

Operations & Parts Manual



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P20HV

20" Planer

Please ensure you have your serial number available when contacting us for parts or service.

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1. SPECIFICATIONS AND ACCESSORIES AND NAMES OF OPERATING PARTS

1-1 Specifications

Capacity

Max. width of work piece	508mm (20")
Max. thickness Of work piece	203mm (8")
Max. depth Of cut	8mm (5/16")
Min. length Of work piece	200mm (8")

Cutterhead

Number of knives	3pcs
Diameter	80mm (3-1/8")
Cutting Circle	84mm (3-5/16")
Speed	4800RPM

Table Size

Width	562mm (22-5/32")
Length	713mm (28")

Feed Rolls

Infeed (sectional)	76mm-one (3")
Outfeed (solid)	60mm-one (2-3/8")
Table roll (solid)	68mm-two (2-11/16")
Feed Rate	8MPM (one speed)(26.3FPM)

Overall dimension (L x W x H)	1108 x 762 x 1136mm (44 x 30 x 45")
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Packing dimension (L x W x H)	1280 x 800 x 1200mm (51 x 32 x 48")
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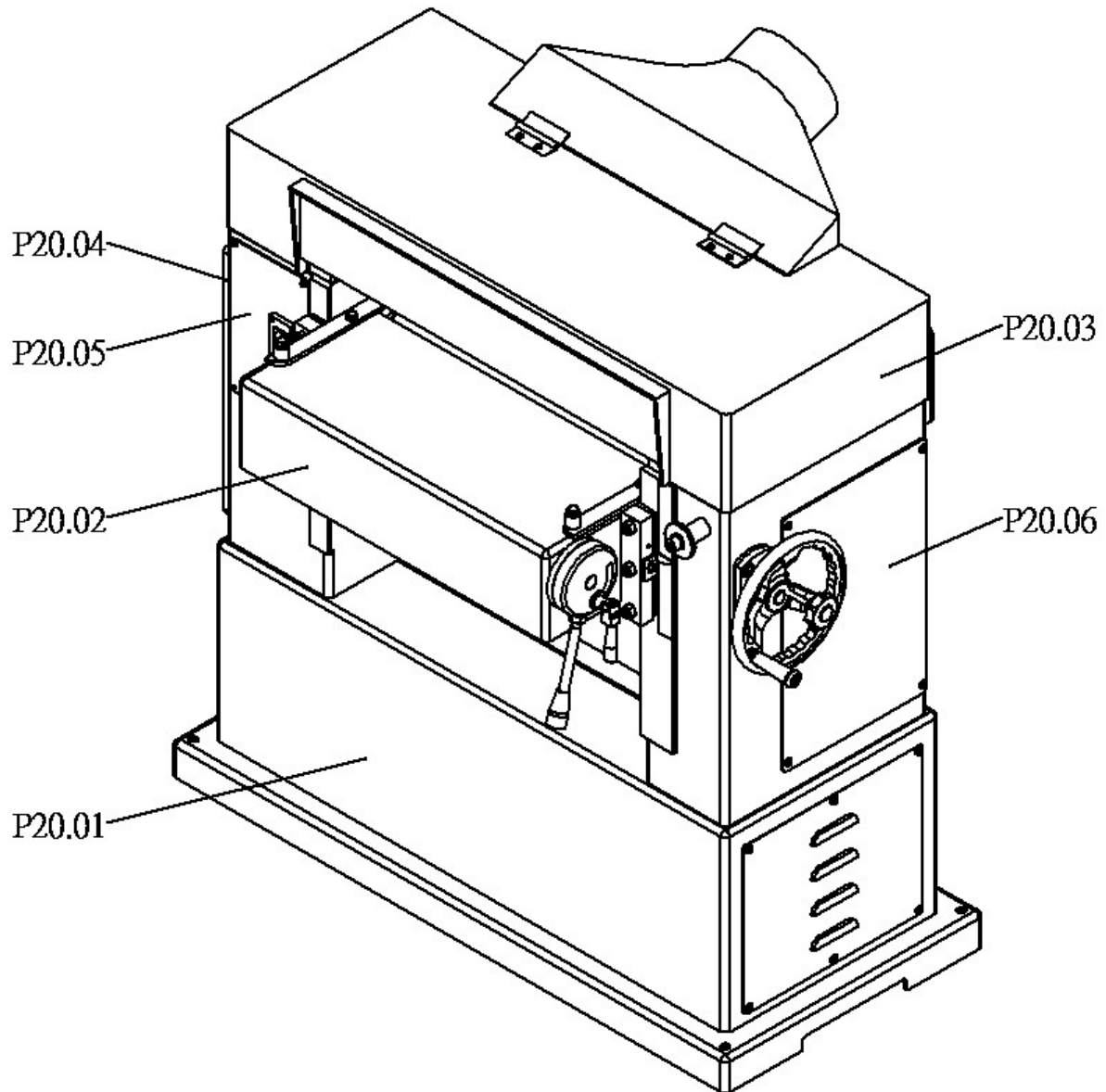
Net weight	420kgs (924lbs)
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Gross weight	520kgs (1144lbs)
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1-2Accessories

Standard :	Knife	1 set
	Adjusting Spanner	1 set
	Service Manual	1 set
	Dust Hood	1pc

1-3 OPERAING PARTS



1. P20.01 BASE DEPT
2. P20.02 WORK TABLE
3. P20.03 UPPER DEMP
4. P20.04 GEAR DEPT
5. P20.05 ELECTRIC DEAR
6. P20.06 SIDE FRAME DERT

2. INSTALLATION

Mount machine on a solid foundation, preferably a concrete floor. The machine area should be clean, dry well ventilated, and well lighted. Since planers can create noise problems, the site selection should be one which minimizes reverberant sound from walls, ceilings and other equipment. Electricals should be installed so that they are protected from damage and exposure. Be sure to properly ground the machine frame.

3. PREPARATION FOR OPERATION

3-1 Inspection

- A. Clean protective coating from all areas and lubricate parts.
- B. Before putting power on the machine, check that all screws are tight, that all mechanical functions work freely and that the cutterhead turns freely without knife contact with the chipbreaker & pressure bar, periodic or regular inspections are required to insure that the machine is in proper adjustment, that all screws are tight, that belts are in good condition, that dust has not accumulated in the electrical enclosures, and that there are no loose or worn electrical connections.

3-2 Power source wiring

- A. Check the motor and switch wiring diagram for proper voltage connections before applying power to the machine.
- B. Connection wires both with electric connection box and power source, the earth wires also must be connected. (green line)
- C. After wire connection is complete, turn the main drive motor on momentarily to check for proper direction of rotation.
- D. Run the machine without cutting for a short period of time to check that all powered functions are operating properly.

3-3 Lubrication

Supply oil to all the necessary position.

3-4 Safety

- A. Grounding of the planer: Make certain that the machine frame is electrically grounded.
- B. Eye safety: Wear an approved safety shield, goggles, or glasses to protect eyes when operating the planer.
- C. Personal protection: Before operating the machine, remove, tie ring, watch and other jewelry and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. DO NOT WEAR GLOVES.
- D. Work area: Keep the floor around the machine clean and free of scrap material, sawdust, oil or grease and tools before starting a cut. Make certain the work area is well lighted and that a proper exhaust system is used to minimize dust. Provide for adequate work space around the machine.
- E. Guards: Keep the machine guards in place at all times when the machine is in use. If removed for maintenance purpose, use extreme caution and replace the guards on completion of the maintenance task before using the planer. DO NOT OPERATE THE MACHINE WITH THE GUARDS OFF.
- F. Do not over reach: Maintain a balanced stance and keep your body under control at all times. Do not over reach.
- G. Maintain tools in top condition: Keep tools sharp and clean for safe and best performance. Dull tools increase noise levels and can cause kickbacks and glazed surfaces. Broken tools or tools that are not securely locked in the cutterhead can be thrown out of the planer causing severe or fatal injury as severe damage to the machine. Check the condition and adjustment of the tools before marking and any cuts.

- H. Hand safety: Keep hands outside the machine. Never reach under the guards to try to clear stock that stops feeding. Do not clear chips and sawdust with hands; use a brush.
- I. Machine adjustments: Make all machine adjustments with power off.
- J. Machine capacity: Do not make any cuts requiring more power than is available on the machine.
- K. Material condition: Do not plane boards with loose knots or with nails or any foreign material on its surface. Knife impact on these objects can cause the knives to be pulled out and cause them to shatter against the chipbreaker or pressure bar. Twisted, warped, or in wind stock should first be jointed on one surface before attempting to plane a parallel surface on planer. Serious stock flaws cannot be removed by use of a planer alone.
- L. Stacked boards: Do not feed stacked boards through a planer a, a kickback can occur causing severe or fatal injury.
- M. Short stock: Do not attempt to plane boards shorter than 8" (203mm) in length with in length without butting a board of equal thickness behind it to help it through the planer. Be sure the last board of a butted sequence is 8" (203mm) long or longer.
- N. Stock stops feeding: if the board being planned stops feeding, disengage or turn the feed off and turn the power off. Wait until the cutterhead comes to a complete stop before lowering the table to remove the board. Never lower the table with the power on and the stock still in the machine. A kickback can occur which could cause a severe or fatal injury.
- O. Avoid accidental starting: Make certain the motor switch is in the off position before connecting power the planer.
- P. Careless acts: Give the work you are doing your undivided attention. Looking around, carrying on a conversation and "horseplay" are careless acts that can result in serious injury.
- Q. Job completion: If the operator leaves the machine area for any reason, the planer should be turned "off" and the cutterhead should come to a complete stop before his departure. In addition; if the operation is complete, he should clean the planer and the work area. Never clean the planer with power "on" and never use the hands to clear sawdust and debris; use brush.
- R. Disconnect machine: Before performing any service of maintenance and when changing knife.

4. MAINTENANCE

4-1 General Maintenance

Warning: Always disconnect power cord when performing any maintenance. Keep machine clean, frequently blow out any dust and chips.

4-2 Lubrication

- A. All slide plates and moving parts should be lubricated regularly to insure ease of operation, use light machine oil.
- B. After a period of time operation, the spindle of cutterhead requires grease to lubricate and to increase its life.
Type of Grease: 1. ShellAlaria Grease R 2.
2. Gulf LEX — A
Time: Once a month regularly.

5. MACHINE ADJUSTMENT

5-1 Work Table:

The work table is raised and lowered by two screws supported on thrust bearings and is guided by machine surfaces on the side panels. The fit-up to prevent the table from rocking is controlled by two gibs in front. These gibs should be adjusted individually using the set screws provided (Fig. 3) so that the ways are lightly contacting on all four surfaces. The gibs should be tight enough to prevent rocking of the table when the planer is in operation.

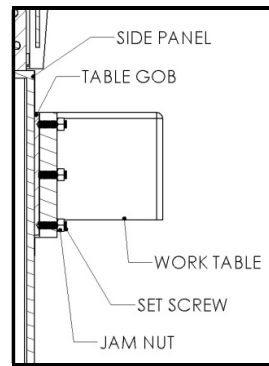


Fig. 3

To do accurate planing, the table must be parallel with the cutterhead. Lack of parallelism results in a taper over the width of a board. Check with knife gage to insure knives have the same protrusion from the cutterhead arc end to end and that each knife is the same.

Place a 5"x5" (127mm x 127mm) gage block (Fig. 4) and shop scale to be used as a feeler gage or bed and table roll gage at the extreme right hand side of the table, rotating head so the knives clear the gage surface. Raise the table with the table raising handwheel until the scale on top of the block just touches the cutterhead. If using the indicator gage, establish the low point of the cutterhead arc by moving the gage front to back for the maximum indicator reading and then zero the dial at this point (Fig. 5). Move the block or indicator gage to the extreme left side of the table. Using the indicator gage or block, find the low point of the cutterhead arc without moving the table height.

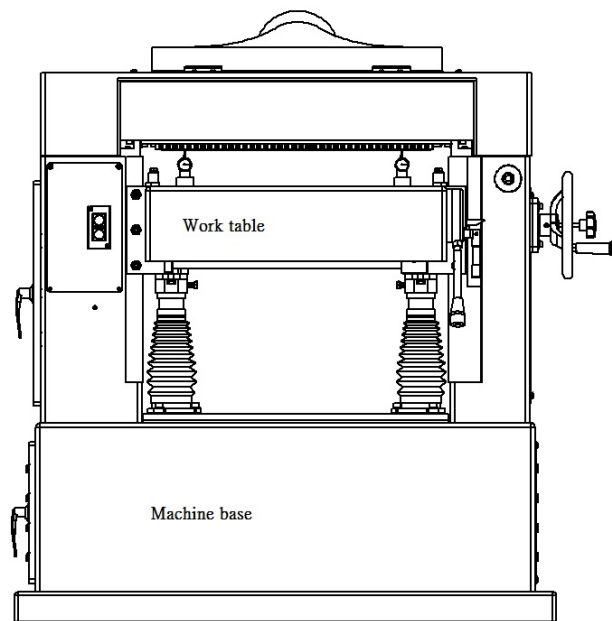
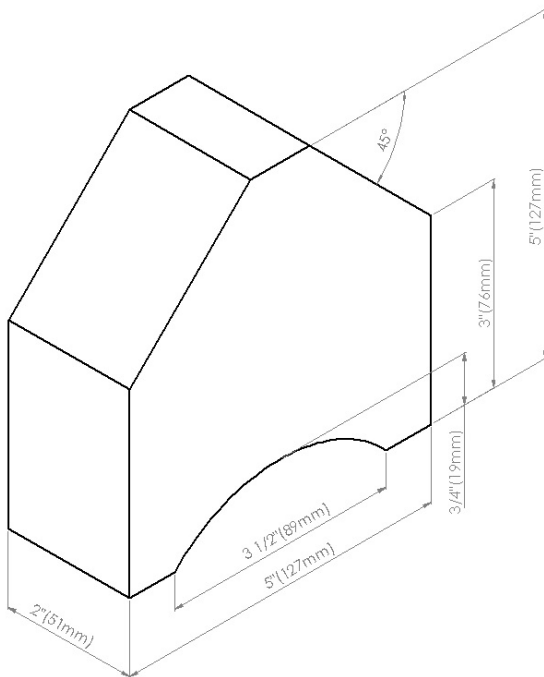


Fig. 4 Fig. 5

Note whether the reading is less than or greater than the right side. If greater on the left side, the right side of the table must be raised; if less, left side of the table must be raised. With the indicator or gage block under whichever side that must be raised, loosen the setscrew locking the threaded flange nut (Fig. 6) from rotation in the table on the side to be raised. Rotate the nut by using a plier and raise that side of the table until the indicator reading or drag feel on the gage block is the same on both sides. Relock the flange nut setscrew in the table. Another method that can be used if the table is free is to loosen the setscrew on the high side of the table and then rotating the table handwheel raising the opposite side until it is level. Relock the flange nut setscrew in the table.

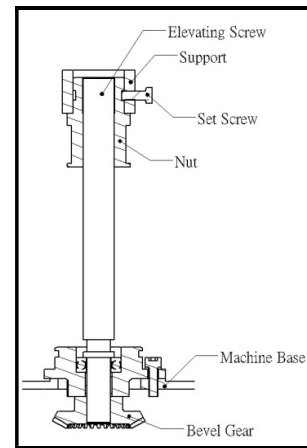


Fig. 6

5-2 Infeed Roll:

The function of the infeed roll is to feed the material into the machine. It is a corrugated roll and when sectionalized is made up of one inch (25.4mm) wide sections with 1/4" (6.4mm) movement in each section to accommodate multiple board surfacing. In addition, the whole assembly is spring loaded to accommodate the full depth of cut. To provide proper drive, it should be set so that the bottom of its arc is -32" (2.38mm) below the arc of the cutter head knives. Putting gage block or a short piece of finished 2x4 lumber notched on the table then place on edge under one knife of the cutterhead, raise the table with the table raising handwheel and rock the cutterhead back and forth until it just touches the gage block or 2x4. Lower the table 1/16" (1.6mm) and move the 2x4 or gage block under the extreme right hand side of the infeed roll. If it will not go in the roll must be raised. If clearing, it must be lowered. Using the adj. screw provided (Fig. 7) unlock the nut and adjust as required so that the roll just touches. Move the 2x4 to the extreme left side and adjust that side as required until the roll just touches the gage.

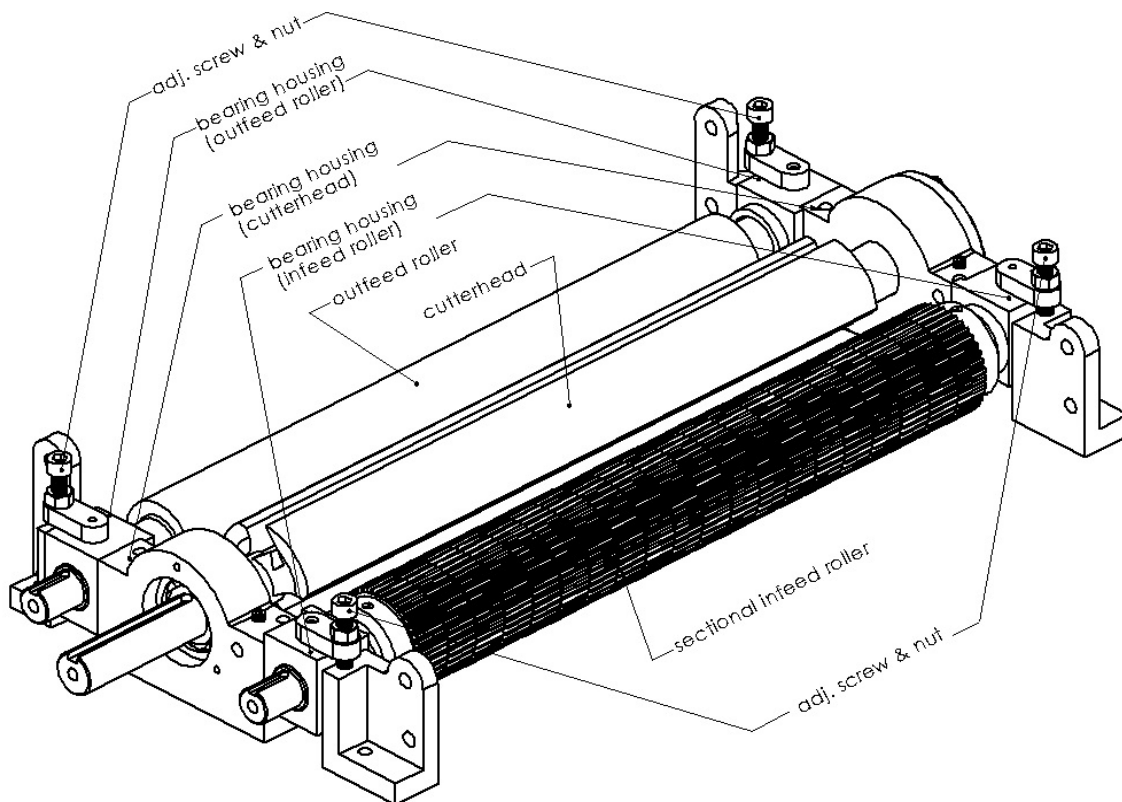


Fig. 7

Recheck the right side and then lock the adj. screw with the nut provided. The most accurate method of setting the infeed roll is with the bed and feed roll gage. Find the low point of the knife arc to the end of the gage then set the infeed roll to 0.062 for sectionalized infeed rolls below the zero point. It is important that the setting on both sides of this infeed roll be close to the same height to help avoid skewing of the material as it is fed through the machine. Infeed roll pressure is controlled by springs and is adjusted by use of screws located under the side panels (Fig. 8) pressure should be slightly higher on the drive side to help avoid skewing of board as it feeds through.

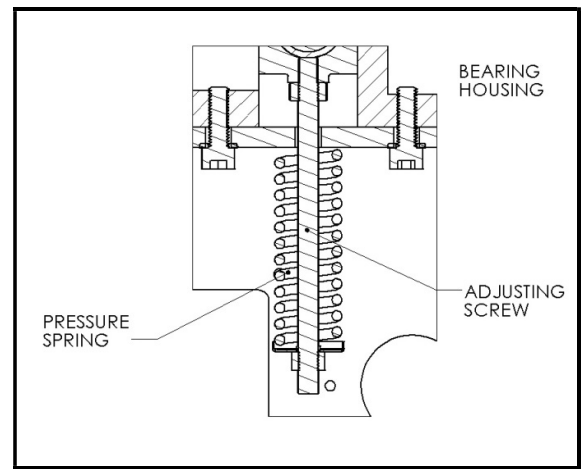


Fig. 8

5-3 Chip Breaker:

The sectionalized chip breaker is constructed of 2" (50.8mm) wide spring-loaded sections mounted on a bar. Each section has approximately 1/4" (6.4mm) independent yield. The functions of the chip breaker are to help avoid splintering out of the wood, to break chips into small pieces, to help avoid board bounce thinner board bounce on thinner boards, to direct the flow of chip out of the machine. And to permit multiple boards surfacing up to 1/4" (6.4mm) difference in thickness on the sectionalized type.

The chip breaker in its free position should 1/32" (0.8mm) below the cutting arc of the knives, the same as the infeed roll, using the same method as indicated for the infeed roll, remove the cover over the top section of the planer, adjust the chip breaker free position using a 2x4 gage block and shop scale of the proper thickness and adjusting screws at each end. It is important that each end be close to the same height to help avoid skewing of the material as it is fed through the machine (Fig. 9)

(Caution: A chip breaker set too low may prevent stock from feeding into the machine.)

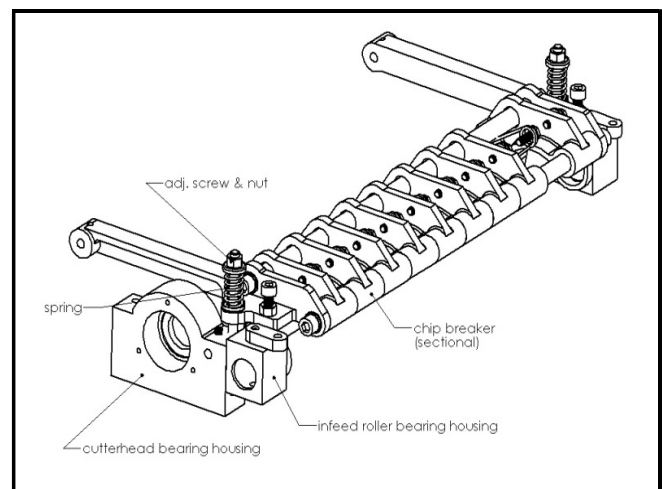


Fig. 9

5-4 Outfeed Roll:

The outfeed roll is smooth and of one-piece construction to help avoid marring the finished surface of the material being cut. Its function is to continue to feed the material through the machine after it leaves the infeed roll. The correct free position setting is 1/32" (0.8mm) below the arc of the cutterhead knives. Using the gage block or a finished 2x4 on edge with a 1/32" (0.8mm) shop scale on top under the cutterhead, raise the table and rock the cutterhead to establish the low point of the knife arc. Remove the scale and position the gage or 2x4 under the right side of the outfeed roll. Raise or lower its right hand bearing support with the adj. screws provided (Fig. 8) to a light drag fit. Move the gage or 2x4 under the left hand end and adjust in the same way. The most accurate method of setting the outfeed roll is with the bed and feed roll gage. Zero the gage to the low point of the cutterhead arc and set each end of the outfeed roll to .031 (0.787mm) below the zero on both sides. Lock the adj. screws with the nuts provided. Out feed roll pressure is controlled by springs and is adjusted by use of screws located under the side panels (Fig. 8). Unbalanced pressure can result in skewing of the board as it feeds through.

5-5 Pressure Bar:

Most planing problems can be related to improper setting of the pressure bar. Its functions are to hold the material down after it passes under the cutterhead and throughout the remainder of the cut. Its basic setting is to be in line with the arc of cutterhead knives. If it is too high, a shallow clip will occur in each end of the board. If it is too low, stock will not feed through. (Fig. 10) With a bed and feed roll gage or a gage block and a 1/32"(0.81mm) thick 6"(152mm) scale as a feeler placed under the cutterhead, raise the table with its elevating handwheel to determine the low point of the arc of a cutterhead knife. Move the gage or gage block and scale under the low point of the extreme right hand side of the table and adjust that end of the pressure bar to be in line with the low point of the knife arc. Move the gage or gage block and scale to the extreme left hand side and adjust that side to be in line with the low point of the knife arc. Using the bed and feed roll gage set the full length of the pressure bar to be .000-0.001(0.02mm) above the arc of the cutterhead. This initial setup is a starting point and final adjustment may have to be made during a test cut.

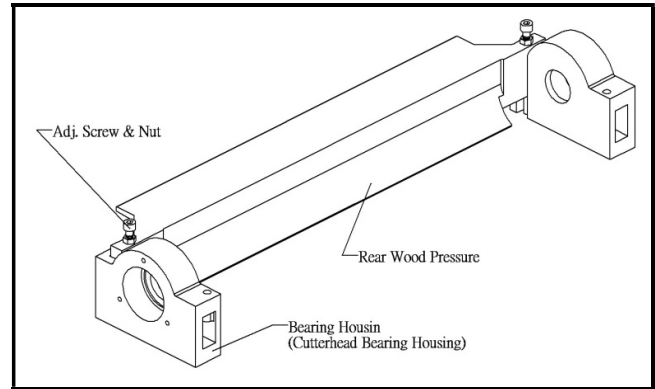


Fig. 10

5-6 Table rolls

Two table rolls are provided on the planer to help reduce the friction of the stock on the table as it feeds through the machine. The required height of table rolls are according to that whether the bottom face of stock is flat or rough. The standard setting is 0.007" above the table, if the gage shows the position is too height or too low. Lossen the jam nut just beneath the bearing hou.sing, and turn the adjusting screw until the proper position then lock the jam nut (Fig. 7)

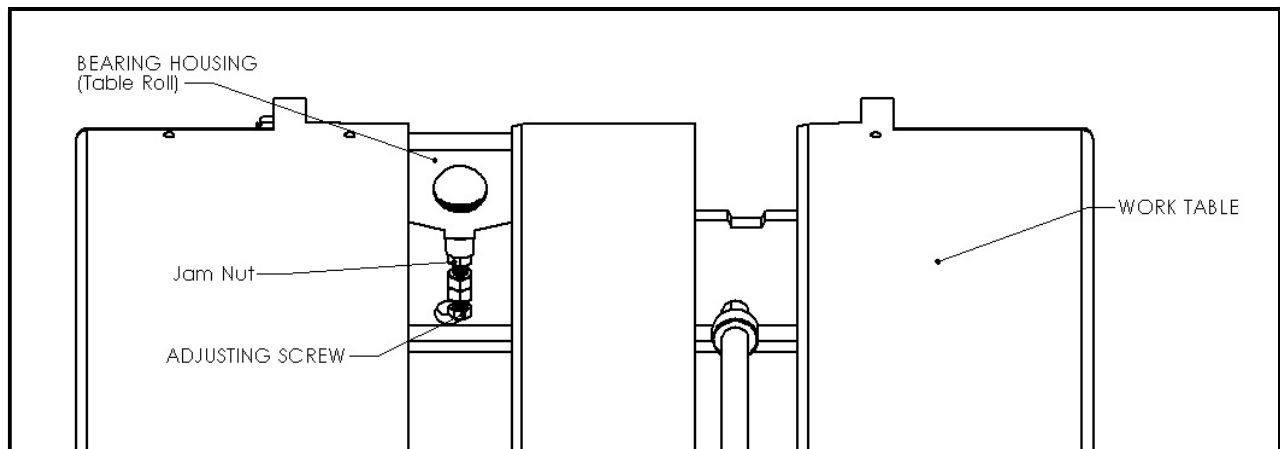


Fig. 7

5-7 Test cutting

Using a piece of semi-finished stock, set up for a 1/16" (1.58mm) deep cut with the quick-set adjustment at zero. Start the machine, and standing to the left-hand side begin feeding the stock into the machine.

CAUTION: Never stand directly behind stock or allow anyone else to do so and do not bend down to see how the stock is feeding. Should a kickback occur, a serious or fatal injury could result.

The infeed roll should take the material and force it under the chip breaker and cutterhead. If the material feeds through effortlessly, examine the finished cut carefully for imperfections. Learning to read a board for imperfections will save hours in adjusting a planer to operate properly. If "chip"marks occur in each end of the board, the pressure bar is too high. Turn both right and left hand adjusting screws the same amount, and take another 1/16" (1.58mm) deep cut.

Re-examine the board. Continue the operat-adjust procedure until the clip marks disappear. Should the board fail to feed through, back off slightly on both adjusting screws until feeding is smooth and the imperfections do not reappear. Lock the pressure bar adjusting screws with the jam nuts provided.

CAUTION: Do not adjust pressure bar with cutterhead running.

Note: Adjustment of the pressure bar will be required whenever knives are resharpened and because wear which will occur on the cutting edge of the knives, causing feed to be restricted. Feed restriction can also occur due to pitch buildup on the table. Be sure the table surface is clean and dusting the surface with talc occasionally will aid in smoother feeding and help to prevent pitch buildup.

5-8 Knife Installation

Knife installation on planer can be a difficult and exacting process. If the knives are not to be jointed and ground, end to end and knife to knife relationship must be held within 0.001" for accurate and smooth planing. To help avoid cutterhead distortion in changing out a set of knives, remove and replace the knife in one slot before changing the next knife.

- A. Clean all dust, chip, pitch and accumulated foreign matter from a cutterhead slot and off of its gib.
- B. Working with one slot, drop knife spring in their holes located in each slot.
- C. With the knife and gib against each other and the concave shaped surface of the gib up, insert into the slot. The back edge of the knife bevel should be slightly below the outside diameter of the cutterhead. Lightly tighten the two outside and center gib screw. (Fig. 8)

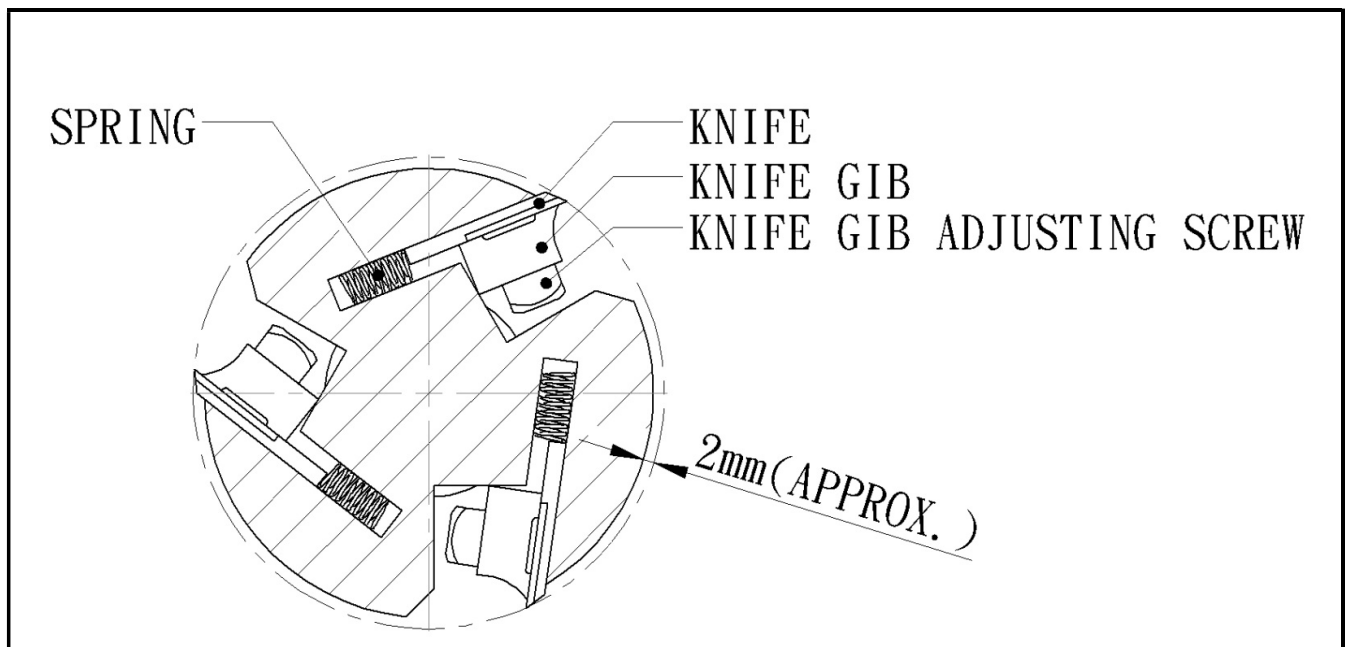


Fig. 8

- D. Take the cutterhead knife gage (Fig. 9) on the cutterhead outside diameter.

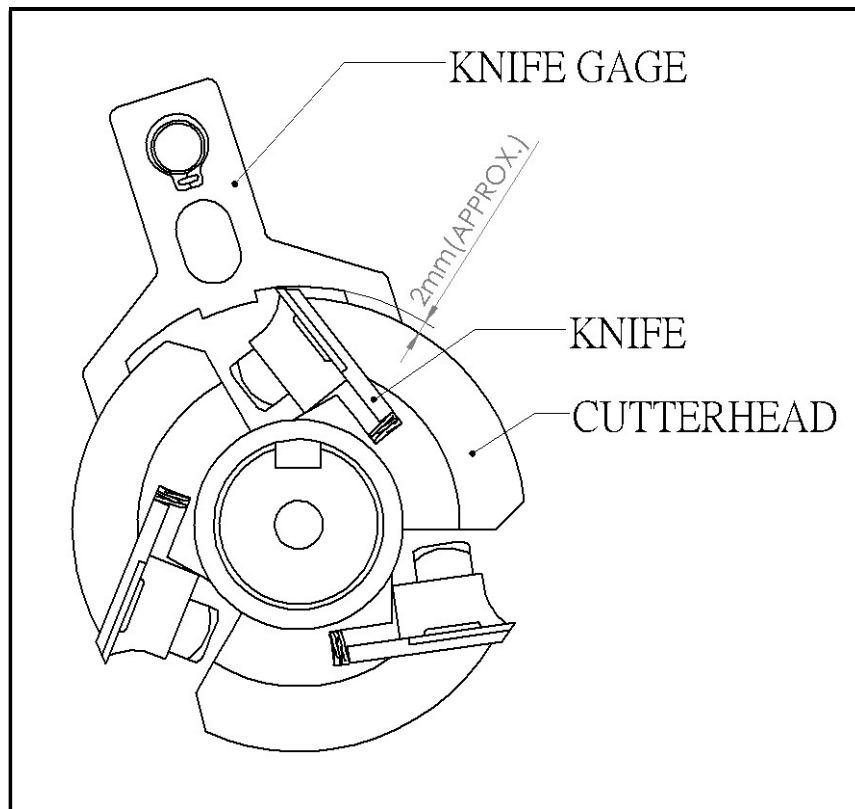


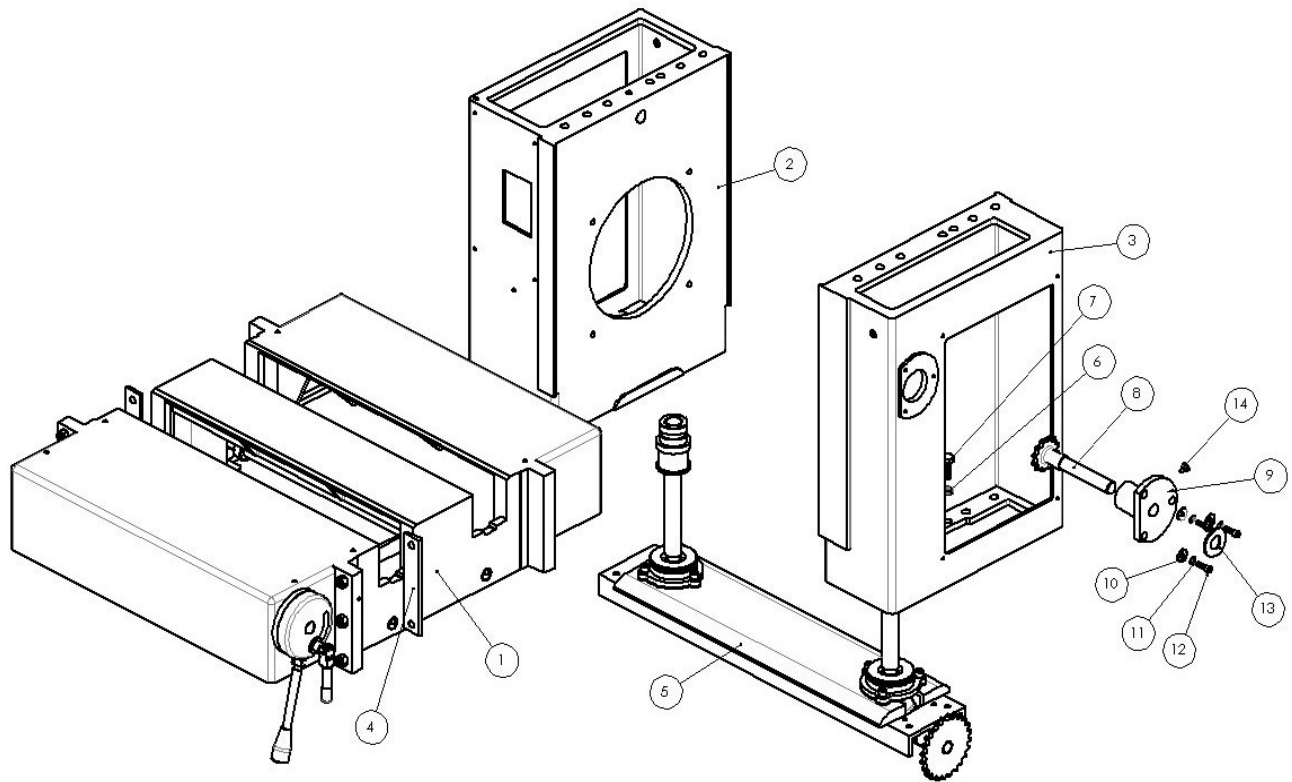
Fig. 9

- E. Using an open-end wrench to slightly loosen knife gib adjusting screws, raise the knife by spring to be approximately 2 mm projection from the cutterhead body. Check the full length of the knife and be sure it is the same height.
- F. Starting from the center outward, snug down all gib screws and then repeat process locking them.
- G. Repeat the preceding method on successive knives making sure that the height from knife to knife is the same within 0.001".
- H. After all knives have been installed, recheck all gib screws to be sure they are tight. Loose gib screws can result in knives being thrown out of the cutterhead causing severe damage to the machine and possible serious or fatal injury to the operator or bystanders.

Note: If all knives have been removed, a new set must be installed without locking the gibs until all knives and gibs are in and the gib screws lightly snugged down. The locking process should proceed working from the center out on each knife and after locking all gib screws once, repeat the same sequence until all screws are equally tight. Locking one knife in without the other in position can cause cutterhead distortion.

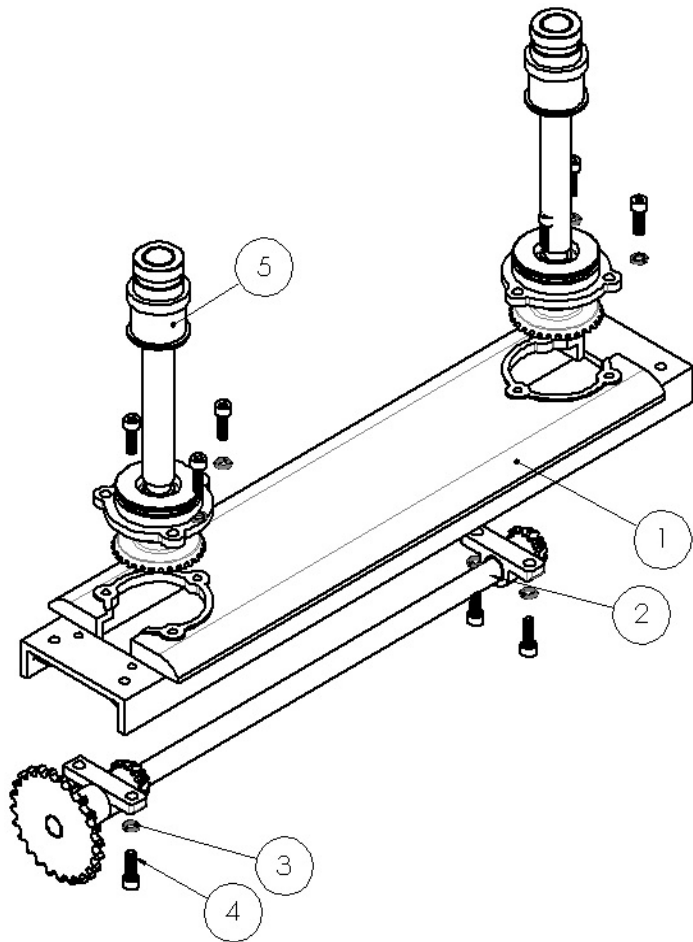
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	T012006	Work Table Assembly	1
2	C003001	Left Base	1
3	C003002	Right Base	1
4	C007001	Gib	2
5	G002002	Elevator Bolt Assembly	1
6	S284008	Spring Washer, Φ 10.2	4
7	S137030	Hex. Head Screw, M10-P1.5	4
8	C067013	Sprocket	1
9	C015017	Support, Handle	1
10	S282009	Washer, Φ 6.4	3
11	S284006	Spring Washer Φ 6.1	3
12	S201020	Hex. Socket Head Screw, M6-P1.0	3
13	S282014	Washer, Φ 20	1
14	S319201	Oil Fitting	1
15	S307086	40 Chain	1



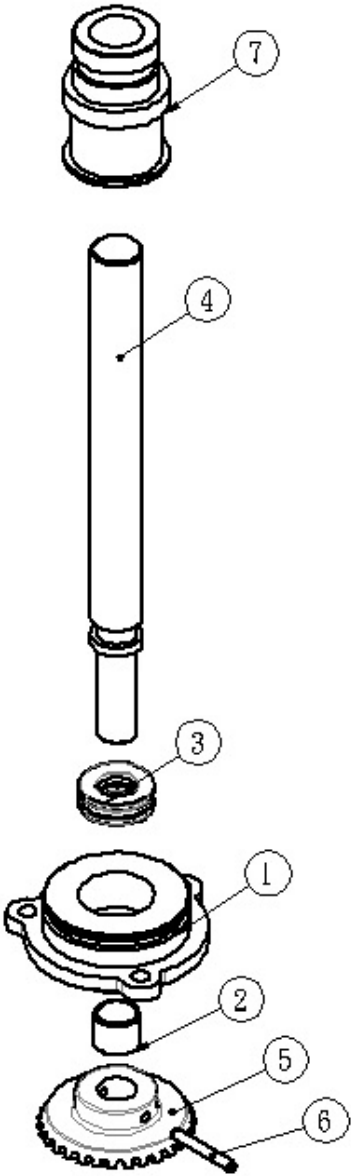
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C015014	Plate	1
2	T016002	Level Gear	1
3	S284007	Spring Washer, $\Phi 8.2$	10
4	S202025	Hex.Socket Head Screw,M8-P1.25	10
5	T003003	Level Screw	2



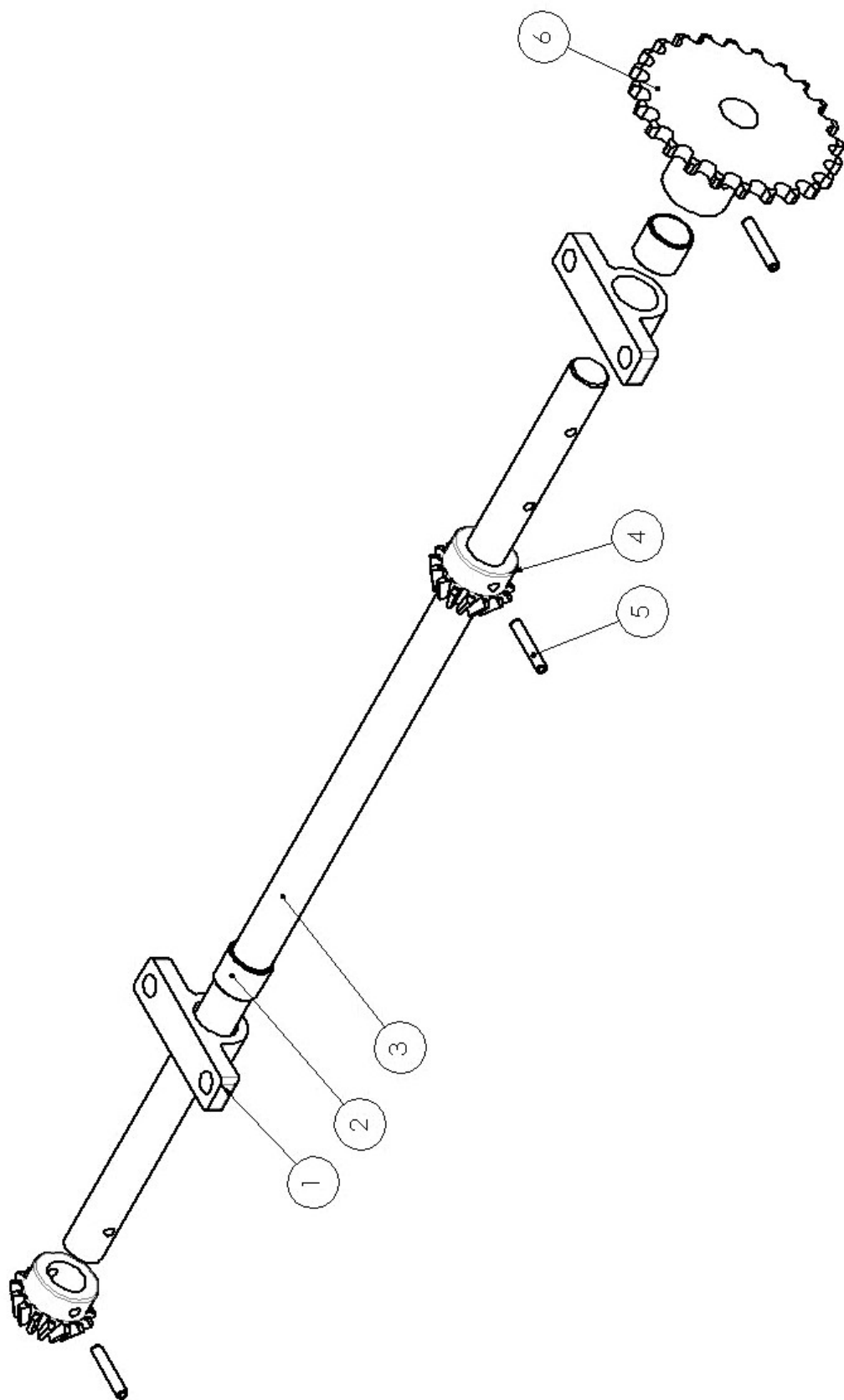
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C009021	Support	1
2	P051001	Brass Bearing	1
3	S043004	Thrust Bearing	1
4	C035001	Shaft	1
5	C028001	Gear	1
6	S267512V	Spring Pin, $\Phi 5$	1
7	C037002	Collar	1



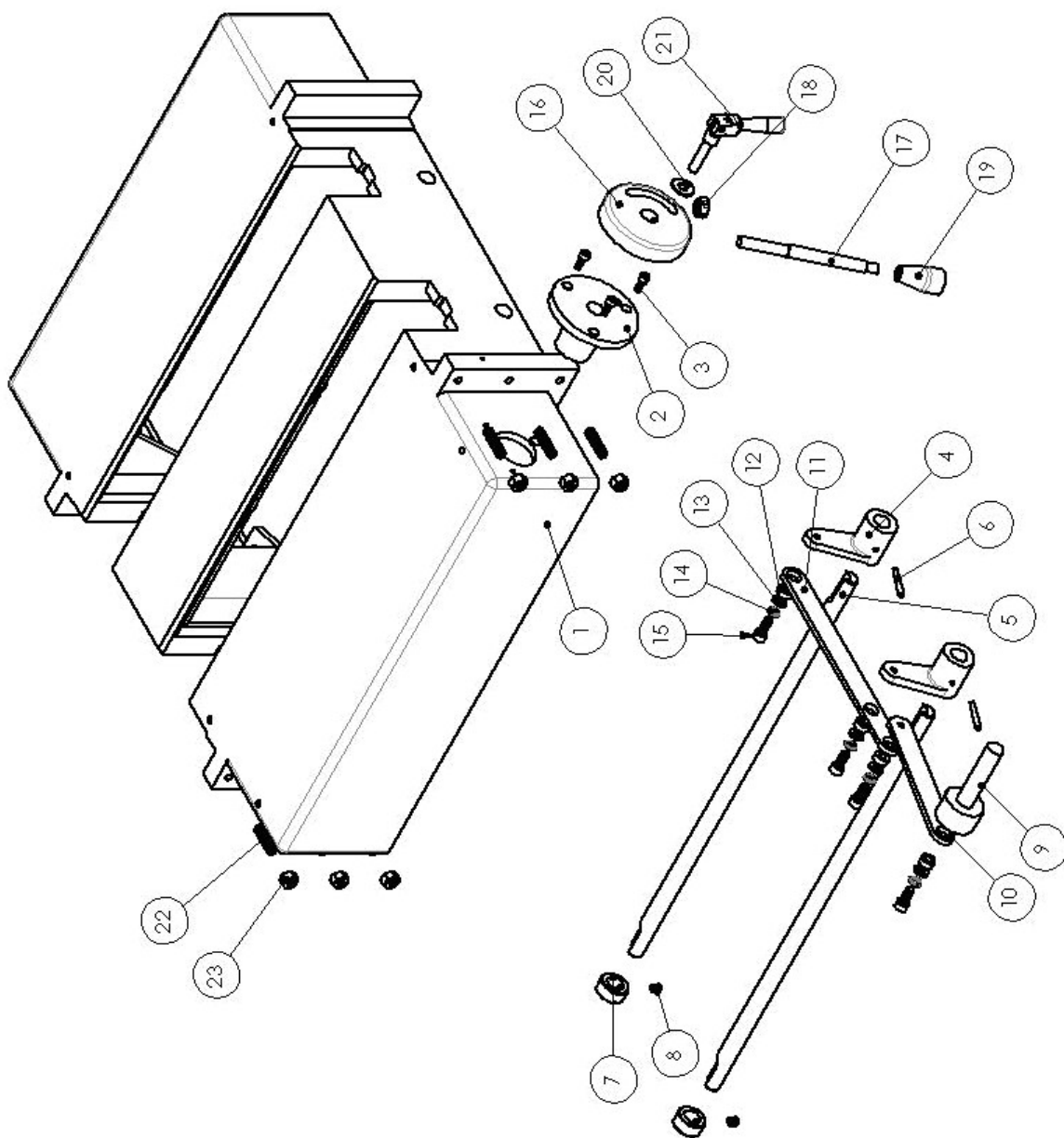
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C015015	Support	2
2	P051001	Brass Bearing	2
3	C047006	Shaft	1
4	C028002	Bevel Gear	2
5	S267510V	Spring Washer	3
6	C067018	Sprocket	1



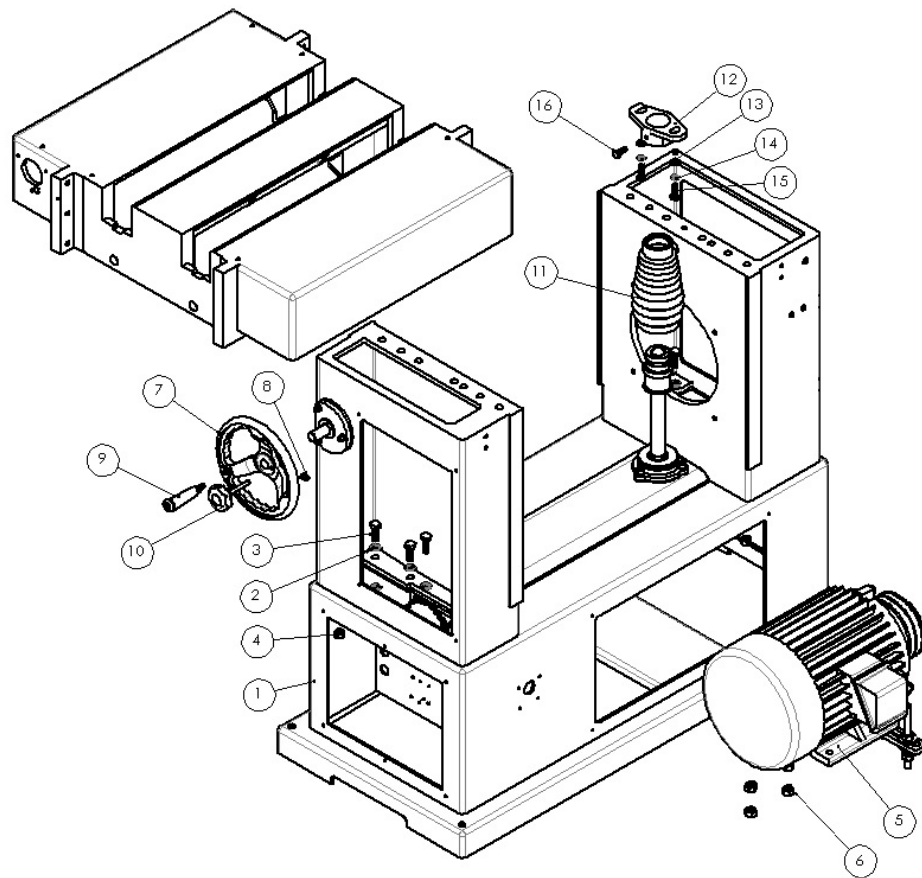
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C006009	Work Table	1
2	C015018	Support	1
3	S201016	Hex.Socket Head Screw,M6-P1.0	3
4	C017013	Elevator Arm	2
5	C046009	Rod	2
6	S267512V	Spring Pin,Φ5	2
7	C051008	Bushing	2
8	S213015	Set Screw,M8-P1.25	2
9	C046010	Shaft	1
10	C049011	Short Plate	1
11	C049010	Long Plate	1
12	C051022	7L Bushing	4
13	S282010	Washer,Φ8.4	4
14	S284007	Spring Washer,Φ8.2	4
15	S202020	Hex.Socket Head Screw,M8-P1.25	4
16	C017014	Hub	1
17	C057006	Lever	1
18	S273012R	Nut,M12-P1.75	1
19	P029214Y	Knob,3/8"-16NC	1
20	S282011	Washer,Φ10.5	1
21	P028001	Lever Locker	1
22	S214035	Set Screw,M10-P1.5	6
23	S273010R	Nut,M10-P1.5	6



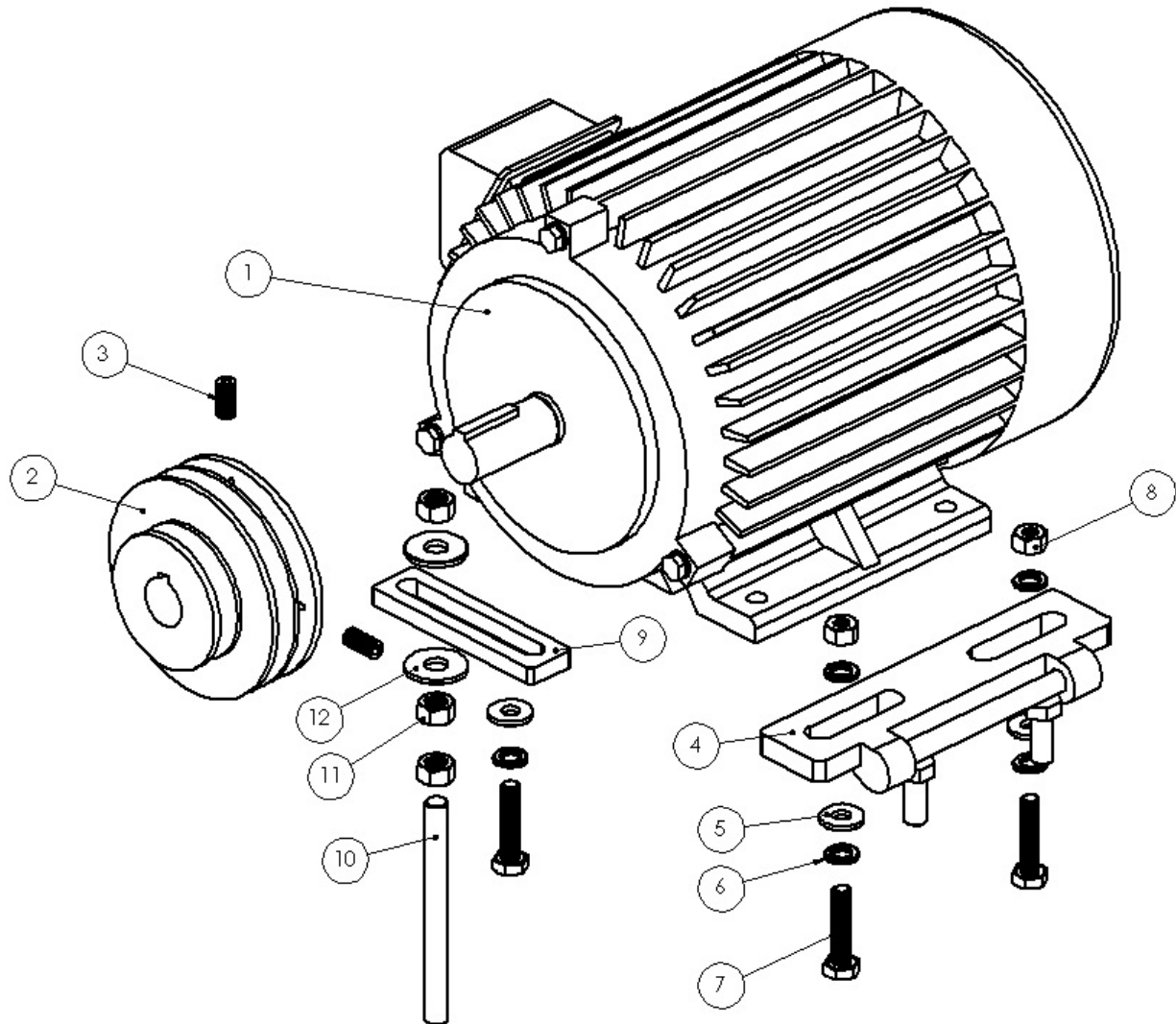
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C002002	Base	1
2	S284008	Spring Washer, Φ 10.2	24
3	S137030	Hex.Head Screw,M10-P1.5	16
4	S273010R	Nut,M10-P1.5	15
5	T004010	Motor Assembly	1
6	S273012R	Nut,M12-P1.75	5
7	P025053G	Handwheel	1
8	S213012	Fixed Screw,M8-P1.25	1
9	P028014N	Knob	1
10	P031006	Star Knob	1
11	C078003	Boost, Bolt	2
12	C015022	Support, Bolt	2
13	S282010	Washer, Φ 8.4	4
14	S284007	Spring Washer, Φ 8.2	4
15	S136025	Hex. Head Screw,M8-P1.25	4
16	S136020	Hex.Head Screw,M8-P1.25	2



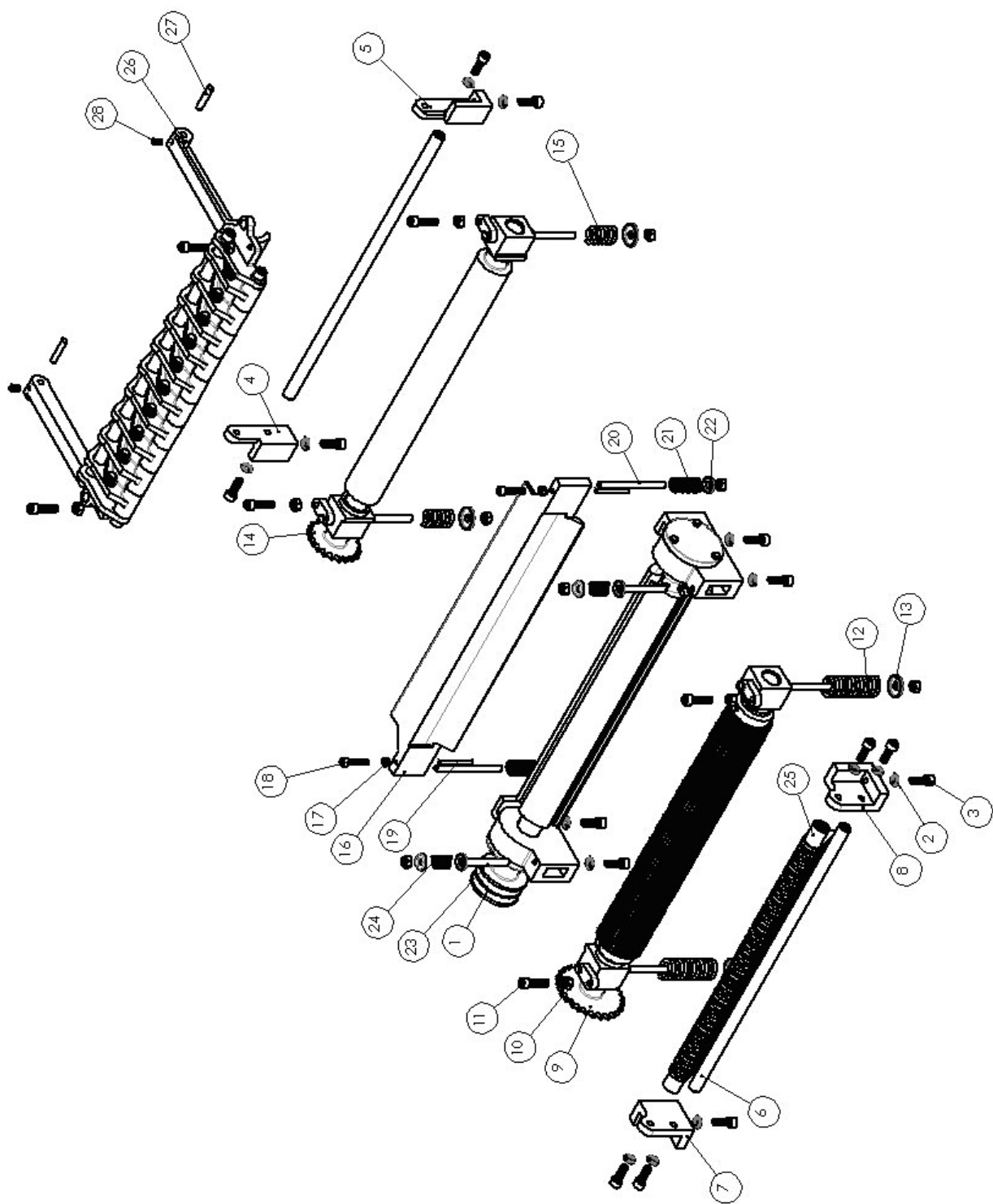
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	P041206R	Motor,2Px5HP(3.7KW).R	1
2	C064021	Pulley,2Px5HP,50HZ	1
*	C064022	Pulley,2Px5HP,60HZ	1
3	S214020	Fixed Screw,M10-P1.5	2
4	C063003	Support, Motor	1
5	S282111	Washer, Φ 10.2	3
6	S284008	Spring Washer, Φ 10.2	6
7	S137045	Hex. Head Screw,M10-P1.5	3
8	S273010R	Nut,M10-P1.5	3
9	C015033	Support, Motor	1
10	C048005	Bolt, Motor	1
11	S282114	Washer, Φ 13	2
12	S273012R	Nut,M12-P1.75	3



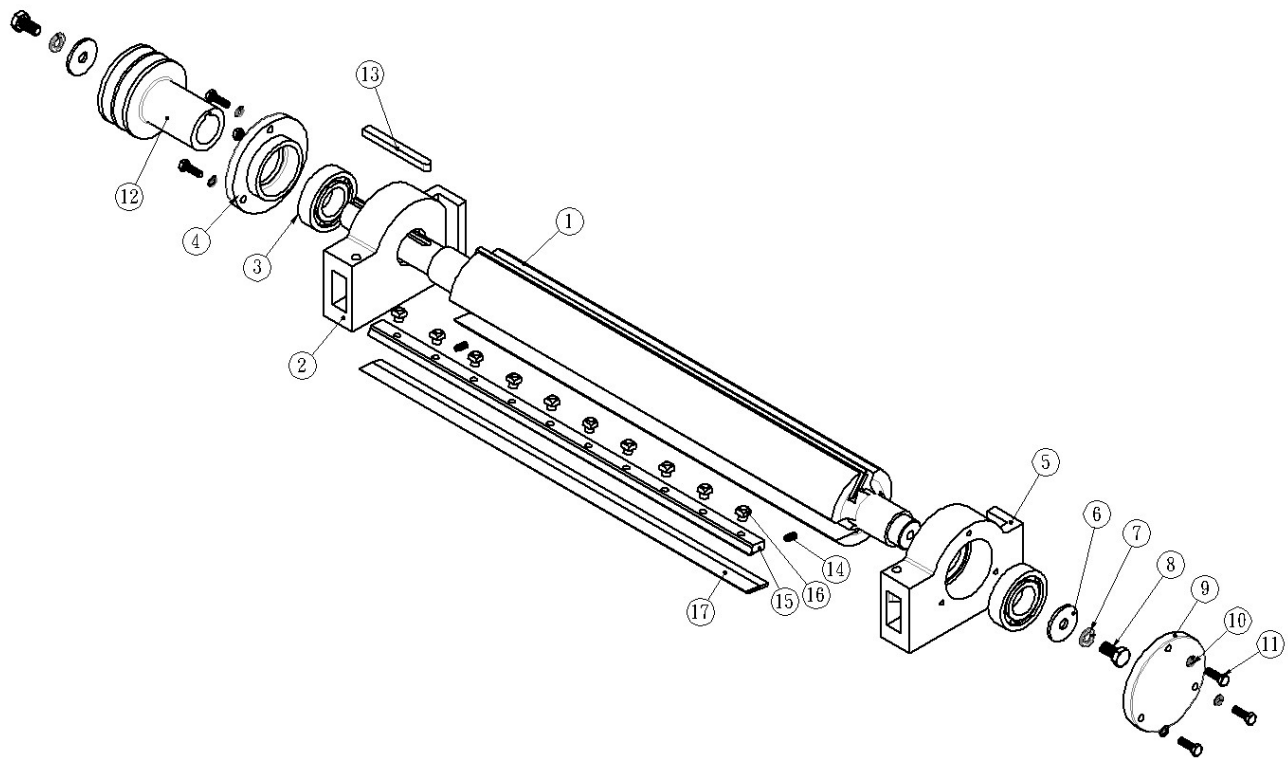
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	T001006	Cutterhead Assembly	1
2	S284008	Spring Washer, Φ 10.2	14
3	S203030	Hex. Socket Head Screw,M10-P1.5	14
4	C015029	Left Support, Front Press	1
5	C015096	Right Support, Front Press	1
6	C046015	Shaft	2
7	C015032	Right Support, Anti-Kickback	1
8	C015097	Left Support, Anti-Kickback	1
9	T010006	Infeed Roller Assembly	1
10	S273010R	Nut,M10-P1.5	14
11	S203040	Hex. Socket Head Screw,M10-P1.5	6
12	C060007	Spring	2
13	C053022	Φ 35 Washer	4
14	T011002	Outfeed Roller Assembly	1
15	C060012	Spring	2
16	C042010	Rear Press	1
17	S273008R	Nut,M8-P1.25	2
18	S202040	Hex. Socket Head Screw,M8-P1.25	2
19	C046055	Shaft, Rear Press	2
20	C034023	Bolt	2
21	C060009	Spring	2
22	C053023	Φ 25 Washer	6
23	C034021	Bolt, Front Press	2
24	C060040	Spring, Front Press	2
25	T009007	Anti-Kickback Assembly	1
26	T009005	Front Press Assembly	1
27	C046016	Shaft, Front Press	2
28	S213014	Fix Screw	2



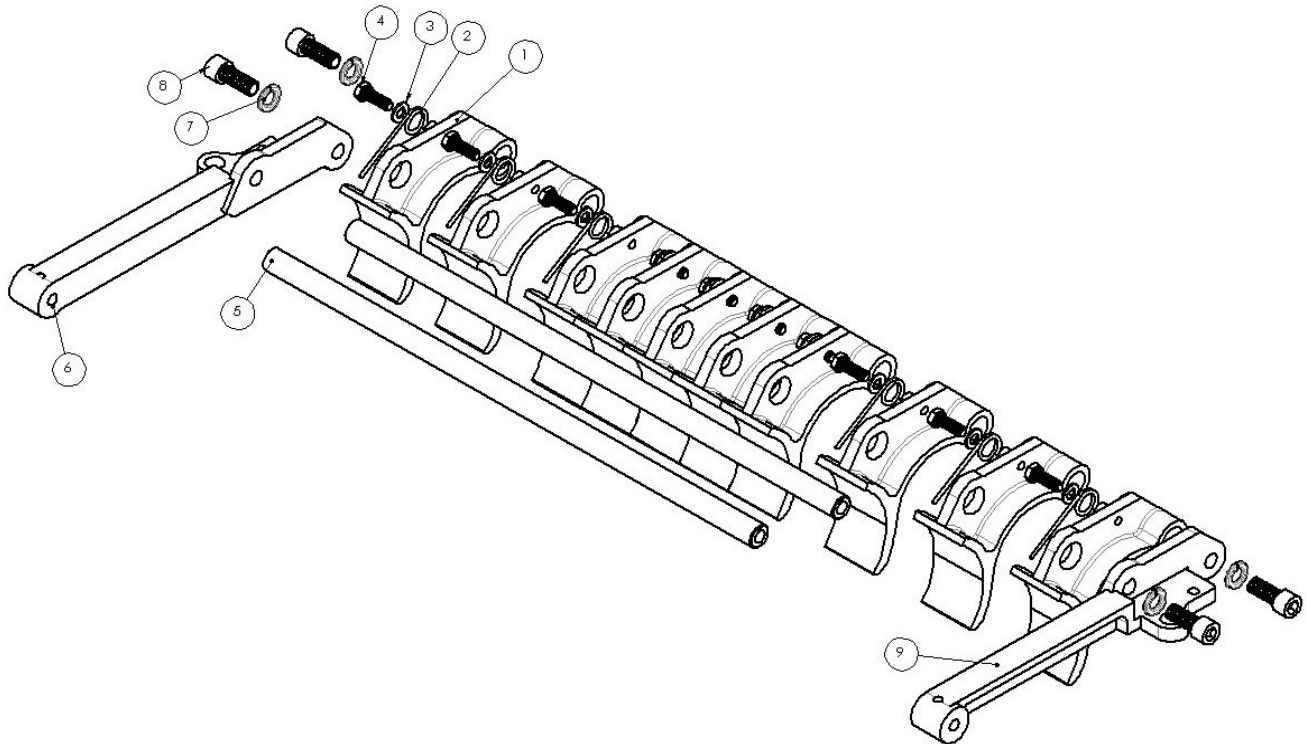
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C011002	Cutterhaed	1
2	C009016	Left Housing, Bearing	1
3	S026206ZZ	Bearing	2
4	C010005	Cover, Left Housing	1
5	C009050	Right Housing, Bearing	1
6	S282113	Washer, $\Phi 10.5$	2
7	S284008	Spring Washer, $\Phi 10.2$	2
8	S137020	Hex. Head Screw, M10-P1.5	2
9	C010006	Cover, Right Housing	1
10	S284006	Spring Washer, $\Phi 6.1$	6
11	S135020	Hex. Head Screw, M6-P1.0	6
12	C064023	Pulley	1
13	S003183	Key	1



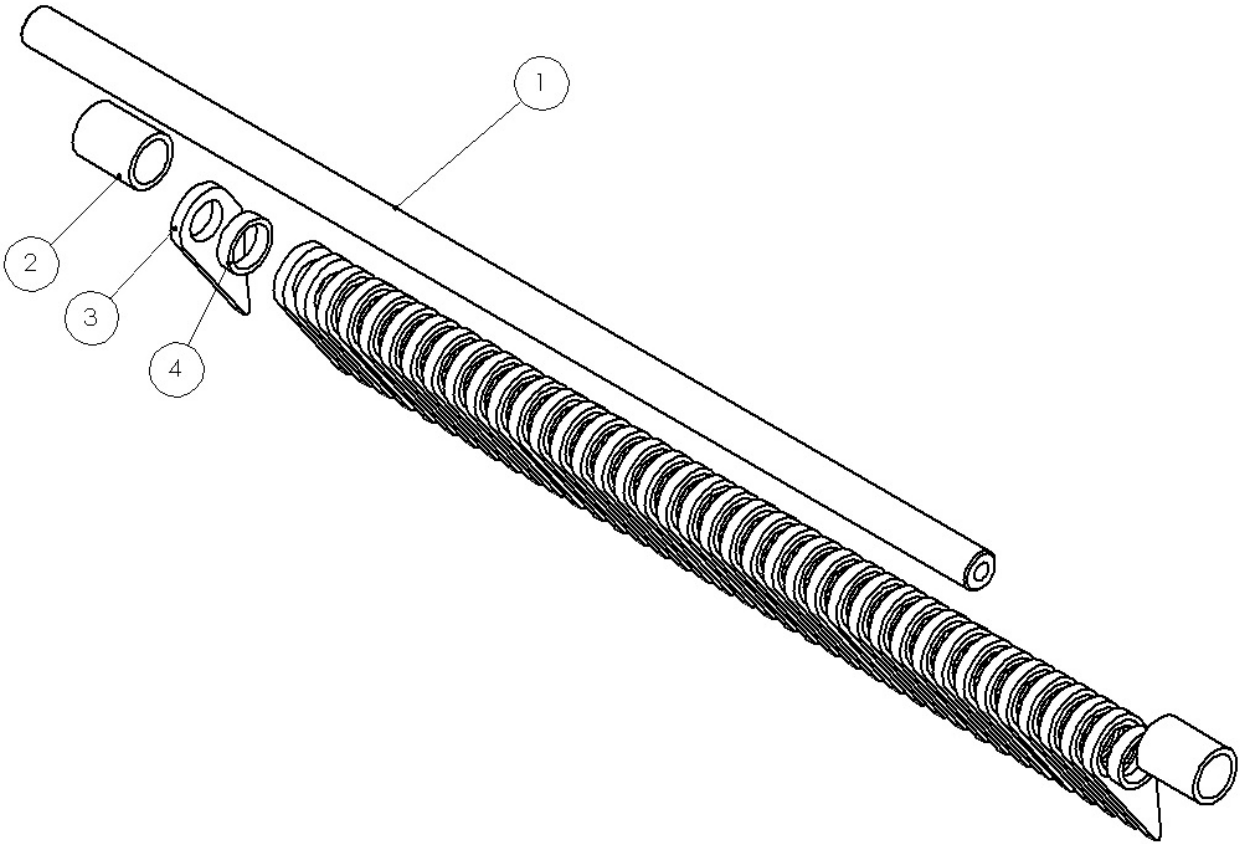
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C042009	Chipbreaker	10
2	C060008	Spring	10
3	S282010	Washer, $\Phi 8.4$	10
4	S136025	Hex. Head Screw, M8-P1.25	10
5	C048004	Shaft	2
6	C015095	Support(L)	1
7	S284009	Spring Washer, $\Phi 12.2$	4
8	S204030	Hex. Socket Head Screw, M12-P1.75	4
9	C015031	Support(R)	1



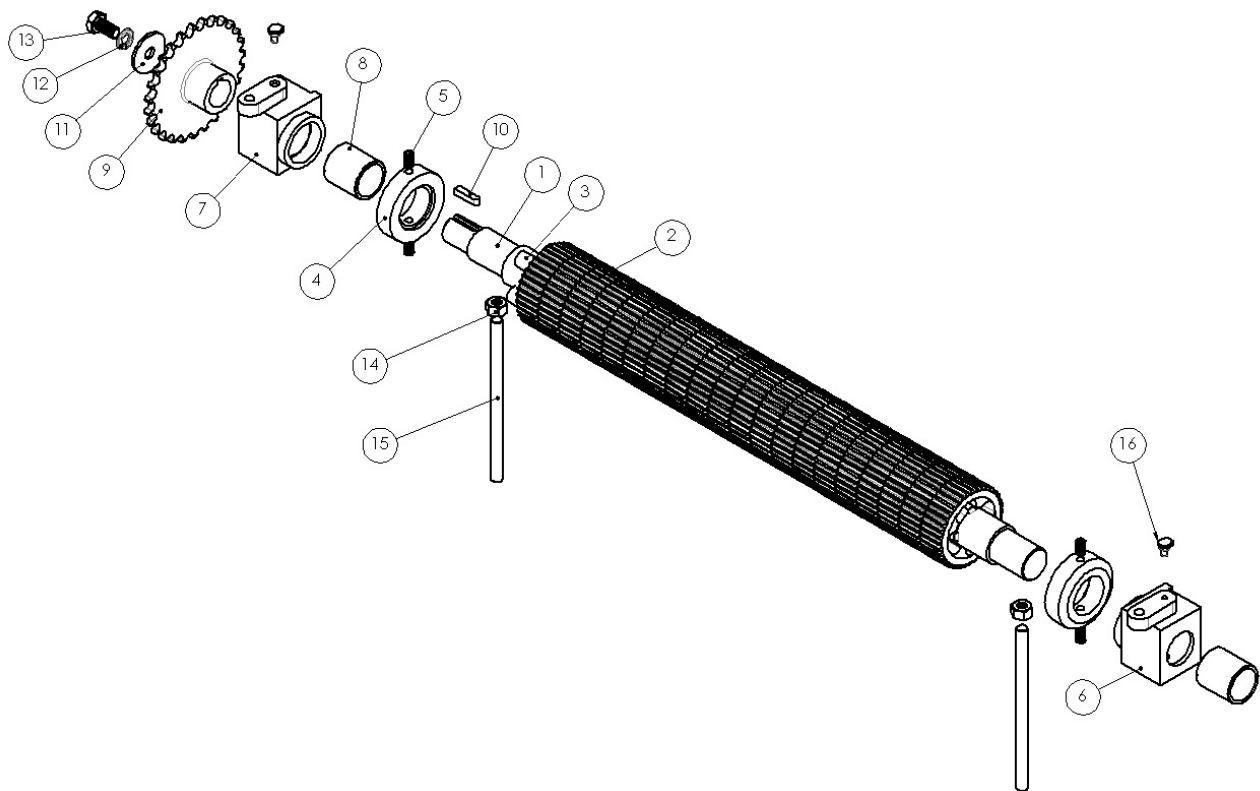
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C046129	Rod	1
2	C052015	Bushing	2
3	C045012	Finger	40
4	C052014	Bushing	39



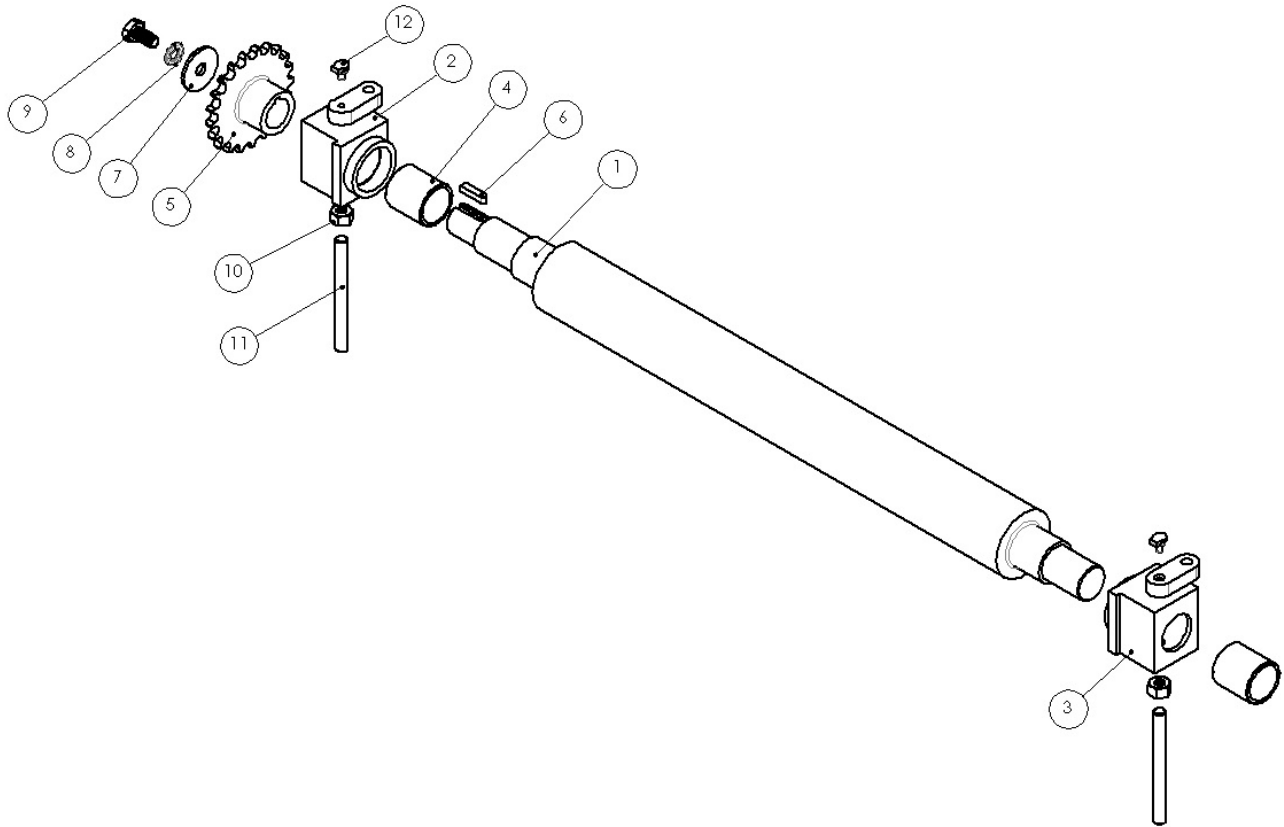
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C039002	Infeed Shaft	1
2	C038006	Infeed Roller	20
3	P063004	Rubber Bushing	80
4	C051023	Bushing	2
5	S213012	Set Screw,M8-P1.25	4
6	C009017	Bearing Block(R)	1
7	C009049	Bearing Block(L)	1
8	P051002	Brass Bearing	2
9	C067014	Sprocket	1
10	S003073	Key	1
11	S282113	Washer, Φ 10.5	1
12	S284008	Spring Washer, Φ 10.2	1
13	S137020	Hex. Head Screw,M10-P1.5	1
14	S273010R	Nut,M10-P1.5	2
15	C034022	Stud	2
16	S319201	Oil Fitting	2



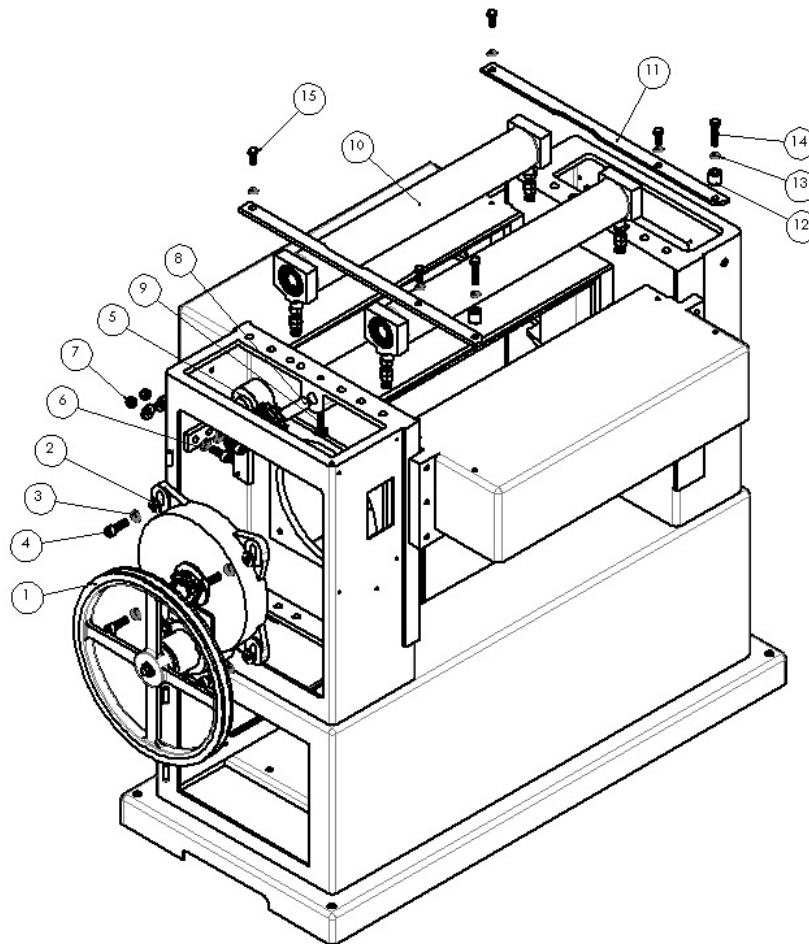
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C039012	Outeed Roller	1
2	C009017	Right Support, Copper Bearing	1
3	C009049	Left Support, Copper Bearing	1
4	P051002	Copper Bearing	2
5	C067015	Sprocket	1
6	S003073	Key	1
7	S282113	Washer, Φ 10.5	1
8	S284008	Spring Washer, Φ 10.2	1
9	S137020	Hex. Head Screw, M10-P1.5	1
10	S273010R	Nut, M10-P1.5	2
11	C034087	Bolt, M10-P1.5	2
12	S319201	Oil Fitting	2



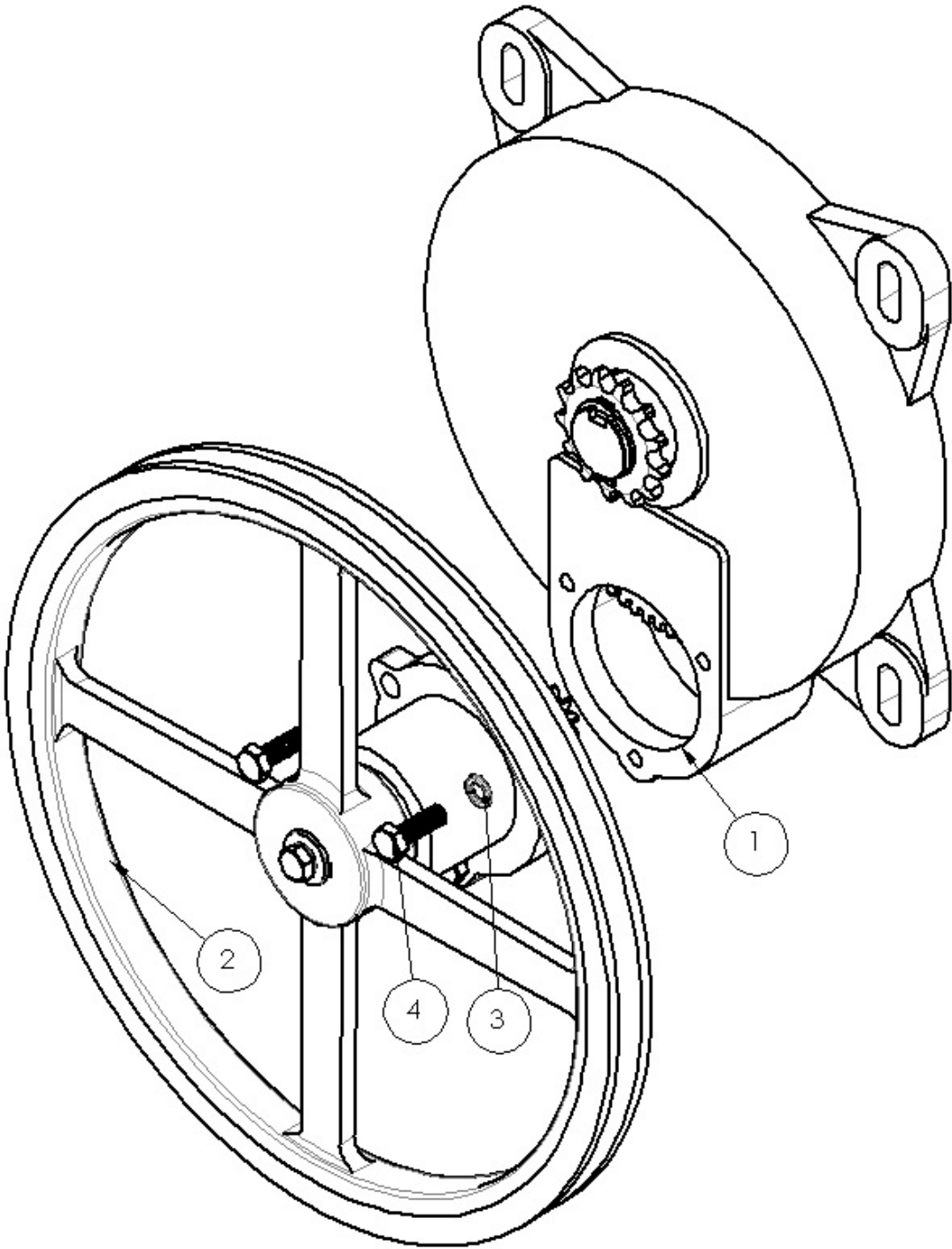
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	G006002	Transmission Assembly	1
2	S282111	Washer, Φ 10.2	6
3	S284008	Spring Washer, Φ 10.2	6
4	S203030	Hex. Socket Head Screw, M10-P1.5	4
5	T017006	Link Assembly	1
6	S203025	Hex. Socket Head Screw, M10-P1.5	2
7	S277005	Nut, M10-P1.5	2
8	T013003	Small Sprocket Assembly	1
9	S137030	Hex. Head Screw, M10-P1.5	1
10	T013004	Table Roller Assembly	2
11	C020003	Datum Plate	2
12	C051019	Collar	2
13	S284007	Spring Washer, Φ 8.2	6
14	S136040	Hex. Head Screw, M8-P1.25	2
15	S136020	Hex. Head Screw, M8-P1.25	4
16	S307096	40 Chain	1
17	S300050	A Belt, A-50"L	1
18	S300070	A Belt, A-70"L	2



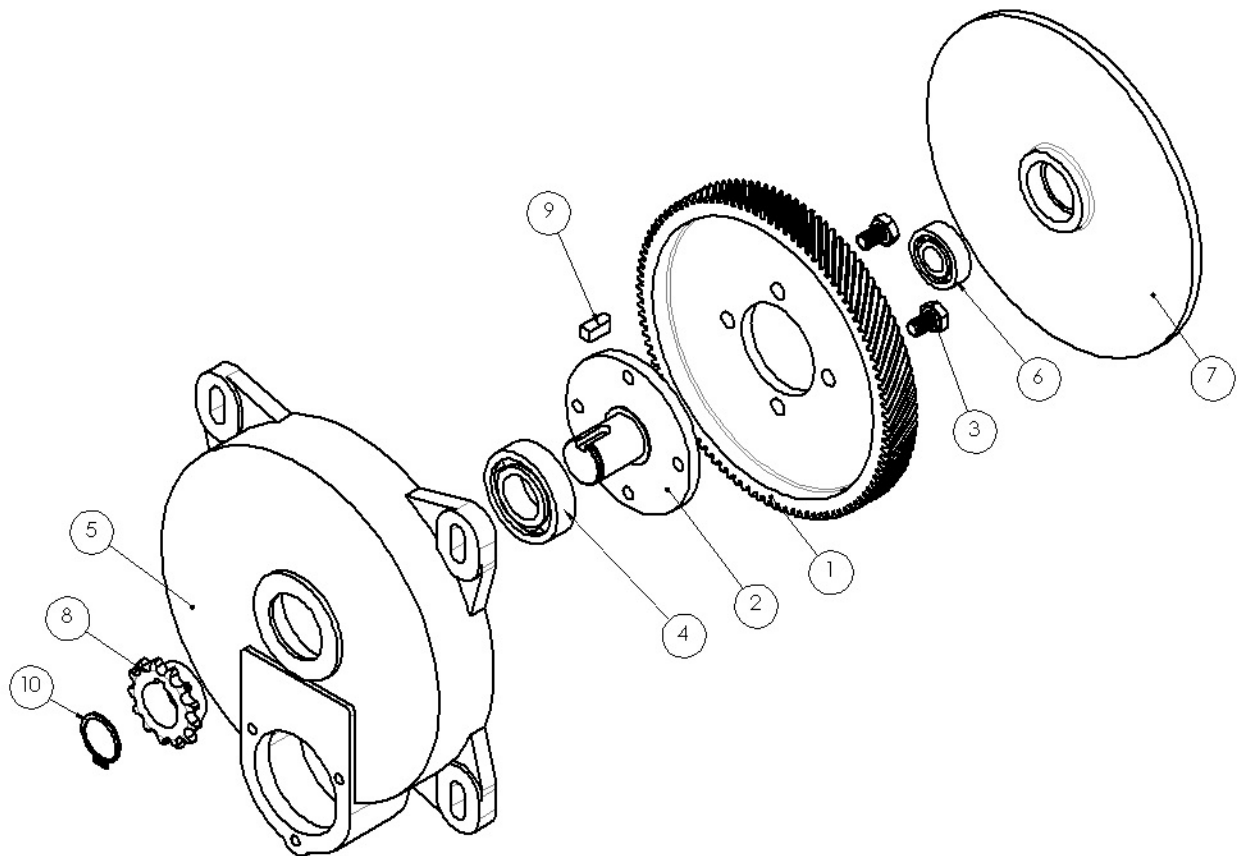
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	T014002	Gear Box Assembly	1
2	T015004	Belt-Shaft Assembly	1
3	S284007	Spring Washer, $\Phi 8.2$	3
4	S136025	Hex. Head Screw, M8-P1.25	3



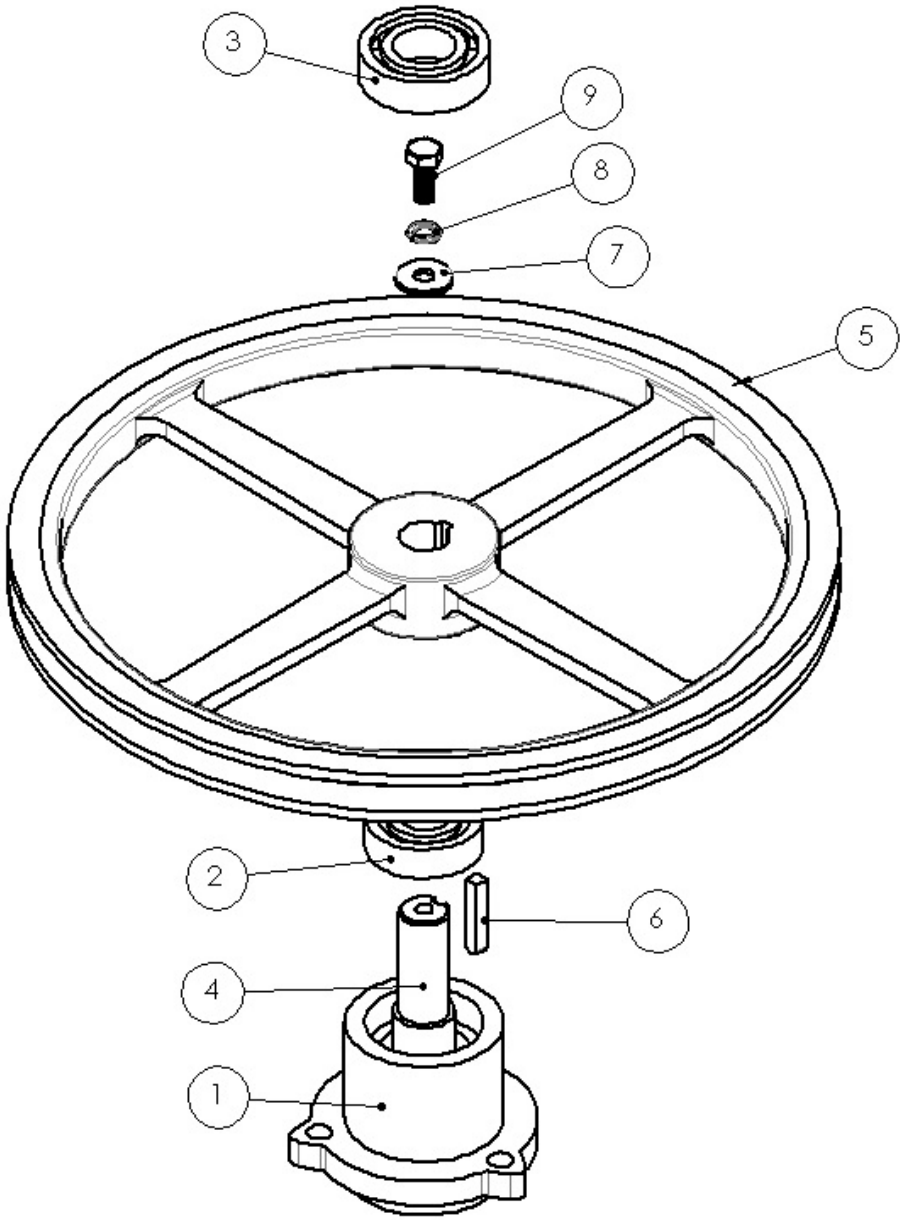
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C029003	Large Gear	1
2	C039003	Gear Shaft	1
3	S137016	Hex. Head Screw,M10-P1.5	4
4	S026206ZZ	Ball Bearing	1
5	C031001	Gear Housing	1
6	S026203ZZ	Ball Bearing	1
7	C009022	Gear Housing Cover	1
8	C067016	Sprocket	1
9	S003169	Key	1
10	S298019	C-Ring	1



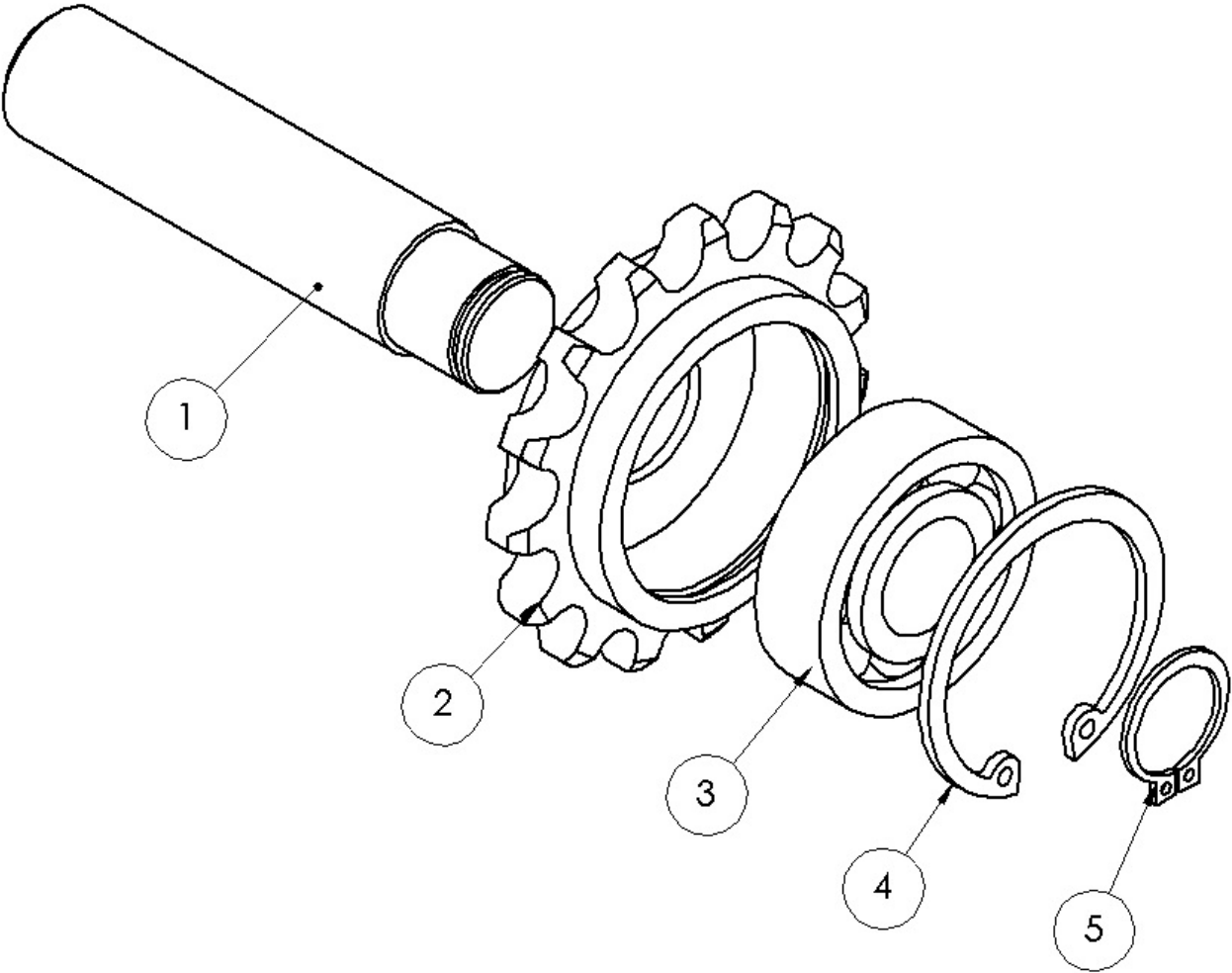
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C009005	Housing, Bearing	1
2	S026204ZZ	Bearing	1
3	S026205ZZ	Bearing	1
4	C029001	Gear-Shaft	1
5	C064024	Pulley	1
6	S003076	Key	1
7	S282109	Washer, $\Phi 8.2$	1
8	S284007	Spring Washer, $\Phi 8.2$	1
9	S136020	Hex.Head Screw, M8-P1.25	1



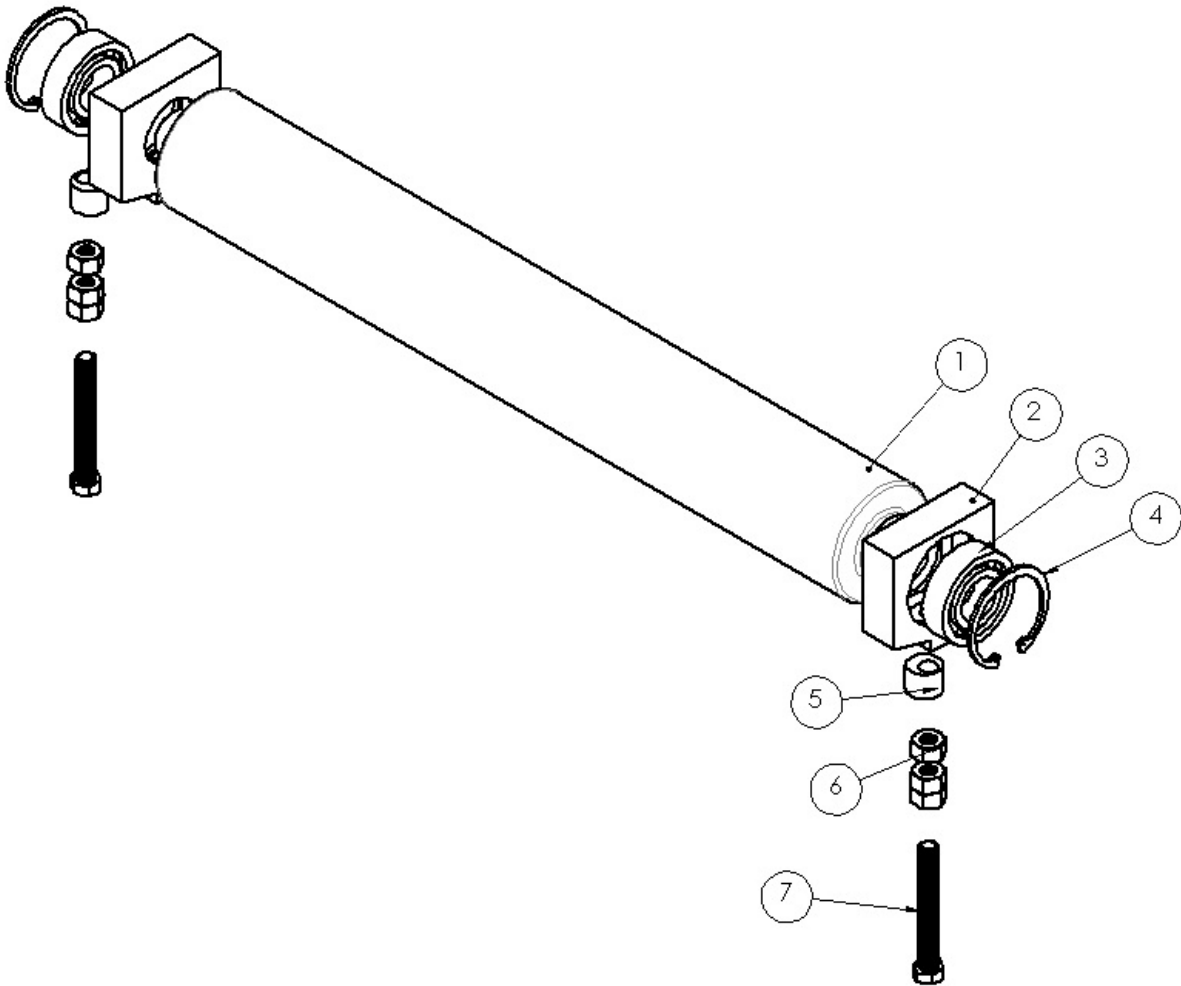
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C039004	Sprocket Shaft	1
2	C067017	Sprocket	1
3	S026203ZZ	Ball Shaft	1
4	S298125	C-Ring	1
5	S298008	C-Ring	1



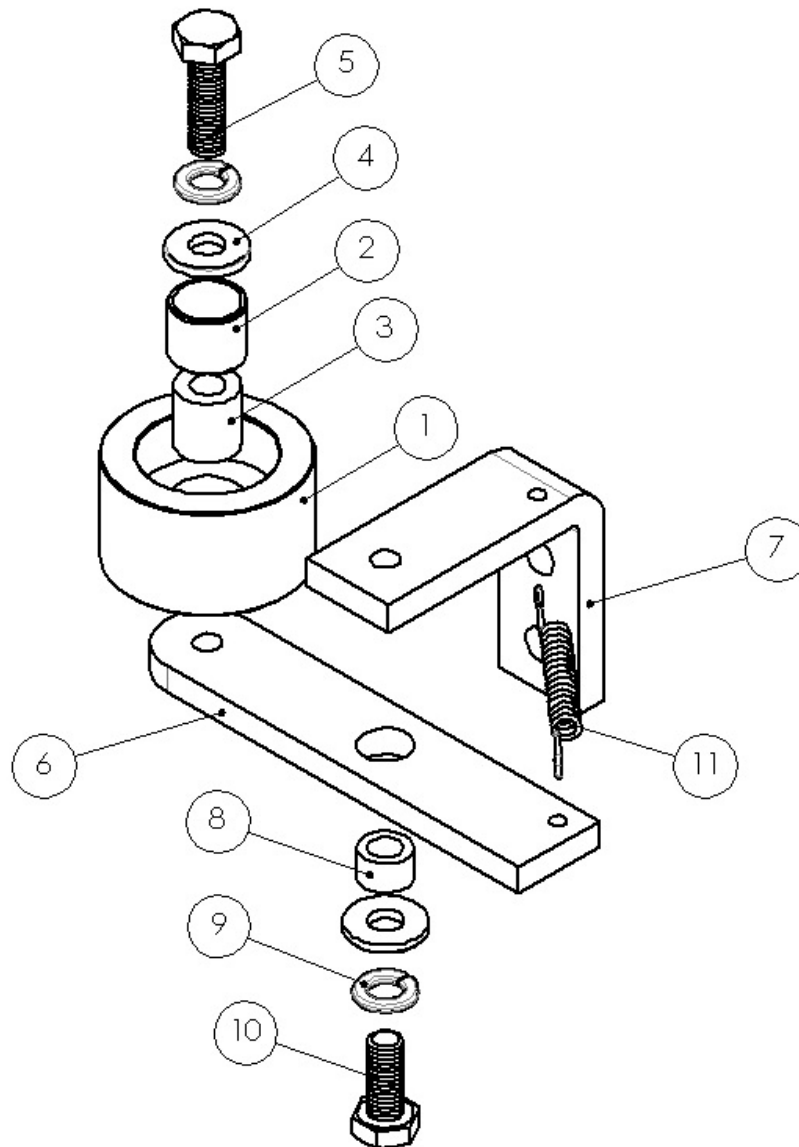
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C040004	Roller	1
2	C009008	Support	2
3	S026205ZZ	Ball Bearing	2
4	S298131	C-Ring	2
5	C051020	Collar	2
6	S273010R	Nut,M10-P1.5	6
7	S137320	Hex.Head Screw,M10-P1.5	2



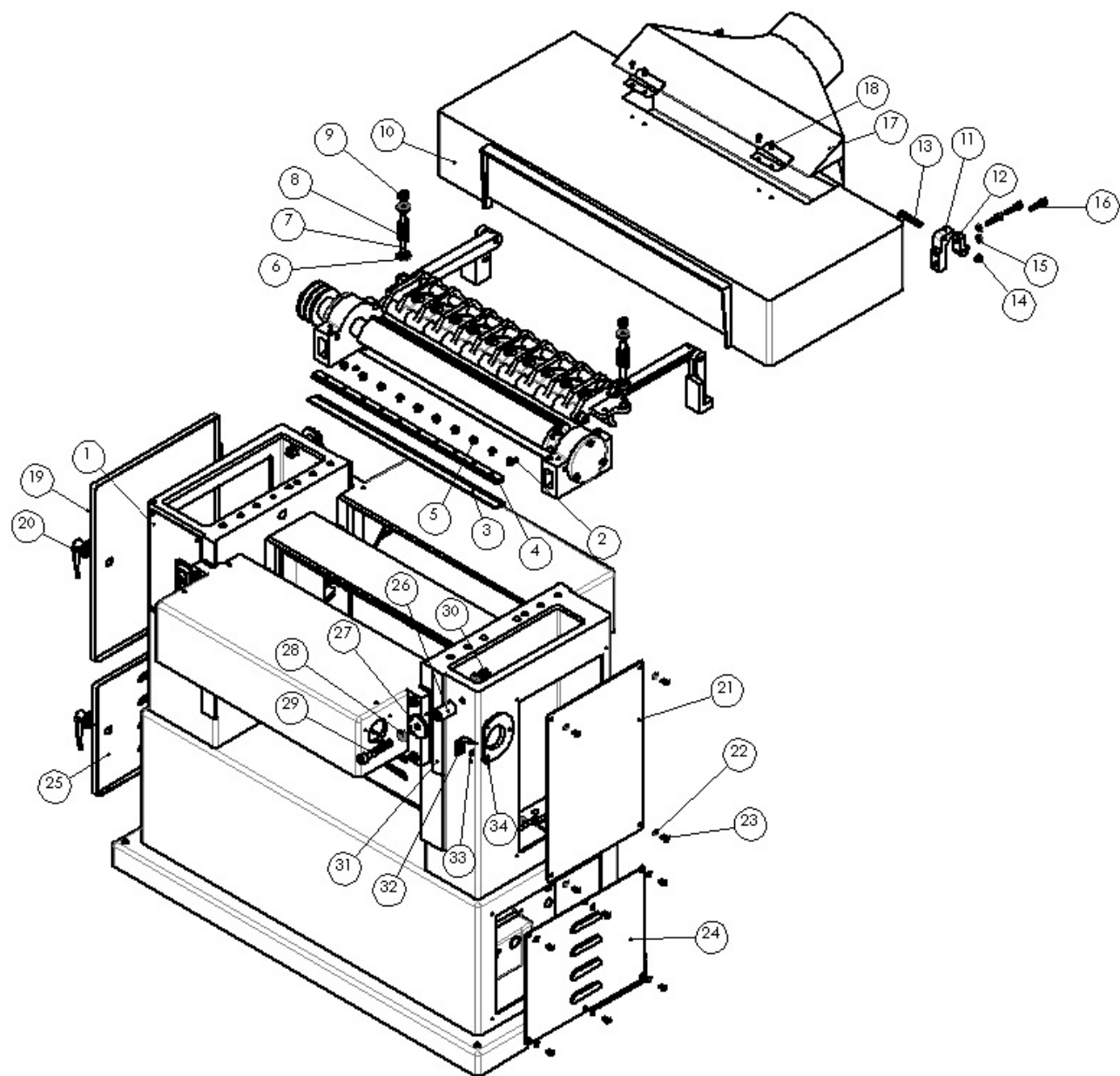
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C066004	Wheel	1
2	P051001	Brass Bearing	1
3	C052016	Bushing	1
4	S282111	Washer, Φ 10.5	2
5	S137035	Hex.Head Screw,M10-P1.5	1
6	C049018	Linked Plate	1
7	C015030	Linked Support	1
8	C051024	10L Bushing	1
9	S284008	Spring Washer, Φ 10.2	2
10	S137025	Hex.Head Screw,M10-P1.5	1
11	C060011	Spring	1



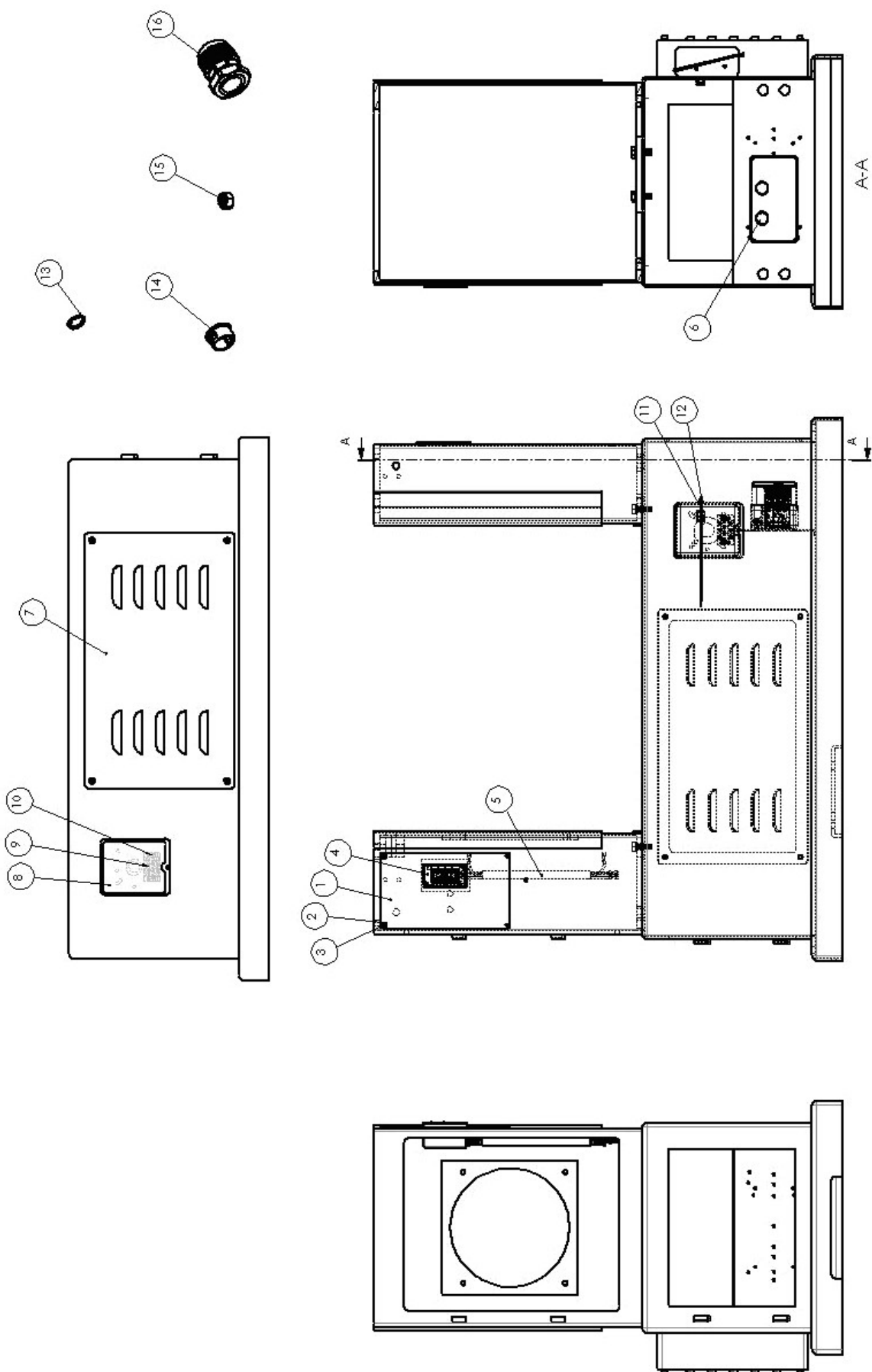
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	T020003	Pushbutton Assembly	1
2	C060014	Spring	6
3	P054008	Knife	3
4	P056009	Knife Gib	3
5	P056105	Square Head Screw	30
6	C053023	Φ25 Washer	4
7	C034021	Bolt,M10-P1.5	2
8	C060040	Spring	2
9	S273010R	Nut,M10-P1.5	2
10	C073015	Cover, Top	1
11	C061001	Down Button	2
12	C061002	Up Button	2
13	S136050	Hex. Head Screw,M8-P1.25	2
14	S273008R	Nut,M8-P1.25	2
15	S284007	Spring Washer, Φ8.2	6
16	S202030	Hex. Socket Head Screw,M8-P1.25	6
17	C077007	Dust Hood	1
18	S225010	Round Head Screw,M5-P0.8	4
19	C073008	Door, Left Base	1
20	P027001	Handle	2
21	C073017	Cover, Right Base	1
22	S284006	Spring Washer, Φ6.1	10
23	S233012	Round Head Screw,M6-P1.0	10
24	C073010	Cover, Base	1
25	C073011	Door, Base	1
26	C039005	Collar	2
27	C053021	Washer	2
28	S284009	Spring Washer, Φ12.2	4
29	S204070	Hex. Socket Head Screw,M12-P1.75	2
30	S273012R	Nut,M12-P1.75	2
31	P108101	Measure	1
32	C070003	Indicator	1
33	S282008	Washer, Φ5.3	1
34	S200010	Hex. Socket Head Screw,M5-P0.8	1



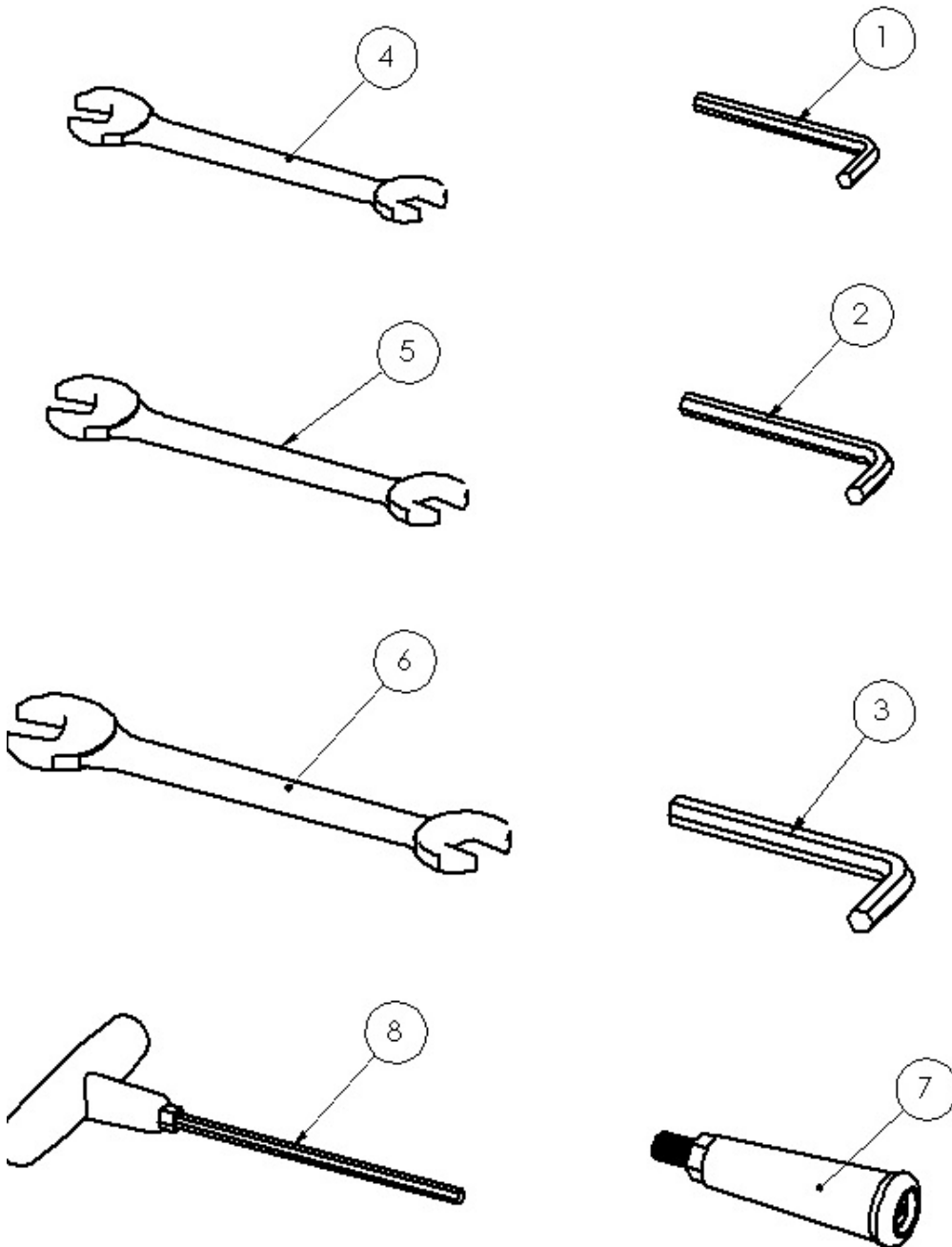
PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C082001	Switch Plate	1
2	S282008	Washer, Φ 5.3	6
3	S225010	Round Head Screw, M5-P0.8	4
4	P082001	Button	1
5	P100010C4	Wire	1
6	P074002E16G	N Series AC Contactor	1
7	C073012	Cover, Motor	1
8	S312003	Box, Terminate Seat	1
9	S313001	Terminate Seat	1
10	S225020	Round Head Screw, M5-P0.8	2
11	P091001	Tie Mount, ATM-1	1
12	P090005CV	Tie	5
13	S283005	Washer	1
14	P089006	Snap Bushing	1
15	S273005R	Nut, M5-P0.8	1
16	P092301	M-16 Type Nylon Cable Gland	3



PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	S296006	Allen Wrench,M5	1
2	S296007	Allen Wrench,,M6	1
3	S296008	Allen Wrench,,M8	1
4	S290071	Open-End Wrench,10x12	1
5	S290073	Open-End Wrench,12x14	1
6	S290074	Open-End Wrench,17x19	1
7	P028014N	Knob,3/8"-16NC	1
8	S292304	T-Type Allen Wrench,4.0mm	1



PARTS LIST:

NO.	PARTNO.	DESCRIPTION	Q"TY
1	C057008	Handle, Adjusting Plate	1
2	C057009	Adjusting Plate	2
3	S298050	C-Ring	2

