwards (CW).
6	Control axle for first fold table. Hinge for 20. Moves the lever that in its turn moves the flap actuator of 21 upwards (CW).
7	Curve gears for fold table 2 (1x LH, 1x RH). Controls movement of 15 and 16.
8	Brake disc for fold table 2 (LH). Spring loading ensures two static mechanical states.
9	Slotted photocell VSPH3 for second fold table
10	Curve gears for fold table 1 (1x LH, 1x RH). Controls movement of 20.
11	Brake disc for fold table 1 (LH). Spring loading ensures two static mechanical states.
12	Slotted photocell VSPH2 for first fold table
13	Upper fold roller for second fold table
14	Lower fold roller for second fold table
15	Moving paper guide for second fold table
16	Fold plate for second fold table
17	Flap for second fold table
18	Upper fold roller for first fold table
19	Lower fold roller for first fold table
20	Fold plate for first fold table
21	Flap for first fold table
22	Upper fold input roller
23a	Lower fold input roller
23b	Fold clutch VCL2. Drives at the LH side 23a, 19, 14 and clutch 28b. Drives (via 23a) at the RH side 22, 18, 13 and clutches 3, 4 and 28c.
24	Divert flap. Driven by motor VM2 and controlled by slotted photocell VSPH5.
25	Divert actuator. Driven by motor VM2 and controlled by slotted photocell VSPH5.
26	Divert area
27	Counter rollers for 28a (in vertical transport cover)
28a	Shunt rollers
28b	Forward shunt clutch VCL5 (LH). Drives 28a in downstream direction.
28c	Reverse shunt clutch VCL6 (RH). Drives 28a in upstream direction.

29	Folder input photocell VPH3: Tx (led) (in vertical track cover)
30	Folder input photocell VPH3: Rx (sensor)
31	FPI 5000 I input gear (LH). Drives 32a.
32a	FPI 5000 C main input axle. Provides drive for clutches 23a and 32b.
32b	Vertical track clutch VCL1 (RH). Drives at the RH side 34, 36, 39a, 41a, 43a and 45a, and at the LH side clutches 39b, 41b, 43b and 45b.
32c	Slotted photocell VSPH1 (RH). Main time base for all processes in FPI 5000 C plus attached feeders.
33	Counter rollers for 34 (in vertical transport cover)
34	Vertical track rollers (in FPI 5000 C main body)
35	Counter rollers for 36 (in vertical transport cover)
36	Vertical track rollers
37	Reading head (optional expansion)
38	Counter rollers for 39a (in vertical transport cover)
39a	Vertical track rollers (in lower feeder of lower feeder module)
39b	Feeder clutch for lower feeder of lower feeder module (FCL1). Drives 67, 88, 87 (only in feeder with manual separation) and 89.
40	Counter rollers for 41a (in vertical transport cover)
41a	Vertical track rollers (in upper feeder of lower feeder module)
41b	Feeder clutch for upper feeder of lower feeder module (FCL2). Drives 69, 91, 90 (only in feeder with manual separation) and 92.
42	Counter rollers for 43a (in vertical transport cover)
43a	Vertical track rollers (in lower feeder of upper feeder module)
43b	Feeder clutch for lower feeder of upper feeder module (FCL1). Drives 71, 94, 93 (only in feeder with manual separation) and 95.
44	Counter rollers for 45a (in vertical transport cover)
45a	Vertical track rollers (in upper feeder of upper feeder module)
45b	Feeder clutch for upper feeder of upper feeder module (FCL2). Drives 73, 97, 96 (only in feeder with manual separation) and 98.
46	Vertical track photocell VPH1: Tx (led) (in vertical transport cover)
47	Vertical track photocell VPH1: Rx (sensor)
48	Collator photocell VPH2: Tx (led) (in vertical transport cover)
49	Collator photocell VPH2: Rx (sensor)
50a	Divert motor VM2. Drives 24 and 25.
50b	Slotted photocell VSPH5. Monitors divert motor VM2 (50a).
51a	Collator motor VM1. Drives 52 – 56.
51b	Slotted photocell VSPH4. Monitors collator motor VM1 (51a).
52 – 56	Driven collator rollers. In collator arm.
57	Document stopper position for 6" documents
58	Document stopper position for 12" documents

59	Document stopper position for 14" documents
60 – 66	Counter rollers for 52 – 56
67	Driven output rollers of lower feeder of lower feeder module
68	Counter rollers for 67.
69	Driven output rollers of upper feeder of lower feeder module
70	Counter rollers for 69
71	Driven output rollers of lower feeder of upper feeder module
72	Counter rollers for 71
73	Driven output rollers of upper feeder of upper feeder module
74	Counter rollers for 73
75	DDD (DFC) unit for lower feeder of lower feeder module
76	DDD (DFC) unit for upper feeder of lower feeder module
77	DDD (DFC) unit for lower feeder of upper feeder module
78	DDD (DFC) unit for upper feeder of upper feeder module
79	Photocell for lower feeder of lower feeder module: Rx (FPH2)
80	Photocell for lower feeder of lower feeder module: Tx (FPH2)
81	Photocell for upper feeder of lower feeder module: Rx (FPH1)
82	Photocell for upper feeder of lower feeder module: Tx (FPH1)
83	Photocell for lower feeder of upper feeder module: Rx (FPH2)
84	Photocell for lower feeder of upper feeder module: Tx (FPH2)
85	Photocell for upper feeder of upper feeder module: Rx (FPH1)
86	Photocell for upper feeder of upper feeder module: Tx (FPH1)
87	Lower separation roller for lower feeder of lower feeder module. Turns CW in feeder with manual separation.
88	Feed axle with upper separation roller (lower feeder of lower feeder module)
89	Paper puller axle with two rubber paper pullers (lower feeder of lower feeder module)
90	Lower separation roller for upper feeder of lower feeder module. Turns CW in feeder with manual separation.
91	Feed axle with upper separation roller (upper feeder of lower feeder module)
92	Paper puller axle with two rubber paper pullers (upper feeder of lower feeder module)
93	Lower separation roller for lower feeder of upper feeder module. Turns CW in feeder with manual separation.
94	Feed axle with upper separation roller (lower feeder of upper feeder module)
95	Paper puller axle with two rubber paper pullers (lower feeder of upper feeder module)
96	Lower separation roller for upper feeder of upper feeder module. Turns CW in feeder with manual separation.
97	Feed axle with upper separation roller (upper feeder of upper feeder module)
98	Paper puller axle with two rubber paper pullers (upper feeder of upper feeder module)

table 2.1

2.1 Feeding documents (the Vario Feed concept)

There are three types of feeders: (1) feeders with automatic separation; (2) feeders with a choice between automatic separation and no separation at all (i.e. daily mail); (3) feeders with manual separation.
The feeders are organised in feeder modules of two feeders each.
For the documents to be fed the following rules apply:

- Documents with the fold types single fold, letter fold and double parallel fold must be fed to the feeder with the orientation face up and leading. The address carrying document must be fed via the top feeder.
- Documents with the fold type zig-zag fold must be fed to the feeder with the orientation face down and trailing. The address carrying document must be fed via the bottom feeder.

The feeding process is fairly straightforward: a document is separated by 87 - 89 and exited to the vertical track by 67 and 68. The paper transport is monitored by the photocell 79/80. The thickness is measured by the optional DDD (DFC unit) (Double Document Detector and Double Feed Control) 75. (The mentioned numbers apply to the bottom feeder.)

2.2 Vertical document transport

The vertical track consists of two driven axles per attached feeder module (45a, 43a, 41a and 39a), plus two driven axles in the FPI 5000 C main body (36 and 34). All these axles carry two rollers, except for 39a (at the bottom feeder), which carries four rollers. This is necessary for straightening the paper prior to passing the optional reading head 37. All driven rollers have their counterparts in rollers 44, 42, 40, 38, 35 and 33, which all are located in the vertical transport cover.
The paper transport is monitored by photocell VPH1 (46/47).
The various documents of a set are fed from the feeders to the vertical track in such a way that these documents are greatly (but not for the full hundred percent) overlapping each other. This overlapping not only ensures a higher throughput, but is also absolutely necessary for proper aligning (against the document stoppers) in the collator.

2.3 Transport to and from the collator

The collator area consists of a set of rollers (52 - 56) that can be driven in both directions, and a set of counter rollers 60 - 66.
The entry of the paper into the collator is monitored by the photocell VPH2 (48/49).
Documents are fed into the collator from the vertical track, or back into the collator in certain stages of the multifeed shunt process. In both cases the effect of 52 - 56 is such that the documents are properly aligned against the document stoppers (57, 58 or 59).
Documents are exited from the collator in three ways: (1) to the fold unit if a set is complete; (2) to the divert area if a set is affected by a double document error; (3) in certain stages of the multifeed shunt process. In all these cases the forward shunt clutch 28b (VCL5) is activated.

2.4 The Divert & Go divert process

It is very important that in the case of a double document error in one of the feeders the paper process is interrupted as shortly as possible, in order to maintain a high throughput. To this purpose a set that is affected by a double document error must be diverted from the paper main stream, i.e. such a set never should enter the folding subsystem and subsequently the inserter.
To this purpose the optional divert subsystem must be present. (A part of this is also used for the multifeed shunt process, as discussed below.)

If a "wrong" set must be diverted, the divert flap 24 is turned upwards (clockwise). The set is exited from the collator. As soon as the set has left the rollers 27 and 28a, the trailing edge of the set is detected by the paper photocell VPH3 (29/30). The divert actuator 25 moves forward and pushes the set to the divert area 26, where the set stays after the divert actuator moves back. (Both the form and the operation of the divert actuator resemble a snake's tongue.)
The Divert & Go feature is also used to empty the machine from documents that still are present in one or more feeders, the vertical track or the collator, when the machine is switched on or when a job change is implemented.

2.5 The multifeed shunt process

As discussed above, the documents in the vertical track must be overlapping (like the panes on a roof) in other to be properly aligned in the collator. If two or more successive documents are to be fed from the same feeder (multifeeding), this alignment criterion can not be met. A feeder cannot supply overlapping documents, because the next document only can be separated from the feeder hopper if the previous document completely has left the separation area. If nevertheless multifeeding must be possible, another approach must be chosen. If the optional divert subsystem (as discussed above) is present, multifeeding is dealt with in the following manner. First the first document of the feeder is transported to the collator. Then the divert flap 24 is turned upwards. The set-in-being, as present in the collator, is exited from the collator. The forward shunt clutch 28a (VCL5) is activated as well. The paper is transported in the direction of the divert area 26. However, contrary to the divert case as discussed up, the paper never will leave the rollers 27 and 28a. Now the next document of the multifeed is processed and on its way to the collator. At the right time (i.e. the overlapping criterion) the reverse shunt clutch 28c (VCL6) is activated. The set-in-being is transported in the direction of the collator. During this transport the newly-fed document is added to (and aligned with) the set in the collator, with the newly-fed document at the top. This process is repeated until all multifeed-related documents are processed.

2.6 The Eight in One folding process, including exit to the FPI 5000 I

Contrary to the principle of one mechanical fold stop per fold table, in which the fold is made as soon as the leading edge of the paper reaches the paper stop, the folding process in the FPI 5000 C is based on the timed "karate" action of a fold plate: one for each of the two fold tables.
As soon as the paper enters a fold table, the flap is turned upwards. The fold plate is in its rest position; it is turned backwards (i.e. counter clockwise). (In this way no actions are necessary if a set is not to be folded at all.) The paper is directed into an upward, more or less vertical direction. At the right time the fold plate moves forward (clockwise) and pushes the paper between the pair of upper and lower fold rollers. The fold is located at the place where the paper touches the tangent between the upper and lower fold roller. The timing of the fold plate movement is based on the detection of the paper by the folder input photocell VPH3, machine parameters and operational fold parameters. The latter parameters are set by the operator via the user interface of the FPI 5000 I.
Now for the folding details. Assume that the divert flap 24 is in the horizontal position. The paper of a completed set leaves the collator area. This is detected by photocell VPH3 (29/30). The paper is transported to the first fold table by the fold input rollers 22 and 23a. The flap 21 moves up (clockwise), so paper entering the first fold table will be directed in upward direction. At the appropriate time the flap 21 moves back (counter clockwise) and the fold plate 20 (which hinges around axle 6) moves forward (clockwise): the first fold will be made. Directly after the fold has been made, the fold plate 20 returns to its rest position. This process is controlled by clutch 4, which drives the two curve gears 10, which on their turn control the movement of fold plate 20. The axle for the two curve gears also carries the brake disc 11, the status of which is monitored by slotted photocell 12 (VSPH2). The 360 degrees fold cycle of the brake disk consists of a 120 degrees part (flap upwards) and a 240 degrees path (flap downwards plus "karate" action of 20). The brake disc is mechanically

loaded by a positioning lever and a torsion spring. The hinge axle 6 also carries the lever for the actuator of flap 21. In this way all movements related to the first fold table are synchronized.
After leaving the fold rollers 18 and 19 the paper enters the second fold table. The flap 17 moves up (clockwise), so paper entering the second fold table will be directed in upward direction. The paper guide 15 also moves up. This guide is necessary in the second fold table to retain the fold that has been made in the first fold table. The paper is limited to a small area between paper guide 15 and a fixed vertical guide plate (not shown in the figure, but to the left of 15). At the appropriate time the flap 17 moves back (counter clockwise) and both the fold plate 16 and the guide plate 15 (which both hinge around axle 5) move forward (clockwise): the second fold will be made. Directly after the fold has been made, the fold plate 16 returns to it's rest position. This process is controlled by clutch 3, which drives the two curve gears 7, which on their turn control the movement of fold plate 16 and paper guide 15. The axle for the two curve gears also carries the brake disc 8, the status of which is monitored by slotted photocell 9 (VSPH3). The 360 degrees fold cycle of the brake disk consists of a 120 degrees part (flap and paper guide upwards) and a 240 degrees path (flap and paper guide downwards plus "karate" action of 16). The brake disc is mechanically loaded
by a positioning lever and a torsion spring. The hinge axle 5 also carries the lever for the actuator of flap 17. In this way all movements related to the second fold table are synchronized.
Finally the folder output photocell VPH4 monitors the folded (or unfolded, as this is an operational option as well) paper as it leaves the FPI 5000 C on its way to the FPI 5000 I.

Mechanical

Contents

General instructions

Disconnect the mains supply before performing any maintenance.

Warning
The covers and microswitches are fitted by your protection. Do not operate the machine with any cover removed and with a microswitch cheated, or a hazard to health will exist.

Throughout this manual the terms left and right-hand side and front and rear side of the machine are used. These are made with the machine viewed from the input (document feed) side of the machine.

In a machine two feeder modules are mounted. A feeder module consists of two feeders, the feeder at the bottom side is called the lower feeder and the feeder on the topside is called the upper feeder. The first feeder module is mounted onto the frame of the machine, the second feeder module is mounted on top of the first feeder module.

The replacement procedures are the reversal of the removal procedures.

1 Covers and plates

1.1 Vertical transport track

Opening
Refer to figure 1.1
Lift the hand grip 9 upwards to release the transport track and then pull it upwards to open.

1.2 Hoppers

Note: The removal procedure for all hoppers is similar.

Removal
Refer to figure 1.1
Grab the front side of the hopper 12.
Push the grey locking handle 16 downwards to release the hopper.
Move the hopper upwards and when possible withdraw it in the front side direction.

1.3 Folder

Opening
Refer to figure 1.1
Push the lower end of the locking lever 27 in the right-hand side direction to release the folder and then it will open automatically.

1.4 RH side covers

Lower side cover

Removal
Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.

Refer to figure 1.1
Slacken the hex. head screw 17 and turn locking plate 18 clockwise. Move the RH side cover 13 to the front side of machine and withdraw the cover.

Feeder module cover

Removal
Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.

Refer to figure 1.1
Slacken the hex. head screw 15 securing the RH feeder module cover 14 on the rear side.
Tilt the rear end of the RH feeder module cover in the right-hand side direction and when possible unhook the front side from the slits in the RH inside frame and then withdraw it.

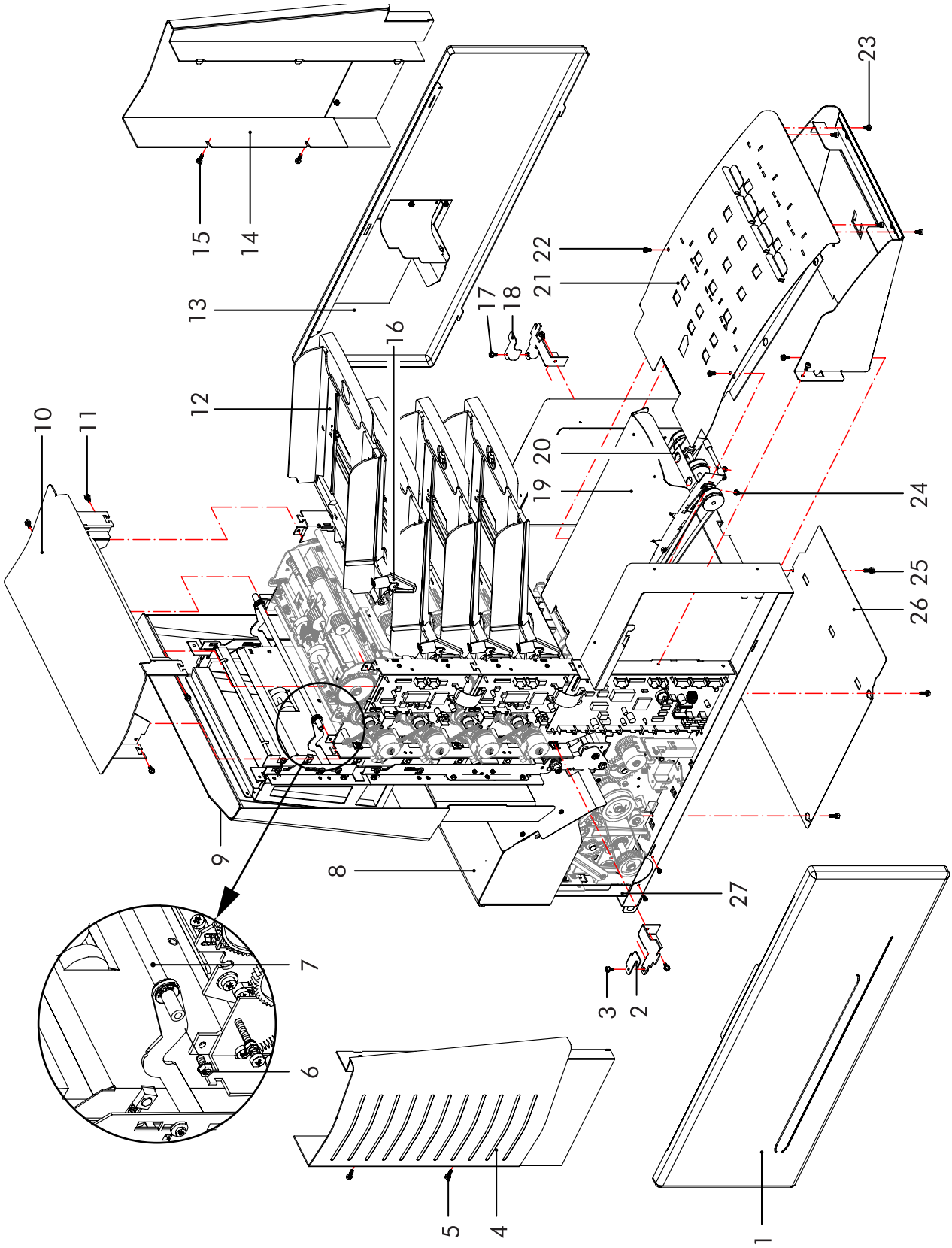

figure 1.1

1.5 LH side covers

Lower side cover

Removal
Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.

Refer to figure 1.1
Slacken the hex. head screws 3 and turn locking plate 2 counter clockwise. Move the LH side cover 1 to the front side of the machine and withdraw the cover.

Feeder module cover

Removal
Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.

Refer to figure 1.1
Slacken the hex. head screw 5 securing the LH feeder module cover 4 on the rear side.
Tilt the rear end of the LH feeder module cover in the left-hand side direction and when possible unhook the front side from the slits in the LH side frame and then withdraw it.

1.6 Top cover (assembly)

Removal
Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.
Remove the RH covers as described in paragraph 1.4 “RH side covers”.
Remove the LH covers as described in paragraph 1.5 “LH side covers”.

Refer to figure 1.1
Remove the two hex. head screws 6 securing the rod 7 on both sides.
Push the vertical transport track downwards and when possible tilt it in the rear side direction and place it onto the front folder cover (divert tray) 8.
Remove the four hex. head screws 11 securing the top cover 10 on both sides to the feeder module frame.
Shift the top cover in the front side direction to unhook it and then withdraw it.

Replacement
Close the vertical transport track, before retightening the two hex. head screws securing the rod.

1.7 Collator arm cover

Removal
Refer to figure 1.1
Lift the front side of the collating arm cover 19 upwards and hold it in this position.
Slacken the two nuts 24 securing the collating arm cover to the collating arm frame 20.
Lower the collating arm cover and shift it in the front side direction to unhook the rear side from the slit.
Lift the rear side of the collating arm cover upwards and unhook the front side from the slotted holes in the collating arm frame.

1.8 Collating area cover

Removal
Refer to figure 1.1
Remove the two round head screws 22 securing the collating area cover 21 on the rear side.
Remove the two hex. head screws 23 securing the collating area cover on the front side.
Lift the front side of the collating arm cover upwards and hold it in this position.
Lift the front side of the collating area cover upwards and when possible withdraw it in the front side direction.

1.9 Bottom plate

Remove all the hoppers as described in paragraph 1.2 “Hoppers”.

Removal
Refer to figure 1.1
Carefully turn the machine over and place it on the left-hand side.
Slacken the four hex. head screws 25 securing the bottom plate 26.
Unhook the bottom plate and withdraw it.

1.10 Rear cover

Removal
Refer to figure 1.2 (on the next page)
Remove the four countersunk screws 2 securing the rear cover 1 to the inside frames.
Move the rear cover in the rear side direction as far as possible. Take care of the wiring attached to it.

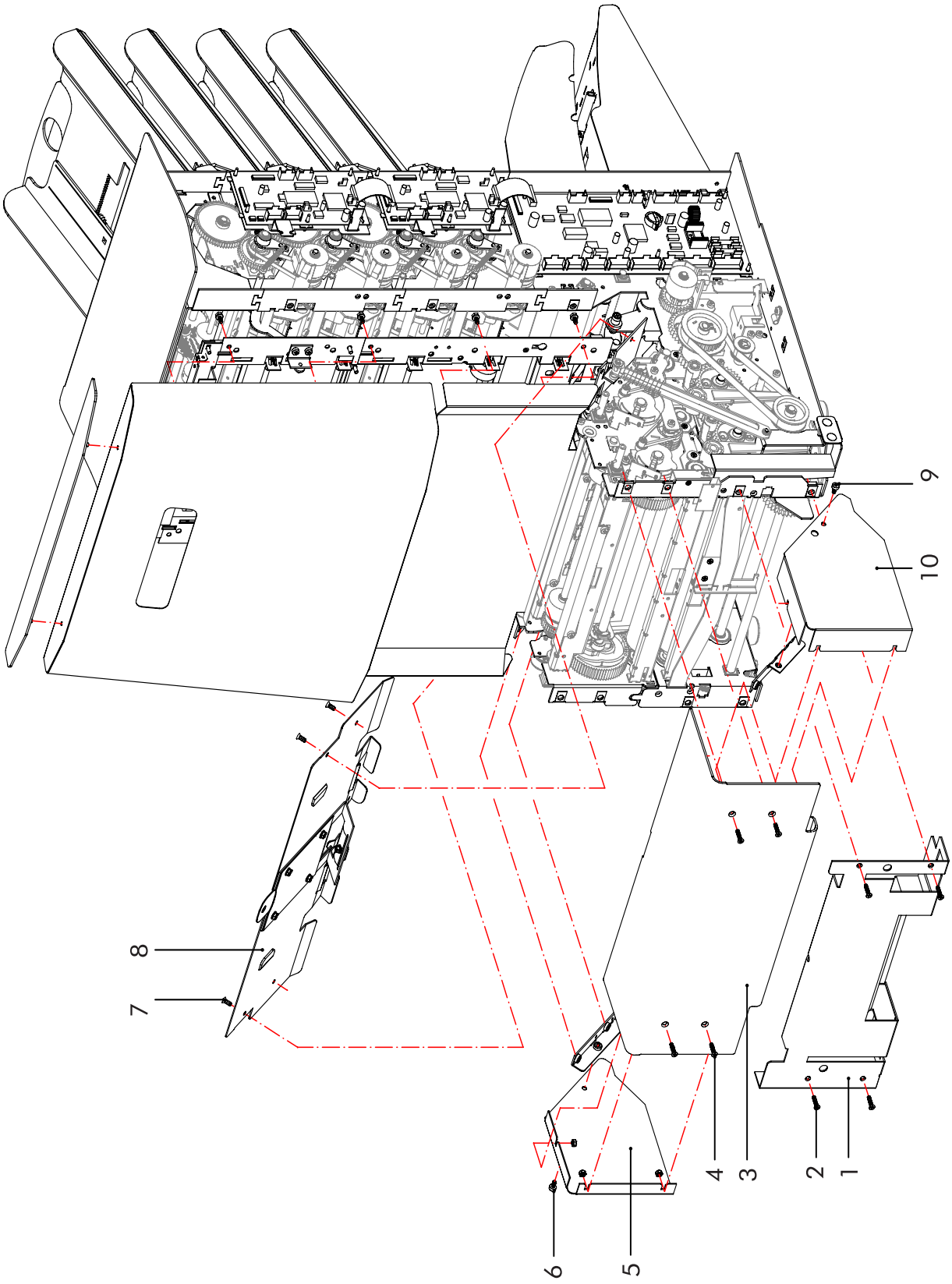

figure 1.2

1.11 Front folder cover (divert tray)

Removal
Refer to figure 1.2
Remove the four countersunk screws 7 lift and withdraw the front folder cover 8 upwards.

1.12 Folder cover

Remove the front folder cover as described in the previous paragraph.

Removal
Refer to figure 1.2
Remove the four countersunk screws 4. Remove the screws 6 an 9. Carefully withdraw the folder cover 3 together with the mounted side covers 5 and 10.

2 Electrical components

Warning
Be aware of possible electrostatic discharge.

2.1 Mainboard

Remove the LH side cover as described in paragraph 1.5 “LH side cover”.

Removal

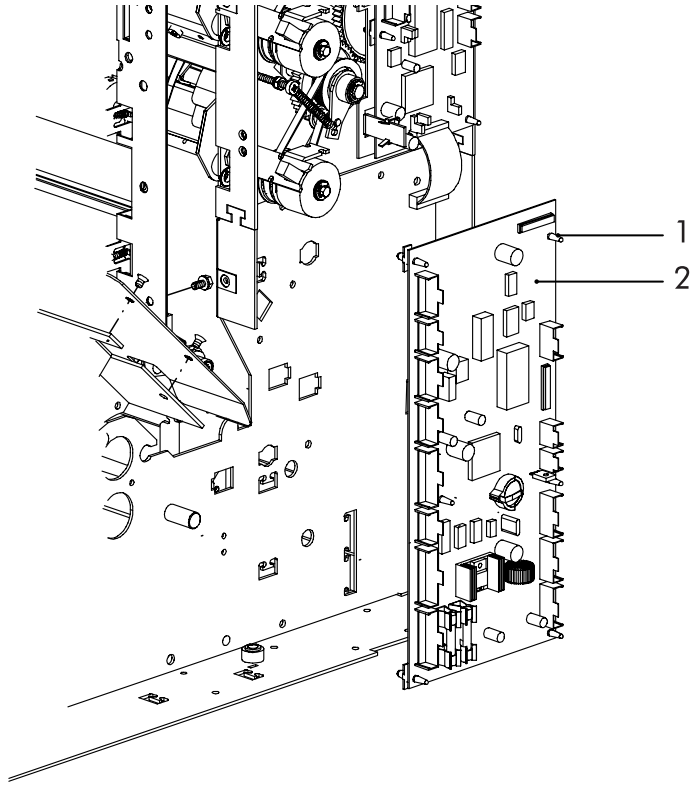

figure 2.1

Refer to figure 2.1
Disconnect all the wiring to the mainboard 2.
Carefully pull the mainboard from the four board holders 1 and withdraw it.

2.2 Feeder module boards

Second feeder module

Remove the LH side cover as described in paragraph 1.5 “LH side cover”.
Remove the LH feeder module cover as described “LH feeder module cover”.

Removal

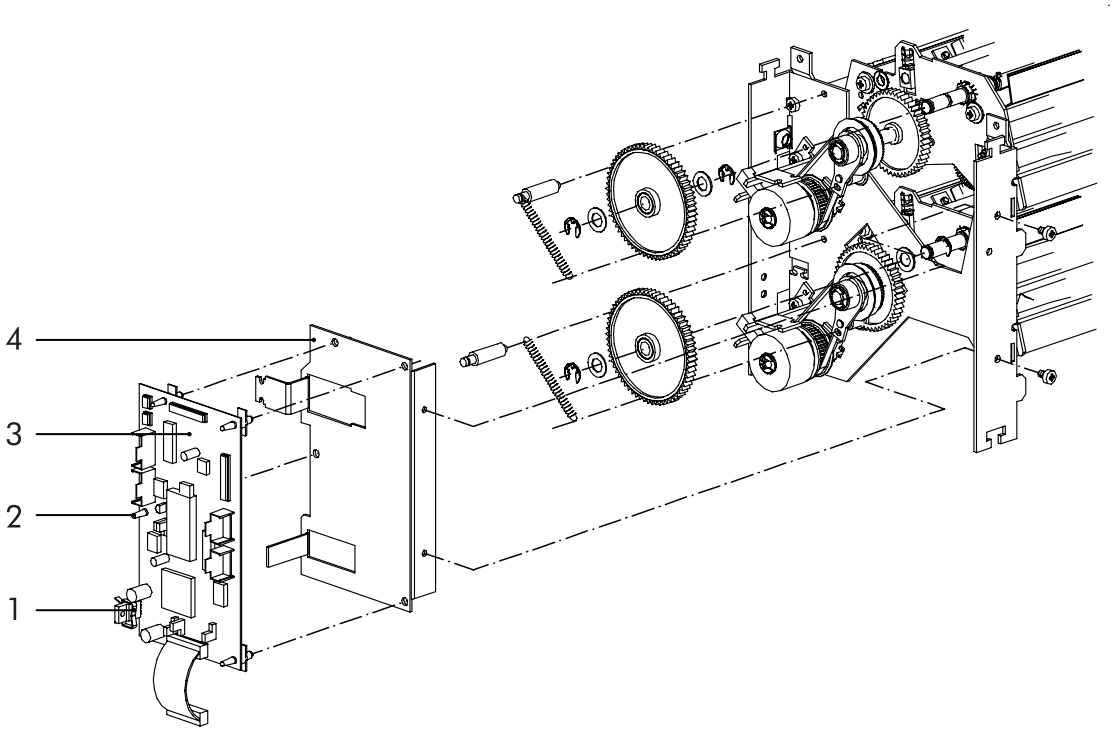

figure 2.2

Refer to figure 2.2
Disconnect all the wiring to the board 3.
Remove the clamping spring 1 securing the transistor to the mounting plate 4.
Carefully pull the board from the four board holders 2 and withdraw it.

First feeder module

The removal procedure of the board of the first feeder module is similar to that of the second feeder module.

3 Feeder modules

3.1 Main drive mechanism

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

3.1.1 Main drive belt

Removal
Refer to figure 3.1
Remove screws 35 and remove plate 36.
Slacken the hex. head screw 10 securing the belt tensioner 11 of the lower feeder in the first feed module and remove the drive belt 12 from the pulley 9 and the pulley 32.
Slacken the two hex. head screws 1 securing the belt tensioner 2.
Disconnect the clutch 17.
Remove the round head screw 7 with the washer 6 and place the locking plate 5 aside. Take care of the pulse disc 15, the pulse disc detector assy. 8 and the wiring.
Remove the main drive belt 19 from the pulleys 18, 22 and 29 and withdraw it. Take care of the pulse disc.

Replacement
Ensure on replacement that the locking plate retains the clutch and that the pulse disc detector assy. clears both sides of the pulse disc and the detector “sees” the outer ends of the slots in the pulse disc.

Adjustment
See paragraph 9.1.1 “Main drive belt”.

3.1.2 Clutch

Removal
Refer to figure 3.1
Disconnect the clutch 17.
Remove the round head screw 7 with the washer 6 and place the locking plate 5 aside. Take care of the pulse disc 15, the pulse disc detector assy. 8 and the wiring.
Remove the countersunk screw 13 and withdraw the pulse disc together with the two spacers 14. Take care of the washer 16.
Slide the clutch off the axle.

Replacement
Ensure on replacement that the locking plate retains the clutch and that the pulse disc detector assy. clears both sides of the pulse disc and the detector “sees” the outer ends of the slots in the pulse disc.

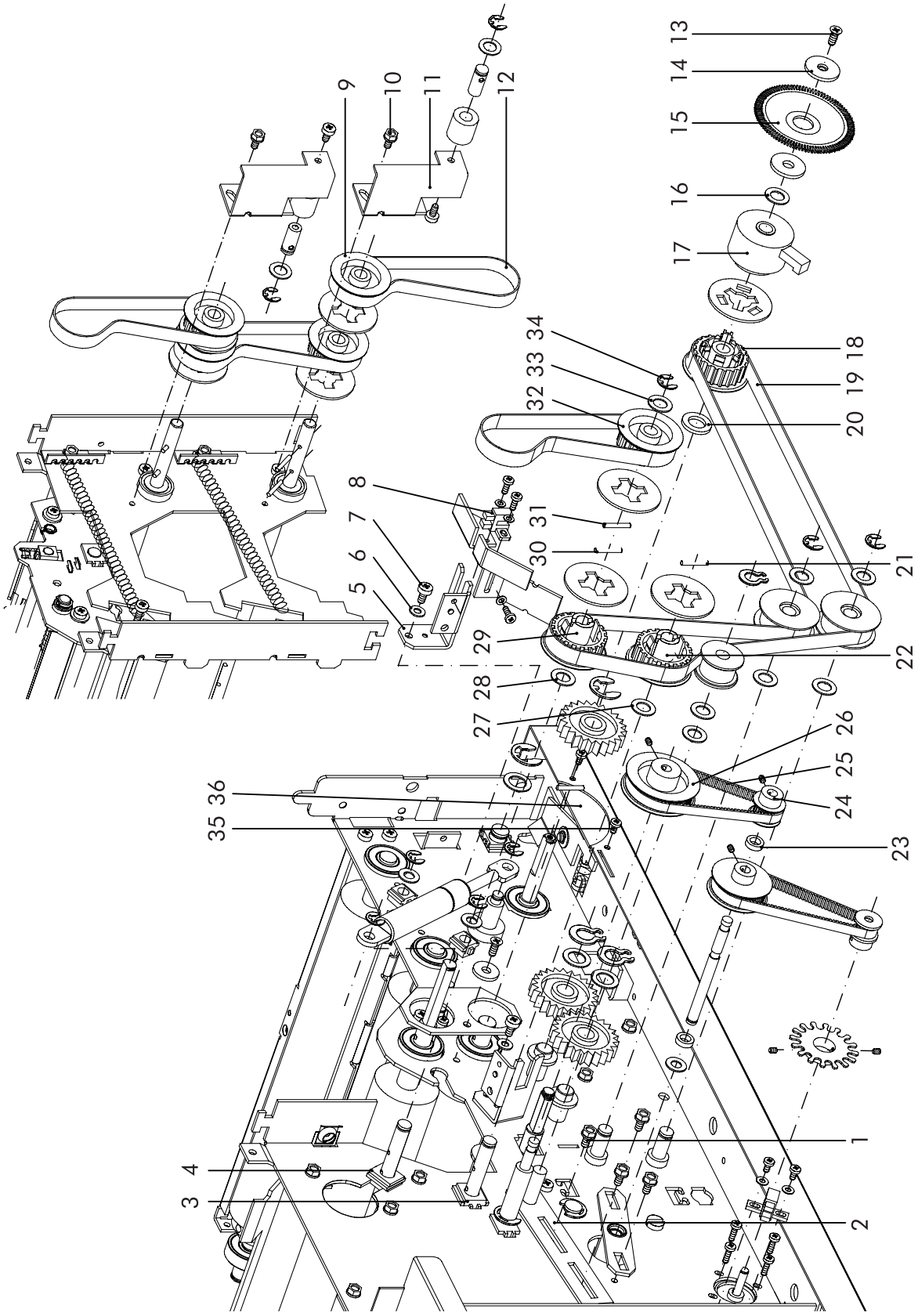
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figure 3.1

3.1.3 Pulleys

Remove the main drive belt as described in paragraph 3.1.1 “Main drive belt”.

Pulley 20T (item 18)

Removal
Remove the clutch as described in the previous paragraph.

Refer to figure 3.1
Slide the pulley 18 off the axle. Take care of the spacer 20.

Pulley 20T (item 22)

Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.
Remove the LH side cover as described in paragraph 1.5 “LH side cover”.

Removal

Refer to figure 3.1
Slacken the set screw of the pulley 26 and the pulley 24.
Slide both pulleys together with the drive belt 25 off the axles. Take care of the spacer 23.

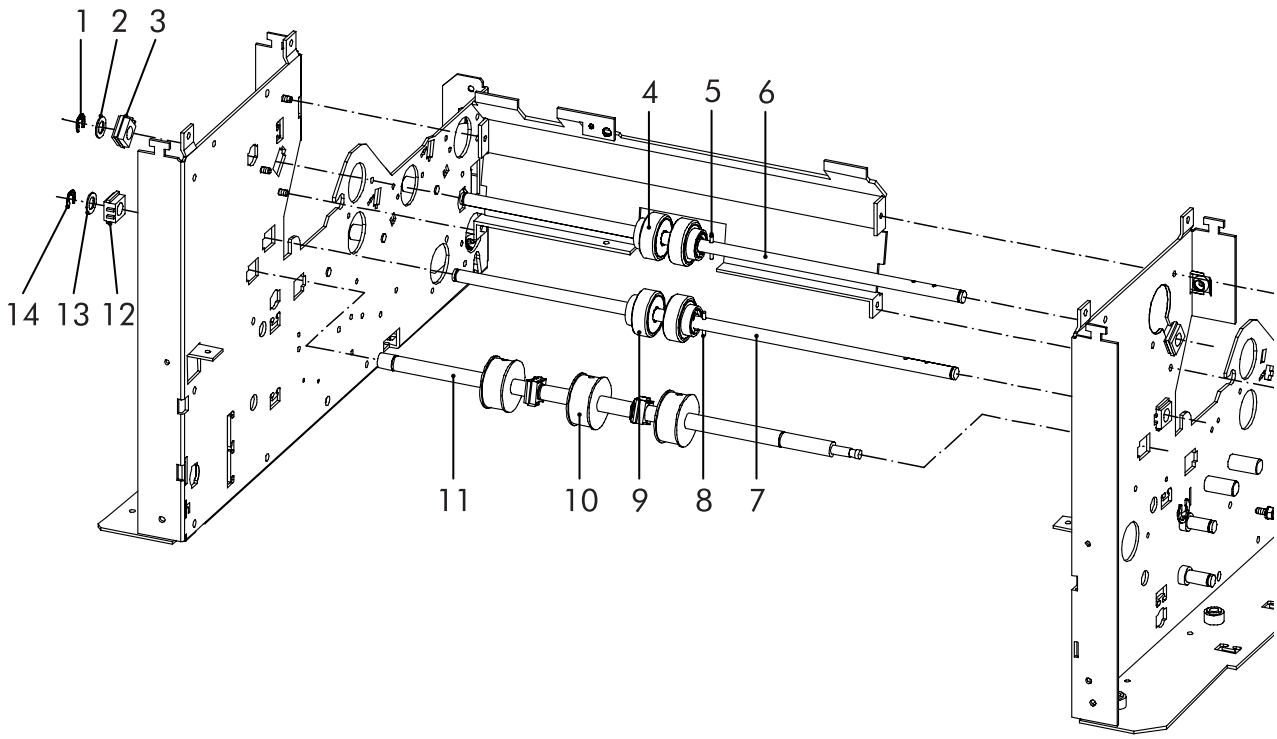

figure 3.2

Refer to figure 3.2
Lift the front side of the collator arm upwards and hold it in this position.
Slacken the set screw of the pulley 10 in the middle of the collator axle 11.
Lower the collator arm.
Remove the spring clip 14, the washer 13 and the bearing 12 from the left-hand side of the transportation axle 7.
Pull the transportation axle in the right-hand side direction as far as possible.

Refer to figure 3.1
Push the pulley 22 from the cyl. pin 21 below.
Remove the cyl. pin from the transportation axle.
Slide the pulley off the transportation axle. Take care of the washer 27 and the bearing 3.

Replacement
Ensure on replacement that the set screw of the pulley in the middle of the collator axle rest into the groove in the axle.

Pulley 20T (item 32)

Removal
Refer to figure 3.1
Remove the spring clip 34 and the washer 33.
Pull the pulley 32 from the axle. Take care of the cyl. pin 31.

Pulley 20T (item 29)

Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.

Removal
Remove the pulley 20T, item 32 as described previously.

Refer to figure 3.2
Remove the spring clip 1, the washer 2 and the bearing 3 from the left-hand side of the transportation axle 6.
Pull the transportation axle in the right-hand side direction as far as possible.

Refer to figure 3.1
Push the bearing 4 out of the slotted hole in the RH inside frame.
Tilt the right-hand side of the transportation axle upwards and when possible withdraw it through the hole in the RH inside frame.
Push the pulley 29 from the cyl. pin 30 below.
Remove the cyl. pin from the transportation axle.
Slide the pulley off the transportation axle. Take care of the washer 28 and the bearing 4.

3.1.4 Transportation rollers

Upper transportation axle

Removal
Remove the pulley 20T, item 29 as described in the previous paragraph.

Refer to figure 3.2
Push both transportation rollers 4 inwards from the cyl. pin 5 below.
Remove both cyl. pins from the axle.
Slide both transportation rollers off the axle.

Replacement
Ensure on replacement that the transportation rollers are refitted correctly on the axle (narrowing part of the rollers pointing outwards).

Lower transportation axle

Removal
Remove the pulley 20T, item 22 as described in the previous paragraph.

Refer to figure 3.2
Push both transportation rollers 9 inwards from the cyl. pin 8 below.
Remove both cyl. pins from the axle.
Slide both transportation rollers off the axle.

Replacement
Ensure on replacement that the transportation rollers are refitted correctly on the axle (narrowing part of the rollers pointing outwards).

3.1.5 Gears

Remove the rear cover as described in paragraph 1.10 “Rear cover”.

Gear 35T (item 15)

Removal
Refer to figure 3.3
Remove the two round head screws 7 and withdraw the gear cover 10.
Remove the spring clip 1, the washers 2 and the bearing 3.
Shift the drive axle 13 in the right-hand side direction until it is clear from the LH inside frame.
Tilt the left-hand side of the drive axle in the rear side direction and, when possible, withdraw it.
Slacken the two set screws securing the bushing14.
Slide the bushing and the gear 15 in the right-hand side direction off the drive axle. Take care of the cyl. pin 9.

Replacement
Ensure when retightening the set screws of the bushing that there is no axial play on the gear.

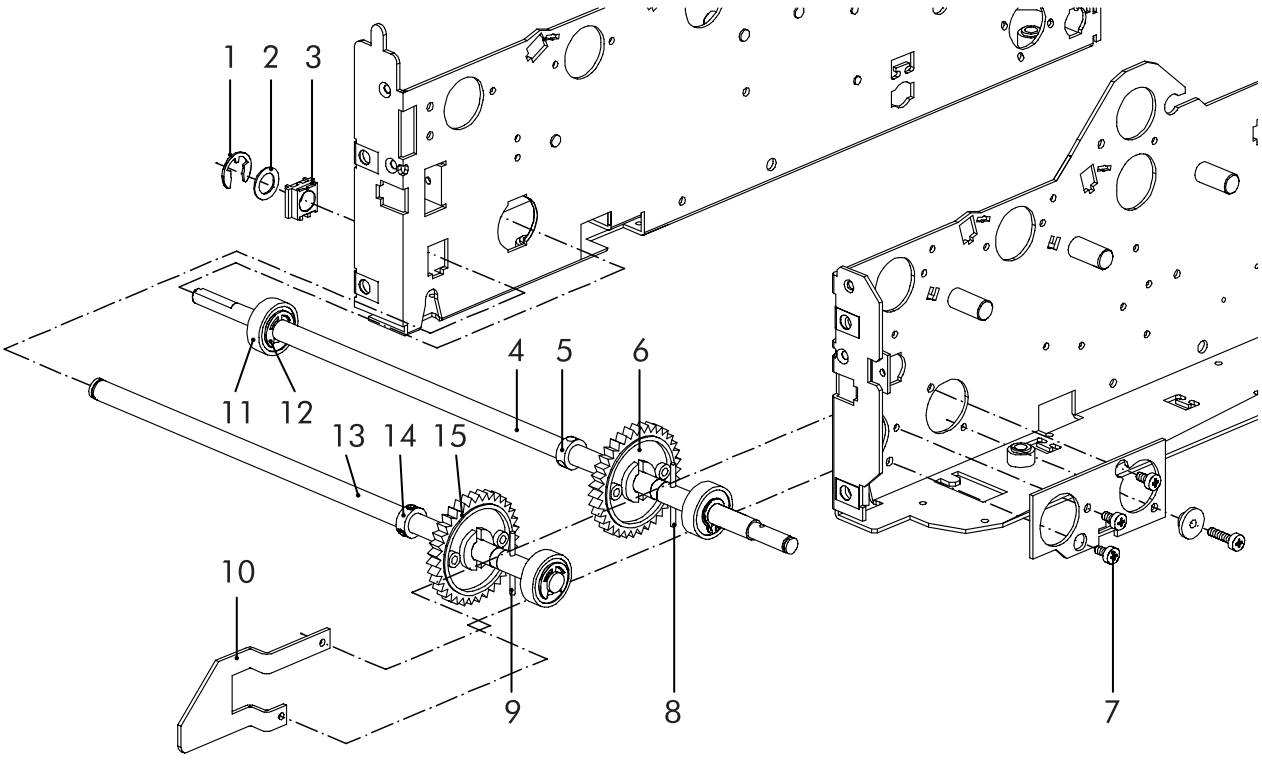

figure 3.3

Gear 35T (item 6)

Remove the pulley 20T, item 18 as described in paragraph 3.1.3 “Pulleys”.
Remove the pulley 25T, item 24 as described in paragraph 7.2.2 “Pulleys”.

Removal
Refer to figure 3.3
Remove the two round head screws 7 and withdraw the gear cover 10.
Shift the drive axle 4 in the right-hand side direction until it is clear from the LH inside frame.
Tilt the left-hand side of the drive axle in the rear side direction and when possible withdraw it.
Pull the right-hand side ball bearing 11 from the drive axle **(special tool is required!)**.
Remove the spring clip 12.
Slacken the two set screws securing the bushing 5.
Slide the bushing and the gear 6 in the right-hand side direction off the drive axle. Take care of the cyl. pin 8.

Replacement
Ensure when retightening the set screws of the bushing that there is no axial play on the gear.

3.2 RH feeder drive mechanism

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.
Remove the RH feeder module cover as described in paragraph “RH feeder module cover”.

3.2.1 Drive belts

Note: The removal procedure of the lower feeder drive belt and upper feeder drive belt is for the both feeder modules (first and second) similar.

Lower feeder drive belt

Removal

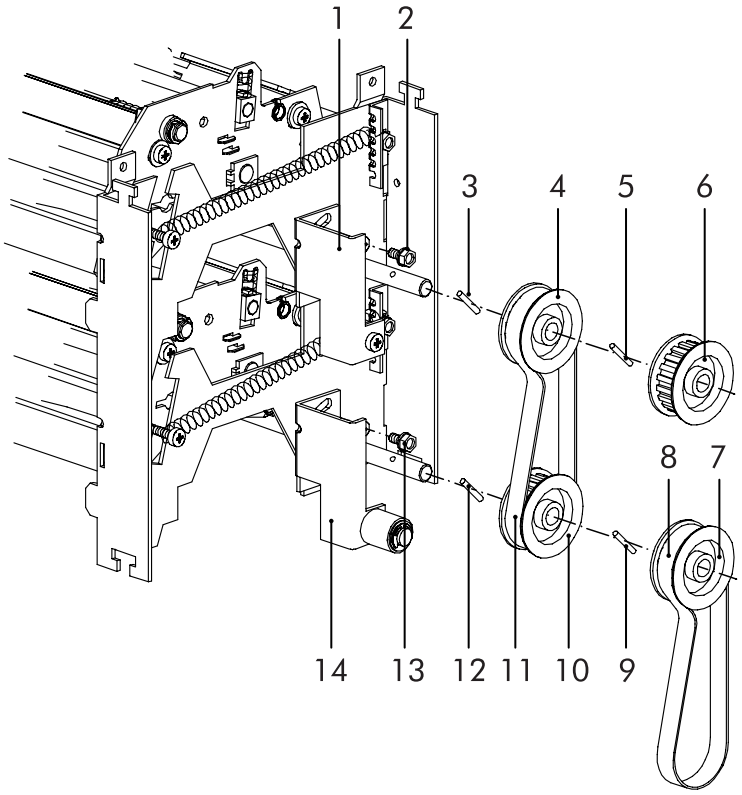

figure 3.4

Refer to figure 3.4
Slacken the hex. head screw 13 securing the belt tensioner 14 of the lower feeder.
Pull the pulley 7 of the lower feeder with the drive belt 8 from the axle. Take care of cyl. pin 9 below.

Adjustment
See paragraph 9.3.1 “RH drive belts”.

Upper feeder drive belt

Remove lower feeder drive belt from the first and second feeder module as described previously.

Removal
Refer to figure 3.4
Pull the pulley 6 off the axle. Take care of the cyl. pin 5 below.
Slacken the hex. head screw 2 securing the belt tensioner 1 of the upper feeder.
Pull the pulley 4 of the upper feeder and the pulley 10 of the lower feeder together with the drive belt 11 from the axles. Take care of cyl. pins 3 and 12 below.

Adjustment
See paragraph "RH drive belts".

3.2.2 Pulleys

Pulley 24T (item 7)

Remove the lower feeder drive belt as described in the previous paragraph.

Pulley 24T (item 6), 24T (item 4) and 24T (item 10)

Remove the upper feeder drive belt as described in the previous paragraph.

3.3 LH feeder drive mechanism

Note: The removal procedure of the LH feeder drive mechanism is for the both feeders (upper and lower) in a feeder module similar and similar for both feeder modules (first and second).

Remove the LH side cover as described in paragraph 1.5 “LH side cover”.
Remove the LH feeder module cover as described in paragraph “LH feeder module cover”.

3.3.1 Clutch

Removal

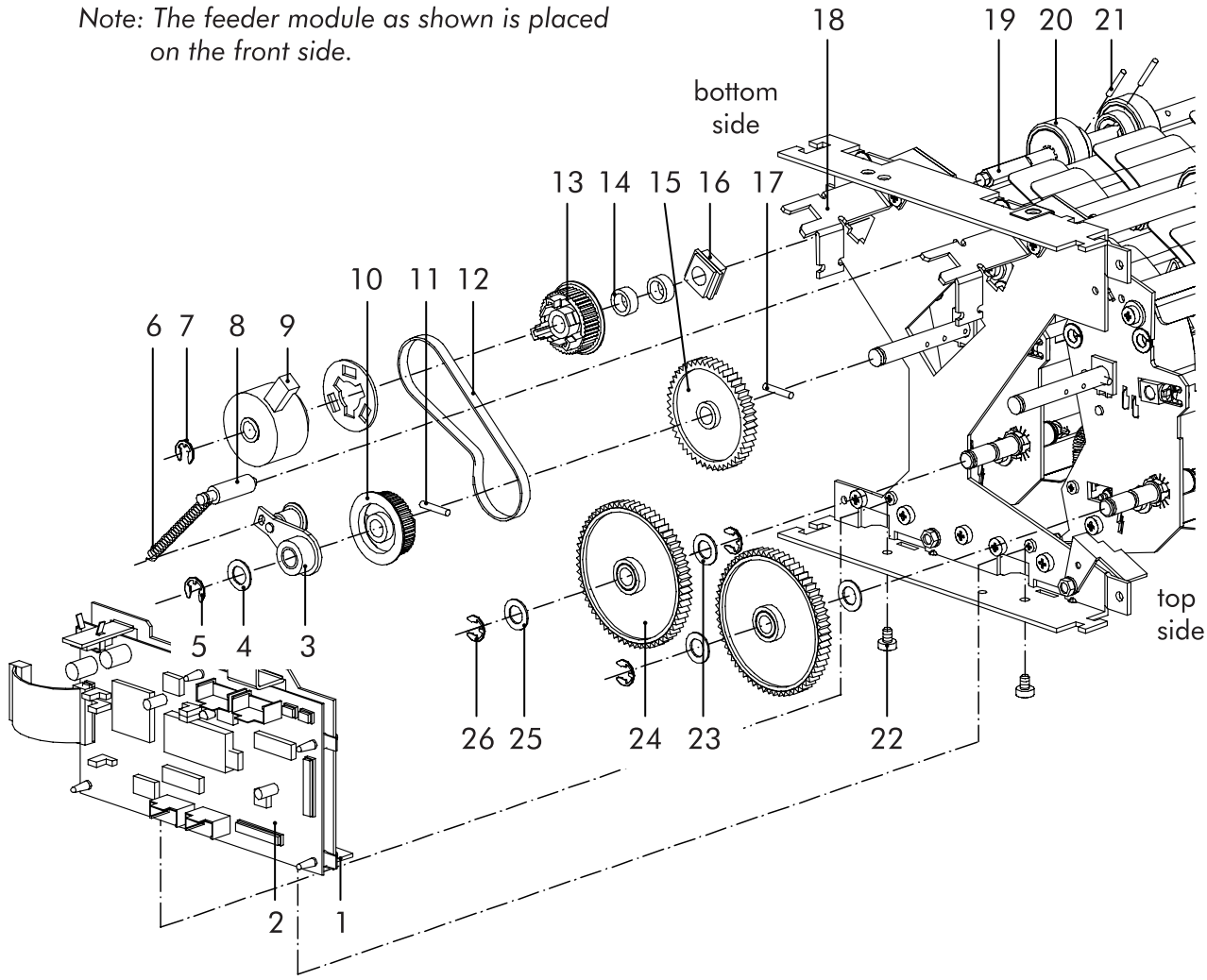

figure 3.5

Refer to figure 3.5
Disconnect the clutch 9.
Remove the spring clip 7 securing the clutch.
Slide the clutch off the axle.

Replacement
Ensure on replacement that the locking plate 18 retains the clutch.

3.3.2 Drive belt

Remove the clutch as described in the previous paragraph.

Removal
Refer to figure 3.5
Unhook the tension 6 spring from the bearing pin 8.
Remove the drive belt 12 from the pulley 13.
Remove the spring clip 5 with the washer 4 securing the belt tensioner 3.
Pull the drive belt tensioner together with the pulley 10 from the axle and withdraw the drive belt 12. Take care of the cyl. pin 11 and the tension spring.

3.3.3 Pulleys

Pulley 44T (item 13)

Remove the clutch as described in paragraph 3.3.1 “Clutch”.

Removal
Refer to figure 3.5
Unhook the tension spring from 6 the bearing pin 8.
Remove the drive belt 12 from the pulley 10.
Slide the pulley off the axle. Take care off the two spacers 14.

Pulley 44T (item 10)

Removal
Refer to figure 3.5
Unhook the tension spring 6 from the bearing pin 8.
Remove the drive belt from the pulley 13.
Remove the spring clip 5 with the washer 4 securing the belt tensioner 3.
Pull the belt tensioner together with the pulley 10 from the axle and remove the drive belt 12. Take care of the cyl. pin 11 and the tension spring.

3.3.4 Gears

Gear 48T (item 15)

Remove the pulley 44T, item 10 as described in the previous paragraph.

Removal
Refer to figure 3.5
Remove the cyl. pin 11.
Pull the gear 15 from the axle. Take care of the cyl. pin 17.

Gear 64T (item 24)

Removal
Refer to figure 3.5
Disconnect the two flat cables connected to the board 2.
Remove the two round head screws 22 securing the mounting bracket 1.
Carefully place the mounting bracket with the board aside.
Remove the spring clip 26 with the washer 25 securing the gear 24.
Slide the gear off the axle. Take care of the washer 23.

Replacement
The gear has a freewheel incorporated. It must be fitted so that, seen from the left-hand side, it runs free when turned counterclockwise and it takes the axle along when turned clockwise.

3.3.5 Transportation rollers

Note: The removal procedure of the transportation rollers is for the two feeders in both feeder modules similar. The only difference is that on the transportation axle of the lower feeder in the first feeder module there are four transportation rollers instead of two.

Remove the upper feeder drive belt as described in paragraph 3.3.2 "Drive belts".
Remove the pulley 44T, item 13 as described in paragraph 3.3.3 "Pulleys".

Removal
Refer to figure 3.5
Slide the two spacers 14 and the bearing 16 off the axle 19.
Push the two transportation rollers 20 from the cyl. pins 21 below.
Remove the cyl. pins from the axle.
Withdraw the axle in the right-hand side direction from the machine and slide the two transportation rollers 20 off it.

Replacement
Ensure on replacement that the transportation rollers are refitted correctly on the axle (narrowing part of the rollers pointing inwards).

3.4 Feeder cover plates

Note: There are five cover plates that may need to be removed (four are fitted above the separate feeders and one is fitted below the lower feeder in the first feeder module). The removal procedure for all four cover plates is similar, except that to remove the topmost cover plate it is only necessary to remove the RH feeder module cover and for the other four cover plates it is only necessary to remove the RH side cover.

Remove the RH side cover as described in paragraph 1.4 "RH side cover".
Remove the RH feeder module cover as described in paragraph "RH feeder module cover".

Removal
Refer to figure 3.6
Remove the round head screw 10 securing the cover plate 11 to the right-hand frame.
Tilt the right-hand side of the cover plate in the front side direction until it is clear from the frame and, when possible, unhook the left-hand side and withdraw it.

Replacement
Ensure on replacement that two holes in the left-hand side of the cover plate are replaced over the two threads of the round head screws 2 fitted into the left-hand frame.

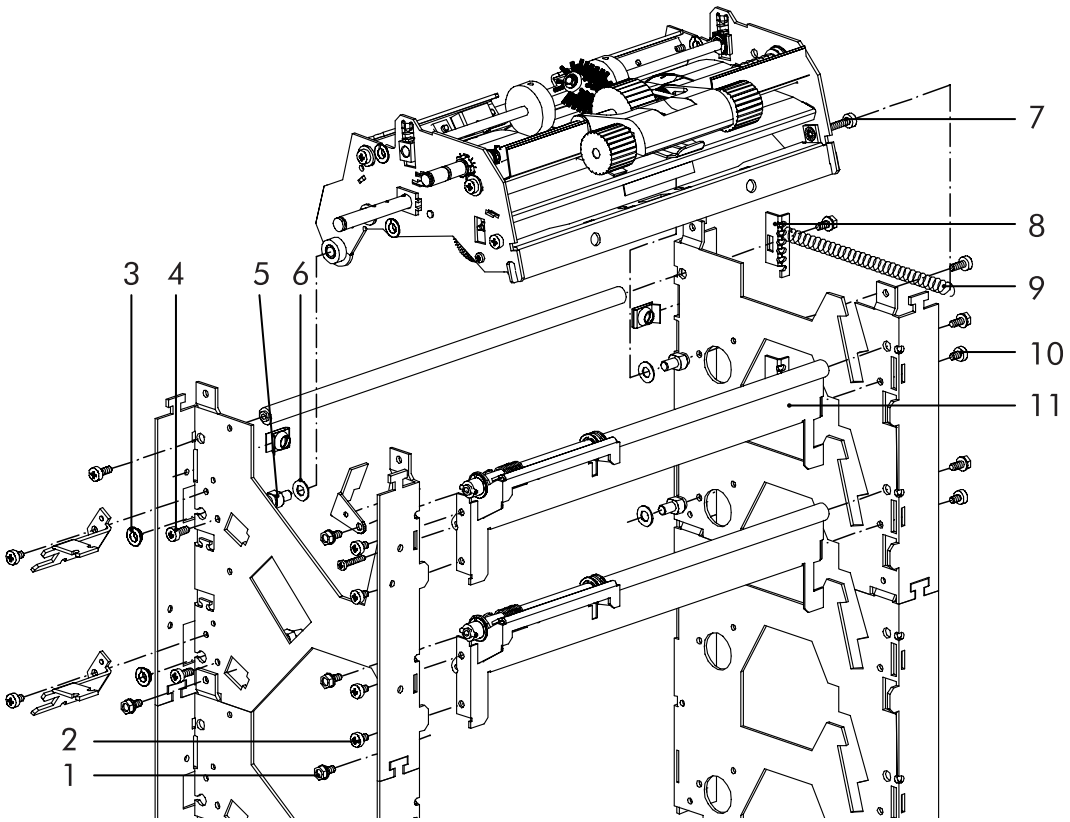

figure 3.6

3.5 Feeder modules

Note: The removal procedure of both feeder modules (first and second) is similar. The first feeder module can be removed after the removal of the second feeder module.

Remove the LH feeder module cover as described in paragraph "LH feeder module cover".
Remove the top cover as described in the paragraph 1.6 "Top cover".
Remove the lower feeder drive belt as described in paragraph 3.2.1 "Drive belts".

Removal
Refer to figure 3.5
Disconnect the flat cable from the feeder module at the board 2.

Refer to figure 3.6
Remove the four hex. head screws 1 securing the feeder module on both sides.
Shift the feeder module in the front side direction to unhook it and then withdraw it.

3.6 Feeders

Note: The removal procedure of the upper and lower feeder from a feeder module is similar. The lower feeder can be removed after removal of the upper feeder.

Remove the second or first feeder module as described in paragraph 3.5 “Feeder modules”.
Remove the transportation rollers as described in paragraph 3.3.5 “Transportation rollers”.
Remove the gear 48T, item 15 as described in paragraph 3.3.4 “Gears”.

Removal
Refer to figure 3.5
Disconnect the wiring from the feeder at the board 2 and cut the wire straps securing it.

Refer to figure 3.6
Unhook the tension spring 9 from the thread of the round head screw 7 and from the bracket 8.
Remove the round head screw 7.
Carefully push the nyliner 3 with the wiring from the left-hand frame and withdraw the wiring through the gap in the left-hand frame.
Remove the round head screws 4 securing the feeder on both sides to the frames.
Carefully withdraw the feeder upwards. Take care of the hinge pins 5 with the washers 6 on both sides of the feeder.

Replacement
Ensure on replacement that the right-hand side of the tension spring is fitted into the lower hole of the bracket.
Secure the wiring again with wire straps.

Note: Do not exchange the tension spring from one to another feeder. Each spring is specially adjusted from the factory.

3.7 Automatic separation feeder with daily mail

3.7.1 Rubber paper pullers

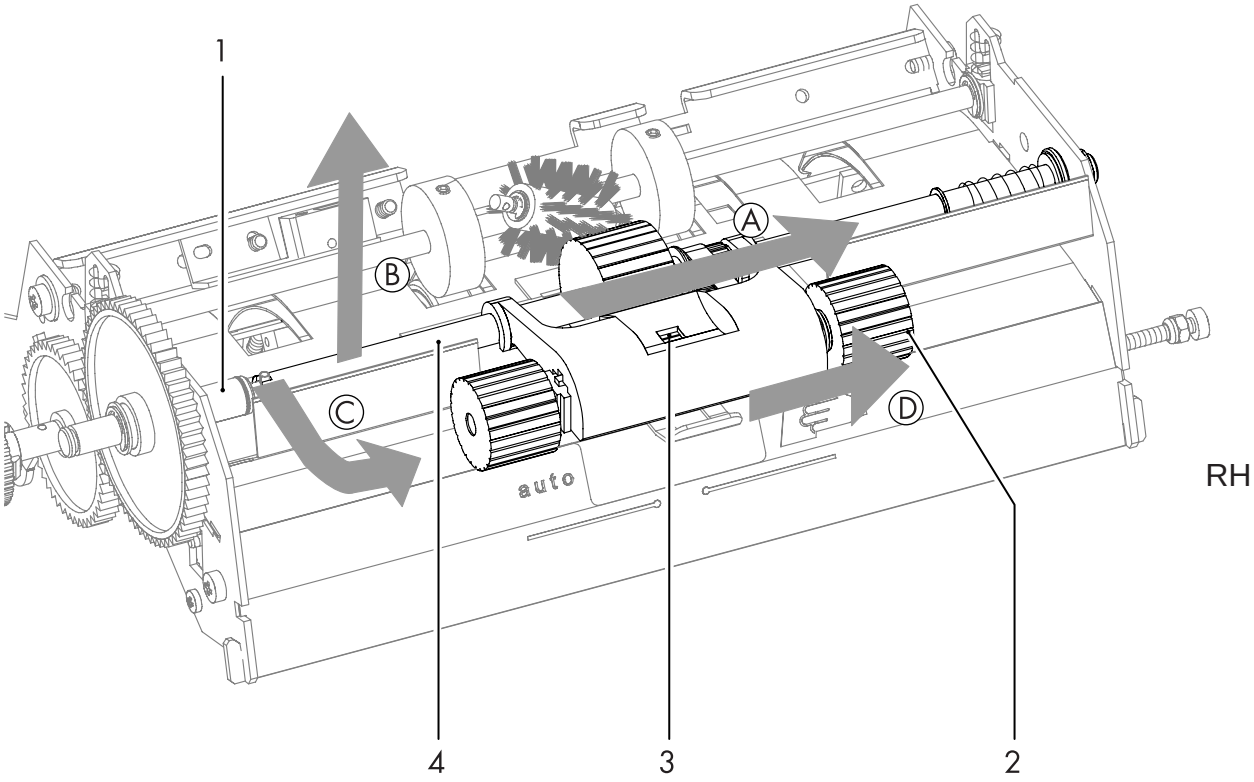

figure 3.7

Refer to figure 3.7.
Remove the feed axle assy. 4 in the right-hand side direction (A) until the left-hand side is clear from the axle 1. Tilt (B) the axle assy. 4 at the left-hand side and withdraw the right-hand side of the axle from the hole in the feeder frame. Remove (C) the axle assy. as indicated.

The rubber paper pullers 2 can simply be removed by pushing them of the axle. Hold the plastic cover 3 in place with one hand and push (D) firmly against the rubber paper puller as indicated. Rotate the axle 180 degrees and push again. Repeat the rotating and pushing until the paper puller can be pulled of the axle.

Note: Ensure on replacement that the plastic cover is replaced below the ridge (3, 3.7.1) on the paper guide and that the feeder assy. is correctly fitted onto the axle. Ensure that the belt runs across the pulleys.

3.7.2 Pulley of paper puller axle

Remove the feed axle assy. as described in the paragraph "Rubber paper pullers".

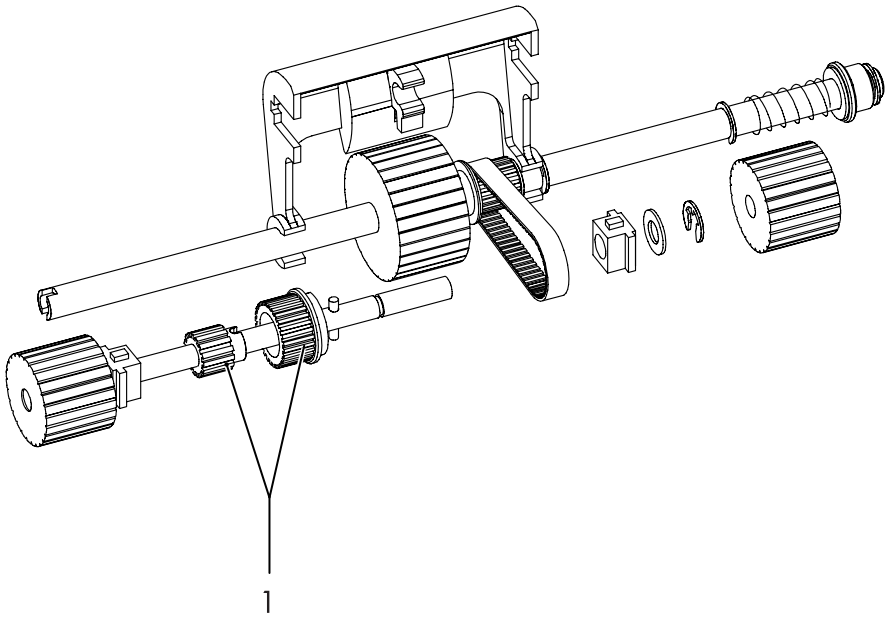

figure 3.8

Refer to figure 3.8.
Remove the axle from the plastic cover. Push the rubber paper puller of the axle and remove the spring clip, the washer and the bearing. The pulley 1 consists of two parts. Push the pulley assy. to the left to release it from the cyl. pin, remove the cyl. pin and slide the pulley assy. of the axle.

3.7.3 Upper separation roller

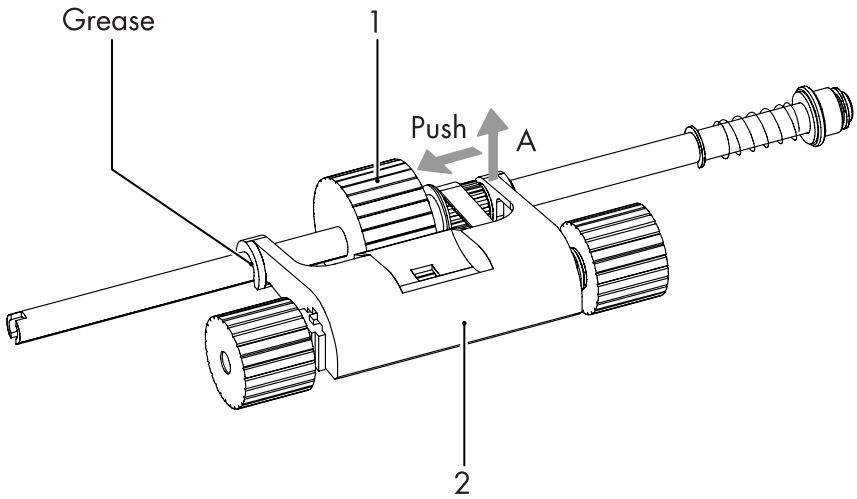

figure 3.9

Note: The feeder unit does not need to be removed for replacing separation rollers.

Remove the feed axle assy. as described above. Refer to figure 3.9. Click (A) the plastic cover 2 off the axle and remove it with the belt and the paper pulleys from the feed axle. Remove the grease from the left hand side of the feed axle with some alcohol. Push the feed roller 1 to the left hand side of the axle as indicated. Rotate the axle 180 degrees and push again. Repeat the rotating and pushing until the feed roller can be pulled of the axle.

Note: Before replacing the feed roller ensure that the axle is free of grease. After replacing the feed roller put some grease Molykote PG 65 on the plastic cover 2 as shown in figure 3.9. Replace the plastic cover with the belt and the rollers.

3.7.4 Lower separation roller

Note: The feeder unit does not need to be removed for replacing separation rollers.

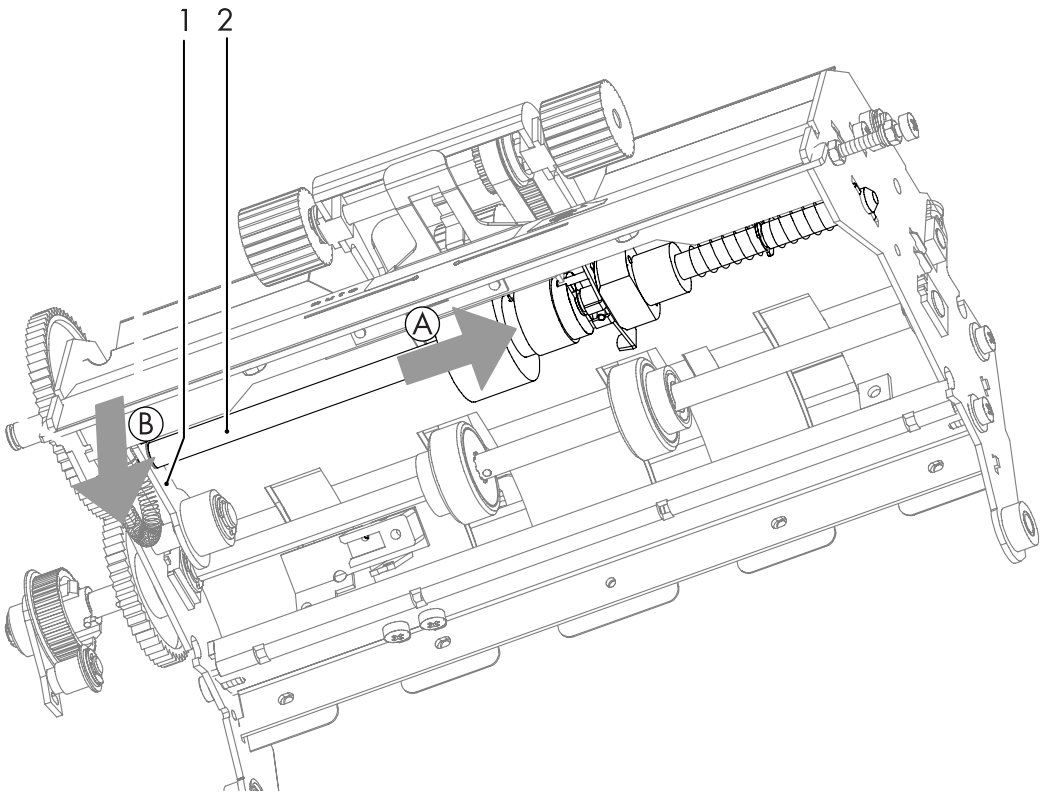

figure 3.10

Refer to figure 3.10.
Move the separator axle assy. 2 in the right-hand side direction (A) until the left-hand side is clear from the hinge plate 1. Move (B) the axle assy. 2 downwards side and withdraw the right-hand side of the axle from the hole in the feeder frame.

Figure 3.11 shows how the roller 1 should be slided of the axle assy. 2.

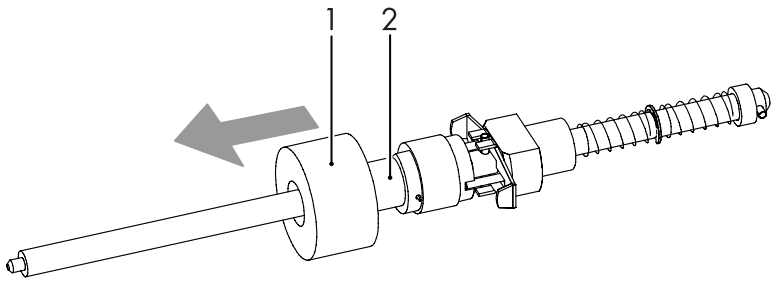

figure 3.11

Note: Before replacing the feed roller ensure that the axle is free of grease.

3.7.5 Gears

For the removal of the gears at the LH side of the feeder it is not necessary to remove the feeder from the machine.
The gear 48T can be removed after the extension axle with the pulley etc. has been removed.
Remove the spring clip securing the gear 64T, lift the feeder and slide the gear 64T of the axle.

3.8 Automatic separation feeder

The removal procedure of the components of the automatic separation feeder is similar to that of the automatic separation feeder with daily mail as described in the previous section.

3.9 Manual adjustable separation feeder

3.9.1 Rubber paper pullers

For the removal of the paper pullers it is not necessary to remove the feed axle assy. and the plastic cover with the paper puller axle. Remove the pullers in the same way as described in the previous section.

3.9.2 Pulley of paper puller axle.

To replace the pulley it is necessary to remove the feeder from the machine. Refer to the section Feeders, Lower feeder.

Remove the complete feed roller assy. with the plastic cover and the paper puller rollers by removing the screws 2 as shown in figure 3.12 and move the complete assembly to the left-hand side to release the feed axle 1 from the mounting blocks 3. Further the removal procedure is similar to that as described in the section "Automatic separation feeder with daily mail".

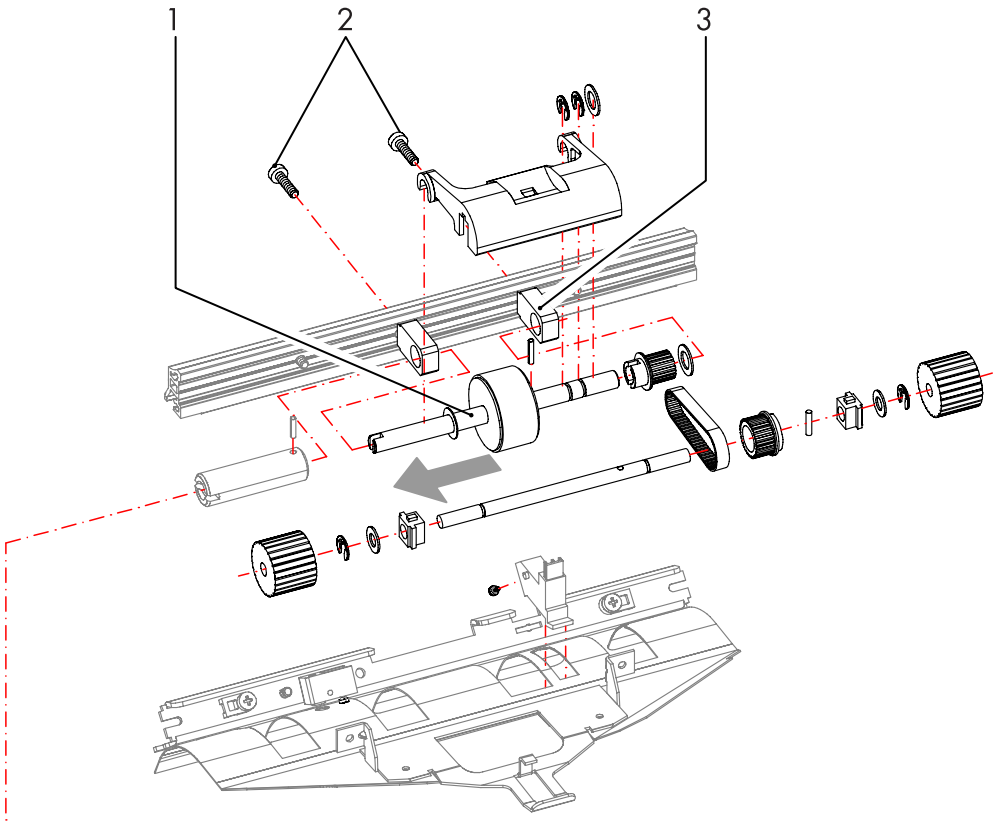

figure 3.12

3.9.3 Upper separation roller assy.

Remove the complete feed roller assy. as described in the previous paragraph. The feed roller is attached to the axle and is only available as a complete assembly. So if the feed roller is worn the complete assembly must be replaced.

3.9.4 Lower separation roller assy.

The removal of the separation roller assy. 1 is shown in figure 3.13. The separation roller is only available as a complete assembly. So if the separation roller is worn, the complete assembly must be replaced.

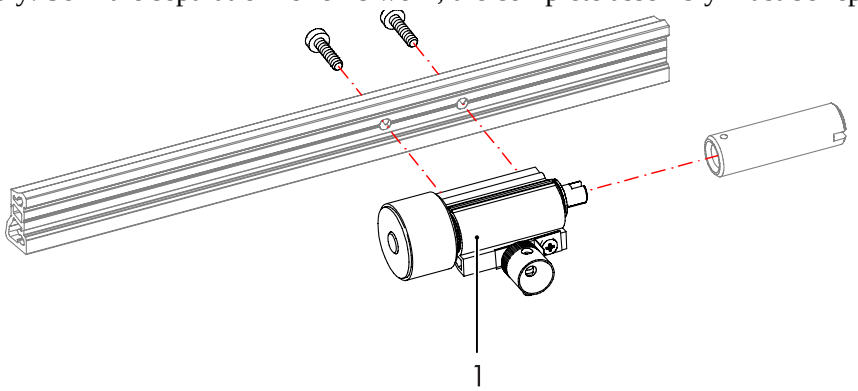

figure 3.13

3.9.5 Gears

The gears at the LH side of the feeder can be removed without detaching the feeder from the machine. However, the wiring mounting plate must be disassembled, refer to the section Feeders, Lower feeder. The gear 48T and the gear 64T can be removed as described in the section Automatic separation feeder with daily mail, Gears.

The gears at the RH side of the feeder can only be disassembled after the feeder is removed from the machine. Once the feeder is removed the gears at the RH side can easily be disassembled, refer to figure 3.14.

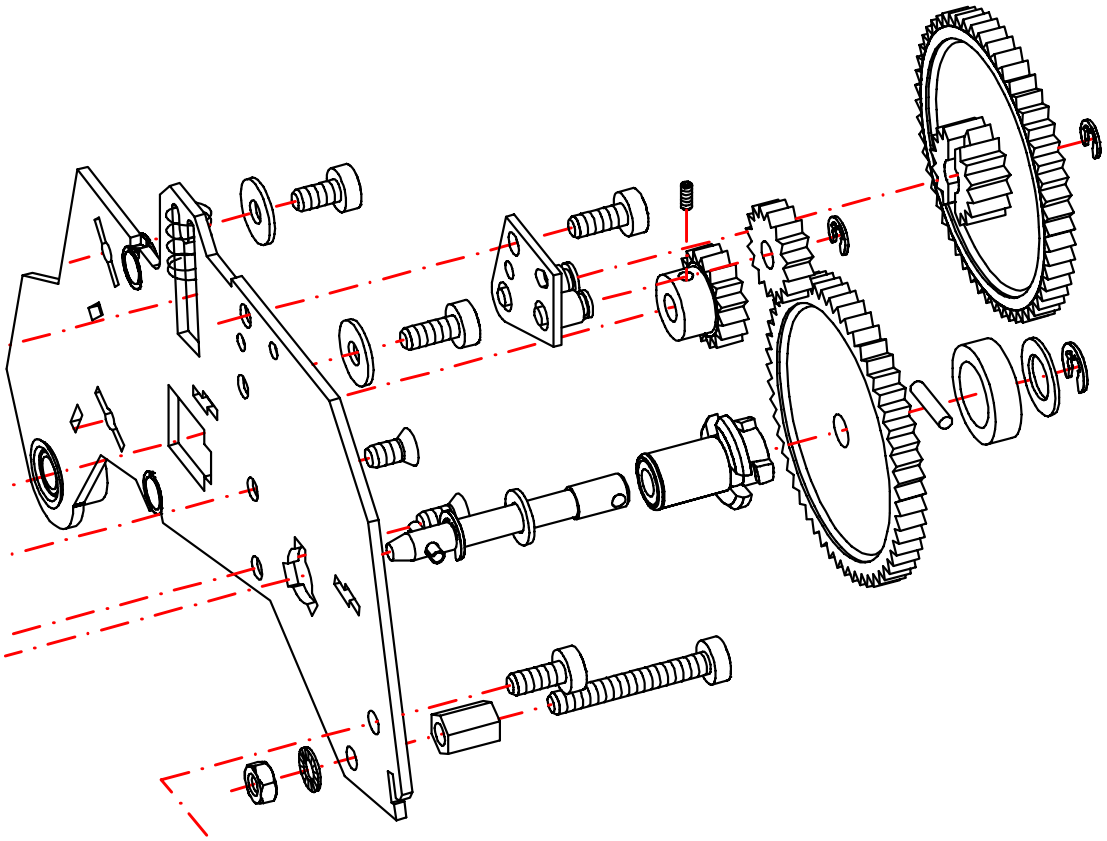

figure 3.14

4 Vertical transport

Open the vertical transport track as described in paragraph 1.1 “Vertical transport track”.

4.1 Cover plate

Removal

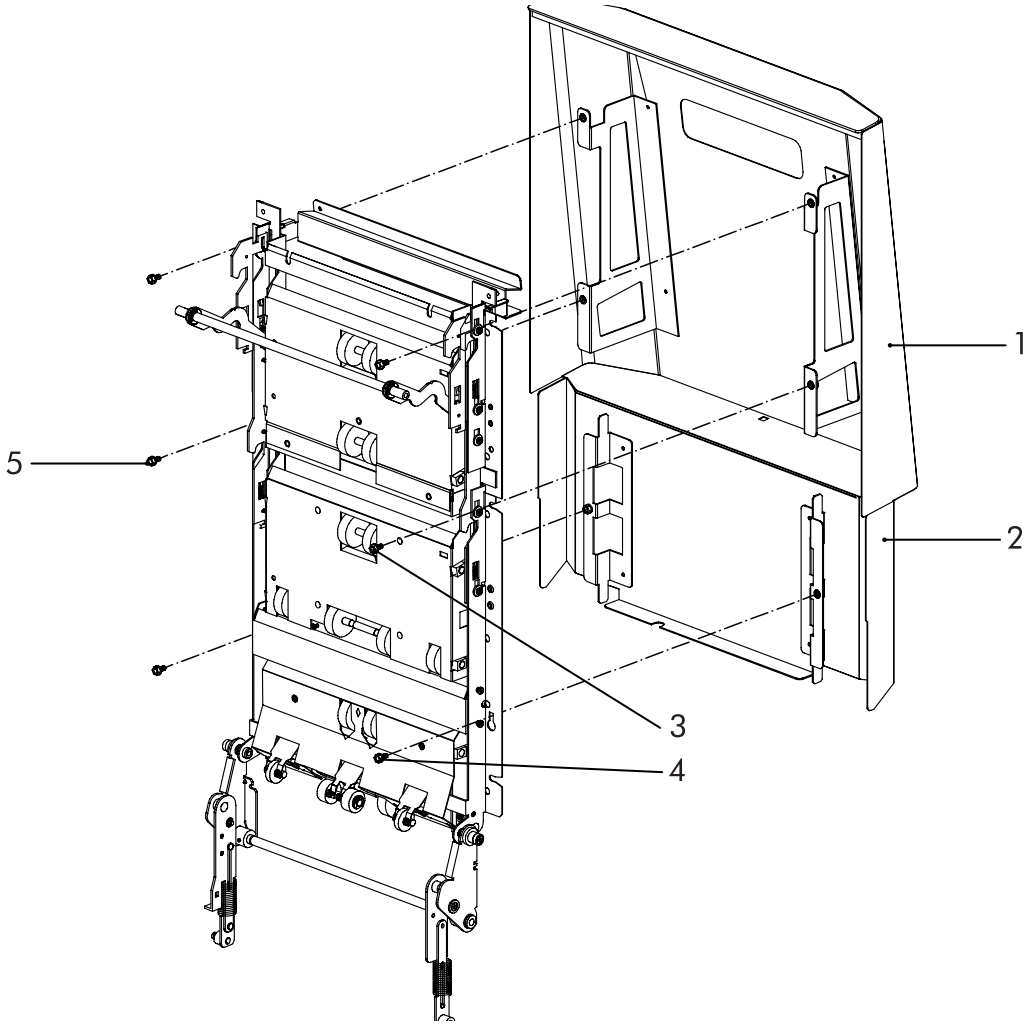

figure 4.1

Refer to figure 4.1
Remove the two hex. head screws 5 on the LH side and slacken the two hex.head screws 3 on the RH side. Move the cover 1 to the RH side to remove the cover 1.

Slacken the two hex. head screws 4 on the LH and RH side. Slide cover 2 slightly downward until it can be removed from it's position.

4.2 Guide rollers

Right and left-hand guide roller

Note: The removal procedure of the right and left-hand guide roller is similar.

Removal

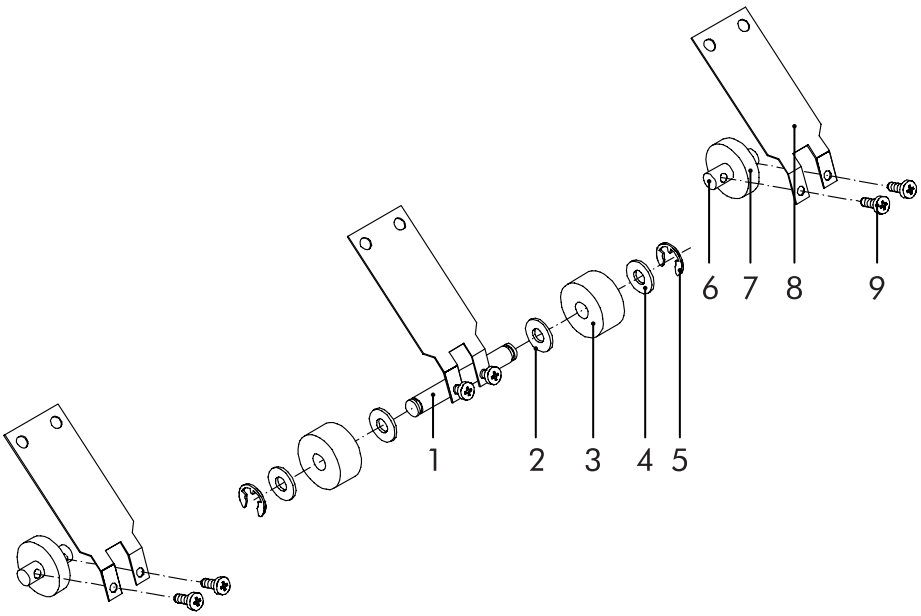

figure 4.2

Refer to figure 4.2
Remove the two round head screws 9 securing the rod 6 with the guide roller 7 to the leaf spring 8.
Remove the rod and slide the guide roller off it.

Middle guide rollers

Note: The removal of the two guide rollers in the middle is similar.

Removal
Refer to figure 4.2
Remove the spring clip 5 with the washer 4.
Slide the guide roller 3 off the axle 1. Take care of the washer 2.

5 Collating area

5.1 Drive mechanism

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

5.1.1 Drive belts

Removal

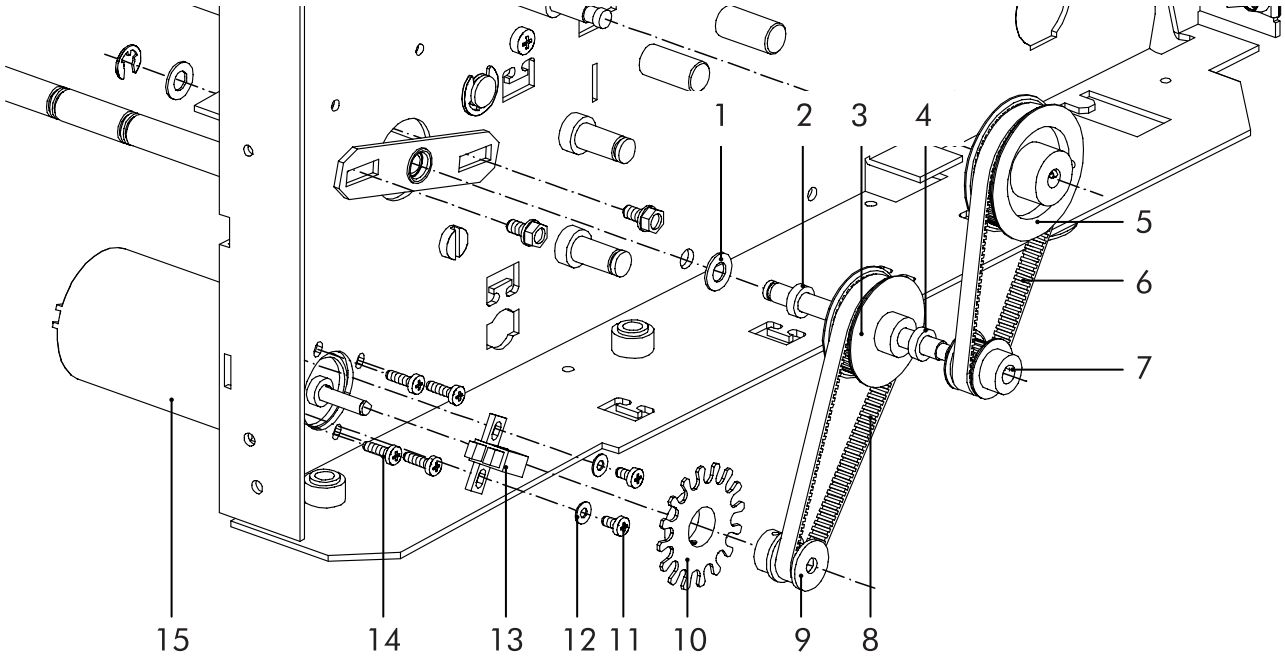

figure 5.1

Refer to figure 5.1
Slacken the set screw of the pulley 5 and the pulley 7.
Slide both pulleys together with the drive belt 6 off the axles and remove the spacer 4.
Remove the two round head screws 11 with the washers 12 and place the pulse disc detector assy. 13 aside.
Slacken the set screw of the pulley 3.
Slacken the set screw of the pulley 9 (accessible through the hole in the pulse disc 10).
Slide both pulleys together with the drive belt 8 off the axles. Take care of the spacer 2 and the washer 1.

Replacement
Ensure on replacement that the set screw of the pulley 9 is retightened onto the flattened part of the motor axle and that the pulse disc detector assy. clears both sides of the pulse disc and the detector “sees” the outer ends of the slots in the pulse disc.

Adjustment
See paragraph 9.2.1 “Drive belts”.

5.1.2 Pulleys

Pulleys 60T (item 5), 22T (item 7), 40T (item 3) and 18T (item 9)

The removal of the pulleys has been described in the previous paragraph.

5.1.3 Motor

Remove the collating area cover as described in paragraph 1.8 “Collating area cover”.
Remove the drive belts as described in the paragraph 5.1.1 “Drive belts”.

Removal
Refer to figure 5.1
Cut the two wire straps securing the wiring of the motor 15.
Disconnect the motor.
Remove the four round head screws 14 and withdraw the motor.

Replacement
Ensure on replacement to secure the wiring of the motor again with two wire straps.

5.2 Collating arm

5.2.1 Transportation belts

Remove the collating arm cover as described in paragraph 1.7 “Collating arm cover”.

Removal

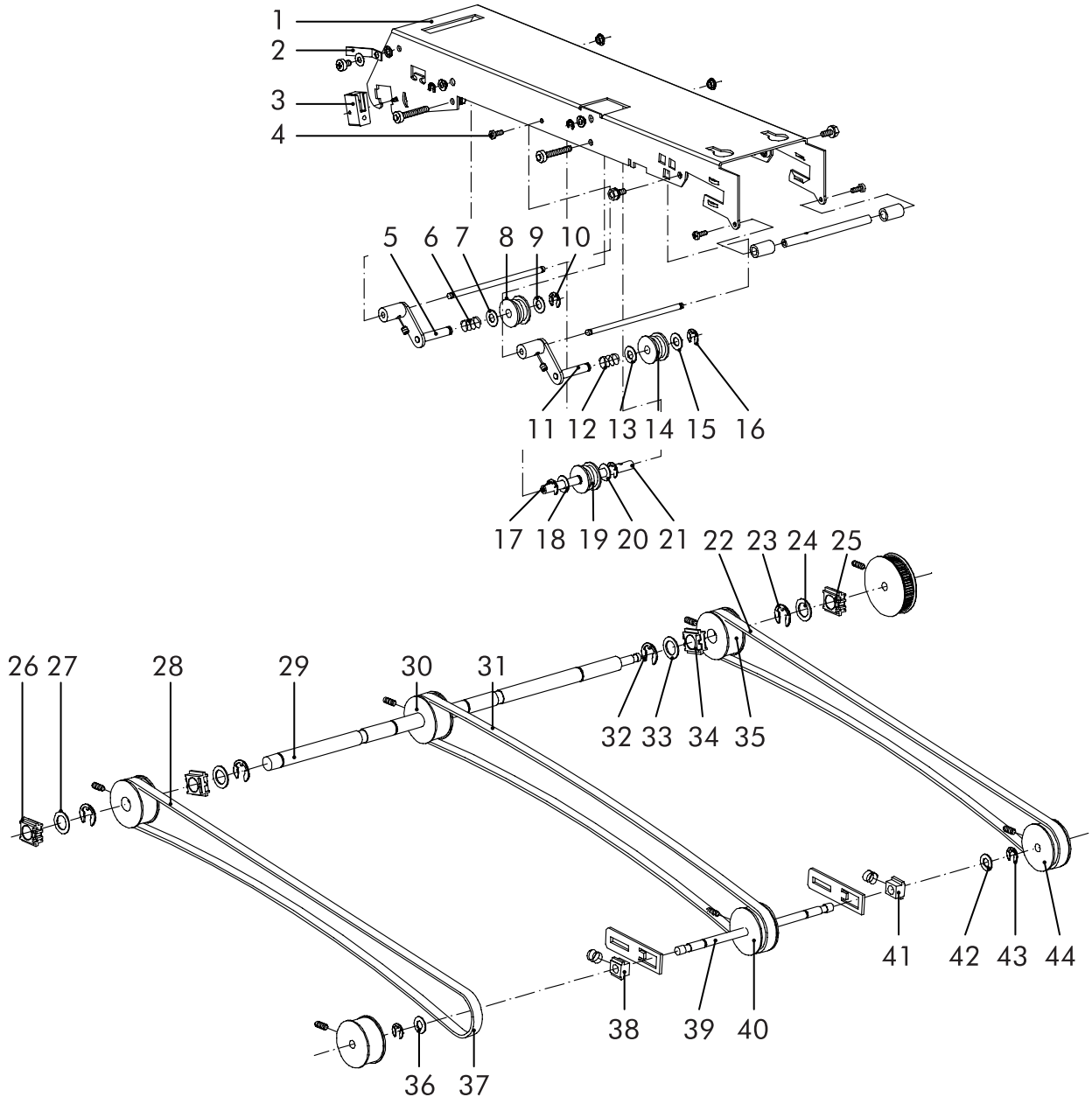

figure 5.2

Refer to figure 5.1

Slacken the set screw of the pulley 5 and the pulley 7.
Slide both pulleys together with the drive belt 6 off the axles. Take care of the spacer 4.

Refer to figure 5.2
Cut the wire strap securing the wiring of the receiver 3 to the collator frame 1.
Disconnect the receiver and the earth lead 2.
Slacken the set screw of the pulley 30 in the middle of the collator axle 29.
Remove the spring clip 23 from the right-hand side of the collator axle.
Slide the collator arm frame in the right-hand side direction until the left-hand side clears the LH inside frame.
Take care of the washer 27 and the bearing 26 on the left-hand side of the collator axle.
Tilt the front side of the collator arm frame in the right-hand side direction and when possible withdraw it from the RH inside frame and from the machine. Take care of the bearing 25 and the washer 24 on the right-hand side of the collator axle.
Slide the belts 28 and 22 from the pulleys and withdraw them.
Slacken the set screw of the pulley 40 in the middle of the front axle 39.
Slacken the set screw of the pulleys 35 and 44 on the right-hand side and slide them off the axles.
Remove the spring clip 43 with the washer 42 securing the front axle on the right-hand side.
Withdraw the front axle in the left-hand side direction from the collating arm frame and slide the middle pulley with the belt 31 off the axle. Take care of the bearings 41 and 38 and of the washer 36 on the left-hand side.
Remove the spring clip 32 securing the collator axle on the right-hand inside of the collating arm frame.
Push the bearing 34 inwards out from the slotted hole in the collator arm frame.
Remove the collator axle from the collator arm frame. Take care of the bearing and the washer 33.
Slide the pulley in the middle with the belt off the collator axle.

Replacement
Ensure on replacement that the set screws of the pulley in the middle and the pulley on the right-hand side of the collator axle, rest into the grooves in the axle. Secure the wiring of the receiver again with a wire strap.

Adjustment
See paragraph 9.2.2 “Transportation belts”.

5.2.2 Guide rollers

Lift the front of the collating arm upwards and hold it in this position.

First guide roller

Removal
Refer to figure 5.2
Remove spring clip 16 with the washer 15 (**spring loaded**).
Slide the guide roller 14 off the axle 11. Take care of the washer 13 and the tension spring 12.

Second guide roller

Removal

Refer to figure 5.2
Remove the round head screw 4.
Withdraw the axle 21 with the guide roller 19 from the collating arm frame 1.
Remove the spring clip 17 with the washer 18.
Slide the guide roller off the axle. Take care of the washer 20.

Third guide roller

Removal
Refer to figure 5.2
Remove the spring clip 10 with the washer 9 (**spring loaded**).
Slide the guide roller 8 off the axle 5. Take care of the washer 7 and the tension spring 6.

6 Shunt/Divert area

6.1 Shunt

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.
Remove the LH side cover as described in paragraph 1.5 “LH side cover”.

6.1.1 Clutches

Clutch, item 1 and item 13

Note: The removal of the right and left-hand clutch is similar.

Removal

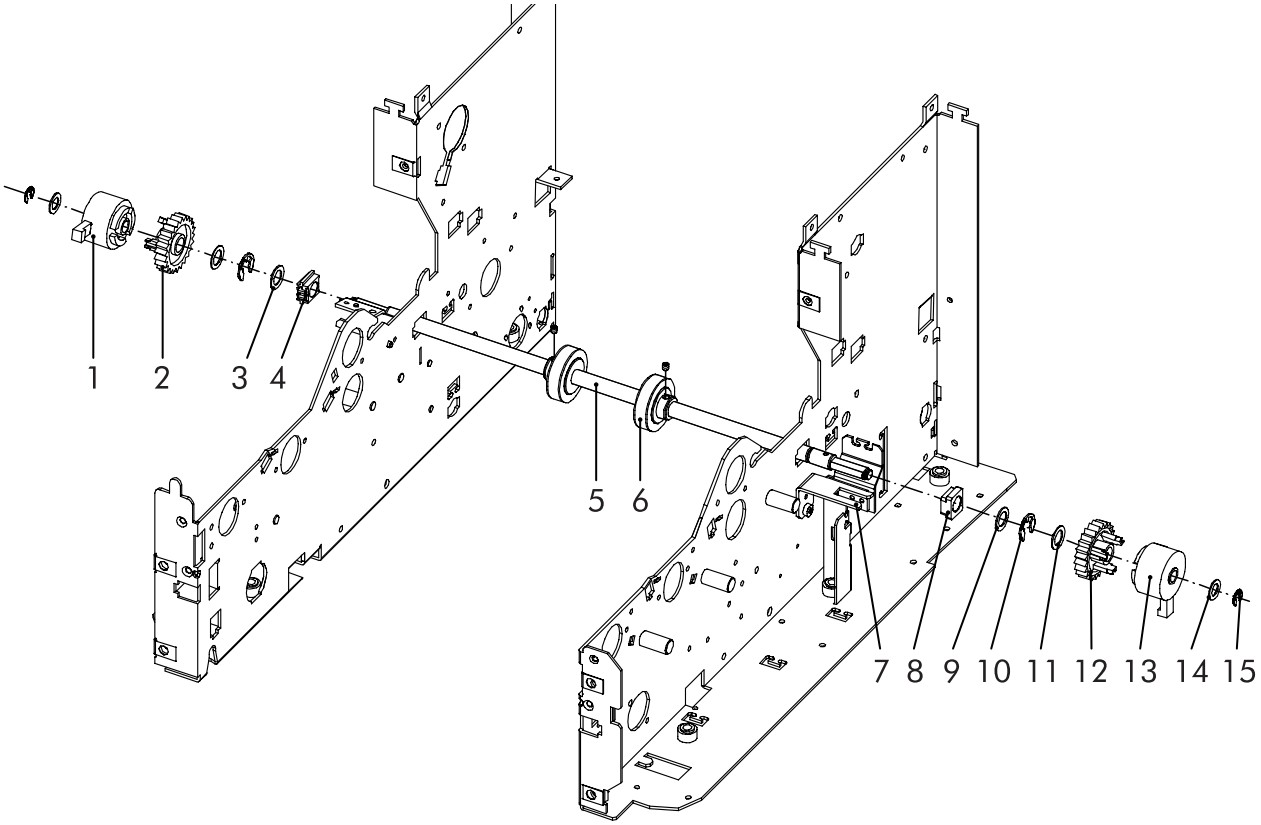

figure 6.1

Refer to figure 6.1
Cut the wire strap securing the wiring to the stud of the clutch 13.
Disconnect the clutch.
Remove the spring clip 15 with the washer 14 securing the clutch.
Slide the clutch off the axle 5.

Replacement
Ensure on replacement that the locking plate 7 retains the clutch and secure the wiring again to the stud on the clutch with a wire strap.

6.1.2 Gears

Gears 24T, item 2 and 24T, item 12

Note: The removal of the right-hand and left-hand gear is similar.

Removal
Remove the clutches as described in the previous paragraph.

Refer to figure 6.1
Slide the gear 12 off the axle 5. Take care of the washer 11.

6.1.3 Transportation rollers

Open the vertical transport track as described in paragraph 1.1 ”Vertical transport track”.
Remove the collating area cover as described in paragraph 1.8 “Collating area cover”.

Removal
Remove the gear 24T, item 12 as described in the previous paragraph.

Refer to figure 6.1
Remove the spring clip 10 with the washer 9 from the left-hand side of the axle 5.
Cut the wire strap securing the wiring to the stud of the right-hand side clutch 1.
Disconnect the right-hand side clutch.
Slacken the set screws of both transportation rollers 6 on the axle.
Withdraw the axle in the right-hand side direction from the machine and slide both transportation rollers off the axle. Take care of the metal bearing 8 on the left-hand side of the axle and of the bearing 4 and the washer 3 on the right-hand side.

Replacement
Ensure on replacement that the two transportation rollers are refitted correctly on the axle (narrowing part of both rollers pointing outwards) and the set screws rest into the grooves in the axle. Secure the wiring again to the stud on the right-hand clutch with a wire strap.

6.2 Divert

Remove the transportation rollers as described in the previous paragraph.

6.2.1 Divert unit

Remove the bottom plate as described in paragraph 1.9 “Bottom plate”.

Removal

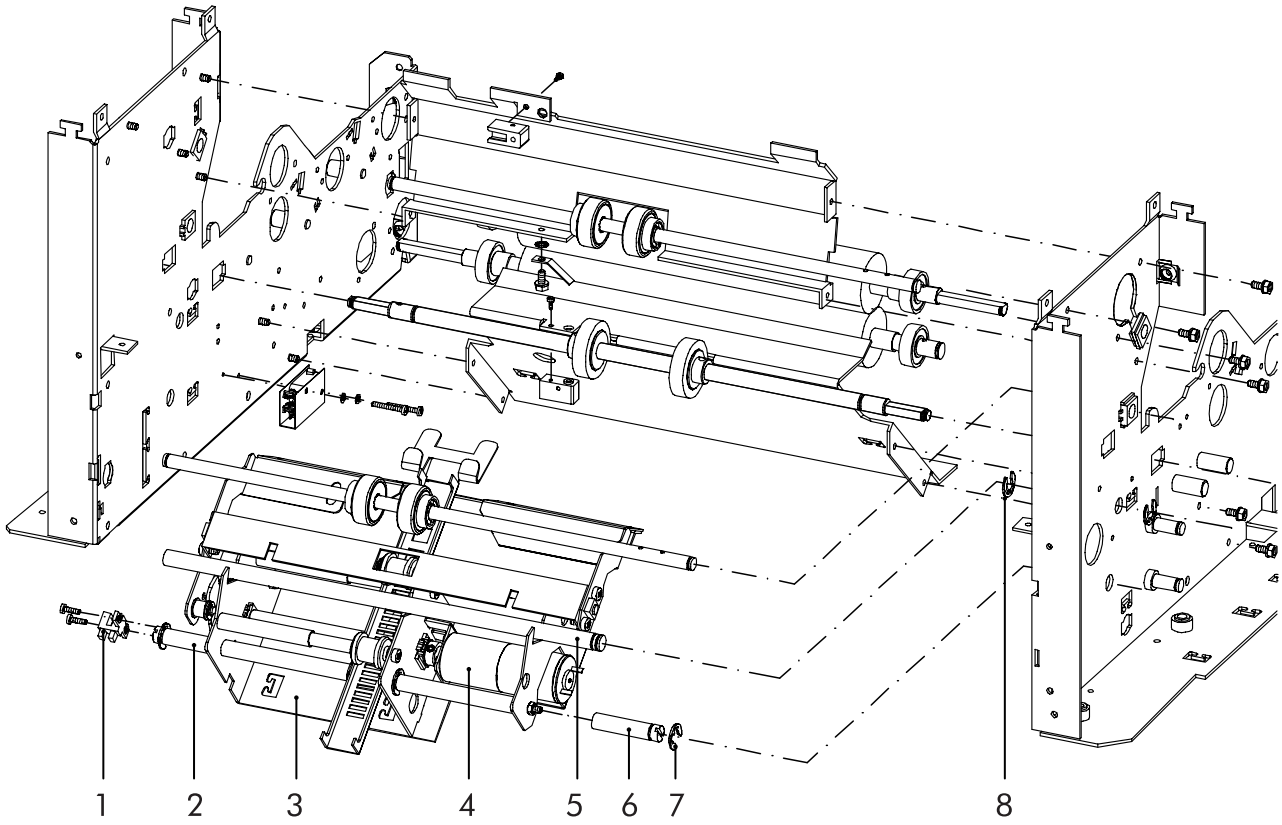

figure 6.2

Refer to figure 6.2
Remove the spring clip 8 securing the frame rod 5 on the right-hand inside of the machine.
Withdraw the frame rod in the right-hand side direction from the machine.
Disconnect the wiring of the motor 4.
Disconnect the wiring of the pulse disc detector assy. 1 (see also figure 6.3, item 16).
Remove the spring clip 7 securing the right-hand rod 6 on the right-hand inside of the machine.
Unscrew and remove the rod.
Lift the divert unit upwards until the left-hand rod 2 is clear from the LH inside frame and then withdraw it from the machine.

6.2.2 Motor

Remove the divert unit as described in the previous paragraph.

Removal

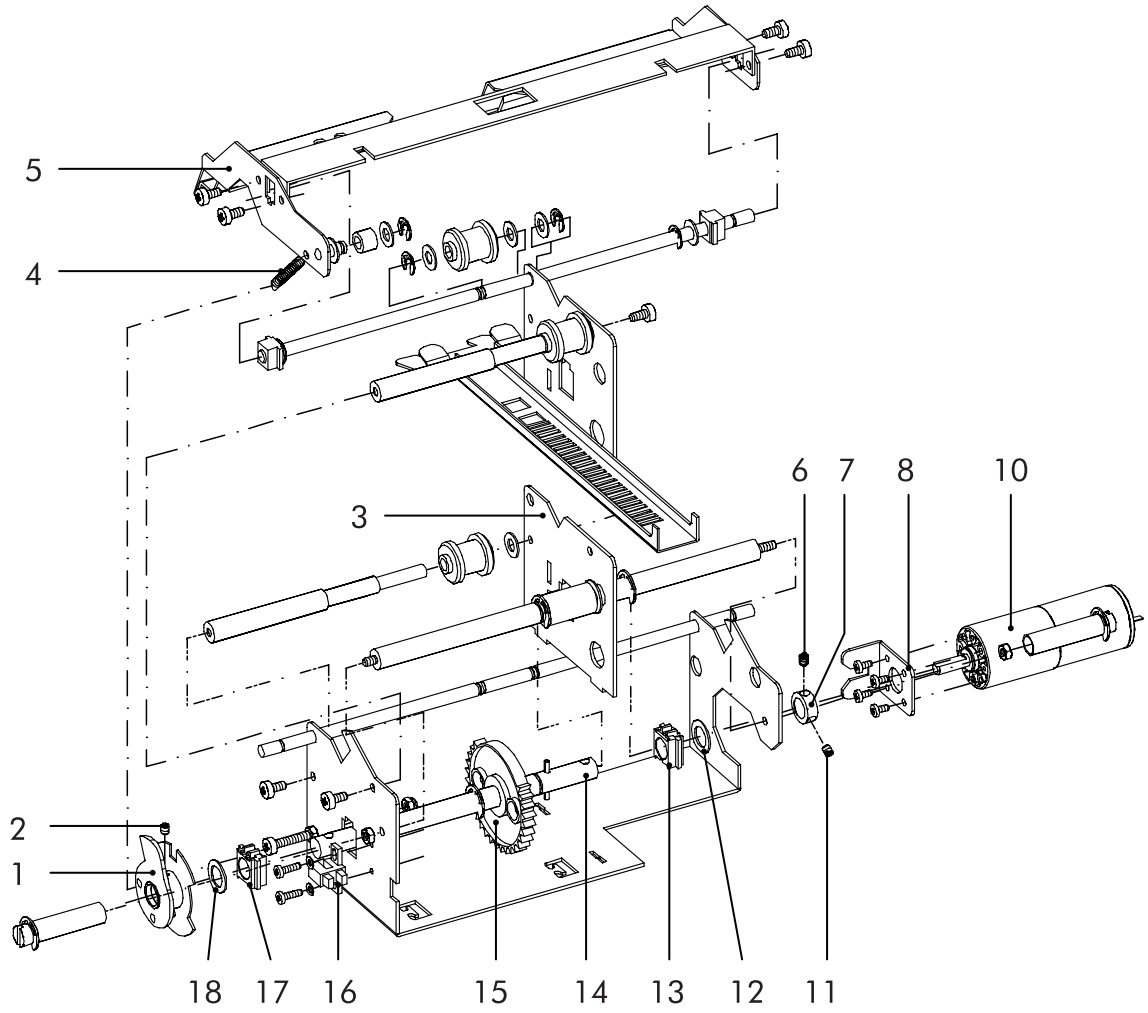

figure 6.3

Refer to figure 6.3
Cut the three wire straps securing wiring to the motor 10 and disconnect it.
Slacken the set screw 6 of the bushing 7 securing the motor axle.
Withdraw the motor together with the bracket 8.

Replacement
Ensure on replacement that the bracket is refitted into the slits of the divert frame 3 and that the set screw of the bushing is retightened onto the flattened part of the motor axle. Secure the wiring again to the motor with three wire straps.

6.2.3 Gear

Gear 26/35T (item 15)

Remove the motor as described in the previous paragraph.

Removal
Refer to figure 6.3
Slacken the set screw 11 securing the bushing 7 to the axle 14.
Remove the bushing, the washer 12 and the bearing 13.
Unhook the tension spring 4 from the bracket 5.
Slacken the set screw 2 securing the cam disc 1.
Slide the cam disc off the axle. Take care of the pulse disc detector assy. 16.
Remove the washer 18 and the bearing 17.
Slide the gear 15 towards the middle of the axle.
Slide the axle in the right-hand side direction until the left-hand side is clear from divert frame 3.
Tilt the axle in the front side direction and, when possible, withdraw it and slide the gear off the axle.

Replacement
Ensure on replacement that the gear is replaced correctly onto the axle, see figure 6.4 (the flattened part of the gear and the hole in the axle for securing the cam disc are pointing in the same direction). Ensure that the set screw of the cam disc is retightened into the hole in the axle.

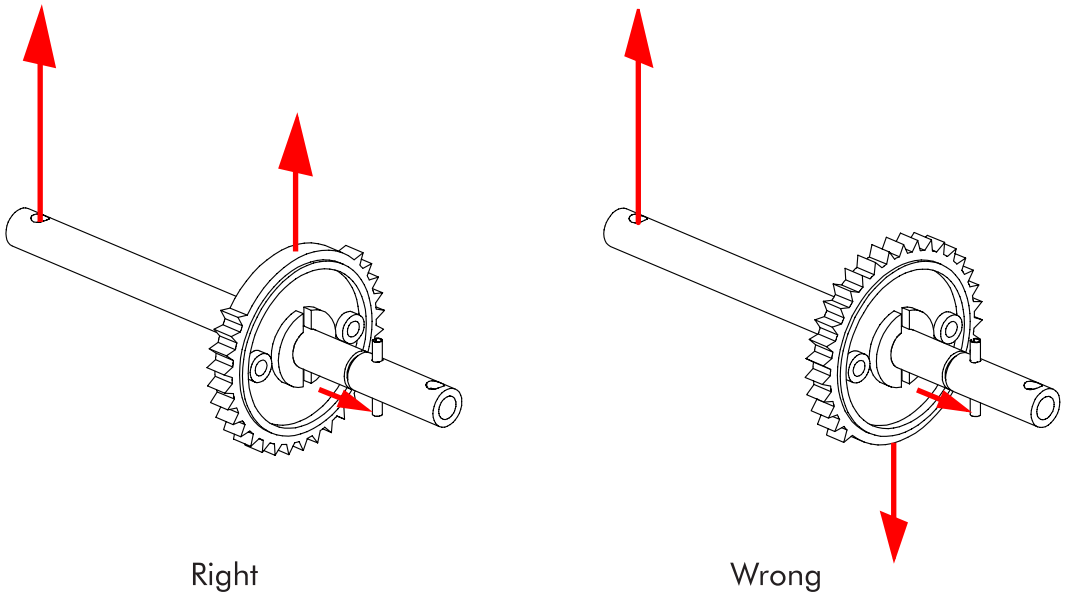

figure 6.4

7 Folder

7.1 RH drive mechanism

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.
Remove the front folder cover as described in paragraph 1.11 “Front folder cover (divert tray)”.

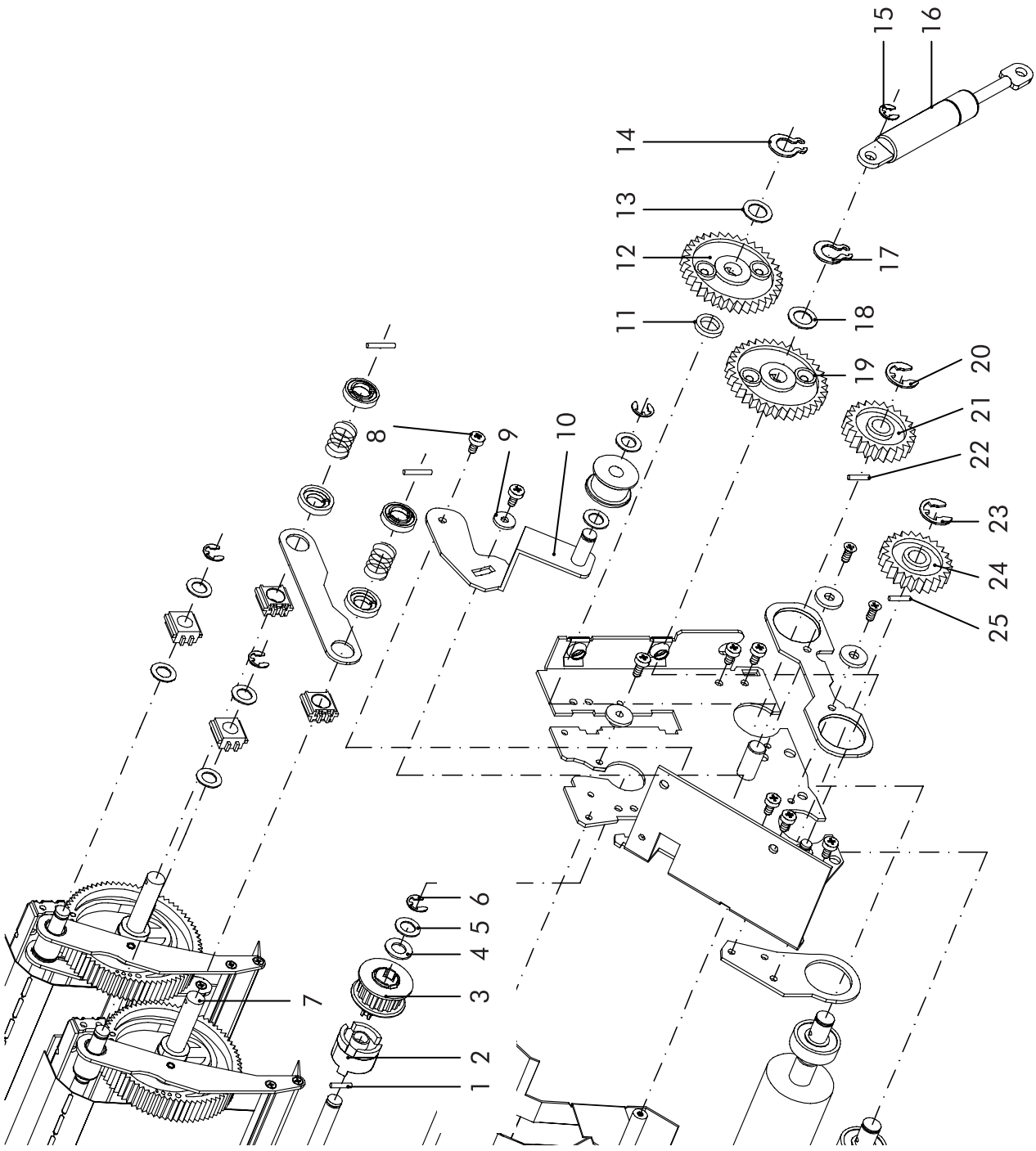

figure 7.1

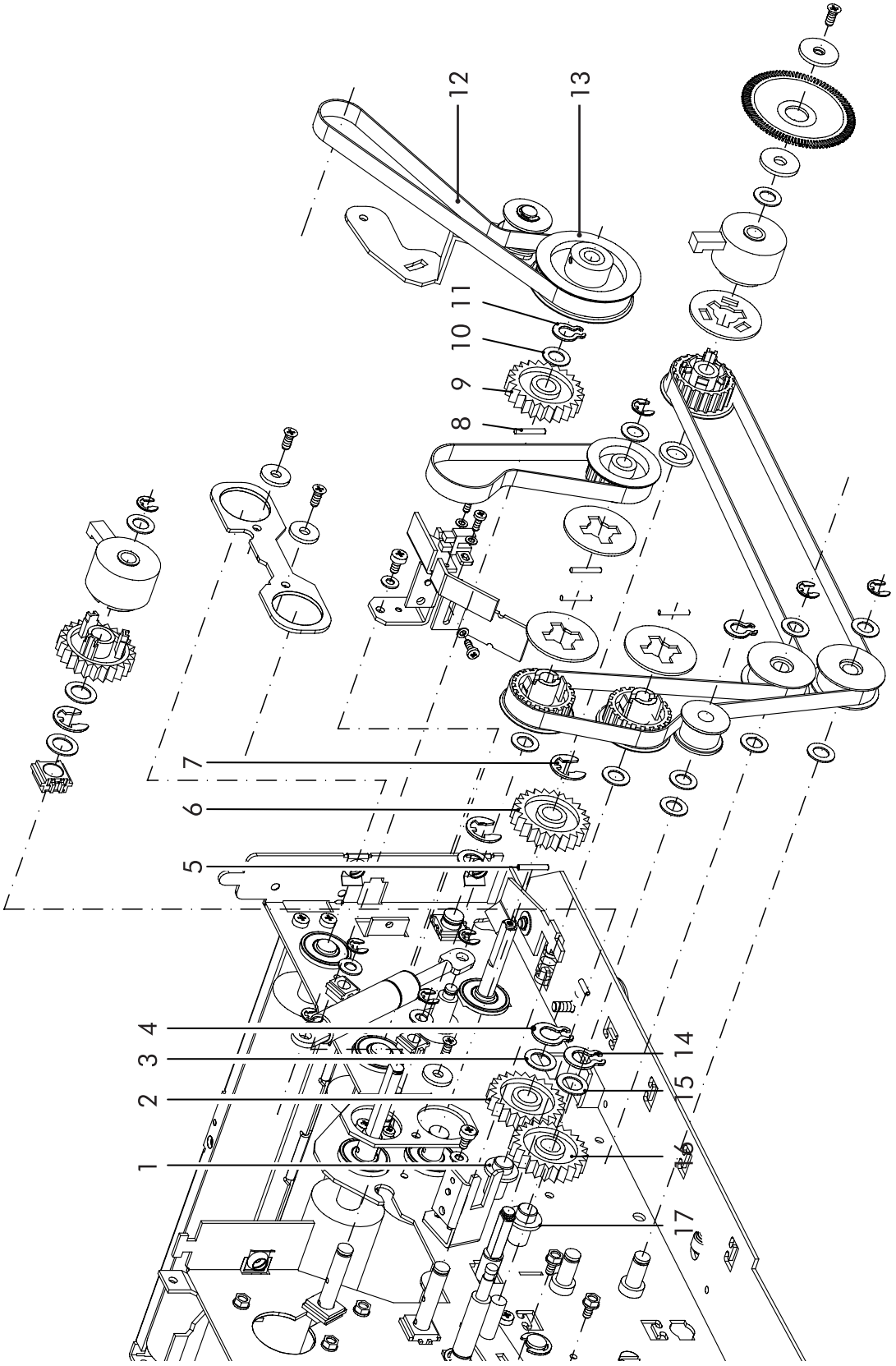

figure 7.2

7.1.1 Drive belt

Removal
Refer to figure 7.1
Slacken the two round head screws 8 securing the belt tensioner 10.

Refer to figure 7.2
Remove the drive belt 12 from the pulleys 13 and the pulley 3 (figure 7.1).

Adjustment
See paragraph 9.3.1 “RH drive belt”.

7.1.2 Pulleys

Remove the drive belt as described in the previous paragraph.

Pulley 15T (item 3)

Removal
Refer to figure 7.1
Remove the spring clip 6 with the washer 5 and the spacer 4.
Slide the pulley 3 off the axle. Take care of the freewheel clutch 2 and the cyl. pin 1.

Pulley 30T (item 13)

Removal
Refer to figure 7.2
Slacken the set screw of the pulley 13.
Slide the pulley off the axle.

Replacement
Ensure on replacement that the set screw of the pulley is retightened onto the flattened part of the axle and it is aligned in a straight line with the belt tensioner and the pulley 3 (figure 7.1).

7.1.3 Clutches

Freewheel clutch

Removal
Remove the pulley 15T, item 3 as described in the previous paragraph.

Refer to figure 7.1
Slide the freewheel clutch 2 off the axle. Take care of the cyl. pin 1.

7.1.4 Gears

Gear 24T (item 16)

Removal
Refer to figure 7.2
Remove the clamping ring 14 with the washer 15.
Slide the gear 16 off the bearing pin. Take care of the spacer 17.

Gear 24T (item 2)

Removal
Refer to figure 7.2
Remove the clamping ring 4 with the washer 3.
Slide the gear 2 off the bearing pin. Take care of the spacer 1.

Gear 24T (item 6)

Removal
Refer to figure 7.2
Remove the spring clip 7.
Pull the gear 6 from the axle. Take care of the cyl. pin 5.

Gear 24T (item 9)

Removal
Remove the pulley 30T, item 13 as described in paragraph 7.1.2 “Pulleys”.

Refer to figure 7.2
Remove the clamping ring 11 with the washer 10.
Pull the gear 9 from the axle. Take care of the cyl. pin 8.

Gear 35T (item 21)

Removal
Remove the drive belt as described in paragraph 7.1.1 “Drive belt”.
Open the folder as described in the paragraph 1.3 “Folder”.

Refer to figure 7.1
Remove the two round head screws 8 securing the belt tensioner 10 and withdraw it. Take care of the washer 9.
Remove the spring clip 15 securing the damper 16.
Slide the damper off the bearing pin.
Remove the clamping ring 17 with the washer 18.
Slide the gear 19 off the bearing pin.

Gear 24T (item 26)

Removal
Refer to figure 7.1
Remove the spring clip 23.
Pull the gear 24 from the axle. Take care of the cyl. pin 25.

Gear 35T (item 14)

Removal
Refer to figure 7.1
Remove the clamping ring 14 with the washer 13.
Slide the gear 12 off the bearing pin. Take care of the spacer 11.

Gear 24T (item 23)

Removal
Refer to figure 7.1
Remove the spring clip 20.
Pull the gear 21 from the axle. Take care of the cyl. pin 22.

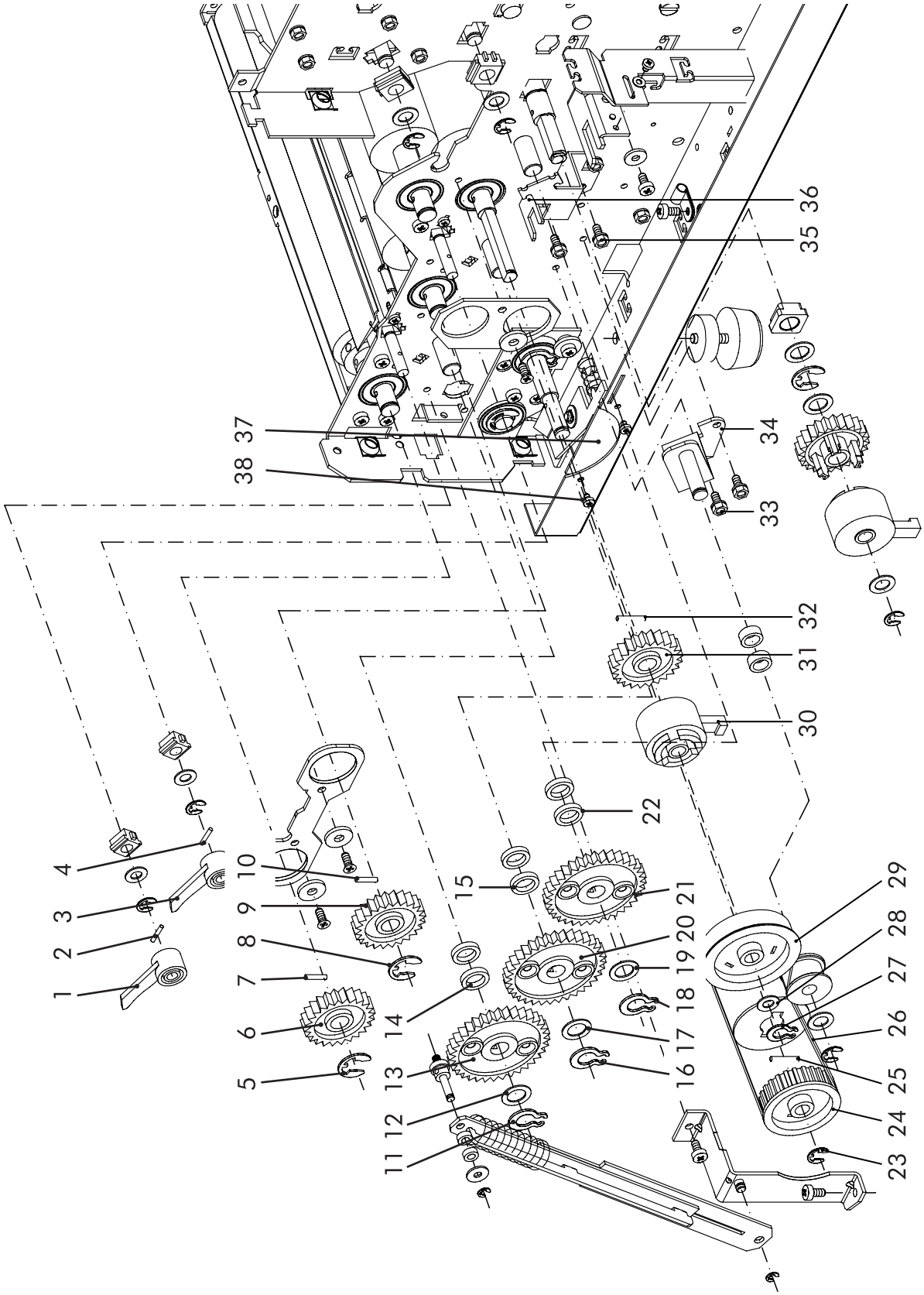
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figure 7.3

7.2 LH drive mechanism

Remove the LH side cover as described in paragraph 1.5 “LH side cover”.
Open the folder as described in paragraph 1.3 “Folder”.

7.2.1 Drive belt

Removal
Refer to figure 7.3
Remove the screws 38 and the plate 37.
Slacken the two hex. head screws 33 securing the belt tensioner 34.
Remove the drive belt 26 from the pulley 24 and the pulley 29.

Adjustment
See paragraph 9.3.2 “LH drive belt”.

7.2.2 Pulleys

Remove the drive belt as described in the previous paragraph.

Pulley 30T (item 24)

Removal
Refer to figure 7.3
Remove the spring clip 23.
Pull the pulley 24 from the axle. Take care of the cyl. pin 25.

Pulley 35T (item 29)

Removal
Refer to figure 7.3
Remove the clamping ring 27 with the washer 28.
Slide the pulley 29 off the axle.

7.2.3 Clutch

Removal
Remove the pulley 36T, item 29 as described in the previous paragraph.

Refer to figure 7.3
Disconnect the clutch.
Slide the clutch off the axle.

Replacement
Ensure on replacement that the locking plate 36 retains the clutch and secure the wiring again to the stud on the clutch with a wire strap.

7.2.4 Gears

Remove the LH side cover as described in paragraph 1.5 “LH side cover”.

Gear 24T (item 6)

Removal
Refer to figure 7.3
Remove the spring clip 5.
Pull the gear 6 from the axle. Take care of the cyl. pin 7.

Gear 35T (item 13)

Removal
Refer to figure 7.3
Pull the flap lever 1 from the axle. Take care of the cyl. pin 2.
Remove the clamping ring 11 with the washer 12.
Slide the gear 13 off the bearing pin. Take care of the two spacers 14.

Gear 24T (item 9)

Removal
Refer to figure 7.3
Remove the spring clip 8.
Pull the gear 9 from the axle. Take care of the cyl. pin 10.

Gear 35T (item 20)

Removal
Refer to figure 7.3
Pull the flap lever 3 from the axle. Take care of the cyl. pin 4.
Remove the clamping ring 16 with the washer 17.
Slide the gear 20 off the bearing pin. Take care of the two spacers 15.

Gear 24T (item 31)

Removal
Remove the clutch as described in the previous paragraph.

Refer to figure 7.3
Pull the gear 31 from the axle. Take care of the cyl. pin 32.

Gear 35T (item 21)

Removal
Refer to figure 7.3
Remove the two hex. head screws 35 securing the locking plate 36 and place it aside. Take care of the wiring attached to it.
Remove the clamping ring 18 with the washer 19.
Slide the gear 21 off the bearing pin. Take care of the two spacers 22.

Replacement
Ensure on replacement that the locking plate retains the clutch 30.

7.3 Fold mechanism

Remove the top folder cover as described in paragraph 1.12 “Top folder cover”.
Remove the drive belt as described in paragraph 7.1.1 “Drive belt”.

7.3.1 Gears

Gear 32T (item 15) and 32T (item 2)

Removal

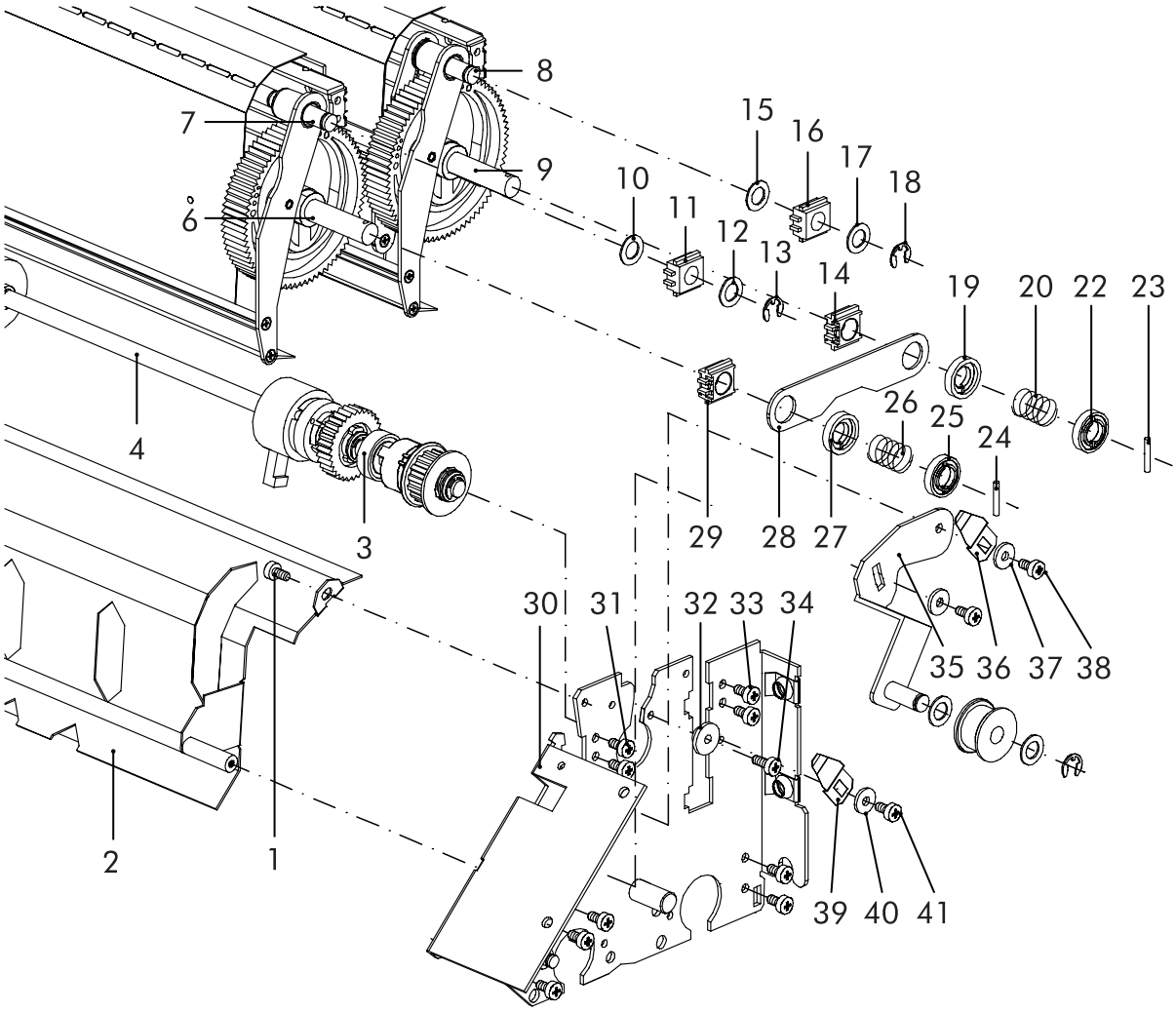

figure 7.4

Refer to figure 7.4
Remove the round head screw 34 with the bushing 32 securing the right-hand side of the axle 4.
Shift the axle in the right-hand side direction until the right-hand bearing 3 clears the frame plate 30.
Carefully lift the axle assembly as far as possible upwards. Take care of the wiring.

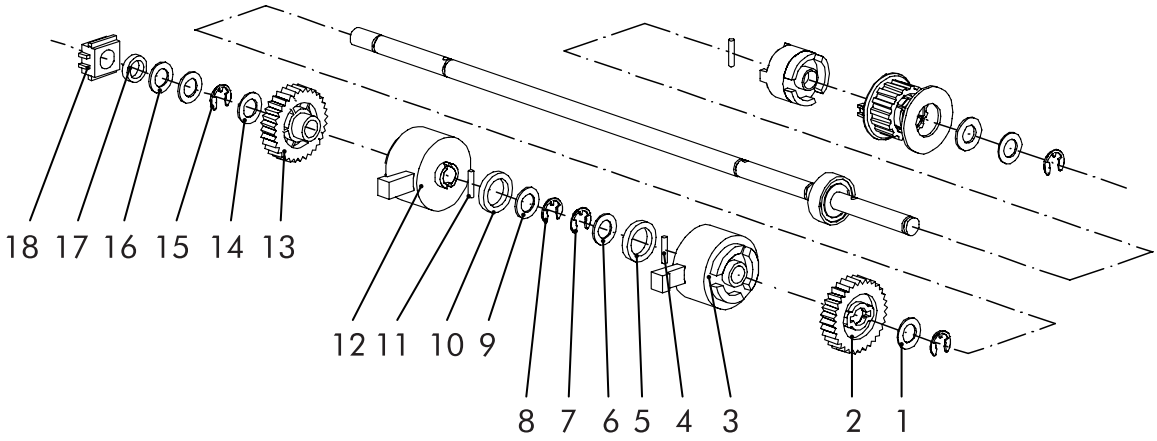

figure 7.5

Refer to figure 7.5
Remove the bearing 18 with the spacer 17 and two washers 16 from the left-hand side of the axle.
Cut the wire straps securing the wiring to the studs the clutches 3 and 12.
Disconnect both clutches and withdraw the axle assembly completely.
Remove the spring clip 15 with the washer 14.
Slide the left-hand gear 13 off the axle.
Slide the left-hand clutch 12 off the axle. Take care of the cyl. pin 11.
Remove spacer 10, the washer 9 and the spring clip 8 from the left-hand side of the axle.
Remove the spring clip 7, the washer 6 and the spacer 5 from the right-hand side axle. Take care of the cyl. pin 4.
Slide the right-hand side clutch 3 off the axle.
Remove the right-hand gear 2.
Take care of the washer 1.

Replacement
Ensure on replacement to secure the wiring of the clutches again to the studs with a wire strap and that the locking plate 8 (figure 7.7) retains both clutches.

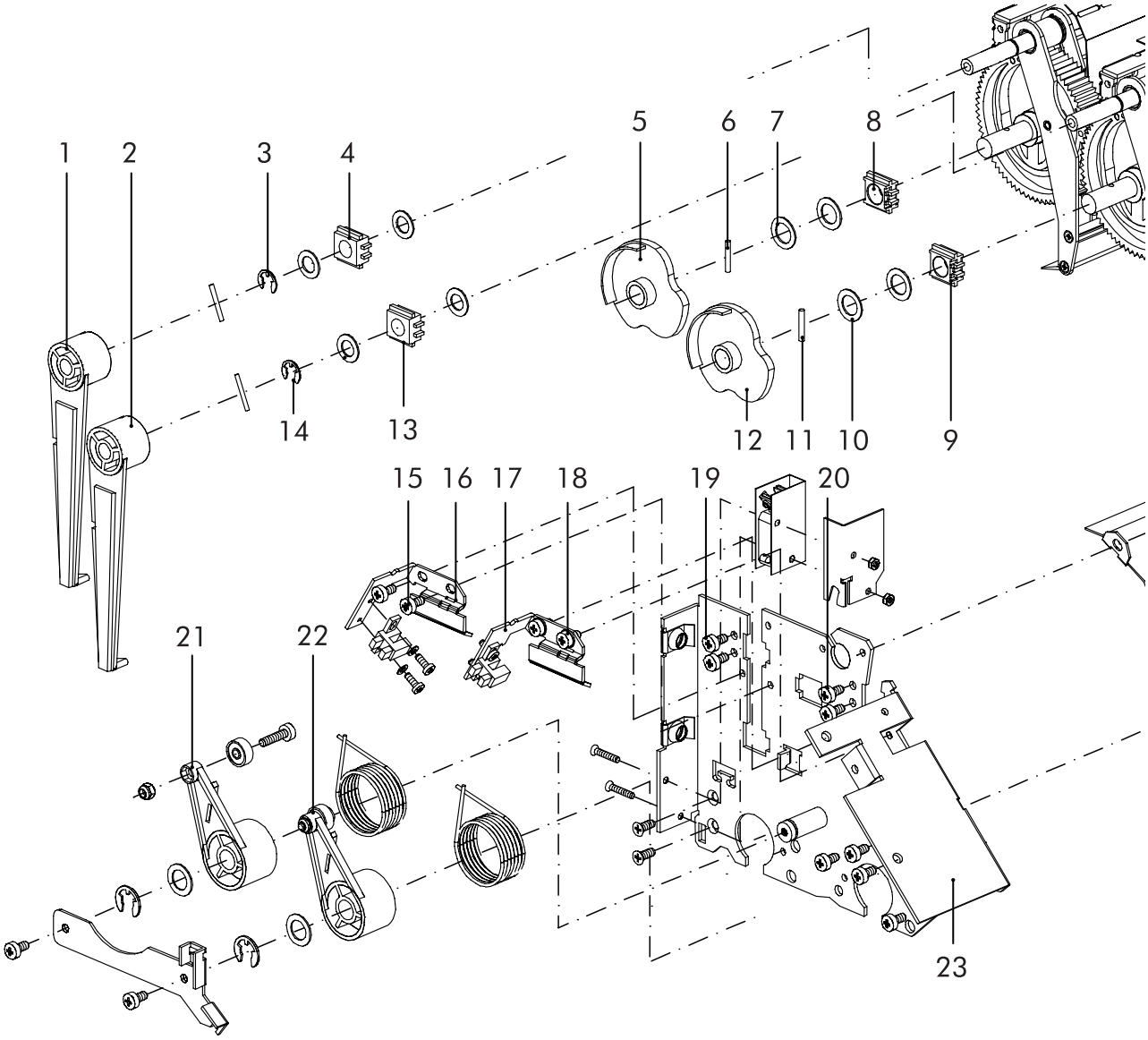

figure 7.6

7.3.2 Clutches

Clutch, item 4 and item 13

The removal of the right and left-hand clutch has been described in the previous paragraph 7.3.1 “Gears”.

7.3.3 Curved folder gears

Remove the axle assembly as described in paragraph 7.3.1 “Gears”.

Second curved folder gears

Removal
Refer to figure 7.4
Remove the round head screw 38 with the washer 37 and the conductive strip 36.
Push the spring holder 22 inwards and remove the cyl. pin 23.
Carefully remove the spring holder with the spring 20 and the spring holder 19.
Push the spring holder 25 inwards and remove the cyl. pin 24.
Carefully remove the spring holder with the spring 26 and the spring holder 27.
Remove the fixing bracket 28.
Remove the bearing 14 from the axle 9.
Remove the spring clip 18 with the washer 17, the bearing 16 and the washer 15 from the axle 8.
Remove the two round head screws 3 securing the fold assembly.

Refer to figure 7.6
Pull the lever 1 from the axle.
Remove the two round head screws 15 securing the mounting bracket 16 and place it aside.
Pull the spring lever 21 (**spring loaded!**) upwards and hold it in this position.
Pull the brake curve 5 from the axle.
Remove the cyl. pin 6, the two washers 7 and the bearing 8.
Carefully lower the spring lever (**spring loaded!**).
Remove the spring clip 3 and push the bearing 4 in the left-hand side direction from the slotted hole in the frame plate 23.
Remove the two round head screws 19 securing fold assembly.

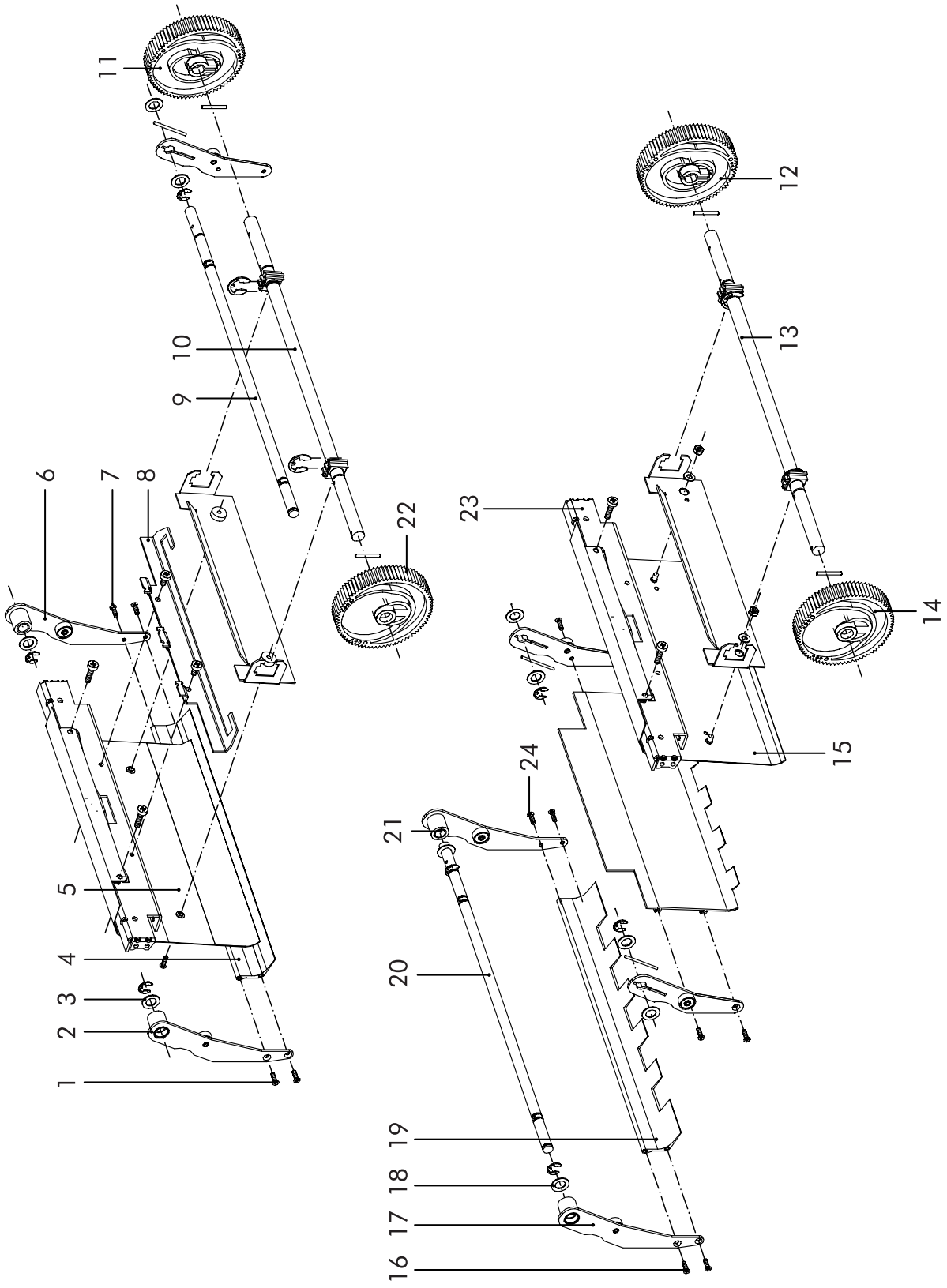

figure 7.7

Refer to figure 7.7
Carefully lift the complete fold assembly upwards and withdraw it.
Remove the two countersunk screws 1 securing the fold knife 4 on the right-hand side.
Slide the lever 2 off the axle 9. Take care of the washer 3.
Pull the right-hand curved gear 22 (marked with a “R”) off the axle.
Remove the two countersunk screws 7 securing the fold knife on the left-hand side.
Slide the lever 6 as far as possible in the left-hand side direction and move it aside so that the left-hand curved gear 11 is clear.
Pull the left-hand curved gear (marked with a “L”) off the axle.

Replacement
Ensure on replacement that the curved gears and the curved disc are/is replaced correctly onto the axle, refer to figure 7.8.

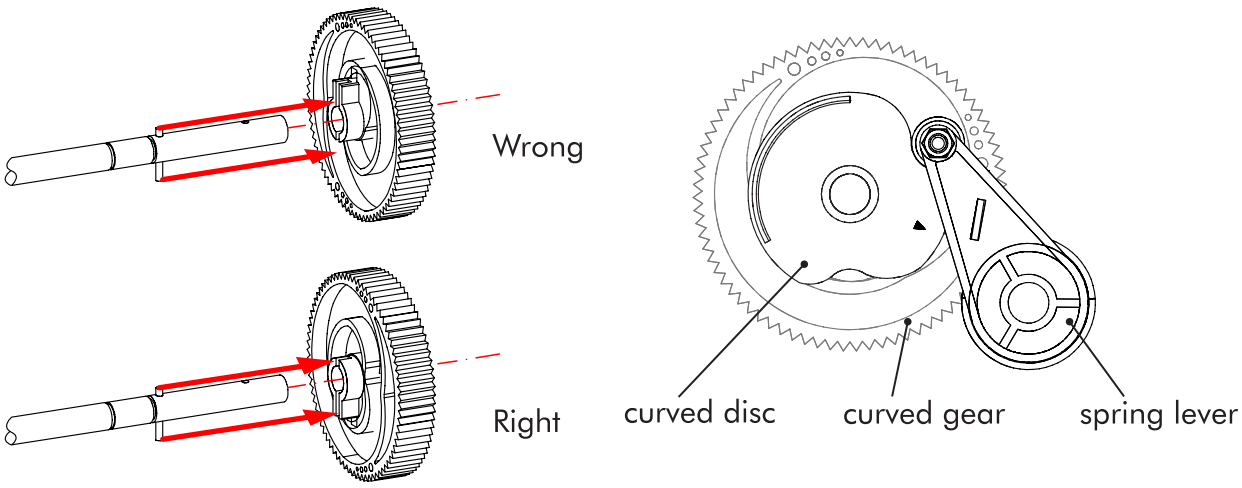

figure 7.8

Adjustment
Check after replacing and securing the complete fold assembly the adjustment of the paper guide 5 (figure 7.7), see paragraph 9.3.3 “Paper guide”.

First curved folder gears

Removal
Refer to figure 7.4
Remove the round head screws 1 securing the cover plate 2 on both sides and withdraw it upwards.

Refer to figure 7.7
Cut the four wire straps securing wiring to the locking plate 8 and the wire strap securing wiring to the bracket 23.

Refer to figure 7.4
Remove the two round head screws 38 and withdraw the belt tensioner 35. Take care of the washers 37 and the conductive strip 36.
Push the spring holder 22 inwards and remove the cyl. pin 23.
Carefully remove the spring holder with the spring 20 and the spring holder 19.
Push the spring holder 25 inwards and remove the cyl. pin 24.
Carefully remove the spring holder with the spring 26 and the spring holder 27.
Remove the fixing bracket 28.
Remove the bearing 29 from the axle 6.
Remove the spring clip 13 with the washer 12, the bearing 11 and the washer 10 from the axle 7.
Remove the two round head screws 31 securing the fold assembly.

Refer to figure 7.6
Pull the lever 2 from the axle.
Remove the two round head screws 18 securing the mounting bracket 17 and place it aside.
Pull the spring lever 22 (**spring loaded!**) upwards and hold it in this position.
Pull the brake curve 12 from the axle.
Remove the cyl. pin 11, the two washers 10 and the bearing 9 from the axle.
Carefully lower the spring lever (**spring loaded!**).
Remove the spring clip 14 and push the bearing 13 in the left-hand side direction from the slotted hold in the frame plate 23.
Remove the two round head screws 20 securing the fold assembly.

Refer to figure 7.7
Carefully lift the complete fold assembly upwards and withdraw it.
Remove the two countersunk screws 16 securing the fold knife 19 on the right-hand side.
Slide the lever 17 off the axle. Take care of the washer 18.
Pull the right-hand curved gear 14 (marked with a “R”) off the axle.
Remove the two countersunk screws 24 securing the fold knife on the left-hand side.
Slide the lever 21 as far as possible in the left-hand side direction and move it aside so the left-hand curved gear 22 is clear.
Pull the left-hand curved gear (marked with a “L”) off the axle.

Replacement
Ensure on replacement that the curved gears and the curved disc are/is replaced correctly onto the axle, refer to figure 7.8, and to secure the wiring again with five wire straps to locking plate 8 and the bracket 23 (figure 7.7).

Adjustment
Check after replacing and securing the complete fold assembly the adjustment of the paper guide 15 (figure 7.7), see paragraph 9.3.3 “Paper guide”.

7.4 Upper fold rollers

Note: In order to prevent a squeaking noise after replacement of one of the fold rollers we advise to slightly glue (loctite 603) the ball bearings to frame.

Remove the front folder cover as described in paragraph 1.11 “Front folder cover (divert tray)”.
Open the folder as described in paragraph 1.3 “Folder”.

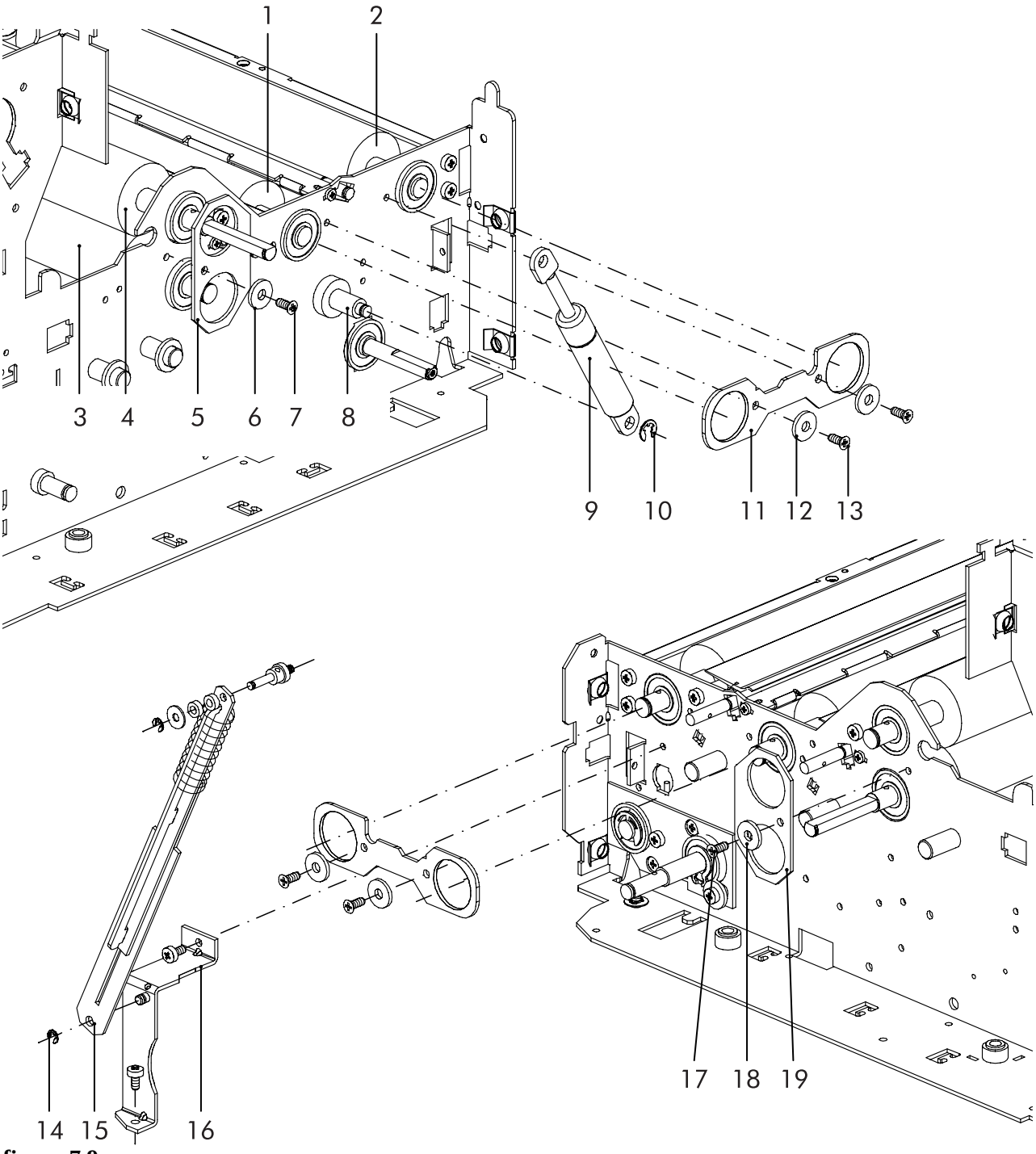

figure 7.9

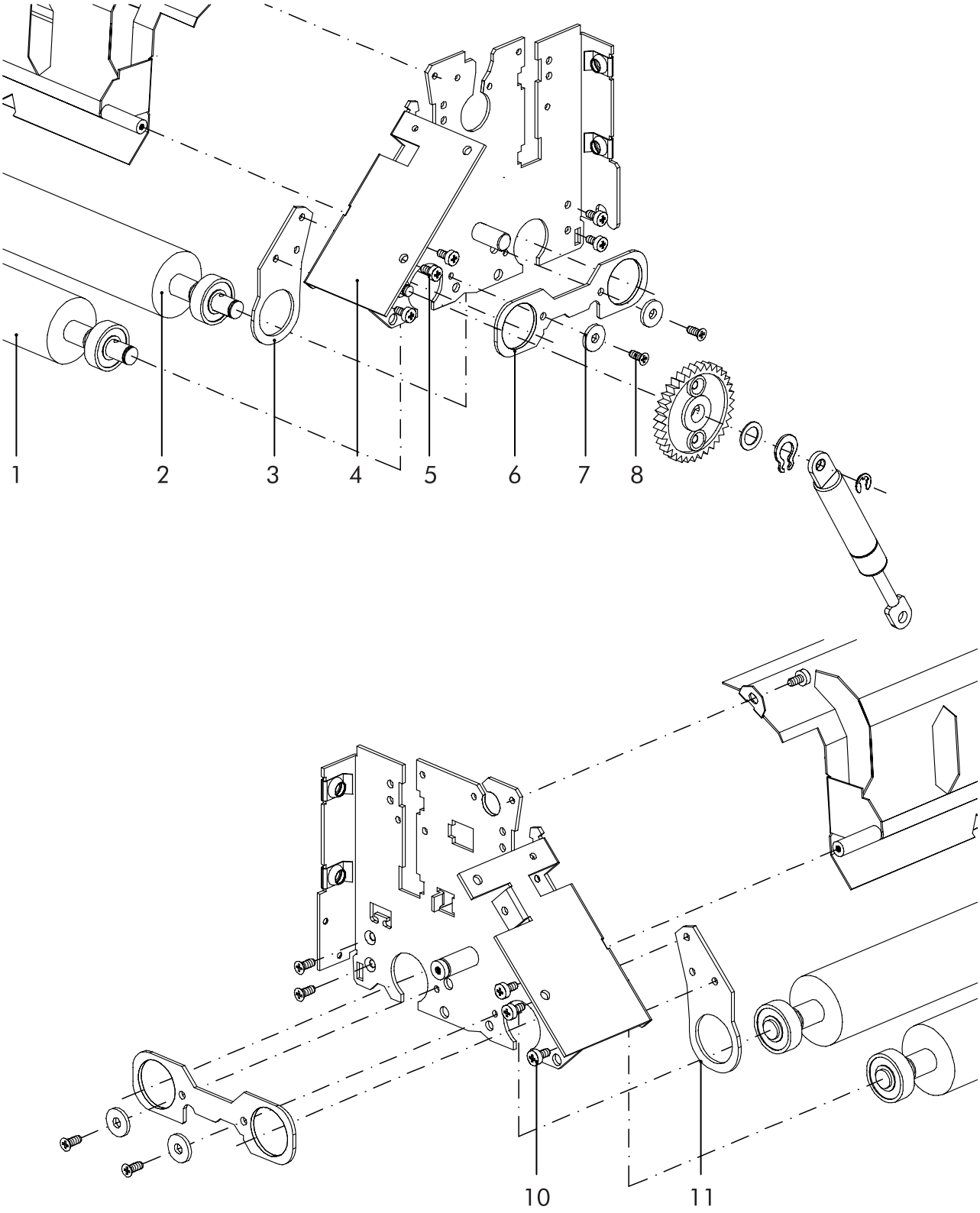

figure 7.10

First upper fold roller

Remove the gear 24T, item 2 as described in paragraph 7.1.4 “Gears”.
Remove the gear 24T, item 9 as described in paragraph 7.1.4 “Gears”.
Remove the gear 24T, item 31 as described in paragraph 7.2.4 “Gears”.

Removal
Refer to figure 7.9
Remove the spring clip 10 securing the lower end of the damper 9.
Pull the lower end of the damper from the hinge pin 8.
Remove the spring clip 14 securing the lower end of the pressure spring strip 15.
Hold the folder in the “open” position and pull the lower end of the pressure spring strip from the bracket 16.
Carefully lower the folder until it locks. Take care of the damper and the pressure spring strip.
Disconnect the wiring going to the folder at the mainboard (2 connectors) and cut the first four (as seen from the mainboard) wire straps securing the wiring.

Refer to figure 7.10
Remove two round head screws 5 securing the left-hand connecting plate 3 and flip it over in the front side direction.
Remove two round head screws 10 securing the right-hand connecting plate 11 and flip it over in the front side direction.
Push the locking lever inwards to release the upper fold assembly and hold it.
Carefully lift the complete upper fold assembly upwards and withdraw it.

Refer to figure 7.9
Remove the countersunk screw 7 with the washer 6 and withdraw the locking plate 5.
Shift the roller 4 in the right-hand side direction until the left-hand side is clear from the LH inside frame.
Lift the left-hand side of the roller upwards and, when possible, withdraw it in the left-hand side direction.
Take care of the connecting plates and on the roller.

Replacement
Ensure on replacement not to damage the (foam) surface of the fold roller.

Second upper fold roller

Remove the gear 24T, item 26 as described in paragraph 7.1.4 “Gears”.
Remove the gear 35T, item 14 as described in paragraph 7.1.4 “Gears”.
Remove the gear 24T, item 23 as described in paragraph 7.1.4 “Gears”.

Removal
Refer to figure 7.10
Remove the two countersunk screws 8 with the washers 7 and withdraw the locking plate 6.
Shift the roller 1 in the left-hand side direction until the bearing on the right-hand side is clear from the frame plate 4.
Lower the right-hand side of the roller and, when possible, withdraw it carefully in the right-hand side direction.

Replacement
Ensure on replacement not to damage the (foam) surface of the fold roller.

Third upper fold roller

Remove the gear 24T, item 26 as described in paragraph 7.1.4 “Gears”.
Remove the gear 35T, item 14 as described in paragraph 7.1.4 “Gears”.
Remove the gear 24T, item 23 as described in paragraph 7.1.4 “Gears”.

Removal
Refer to figure 7.10
Remove the two countersunk screws 8 with the washers 7 and withdraw the locking plate 6.
Shift the roller 2 in the left-hand side direction until the bearing on the right-hand side is clear from the frame plate 4.
Lower the right-hand side of the roller and, when possible, withdraw it carefully in the right-hand side direction.

Replacement
Ensure on replacement not to damage the (foam) surface of the fold roller.

7.5 Lower fold rollers

Note: In order to prevent a squeaking noise after replacement of one of the fold rollers we advise to slightly glue (loctite 603) the ball bearings to frame.

First lower fold roller

Remove the first upper fold roller as described in paragraph 7.4 “Upper fold rollers”.

Removal
Refer to figure 7.9
Remove the countersunk screw 17 with the washer 18 and withdraw the locking plate 19.
Shift the roller 3 in the left-hand side direction until the bearing on the right-hand side is clear from the RH inside frame.
Lift the right-hand side of the roller upwards and, when possible, withdraw it carefully in the right-hand side direction.

Replacement
Ensure on replacement not to damage the (foam) surface of the fold roller.

Second lower fold roller

Open the folder as described in paragraph 1.3 “Folder”.
Remove the gear 24T, item 9 as described in paragraph 7.2.4 “Gears”.

Removal
Refer to figure 7.9
Remove the two countersunk screws 13 with the washers 12 and withdraw the locking plate 11.
Shift the roller 1 in the left-hand side direction until it is clear from the RH inside frame.
Lift the right-hand side of the roller upwards and, when possible, withdraw it carefully in the right-hand side direction.

Replacement
Ensure on replacement not to damage the (foam) surface of the fold roller.

Third lower fold roller

Open the folder as described in paragraph 1.3 “Folder”.
Remove the gear 24T, item 6 as described in paragraph 7.2.4 “Gears”.

Removal
Refer to figure 7.9
Remove the two countersunk screws 13 with the washers 12 and withdraw the locking plate 11.
Shift the roller 2 in the left-hand side direction until it is clear from the RH inside frame.
Lift the right-hand side of the roller upwards and, when possible, withdraw it carefully in the right-hand side direction.

Replacement
Ensure on replacement not to damage the (foam) surface of the fold roller.

8 Detectors

8.1 Feeders

8.1.1 Pulse disc detector assy.

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

Removal

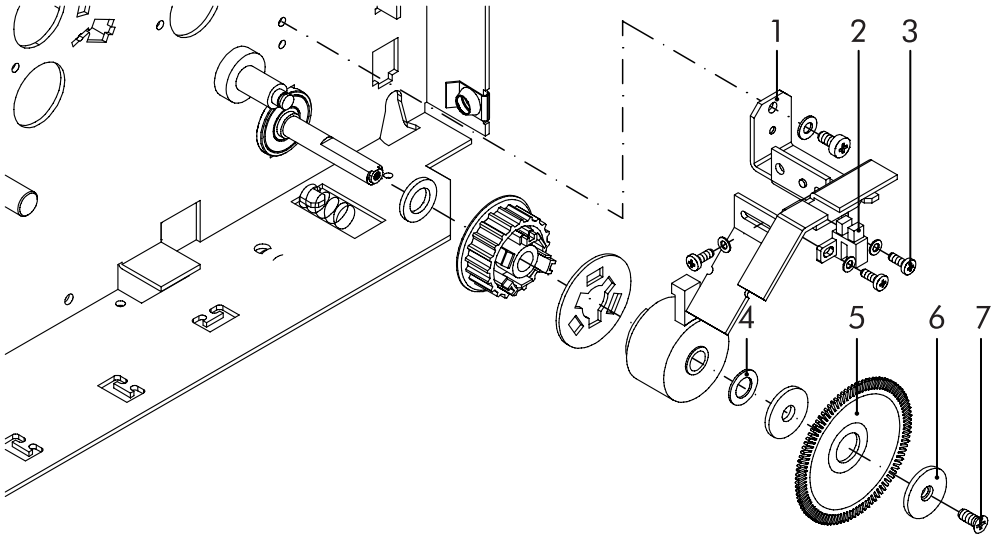

figure 8.1

Refer to figure 8.1
Cut the two wire straps securing the wiring of the pulse disc detector assy. 2.
Remove the countersunk screw 7 and withdraw the pulse disc 5 together with the two spacers 6. Take care of the washer 4.
Remove the two round head screws 3 with the washers securing the pulse disc detector assy. to the bracket 1.
Disconnect and withdraw the pulse disc detector assy.

Replacement
Ensure on replacement that the pulse disc detector assy. clears both sides of the pulse disc and that the detector "sees" the outer ends of the slots in the pulse disc. Secure the wiring again with two wire straps.

8.1.2 DFC

Remove the feeder as described in paragraph 3.6 “Feeders”.

Removal

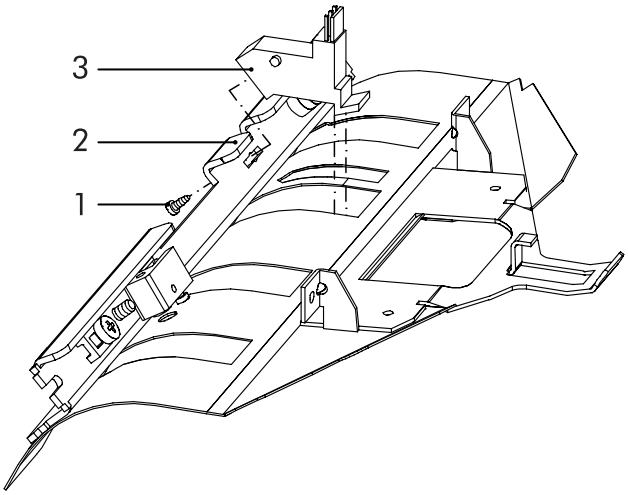

figure 8.2

Refer to figure 8.2
Remove the round head screw 1 securing the DFC 3 to the bracket 2.
Disconnect and withdraw the DFC.

Replacement
Ensure on replacement that the protruding part of the DFC falls into the slotted hole.

Adjustment
The DFC is electronically adjusted (software) so no manual adjustments are needed.
For further DFC details, refer to paragraph 1.2 of the electrical description.

Document detector

Remove the feeder as described in paragraph 3.6 “Feeders”.

Removal

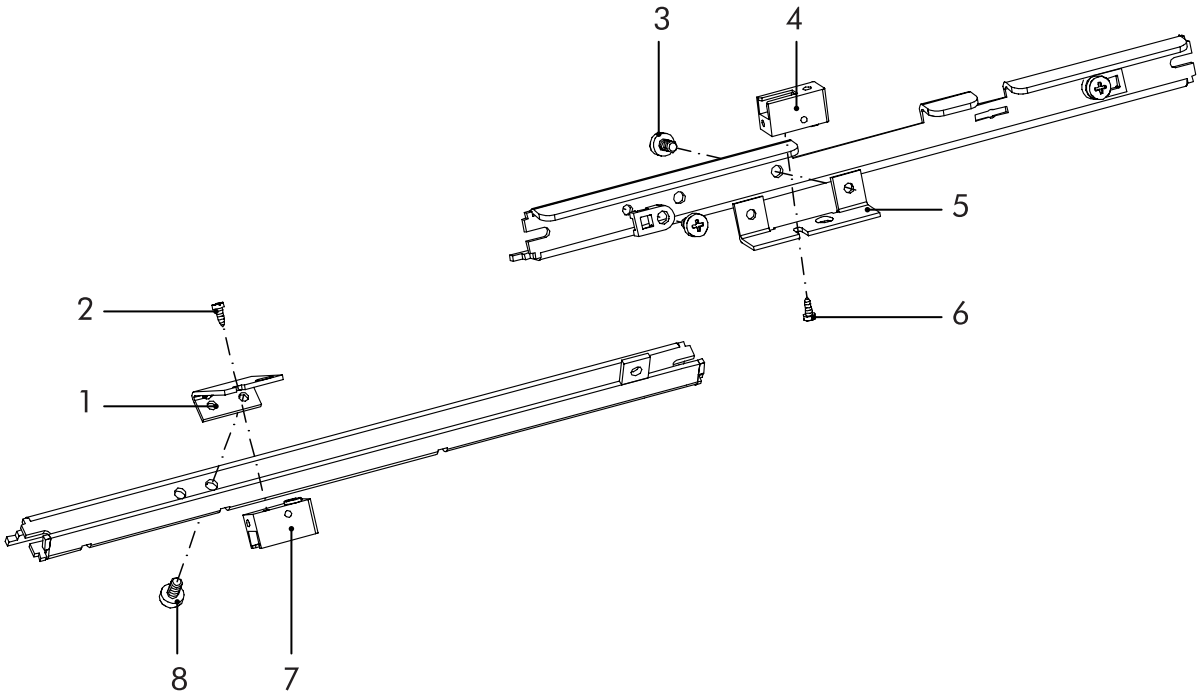

figure 8.3

Transmitter (LED)
Refer to figure 8.3
Remove the round head screw 8 and withdraw the bracket 1 with the transmitter 7.
Remove the round head tapping screw 2 securing the transmitter.
Disconnect and withdraw the transmitter.

Receiver (Sensor)
Refer to figure 8.3
Remove the round head screw 3 and withdraw the bracket 5 with the receiver 4.
Remove the round head tapping screw 6 securing the receiver.
Disconnect and withdraw the receiver.

8.2 Vertical transport

8.2.1 Document detector

Removal

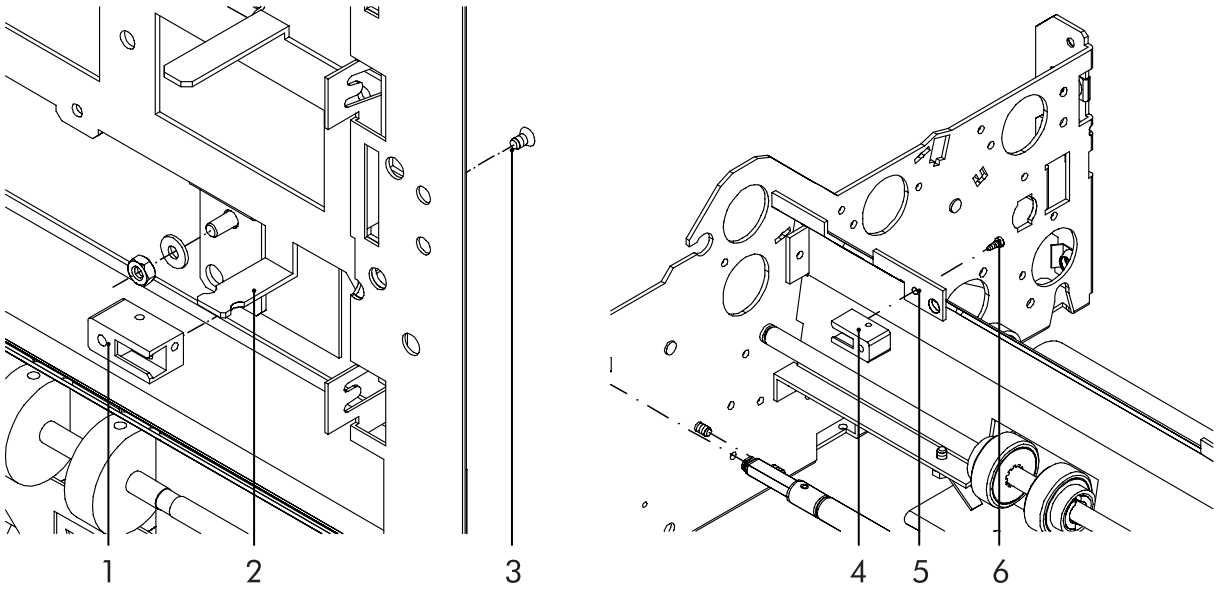

figure 8.4

Transmitter (LED)
Remove the cover plate as described in paragraph 4.1 “Cover plate”.

Refer to figure 8.4
Remove the countersunk tapping screw 3 securing the transmitter 1 to mounting bracket 2.
Disconnect and withdraw the transmitter.

Receiver (Sensor)
Remove the cover plate fitted below the lowest feeder as described in paragraph 3.4 “Cover plates”.

Refer to figure 8.4
Slacken the pan head tapping screw 6 securing the receiver 4 to the frame plate 5.
Disconnect and withdraw the receiver (accessible via the front side after moving the lowest feeder upwards).

8.2.2 Microswitch for cover vertical transport

Remove the bottom plate as described in paragraph 1.9 “Bottom plate”.

Removal

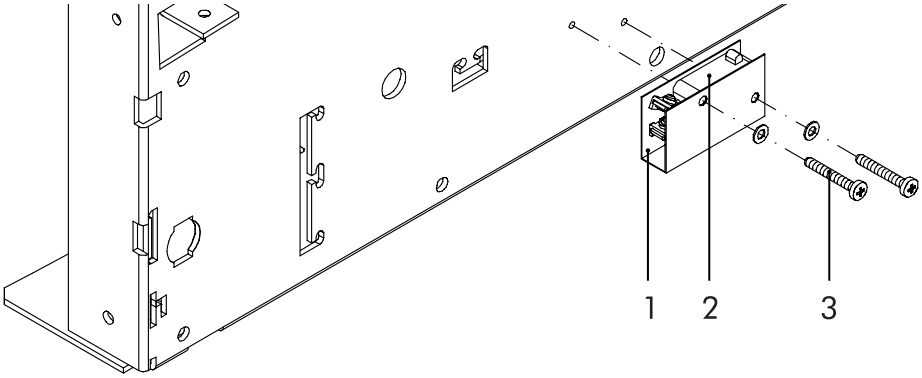

figure 8.5

Refer to figure 8.5
Remove the two round head screws 3 with the washers securing the microswitch 2 (fitted on the inside of the machine to the LH inside frame).
Remove the insulating plate 1 from the microswitch.
Disconnect and withdraw the microswitch.

8.3 Collating area

8.3.1 Pulse disc detector assy.

Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

Removal

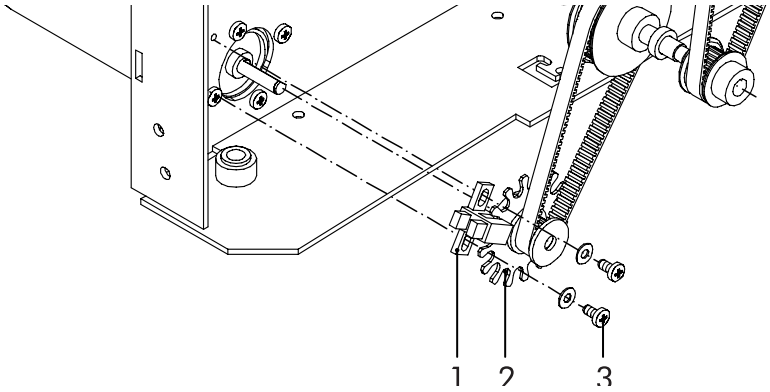

figure 8.6

Refer to figure 8.6
Remove the two round head screws 3 with the washers securing the pulse disc detector assy. 1.
Disconnect and withdraw the pulse disc detector assy.

Replacement
Ensure on replacement that the pulse disc detector assy. clears both sides of the pulse disc and that the detector "sees" the outer ends of the slots in the pulse disc 2.

8.3.2 Document detector

Remove the cover plate as described in paragraph 4.1 “Cover plate”.

Removal

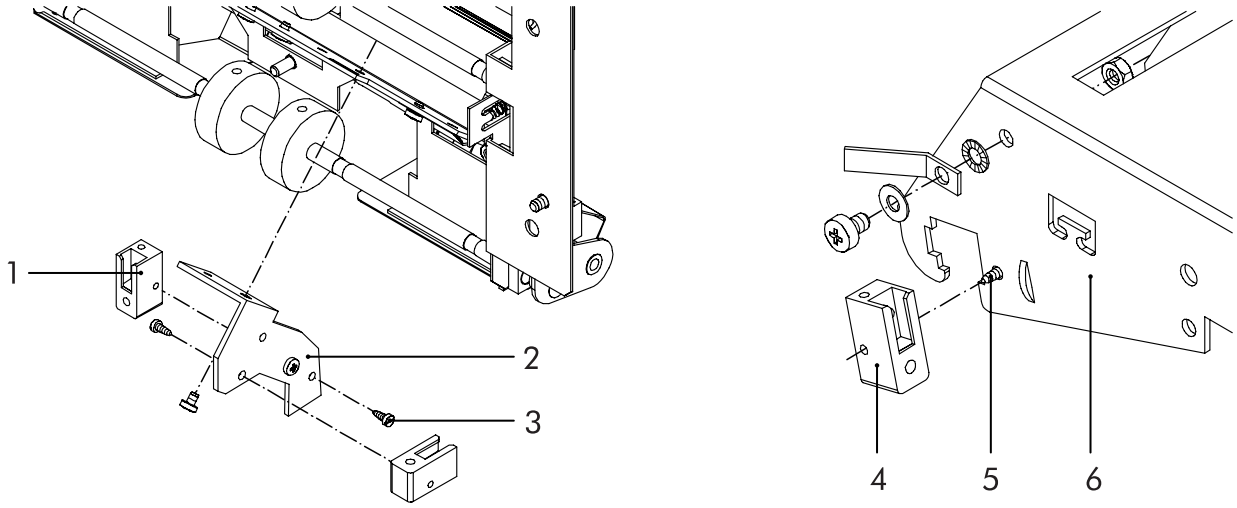

figure 8.7

Transmitter (LED)
Refer to figure 8.7
Remove the pan head tapping screw 3 securing the transmitter 1 to the bracket 2.
Disconnect and withdraw the transmitter.

Receiver (Sensor)
Remove the collating arm cover as described in paragraph 1.7 “Collating arm cover”.

Refer to figure 8.7
Lift the collating arm upwards and hold it in this position.
Remove the pan head tapping screw 5 securing the receiver 4 to the collating arm frame 6.
Disconnect and withdraw the receiver.

Replacement
Ensure on replacement that the transmitter and the receiver are properly aligned by using the protruding thread of the round head screw on the bracket and the bulge on the collating arm frame as reference.

8.4 Divert unit

8.4.1 Pulse disc detector assy.

Remove the divert unit as described in paragraph 6.2.1 “Divert unit”.

Removal

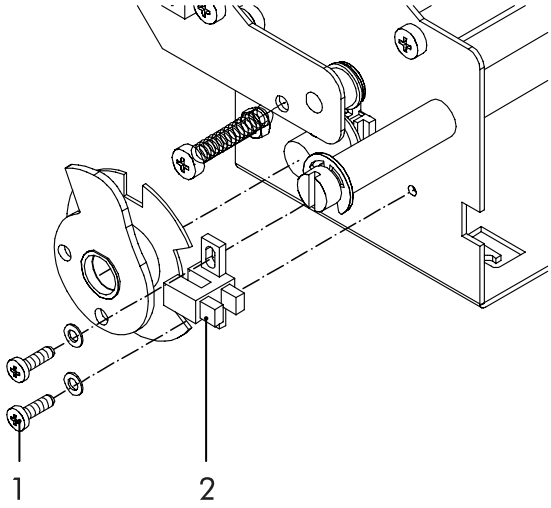

figure 8.8

Refer to figure 8.8
Remove the two round head screws 1 with the washers and withdraw the pulse disc detector assy. 2.

8.5 Folder

8.5.1 Document detectors

“FO in” detector

Removal

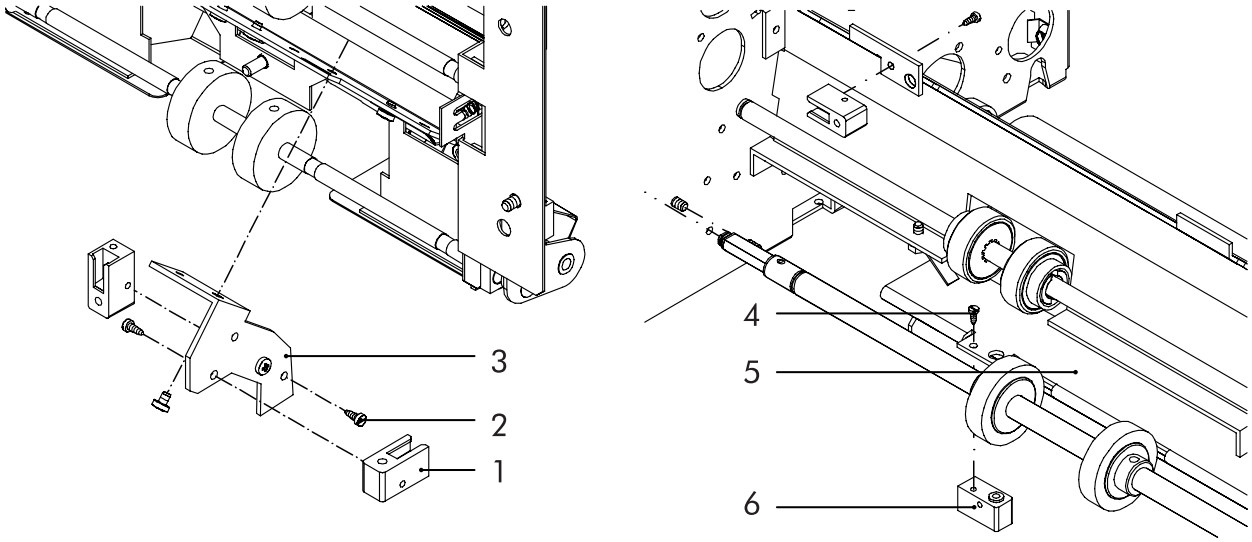

figure 8.9

Transmitter (LED)
Remove the cover plate as described in paragraph 4.1 “Cover plate”.

Refer to figure 8.9
Remove the pan head tapping screw 2 securing the transmitter 1 to the bracket 3.
Disconnect and withdraw the transmitter.

Receiver (Sensor)
Remove the collating area cover as described in paragraph 1.8 “Collating area cover”.

Refer to figure 8.9
Remove the pan head tapping screw 4 securing the receiver 6 to the frame plate 5.
Disconnect and withdraw the receiver.

Replacement
Ensure on replacement that the transmitter is properly aligned by using the bulge on the bracket as reference.

“FO out” detector

Removal

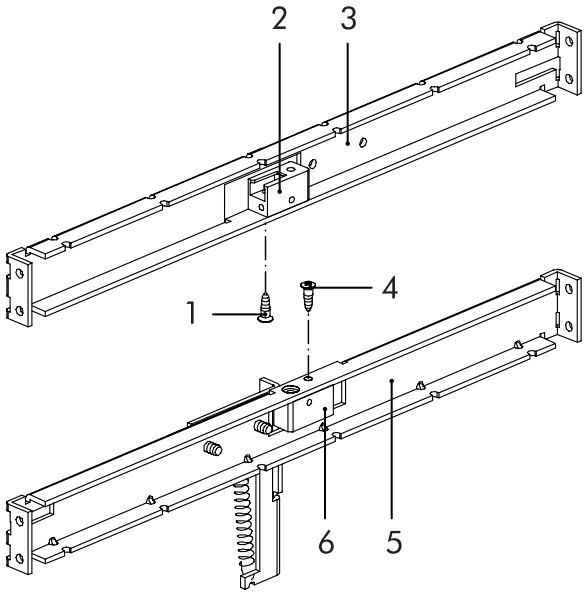

figure 8.10

Transmitter (LED)
Remove the rear cover as described in paragraph 1.10 “Rear cover”.

Refer to figure 8.10
Remove the countersunk tapping screw 1 securing the transmitter 2 to the bracket 3.
Disconnect and withdraw the transmitter.

Receiver (Sensor)
Open the folder as described in paragraph 1.3 “Folder”.
Remove the rear folder cover as described in paragraph 1.10 “Rear folder cover”.

Refer to figure 8.10
Remove the countersunk tapping screw 4 securing the receiver 6 to the bracket 5.
Disconnect and withdraw the receiver.

8.5.2 Pulse disc detector assy’s

Remove the front folder cover as described in paragraph 1.11 “Front folder cover (divert tray)”.

Note: The removal procedure of both pulse disc detector assy’s is similar.

Removal

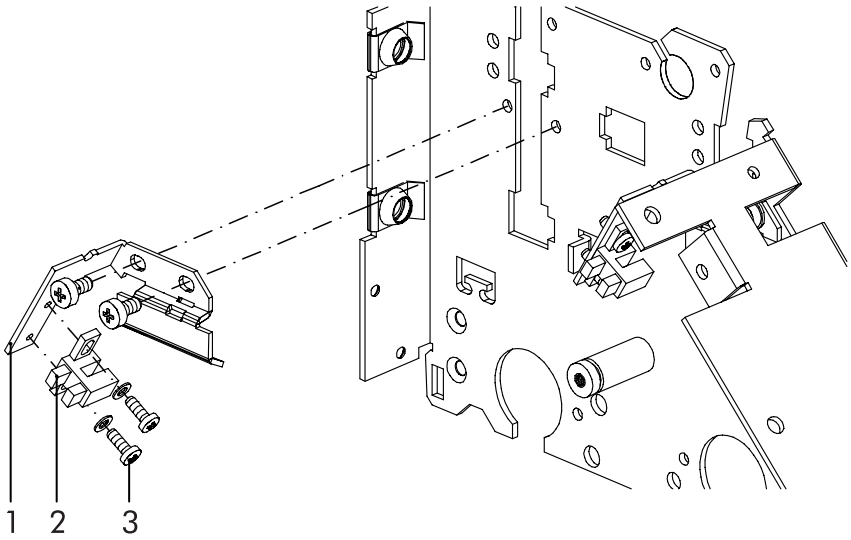

figure 8.11

Refer to figure 8.11
Remove the two round head screws 3 with the washers securing the pulse disc detector assy. 2 to the mounting bracket 1.
Disconnect and withdraw the pulse disc detector assy.

8.5.3 Microswitch for fold unit

Remove the front folder cover as described in paragraph 1.11 “Front folder cover (divert tray)”.
Remove the rear folder cover as described in paragraph 1.10 “Rear folder cover”.

Removal

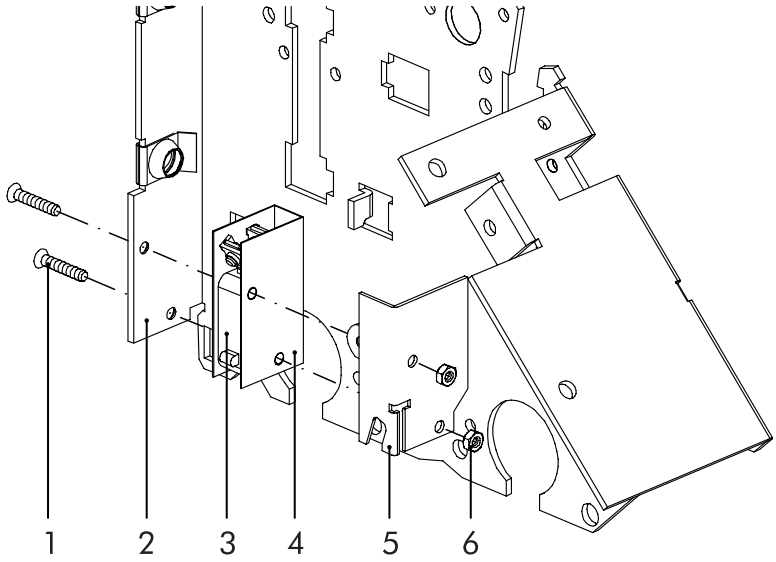

figure 8.12

Refer to figure 8.12
Remove the two nuts 6 and withdraw the bracket 5.
Remove the two countersunk screws 1.
Move the microswitch 3 together with the insulating plate 4 clear from the frame plate 2.
Remove the insulating plate.
Disconnect and withdraw the microswitch.

9 Adjustments

9.1 Feeders

9.1.1 Main drive belt

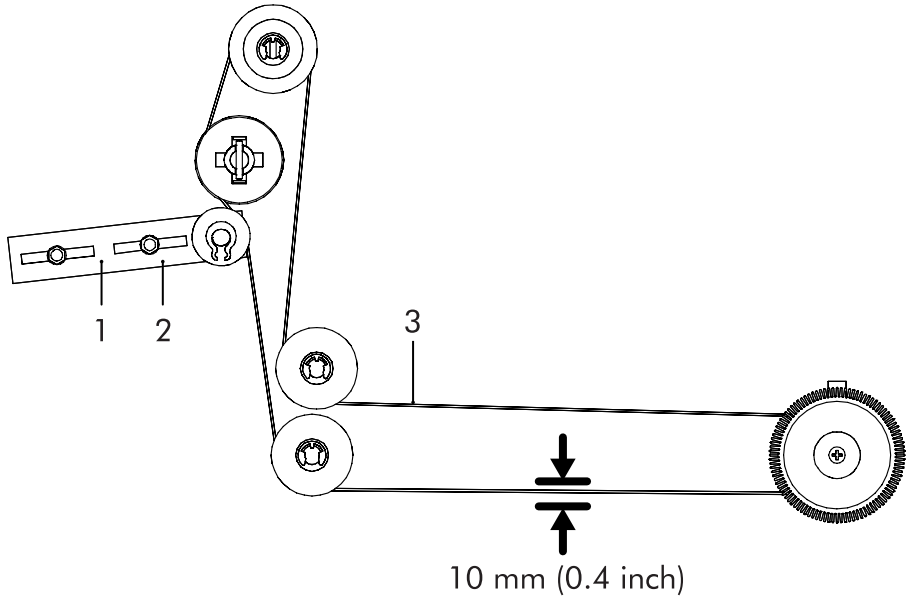

figure 9.1

Refer to figure 9.1
The maximum movement of the drive belt 3 at the indicated position is 10 mm (0.4 inch).

To adjust:
Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

Slacken the two hex. head screws 1 securing the belt tensioner 2.
Shift the belt tensioner to adjust the correct belt movement.
Hold the belt tensioner and retighten the two hex. head screws
Check the adjustment and readjust if necessary.

Note: Do not adjust the drive belt too tight.

9.1.2 RH drive belts

Note: The adjustment of the lower and upper drive belt in a feeder module is similar.

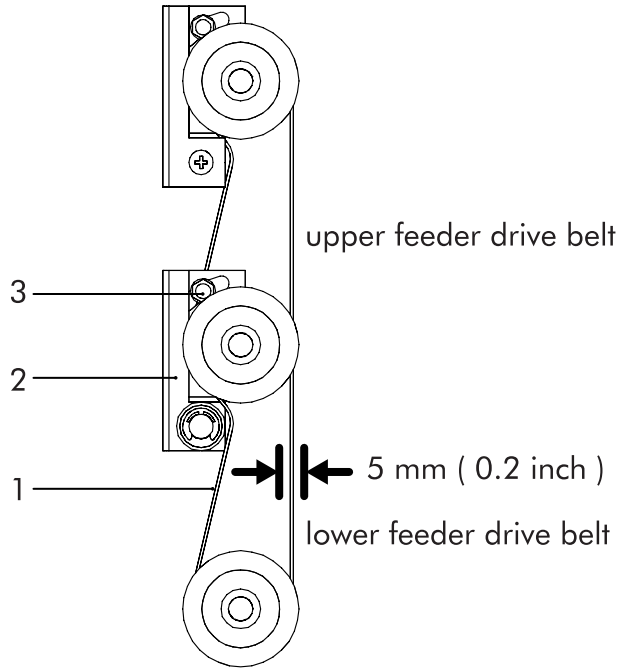

figure 9.2

Refer to figure 9.2
The maximum movement of the drive belts 1 at the indicated position is 5 mm (0.2 inch).

To adjust:
Remove the RH side cover as described in paragraph 1.4 “RH side cover”.
Remove the RH feeder module cover as described in paragraph “RH feeder module cover”.

Slacken the hex. head screw 3 securing the belt tensioner 2.
Shift the belt tensioner to adjust the correct belt movement.
Hold the belt tensioner and retighten the hex. head screw.
Check the adjustment and readjust if necessary.

Note: Do not adjust the drive belt too tight.

9.2 Collating area

9.2.1 Drive belts

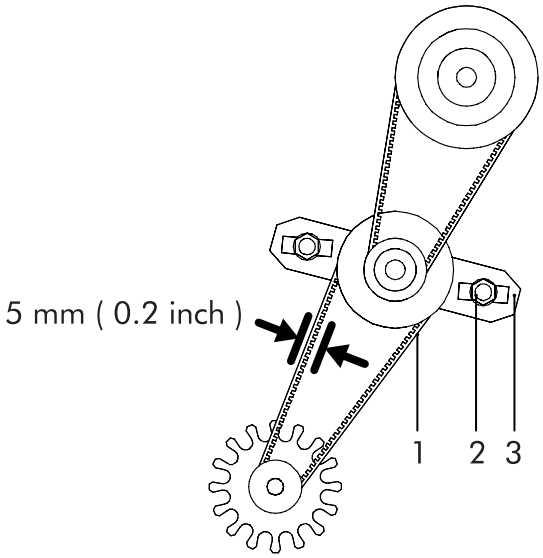

figure 9.3

Refer to figure 9.3
The maximum movement of the drive belts 1 at the indicated position is 5 mm (0.2 inch).

To adjust:
Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

Slacken the two hex. head screws 2 securing the belt tensioner 3.
Shift the belt tensioner to adjust the correct belt movement.
Hold the belt tensioner and retighten the two hex. head screws
Check the adjustment and readjust if necessary.

Note: Do not adjust the drive belt too tight.

9.2.2 Transportation belts

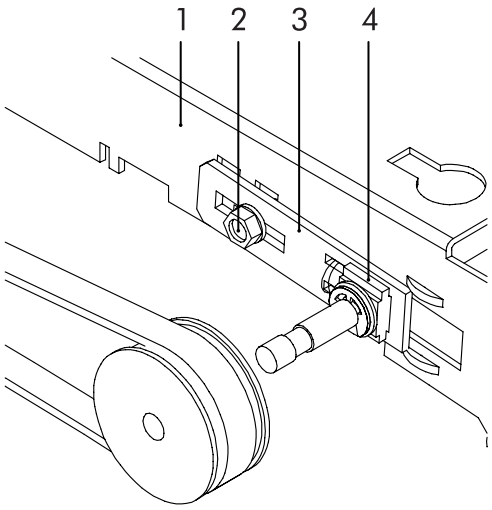

figure 9.4

To adjust:
Remove the collator arm cover as described in paragraph 1.7 “Collator arm cover”.

Refer to figure 9.4
Slacken the hex. head screws 2 securing the belt tensioners 3 on both sides
Push both belt tensioners in the front side direction until the bearings 4 are free and then adjust them so that the bearings just do not become free.
Hold the belt tensioners and retighten the hex. head screws. Take care that both belt tensioners are in the same position, use the square holes in the collating arm frame 1 as a reference.

9.3 Folder

9.3.1 RH drive belt

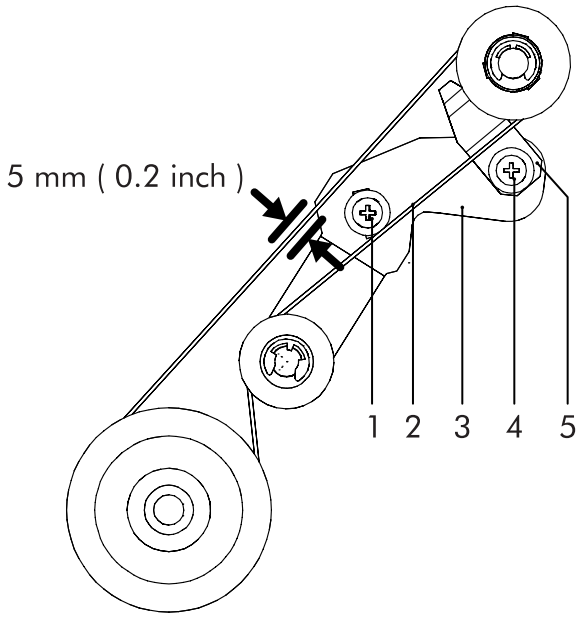

figure 9.5

Refer to figure 9.5
The maximum movement of the drive belt 2 at the indicated position is 5 mm (0.2 inch).

To adjust:
Remove the RH side cover as described in paragraph 1.4 “RH side cover”.

Slacken the two round head screws 1 and 4 securing the belt tensioner 3.
Shift the belt tensioner to adjust the correct belt movement.
Hold the belt tensioner and retighten the two round head screws.
Check the adjustment and readjust if necessary.

Note: Do not adjust the drive belt too tight and ensure that the conducive strip 5 is positioned onto the axle of the first fold unit (see item 7, figure 7.1) when retightening the round head screw 4.

9.3.2 LH drive belt

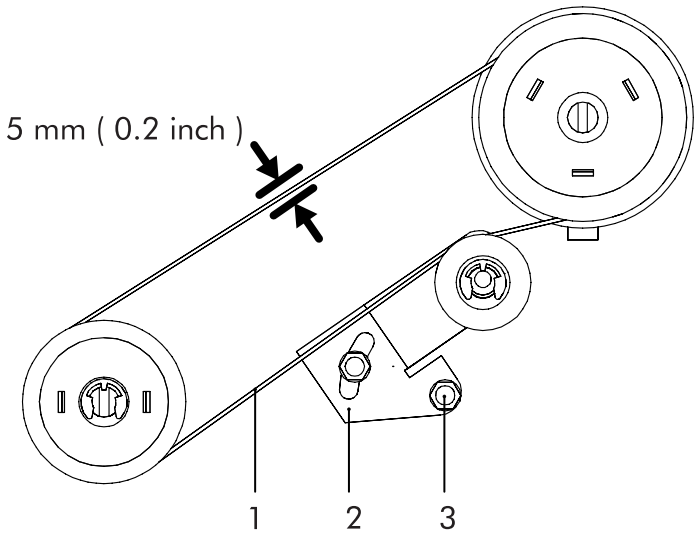

figure 9.6

Refer to figure 9.6
The maximum movement of the drive belt 1 at the indicated position is 5 mm (0.2 inch).

To adjust:
Remove the LH side cover as described in paragraph 1.5 “LH side cover”.

Slacken the two hex. head screws 3 securing the belt tensioner 2.
Shift the belt tensioner to adjust the correct belt movement.
Hold the belt tensioner and retighten the two hex. head screws
Check the adjustment and readjust if necessary.

Note: Do not adjust the drive belt too tight.

9.3.3 Paper guide

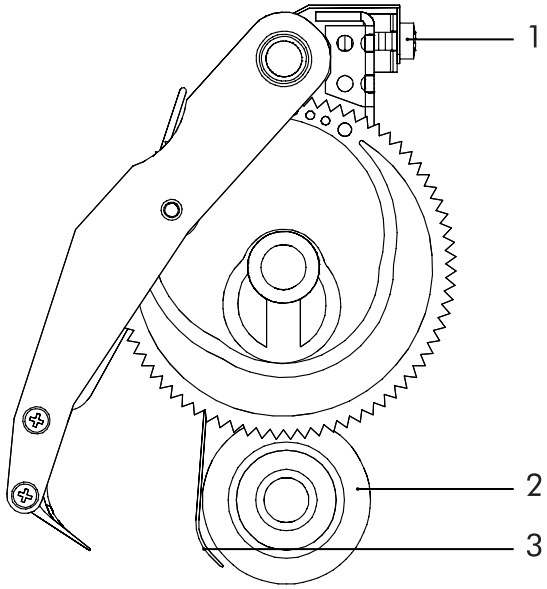

figure 9.7

Refer to figure 9.7
There must be a small gap between the fixed guide plate 3 and the fold roller. The fold roller should just run free.

To adjust:
Remove the rear folder cover as described in paragraph 1.10 “Rear folder cover”.
Remove the top folder cover as described in paragraph 1.12 “Top folder cover”.

Slacken the two round head screws 1 to move the guide plate further away from the fold roller and tighten it to move it closer.

Electrical

Contents

Index of illustrations

1 Electrical and electronic operation

The feeding and folding part of the SA 5005 system consists of the FPI 5000 C base unit plus three feeder modules, plus optional components such as the OMR board 93.08.03 (see Appendix 1) and the MaxiFeeder MF-1 (see Appendix 2). Each feeder module consists of two feeders. This is reflected in the total view of figure 1.1 and figure 1.2.
The FPI 5000 C base unit board 97.50.10 deals with the control of the Eight in One folding subsystem, the control of the vertical transport, the control of the collator and (optional) divert subsystems, the control of the optional reading board (see Appendix 1) and the optional MaxiFeeder (MF-1; see Appendix 2). In addition this board deals with the I^2C communication downstream with the FPI 5000 I inserter and upstream with up to three feeder modules and with the OMR board 93.08.03.

Each feeder module board 93.08.02 implements the Vario Feed feature and deals with the local control of two feeders and with the I^2C communication downstream with the FPI 5000 C base unit board. This array of circuit boards is powered by the FPI 5000 I.

As for the sensors and actuators: the FPI 5000 C base unit board controls eight actuators: six clutches and two bi-directional DC motors. Eleven sensors serve the FPI 5000 C base unit board with control information, including four paper photocells, five slotted photocells and two safety micro-switches. Each feeder module board controls two clutches and gets control information from two paper photocells.

The FPI 5000 C doesn't have its own user interface. The user interface related tasks (both operational and for service purposes) for the FPI 5000 C are delegated to the FPI 5000 I.
So, from a control point of view the FPI 5000 C is a satellite of the FPI 5000 I, which provides the user interface, the electrical power and (except for two DC motor-controlled parts) the mechanical drive for the total SA 5005 system, including the FPI 5000 C/feeder subsystem.

Note 1. The FPI 5000 C base unit board 97.50.10 is the successor of the FPI 5000 C base unit board 93.08.01. Major circuit board changes are related to the DC motor interface electronics (including noise filters) and to the control of the MaxiFeeder (MF-1).

Note 2. The optional FPI 5000 component OMR board is discussed in Appendix 1 (document 134.10). The optional FPI 5000 C component MaxiFeeder is discussed in Appendix 2 (document 134.20).

The FPI 5000 C contains the following SA 5005 Eproms:
- FPI 5000 C base unit board 97.50.10: Eprom 97.50.12.
- For each feeder module board 93.08.02: Eprom 97.50.13.
- For the optional OMR board 93.08.03: Eprom 97.50. 14.

Eprom set 97.50.15 contains all SA 5005 Eproms for an OMR-less FPI 5000 C, including Eprom 97.50.11 for the FPI 5000 I.
Eprom set 97.50.16 contains all SA 5005 Eproms for an FPI 5000 C with OMR, including Eprom 97.50.11 for the FPI 5000 I.
All Eproms within the SA 5005 must have the same revision level.

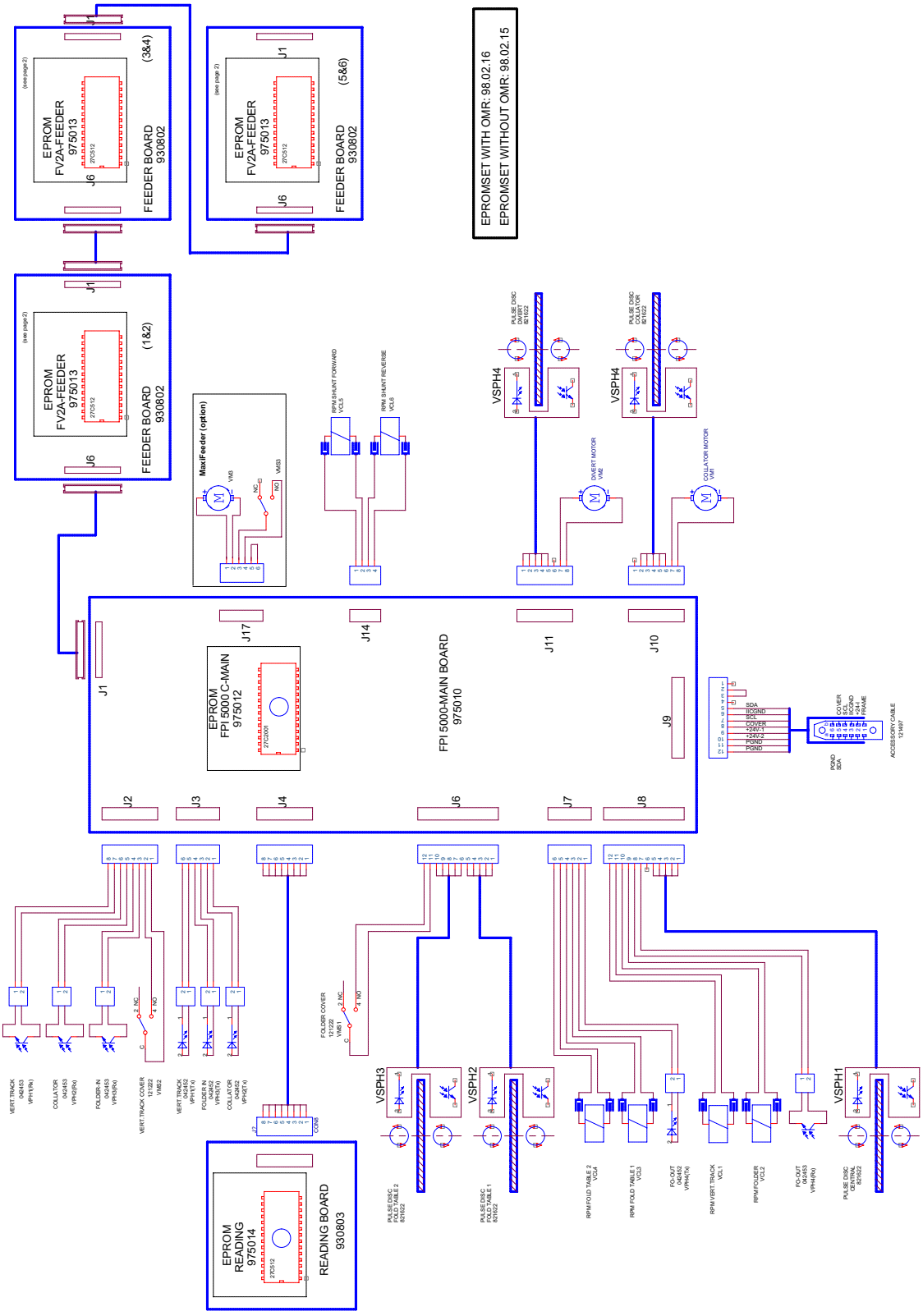

figure 1.1: Total view for an SA 5005 system of the FPI 5000 C base unit board 97.50.10 plus one, two or three feeder module boards 93.08.02.

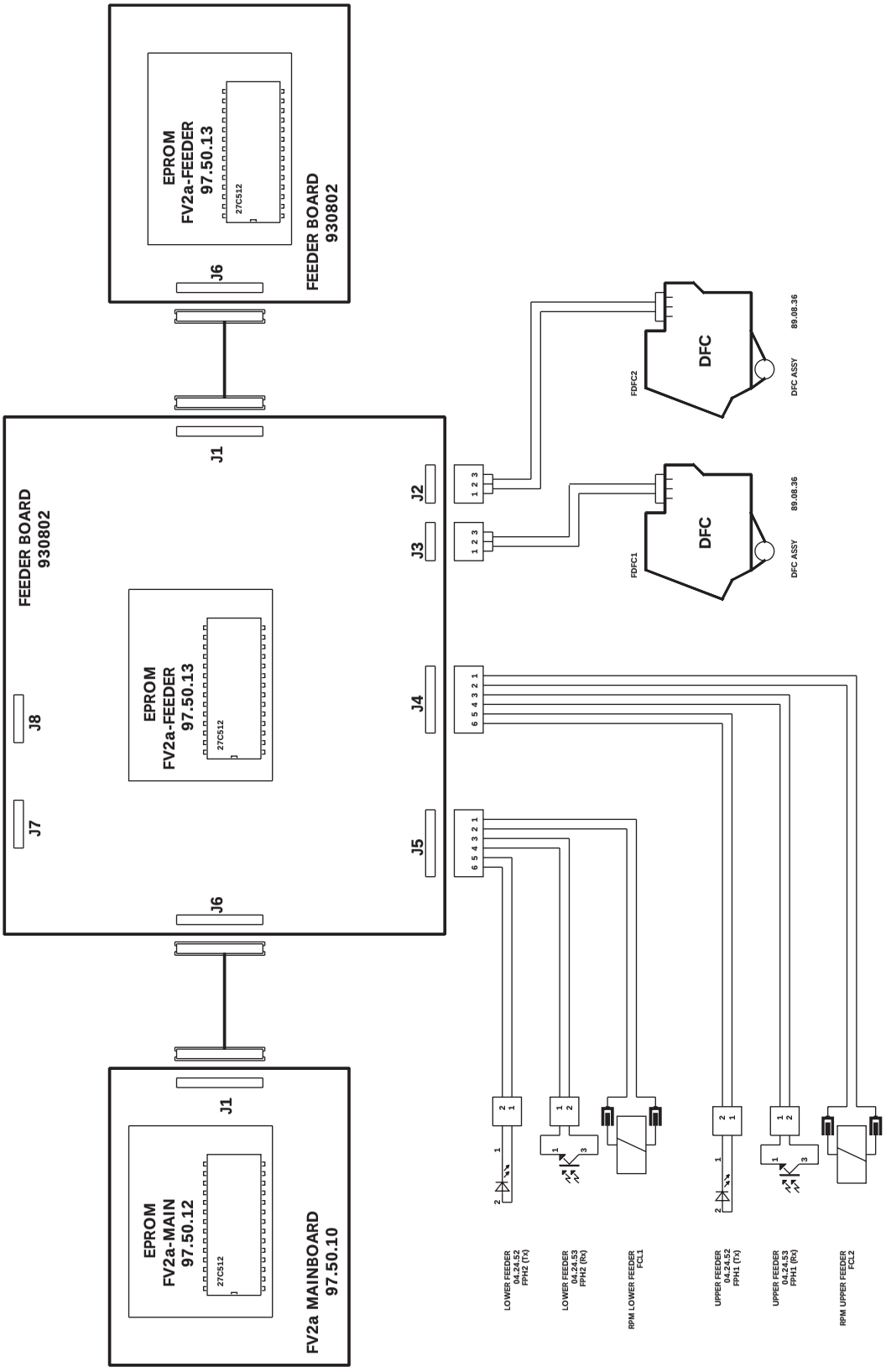

figure 1.2: Total view for an SA 5005 system of the feeder module board 93.08.02.

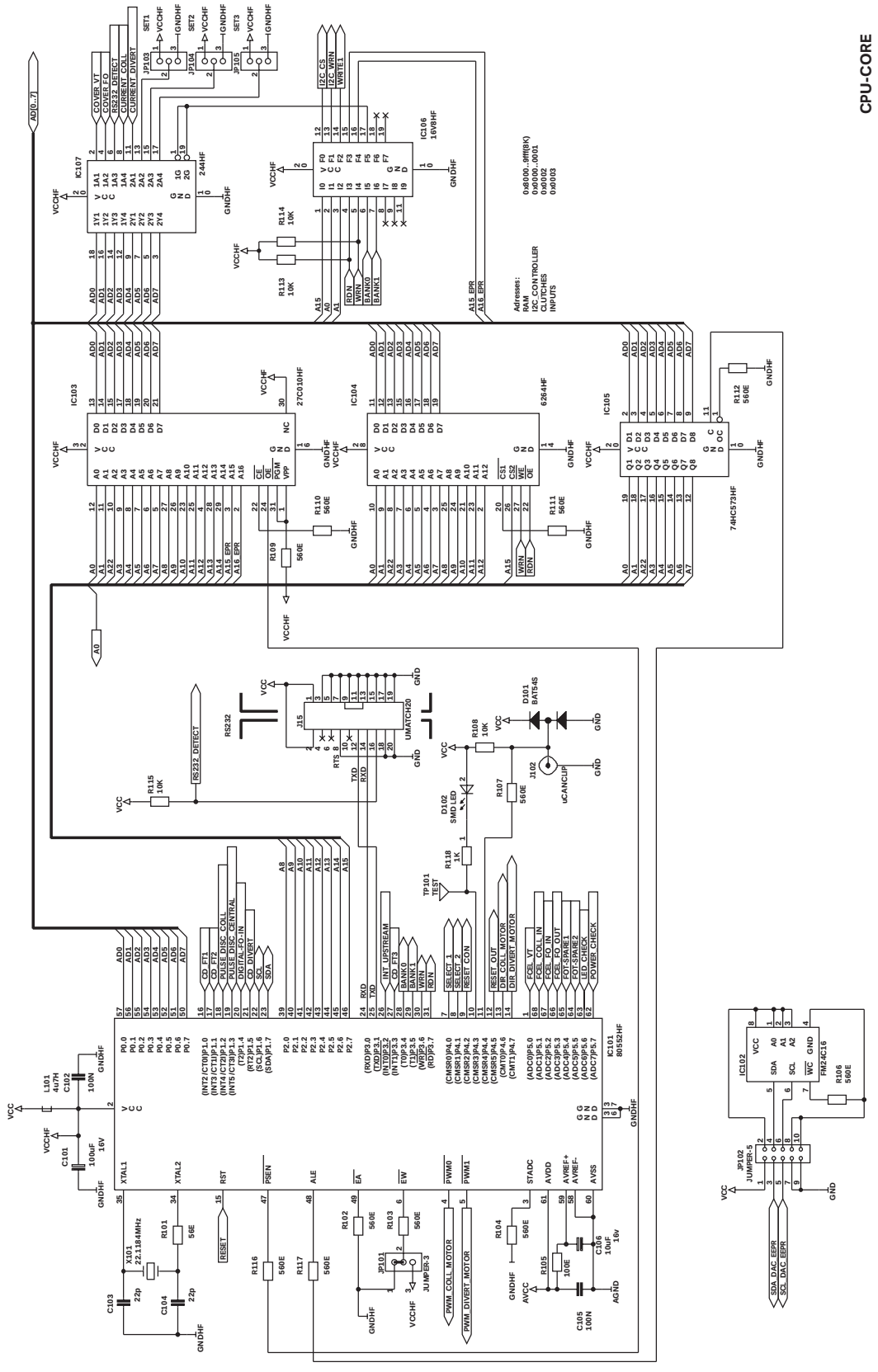

figure 1.3: FPI 5000 C base unit board 97.50.10 (1): CPU circuitry.

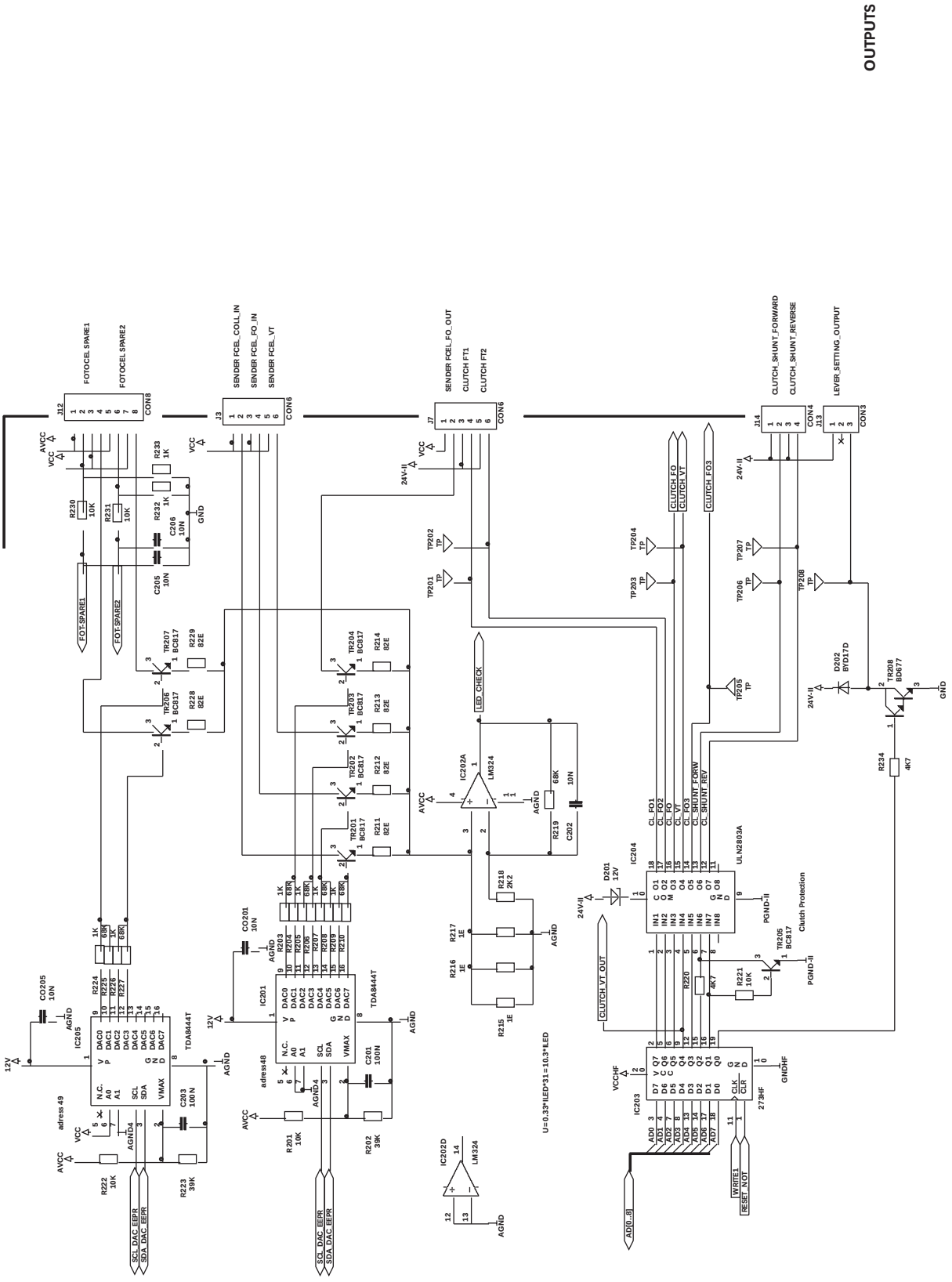

figure 1.4: FPI 5000 C base unit board 97.50.10 (2): outputs.

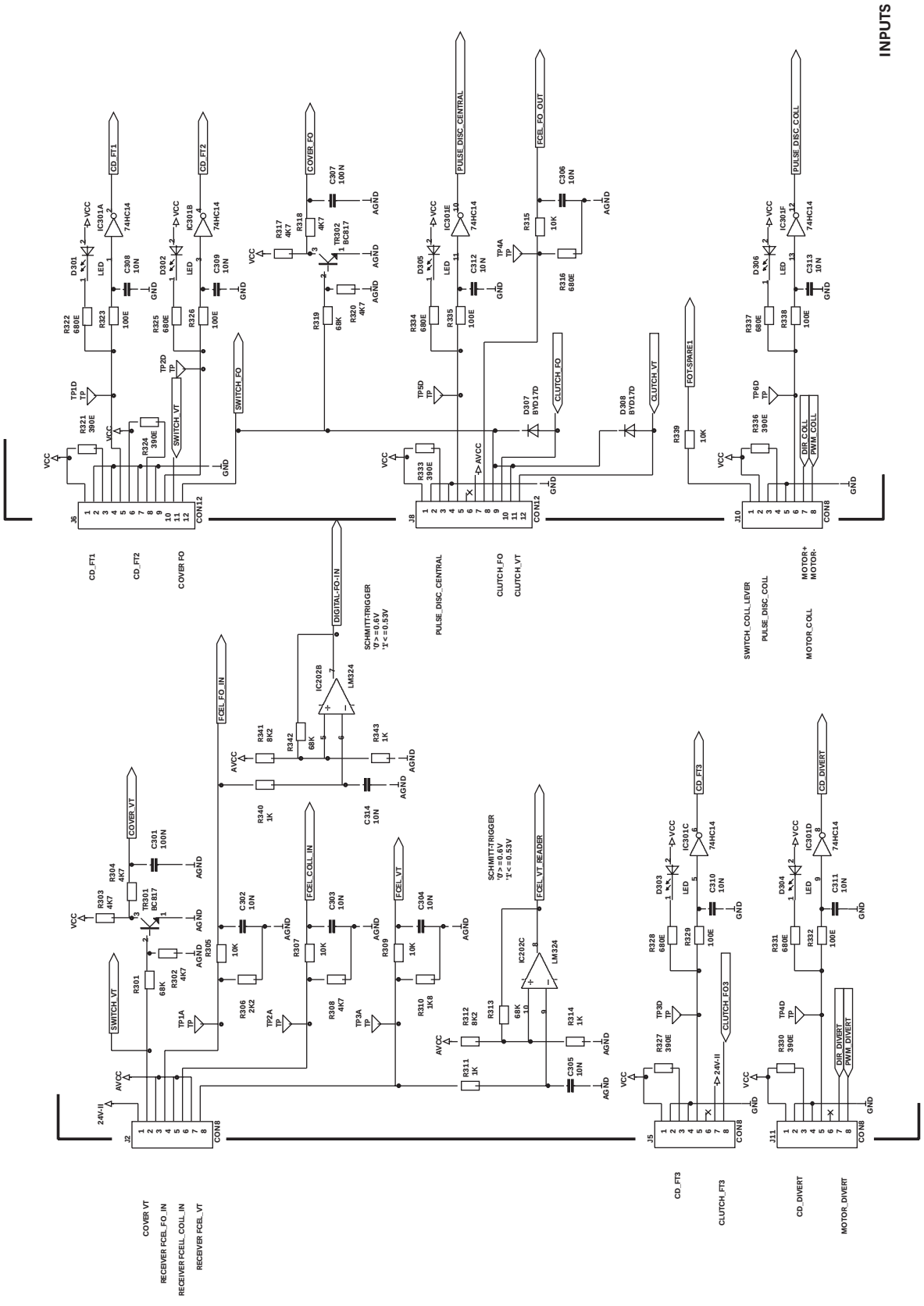

figure 1.5: FPI 5000 C base unit board 97.50.10 (3): inputs.

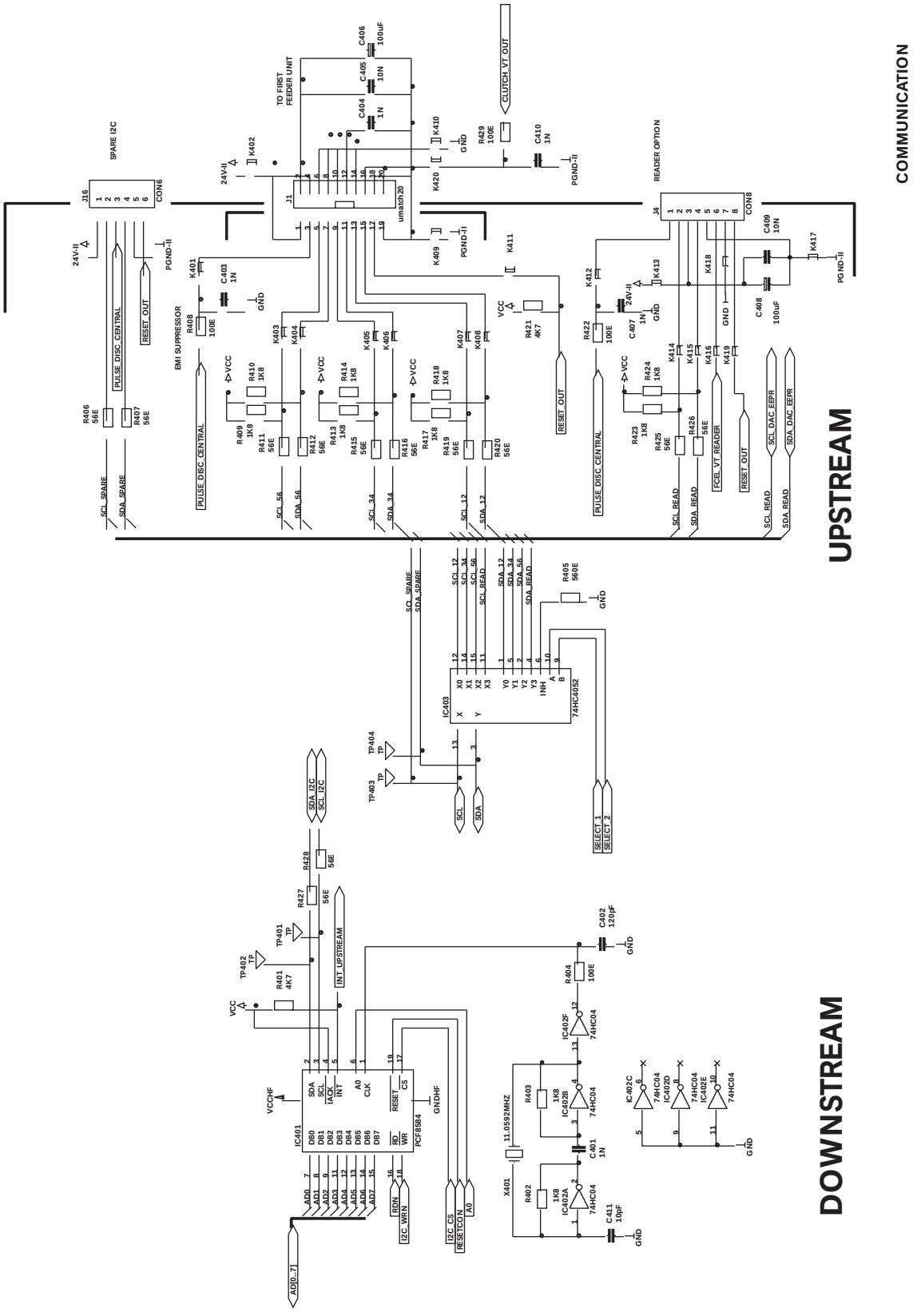

figure 1.6: FPI 5000 C base unit board 97.50.10 (4): communication.

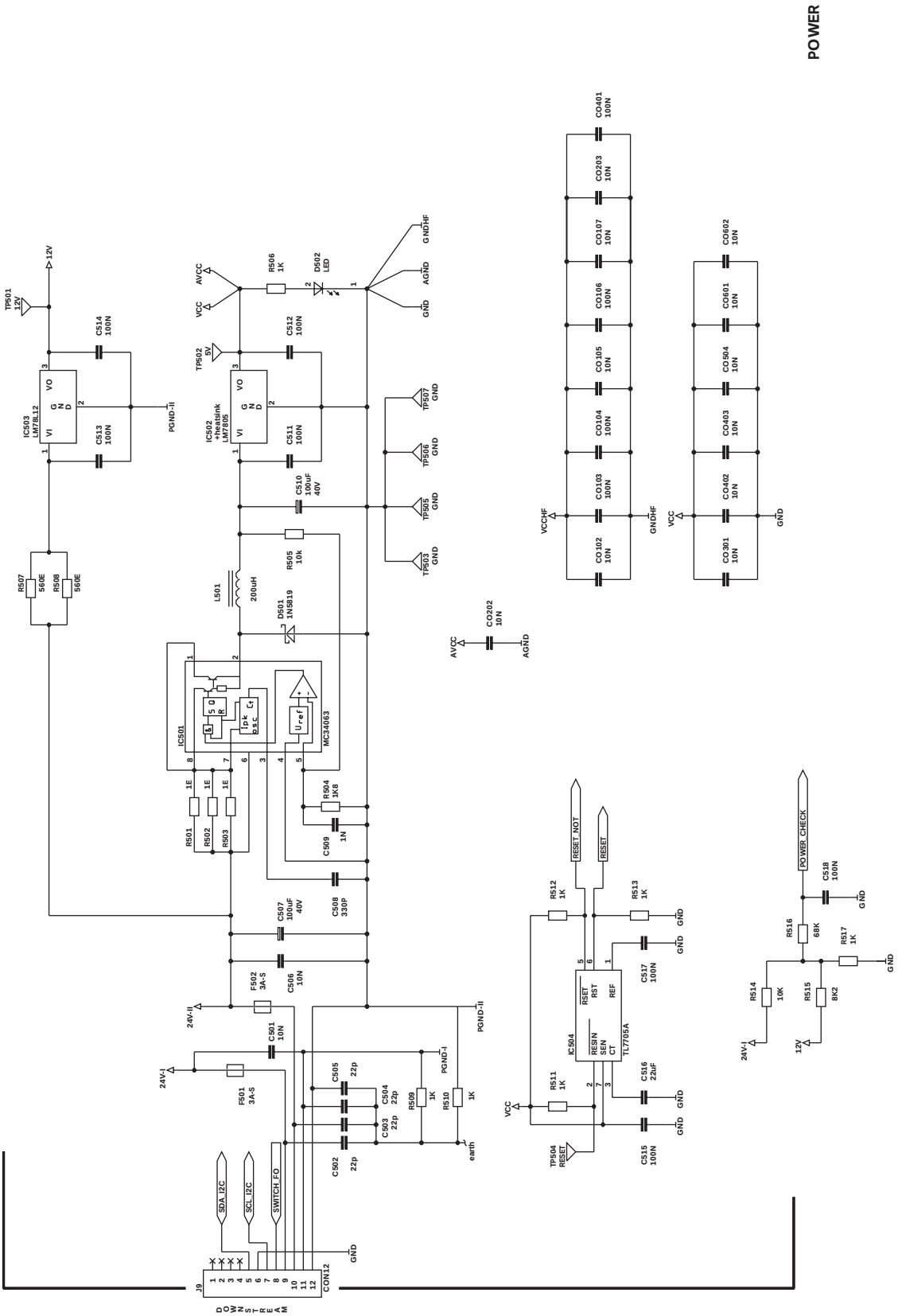

figure 1.7: FPI 5000 C base unit board 97.50.10 (5): power supply.

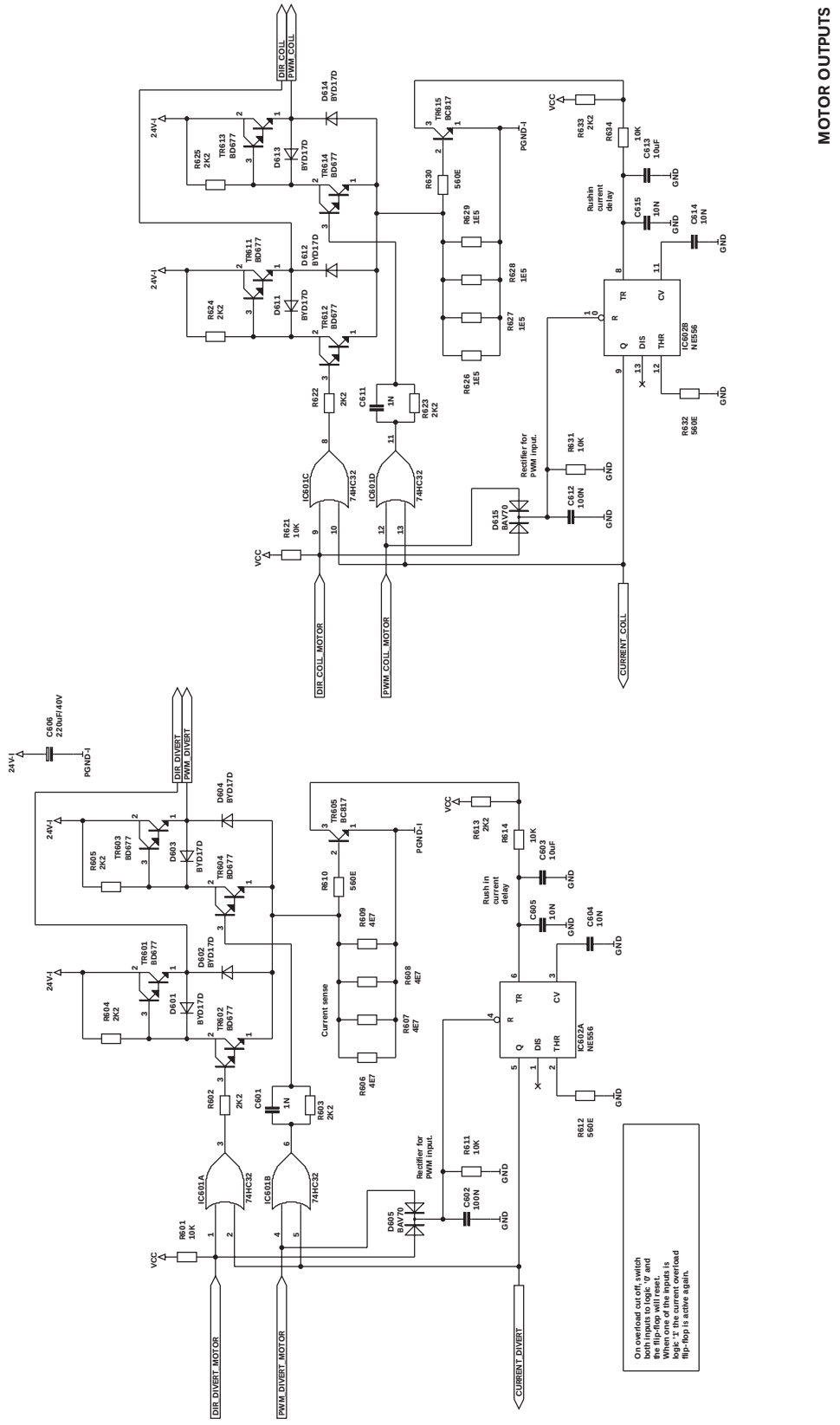

figure 1.8: FPI 5000 C base unit board 97.50.10 (6): DC motor control.

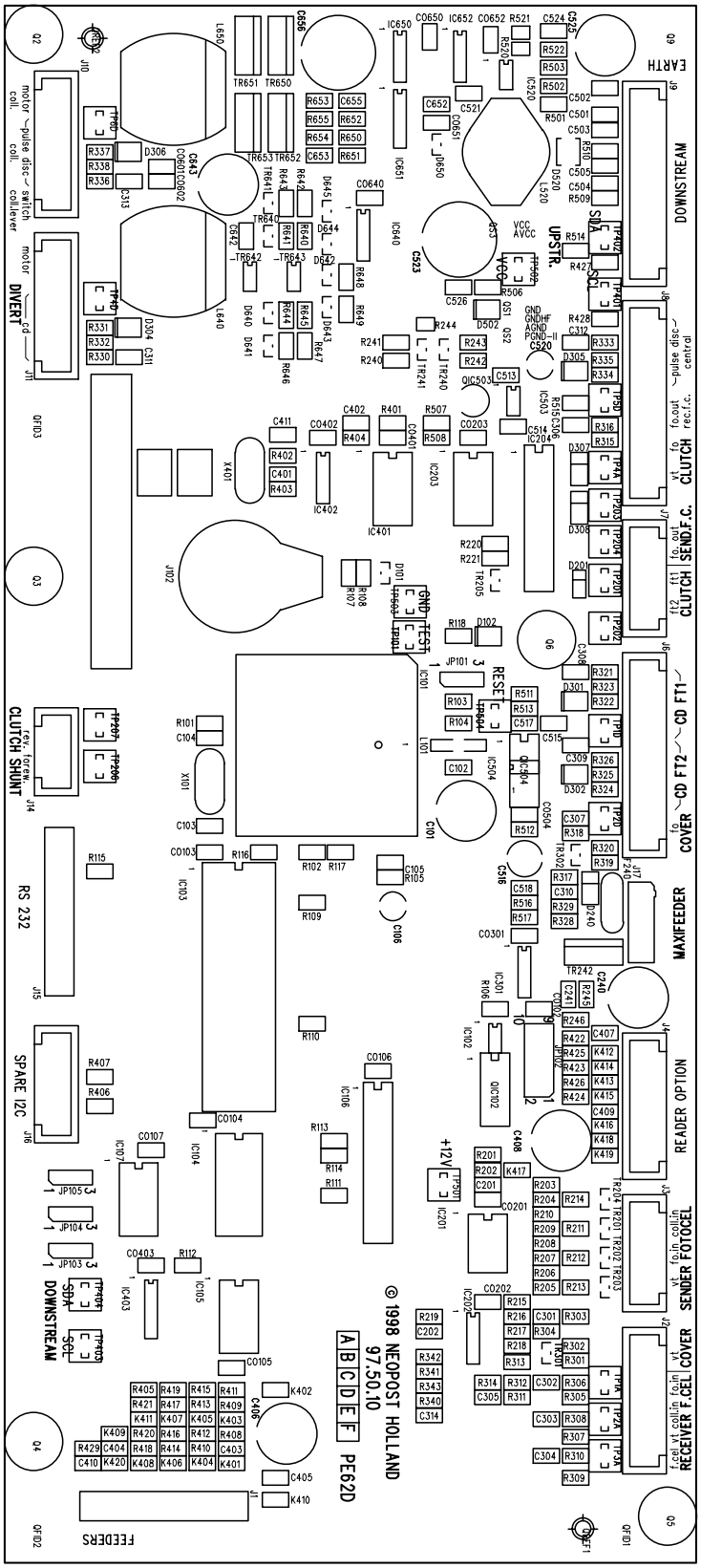

figure 1.9: Component layout of the FPI 5000 C base unit board 97.50.10.

figure 1.10: Feeder module board 93.08.02 (1): CPU circuitry.

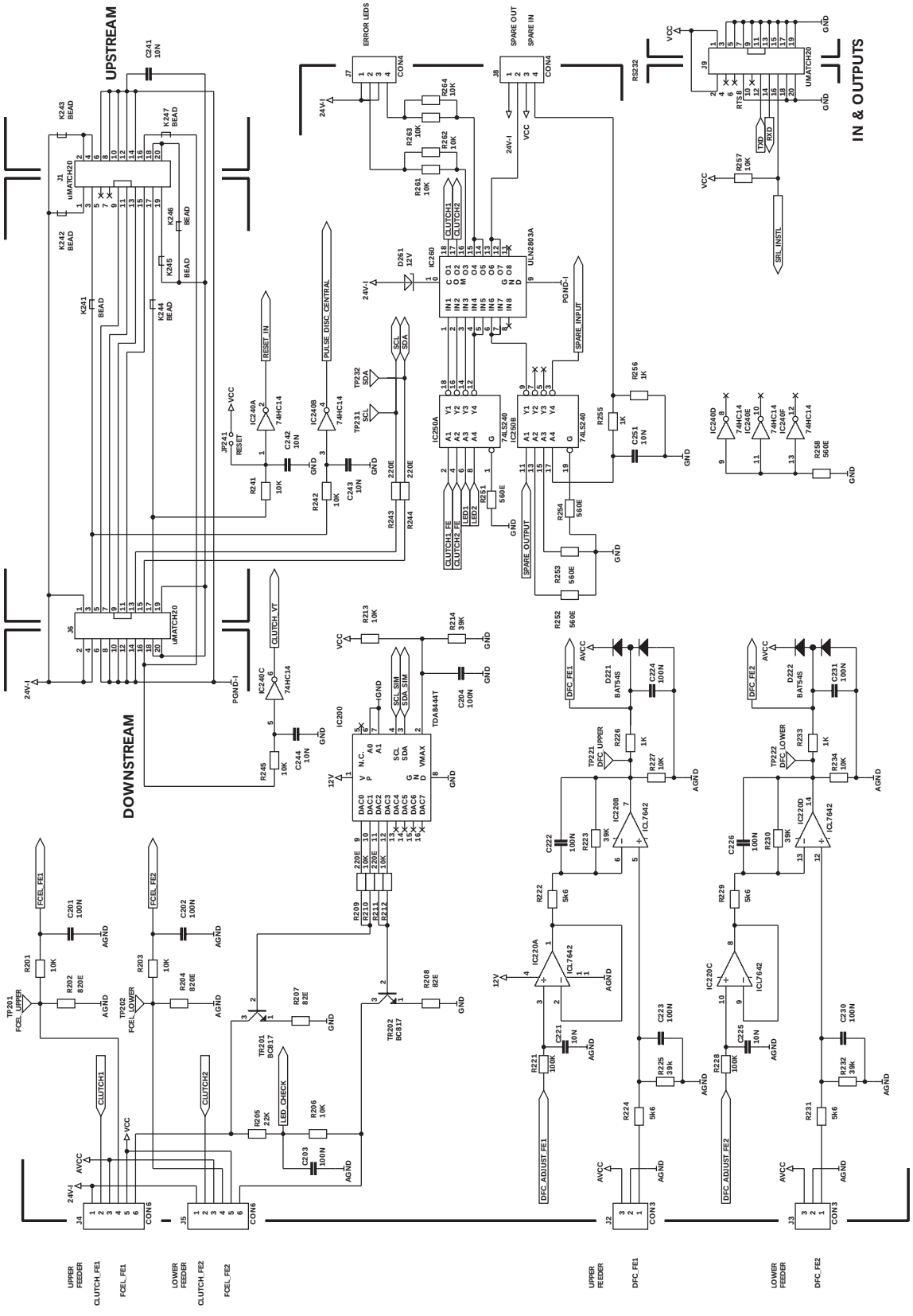

figure 1.11: Feeder module board 93.08.02 (2): inputs and outputs.

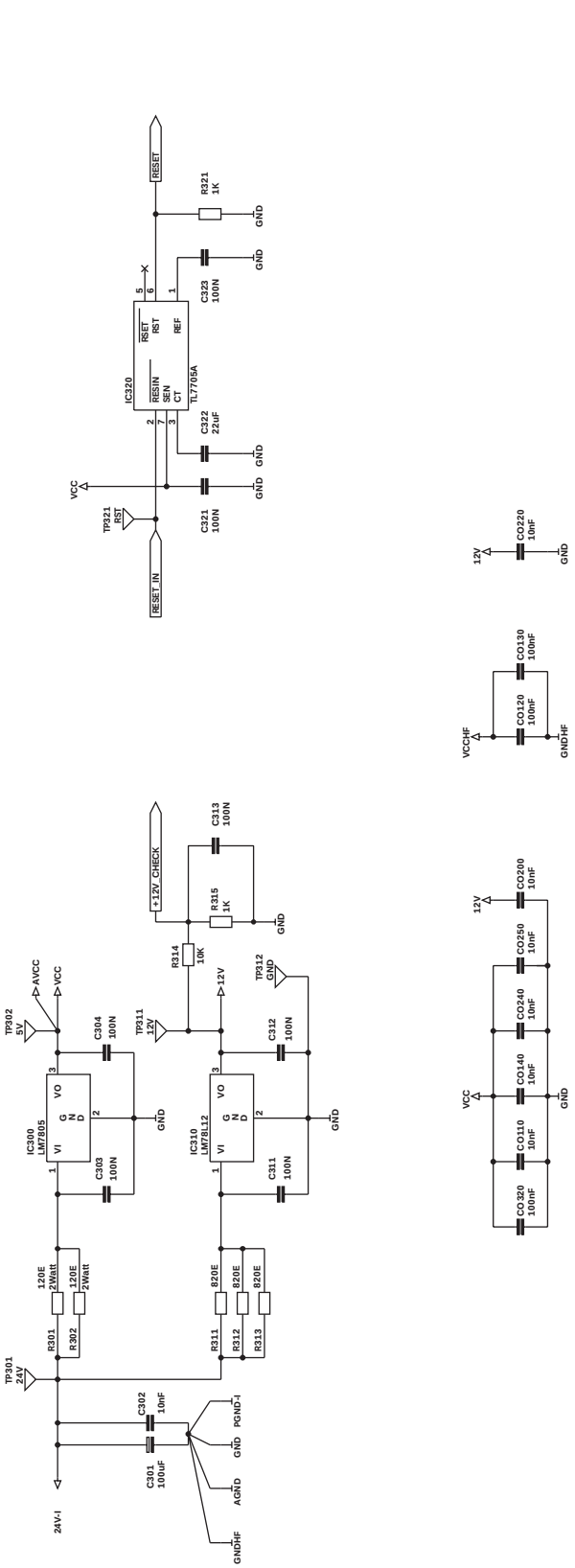

figure 1.12: Feeder module board 93.08.02 (3): power supply.

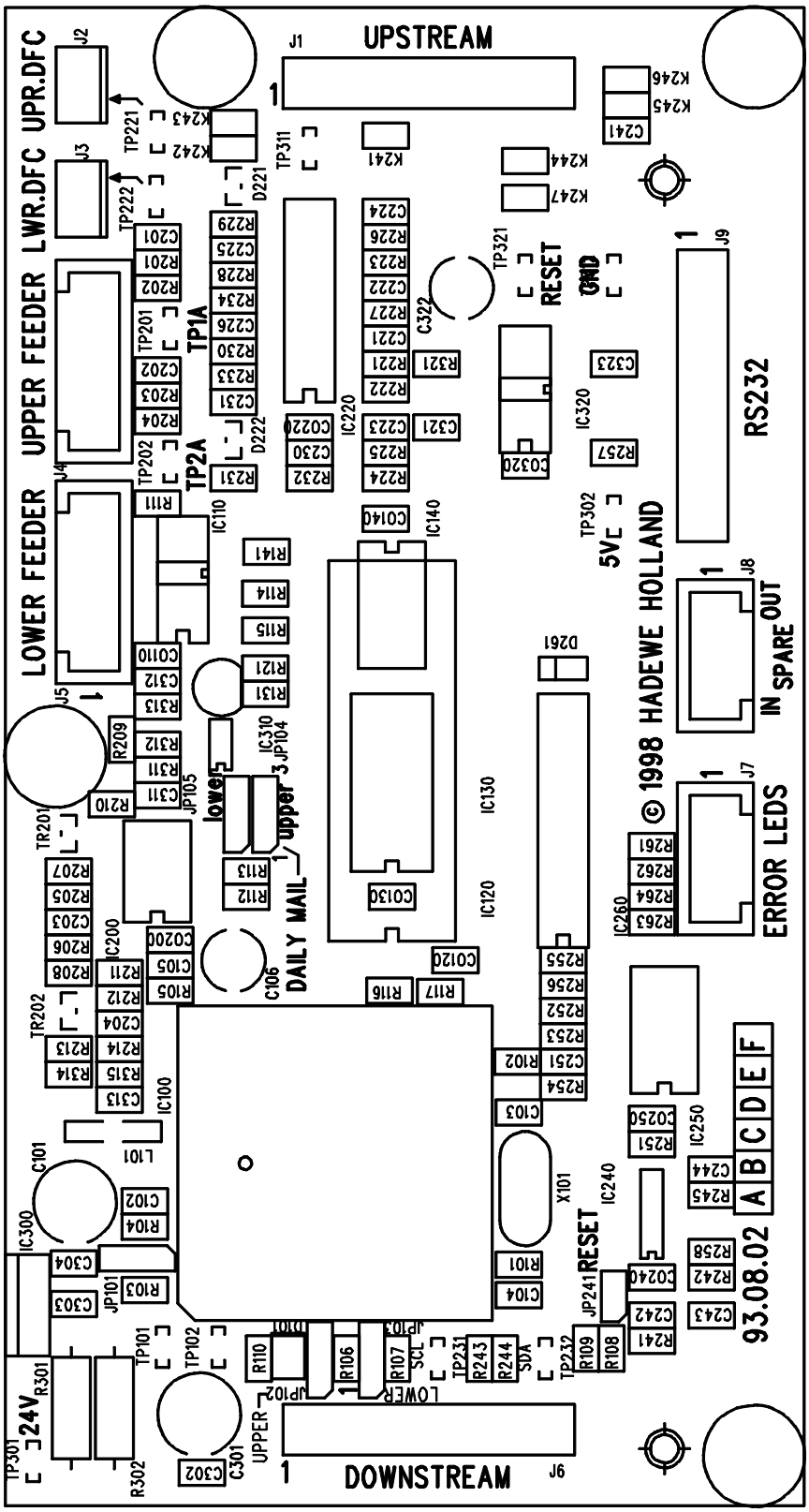

figure 1.13: Component layout of the feeder module board 93.08.02.

2 Settings

Jumpers on the feeder unit board 93.08.02

Jumper	Position	Description
JP102	1 – 2	Separation method of the upper feeder of the feeder module. Automatic separation.
JP102	2 – 3	Separation method of the upper feeder of the feeder module. Manual separation.
JP103	1 – 2	Separation method of the lower feeder of the feeder module. Automatic separation.
JP103	2 – 3	Separation method of the lower feeder of the feeder module. Manual separation.
JP104	1 – 2	Daily mail on the upper feeder of the feeder module.
JP104	2 – 3	No daily mail on the upper feeder of the feeder module.
JP105	1 – 2	Daily mail on the lower feeder of the feeder module.
JP105	2 – 3	No daily mail on the lower feeder of the feeder module.

table 2.1

Note 1. Jumper JP101 on the FPI 5000 C base unit board 97.50.10 and jumper JP101 on the feeder unit board 93.08.02 are used to switch the CPU watchdog function on or off. This is used for software development only. Jumpers JP103, JP104 and JP105 on the FPI 5000 C base unit board 97.50.10 are reserved for future use. The function of jumper JP102 on the FPI 5000 C base unit board 97.50.10 is discussed below.

Note 2. There are no jumper settings necessary for optional components such as the OMR board 93.08.06 and the MaxiFeeder (MF-1). If present, these components are detected automatically during startup of the machine.

3 Service software

The FPI 5000 C plus its feeders has no local user interface. Therefore the service software related to the FPI 5000 C plus feeders et cetera is discussed in chapter 3 of the FPI 5000 I electrical description (document 510.03).

4 Test points

Test points on the FPI 5000 C base unit board 97.50.10.

Test point	Minimum	Typical	Maximum	Notes
TP101	-	-	-	Test of the digital signal that drives the diagnostic LED D102. Normal flashing frequency 1Hz. During errors the flashing frequency is 4 Hz.
TP201	11 V	12 V	14 V	Clutch VCL3
TP202	11 V	12 V	14 V	Clutch VCL4
TP203	11 V	12 V	14 V	Clutch VCL1
TP204	11 V	12 V	14 V	Clutch VCL2
TP205	-	-	-	Clutch for a future third fold table.
TP206	11 V	12 V	14 V	Clutch VCL5
TP207	11 V	12 V	14 V	Clutch VCL6
TP208	-	-	-	Not used
TP1A	0.9 V	1.1 V	1.3 V	Paper photocell VPH3 (Rx); no paper present
TP1A	0.0 V	0.1 V	0.5 V	Paper photocell VPH3 (Rx); paper present
TP2A	0.9 V	1.1 V	1.3 V	Paper photocell VPH2 (Rx); no paper present
TP2A	0.0 V	0.1 V	0.5 V	Paper photocell VPH2 (Rx); paper present
TP3A	0.9 V	1.1 V	1.3 V	Paper photocell VPH1 (Rx); no paper present
TP3A	0.0 V	0.1 V	0.5 V	Paper photocell VPH1 (Rx); paper present
TP4A	0.9 V	1.1 V	1.3 V	Paper photocell VPH4 (Rx); no paper present
TP4A	0.0 V	0.1 V	0.5 V	Paper photocell VPH4 (Rx); paper present
TP1D	-	-	-	Digital input signal of slotted photocell VSPH2. See Note.
TP2D	-	-	-	Digital input signal of slotted photocell VSPH3. See Note.
TP3D	-	-	-	Slotted photocell for future third fold table
TP4D	-	-	-	Digital input signal of slotted photocell VSPH5. See Note.
TP5D	-	-	-	Digital input signal of slotted photocell VSPH1. See Note.
TP6D	-	-	-	Digital input signal of slotted photocell VSPH4. See Note.
TP401	-	-	-	Digital signal SCL_I2C. See Note.
TP402	-	-	-	Digital signal SDA_I2C. See Note.
TP403	-	-	-	Digital signal SCL/SCL_SPARE. See Note.
TP404	-	-	-	Digital signal SDA/SDA_SPARE. See Note.
TP501	11.5 V	12.0 V	12.5 V	+12 V power supply
TP502	4.8 V	5.0 V	5.2 V	+5 V power supply (VCC and AVCC)
TP503	-	0 V	-	Ground level
TP504	-	VCC	-	Used for a wire link between this "TP" and GND for manually resetting the CPU. Only used for software development.

Test point	Minimum	Typical	Maximum	Notes
TP505	-	0 V	-	Ground level
TP506	-	0 V	-	Ground level
TP507	-	0 V	-	Ground level

table 4.1

Note. The measured DC-voltage on a test point that carries a (dynamic) digital voltage is not relevant (the measured DC voltage is determined by the duty cycle of the digital signal). These kind of signals should be observed with an oscilloscope. The signals vary between a few tenths of volts above ground level and a few tenths of volts below VCC level (+5 V).

Test points on the feeder unit board 93.08.02

Test point	Minimum	Typical	Maximum	Notes
TP101	-	-	-	Digital test signal used for software development.
TP102	-	-	-	Test of the digital signal that drives the diagnostic LED D101. Normal flashing frequency 1Hz. During errors the flashing frequency is 4 Hz.
TP201	0.9 V	1.1 V	1.3 V	Paper photocell FPH1 (Rx); no paper present.
TP201	0.0 V	0.1 V	0.5 V	Paper photocell FPH1 (Rx); paper present.
TP202	0.9 V	1.1 V	1.3 V	Paper photocell FPH2 (Rx); no paper present
TP202	0.0 V	0.1 V	0.5 V	Paper photocell FPH2 (Rx); paper present.
TP221	4.0 V	4.1 V	4.2 V	Output voltage of upper DFC unit. Result of DFC adjustment after the relevant photocell detected test paper.
TP222	4.0 V	4.1 V	4.2 V	Output voltage of lower DFC unit. Result of DFC adjustment after the relevant photocell detected test paper.
TP301	23 V	24 V	35 V	Power supply as delivered by FPI 5000 I.
TP302	4.8 V	5.0 V	5.2 V	+5 V power supply (VCC and AVCC).
TP311	11.5 V	12.0 V	12.5 V	+12 V power supply.
TP312	-	0 V	-	Ground level.
TP321	-	VCC	-	Used for a wire link between this "TP" and GND for manually resetting the CPU. Only used for software development.

table 4.2

5 Error diagnosis and error codes

The FPI 5000 C plus its associated feeders doesn't have its own user interface. Therefore the error diagnosis and error codes related to the FPI 5000 C subsystem are discussed in chapter 5 of the FPI 5000 I electrical description (document 510.03).

Parts lists

Recommended spare parts

Some of these parts already could be stocked. being part of another recommended spare parts list.

Illustration Code nr.	Description	Part code Number	Stock qty. per number of installed machines		
			1	10	100
Figure 520.04-6					
4	Hopper complete (auto)*	79.01.53	1	1	2
13	Hopper complete (special)*	79.01.54	1	1	2
Figure 520.04-8					
1	Eprom	97.50.12	1	1	2
2	Mainboard	97.50.10	1	1	2
Figure 520.04-12					
2	Sensor (including holder)	04.24.53	1	2	4
5	Transportation roller	95.13.12	2	2	4
9	Input roller (assy.)	93.05.33	1	1	2
22	Microswitch	12.12.22	1	2	4
27	Transportation roller Ø 36 mm	76.04.66	2	2	4
Figure 520.04-14					
15	Gear 35T	24.69.58	1	2	4
22	Led (including holder)	04.24.52	1	2	4
29	Conductive bearing 10 mm	04.24.26	4	10	20
Figure 520.04-16					
5	Clutch CW 8 mm	93.09.03	1	2	4
12	Timing belt	95.13.16	1	1	2
14	Timing belt	04.16.25	1	1	2
20	Pulse disc	24.12.81	1	1	2
23	Clutch CW 8 mm	12.16.66	1	1	2
27	Disc for pulley	93.05.42	1	2	4
28	Timing belt	04.16.31	1	1	2
32	Pulley 20T (timing belt)	24.13.75	1	2	4
37	Timing belt	04.15.62	1	1	2
47	Pulse disc sensor assy.	82.16.22	1	2	4
49	Motor 24V assy. (low noise)	04.26.38	1	1	2
59	Fold roller (assy.)	93.05.34	1	1	4
62	Fold roller (assy.)	93.05.56	1	1	4
Figure 520.04-20					
2	Conductive bearing 8 mm	04.24.25	2	4	10

Illustration Code nr.	Description	Part code Number	Stock qty. per number of installed machines		
			1	10	100
Figure 520.04-22					
29	Gear 24T	93.09.02	1	1	2
36	Clutch CCW 8 mm	93.05.36	1	1	2
63	Flap actuator	95.30.84	1	1	2
Figure 520.04-26					
30	Torsion spring	95.30.70	1	1	2
36	Lever for flap actuator	95.30.31	1	1	2
Figure 520.04-28					
1	Curve disc LH	95.30.63	1	1	2
10	Curve disc RH	95.30.64	1	1	2
Figure 520.04-30					
6	Clutch CCW 8 mm	12.14.61	1	1	2
9	Clutch CW 8 mm	12.14.63	1	1	2
12	Slip clutch	95.71.27	1	1	2
Figure 520.04-32					
22	Pressure roller Ø 30	95.11.86	2	2	4
25	Conductive bearing 6 mm	04.24.24	4	10	20
Figure 520.04-34					
14	Pressure roller Ø 20	95.14.08	2	2	4
18	Pressure roller Ø 20	95.14.44	2	2	4
Figure 520.04-38					
2	Tension spring	95.11.50	1	2	4
Figure 520.04-40					
7	Timing belt	04.15.74	1	2	4
9	Clutch CCW 8 mm	93.05.36	1	1	2
24	Mainboard feed unit	93.08.02	1	1	2
25	Eprom	97.50.13	1	1	2
Figure 520.04-42					
3	Cover plate	95.11.25	1	1	2
12	Rubber paper puller	04.00.16	2	2	4
15	Pulley 28T (timing belt)	95.11.35	1	1	2
16	Timing belt	95.11.45	1	1	2
17	Double document detector	89.08.36	1	1	2
57	Separator roller (lower)*	95.11.23	1	2	4
59	Brush*	95.11.48	1	1	2
62	Separation roller (upper)*	95.11.07	1	2	4

Illustration Code nr.	Description	Part code Number	Stock qty. per number of installed machines		
			1	10	100
Figure 520.04-46					
6	Transportation roller (assy.)*	95.12.29	1	2	4
36	Separation axle assy. (special)*	04.23.12	1	2	4
Figure 520.04-50					
18	Collating belt set (3 pcs.)	95.20.07	1	2	4
Figure 520.04-54					
6	Motor 24V	93.09.42	1	1	2
19	Gear 26/35T	93.09.40	1	1	2

*Note: Parts marked with an asteriks (*) d*epending on configuration.

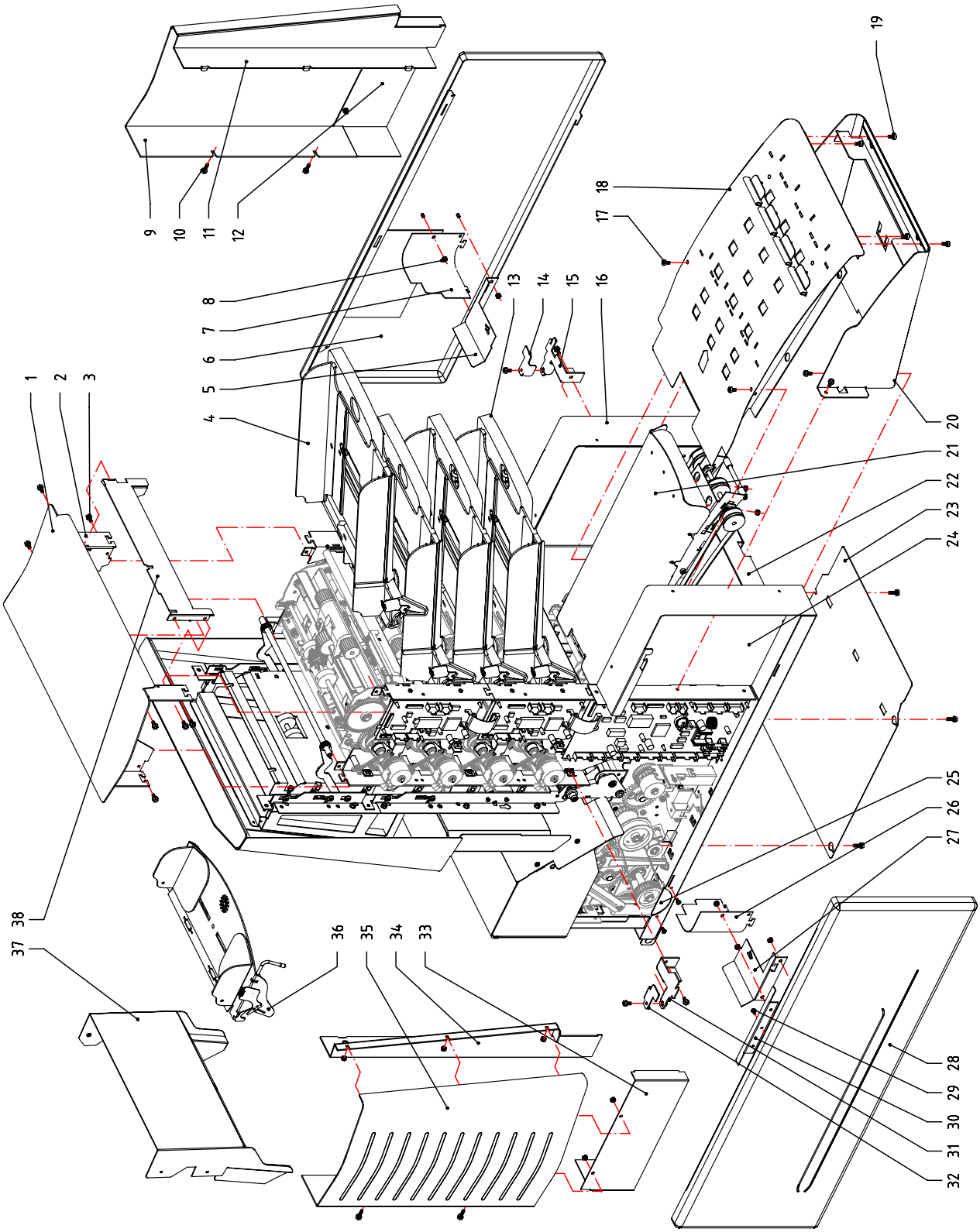
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Figure 1

Figure 520.04-6

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Top cover	98.01.28	1	
	2	Fixing plate	98.01.25	1	
	3	Hex. head screw M4 x 8	05.38.80	14	
	4	Hopper complete (auto)	79.01.53	-	See note
	5	Horizontal protection plate RH	98.01.16	1	
	6	Cover RH	98.01.56	1	
	7	Vertical protection plate RH	98.01.17	1	
	8	Nut M4	45.19.02	18	
	9	Cover RH	98.01.21	1	
	10	Hex. head screw M4 x 12	45.38.82	8	
	11	Cover RH	98.01.22	1	
	12	Side plate RH	98.01.23	1	
	13	Hopper complete (special)	79.01.54	-	See note
	14	Locking plate RH	98.01.24	1	
	15	Bracket RH	98.01.12	1	
	16	Cover RH	98.01.08	1	
	17	Round head screw M4 x 8	05.38.68	4	
	18	Collating plate	95.21.02	1	
	19	Round head screw M4 x 8	45.38.68	4	
	20	Bottom cover	93.07.41	1	
	21	Cover	93.07.20	1	
	22	Strip	93.06.29	1	
	23	Bottom plate	93.06.08	1	
	24	Cover LH	98.01.05	1	
	25	Cover plate	98.01.29	2	
	26	Vertical protection plate LH	98.01.15	1	
	27	Horizontal protection plate LH	98.01.14	1	
	28	Cover LH	98.01.55	1	
	29	Round head screws M3 x 4	45.43.00	5	
	30	Cover plate	98.01.42	1	
	31	Bracket LH	98.01.11	1	
	32	Locking plate LH	98.01.13	1	
	33	Side plate LH	98.01.20	1	
	34	Cover LH	98.01.19	1	
	35	Cover LH	98.01.18	1	
	36	Short tray	04.27.27	1	
	37	Cover (2 stations)	98.01.38	1	
	38	Cover	96.46.25	1	

Note: Quantity depending on configuration.

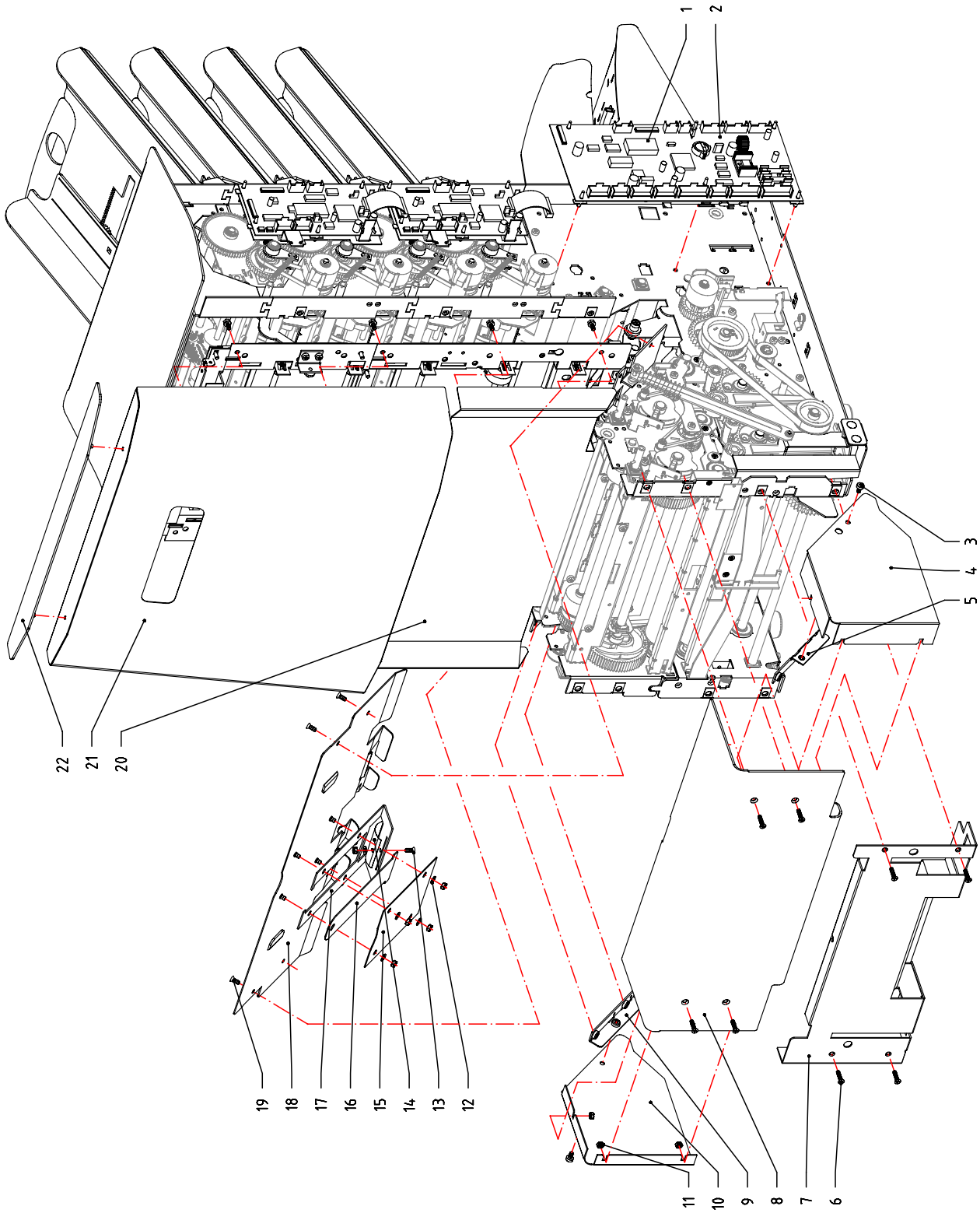

Figure 2

Figure 520.04-8

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Eprom	97.50.12	1	
	2	Mainboard	97.50.10	1	
	3	Round head screw M4 x 8	45.38.68	2	
	4	Refer to 8			
	5	Mounting bracket LH	98.01.36	1	
	6	Countersunk head tapping screw	45.38.59	8	
	7	Lower exit plate	93.07.10	1	
	8	Cover assy. (fold unit)	98.01.33	1	
	9	Mounting bracket RH	98.01.37	1	
	10	Refer to 8	98.01.35	1	
	11	Nut M4	45.19.02	11	
	12	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.02	5	
	13	Countersunk head screw M4 x 6	45.42.11	1	
	14	Protective strip	04.26.65	1	
	15	Support plate	98.01.40	1	
	16	Support strip	98.01.41	1	
	17	Mounting bracket	98.01.30	1	
	18	Cover fold unit	98.01.32	1	
	19	Countersunk head screw M4 x 10	45.38.75	4	
	20	Lower cover vertical transport	98.01.03	1	
	21	Upper cover vertical transport	98.01.02	1	
	22	Cover plate	98.01.43	1	

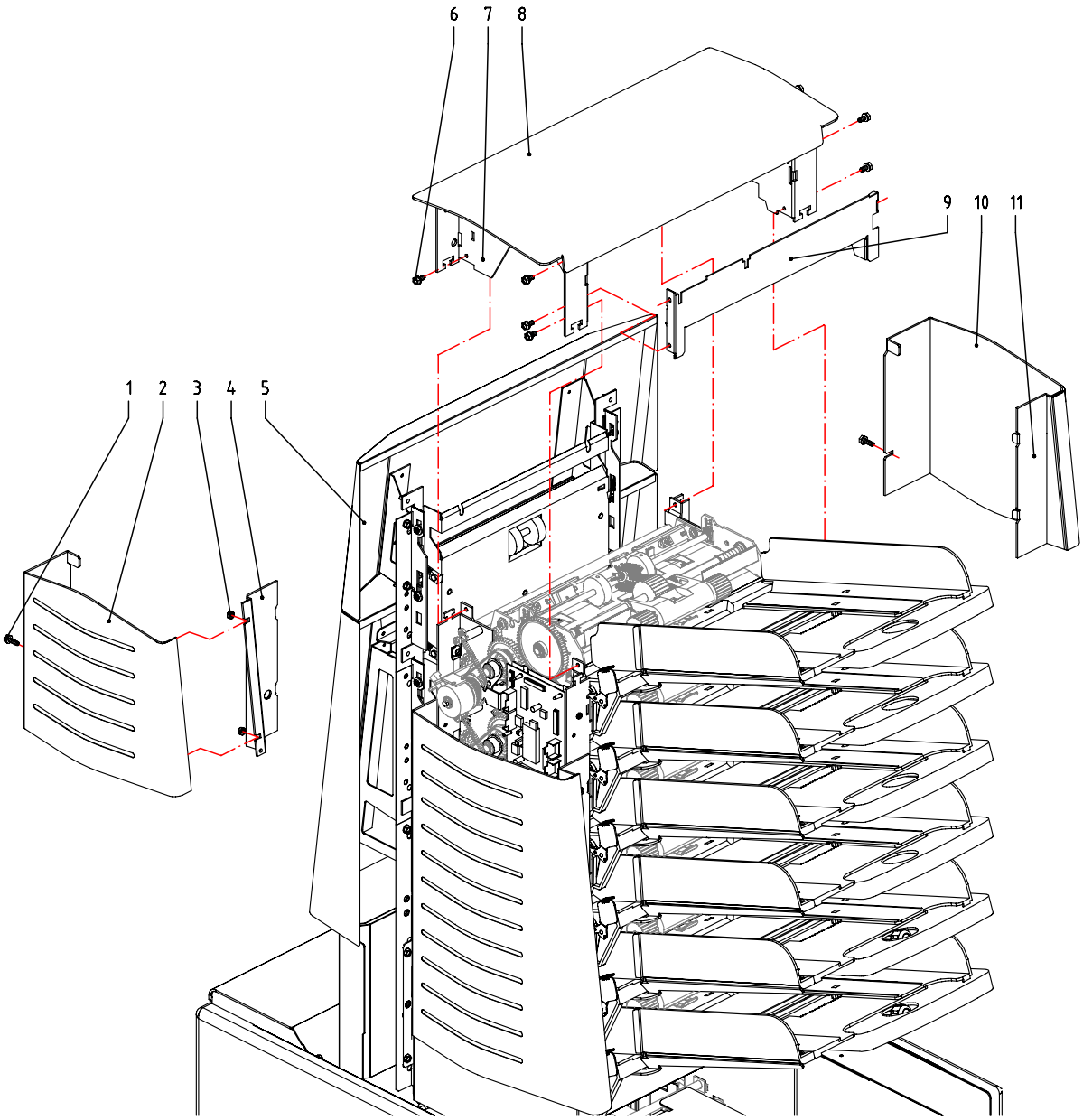

Figure 3

Figure 520.04-10

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Hex. head screw M4 x 12	45.38.82	2	
	2	Cover LH	98.01.44	1	
	3	Nut M4	45.19.02	4	
	4	Cover LH	98.01.46	1	
	5	Top cover vertical transport	98.01.49	1	
	6	Hex. head screw M4 x 8	05.38.80	4	
	7	Fixing plate	98.01.25	1	
	8	Top cover	98.01.28	1	
	9	Cover	96.46.25	1	
	10	Cover RH	98.01.45	1	
	11	Cover RH	98.01.47	1	

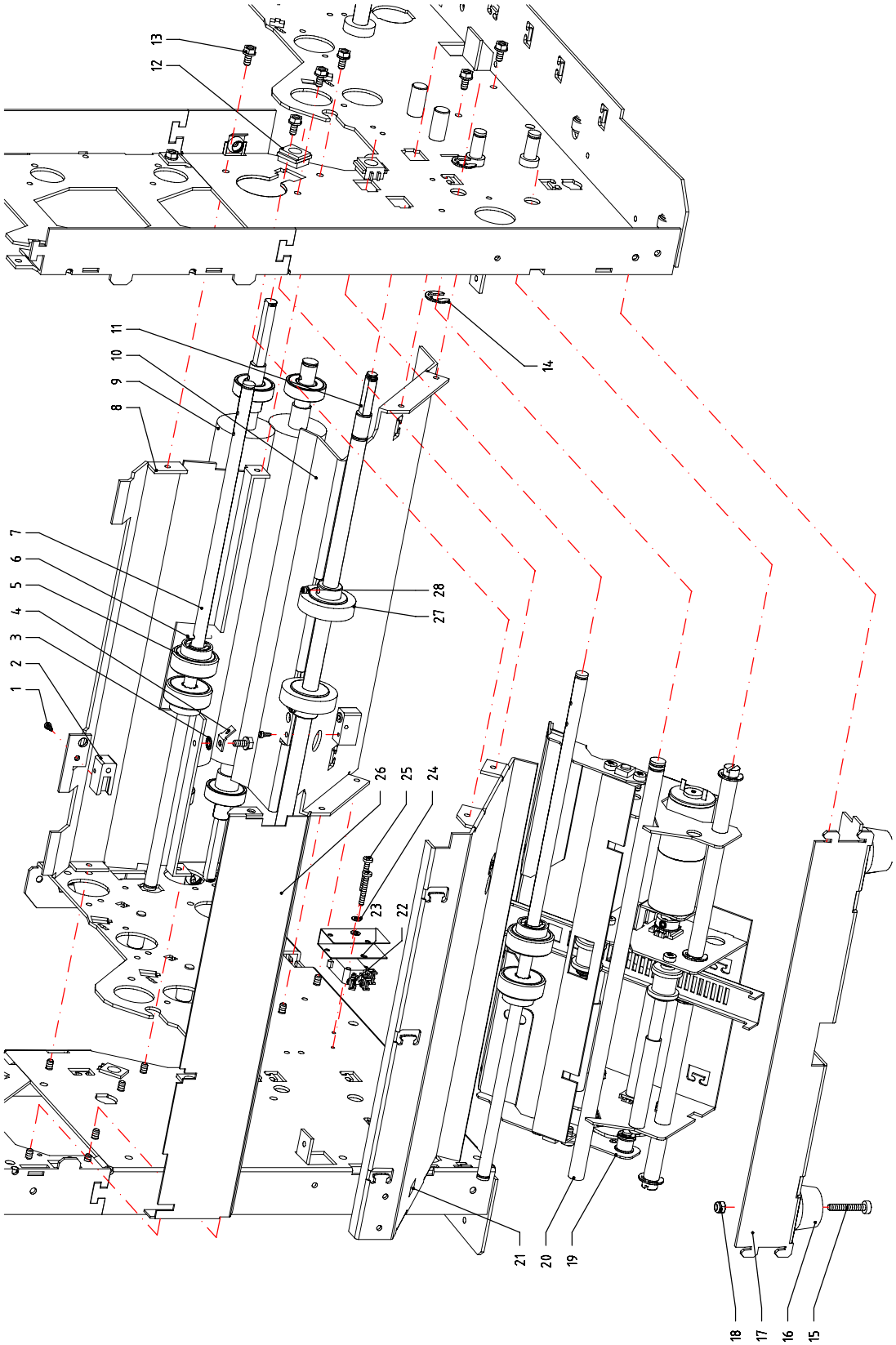

Figure 4

Figure 520.04-12

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Pan head tapping screw	05.38.55	2	
	2	Sensor (including holder)	04.24.53	2	
	3	Lock washer 5/32”	05.24.31	1	
	4	Clamping bracket	12.14.06	1	
	5	Transportation roller	95.13.12	1	
	6	Cyl. pin Ø 2 x 16	05.23.46	4	
	7	Drive and transportation axle	93.05.09	1	
	8	Intermediate plate (vert. transport)	93.06.06	1	
	9	Input roller (assy.)	93.05.33	2	
	10	Intermediate plate (fold unit)	93.06.05	1	
	11	Transportation axle	93.05.35	1	
	12	Conductive bearing 8 mm	04.24.25	4	
	13	Hex. head screw M4 x 8	05.38.80	13	
	14	Spring clip 9 - 12 mm	05.24.55	2	
	15	Round head screw M4 x 25	45.43.18	2	
	16	Synthetic stud	24.14.62	2	
	17	Strip	93.06.29	1	
	18	Nut M4 (self-locking)	05.38.21	2	
	19	Divert unit (complete)	89.08.34	1	
	20	Suspension axle	95.21.32	1	
	21	Intermediate plate	93.06.07	1	
	22	Microswitch	12.12.22	1	
	23	Insulating plate	93.06.41	1	
	24	Washer Ø 6 x Ø 3.2 x 0.5 mm	45.37.30	2	
	25	Round head screw M3 x 20	45.43.07	2	
	26	Screening plate	95.13.33	1	
	27	Transportation roller Ø 36 mm	76.04.66	2	
	28	Set screw M4 x 4	08.28.01	2	

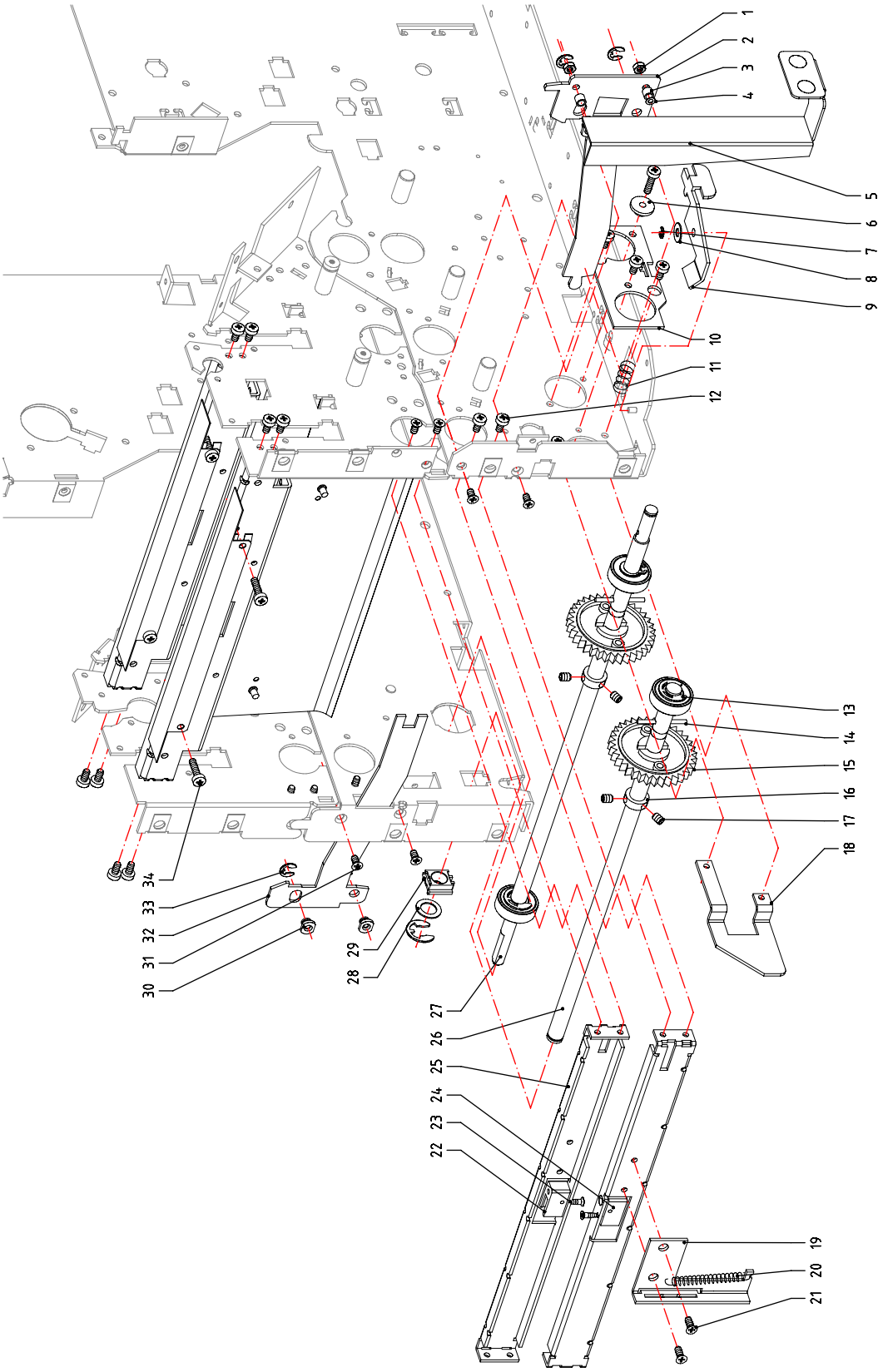
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Figure 5

Figure 520.04-14

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Nut M4	45.19.02	2	
	2	Lock LH	93.06.32	1	
	3	Spacer Ø 8 x Ø 4.3 x 3 mm	04.11.32	2	
	4	Washer Ø 6 x Ø 3.2 x 0.5 mm	45.37.30	2	
	5	Carrying handle	98.01.31	1	
	6	Bearing bushing	93.06.16	1	
	7	Spring clip 4 - 5 mm	05.24.47	2	
	8	Washer Ø 12 x Ø 5.2 x 0.7 mm	43.05.35	2	
	9	Locking strip (LH)	43.19.31	1	
	10	Bearing plate	93.06.15	1	
	11	Pressure spring 0.7 mm	03.11.11	2	
	12	Round head screw M4 x 8	05.38.68	16	
	13	Spring clip 10 - 14 mm	05.24.83	3	
	14	Cyl. pin Ø 2.5 x 32	05.23.48	2	
	15	Gear 35T	24.69.58	2	
	16	Bushing Ø 15 x Ø 10 x 5.5 mm	75.37.51	2	
	17	Set screw M4 x 4	08.28.01	4	
	18	Cover actuator	93.06.14	1	
	19	Guide bracket	93.06.34	1	
	20	Tension spring	03.11.54	1	
	21	Countersunk head screw M4 x 10	05.38.75	2	
	22	Led (including holder)	04.24.52	1	
	23	Countersunk head tapping screw	05.38.59	2	
	24	Sensor (including holder)	04.24.53	1	
	25	Bracket for photocell	95.30.74	2	
	26	Drive axle (assy.)	93.05.05	1	
	27	Drive axle (assy.)	93.05.07	1	
	28	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	1	
	29	Conductive bearing 10 mm	04.24.26	1	
	30	Hinge pin	93.06.33	4	
	31	Countersunk head screw M4 x 8	45.42.12	8	
	32	Lock RH	93.06.31	1	
	33	Spring clip 6 - 8 mm	05.24.46	4	
	34	Round head screw M4 x 16	05.38.71	5	

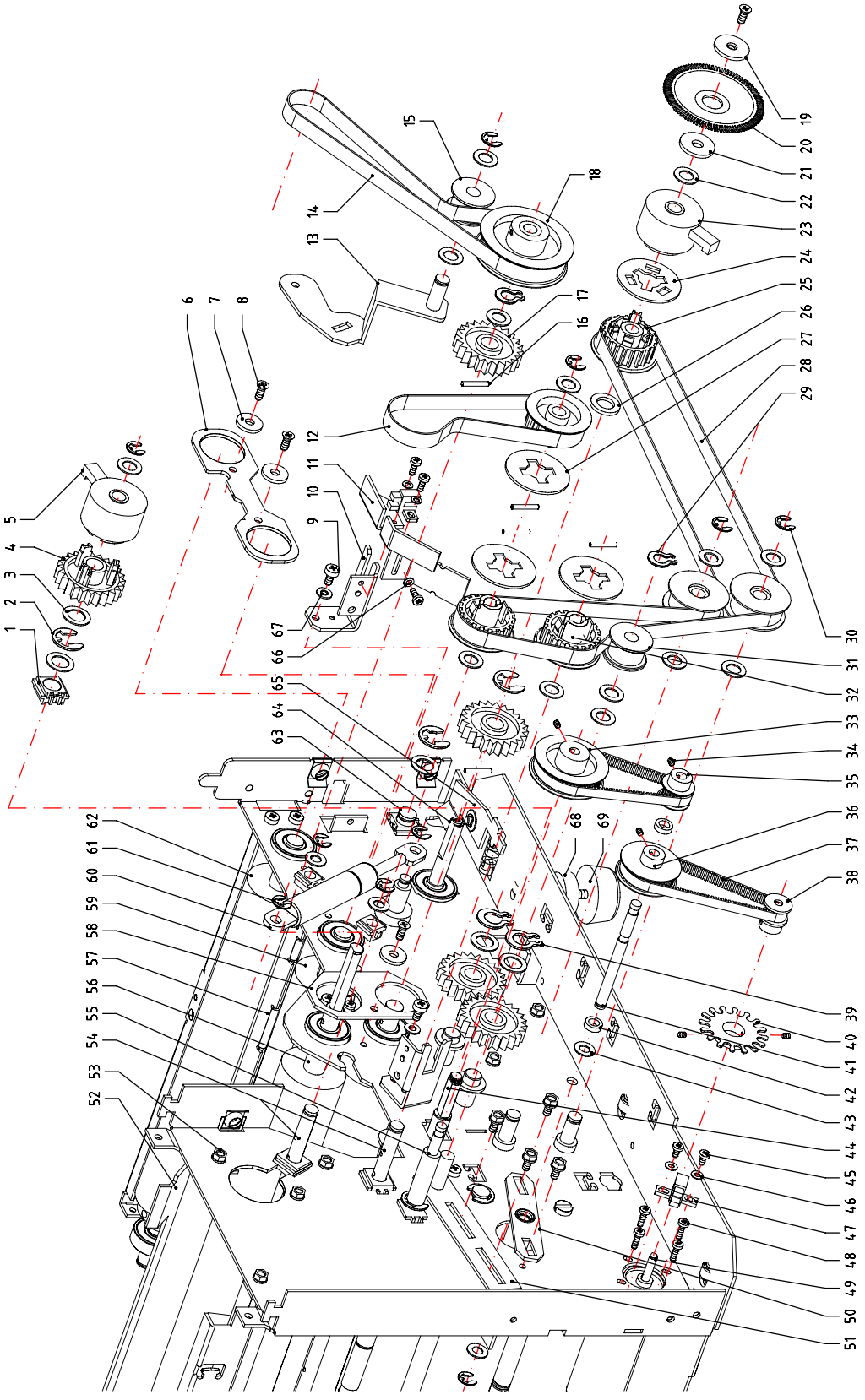
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Figure 6

Figure 520.04-16

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Conductive bearing 10 mm	04.24.26	3	
	2	Spring clip 10 - 14 mm	05.24.83	3	
	3	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	3	
	4	Gear 24T	93.09.02	1	
	5	Clutch CW 8 mm	93.09.03	1	
	6	Bearing locking plate	93.06.13	1	
	7	Washer Ø 15 x Ø 5.3 x 2 mm	45.37.50	3	
	8	Countersunk head screw M4 x 10	05.38.75	4	
	9	Round head screw M4 x 8	05.38.68	6	
	10	Blocking bracket	93.05.29	2	
	11	Bracket	93.05.28	1	
	12	Timing belt	95.13.16	1	
	13	Tensioner bracket	93.05.16	1	
	14	Timing belt	04.16.25	1	
	15	Tensioner roller	93.05.15	2	
	16	Cyl. pin Ø 2.5 x 16	05.23.46	5	
	17	Gear 24T	93.05.25	4	
	18	Pulley	04.14.23	1	
	19	Clamping disc	43.30.46	1	
	20	Pulse disc	24.12.81	1	
	21	Washer Ø 20 x Ø 6.2 x 2 mm	43.07.90	1	
	22	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	14	
	23	Clutch CW 8 mm	12.16.66	1	
	24	Disc for pulley	93.05.41	1	
	25	Pulley 20T (timing belt)	93.05.12	1	
	26	Spacer Ø 17 x Ø 10.2 x 2 mm	04.10.94	3	
	27	Disc for pulley	93.05.42	3	
	28	Timing belt	04.16.31	1	
	29	Clamping ring 8 mm	05.24.85	2	
	30	Spring clip 7 - 9 mm	05.24.42	4	
	31	Roller assy. Ø 30 mm	93.05.23	2	
	32	Pulley 20T (timing belt)	24.13.75	3	
	33	Pulley 60T	04.13.20	1	
	34	Set screw M3 x 4	08.28.33	5	
	35	Pulley 22T	04.13.16	1	
	36	Pulley 40T	04.13.19	1	
	37	Timing belt	04.15.62	2	
	38	Motor pulley 18T	04.13.13	1	
	39	Clamping ring 10 mm	05.24.81	2	
	40	Pulse disc	73.37.80	1	
	41	Axle	95.21.38	1	
	42	Spacer Ø 10 x Ø 6.3 x 3 mm	04.08.63	2	
	43	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	4	
	44	Transportation axle	93.05.35	1	
	45	Round head screw M3 x 6	45.43.02	2	

Figure 520.04-16

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	46	Washer Ø 7 x Ø 3.2 x 0.5 mm	45.37.39	2	
	47	Pulse disc sensor assy.	82.16.22	2	
	48	Round head screw M3 x 10	45.43.04	6	
	49	Motor 24V assy. (low noise)	04.26.38	1	
	50	Belt tensioner plate	95.21.37	1	
	51	Belt tensioner	93.05.26	1	
	52	Intermediate plate (vert. transport)	93.06.06	1	
	53	Hex. head screw M4 x 8	05.38.80	10	
	54	Drive and transportation axle	93.05.09	2	
	55	Drive axle	95.20.02	1	
	56	Input roller (assy.)	93.05.33	2	
	57	Guide bracket	95.30.73	2	
	58	Bearing locking plate	93.06.12	1	
	59	Fold roller (assy.)	93.05.34	1	
	60	Damper	03.35.55	1	
	61	Spring clip 6 - 8 mm	05.24.46	6	
	62	Fold roller (assy.)	93.05.56	1	
	63	Drive axle (assy.)	93.05.05	1	
	64	Drive axle (assy.)	93.05.07	1	
	65	Locking strip (RH)	43.19.32	1	
	66	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.02	2	
	67	Washer Ø 6 x Ø 3.2 x 0.5 mm	45.37.30	3	
	68	Spacer Ø 25 x Ø 5.5 x 8 mm	43.29.31	1	
	69	Rubber stud M6 x 20 mm	04.12.12	1	

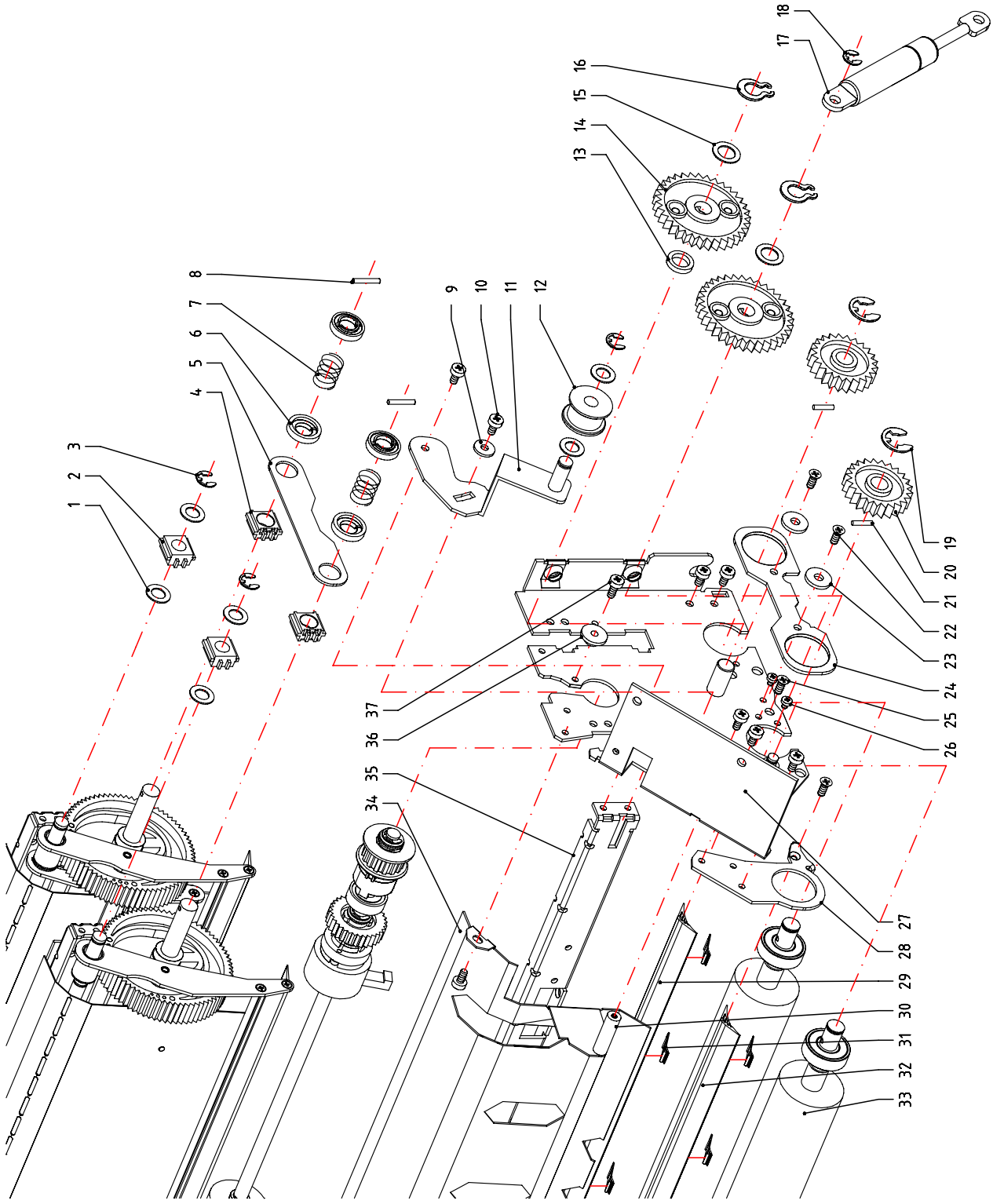
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Figure 7

Figure 520.04-20

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	6	
	2	Conductive bearing 8 mm	04.24.25	2	
	3	Spring clip 7 - 9 mm	05.24.42	3	
	4	Conductive bearing 10 mm	04.24.26	2	
	5	Brake strip	95.30.97	1	
	6	Brake disc	95.30.94	4	
	7	Pressure spring	95.31.00	2	
	8	Cyl. pin Ø 2.5 x 16	05.23.46	2	
	9	Washer Ø 12 x Ø 4.3 x 1.5 mm	45.37.58	3	
	10	Round head screw M4 x 8	05.38.68	8	
	11	Tensioner bracket	93.05.16	1	
	12	Tensioner roller	93.05.15	1	
	13	Spacer Ø 15 x Ø 10.4 x 3 mm	04.08.58	1	
	14	Gear 35T	24.69.58	2	
	15	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	2	
	16	Clamping ring 10 mm	05.24.81	2	
	17	Damper	03.35.55	1	
	18	Spring clip 6 - 8 mm	05.24.46	1	
	19	Spring clip 10 - 14 mm	05.24.83	2	
	20	Gear 24T	93.05.25	2	
	21	Cyl. pin Ø 2.5 x 12	05.23.47	2	
	22	Countersunk head screw M4 x 10	05.38.75	3	
	23	Washer Ø 15 x Ø 5.3 x 2 mm	45.37.50	2	
	24	Bearing locking plate	93.06.13	1	
	25	Countersunk head screw M3 x 10	05.38.74	2	
	26	Round head screw M3 x 4	45.43.00	2	
	27	Frame (assy.) FO rh	93.06.20	1	
	28	Hinged plate	93.06.50	1	
	29	Guide strip (long)	93.06.53	1	
	30	Frame axle	95.30.75	1	
	31	Synthetic leaf spring	93.06.54	8	
	32	Guide strip (short)	93.06.52	1	
	33	Folding roller (assy.)	93.05.34	2	
	34	Guide plate	95.30.72	1	
	35	Bracket for photocell	95.30.74	1	
	36	Bearing bushing	04.24.46	1	
	37	Round head screw M4 x 10	05.38.69	1	

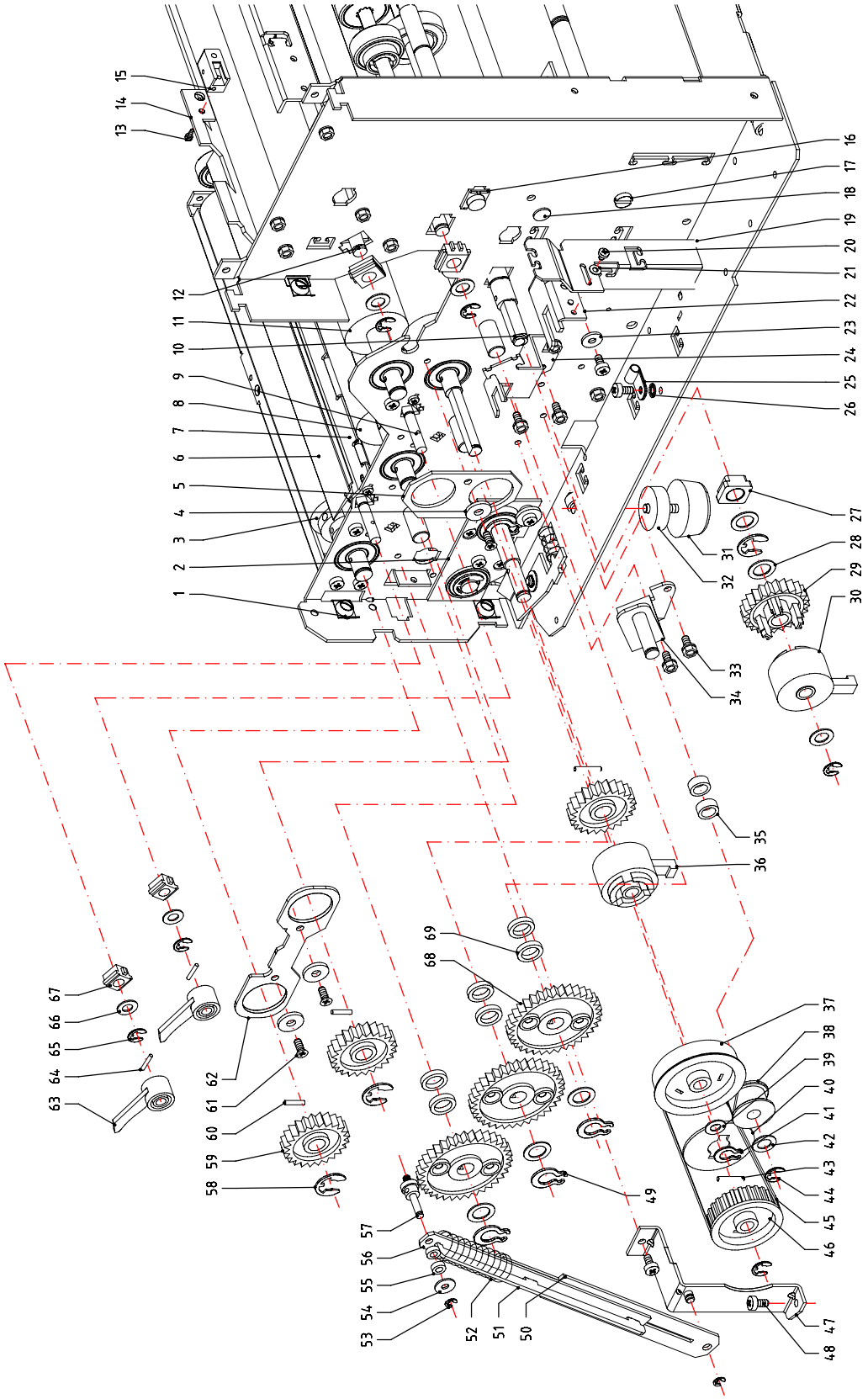
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Figure 8

Figure 520.04-22

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Self-locking clip	05.26.02	2	
	2	Bearing plate	93.06.15	1	
	3	Fold roller (assy.)	93.05.56	1	
	4	Washer Ø 15 x Ø 5.3 x 2 mm	45.37.50	3	
	5	Bearing locking plate	93.06.12	1	
	6	Flap	95.30.86	2	
	7	Guide bracket	95.30.73	2	
	8	Fold roller (assy.)	93.05.34	2	
	9	Axle for flap	95.30.82	2	
	10	Transportation axle	93.05.35	1	
	11	Input roller (assy.)	93.05.33	2	
	12	Drive and transportation axle	93.05.09	1	
	13	Pan head tapping screw	05.38.55	1	
	14	Intermediate plate (vert. transport)	93.06.06	1	
	15	Sensor (including holder)	04.24.53	1	
	16	Conductive bearing 10 mm	04.24.26	1	
	17	Axle	93.09.30	1	
	18	Suspension axle	95.21.32	1	
	19	Guide strip	93.06.30	1	
	20	Round head screw M3 x 4	45.43.00	1	
	21	Washer Ø 7 x Ø 3.2 x 0.5 mm	45.37.39	1	
	22	Blocking bracket	93.05.29	1	
	23	Washer Ø 12 x Ø 4.3 x 1.5 mm	45.37.58	1	
	24	Blocking bracket	95.30.99	1	
	25	Mounting clamp	12.14.89	1	
	26	Lock washer 5/32”	05.24.31	1	
	27	Self-lubricating bearing10 mm	06.09.12	1	
	28	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	5	
	29	Gear 24T	93.09.02	1	
	30	Clutch CW 8mm	93.09.03	1	
	31	Rubber stud M6 x 20 mm	04.12.12	1	
	32	Spacer Ø 25 x Ø 5.5 x 8 mm	43.29.31	1	
	33	Hex. head screw M4 x 8	05.38.80	9	
	34	Belt tensioner	93.05.45	1	
	35	Spacer Ø 12 x Ø 8.4 x 5 mm	04.09.64	2	
	36	Clutch CCW 8 mm	93.05.36	1	
	37	Pulley 30T (timing belt)	93.05.30	1	
	38	Tensioner roller	93.05.15	1	
	39	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	3	
	40	Disc	93.05.43	1	
	41	Clamping ring 8 mm	05.24.85	1	
	42	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	5	
	43	Cyl. pin Ø 2.5 x 16	05.23.46	2	
	44	Spring clip 7 - 9 mm	05.24.42	4	
	45	Timing belt	04.16.25	1	

Figure 520.04-22

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	46	Pulley 25T (timing belt)	93.05.19	1	
	47	Mounting bracket	93.06.36	1	
	48	Round head screw M4 x 8	05.38.68	9	
	49	Clamping ring 10 mm	05.24.81	4	
	50	Strip for pressure spring	93.06.39	4	
	51	Reinforcement strip	93.06.38	1	
	52	Pressure spring	93.06.42	1	
	53	Spring clip 4 - 5 mm	05.24.47	3	
	54	Washer Ø 12 x Ø 4.3 x 1 mm	45.37.43	1	
	55	Spacer Ø 8 x Ø 4.3 x 3 mm	04.11.32	2	
	56	Strip for pressure spring	93.06.40	1	
	57	Hinge pin	93.06.37	1	
	58	Spring clip 10 - 14 mm	05.24.83	6	
	59	Gear 24T	93.05.25	3	
	60	Cyl. pin Ø 2.5 x 12	05.23.47	2	
	61	Countersunk head screw M4 x 10	05.38.75	3	
	62	Bearing locking plate	93.06.13	1	
	63	Flap actuator	95.30.84	2	
	64	Cyl. pin Ø 2 x 12	95.30.85	2	
	65	Spring clip 6 - 8 mm	05.24.46	3	
	66	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	3	
	67	Conductive bearing 6 mm	04.24.24	2	
	68	Gear 35T	24.69.58	3	
	69	Spacer Ø 15 x Ø 10.4 x 3 mm	04.08.58	6	

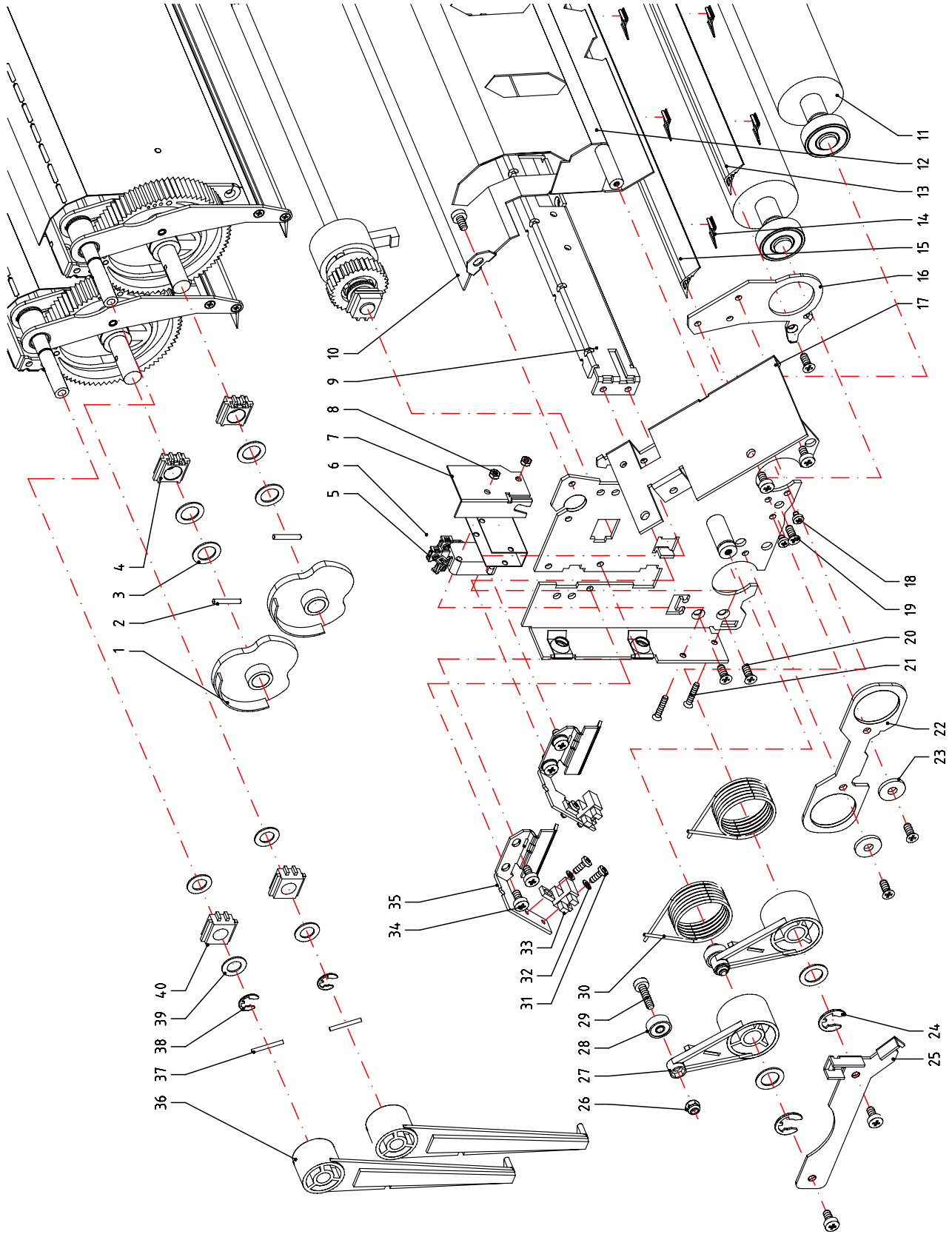
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Figure 9

Figure 520.04-26

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Brake disc	95.30.66	2	
	2	Cyl. pin Ø 2.5 x 16	05.23.46	2	
	3	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	4	
	4	Conductive bearing 10 mm	04.24.26	2	
	5	Microswitch	12.12.22	1	
	6	Insulating plate	93.06.41	1	
	7	Cover for microswitch	93.06.25	1	
	8	Nut M3	45.19.01	2	
	9	Bracket for photocell	95.30.74	1	
	10	Guide plate	95.30.72	1	
	11	Fold roller (assy.)	93.05.34	2	
	12	Frame axle	95.30.75	1	
	13	Guide strip (short)	93.06.52	1	
	14	Synthetic leaf spring	93.06.54	8	
	15	Guide strip (long)	93.06.53	1	
	16	Hinge plate	93.06.49	1	
	17	Frame (assy.) FO lh	93.06.19	1	
	18	Round head screw M3 x 4	45.43.00	2	
	19	Countersunk head screw M3 x 10	05.38.74	2	
	20	Countersunk head screw M4 x 10	05.38.75	5	
	21	Countersunk head screw M3 x 16	45.42.05	2	
	22	Bearing locking plate	93.06.13	1	
	23	Washer Ø 15 x Ø 5.3 x 2 mm	45.37.50	2	
	24	Spring clip 9 - 12 mm	05.24.55	2	
	25	Guide bracket	95.30.98	1	
	26	Nut M4 (self-locking)	05.36.21	2	
	27	Positioning lever	95.30.68	2	
	28	Ball bearing	03.12.81	2	
	29	Round head screw M4 x 16	05.38.71	2	
	30	Torsion spring	95.30.70	2	
	31	Round head screw M3 x 8	05.38.65	4	
	32	Washer Ø 6 x Ø 3.2 x 0.5 mm	45.37.30	2	
	33	Pulse disc sensor assy.	82.16.22	2	
	34	Round head screw M4 x 8	05.38.68	10	
	35	Bracket	95.30.71	2	
	36	Lever for flap actuator	95.30.31	2	
	37	Cyl. pin Ø 2 x 18	05.23.07	2	
	38	Spring clip 7 - 9 mm	05.24.42	2	
	39	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	4	
	40	Conductive bearing 8 mm	04.24.25	2	

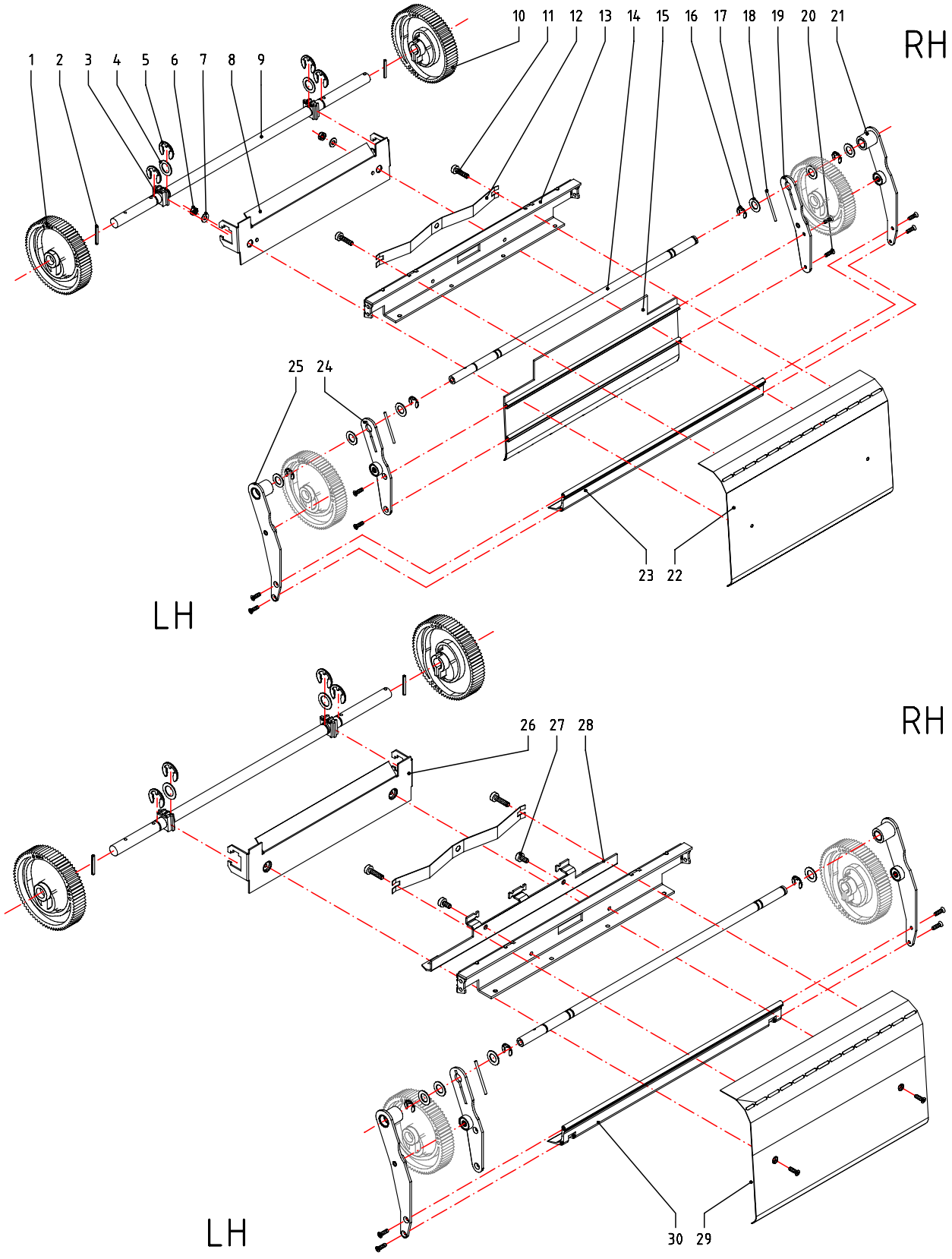
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Figure 10

Figure 520.04-28

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Curve disc LH	95.30.63	2	
	2	Tension pin Ø 2.5 x 20	05.33.24	4	
	3	Conductive bearing 10 mm	04.24.26	4	
	4	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	4	
	5	Spring clip 10 - 14 mm	05.24.83	4	
	6	Nut M4	45.19.02	2	
	7	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.45	2	
	8	Mounting bracket	95.30.59	1	
	9	Curve axle	95.31.10	2	
	10	Curve disc RH	95.30.64	2	
	11	Round head screw M4 x 16	05.38.71	4	
	12	Leaf spring	95.30.60	2	
	13	Bracket	95.30.90	2	
	14	Axle for fold plate	95.30.30	2	
	15	Paper guide	95.30.26	1	
	16	Spring clip 7 - 9 mm	05.24.42	7	
	17	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	10	
	18	Cyl. pin Ø 2 x 32	05.23.08	4	
	19	Hinge strip (paper guide) RH	95.30.21	1	
	20	Countersunk head screw M3 x 10	05.38.74	14	
	21	Hinge plate RH	95.30.11	2	
	22	Guide plate assy. (second fold table)	95.30.54	1	
	23	Fold plate	95.30.16	1	
	24	Hinge strip (paper guide) LH	95.30.20	2	
	25	Hinge plate LH	95.30.10	2	
	26	Mounting bracket	95.30.56	1	
	27	Round head screw M4 x 8	05.38.68	2	
	28	Locking plate	95.30.95	1	
	29	Guide plate assy. (first fold table)	95.30.51	1	
	30	Fold plate	96.42.07	1	

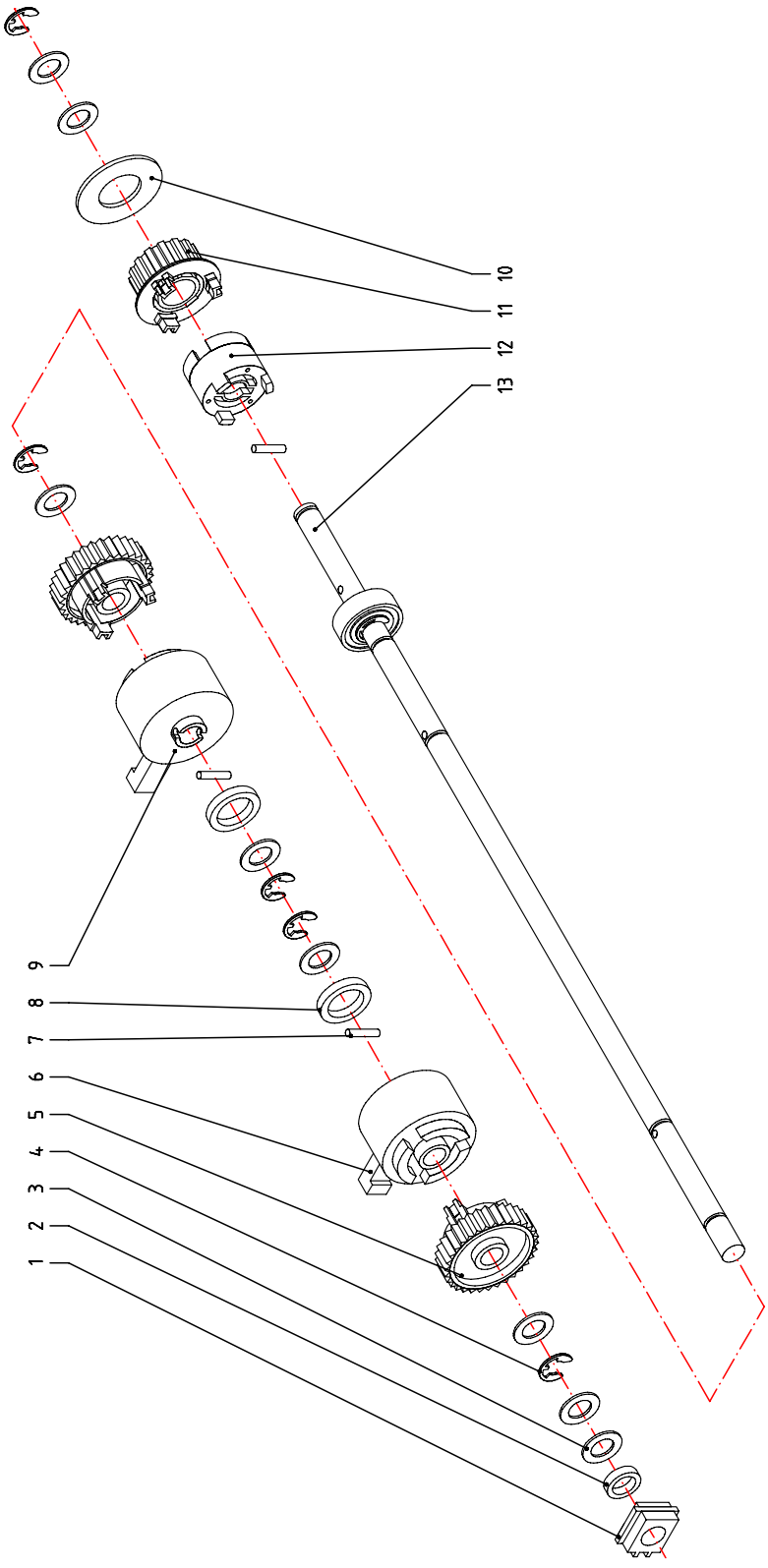

Figure 11

Figure 520.04-30

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Conductive bearing 8 mm	04.24.25	1	
	2	Spacer Ø 12 x Ø 8.3 x 3 mm	04.10.50	1	
	3	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	8	
	4	Spring clip 7 - 9 mm	05.24.42	5	
	5	Gear 32T	96.42.19	2	
	6	Clutch CCW 8 mm	12.14.61	1	
	7	Cyl. pin Ø 2.5 x 12	05.23.47	3	
	8	Spacer Ø 18 x Ø 12.8 x 3 mm	04.08.71	2	
	9	Clutch CW 8 mm	12.14.63	1	
	10	Disc	93.05.44	1	
	11	Pulley 15T (timing belt)	93.05.20	1	
	12	Slip clutch	95.71.27	1	
	13	Drive axle (fold)	93.05.10	1	

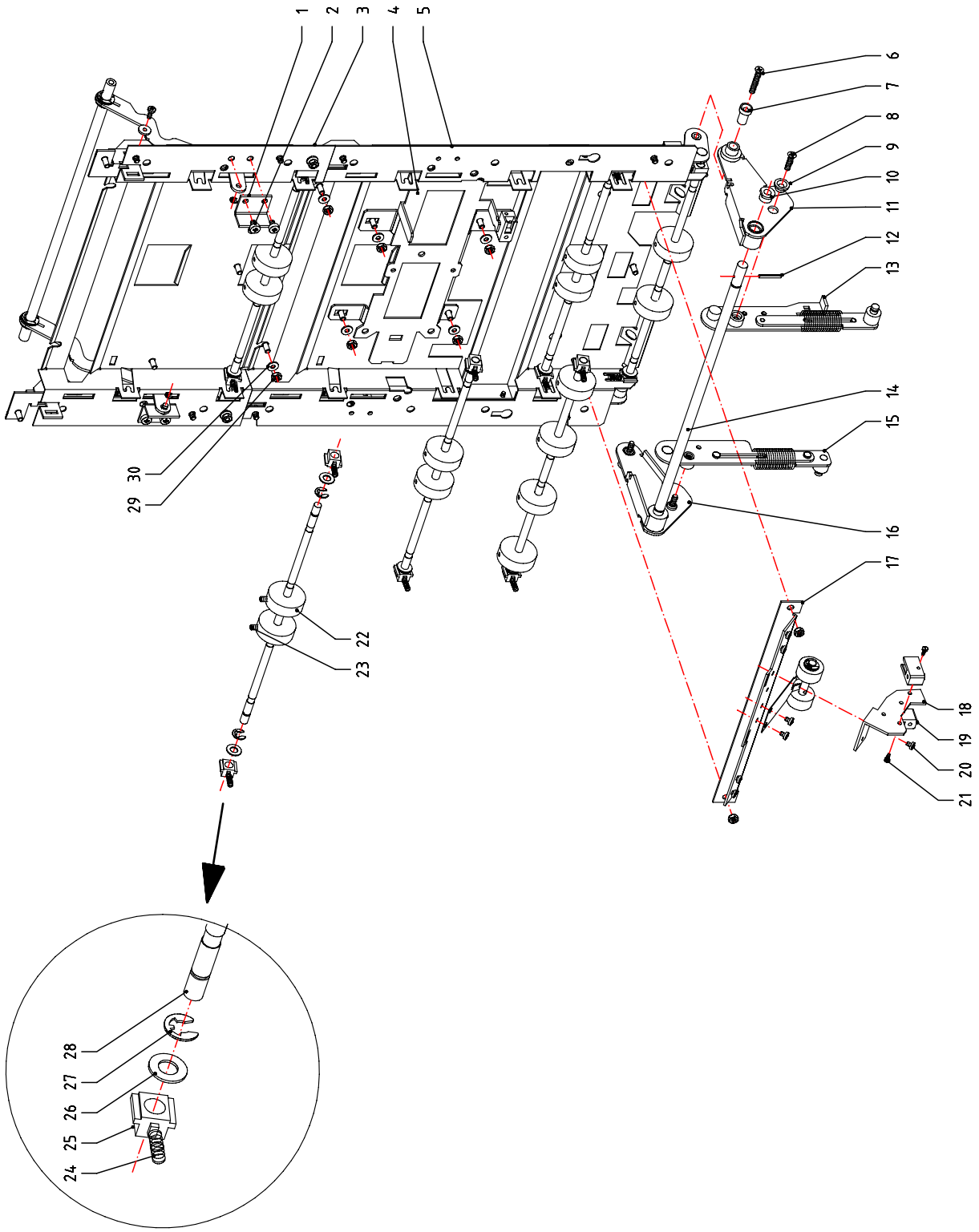
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Figure 12

Figure 520.04-32

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Bracket	95.14.36	2	
	2	Round head screw M4 x 6	05.38.66	4	
	3	Frame extension	95.14.04	1	
	4	Mounting plate for PCB	95.14.19	1	
	5	Frame	95.14.02	1	
	6	Countersunk head screw M4 x 25	45.42.17	2	
	7	Hinge pin	95.14.12	2	
	8	Countersunk head screw M4 x 16	45.38.77	2	
	9	Bushing	95.14.41	2	
	10	Bushing	95.14.40	2	
	11	Hinge arm	95.14.13	2	
	12	Tension pin Ø 2.5 x 18	05.33.23	2	
	13	Cover opener LH (vert. transport)	95.14.24	1	
	14	Hinge axle	95.14.14	1	
	15	Cover opener RH (vert. transport)	95.14.26	1	
	16	Hinge arm	95.14.20	1	
	17	Fixing plate	95.14.05	1	
	18	Bracket for photocell	95.14.57	1	
	19	Led (including holder)	04.24.52	2	
	20	Round head screw M3 x 4	45.43.00	7	
	21	Pan head tapping screw	05.38.55	2	
	22	Pressure roller Ø 30	95.11.86	14	
	23	Set screw M4 x 16	08.28.07	14	
	24	Pressure spring	03.35.20	16	
	25	Conductive bearing 6 mm	04.24.24	12	
	26	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	12	
	27	Spring clip 6 - 8 mm	05.24.46	12	
	28	Pressure roller axle	95.14.16	6	
	29	Nut M4	45.19.02	11	
	30	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.45	10	

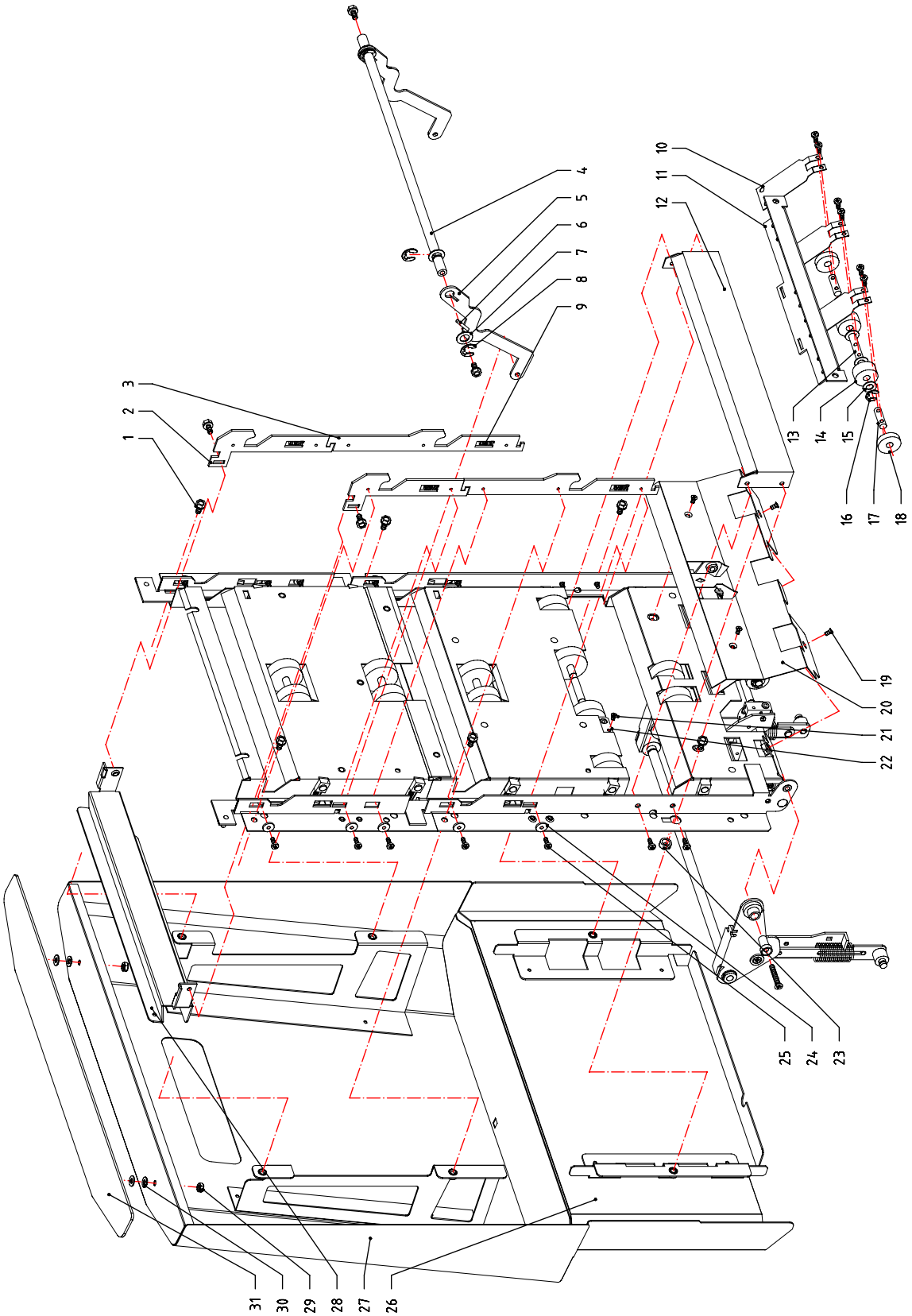
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Figure 13

Figure 520.04-34

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Hex. head screw M4 x 8	05.38.80	8	
	2	Lock	95.14.29	2	
	3	Lock extension	95.14.30	2	
	4	Guide arm axle	95.14.34	1	
	5	Guide arm	95.14.32	2	
	6	Cyl. pin Ø 2 x 16	05.23.69	2	
	7	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	4	
	8	Spring clip 8-11 mm	05.24.54	4	
	9	Pressure spring	03.35.20	6	
	10	Leaf spring	95.14.56	3	
	11	Mounting plate	95.14.05	1	
	12	Cover	95.14.42	1	
	13	Axle Ø 6 mm	95.14.07	1	
	14	Pressure roller Ø 20	95.14.08	2	
	15	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	2	
	16	Spring clip 7 - 9 mm	05.24.42	2	
	17	Axle Ø 6 mm	95.14.43	2	
	18	Pressure roller Ø 20	95.14.44	2	
	19	Countersunk head screw M3 x 6	45.42.01	4	
	20	Guide plate	95.14.15	1	
	21	Countersunk head screw M3 x 5	45.42.00	1	
	22	Led (including holder)	04.24.52	1	
	23	Nut	95.14.50	4	
	24	Guide bush	95.14.39	10	
	25	Round head screw M3 x 8	05.38.65	20	
	26	Lower cover vertical transport	98.01.03	1	
	27	Upper cover vertical transport	98.01.02	1	
	28	Handle	98.01.01	1	
	29	Nut M4	45.19.02	2	
	30	Washer Ø 9 x Ø4.3 x 0.8 mm	45.37.45	4	
	31	Cover plate	98.01.43	1	

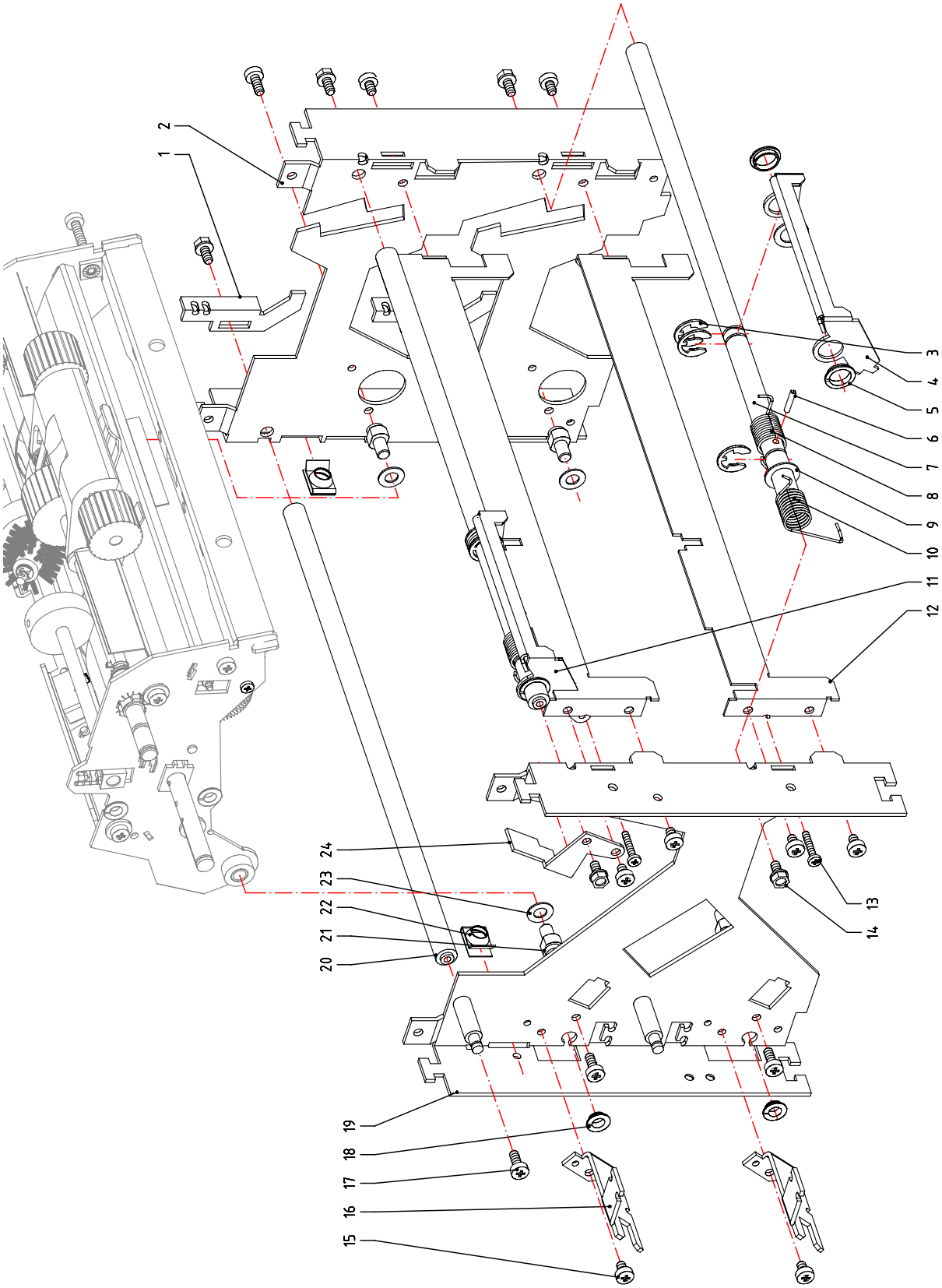

Figure 14

Figure 520.04-36

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Mounting bracket for spring	95.13.06	2	
	2	Inside frame feed unit RH	95.13.02	1	
	3	Spring clip 9 - 12 mm	05.24.55	4	
	4	Lever	95.10.23	1	
	5	Nylon bearing	04.12.71	4	
	6	Tension pin Ø 2.5 x 12	05.33.20	2	
	7	Frame axle	95.13.24	2	
	8	Torsion spring	95.13.28	2	
	9	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	4	
	10	Torsion spring	95.13.35	1	
	11	Lever	95.10.21	1	
	12	Cover	95.13.27	2	
	13	Round head screw M3 x 16	05.38.67	2	
	14	Hex. head screw M4 x 8	05.38.80	6	
	15	Round head screw M4 x 6	05.38.66	8	
	16	Blocking bracket	95.13.20	2	
	17	Round head screw M4 x 10	05.38.69	5	
	18	Nylon bearing	04.09.66	2	
	19	Inside frame feed unit LH	95.13.01	1	
	20	Frame axle	95.13.03	1	
	21	Hinge pin	95.13.09	4	
	22	Self-locking clip	05.26.02	2	
	23	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	4	
	24	Safety bracket	95.13.23	1	

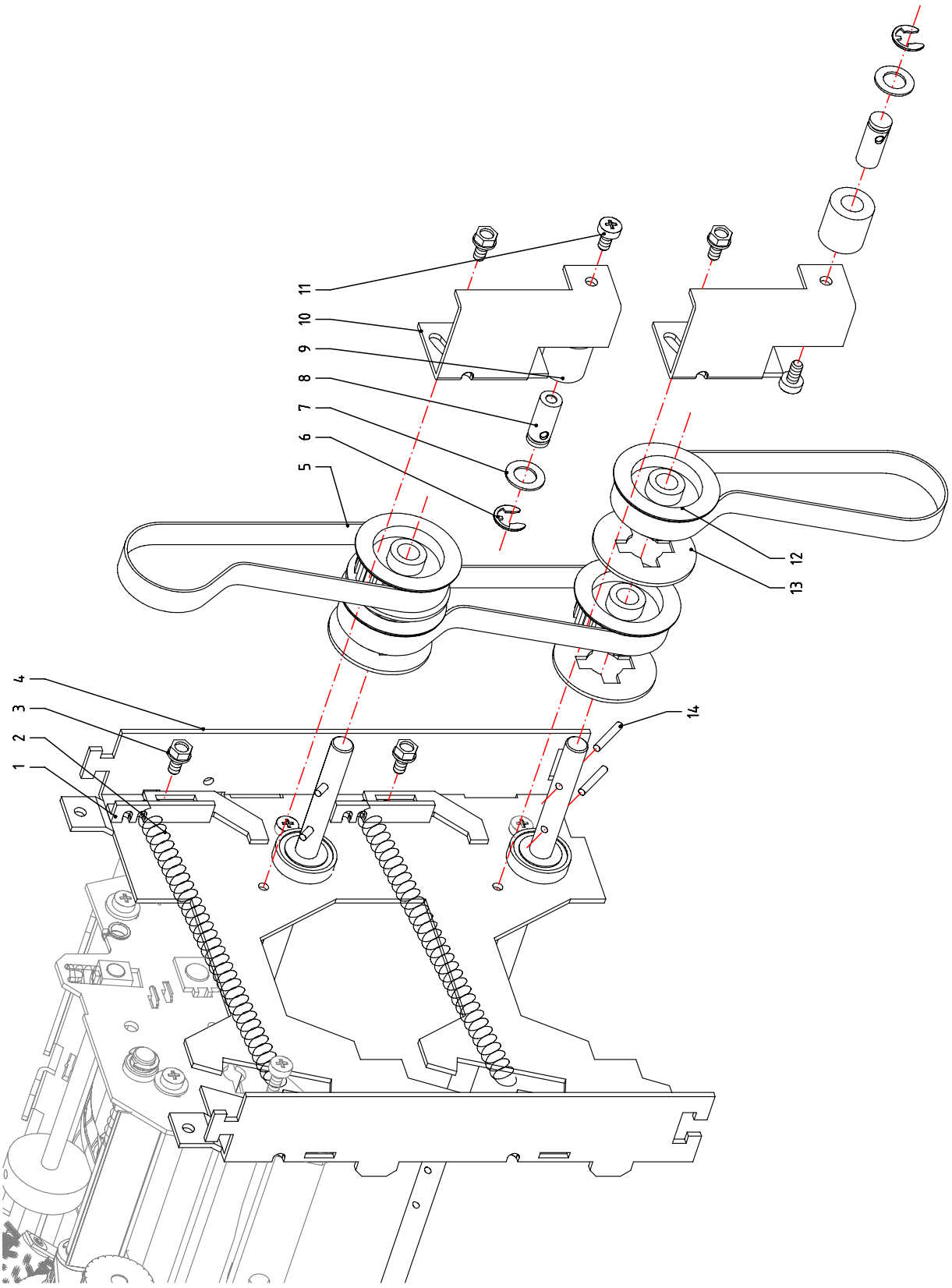

Figure 15

Figure 520.04-38

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Mounting bracket for spring	95.13.06	2	
	2	Tension spring	95.11.50	2	
	3	Hex. head screw M4 x 8	05.38.80	4	
	4	Inside frame feed unit RH	95.13.02	1	
	5	Timing belt	95.13.16	3	
	6	Spring clip 7 - 9 mm	05.24.42	2	
	7	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	2	
	8	Axle for tensioner roller	95.13.10	2	
	9	Tensioner roller	95.13.19	2	
	10	Fixing plate	95.13.07	2	
	11	Round head screw M4 x 8	05.38.68	2	
	12	Pulley 20T (timing belt)	24.13.75	3	
	13	Disc for pulley	93.05.42	3	
	14	Cyl. pin Ø 2.5 x 16	05.23.46	4	

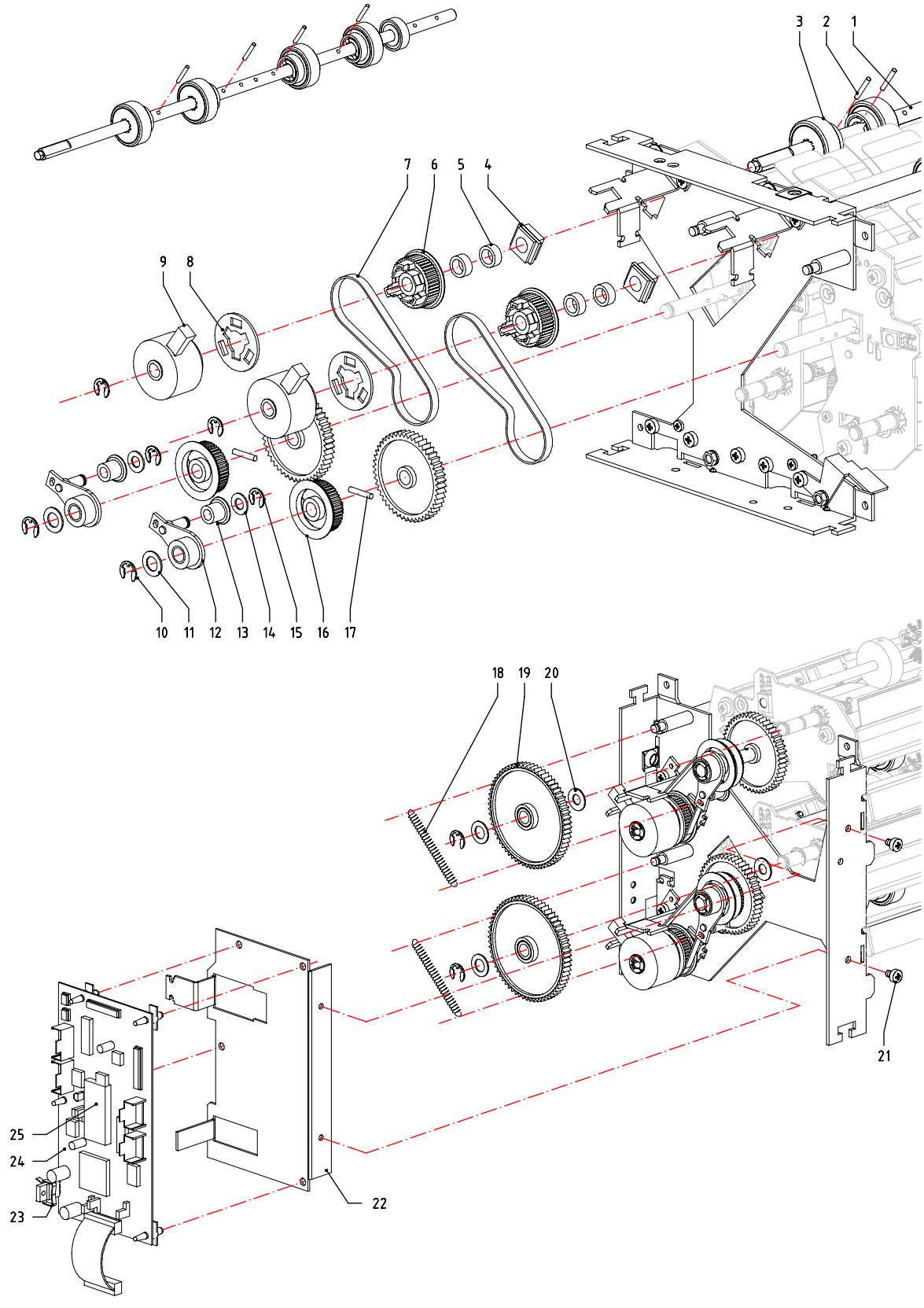

Figure 16

Figure 520.04-40

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Drive axle	95.13.04	2	
	2	Cyl. pin Ø 2.5 x 16	05.23.46	4	
	3	Transportation roller	95.13.12	4	
	4	Conductive bearing 8 mm	04.24.25	2	
	5	Spacer Ø 12 x Ø 8.4 x 5 mm	04.09.64	4	
	6	Pulley 44T	95.13.08	2	
	7	Timing belt	04.15.74	2	
	8	Disc pulley	93.05.39	2	
	9	Clutch CCW 8 mm	93.05.36	2	
	10	Spring clip 7 - 9 mm	05.24.42	4	
	11	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	4	
	12	Belt tensioner	95.11.54	2	
	13	Tensioner roller	95.11.59	2	
	14	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	2	
	15	Spring clip 6 - 8 mm	05.24.46	4	
	16	Pulley 44T	95.11.51	2	
	17	Cyl. pin Ø 2 x 16	05.23.69	2	
	18	Tension spring	45.54.04	2	
	19	Gear 64T assy.	95.11.38	2	
	20	Washer Ø 14 x Ø 6.5 x 0.8 mm	43.02.47	2	
	21	Round head screw M4 x 6	05.38.66	2	
	22	Mounting plate	95.13.21	1	
	23	Clip	12.12.93	1	
	24	Mainboard feed unit	93.08.02	1	
	25	Eprom	97.50.13	1	

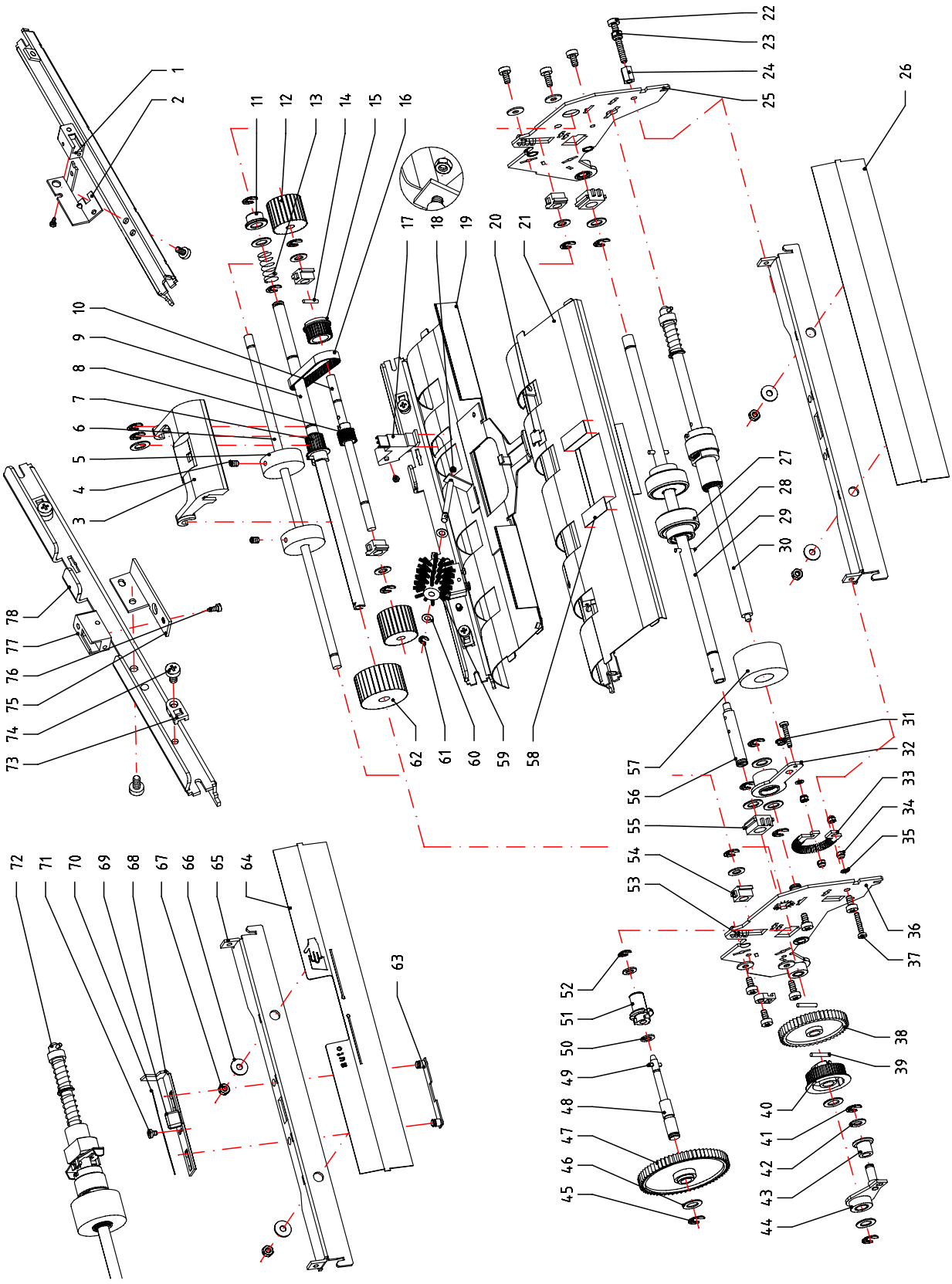
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Figure 17

Figure 520.04-42

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Led (including holder)	04.24.52	1	
	2	Bracket for photocell	95.11.47	1	
	3	Cover plate	95.11.25	1	
	4	Set screw M4 x 6	08.28.02	2	
	5	Transportation roller Ø 30 mm	95.11.86	2	
	6	Transportation axle	95.11.37	1	
	7	Pulley 20 T	95.11.42	1	
	8	Clamping bush	95.11.41	1	
	9	Transportation axle (separation)	95.11.39	1	
	10	Transportation axle	95.11.34	1	
	11	Self-lubricating bearing	06.09.31	1	
	12	Rubber paper puller	04.00.16	2	
	13	Pressure spring	03.11.14	1	
	14	Cyl. pin Ø 2.5 x 12	05.23.47	1	
	15	Pulley 28T (timing belt)	95.11.35	1	
	-	Pulley 28T assy. (item 8 + 15)	04.27.40.		
	16	Timing belt	95.11.45	1	
	17	Double document detector	89.08.36	1	
	18	Nut M2	45.19.00	1	
	19	Upper plate feeder (assy.)	95.11.63	1	
	20	Stop	95.11.93	1	
	21	Bottom plate feeder (assy.)	95.11.17	1	
	22	Round head screw M4 x 25	45.43.18	1	
	23	Nut M4 (self-locking)	05.36.21	1	
	24	Spacer	95.13.37	1	
	25	Frame plate feeder RH	95.11.27	1	
	26	Feeder stop	95.11.18	1	
	27	Transportation roller	95.13.12	2	
	28	Cyl. pin Ø 2.5 x 16	05.23.46	2	
	29	Drive axle	95.11.44	2	
	30	Separation axle assy. (auto)	04.22.63	1	
	31	Nylon bearing	04.11.07	1	
	32	Hinge arm (assy.)	95.11.22	1	
	33	Curved spring	95.11.06	1	
	34	Nut M3 (self-locking)	05.36.28	4	
	35	Washer Ø 6 x Ø 3.2 x 0.5 mm	45.37.30	2	
	36	Frame plate feeder LH	95.11.30	1	
	37	Round head screw M3 x 16	05.38.67	1	
	38	Gear 48T	95.11.32	1	
	39	Cyl. pin Ø 2 x 16	05.23.69	2	
	40	Pulley 44T	95.11.51	1	
	41	Spring clip 6 - 8 mm	05.24.46	9	
	42	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	5	
	43	Tensioner roller	95.11.59	1	

Figure 520.04-42

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	44	Belt tensioner	96.42.18	1	
	45	Spring clip 7 - 9 mm	05.24.42	8	
	46	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	10	
	47	Gear 64T assy.	95.11.38	1	
	48	Separation axle extension	95.11.09	1	
	49	Tension pin Ø 2.5 x 10	05.33.19	1	
	50	Fibre washer Ø 10 x Ø 5.2 x 1 mm	04.01.07	2	
	51	Bearing bush	04.13.32	1	
	52	Spring clip 5 - 7 mm	05.24.66	1	
	53	Pressure spring	03.35.20	2	
	54	Conductive bearing 6 mm	04.24.24	2	
	55	Conductive bearing 8 mm	04.24.25	2	
	56	Drive axle extension	96.42.20	1	
	57	Separation roller (lower)	95.11.23	1	
	58	Cork strip	95.11.26	2	
	59	Brush	95.11.48	1	
	60	Fibre washer Ø 8 x Ø 4.2 x 0.5 mm	04.01.22	2	
	61	Spring clip 4 - 5 mm	05.24.47	1	
	62	Upper separation roller	95.11.07	1	
	63	Fixing strip	95.11.82	1	
	64	Feeder stop	95.11.83	1	
	65	Fixing strip	95.11.52	1	
	66	Washer Ø 12 x Ø 4.3 x 1 mm	45.37.43	6	
	67	Nut M4	45.19.02	2	
	68	Slide	95.11.78	1	
	69	Sleeve	04.11.57	1	
	70	Wire spring	95.11.79	1	
	71	Round head screw M3 x 4	45.43.00	1	
	72	Separation axle assy. (daily mail)	04.23.11	1	
	73	Wire strap holder	12.10.52	3	
	74	Round head screw M4 x 8	05.38.68	12	
	75	Bracket for photocell	95.11.46	1	
	76	Pan head tapping screw	45.38.55	2	
	77	Sensor (including holder)	04.24.53	1	
	78	Fixing strip	95.11.13	1	

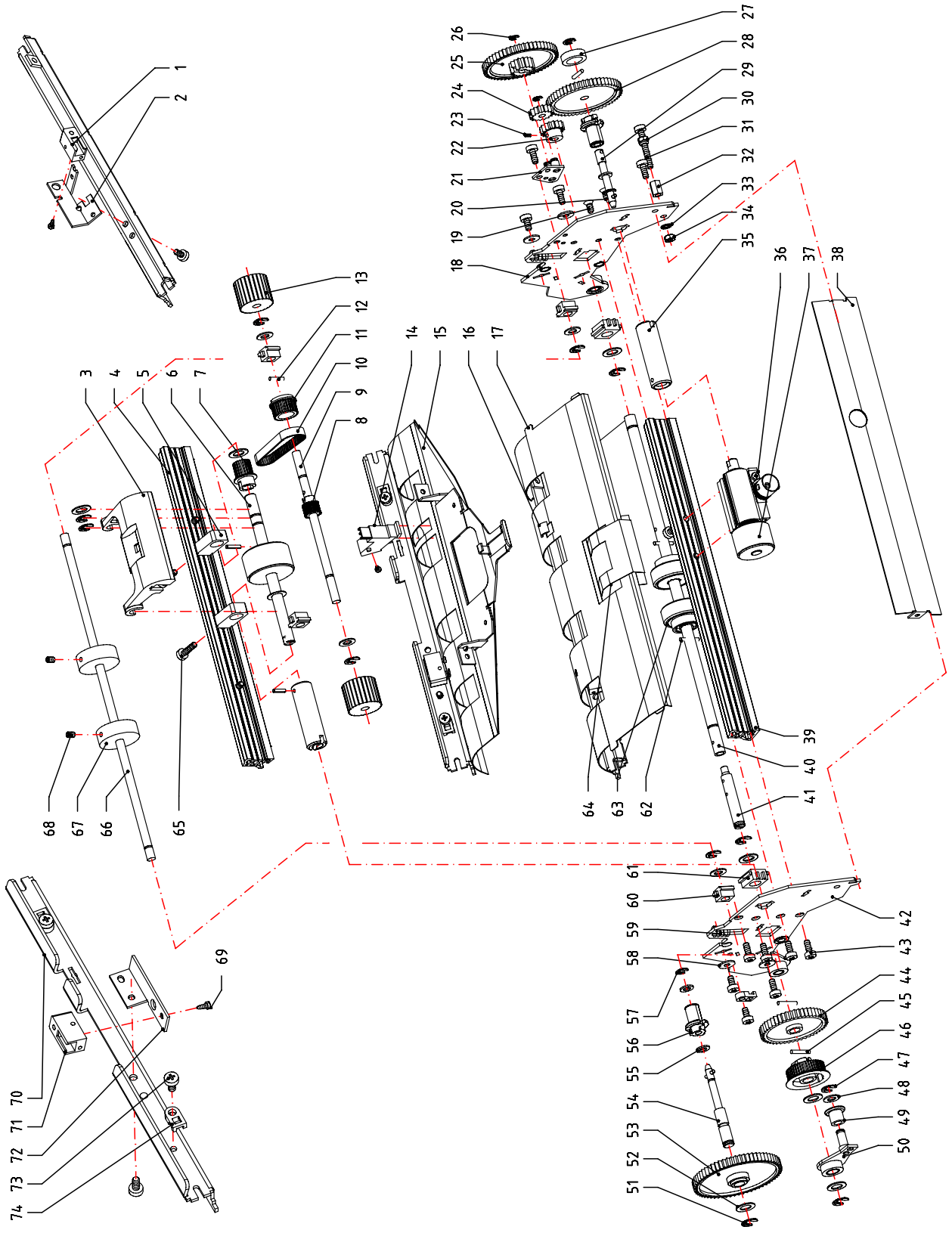
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Figure 18

Figure 520.04-46

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Led (including holder)	04.24.52	1	
	2	Bracket for photocell	95.11.47	1	
	3	Cover plate	95.11.25	1	
	4	Support bracket (upper)	95.12.14	1	
	5	Suspension bracket	95.12.32	2	
	6	Transportation roller (assy.)	95.12.29	1	
	7	Pulley 20T	95.11.42	1	
	8	Clamping bush	95.11.41	1	
	9	Transportation axle	95.11.34	1	
	10	Timing belt	95.11.45	1	
	11	Pulley 28T	95.11.35	1	
	-	Pulley 28T assy. (item 8 + 15)	04.27.40.		
	12	Cyl. pin Ø 2.5 x 12	05.23.47	1	
	13	Rubber paper puller	04.00.16	2	
	14	Double document detector	89.08.36	1	
	15	Upper plate feeder (assy.)	95.12.41	1	
	16	Stop	95.11.93	1	
	17	Bottom plate feeder (assy.)	95.11.17	1	
	18	Frame plate feeder RH	95.12.01	1	
	19	Countersunk head screw M4 x 8	45.42.12	2	
	20	Tension pin Ø 2.5 x 10	05.33.19	2	
	21	Mounting plate	95.12.34	1	
	22	Gear 16T	95.12.23	1	
	23	Set screw M4 x 10	08.28.05	1	
	24	Gear 16T	95.12.22	1	
	25	Gear 54/16T	95.12.21	1	
	26	Spring clip 4 - 5 mm	05.24.47	2	
	27	Spacer Ø 18 x Ø 12.8 x 7.5 mm	04.08.46	1	
	28	Gear 54T	95.12.44	1	
	29	Support axle extension	95.11.20	1	
	30	Nut M4 (self-locking)	05.36.21	1	
	31	Round head screw M4 x 25	45.43.18	1	
	32	Spacer	95.13.37	1	
	33	Lock washer 5/32”	05.24.31	1	
	34	Nut M4	45.19.02	1	
	35	Coupling sleeve	95.12.12	2	
	36	Separation axle assy. (special)	04.23.12	1	
	37	Separation roller assy. (special)	95.12.30	1	
	38	Stop plate	95.12.06	1	
	39	Support bracket (lower)	95.12.31	1	
	40	Drive axle	95.12.26	1	
	41	Drive axle extension	96.42.20	1	
	42	Frame plate feeder LH	95.12.02	1	
	43	Round head screw M4 x 10	05.38.69	8	
	44	Gear 48T	95.11.32	1	

Figure 520.04-46

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	45	Cyl. pin Ø 2 x 16	05.23.69	2	
	46	Pulley 44T	95.11.51	1	
	47	Spring clip 6 - 8 mm	05.24.46	7	
	48	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	5	
	49	Tensioner roller	95.11.59	1	
	50	Belt tensioner	96.42.18	1	
	51	Spring clip 7 - 9 mm	05.24.42	4	
	52	Washer Ø 14 x Ø 8.2 x 0.8 mm	04.01.41	7	
	53	Gear 64T assy.	95.11.38	1	
	54	Support axle extension	95.11.09	1	
	55	Fibre washer Ø 10 x Ø 5.2 x 1 mm	04.01.07	3	
	56	Bearing bush	04.13.32	2	
	57	Spring clip 5 - 7 mm	05.24.66	3	
	58	Washer Ø 12 x Ø 4.3 x 1 mm	45.37.43	4	
	59	Pressure spring	03.35.20	2	
	60	Conductive bearing 6 mm	04.24.24	2	
	61	Conductive bearing 8 mm	04.24.25	2	
	62	Cyl. pin Ø 2.5 x 16	05.23.46	2	
	63	Transportation roller	95.13.12	2	
	64	Leaf spring	95.12.07	1	
	65	Round head screw M4 x 16	05.38.71	6	
	66	Transportation axle	95.11.37	1	
	67	Transportation roller Ø 30 mm	95.11.86	2	
	68	Set screw M4 x 6	08.28.02	2	
	69	Pan head tapping screw	45.38.55	2	
	70	Fixing strip	95.11.13	1	
	71	Sensor (including holder)	04.24.53	1	
	72	Bracket for photocell	95.11.46	1	
	73	Round head screw M4 x 8	05.38.68	9	
	74	Wire strap holder	12.10.52	3	

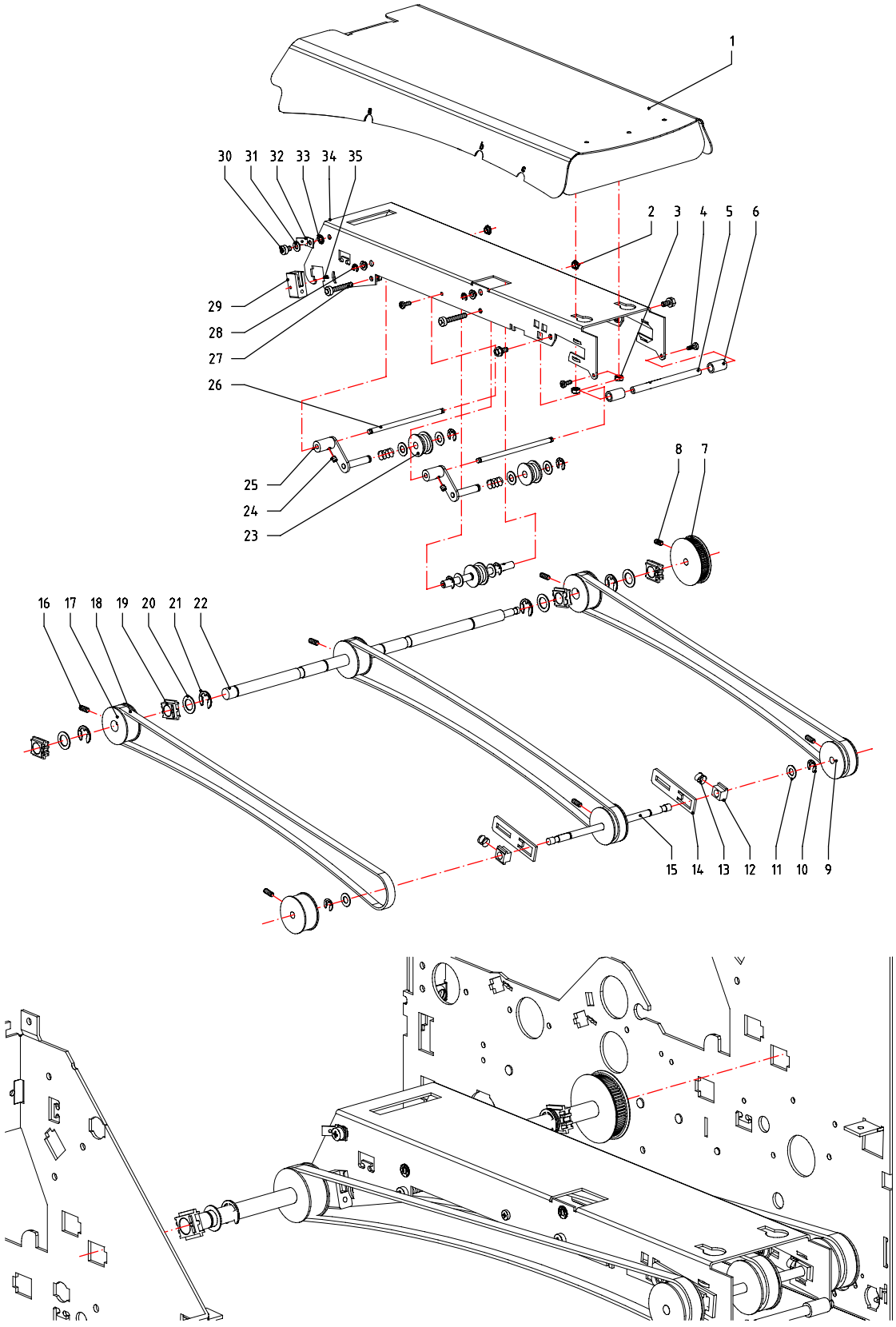
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Figure 19

Figure 520.04-50

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Cover	93.07.20	1	
	2	Nylon bearing	04.11.07	4	
	3	Nut M4	45.19.02	5	
	4	Round head screw M3 x 8	05.38.65	3	
	5	Axle	95.20.18	1	
	6	Sleeve	24.11.74	2	
	7	Pulley 60T	04.13.20	1	
	8	Set screw M4 x 8	08.28.06	1	
	9	Roller	95.20.05	3	
	10	Spring clip 6 - 8 mm	05.24.46	6	
	11	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	8	
	12	Conductive bearing 6 mm	04.24.24	2	
	13	Pressure spring	03.35.43	2	
	14	Tensioner strip	95.20.08	2	
	15	Axle	95.20.06	1	
	16	Set screw M4 x 10	08.28.05	6	
	17	Roller	95.20.03	3	
	18	Collating belt set (3 pcs.)	95.20.07	1	
	19	Conductive bearing 10 mm	04.24.26	4	
	20	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	4	
	21	Spring clip 9 - 12 mm	05.24.55	4	
	22	Drive axle	95.20.02	1	
	23	Pressure roller	95.20.11	3	
	24	Set screw M4 x 4	08.28.01	2	
	25	Belt tensioner	95.20.15	2	
	26	Hinge pin	95.20.16	2	
	27	Round head screw M4 x 25	05.38.72	2	
	28	Spring clip 4 - 5 mm	05.24.47	2	
	29	Sensor (including holder)	04.24.53	1	
	30	Round head screw M4 x 6	05.38.66	1	
	31	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.02	1	
	32	Clamping bracket	12.14.06	1	
	33	Lock washer 5/32”	05.24.31	1	
	34	Frame (assy.)	95.20.09	1	
	35	Pan head tapping screw	05.38.55	1	

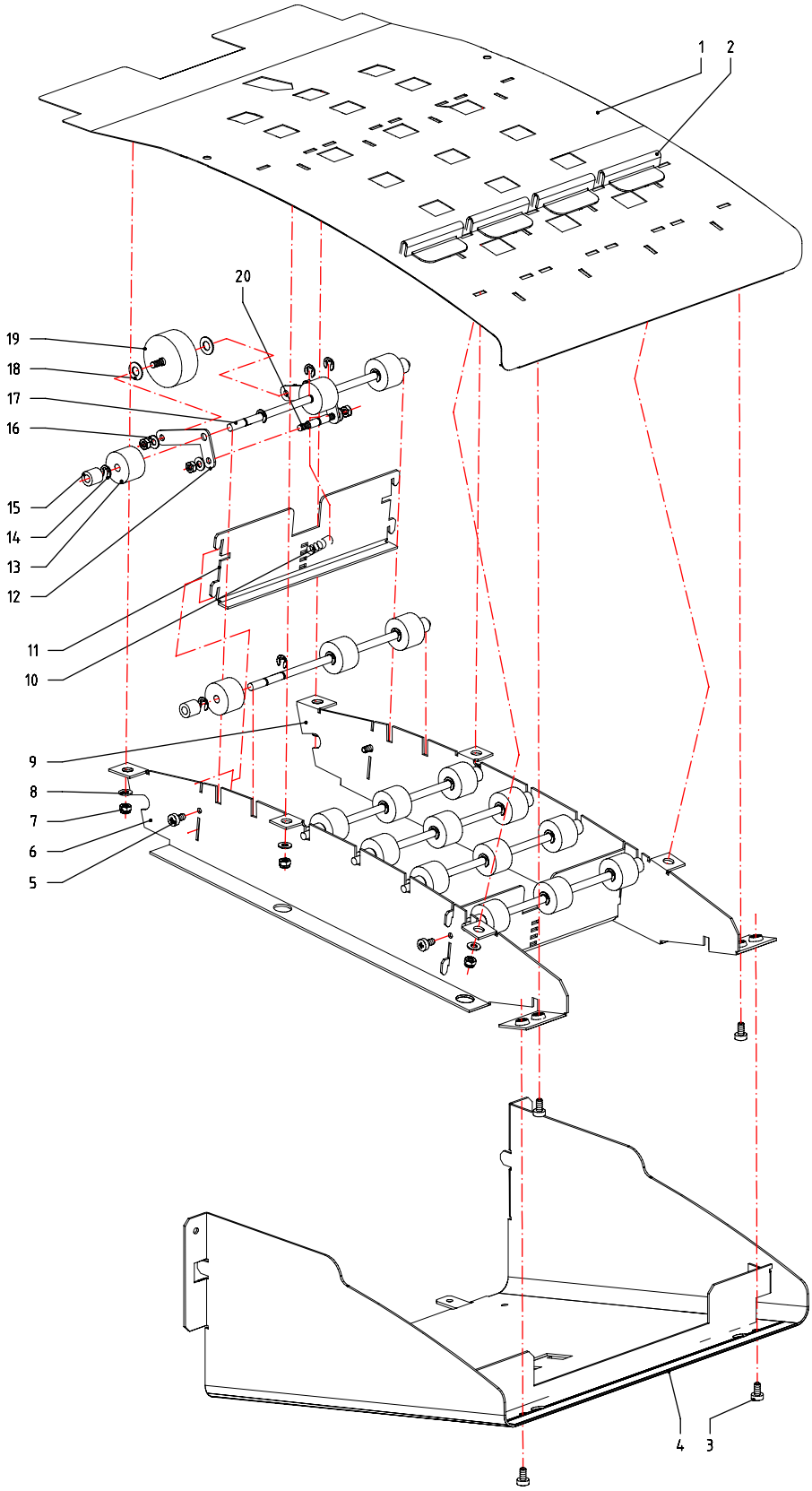

Figure 20

Figure 520.04-52

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Collating plate	95.21.02	1	
	2	Paper stop	95.21.41	4	
	3	Round head screw M4 x 8	45.38.68	4	
	4	Bottom cover (assy.)	93.07.41	1	
	5	Round head screw M4 x 8	05.38.68	4	
	6	Side frame LH	95.21.04	1	
	7	Nut M4 (self-locking)	05.38.21	6	
	8	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.02	6	
	9	Side frame RH	95.21.03	1	
	10	Tension spring	45.64.04	1	
	11	Intermediate plate	95.21.05	2	
	12	Tilting plate	95.21.14	2	
	13	Contra roller	95.21.11	18	
	14	Spring clip 5 - 7 mm	05.24.66	36	
	15	Spacer Ø 10 x Ø 5.3 x 10 mm	04.09.51	12	
	16	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.45	4	
	17	Axle	95.21.10	6	
	18	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	2	
	19	Roller	95.21.13	1	
	20	Axle	95.21.12	2	

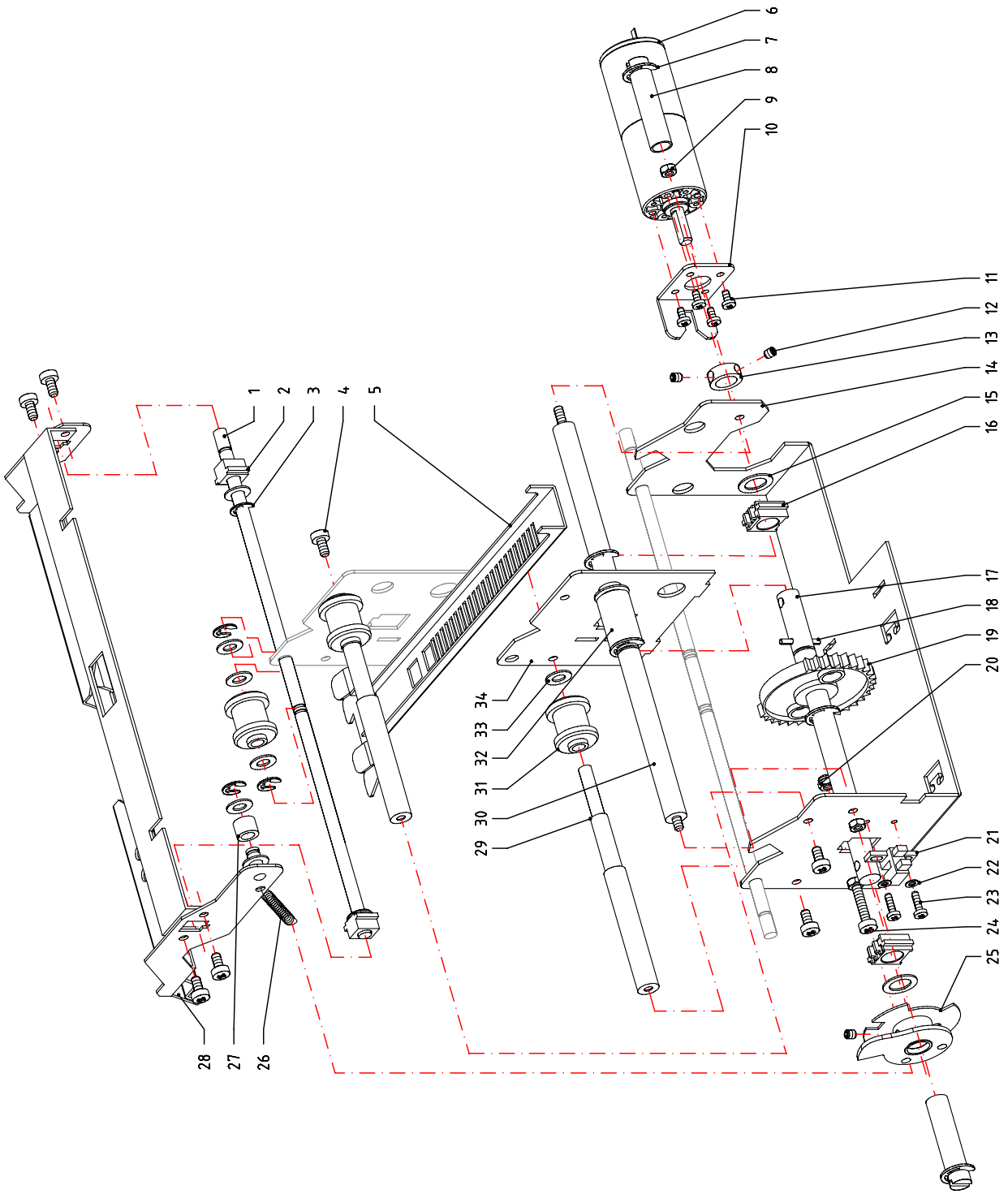
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Figure 21

Figure 520.04-54

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Axle	93.09.33	1	
	2	Conductive bearing 6 mm	04.24.24	2	
	3	Spring clip 6 - 8 mm	05.24.46	5	
	4	Round head screw M4 x 8	05.38.68	8	
	5	Rack (assy.)	93.09.41	1	
	6	Motor 24V	93.09.42	1	
	7	Spring clip 9 - 12 mm	05.24.55	5	
	8	Spacing axle	93.09.30	2	
	9	Nut M4	45.19.02	4	
	10	Mounting bracket (motor)	23.55.58	1	
	11	Round head screw M3 x 6	45.43.02	4	
	12	Set screw M4 x 4	08.28.01	3	
	13	Bushing Ø 15 x Ø 10 x 5.5 mm	75.37.51	1	
	14	Frame divert unit	93.09.28	1	
	15	Washer Ø 16 x Ø 10.2 x 0.8 mm	04.01.43	3	
	16	Conductive bearing 10 mm	04.24.26	2	
	17	Drive axle	93.09.34	1	
	18	Tension pin Ø 2.5 x 20	05.33.24	1	
	19	Gear 26/35T	93.09.40	1	
	20	Nut M4 (self-locking)	05.38.21	1	
	21	Pulse disc sensor assy.	82.16.22	1	
	22	Washer Ø 6 x Ø 3.2 x 0.5 mm	45.37.30	2	
	23	Round head screw M3 x 10	45.43.04	2	
	24	Round head screw M4 x 30	45.43.19	1	
	25	Curve disc	93.09.38	1	
	26	Tension spring	03.35.39	1	
	27	Spacer Ø 10 x Ø 6.3 x 7.5 mm	04.10.28	1	
	28	Divert flap (assy.)	93.09.26	1	
	29	Axle	93.09.32	2	
	30	Intermediate axle	93.09.31	1	
	31	Guide roller	93.09.19	2	
	32	Spacer Ø 15 x Ø 10.4 x 25 mm	04.08.25	1	
	33	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	9	
	34	Intermediate plate (divert unit)	93.09.29	1	

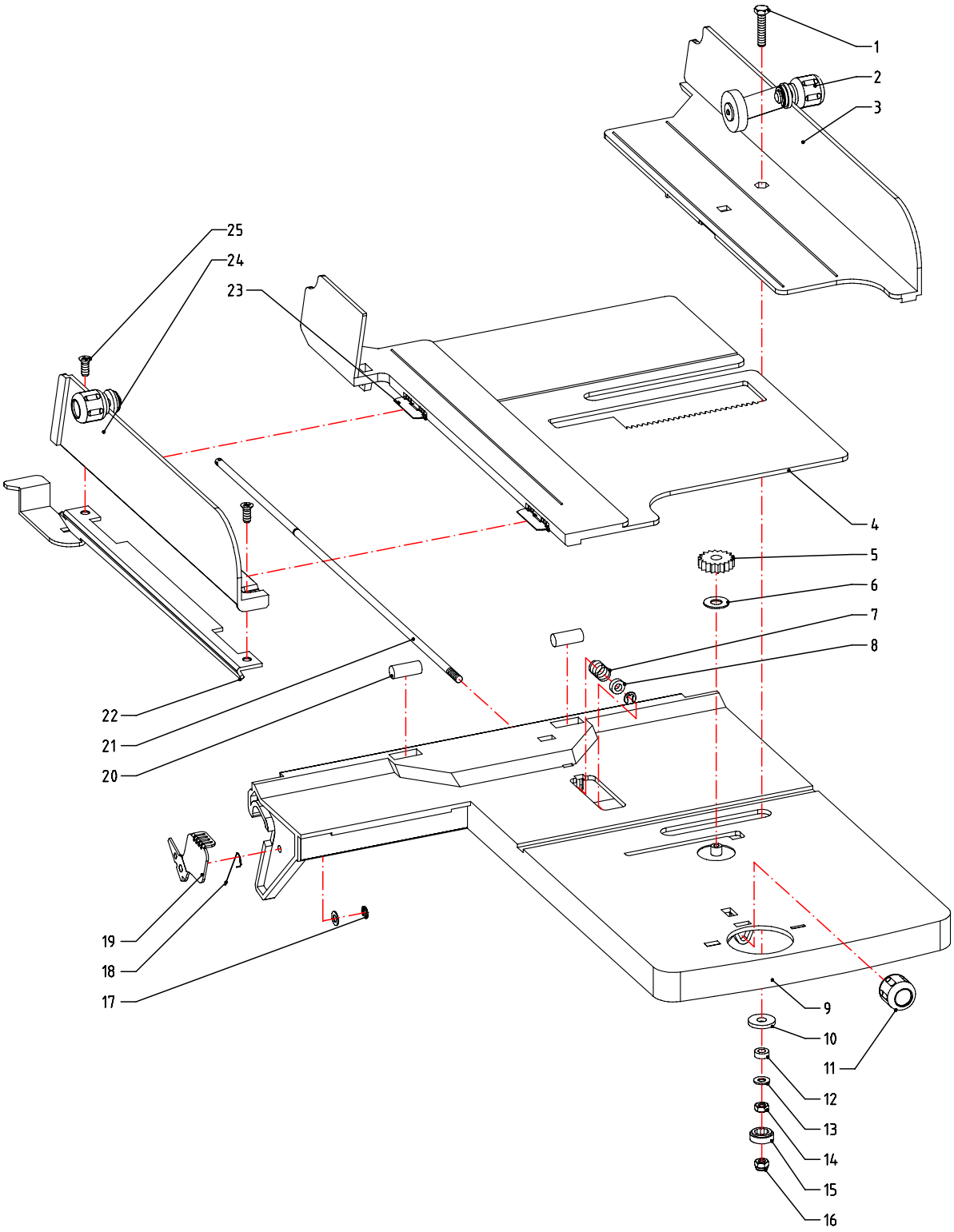

Figure 22

Figure 520.04-56

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Hex. head screw M4 x 20	45.12.45	1	
	2	Guide roller (assy.)	04.27.09	2	
	3	Side guide LH	95.10.11	1	
	4	Side guide RH	95.10.12	1	
	5	Gear	95.10.14	1	
	6	Washer Ø 14 x Ø 6.5 x 0.8 mm	43.02.47	1	
	7	Pressure spring	03.35.20	1	see note 1
	8	Spacer Ø 8 x Ø 4.3 x 3	04.11.32	1	see note 1
	9	Carrier	04.27.37	1	
	-	Carrier	04.27.38	1	see note 1
	10	Washer Ø 15 Ø 5.3 x 2	45.37.50	1	
	11	Finger knob	74.14.97	1	see note 1
	12	Refer to 7			
	13	Washer Ø 9 x Ø 4.3 x 0.8	45.37.45	2	
	14	Nut M4	45.19.02	1	
	15	Knurled nut	02.11.25	1	
	16	Self-locking nut	05.36.21	1	
	17	Spring clip 4 - 5 mm	05.24.47	2	
	18	Wire spring	95.10.18	1	
	19	Locking lever	95.10.16	1	
	20	Roller	95.10.19	2	
	21	Adj. rod	95.10.22	1	see note 1
	22	Lever	95.10.20	1	
	23	Hinge	95.10.25	2	
	24	Hinged side guide	95.10.13	1	
	25	Countersunk head screw M4 x 6	45.42.11	2	

Note 1.
Only in special feeder

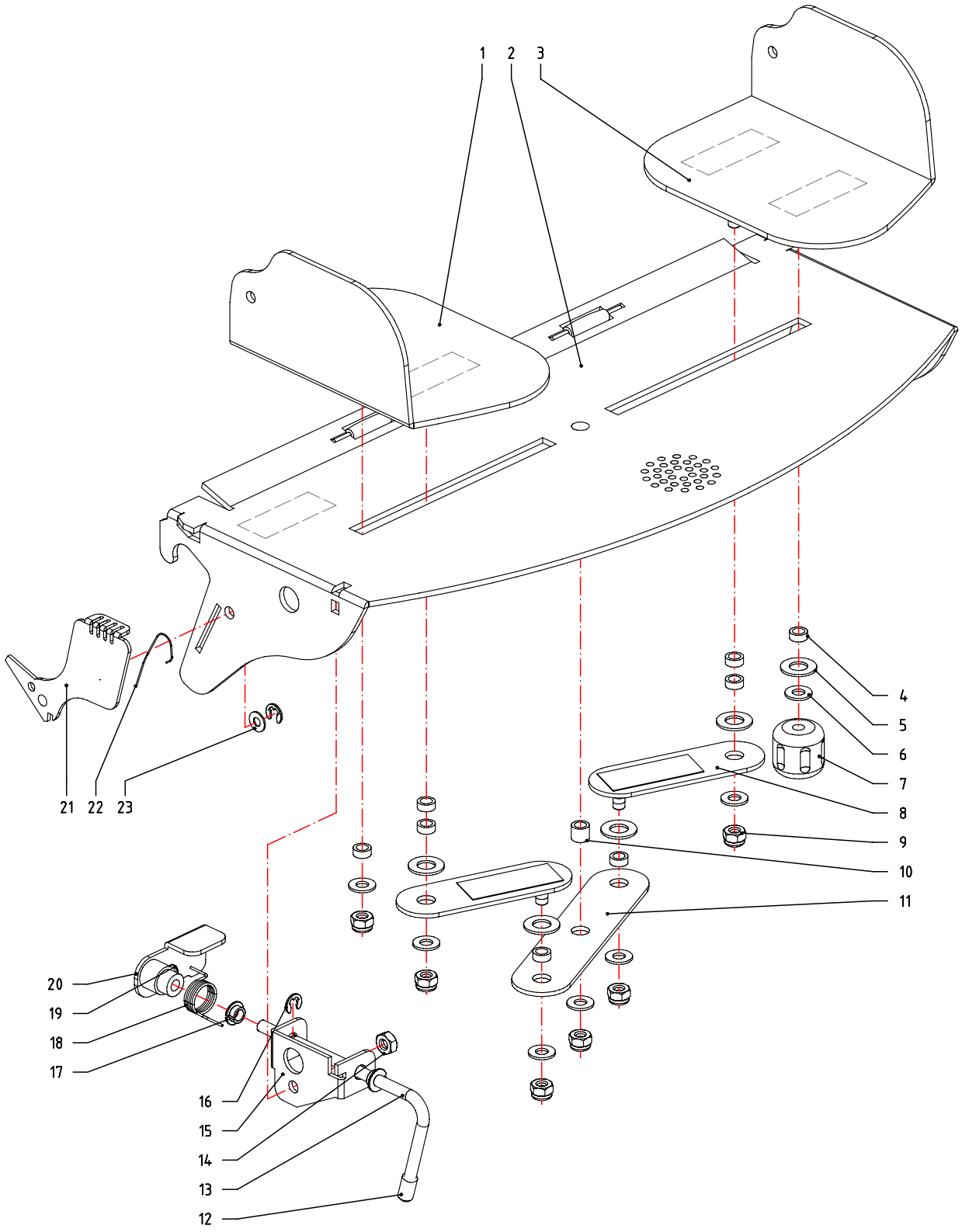

Figure 23

Figure 520.04-58

Remarks	illustration code number	Description	Part code number	Quantity FPI 5000 C	Remarks
	1	Side guide assy. LH	04.26.93	1	
	2	Feed table assy.	04.26.90	1	
	3	Side guide assy. RH	04.26.92	1	
	4	Spacer Ø 6 x Ø 4.1 x 2.5 mm	43.01.42	8	
	5	Washer Ø 12 x Ø 6.2 x 0.8 mm	04.01.40	5	
	6	Washer Ø 9 x Ø 4.3 x 0.8 mm	45.37.45	7	
	7	Finger knob	74.14.97	1	
	8	Crank assy. (short)	04.26.91	2	
	9	Nut M4 (self-locking)	05.36.21	6	
	10	Spacer	43.41.45	1	
	11	Crank	04.25.97	1	
	12	Sleeve	04.14.28	1	
	13	Lever	04.26.97	1	
	14	Nut M4	45.19.02	1	
	15	Lever Bracket	04.26.98	1	
	16	Spring clip 4 - 5 mm	05.24.47	2	
	17	Nylon bearing	04.11.07	2	
	18	Torsion spring	03.35.35	1	
	19	Set screw M4 x 6	08.28.02	1	
	20	Lifting plate	04.26.94	1	
	21	Locking lever	04.25.92	1	
	22	Wire spring	95.10.18	1	
	23	Washer Ø 7 x Ø 3.2 x 0.5 mm	45.37.39	1	