

1. Hammer A3-31 planer head removal notes JGT

The following are my notes about replacing the straight knives head in my Hammer A3-31 Planer/Joiner with a Byrd Shelix Head.

Because I heavily relied on the A3-31 parts diagram I have also included it. I obtained the original parts diagram from Felder and used the Google translator to translate from German to English. I have not verified the translation nor do I plan to do so. I have identified each figure and the identification appears under the bottom left corner of each image. When I reference a part I will identify the part using the figure number and the part number on that page, example: 3-48, this is figure 3, part 48 and sometimes I will include the description of the part as well (Pan head screw with ISK M6x16)

As I removed screws/bolts I placed them in plastic zip-lock bags, attached a piece of blue painters tape to the bag, with a Sharpie I then wrote the part number on the tape.

If I removed a part I also labeled it with the blue painters tape.

The zip-lock bag was then taped to the part removed with clear packing tape.

1.1 Disclaimer

My procedure may include unnecessary steps or procedures that are not the best. Thus if you follow my instructions it is at your risk. However, if you discover errors please let me know. This is a one-time effort for me, at my age there are not that many years left. It is very difficult for me to accurately determine the time required. Possibly you could complete the procedure in four hours or less. My effort was spread over nine days were most of that time was used to take pictures, create notes, transfer the notes into this document. I'd guess it was about a 10 to 1 ratio, e.g. 10 hours of documentation effort for every one hour of actual work.

I did have success and I'm pleased with the results.

This involved two major documentation phases.

- a. Translate the German parts diagram to English. This required MUCH more effort than I had expected but some of the effort was due to the fact that I was too anal.
- b. The documentation of the actual procedure.

1.2 Parts Diagram

1.2.1 Figure 1

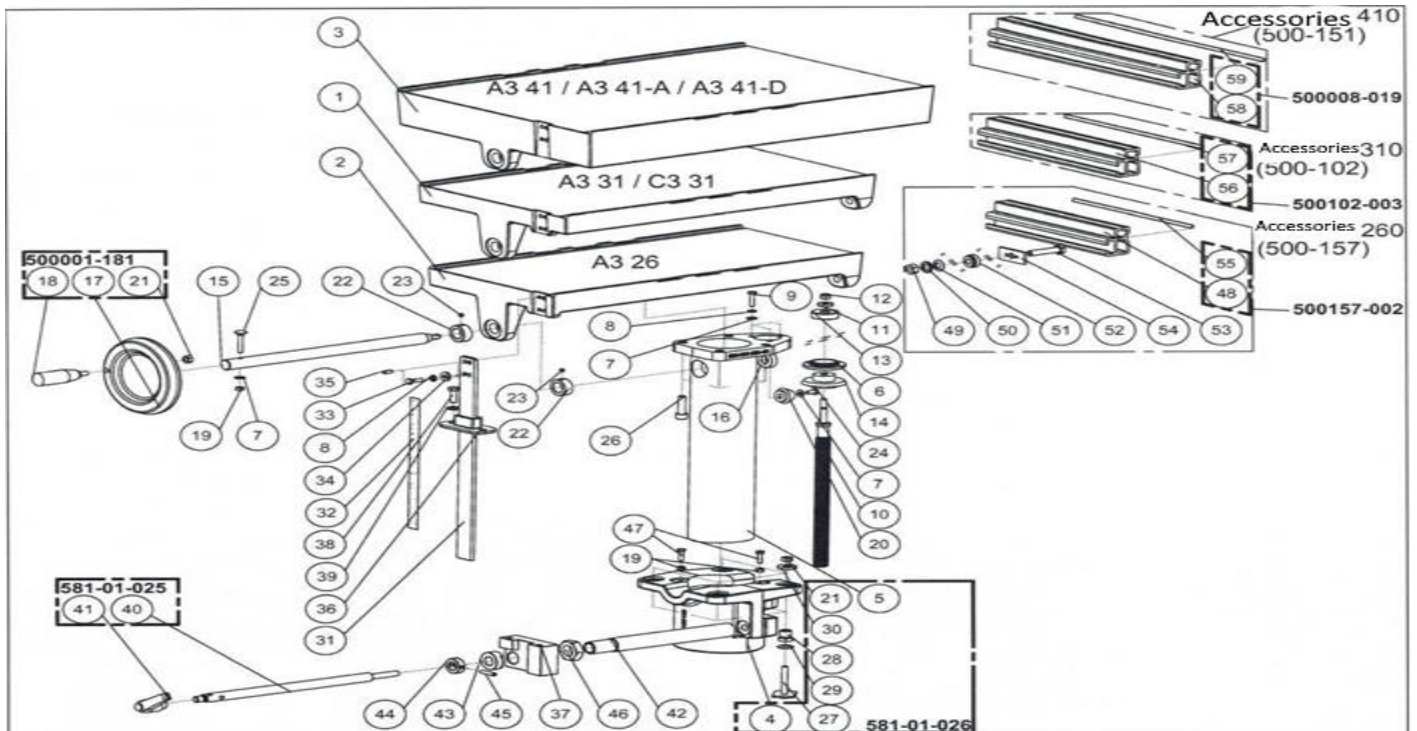


Figure 1

Item	Part number	Part designation	Item	Part number	Part designation
1	504-001-001 + 1	Thickness table A3-31	36	213HG	Reading plate
2	504-001-002 + 1	Thickness table A3-26	37	504-001-009	Jaws
3	504-001-015 + 1	Thickness table HAMMER A3-41 10	38	418DD	Hexagon screw M8x25
4	504-001-003 + 1	Thickness column bushing	39	404D	Washer M8
5	504-001-004 + 1	Thick table column	40	504-001-008	D clamping spindle
6	504-001-014	Insert bushing thickness table column AD09	41	581-01-002	Clamping lever with internal thread M12-Gr4
7	404C	Washer M6	42	504-001-007	Distance tube M24x2
8	407D	Spring washer 6	43	504-001-010	Clamping ring
9	418CC	Hexagon screw M6x25	44	504-001-011	Adjusting ring D30 / 17x10 2xD6.0
10	504-001-005	D threaded spindle	45	428EC	Heavy Duty Pin 6x30
11	406D	Washer M8 galvanized	46	581-01-003	Hexagon nut M24x2 flat
12	440B	Safety nut M8	47	438B	Hexagon screw M6x20 without lettering
13	432IA	Deep groove ball bearing 6301 2RS1	48	106DEA	HA guide 260mm
14	213FF	Bevel gear-Z30-M2-D12	49	401F	Hex nut M10 galvanized
15	504-001-006	D handwheel shaft	50	214AO	Ball socket D22xD13
16	432DE	Deep groove ball bearing 6002 2RZ	51	214AN	Spherical washer D22xD13
17	208I	Handwheel	52	500-007-136	Distance bushing Ha guide
18	214AJ	Retractable handle M8-L70	53	418EF	Hexagon screw M 10x50
19	401D	Hex nut M6 galvanized	54	500-008-203	Hbw anti-rotation device
20	213FG	Bevel gear D33 M2Z15	55	500-008-026	Profile steel 260mm
21	401E	Hex nut M8 galvanized	56	106CW	HA guide 300mm
22	400D	Adjusting ring D20xD32x14	57	500-008-021	Profile steel 300mm
23	427CB	Threaded pin M6x6	58	106DU	HA guide 410mm
24	422AA	Pan head screw with cross recess M6x12	59	500-008-030	Profile steel 410mm
25	581-01-001	Hinge screw M6x40			
26	421DB	Allen screw M10x35			
27	500001-003	Weld screw locking			
28	504-001-016	Banjo bolt HAMMER AD09			
29	75-07-135	Ball socket D22xD13 upper part 214AN			
30	406EA	Washer M10 galvanized			
31	504-001-012	Dial holder			
32	212LN	Adhesive DT scale metric / inch			
33	418CJ	Hexagon screw M6x20			
34	406C	Washer M6 galvanized			
35	428GG	Heavy Duty Pin 6x14			

504001-E001_01

Status 02/2011

Thickness unit 260/310/410

valid from

03/2011

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1.2.2 Figure 2

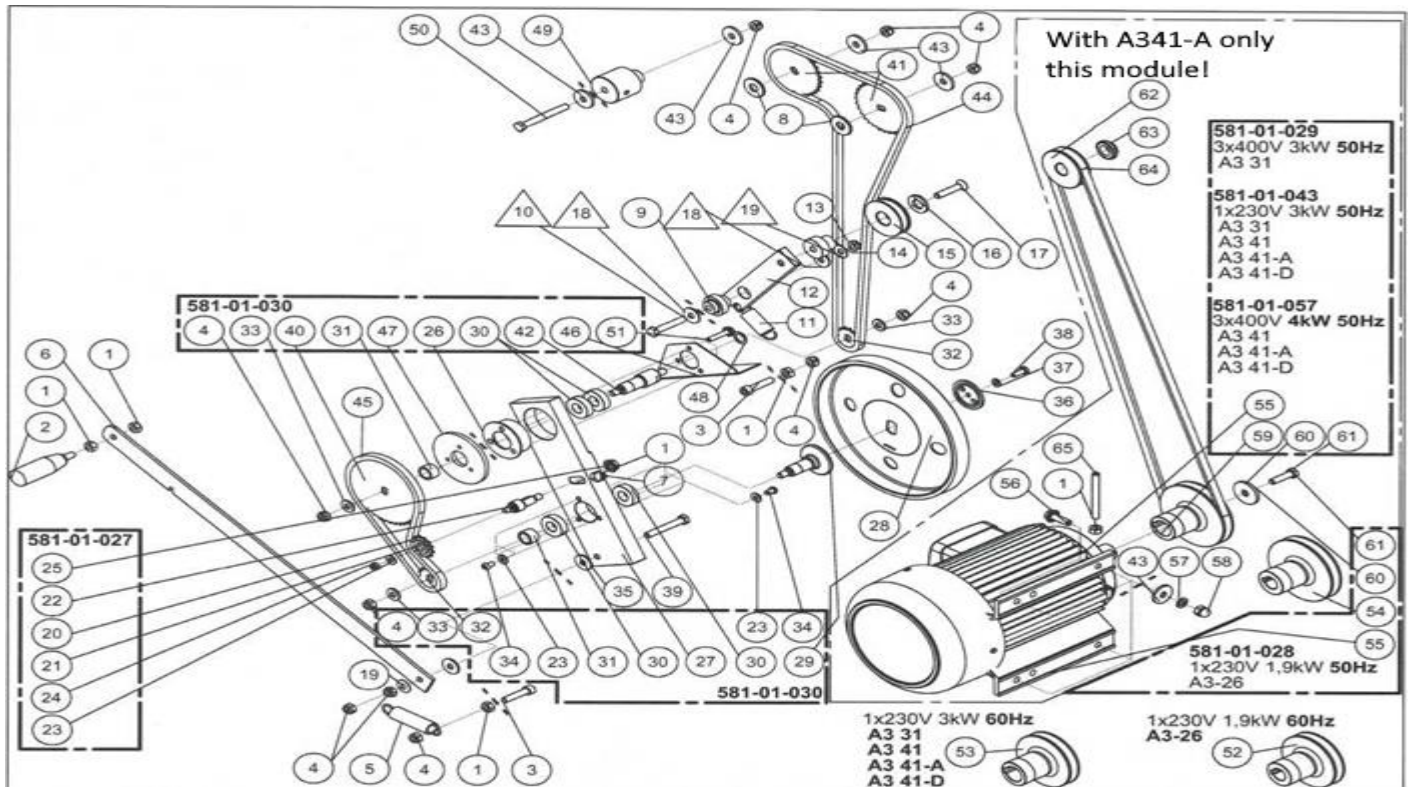


Figure 2

Item	Part number	Part designation	Item	Part number	Part designation	
1	401E	Hex nut M8 galvanized	36	410-002-030	Thrust washer	
2	214AJ	Retractable handle M8-L70	37	407D	Spring washer 6	
3	421CC	Allen screw M8x35	38	418CI	Hex screw M6x16	
4	440B	Safety nut M8	39	418DR	Hexagon screw M8x55	
5	581-01-058	Tension spring Del 8.2 Lo85 d2.2	40	504-002-010	Sprocket washer KRS 05B Z = 42	
6	504-002-007	Gear shift lever	41	216FF	Sprocket disc KRS 05B Z = 31	
7	424DF	Threaded pin M8x30	42	504-002-005	Axis mounting rail A4-41	
8	504-002-014	Washer D30x12,2x3 A4-41	43	400A	Washer M8 galv.	
9	500-002-009	Clamping beam bush LC	44	581-01-008	Roller chain 05 B-1 (158 links)	
10	418DH	Hexagon screw M8x45	45	581-01-009	Roller chain 05 B-1 (66 links)	
11	215FG	Tension spring Del8 L066 d2	46	504-002-201	Mudguard friction wheel	
12	500-002-007	Clamping beam LC	47	504-002-202	Clamping disc gear	
13	581-01-085	Safety nut M8	48	450AU	Shim d13xD19x1	
14	500-002-025	Sliding gear bushing	49	500-002-024	Deflection bolt	
15	500-002-006	Glide wheel LC A4-41	50	417CB	Hexagon screw M8x70	
16	404GA	Washer M14 galv.	51	400GJB	Hex head screw M6x30 black	
17	400CK	Countersunk screw with ISK M8x40	52	504-002-017	Motor pulley 60Hz HAMMER A3-26 10	
18	400CZD	Washer M8	53	504-002-016	Motor pulley 60Hz HAMMER AD 10	
19	400J	Disc spring 20x8,2x1	54	504-002-009	Motor pulley A3-26 10	
20	581-01-010	Chain tensioning wheel KRS 05B Z = 13	55	see wiring	Main motor (see E-circuit diagram)	
21	432DK	Deep groove ball bearing oil 801	56	400GG	Hexagon head screw M8x25 black	
22	504-002-012	Chain tensioning axis A4-41	57	407A	Spring washer 8	
23	404C	Washer M6	58	400AF	Hexagon cap nut M8	
24	440A	Safety nut M6	59	504-002-006	Motor pulley A4-41	
25	400GD	Hexagonal rib nut M8	60	214OS	Turned disc D36xd9x4	
26	504-002-004	Gearbox bearing bush A4-41	61	418DE	Hexagon screw M8x30	
27	504-002-001	Mounting rail A4-41	62	504-002-008	HBW pulley A4-41	
28	504-002-200	Coated friction wheel 220	63	435I	Slotted nut Elastic Stop M17x1	
29	504-002-002	Axle friction wheel A4-41	64	500-12-002	V-belt SPZ 1340 MNSuper-HC-MN	
30	432DE	Deep groove ball bearing 6002 2RZ	65	424BF	Threaded pin M8x80	
31	504-002-003	Spacer sleeve A4-41				
32	504-002-011	Sprocket washer KRS 05B Z = 13				
33	404D	Washer M8				
34	422DF	Pan head screw with ISK M6x10				
35	400GZ	Washer M8 PA66				
504002-E001_04		Gearbox 260/310/410			valid from 01/2014	Property of the company Felder KG. It mayM. neither sold nor copied without permission 3rd persons to
As of 01/2014						

1.2.3 Figure 3

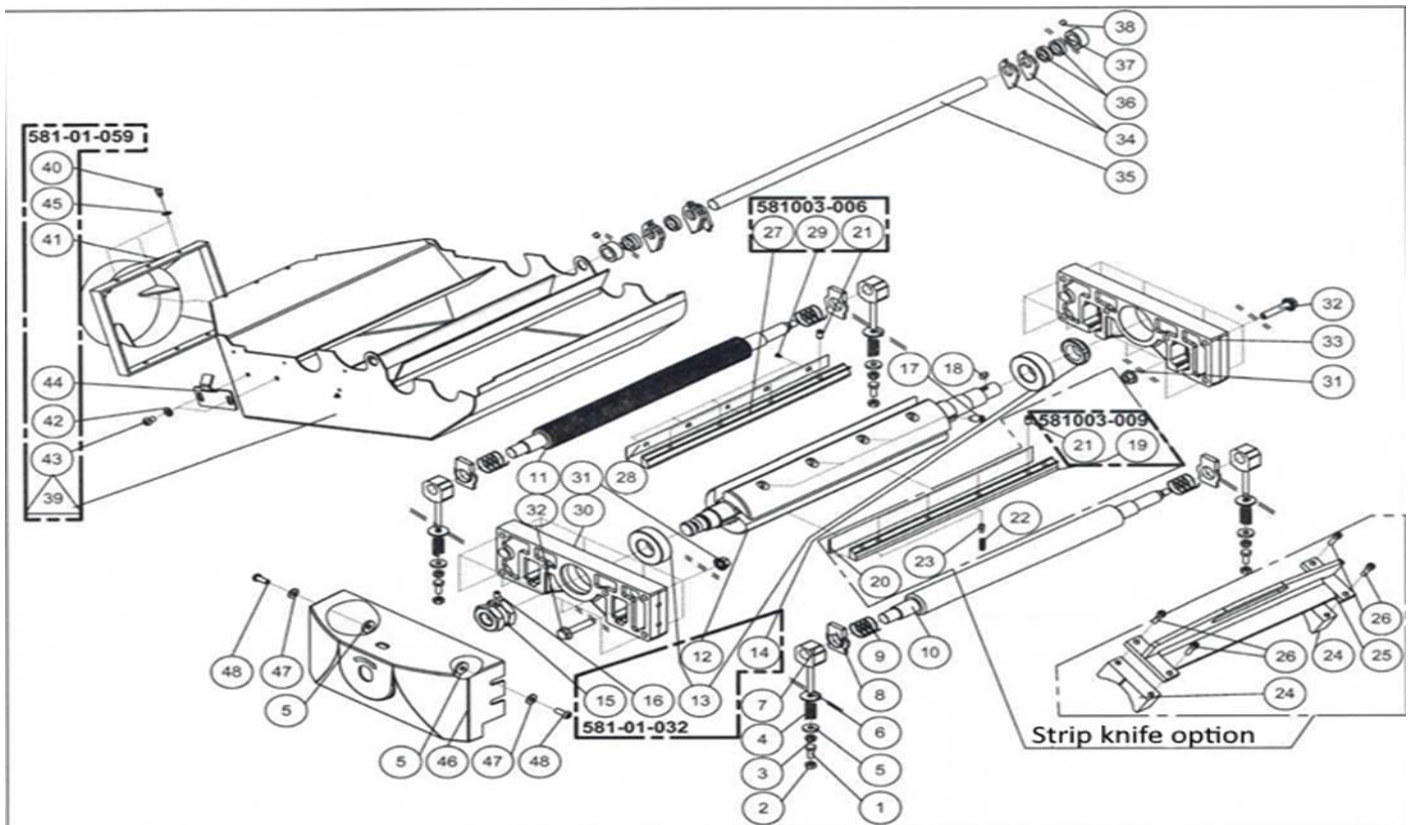


Figure 3

Item	Part number	Part designation	Item	Part number	Part designation
1	418CI	Hex screw M6x16	36	500-003-015	Kickback Distance-LC
2	401D	Hex nut M6 galvanized	37	400DB	Adjusting ring D15xD25x12
3	440A	Safety nut M6	38	427DE	Threaded pin M6x6
4	581-01-012	Compression spring Da12 Lo26.5 d2 n5.5	39	504003-210 + 1	Kuner hood HAMMER A3-31 11 welded
5	406C	Washer M6 galvanized	40	453BB	Blind rivets airtight 4x9.5
6	400VB	Washer M6 galv.	41	213CD	Suction nozzle
7	504-003-012	TW warehouse HAMMER AD 09	42	407D	Spring washer 6
8	500-003-016	Sealing washer LC	43	422DF	Pan head screw with ISK M6x10
9	215IH	Compression spring Da23 Lo28.5 d1 n3.5	44	504-003-210	Limit switch actuation plate HAMMERAD 09
10	500-003-060	Outfeed roller 2003 310	45	404B	Washer M4
11	500-003-061	Feed roller 2003 310	46	504-003-004	Drill head protection HAMMER AD 09
12	500-003-055	Hbw Hammer 310 field system	47	404C	Washer M6
13	432GA	Deep groove ball bearing 6205 ZZ C2E	48	422DE	Pan head screw with ISK M6x16
14	435H	Nut-Elastic-Stop M25x1.5			
15	500-003-010	HBW nut M20x1.5L			
16	427CA	Threaded pin M6x10			
17	426AB	Threaded pin M8x20			
18	581-01-013	Parallel key A 5 x 5 x 10			
19	500-003-072	Wedge strip 310 strip hammer			
20	see catalog	see catalog			
21	424CL	Threaded pin M6x12 sp			
22	215KM	Compression spring Da5.8 Lo17.5 d0.8 n8.5			
23	430-003-076	Support part strip knife			
24	420-003-079	Setting jaws strip nm esse r D72			
25	420003-076 + 1	Support bracket 310 welded			
26	421AD	Allen screw M5x20			
27	500-003-074	V-ledge hammer 310 33 °; Chip breaker 2.7mm			
28	see catalog	see catalog			
29	420-003-049	Collar bolt with cone			
30	504-003-002 + 1	Bearing block BK HAMMER AD 09			
31	400GD	Hexagonal rib nut M8			
32	400GC	Hexagon head screw M8x40 black			
33	504-003-001 + 1	Bearing block GT HAMMER AD 09			
34	500-003-210	Kickback arrestor LC			
35	504-003-003	Kickback prevention bar HAMMER A3-31 09			
003-E001_02 d 07/2011		Plane shaft bearing block 310		valid from 09/2011	Property of the company Felder KG. It may not be sold, copied or communicated to third parties without permission.

1.2.4 Figure 4

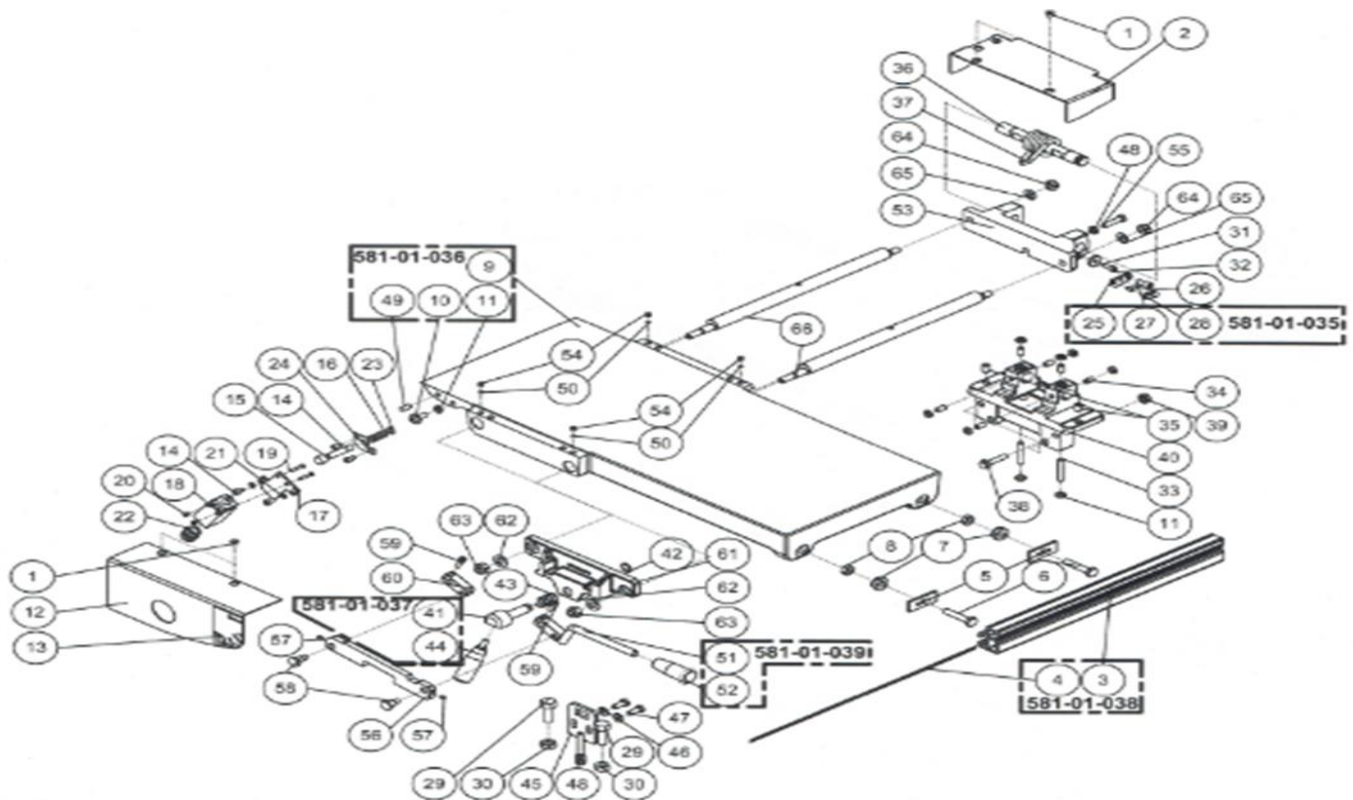


Figure 4

Item	Part number	Part designation	Item	Part number	Part designation
1	400AH	Countersunk screw with ISK M6x10	36	504-005-017	Rotary axis A-tables HAMMER AD 09
2	504-005-207 + 1	Cover panel for table support feeding AD 09	37	504-005-042	Torsion spring Di = 26.5mm d = 7mm
3	504-005-044	HA leadership	38	400GC	Hexagon head screw M8x40 black
4	500-008-017	Profile steel 450mm	39	400GD	Hexagonal rib nut M8
5	500-008-203	Hbw anti-rotation device	40	504-005-010 + 1	Table mount HAMMER AD 09
6	418EF	Hexagon screw M 10x50	41	504-005-016	Clamping eccentric A-tables HAMMER AD 09
7	500-007-136	Distance bushing Ha guide	42	409I	Retaining ring 15x1
8	401F	Hex nut M10 galvanized	43	215IJ	Compression spring Da19.8 Lo29 d1.6 n3.5
9	504-005-001 + 1	Planer table feeding HAMMER A3-31 09	44	581-01-016	Retractable handle M8-L70
10	504-005-015	Actuating bolt A-table HAMMER AD 09	45	504005-201	Locking plate HAMMER AD 09 welded
11	402I	Hex nut M8 flat	46	404D	Washer M8
12	504-005-201 + 1	Machine cover feeding HAMMER AD 09	47	418DC	Hexagon screw M8x20
13	504-005-020	Chip removal scale HAMMER AD 09	48	401E	Hex nut M8 galvanized
14	421 BA	Allen screw M6x10	49	430A	Straight pin D8x16 m6
15	504-005-014	Limit switch actuation bolt HAMMER AD 09	50	581-01-024	Thrust piece HAMMER AD 09
16	215IAD	Compression spring Da13.2 Lo32 d1.4 n5.5	51	504005-202	Adjustment lever chip removal HAMMER AD09 speed
17	504-005-206	Limit switch plate HAMMER AD 09	52	581-01-015	Ball handle with threaded hole
18	see wiring	Limit switch QKS 7-1	53	504-005-051 + 1	A-table swivel part feeding HAMMER AD 09
19	400CJ	Countersunk screw with ISK M4x25	54	424DL	Threaded pin M8x6
20	400Q	Rampa drive-in nut M4	55	418DF	Hexagon screw M8x35
21	407BA	Serrated lock washer M6	56	504-005-030	Connecting rod feeding HAMMER AD 09
22	222DX	Extension fitting PG11 KB 3.5-10	57	581-01-017	Threaded pin M6x8 brass
23	409B	Circlip 10x1	58	504-005-008	Bearing pin HAMMER AD 09
24	504-005-203	Centering plate actuating bolt HAMMER AD 09	59	421BS	Allen screw M6x22 galv.
25	504-005-204	Fall lock HAMMER AD 09	60	504-005-031	Take-away jaws HAMMER AD 09
26	421CN	Allen screw M8x16	61	504-005-006 + 1	Clamping part feeding HAMMER AD 09
27	424CJ	Threaded pin M6x10	62	403FI	Washer M12
28	400AQ	Hexagon cap nut M6	63	440CB	Safety nut M12
29	504-005-022	Support pin HAMMER AD 09	64	440C	M10 safety nut
30	401G	Hex nut M12 galvanized	65	404EA	Washer M10
31	504-005-021	Axle fixing washer HAMMER AD 09	66	504-005-005	Eccentric shaft HAMMER A3-31 09
32	421BB	Allen screw M6x16			
33	424DG	Threaded pin M8x50			
34	581-01-004	Threaded pin M8x12			
35	424EE	Threaded pin M10x16			
Planer table feeding 310				valid from 03/2011	Property of the company Felder KG. It may not be sold, copied or communicated to third parties without permission.

1.2.5 Figure 5

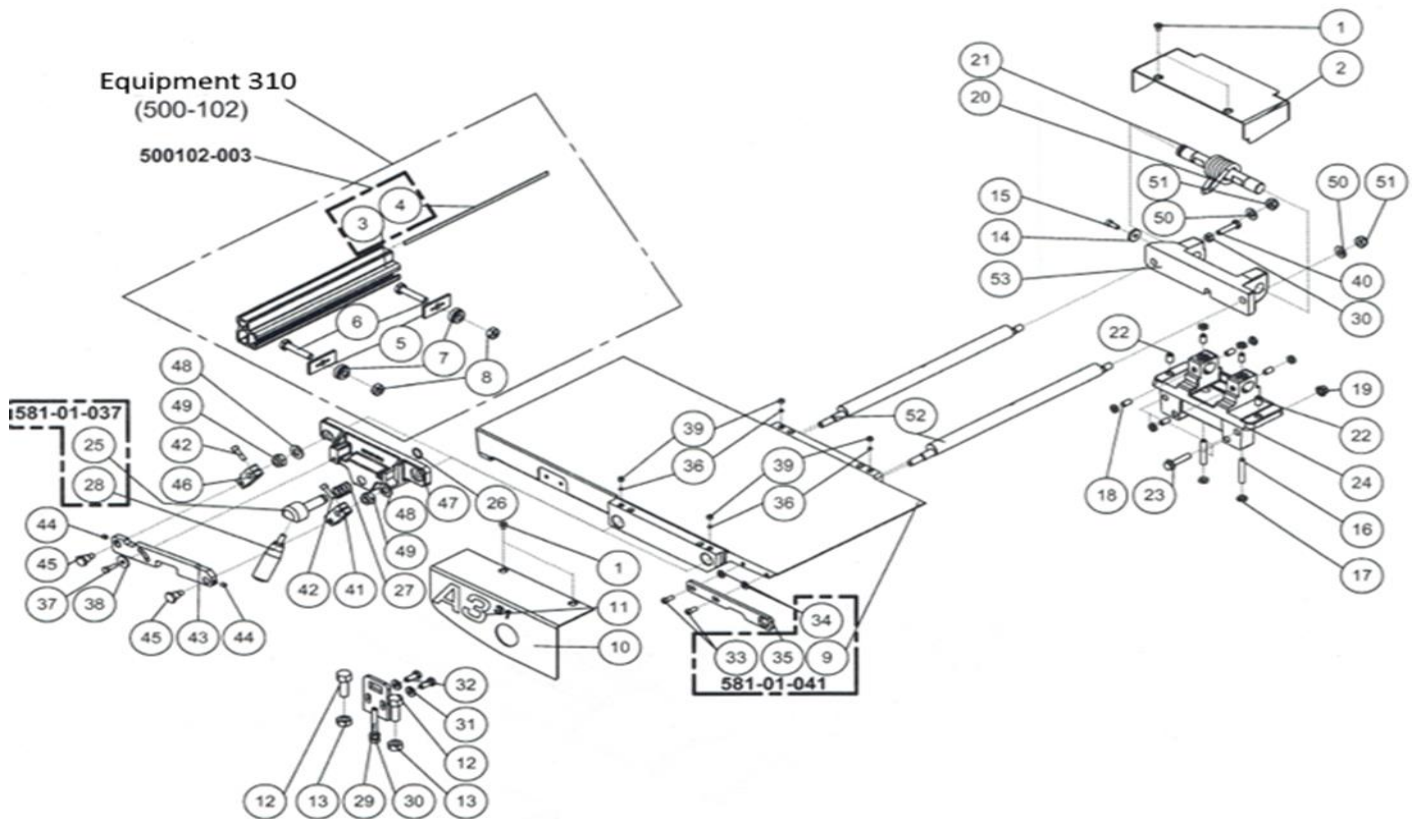


Figure 5

Item	Part number	Part designation	Item	Part number	Part designation
1	400AH	Countersunk screw with ISK M6x10	36	581-01-024	Thrust piece HAMMER AD 09
2	504-005-208 + 1	Cover panel for table support, decreasing AD 09	37	418CJ	Hexagon screw M6x20
3	106CW	HA guide 300m	38	400VB	Washer M6 galv.
4	500-008-021	Profile steel 300mm	39	424DL	Threaded pin M8x6
5	500-008-203	Hbw anti-rotation device	40	418DF	Hexagon screw M8x35
6	418EF	Hexagon screw M 10x50	41	504-005-031	Take-away jaws HAMMER AD 09
7	500-007-136	Distance bushing Ha guide	42	421BS	Allen screw M6x22 galv.
8	401F	Hex nut M10 galvanized	43	504-005-018	Connecting rod HAMMER AD 09 decreasing
9	504-005-002 + 1	Planing table, decreasing HAMMER A3-31 09	44	581-01-017	Threaded pin M6x8 brass
10	504-005-202 + 1	Machine cover, decreasing HAMMER AD 09	45	504-005-008	Bearing pin HAMMER AD 09
11	212TFC	Type sticker A3-31	46	504-005-009	Drive jaws SW17HAMMER AD 09
12	504-005-022	Support pin HAMMER AD 09	47	504-005-007 + 1	Clamping part, decreasing HAMMER AD 09
13	401G	Hex nut M12 galvanized	48	403FI	Washer M12
14	504-005-021	Axle fixing washer HAMMER AD 09	49	440CB	Safety nut M12
15	421BB	Allen screw M6x16	50	404EA	Washer M10
16	424DG	Threaded pin M8x50	51	440C	M10 safety nut
17	402I	Hex nut M8 flat	52	504-005-005	Eccentric shaft HAMMER A3-31 09
18	581-01-004	Threaded pin M8x12	53	504-005-050 + 1	A-table swivel part, decreasing HAMMERAD 10
19	400GD	Hexagonal rib nut M8			
20	504-005-042	Torsion spring Di = 26.5mm d-7mm			
21	504-005-017	Rotary axis A-tables HAMMER AD 09			
22	424EE	Threaded pin M 10x16			
23	400GC	Hexagon head screw M8x40 black			
24	504-005-010 + 1	Table mount HAMMER AD 09			
25	504-005-016	Clamping eccentric A-tables HAMMER AD 09			
26	409I	Retaining ring 15x1			
27	215IJ	Compression spring Da19.8 Lo29 d1.6 n3.5			
28	581-01-016	Retractable handle M8-L70			
29	504005-201	Locking plate HAMMER AD 09 welded			
30	401E	Hex nut M8 galvanized			
31	404D	Washer M8			
32	418DC	Hexagon screw M8x20			
33	422DE	Pan head screw with ISK M6x16			
34	404C	Washer M6			
35	504-005-013	Table connection strip HAMMER AD 09			
Planing table, decreasing 310				property of the company Felder KG. It may neither sold nor copied without permission 3rd persons to be communicated.	

1.2.6 Figure 6

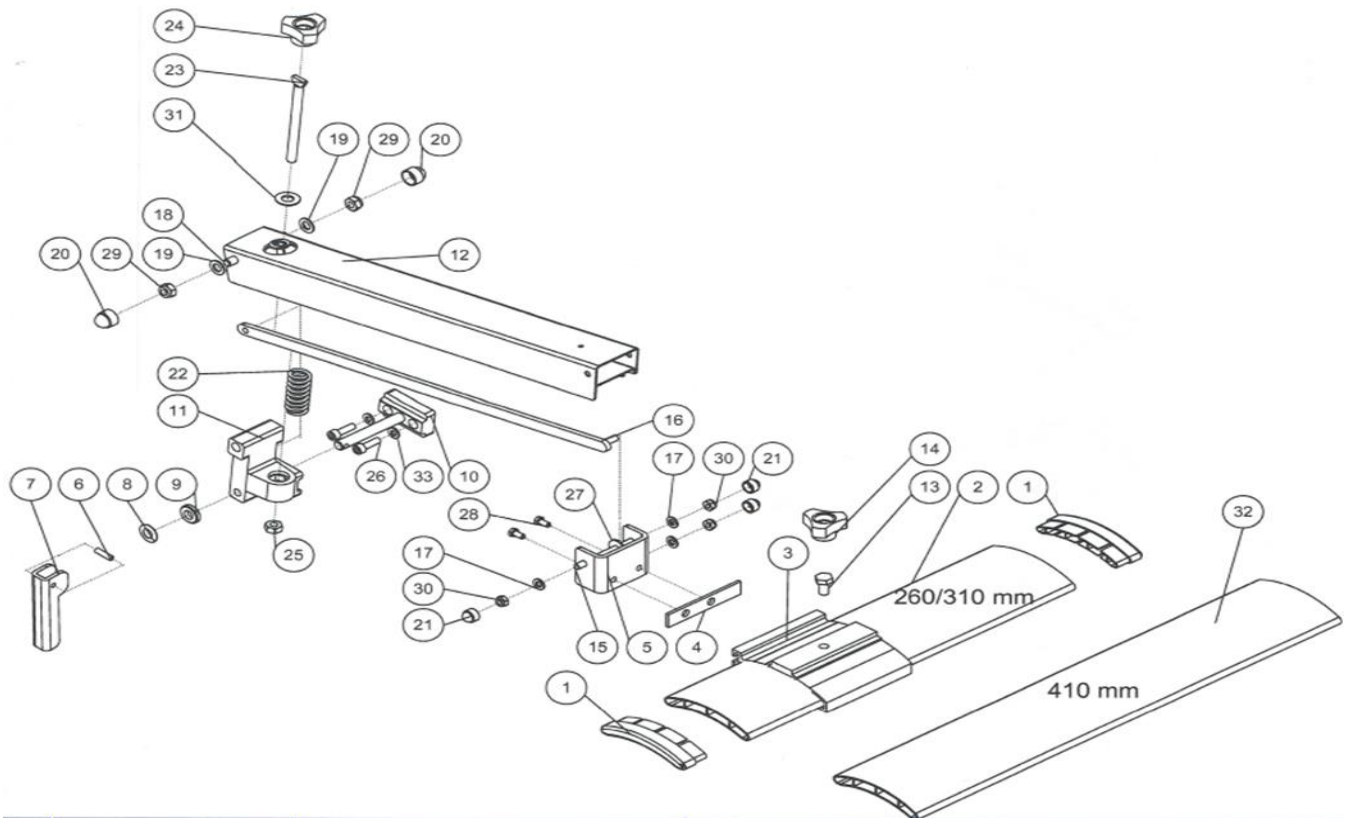


Figure 6

Item	Part number	Part designation	Item	Part number	Part designation
1	581-01-066	Covering bridge			
2	581-01-065	Dressing bridge A3-26 / 31			
3	581-01-080	Bracket for dressing protection bridge			
4	581-01-078	Clamping plate			
5	581-01-077	Bracket for dressing guard			
6	581-01-063	Clamping bolt dressing protection			
7	581-01-083	Clamping screw for dressing protection			
8	400RC	DISC SPRING 10.2x20x0.8			
9	581-01-073	Washer, thick			
10	581-01-069	Clamp support, dressing protection with holes			
11	581-01-070	Clamp support, dressing protection			
12	581-01-081	Holding arm dressing protection			
13	504-15-513	PLASTIC SCREW			
14	581-01-067	Clamping screw dressing bridge			
15	581-01-076	Threaded rod M6			
16	581-01-082	Holding arm, dressing protection lower part			
17	403FH	WASHER M6 GALVANIZED			
18	581-01-071	Threaded rod M8			
19	404DA	WASHER M8 GALVANIZED, FORM A, DIN 125A			
20	213JZ	PROTECTIVE CAP FOR HEXAGON M8, BLACK			
21	581-01-079	Cover nut M6			
22	581-01-074	feather			
23	581-01-075	Threaded rod			
24	581-01-068	Clamping screw, dressing guard, height adjustment			
25	401E	SKT NUT M8 GALVANIZED			
26	421 BK	SOCKET SCREW M6X20 BLACK			
27	400CZ	Washer M6 PA66			
28	418IB	Hexagon screw M5x10			
29	440B	Safety nut M8			
30	440A	Safety nut M6			
31	404EA	Washer M10			
32	581-01-064	Dressing bridge A3-41			
33	581-01-072	Spring washer 6			

504006-E002_01
Status 03/2011

Dressing protection arm 260/310/410

valid from
03/2011
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1.2.7 Figure 7

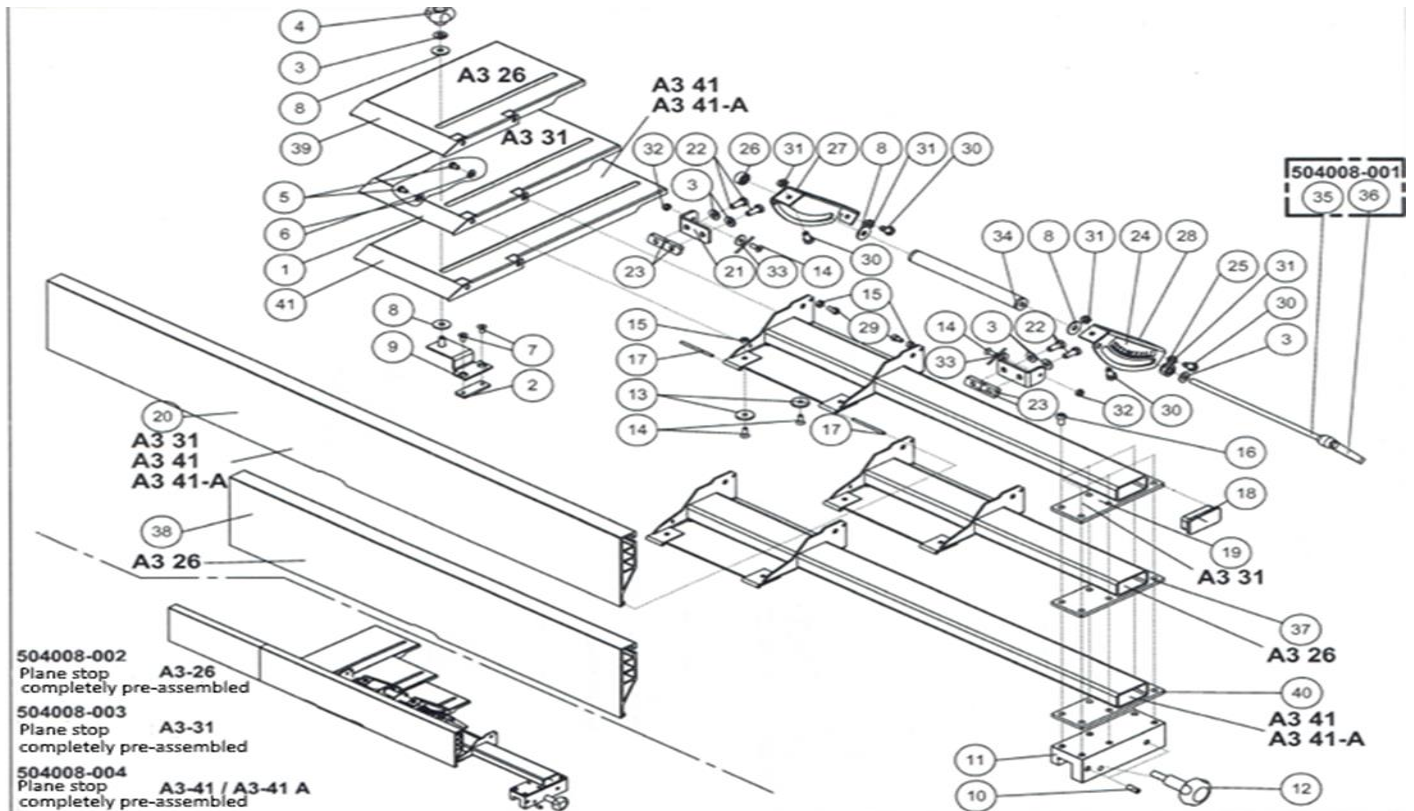


Figure 7

Item	Part number	Part designation	Item	Part number	Part designation
1	504-008-204 + 1	Planer shaft cover plate HAMMER A3-31 09	36	209GB	Clamping lever with internal thread M8-Gr2
2	504-008-208 + 1	Clamping plate HAMMER AD 09	37	504008-203 + 1	HA base HAMMER A3-26 09
3	404D	Washer M8	38	504-008-001	HA ruler HAMMER A3-26 09
4	205C	Knurled nut-M8-731 -40	39	504-008-209 + 1	Planer shaft cover plate HAMMER A3-26 09
5	422DF	Pan head screw with ISK M6x10	40	504008-204 + 1	HA base HAMMER AD410 10
6	404C	Washer M6	41	504-008-210 + 1	Planer shaft cover plate HAMMER AD410 10
7	400BD	Countersunk screw with ISK M6x12			
8	400GZ	Washer M8 PA66			
9	504008-202 + 1	Clamping bracket HA stop welded HAMMER AD 09			
10	424DC	Threaded pin M8x20			
11	504-008-003	HA mount HAMMER AD 09			
12	204DV	Knurled screw M10x30 with shank (735-50)			
13	504-008-008	Slide support HA stop hammer AD 09			
14	400AL	Countersunk screw with ISK M6x16			
15	401D	Hex nut M6 galvanized			
16	422DN	Pan-head screw with ISK M8x16			
17	581-01-018	Parallel pin D4x60 h8			
18	581-01-019	Rectangular plug-V60x30			
19	504008-200 + 1	HA base HAMMER A3-31 09			
20	504-008-002	HA ruler HAMMER A3-31 / A3-41 09			
21	504-008-203 + 1	Ruler mounting bracket HAMMER AD 09			
22	418DC	Hexagon screw M8x20			
23	225BD	T-head threaded plate M8 type 38-17			
24	504-008-007	Angle scale HAMMER AD 09			
25	504-008-009	Scale indicator sleeve HAMMER AD 09			
26	504-008-010	Scale indicator sleeve M8 HAMMERAD 09			
27	504-008-206 + 1	HA side plate left hammer AD 09			
28	504-008-207 + 1	HA side plate right hammer AD 09			
29	421 BA	Allen screw M6x10			
30	418DQ	Hexagon screw M8x16			
31	402I	Hex nut M8 flat			
32	440A	Safety nut M6			
33	400CZ	Washer M6 PA66			
34	504008-201	HA spacer tube welded HAMMER AD 09			
35	504-008-006	Threaded rod M8x260 HAMMER AD 09			
504008-E001_02		Plane stop 260/310/410	valid from		
Status 03/2012			03/2012		
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1.2.8 Figure 8

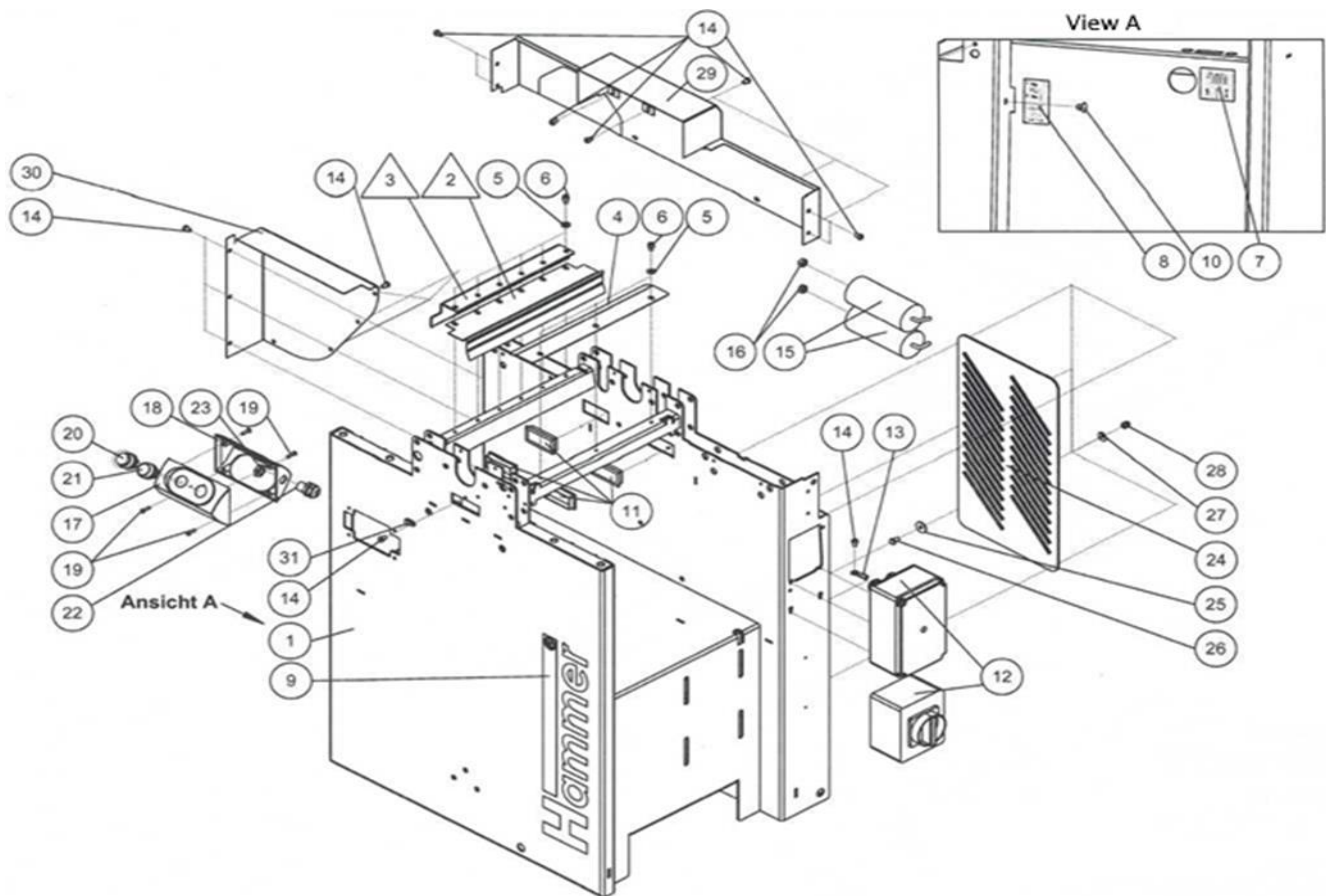


Figure 8

Item	Part number	Part designation	Item	Part number	Part designation
1	504010-001 + 1	Stand A3-31 welding			
2	504-003-220 + 1	Chip deflector 310 11			
3	504-010-252 + 1	Chip stop plate A3-31 11			
4	504-010-232 + 1	Pull-out cover sheet A3-31			
5	404C	Washer M6			
6	421BH	Allen screw M6x8			
7	212LMA	ADHESIVE CLAMPING DT-HEIGHT ADJUSTMENT			
8	212LYA	GLUE GEAR ON / OFF HAMMER 04			
9	212TTA	Hammer logo 460x102mm			
10	581-01-050	Round hole plug D9mm			
11	581-01-020	Rectangular plug			
12	see wiring				
13	222PST	Ring cable lug 6mm2 V3661A			
14	422DF	Pan head screw with ISK M6x10			
15	see wiring	Motor run capacitor			
16	401E	Hex nut M8 galvanized			
17	504-010-002	Switch housing with button holes			
18	504-010-003	Switch housing with hole for mounting fittings			
19	400DJ	PT screw with pan head and Torx K40x16			
20	222PMA	Push button red high			
21	222PN	Push button green flat			
22	222UZ	Extension screw connection M16 KB 3.5-10			
23	222V	Lock nut M16			
24	500-010-422 + 1	Back cover-310			
25	400VB	Washer M6 galv.			
26	418AB	Hexagon screw M6x12			
27	400BN	Disc spring 18x6.2x0.4			
28	400AQ	Hexagon cap nut M6			
29	504-010-230 + 1	A3-26 / A3-31			
30	504-010-231 + 1	GT solo bezel A3-26 / A3-31			
31	222AL	KU fastening clip 4.8mm			

504010-E00103

Status 07/2011

Machine stand A3 31

valid from

09/2011

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1.3 Tools Used

Following is a list of almost all of tools I used. In the documented procedure you will discover others that I failed to include in this list.

- Assorted Allen wrenches. Mostly I used T---handle wrenches, but there were a couple places with insufficient clearance for T required I use regular bent Allen wrenches.
- Open/box end Metric and Imperial hex wrenches. There are not many bolts and nuts; only a few sizes need.
- An adjustable wrench. The two nuts on the end of the cutter head have hex nuts. Example wrench is Grainger catalog item #1FJ43.
- Some tool for the largish (~1.5") nut on one end of the cutter head. I used a 1 7/16" socket.
- 3---point bearing puller
- Potentially a means to press bearings on (I ordered the Shelix head with the bearings)
- Long punch (I used a 12")
- Hammers
- Common pliers, channel locks, vise grip with jaws that are less than 1/2" wide.
- You will need some table space to place parts as you remove them.



- Impact driver

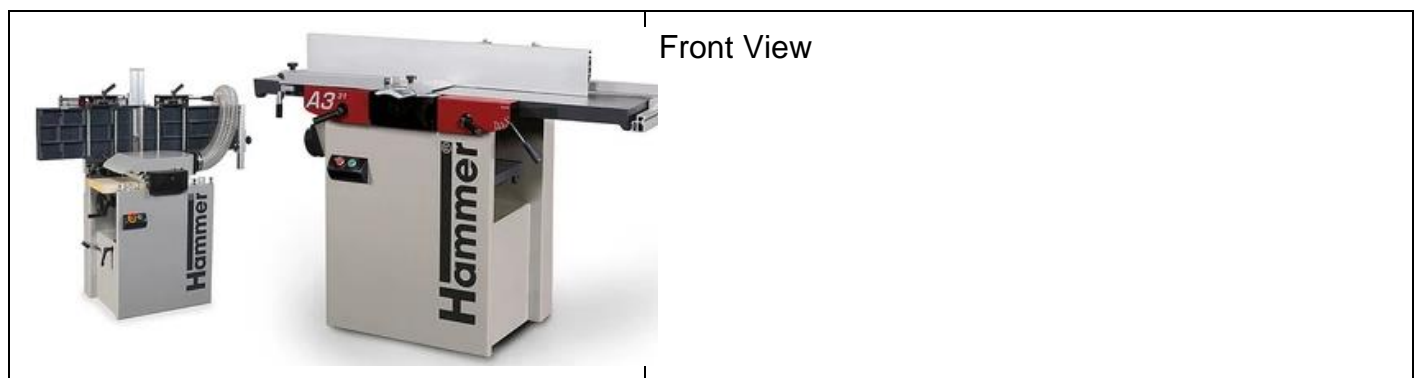
1.4 Source for Byrd Shelix Head

I ordered my Byrd Shelix Head from My Wood Cutters, see

[https://mywoodcutters.com/SHELIX for felder 12 inch Jointer \(A3-31 COMBO\)?search=a3](https://mywoodcutters.com/SHELIX%20for%20felder%2012%20inch%20Jointer%20(A3-31%20COMBO)?search=a3)

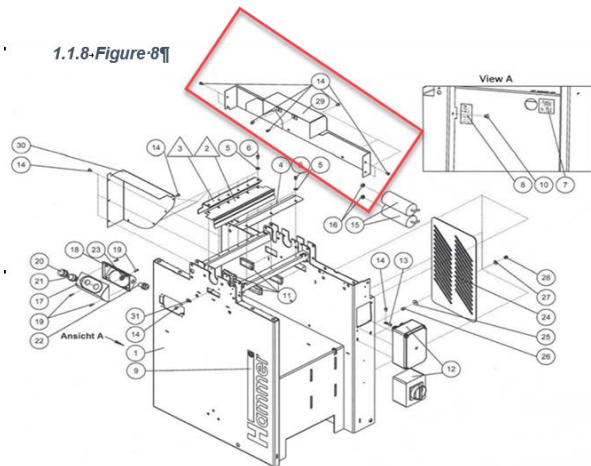
1.5 Removal Procedure

As you view the following, most likely you will see something that appears out of order but as documented, this was the procedure for me. Of course knowing what I know now I would have made a few minor changes.





Remove the Fence



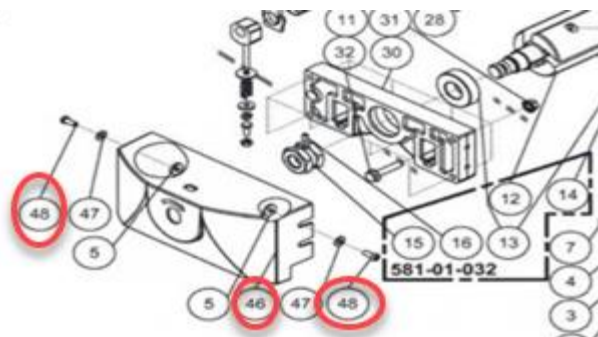
Removal of the GT aperture (8-29)

There are 9 pan head screws (8-14) that hold this cover on.

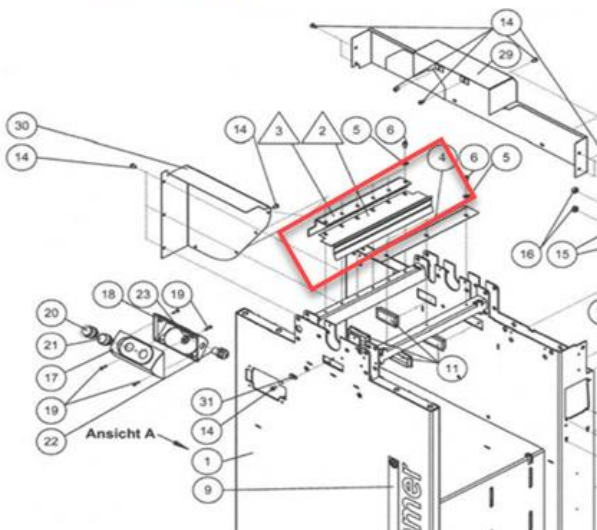
- 2 on each end
- 3 on the back side
- 2 on the front side



Loosed (do not remove) 4 (4mm) screws (3-48 and remove the Drill Head Protector (3-46)



1.1.8-~~Figure-8~~

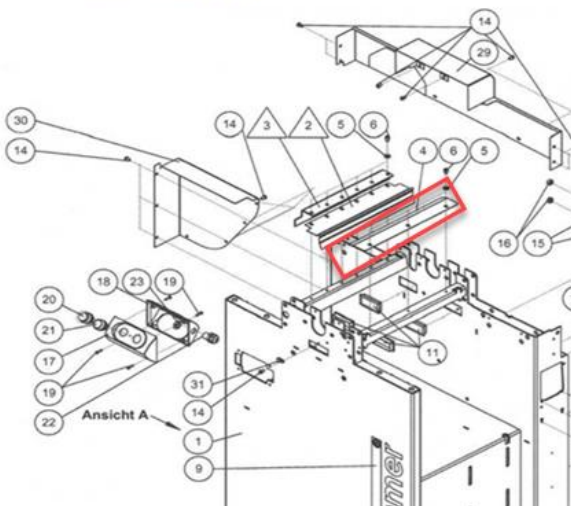


Remove the Chip deflector (8-2), and the Chip Stop Plate (8-3) by removing the 6 Allen head screws and washers (8-5, 8-6), 5mm T-handle Allen wrench.



Take several pictures of this area after you remove the plates. You have now exposed the kickback prevention assembly which has several parts and you will be removing it. The pictures will help in the reinstall.

1.1.8-~~Figure-8~~



Remove screw 8-6, washer 8-5, and pull-out cover sheet 8-4.

Label the parts, bag them, and tape the bag to the pull-out cover (8-4).



Rotate the dust hood (3-39) to the planer position, this will give you access to the set screws (3-38) in the adjusting rings (3-37) located on each end of kickback bar (3-35).

Loosen the set screws with a 3mm Allen wrench. A "T" handle will not work here.



Note: Before you start to remove the bar take pictures of the parts on the bar (3-35)



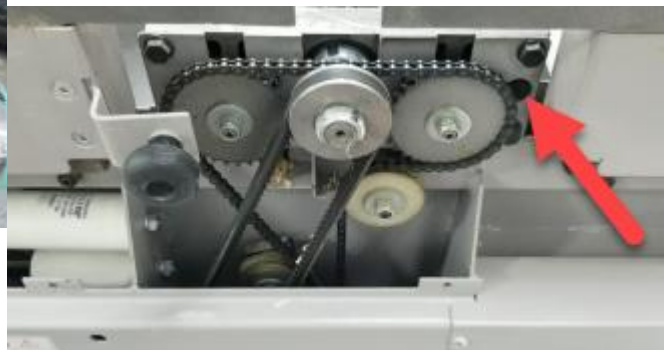
Just to be on the cautious side I used a black Sharpie to draw a line across the back of the anti-kickback arresters. They are all the same part I just wanted the line to help with the positioning when it came time to reinstall.



You are about to remove the kickback bar that has several parts on it. To help ensure you don't lose any parts place something under the bar on the planer thickness table to catch them. I used a cardboard box that I cut to fit and angled up the flaps.



I then used a 12" long punch and hammer.



From the backside of the A3, GENTLY tap the kickback bar toward the front side of the A3.



When the Kickback Prevention Bar (3-35) is extending about 6" out the front you can pull it out just by pulling on the bar with your hand. As the bar moves toward the front of the A3, parts (3-37, 3-36, 3-34) fell into the box.



The parts on the bar are:

- 3-34, quantity 53
- 3-37, quantity 2
- 3-36, quantity 26



OH JOY!!! The Byrd Head arrived





On the back side of the A3 you need to remove the access panel (8-24) that is secured with 5 10mm hex head nuts (8-26) and washers (8-25).

- Remove the two nuts & washers on the left side
- Loosen the three nuts on the right side
- Remove the panel
- Reinstall the two nuts and washers on the left side, finger tight is good



On the right outfeed side of the A3 loosen the four 13mm hex nuts that secure the motor.

Also loosen the threaded pin (2-65). For me the threaded pin and the locking nut moved at the same time. After the locking nut was loose I turned the threaded rod with my fingers. Attempting not to turn the nut as I turned the pin until there was a good 1/2" space between the pin and the stop block it originally rested on.



- Get two scrap pieces of 2x4, one short and one longer than the planer table.
- Lay the long 2x4 on the table so it extends the thickness of the 2x4 past the outfeed end.
- Clamp the other end to the table
- Hold the short 2x4 under the top two hex nuts.
- While holding the short 2x4, place a pipe clamp or similar as in the image.
- I was then able to tighten the pipe clamp. It was necessary for me to position my foot against the pipe clamp near the floor, otherwise the short 2x4 would twist and fall out.
- I tighten the pipe clamp until the threaded pin again touched the stop block
- Tighten one or both of the bottom hex nuts.
- At this time the v-belt (2-64) should be loose.
- Remove the v-belt and just leave it lay where it falls.



Lock the planer head so it will not turn
I used three pieces of $\frac{3}{4}$ " x 1" about 8 inches long.
One end was inserted into the head below the planer blade and then clamped to the frame.



Tilt the A3 table toward the closed position, I rested mine on the end of one of the clamps used to lock the head in place.



I used a pair of channel-lock pliers to remove the nut (3-14, Nut-elastic stop) from the back side of the shaft, part of the planer head (turn counter clockwise)



Use a wheel puller to remove the V-belt pulley wheel (2-62)



Use a pair of common pliers to remove the lock pin from the planer head shaft.



Label the parts 2-62, 2-14, and key lock, place them in a zip bag and tape it to the back side of the A3.



From below the input feeder roller insert a wood wedge between the roller and frame. This will lock the feed roller so the sprocket disk (2-41) can be removed.



NOTE: Several of the nuts/bolts should be 13mm but it was too loose and I used a 1/2" wrench/socket for a perfect fit.

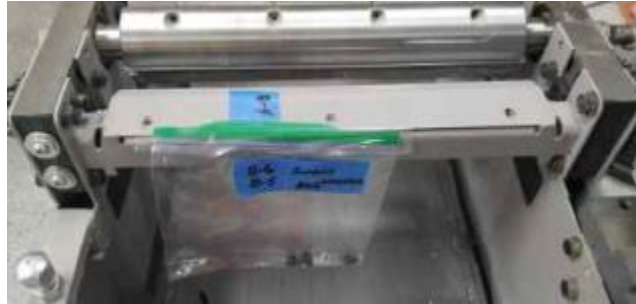
I used an impact driver to remove the hex nut (2-4), (2-43) MB washer, (2-41) sprocket disk, and (2-8) washer D30x12 from the in feed roller on the back of the A3.

In the image on the left the parts are laid out in the sequence removed.

Note that the washer on the right (2-8) is larger than the washer (2-43) on the left. Thus the larger washer will be the first part to go on the roller when reinstalling.



Remove the three Allen head screws (8-6), 5mm head, and M6 washers (8-5).



Label the washers and screws, place them in a zip-lock bag, tape the bag to the plate (8-4).

Place the parts on your worktable with the other parts. In the above image the parts are still laying on the A3.



Clamp the out-feed roller to the frame.



As an extra measure to prevent the roller from turning I wedged a stick between the sprocket disk (2-41) and cutter head.

Use an impact driver to remove the nut 2-4 from the out-feed roller on the back side of A3. Here again I used a 1/2" rather than a 13mm socket.

Also remove 2-43 (MB washer), 2-41 (Sprocket disk), and 2-8 (washer D30 x 12)



Label the parts, put them in a Ziploc bag and tape the bag to the back of A3



Use a 3mm T-handle Allen wrench to loosen the set screw (3-16) in the (2-15) HBW nut.

Removal of the nut seemed to be impossible, I decided to remove the nut later after the head was removed



Later I discovered I still could not get the nut off using a 15" crescent wrench with a 3' extension bar. I'll take it over to my sons' shop where we can apply heat, that failing I'll try to order a nut (3-15) 500-003-010 HBW nut M20x1.5L from Felder.



Removal of the 3-30 and 3-33 planer blocks, each block is secured by six nuts/bolts. They should be 13mm but a 1/2" socket was a better fit.



Immediately I discovered that the nuts & bolts were VERY tight. I questioned Hammer Tech support, there is no torque setting for any of the nut, bolts, or screws They are just tight!

I used a 12" breaker bar, 12" extension, and a 1/2" swivel socket. The swivel socket made it easy to access a few of the bolt head.

Using the breaker bar I was easily able to loosen all 12 bolts from the outside of the A3. It was not necessary to apply a wrench to the nut.



Using my impact driver with a 12" extension and the swivel socket it was easy to remove the bolts. Take care to catch the nuts as they fall off the bolts.



Double check to ensure you have all 12 nuts and bolts.

Bag them and tape the bag to the front of the A3.



The safety switch can be moved up/down to ensure it is correctly positioned. Just to reduce this adjustment effort I used a Faber Castell Pitt Fine Artist Pen (it has a very sharp point) to draw an outline around each of the two brackets.



Use a 5mm T-handle Allen wrench to remove the four screws. The screws on the switch also had star washers and were silver. The bracket for upper part had no washers.

I was not able to find these on the parts drawings.

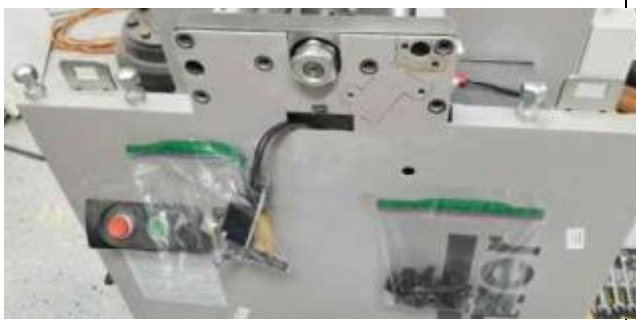


Brackets removed, note the outline for the bracket locations.



The parts that are removed.

NOTE: The pin that goes through the block easily got caught on something as I removed it. Be gentle and DO NOT force or hit it.



Bag the parts and tape it to the front of the A3. Just to be extra cautious I inserted the switch into the bag as well. This will ensure I know the parts go with the switch.

YEA! Now you are ready to remove the head.



In-feed side

I used four 4x4s that I had made for my pipe clamps. They were 6 ½" long.

I set them on the ends and positioned them such that they would clear the outer edge of the frame.

I then raised the table as far as I could. The planer blocks (3-30) had not cleared the frame.

NOTE: As I write these notes I just realized that the block on the on the out-feed side was hitting the frame. My bust! This prevented the table from going up.



Out-feed side





Top side



I lifted the head assembly and my wife inserted two short 2x4s.



I moved the assembly to my workbench.



Using two blocks to support the assembly, previously I has routed the block with a 1" round nose bit (aka Core Box bit) and these fit the feed rollers perfectly and prevented the assembly freely moving.

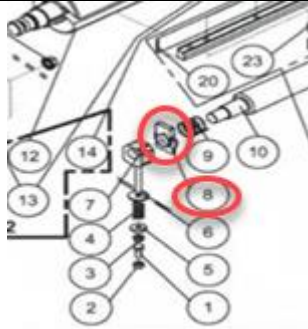
NOTE: At this time, as a CYA, I marked the metal blocks as to the position in the A3, e.g. Back and Front.

I also indicated the rotation direction.



Using my Thor hammer (see <https://kingsfinewoodworking.com/collections/wood-working-pieces-for-sale>) I was able to lightly tap on the input feed side and then the output feed side of a block. I repeated this process until the block came off.

NOTE: The part 3-8 Sealing washer LC



Is plastic and possibly could be damaged. I moved them toward the center of the assembly and rotated them. When I released the part it rested at an angle against the block.



I then noticed that a small assembly was still on the feed roller and not in the block.

I did not want to change the spring adjustment so I just compressed the spring with channel-lock pliers and reinserted the plastic block into the metal block.



NOTE: The 2x4 between the 4x4 blocks. This prevented the cutter head from falling down to the workbench top.

Now it is time for reassembly



1.6 Reassembly Procedure

Basically the reassembly is the reverse of the uninstall but for some strange reason I always seem to discover issues, thus the following.



We are ready for the Byrd Head, and here is what the A3 currently looks like.



With a silver Sharpie I marked the Front/Back of the Byrd head as it would sit in the A3 also I set it on the 2x4 between the two 4x4 support blocks.



Again using the Thor hammer I inserted the two feed rollers and the Byrd head and tapped each side of the metal block until it looked like everything was correctly seated.

NOTE: It is very important to ensure that the plastic parts on the end of the feed rollers are positioned correctly and don't get broken. Check OFTEN and avoid an OPPsss!



Repeat the same for the other side.

Each block has a shoulder that the bearing should meet, as you can see in this image.



With a small flashlight, from the outside of each block inspect to ensure the bearing is correctly seated.



For whatever reason the bearings on the cutter head were not correctly seated in the blocks. Using three pipe clamps I corrected the issue.



When applying the clamps it is necessary to ensure the clamps are not restricting the movement of the bearing.

In the image on the left it looks like the clamp is restricting the bearing but it is not.



Distant and close-up view of the Back bearing.



Distant and close-up view of the Front bearing.





Current view of the A3

Here I could clearly see why I was not able to raise the thickness table high enough to completely remove the bearing blocks. The space between the frame members that run front to back is just over 6 1/4" and two 4x4s side-by-side measures 7".

Cut 2 two 2x4s the same length of the 4x4s and you have a good fit.



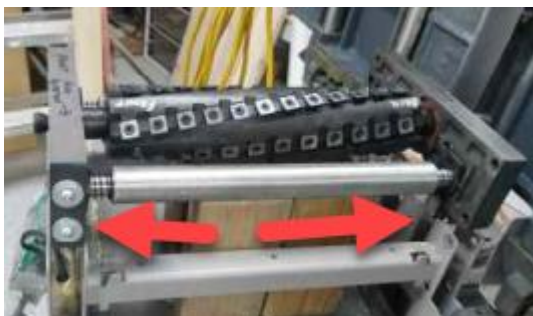
You will get better support for the cutter assembly if you position the boards such that they just clear the frame members that run front-to-back.

Raise the thickness table such that the top of the blocks are higher than the outside frame where the bearing blocks go.



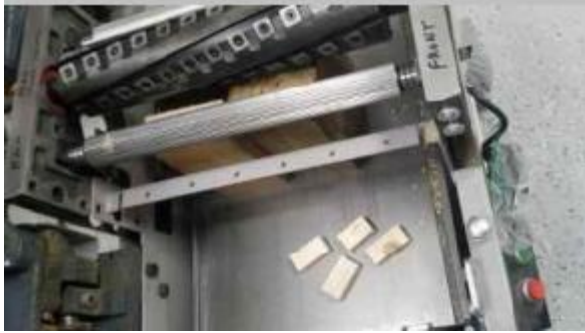
Place the cutter head assembly on top of the blocks.

NOTE: Ideally the feed rollers in the cutter head assembly are resting on the blocks. Otherwise the assembly may move to one side or the other. It really hurts when your fingers get caught between one of the feed rollers and the frame members. (Don't ask me how I know!)



Lower the cutter head assembly so the bearing blocks are just above the frame on the front/back sides.

Align the bearing blocks front to back such that they align with the slots in the front/back slots in the frame of the A3.



From your scrap wood pile cut four blocks from $\frac{1}{2}$ " thick stock about 1.5" long and $\frac{3}{4}$ " high. The measurements are not critical but you don't want the thickness to be over $\frac{1}{2}$ ".



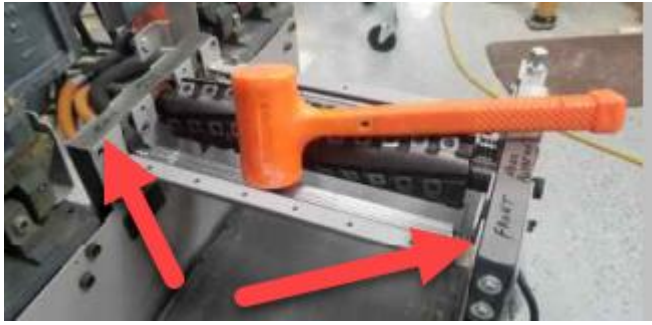
Place one wedge between each plastic piece on the ends of the feed rollers.



Lower the thickness table, taking care to ensure the bearing blocks are both equally moving into the slot.

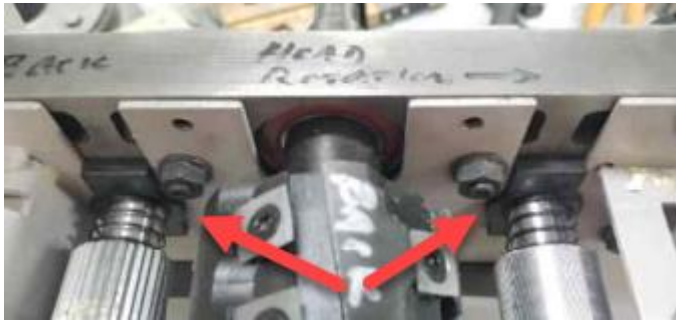


As you lower the thickness table at some height the wooden blocks will pop out. They are no longer needed and can be removed.

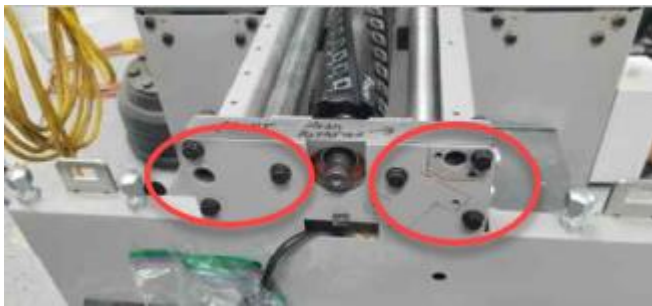


Continue to lower the thickness table until the cutter head assembly is no longer resting on the blocks and the bearing blocks are flush with the top of the frame.

For me it was necessary to occasionally tap the bearing blocks to avoid binding.

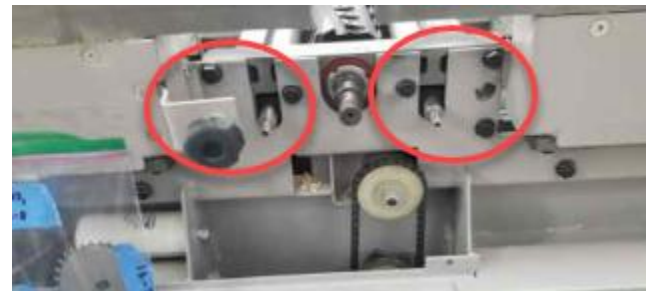


Ensure the plastic clips on the end of the feed rollers are correctly seated.



Front

From the outside of the A3, insert the 12 bolts and start the nut on each one. Do NOT tighten the bolts at this time.



Back



Install the safety pin through the bearing block and frame.

Install the two black 5mm Allen head screws.

Securely tighten the two screws.

Securely tighten the 12 bolts/nuts you installed in the previous step. I used an impact driver and then torqued with breaker bar (about 1/8 extra turn on each bolt) I used to remove them.



Install the safety switch with the two silver 5mm Allen head screws.

Securely tighten the two screws.



Clamp the feed rollers to prevent them from turning when installing the sprocket nut.



NOTE: Several of the nuts/bolts should be 13mm but it was too loose and I used a ½" wrench/socket for a perfect fit.



Also note the small recess on one side of the washer 2-8. This recess will go against the roller bar.

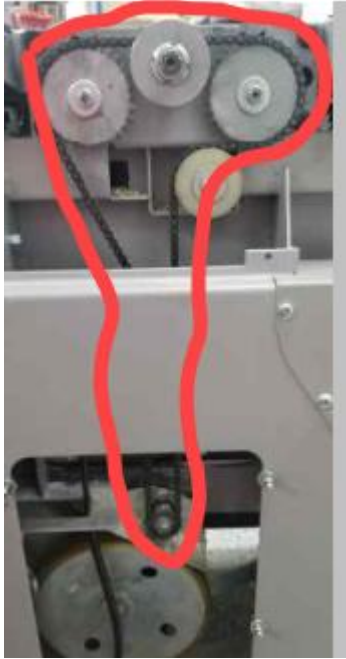
I used an impact driver to install the hex nut (2-4), (2-43) MB washer, (2-41) sprocket disk, and (2-8) washer D30x12 to in-feed/out-feed rollers on the back of the A3.

In the image on the left the parts are laid out in the sequence installed going from left to right.

Note that the washer on the left is larger than the washer on the right. Thus the larger washer will be the first part to go on the roller when reinstalling.

Securely tighten the nuts and remove the clamps securing the rollers.

	
	<p>Rotate the cutter head until the key slot is at the top.</p> <p>Force the key into the slot.</p> 
	<p>When I attempted to install the –belt pulley I realized that I had not correctly positioned the key.</p> <p>Using a 6" flat file (fine tooth) I was able to correct the goof.</p>
	<p>After several attempts, I discovered that using a 5/8" deep socket (5/8" easily slipped over the threaded portion of the shaft) and hitting it with a hammer (this took more force than I expected) to force the V-belt wheel (2-62) on the shaft.</p>
	<p>Insert the thick end of a shim or whatever stick will fit into the groove of the cutter head. Position the shim so it will stop the rotation of the cutter head.</p> <p>Using a pair of channel locks I reinstalled 3-4 (nut-elastic stop) on the shaft. Tighten it securely and remove the shim.</p>



Install the chain.



You can easily move the chain tensioner wheel to the correct position.



Install the V-belt



Lift the table top to the upright position.

Position the long 2x4, previously used on the thickness table, extend the end on the motor mount side 2 ½" past the end of the thickness table.

Use a C-clamp to secure the other end of the 2x4.

Place the short 2x4 under the two top nuts

that secure the motor. Adjust the pipe clamp so you can lower the motor and put tension on the V-belt.

Place your foot on the pipe clamp on the end near the floor.

NOTE: At this time DO NOT mess with the threaded pin and nut.

Loosen the nuts(s) you tighten to secure the motor so the V-belt could be removed.

Lower the motor.

Remove the pipe clamp.

Most likely it will be necessary to place the short 2x4 on top of the two top nuts and hit it with your hammer, driving down the motor.

With your fingers turn the threaded pin until it rest firmly on the stop.

Now tighten the locking nut on the threaded pin

Tighten the four 13mm nuts to secure the motor and tension on the V-Belt

Remove the C-clamp and 2x4 on the thickness table.



On the old cutter head one end had a large nut which now should be installed on the new cutter head.

I removed the cutter knives.

Secured the head in a vice.

Removed the set screw.

Used a 1 7/16 socket to remove the nut.

NOTE: This is a Left-hand threaded nut (aka Reverse Threaded) thus to remove it you need to turn the nut clockwise.

First place three 4x4 blocks directly under the Byrd head.

Raise the thickness table and securely lock the head in position.

To install the nut (turn counter-clockwise) on the new head. Install the nut and securely tighten the nut

Installed the set screw and securely tightened it

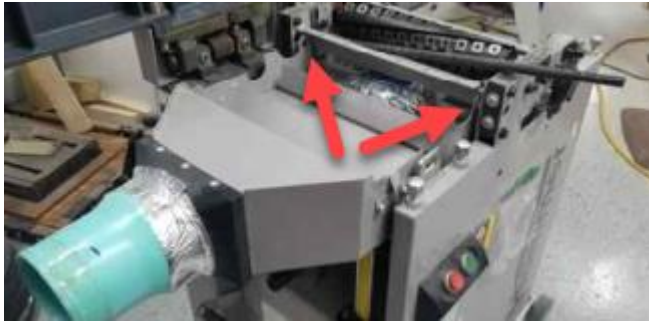


Now you are ready to install the anti-kickback bar and parts and the dust hood.



From left to right are

- 3-34, Kickback arrestor LC, quantity 53
- 3-37, Adjusting ring D15xD25x12, quantity 2
- 3-36, Kickback Distance-LC, quantity 26



Place the dust hood, upside down, on the thickness table.

Adjust the height of the thickness table to support the dust hood and align the holes in the dust hood with the holes in the A3 frame and bearing block.

This alignment will come into play a few times during this part of the re-install.



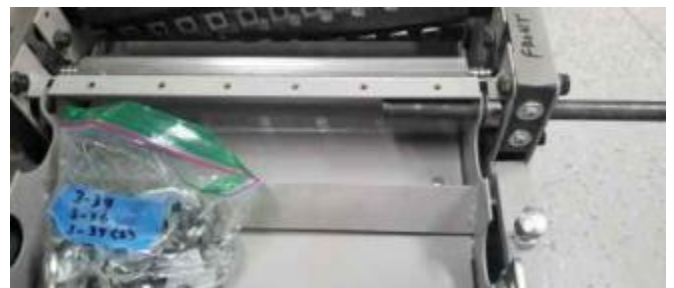
Push the dust hood toward the back of the A3 (now most likely left side) to provide as much room as possible on the front side (right side).

NOTE: See the image on page 38 to aid in the reinstall of the dust hood and anti-kickback bar and parts.

Install 3-37, Adjusting ring D15xD25x12

- This part goes between the A3 frame and the dust hood.
- The flat side goes against the dust hood.

Assuming you have aligned the holes, use your little finger to position the adjusting ring, gently push the rod through the hole in the adjusting ring and the dust hood, extending the rod as in the following image.



Start installing the parts

- First install two - 3-36, Kickback Distance-LC
- Repeat the following until you get only have two 3-34, Kickback arrestor LC and two 3-36, Kickback Distance-LC
 - Three 3-34, Kickback arrestor LC
 - One 3-36, Kickback Distance-LC

- Install the last two 3-34, Kickback arrestor LC
- Install the last two 3-36, Kickback Distance-LC. I used a pair of needle-nose pliers to hold the last part



Push the rod through the hole in the dust hood

- It will be necessary to wiggle the dust hood to get the correct alignment.
- The end of the rod should be flush with the left side of the dust hood hole.



- I used a small pair of vice-grip pliers (the width of the tips were less than the thickness of the part) to hold the 3-37, Adjusting ring D15xD25x12 in the correct position.
- Slide the bar through the 3-37, Adjusting ring D15xD25x12
- Again wiggle the dust hood until you get alignment with the hole in the back frame of the A3 and push the rod until the end is flush with the A3 frame. It should be flush with the front and back side.

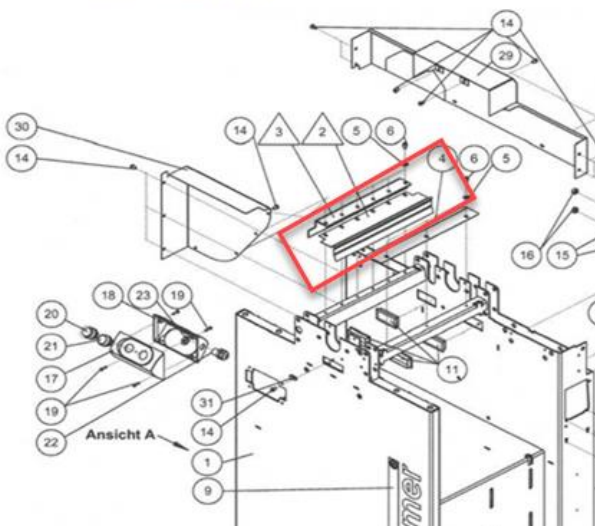


Confirm that everything on the bar is correctly installed. You should see your reference line on all of the kickback arresters, the tips of the arresters should be resting on the frame bar that runs from the front of the A3 to the back of the A3.



Rotate both 3-37, Adjusting rings so you can easily access the set screw.
Securely tighten the set screws (3mm T-handle Allen wrench) to secure the bar in the A3.

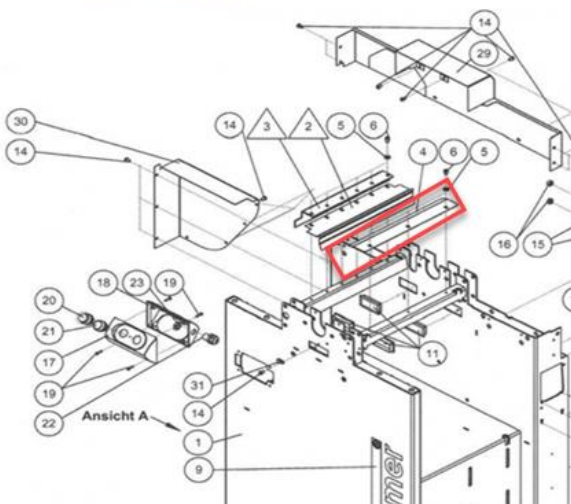
1.1.8-~~Figure 8~~



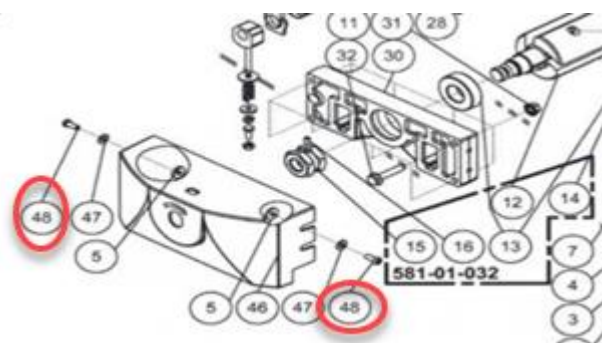
Install the Chip deflector (8-2), and the Chip Stop Plate (8-3) by installing the 6 Allen head screws and washers (8-5, 8-6), 5mm T-handle Allen wrench.



1.1.8-Figure-8

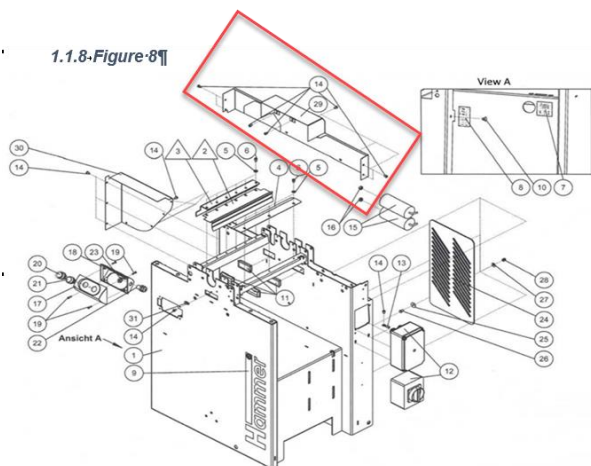


Install screw 8-6, washer 8-5, and pull-out cover sheet 8-4.



Install the Drill Head Protector (3-46), securely tighten the four 4mm screws 3-48

1.1.8-Figure-8



Install the GT aperture (8-29)

There are 9 pan head screws (8-14) that hold this cover on. Just because I added a star washer to each screw.

- 2 on each end
- 3 on the back side
- 2 on the front side

Install the fence.



Align your tables, see A3-31 Alignment 1.7 below, on page 37




1.7 A3-31 Alignment

Most likely it will be necessary to realign your tables. I highly suggest that you watch the YouTube video “Hammer A3-31 Calibration” by Preston Hoffman at <https://www.youtube.com/watch?v=aEq5C5oovFk>.

1.8 Suggested Enhancements

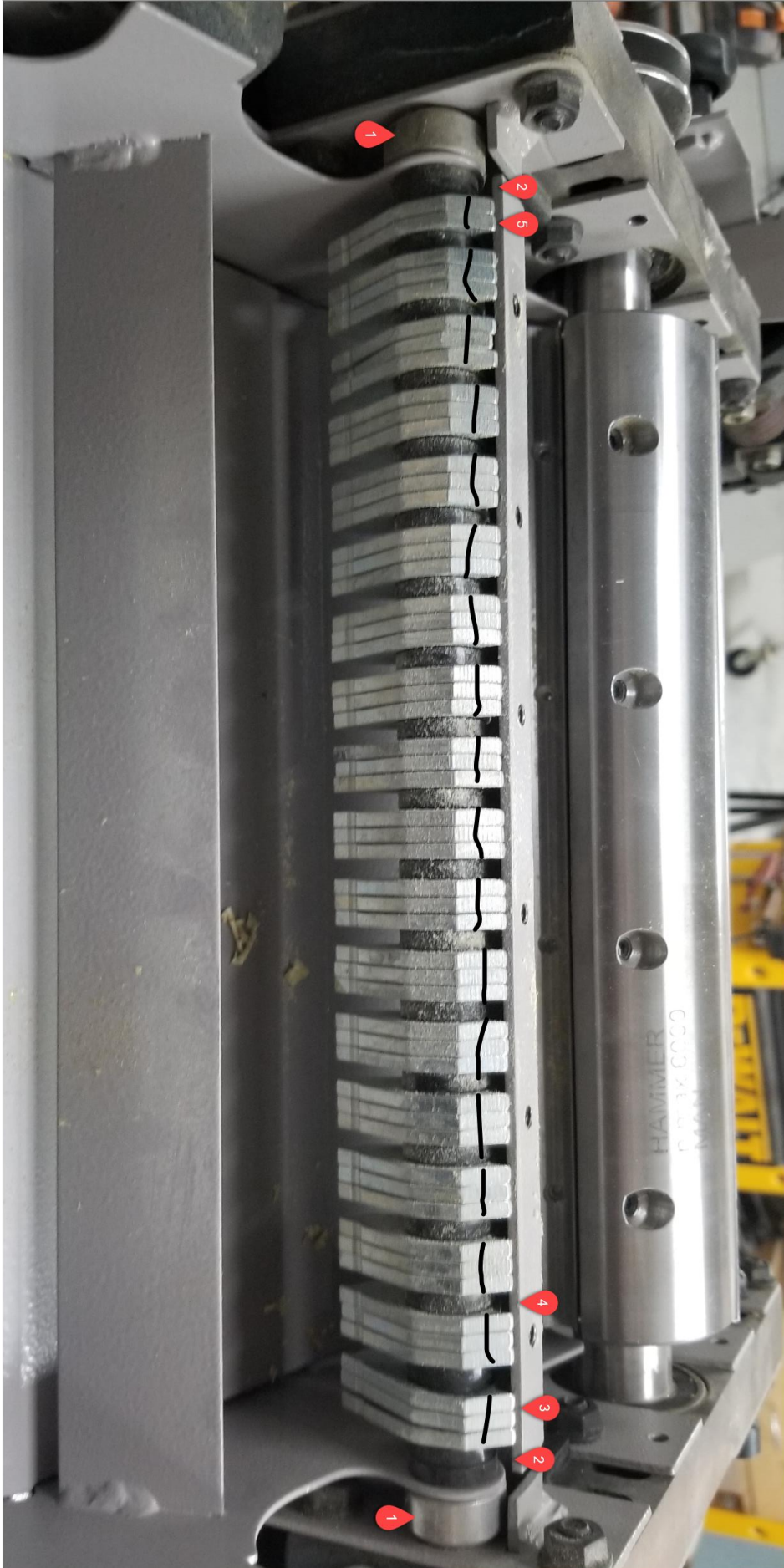
From Jay Bates 2 - Vlog and Non Project Videos-Tool Talk #16_ Hammer A3-41 Jointer Planer Combo Machine, see <https://www.youtube.com/watch?v=J551NV1a794&t=1344s>

I suggest the following:

	<p>I'm forever forgetting which way the darn handle should be. Jay made two marks on the handle, for the Jointer/Planner modes. Depending on which you see you can quickly determine if you have the correct setting.</p> <p>In the image the A3 is set in the Joiner mode.</p>
	<p>To aid in the switch over between Planner/Jointer, Jay determined where the thickness table should be position to move the dust hood to Joiner mode and then added a red line on the scale.</p>
	<p>Using my label printer I printed mm, 1, 2, 3, and 4 and applied them to the scale for the Jointer thickness. After applying the labels I covered them with clear packing tape.</p> <p>I have NOT verified the accuracy of the scale.</p>

1.9 Anti-kickback

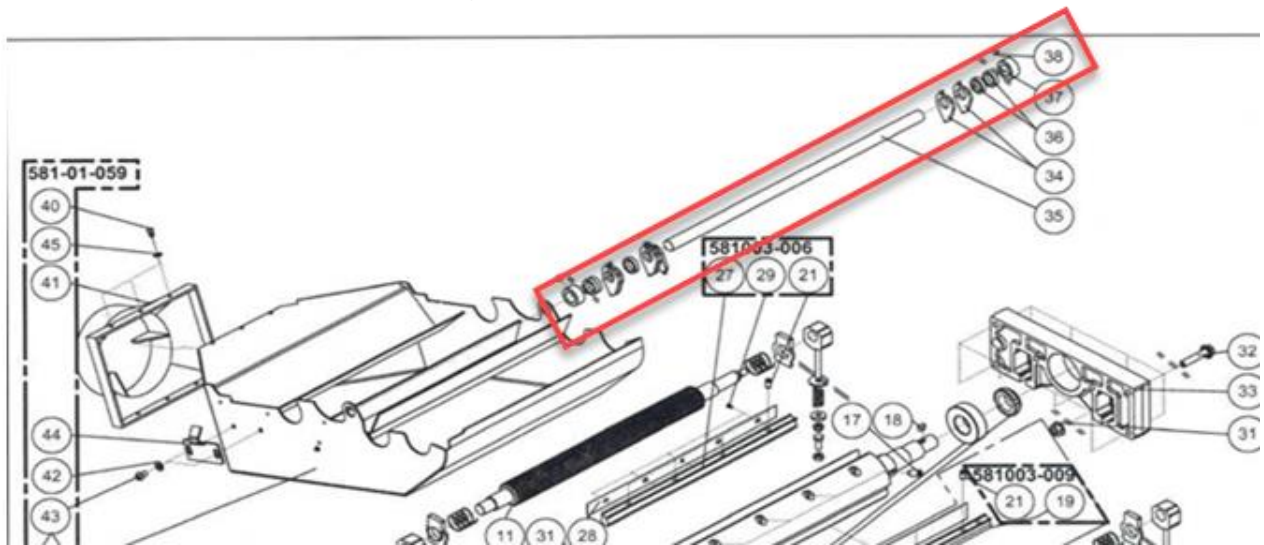
Several notes regarding this are on the next page.



1. On the far right and left are the A3 frame and bearing blocks. The anti-kickback bar runs from the front edge of the A3 frame to the back edge of the A3 frame.



2. From left to right are



- a. 3-34, Kickback arrestor LC, quantity 53
 - b. 3-37, Adjusting ring D15xD25x12, quantity 2
 - c. 3-36, Kickback Distance-LC, quantity 26
3. In the image on the preceding page you see the parts installed. Take note of the different labels.

1	3-37, Adjusting ring D15xD25x12 There a total of two, one goes on each end of the bar between the bearing blocks frame and the dust hood.
2	The first position on the inside of the hood has two spacers
3	Here you start installing a set of three kickback assertors
4	A single space it installed between each set of kickback assertors
5	The last set of assertors is a set of two.