

**PITNEY BOWES**  
*Sure-Feed Engineering*

***Sure-Feed Engineering Inc.***

***SE-900-MP***  
***ECO -SERIES***

***Operation & Parts Manual***



***SURE-FEED ENGINEERING***

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# **SE 900 MP**

## **ECO - SERIES**

# **OWNERS MANUAL**

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## **Sure-Feed Engineering Inc. Installation Instructions**

1. **Before positioning the feeder on the inserter, follow the setup and operating instructions completely. When you are confident the material is feeding consistently, precede to the inserter preparation instructions then the installation and set-up procedure.**
2. Remove the rear guide from the inserter pocket.
3. Remove the bottom plate.
4. Remove the suction cup and loosen the separator feet, sliding them back and to the furthest point sideways so as not to interfere with the path of the piece to be inserted.
5. Cycle the inserter to the point where the gripper jaw is at the furthest point forward in the stroke.
6. Bend the material guide tabs so that they align just above the surface of the bottom gripper jaw.
7. Adjust the 3-leg sensor arm to position the sensor 1/2" above the paper path and about 3/4 of the length of the piece ahead of the feeder.
8. Place 10 pieces in the feeder and turn the speed adjustment to the minimum setting (counter-clockwise).
9. Plug the feeder into a 110 VAC grounded outlet.
10. Turn the power switch on.
11. By turning the speed control switch clockwise, advance the first piece until the sensor is blocked and the feeder stops. If the sensor is not positioned properly, the feeder will not stop. Adjust the height and angle of the sensor until the feeder stops.

## **Sure-Feed Engineering Inc. Installation Instructions Cont'**

12. Position the feeder on the inserter table so that the edge of the leading piece is between the material guide tabs and the bottom of the front hopper plate.
13. Adjust the sensor so that the piece advances out further and is well within the gripper jaw opening.
14. With the speed control set to minimum, jog the inserter to remove the piece staged in the gripper jaw and return the gripper jaw to the furthest inward position.
15. Turn the speed control up slightly. This should advance the next piece into the gripper jaw. Adjust the sensor, material guide tabs and position the SE 900 MP as needed to align the paper path into the gripper jaw.
16. Load the SE 900 MP with at least a full handful of material and cycle the inserter.
17. Notice the material path and the presentation to the gripper jaw, as this is most important as the cycle speed is increased.
18. Cycle the inserter at full production speed adjusting the SE 900 MP speed so that the piece being presented to the gripper jaw is there well ahead of the end of the forward stroke.

## **Sure-Feed Engineering Inc. Set-up Instructions**

1. With the feeder ON/OFF switch in the off position, loosen the two side guides and move them all the way to the sides of the feeder. Then loosen the rear guide ramp and move it all the way back out of the way.
2. Place a single piece of the material to be fed on the feeder centering the material relative to the separating device.
3. Move each side guide in to meet the material and then back them off about 1/16".
4. Tighten the bottom thumbscrews on each side guide.
5. Turn the separator knob clockwise until you can easily pass the single piece of material under the separator. While moving the material back and forth under the separator, turn the separator knob counter-clockwise until you feel resistance from the separator. At this point, you have roughed in the separator setting and will need to tune it in after the completion of the following set-up steps. If the resistance under one separating wheel is not the same as under the separating wheel, the bridge needs to be trammed. Perform step 10 before proceeding with step 6.
6. Place a handful of material in the feeder allowing the material to shingle forward into the separator.
7. Move the back guide forward so as to use the back guide wedge shape to support the back edge of the material stack. At this point, you have roughed in the back guide setting and will need to tune it in later.
8. Add enough material to the stack to fill about half the height of the side guides.
9. Move the top of each side guide out slightly so as to create a funnel effect and then tighten the top thumbscrews on each side guide. You are now ready to feed some material.

10. BRIDGE TRAM PROCEDURE: It is critical to the performance of the feeder to have the separating wheels level with respect to the nip rollers. To do this, first loosen the bridge mounting screws (Item 8, Fig. 6-3) on both sides of the bridge. Turn the separator adjustment CW several turns so that the bridge can be lowered all the way to the bottom of the slots. Tighten one screw on each side. Now place a thin strip of paper under each separating wheel (it is best to cut one piece of paper into two strips to ensure that the strips are the same thickness). Now turn the separator adjustment CCW until the separating wheels just contact the nip rollers. Move the paper strips to feel if the resistance is equal under each separating wheel. If one moves with less resistance than the other, loosen the screw on the side that is tighter and raise that side of the bridge slightly and tighten screw. Check the resistance under each separating wheel with the paper strips again and adjust accordingly. Once the resistance is equal under each separating wheel tighten the bridge screws securely. Proceed to step 6 for further setup instructions. This procedure must be followed whenever the bridge is adjusted up or down for materials with different thickness. This adjustment is “**very**” critical when feeding thin materials.

## **Sure-Feed Engineering Inc. Operation Instructions**

1. Adjust the 3-leg sensor arm to position the sensor 1/2" above the paper path and about 3/4 of the length of the piece ahead of the feeder.
2. With the power still off, turn the speed control counter-clockwise to the minimum position.
3. Turn the power switch on and turn the speed control switch clockwise, the first piece will advance until the sensor is blocked and the feeder stops. If the sensor is not positioned properly, the feeder will not stop. Adjust the height and angle of the sensor until the feeder stops.
4. cycle the feeder by removing the piece that block the sensor. Observe the consistency in which the material is feeding.
5. By turning the separator knob slightly in either direction, you will change the way the material is separating.
6. By moving the back guide in and out, you will quickly find the position that creates the most consistent separation.
7. One important item to note; There is no substitution for experience. By working with the SE 900 EI, you will notice that the combination of separator setting and the back guide adjustment together will have the greatest effect on separation. Generally, the longer the piece of material, the flatter the material stack should be. Conversely, the shorter the piece of material, the closer the back guide adjustment should be to the material, adding wedge to the material stack. You will also notice that by moving the back guide forward (increasing the wedge), you can open the separator and still achieve good separation.

## **Sure-Feed Engineering Inc. Cleaning Instructions**

*Clean rollers and belts are very important to the performance of the feeder. Use a clean rag dampened with Isopropyl Rubbing alcohol, 70% by volume (typically available in drug stores) to clean belts and rollers. Do not use any other solvents, cleaners, or abrasive cleaners on the rollers or belts as they may damage the rubber.*

**Warning:** Isopropyl rubbing alcohol is very flammable! Always unplug the machine before cleaning belts and rollers. **DO NOT!** use near an open flame, sparks, or any other source of ignition. **DO NOT!** smoke in the vicinity of the alcohol fumes. Allow used rags to air-dry before throwing them in the trash. Dispose of used rags properly.

Other areas of the machine should be wiped clean with a clean dry rag.

**Sure-Feed Engineering Inc.  
Troubleshooting Guide**

<b><u>Problem</u></b>	<b><u>Solution</u></b>
<b>Feeder will not run.</b>	<b>Check circuit breaker condition. Check outlet power source. Check power switch.</b>
<b>Feeder runs but no material is being dispensed.</b>	<b>Check material supply. Remove all material and follow setup procedure. Check rollers and belts for excessive wear or dirt.</b>
<b>Feeder does not create a gap between pieces.</b>	<b>Lower separator adjustment and observe. If a gap is not present after this adjustment, return separator to original position and move the back guide forward.</b>
<b>Feeder does not detect material.</b>	<b>Adjust position of the sensor.</b>
<b>Thick material does not feed well.</b>	<b>Decrease the height at the back of the material stack. Increase the opening at the separation device (the thicker the material the less critical the setting is).</b>

**Sure-Feed Engineering Inc.  
Troubleshooting Guide Cont.**

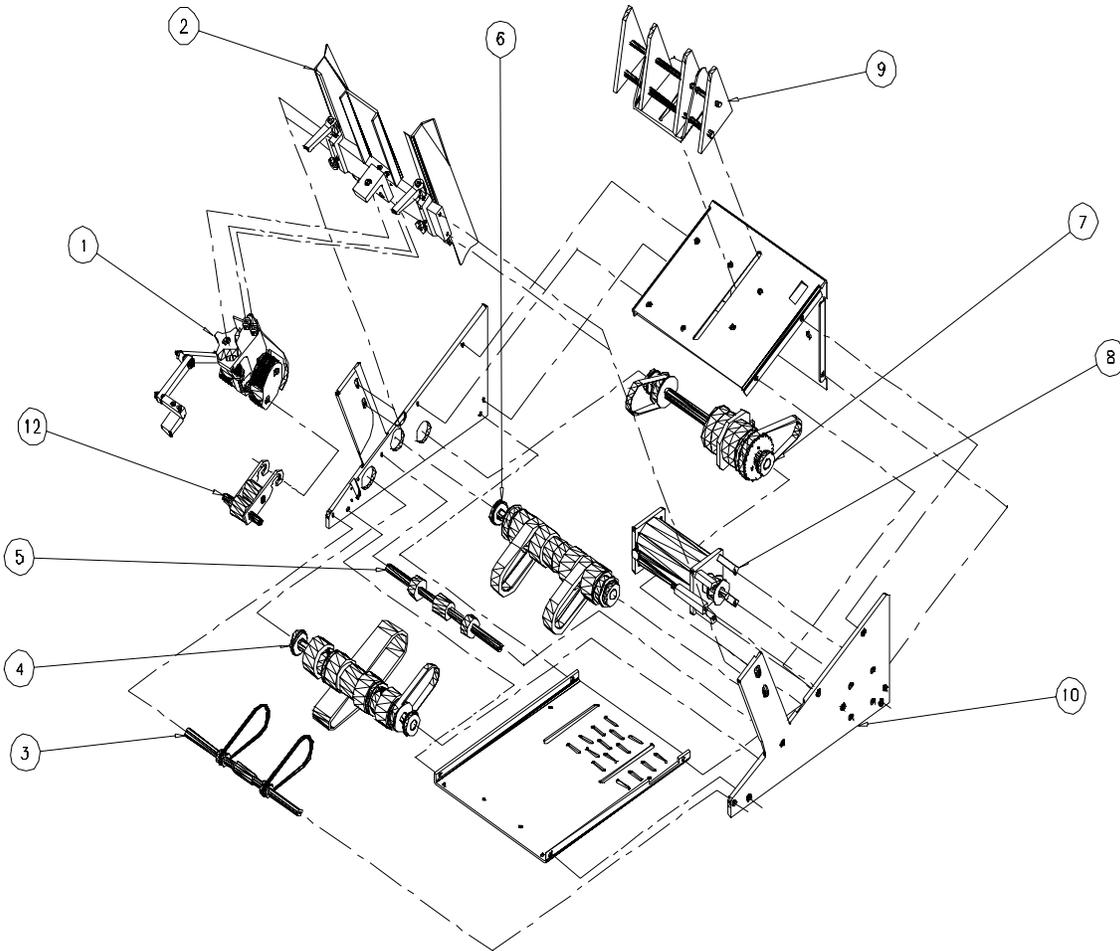
<b><u>Problem</u></b>	<b><u>Solution</u></b>
<b>Thin material does not feed.</b>	<b>Adjust separation device as described in section 2. Remove material and fan the stack allowing air to separate the pieces. Raise the rear of the material stack by moving the wedge forward.</b>
<b>Material feeds double.</b>	<b>After confirming set up is correct, remove the separator and inspect the o-rings. If the o-rings are worn past the depth of the groove in the separating wheel, they will not be effective. Rotate the o-ring in the groove until a new section of o-ring is in position to contact the material. Reinstall the separator and reset the gap.</b>

**Sure-Feed Engineering Inc.**  
**Parts Manual**

**FEEDER ASSEMBLY (fig. 6-1)**

<b>ITEM</b>	<b>FIGURE</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	6-2	1	SEPARATOR DEVICE ASSEMBLY (ECO-SEREIS)
2	6-3	1	SIDE GUIDE ASSEMBLY
3	6-4	1	FRONT SHAFT ASSEMBLY
4	6-5	1	SUPPORT SHAFT ASSEMBLY
5	6-6	1	SUPPORT IDLER SHAFT ASSEMBLY
6	6-7	1	MAIN SHAFT ASSEMBLY
7	6-8	1	CLUTCH SHAFT ASSEMBLY
8	6-9	1	MOTOR ASSEMBLY
9	6-10	1	PAPER SLIDE ASSEMBLY
10	6-11	1	CHASSIS ASSEMBLY
11	6-12	1	ELECTRICAL COMPONENT ASSEMBLY
12	6-13	1	TRAILING ARM ASSEMBLY

Fig. 6-1



NOTE: ELECTRICAL COMPONENTS ASSEMBLY NOT SHOWN (ITEM 11)

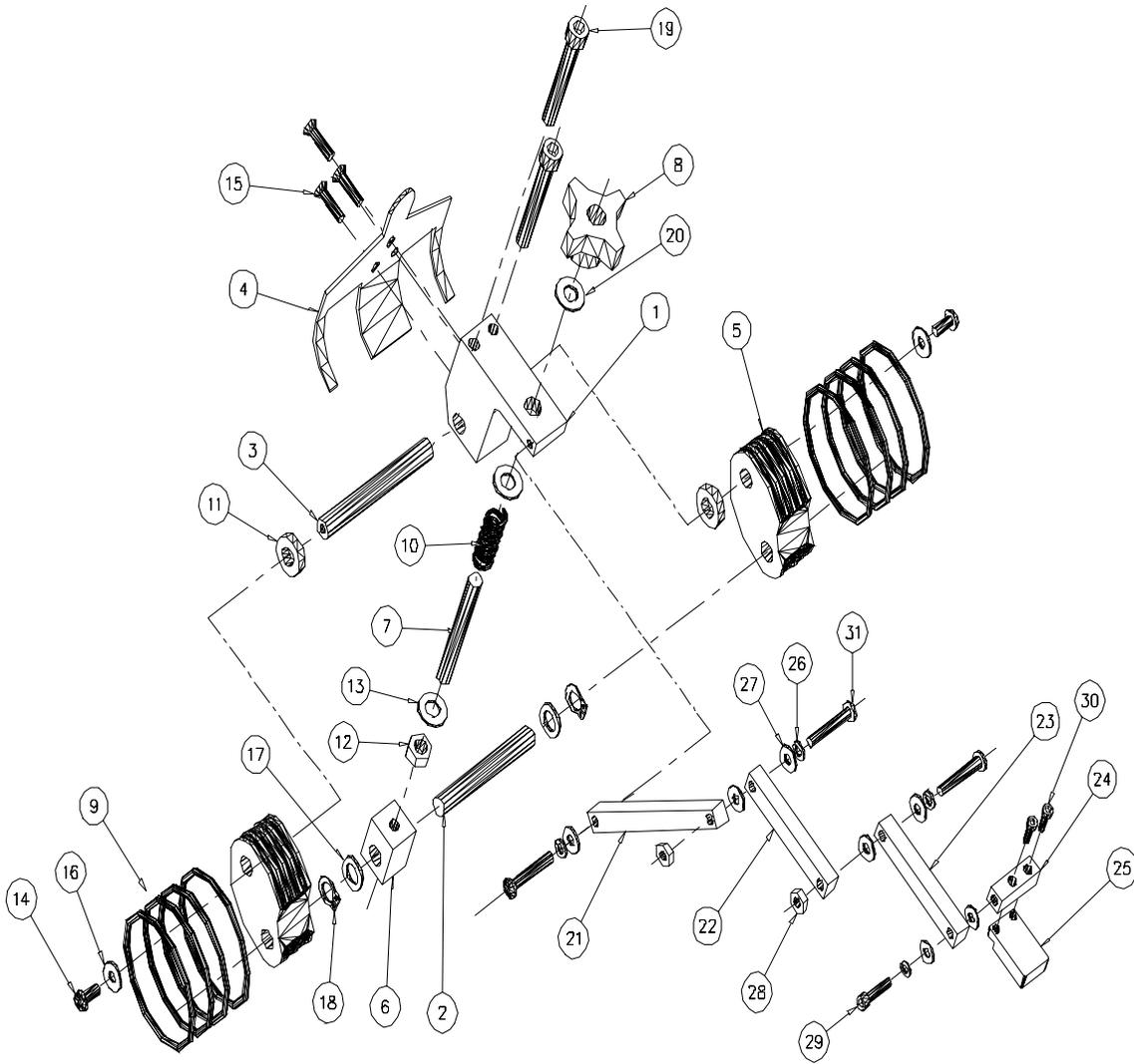
**SEPARATOR DEVICE ASSEMBLY (ECO-SERIES) (fig. 6-2)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10007-002	1	BLOCK, FOOTBALL SEPARATOR
2	10004-059	1	SHAFT, FOOTBALL ALIGNING
3	10004-058	1	SHAFT, FOOTBALL SEPARATOR
4	10005-025	1	SHROUD, SEPARATOR
5	10007-005	2	BLOCK, FOOTBALL.
6	10007-012	1	BLOCK, SEPARATOR ADJUSTING
7	10004-028	1	STUD, SEPARATOR ADJUSTING
8	99004-001	1	KNOB 5/16-24 FE
9	10014-010	8	O-RING, FOOTBALL SEPARATOR
10	99005-001	1	SPRING, COMPRESSION
11	10012-005	2	SPACER, FOOTBALL SEPERATOR
12		1	NUT, HEX 5/16-24
13		2	WASHER, FLAT 5/16
14		2	SCREW, PAN HD 10-24 X 3/8
15		3	SCREW, FL HD 8-32 X 1
16		2	WASHER, FLAT, #10
17	99003-017	2	WASHER, NYLON 3/8 ID X 1/16
18	99022-003	2	SNAP RING, 3/8
19		2	BOLT, SOCKET HD, 5/16-18 X 2 1/2
20	99003-015	1	WASHER, NYLON, 5/16 X 1/16

**SEPARATOR DEVICE ASSEMBLY (ECO-SERIES) CONT' (fig. 6-2)**

21	10009-011	1	ARM, SENSOR
22	10009-007	1	ARM, SENSOR
23	10009-008	1	ARM, SENSOR
24	10009-009	1	MOUNT, SENSOR
25	98009-001	1	SENSOR, RECIEVER
26		4	WASHER, LOCK #10
27		7	WASHER, FLAT, #10
28		2	NUT, LOCK, 10-24
29		1	SCREW, SKT HD, 10-24 X 3/4
30		2	SCREW, SKT HD, 6-32 X 1/2
31		3	SCREW, PAN HD, 10-24 X 1-1/4

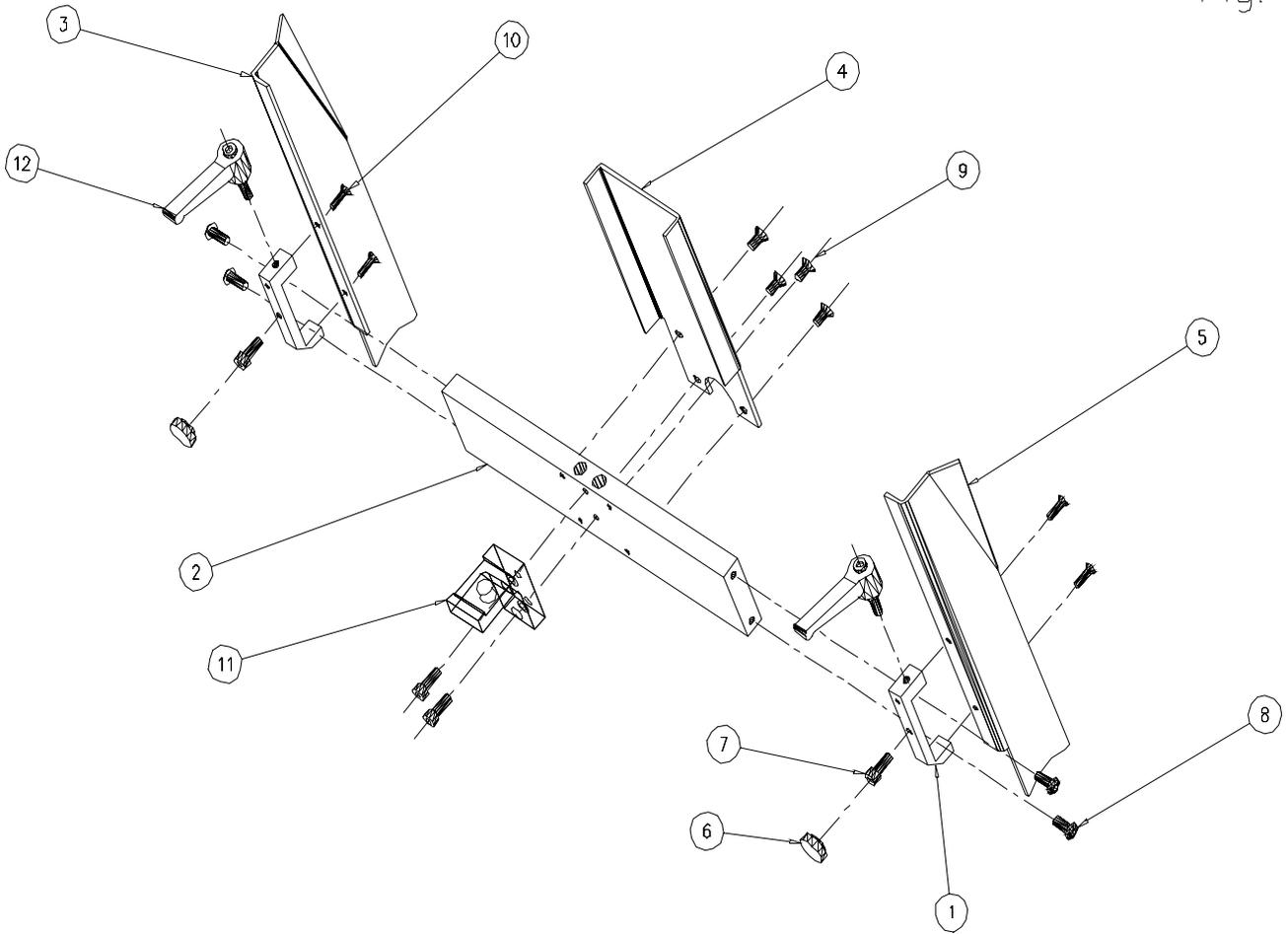
Fig. 6-2



**SIDE GUIDE ASSEMBLY (fig. 6-3)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10009-002	2	BRACKET, SIDE GUIDE
2	10003-001	1	TIE BAR
3	10005-004	1	SIDE GUIDE (900) RH (SHORT)
4	10005-001	1	STOP, SHINGLER
5	10005-005	1	SIDE GUIDE (900) LH (SHORT)
6	99004-002	4	KNOB, #10 SCREW
7		4	SCREW, SKT HD, 10-24 X 1/2
8		4	SCREW, BTN HD, 10-24 X 1/2
9		4	SCREW FLAT HD, 10-24 X 3/8
10		4	SCREW FLAT HD, 6/32 X 1/2
11	10007-010	1	BLOCK, SEPARATOR ADJUSTING
12	99004-003	2	HANDLE, RATCHET 10-24

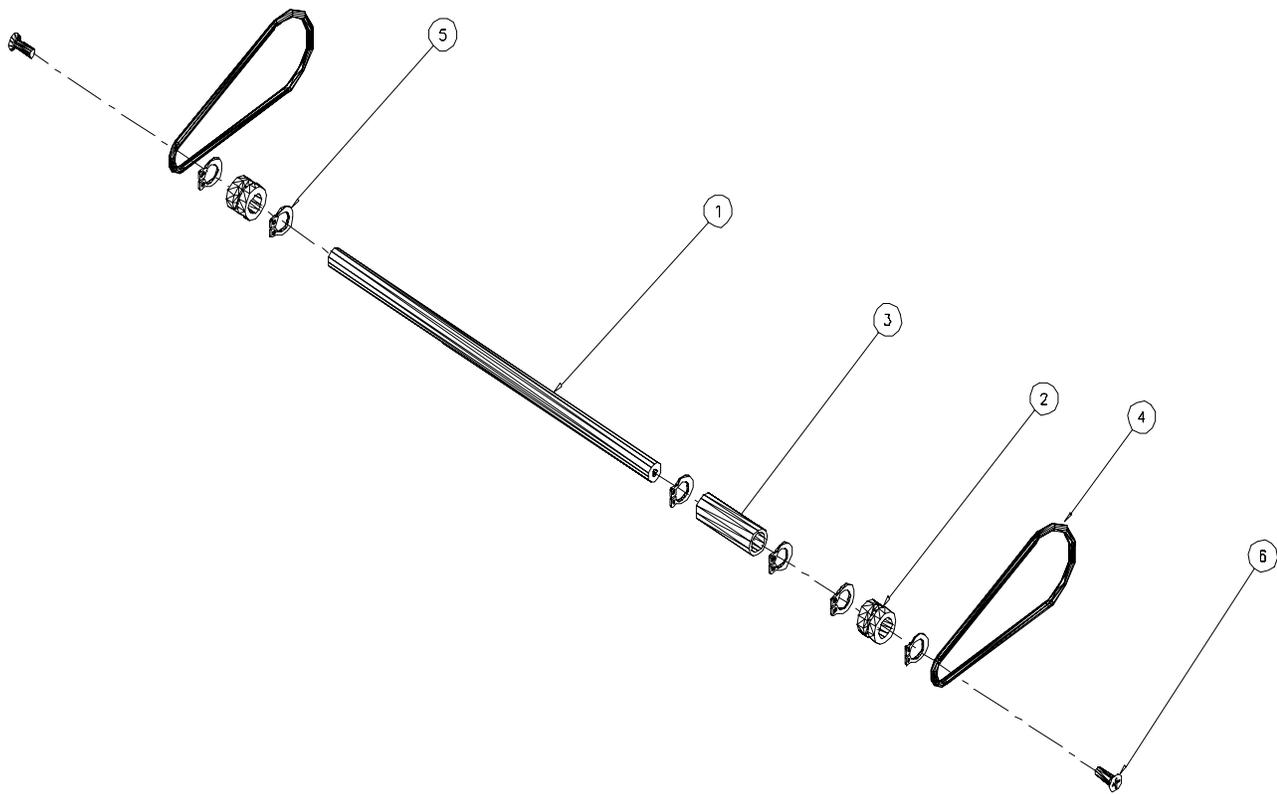
Fig. 6-3



**FRONT SHAFT ASSEMBLY (fig. 6-4)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10004-003	1	SHAFT, FRONT
2	10006-005	2	PULLEY, (O-RING)
3	10006-008	1	IDLER, SLEEVE (RED GUM BELT)
4	10014-004	2	BELT, GREEN
5	99022-003	6	RETAINING RING, 3/8
6		2	SCREW, FLAT HD, 8-32 X 1/2

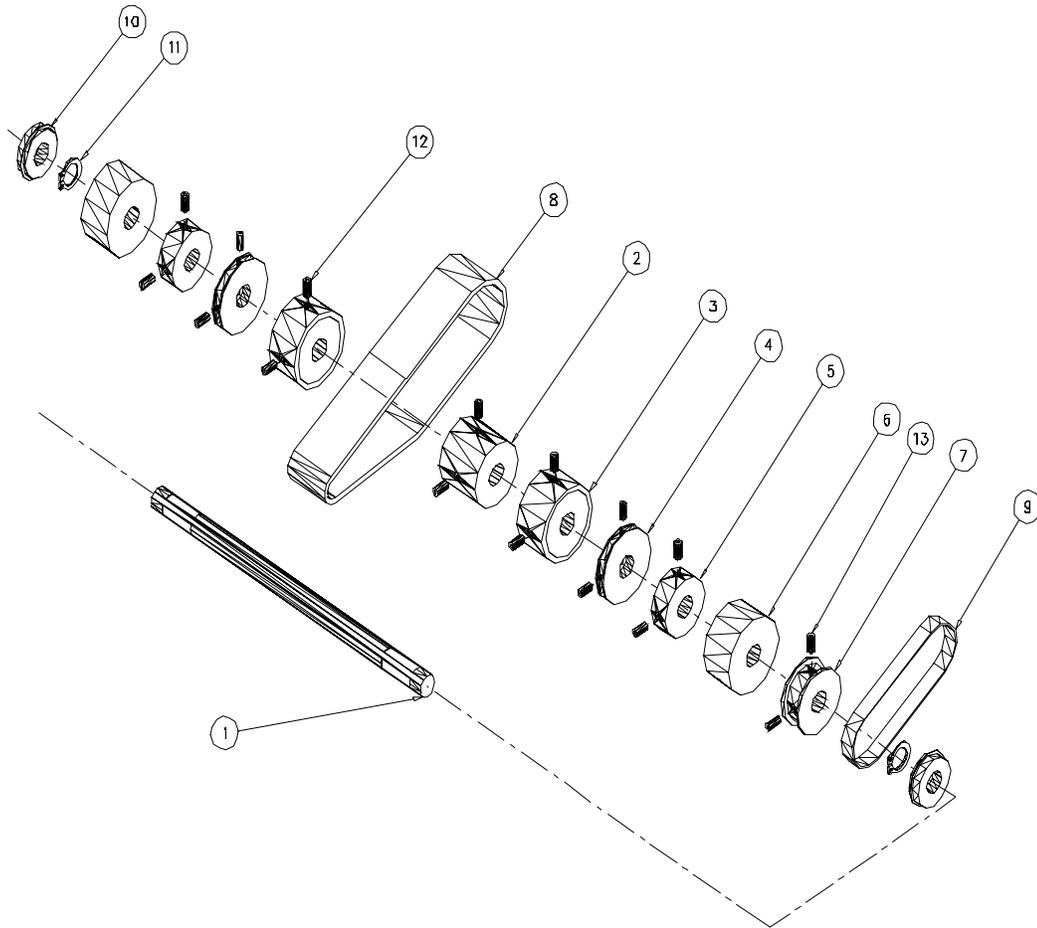
Fig.6-4



**SUPPORT SHAFT ASSEMBLY (fig. 6-5)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10004-002	1	SHAFT, MAIN
2	10006-015	1	PULLEY, MATE
3	10006-013	2	ROLLER, NIP
4	10006-004	2	PULLEY, DRIVE - GREEN BELT
5	10006-002	2	PULLEY, TRACTOR BELT
6	10006-007	2	FEEDER ROLL
7	99002-003	1	PULLEY, 20XL037
8	99000-004	1	BELT, RED GUM
9	99000-001	1	BELT, TIMING 90XL037
10	99003-003	2	BEARING, 1/2 ID X 1-1/8" OD W/GROOVE
11	99022-004	2	RETAINING RING 1/2
12		10	SCREW, SET, 10-24 X 3/8
13		6	SCREW, SET, 8/32 X 3/8

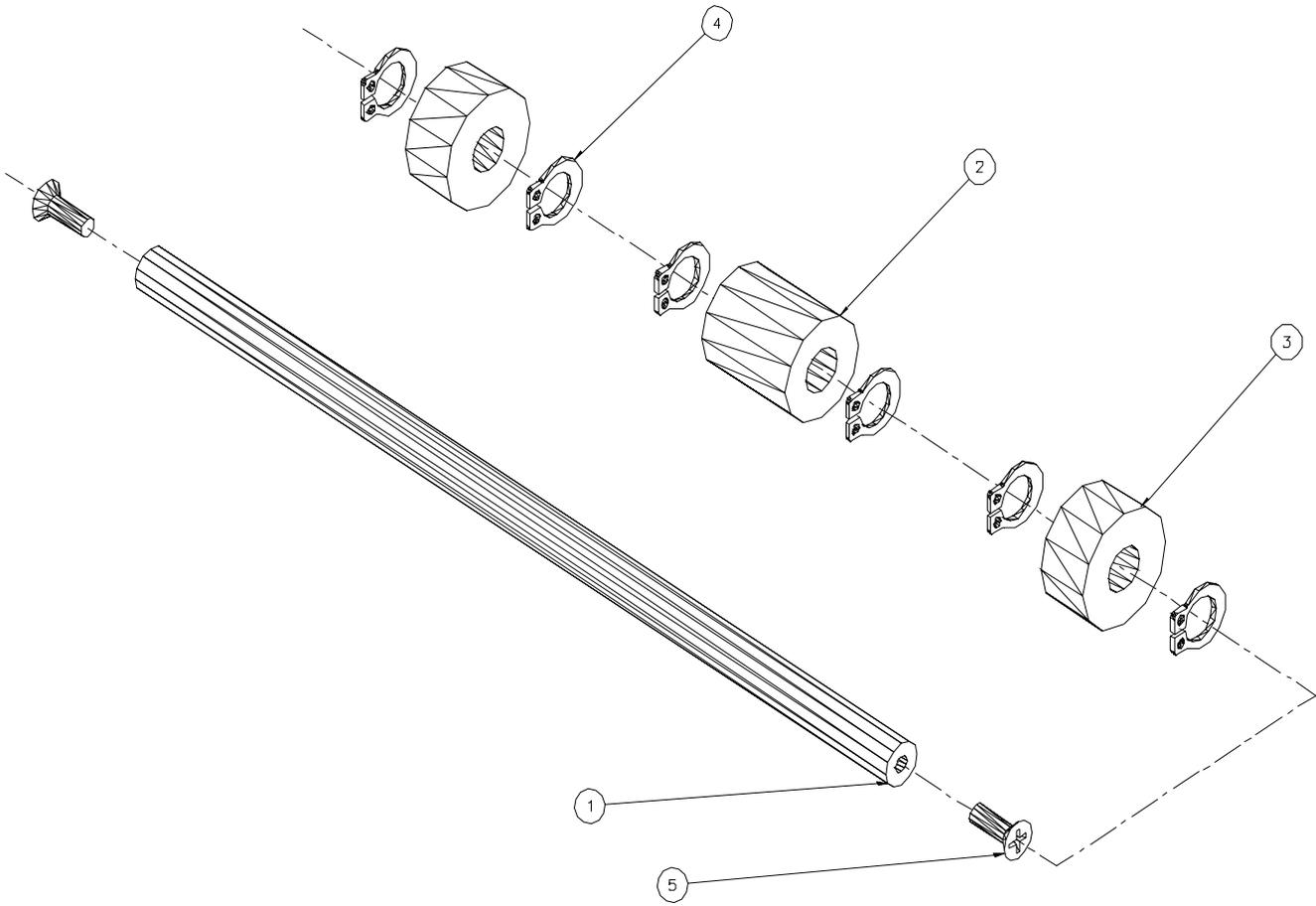
Fig. 6-5



**SUPPORT IDLER SHAFT ASSEMBLY (fig. 6-6)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10004-003	1	SHAFT, IDLER
2	10006-011	1	ROLLER, SUPPORT IDLER 7/8" (RED GUM BELT)
3	10006-003	2	PULLEY, SUPPORT IDLER (TRACTOR BELT)
4	99022-003	6	RETAINING RING 3/8
5		2	SCREW, FLAT HD, 8-32 X 1/2

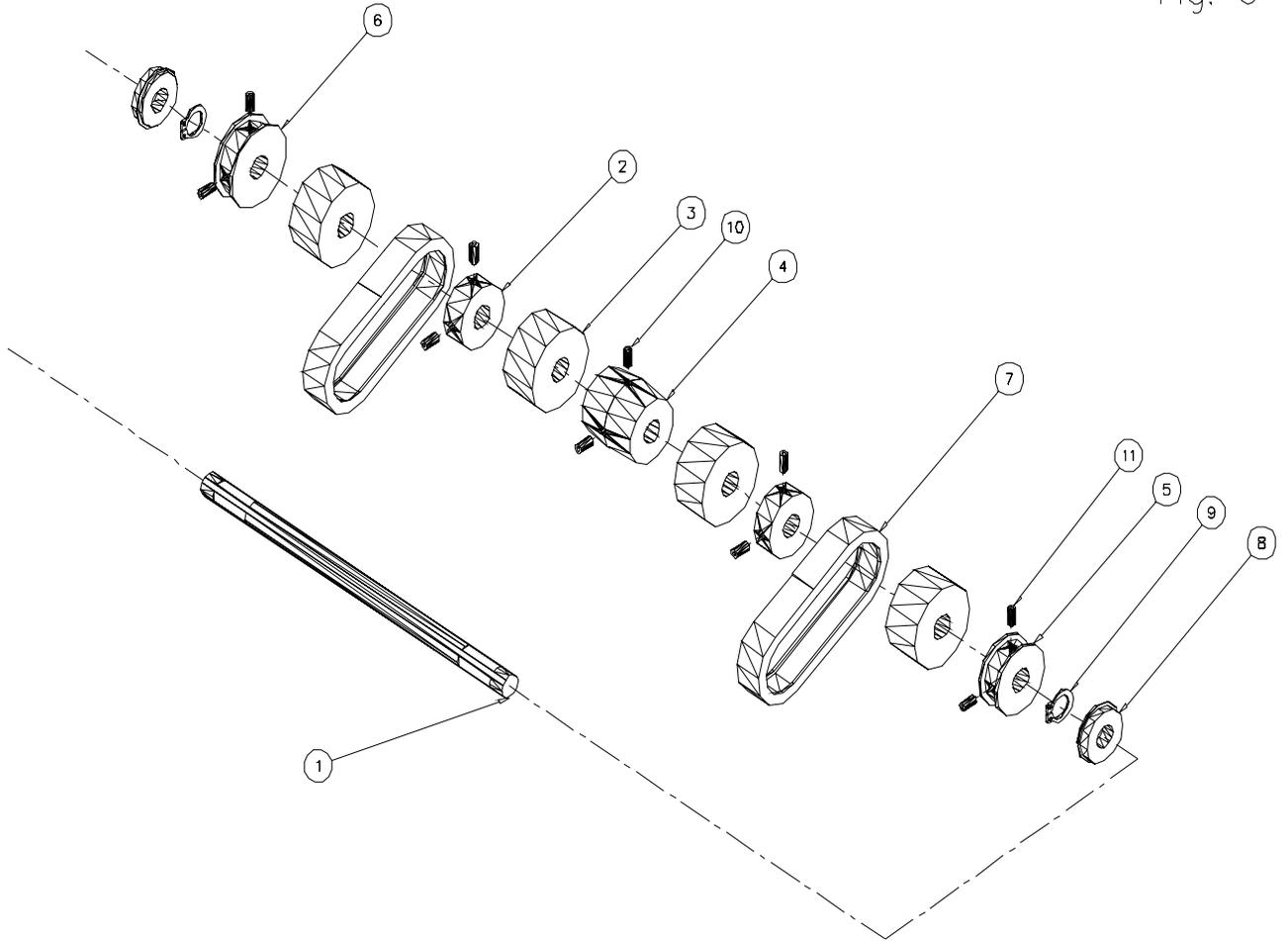
Fig. 6-6



**MAIN SHAFT ASSEMBLY (fig. 6-7)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10004-002	1	SHAFT, MAIN
2	10006-014	1	PULLEY, CROWNED
3	10006-007	4	FEEDER ROLL
4	10006-002	2	PULLEY, TRACTOR BELT
5	99002-003	1	PULLEY, 20XL037
6	99002-006	1	PULLEY, 24XL037
7	99000-007	2	BELT, TRACTOR
8	99003-003	2	BEARING, 1/2" ID X 1-1/8" OD W/GROOVE
9	99022-004	2	RETAINING RING 1/2
10		10	SCREW, SET, 10-24 X 3/8
11		4	SCREW, SET, 8/32 X 3/8

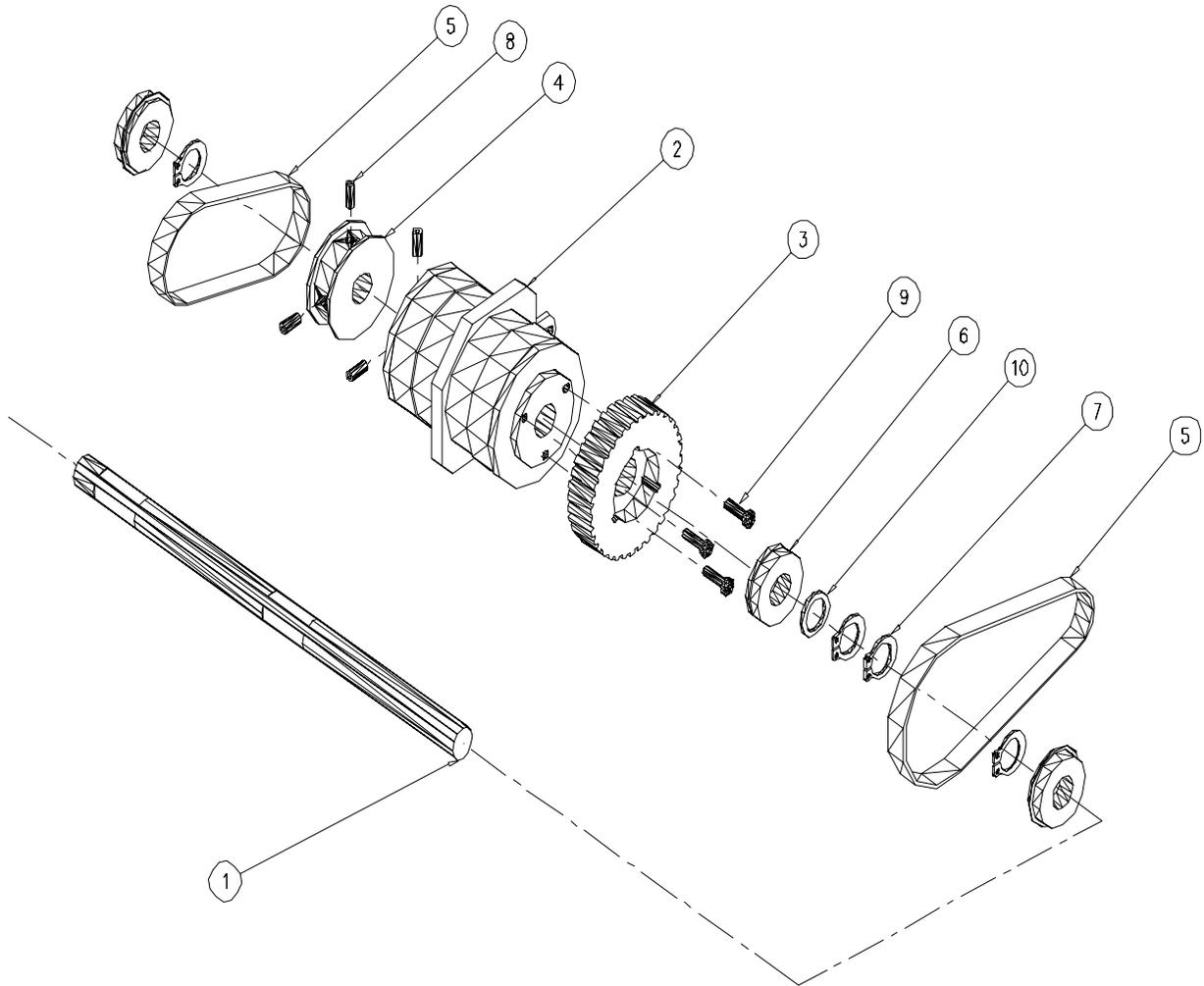
Fig. 6-7



**CLUTCH SHAFT ASSEMBLY (fig. 6-8)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10004-005	1	SHAFT, CLUTCH
2	99008-001	1	CLUTCH/BRAKE
3	10006-006	1	PULLEY, CLUTCH 36XL037
4	99002-004	1	PULLEY, 22XL037
5	99000-002	2	BELT, TIMING 110XL037
6	99003-003	3	BEARING, 1/2" ID X 1-1/8" OD W/GROOVE
7	99022-004	4	RETAINING RING 1/2
8		4	SCREW, SET, 8/32 X 1/4
9		3	SCREW, PAN HD, 6-32 X 3/8
10	99003-018	2	WASHER, NYLON, 1/2 X 1/16

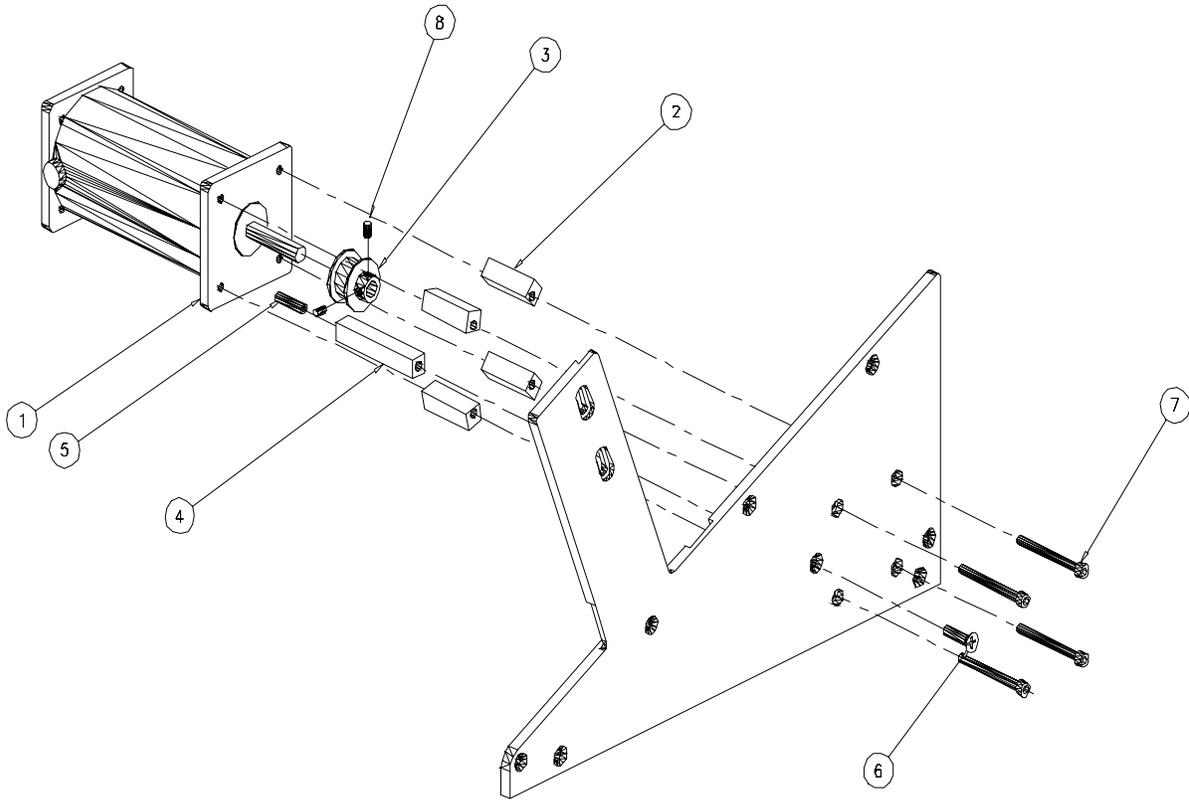
Fig. 6-8



**MOTOR ASSEMBLY (fig. 6-9)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	99001-003	1	MOTOR, 42142
2	10012-001	4	STANDOFF, MOTOR (100)
3	99002-008	1	PULLEY, MOTOR 12XL037
4	10008-006	1	STAND OFF, CLUTCH
5	99006-021	1	PIN, ROLL 3/16 X 1-1/4
6		1	SCREW, FLAT HD, 10-24 X 3/4
7		4	SCREW, SKT HD, 8-32 X 1-3/4
8		2	SCREW, SET, 6-32 X 1/4

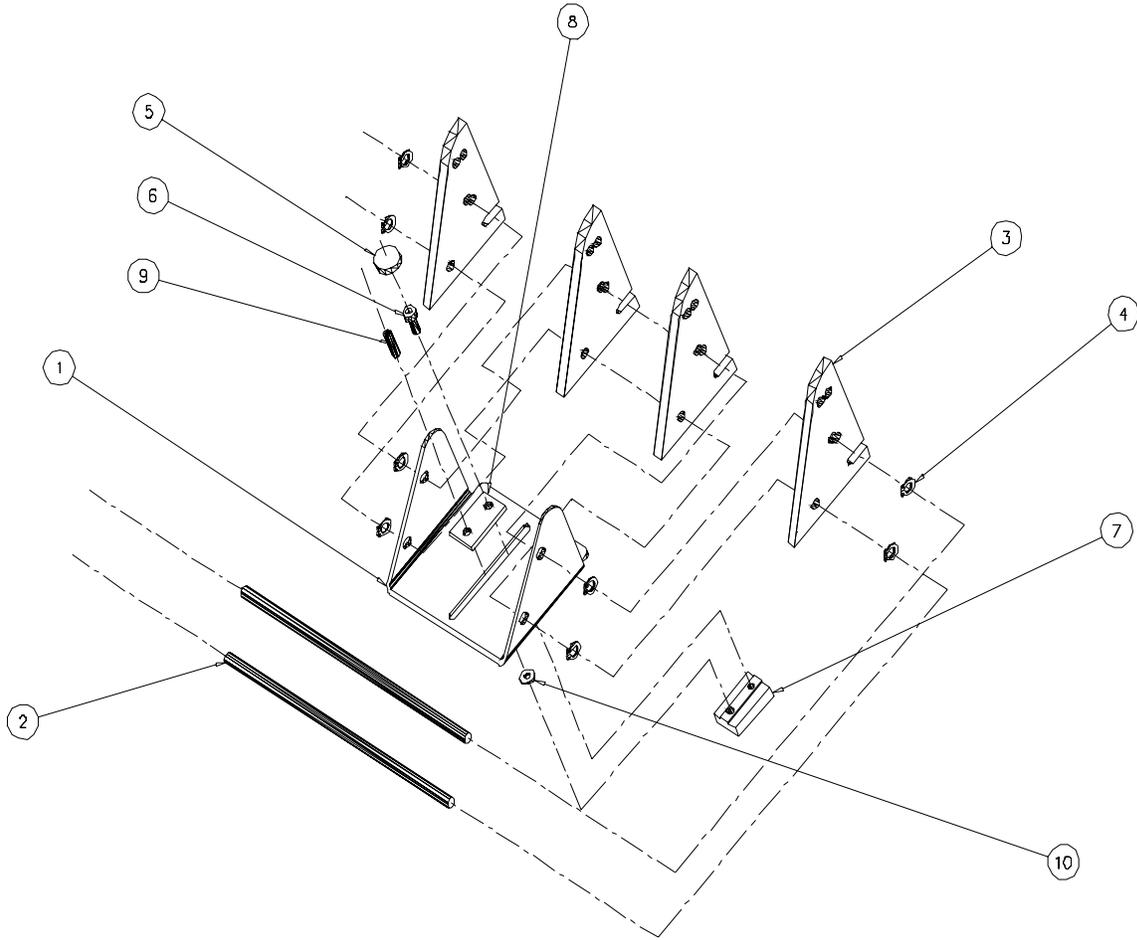
Fig 6-9



**PAPER SLIDE ASSEMBLY (fig. 6-10)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10009-003	1	BRACKET, PAPER SLIDE
2	10004-014	2	SHAFT, PAPER SLIDE
3	10005-016	4	SUPPORT, PAPER SLIDE
4	99022-001	8	RETAINING RING, 1/4"
5	99004-002	1	KNOB, #10 SCREW
6		1	SCREW, SOCKET HD, 10-24 X 1/2
7	10007-003	1	NUT, PAPER SLIDE
8	10007-004	1	WASHER, PAPER SLIDE
9	99006-020	1	PIN, ROLL, 5/32 X 3/4
10		1	WASHER, FLAT, #6

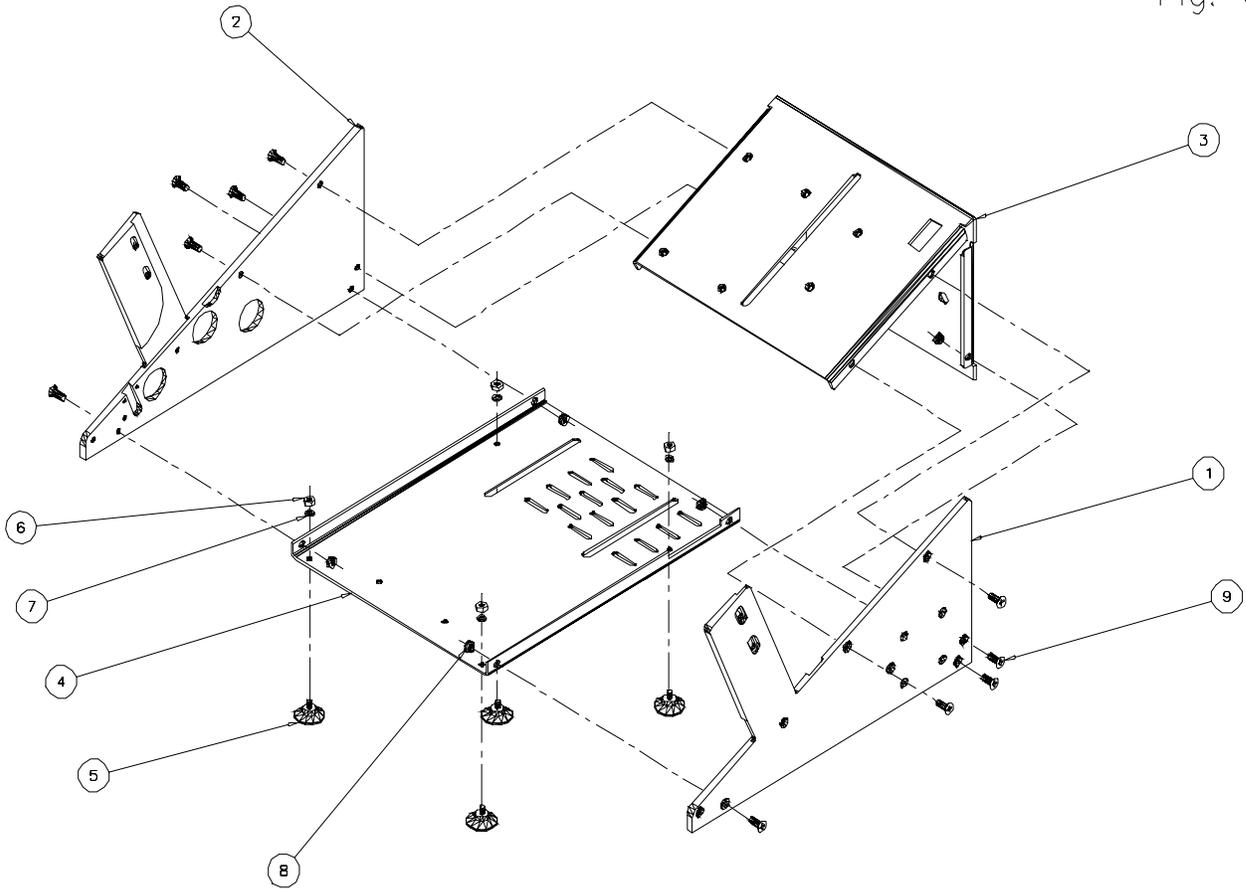
Fig. 6-10



**CHASSIS ASSEMBLY (fig. 6-11)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10000-002	1	SIDE FRAME, L.H. (900)
2	10000-001	1	SIDE FRAME, R.H. (900)
3	10001-001	1	COVER, TOP
4	10002-001	1	COVER, BOTTOM
5	99007-001	4	SUCTION CUP, FOOT
6		4	NUT, HEX 8-32
7		4	WASHER, LOCK #8
8		10	NUT, PEM 10-24
9		10	SCREW, FLAT HD, 10-24 X 1/2

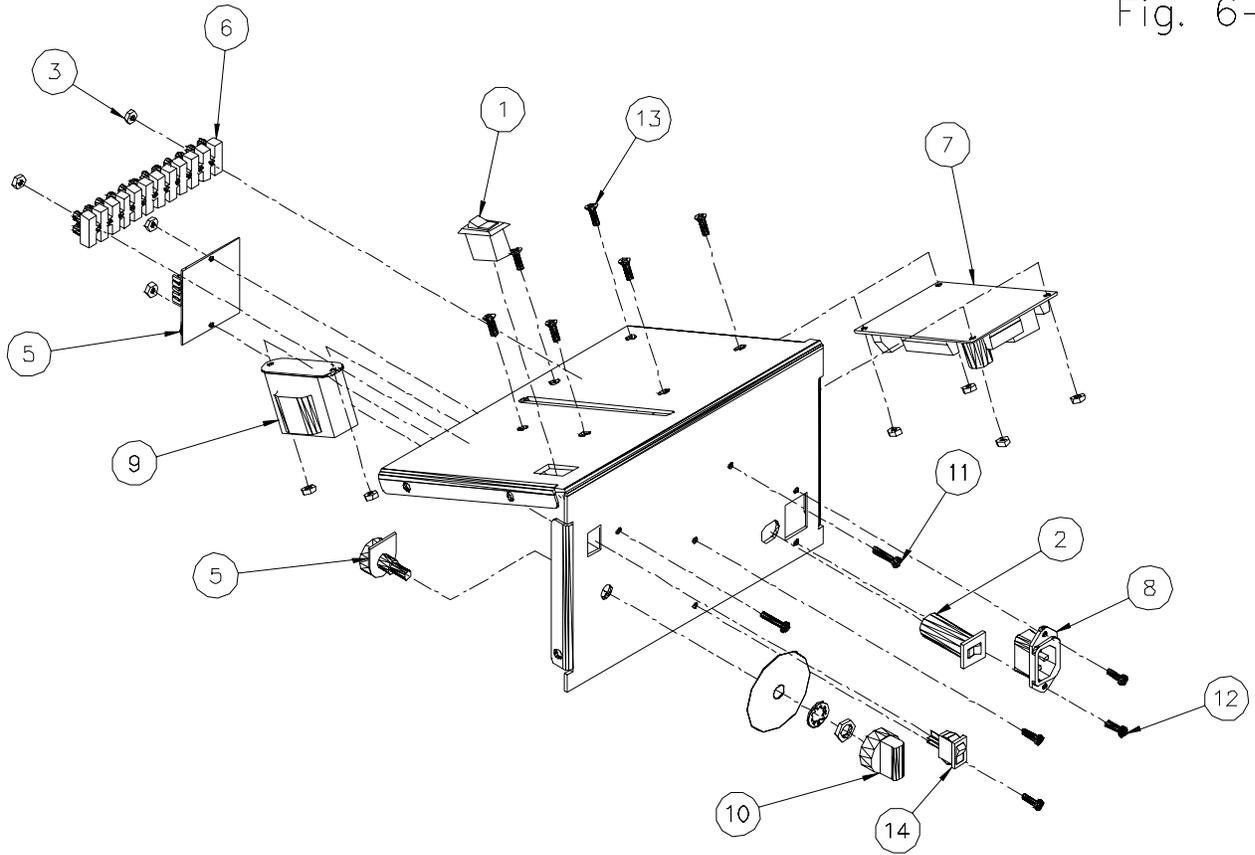
Fig. 6-11



**ELECTRICAL COMPONENT ASSEMBLY (fig. 6-12)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	98000-001	1	SWITCH, POWER (RED ROCKER)
2	98004-002	1	CIRCUIT BREAKER, 1 AMP
3		12	NUT, HEX, 6-32
4	98007-001	1	CORD, POWER (NOT SHOWN)
5	98005-001	1	CONTROLLER, MOTOR, 90V DC W/ SPEED POT
6	98001-002	1	TERMINAL STRIP (12 CONNECTOR)
7	98006-002	1	CIRCUIT BOARD I/O
8	98003-001	1	RECEPTACLE, POWER CORD
9	98008-001	1	TRANSFORMER
10	99004-015	1	KNOB, SPEED POT
11		2	SCREW, PAN HD, 6-32 X 3/4
12		4	SCREW, PAN HD, 6-32 X 1/2
13		6	SCREW, FLAT HD, 6-32 X 1/2
14	98000-033	1	SWITCH, ROCKER (SMALL, RED)

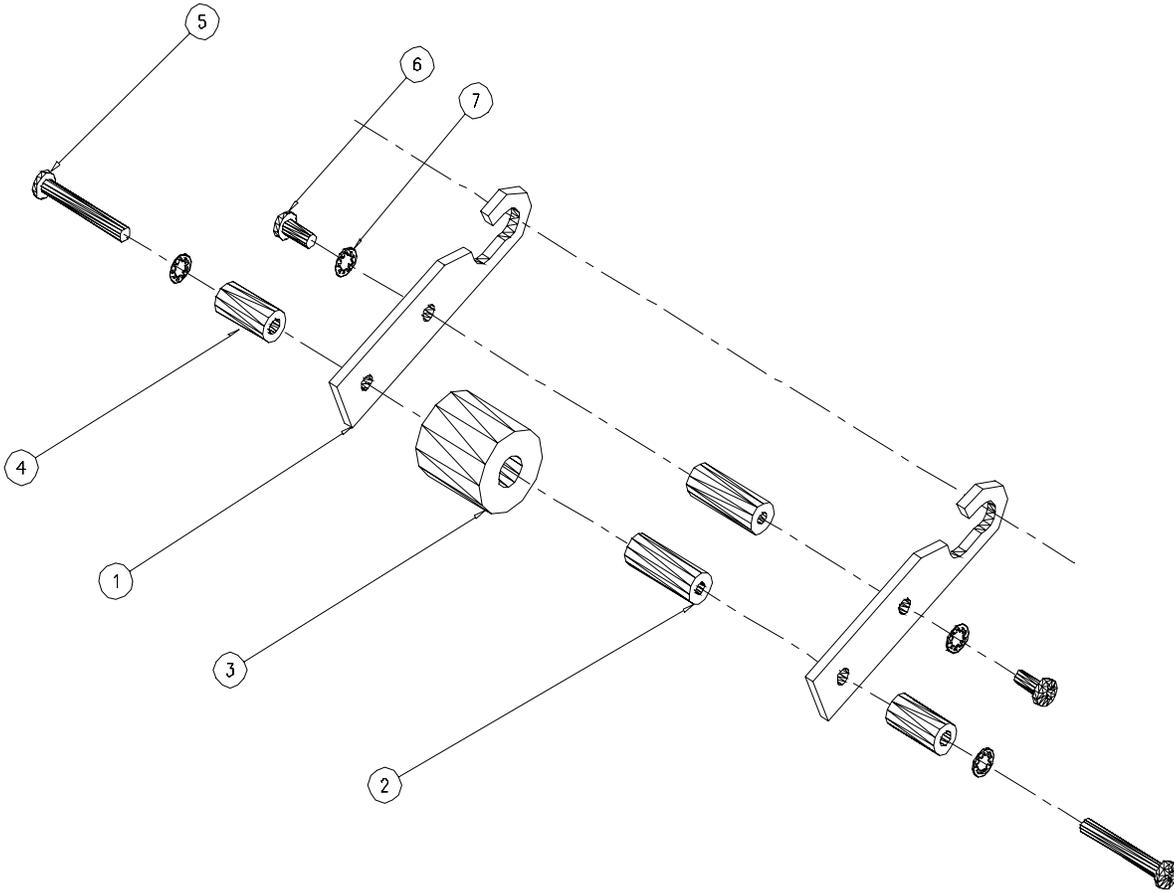
Fig. 6-12



**TRAILING ARM ASSEMBLY (fig. 6-13)**

<b>ITEM</b>	<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
1	10011-006	2	ARM, TRAILER
2	10012-003	2	SPACER
3	10006-016	1	ROLLER
4	10004-007	2	WEIGHT
5		2	SCREW, PAN HD 8/32 X 1-1/4
6		2	SCREW, PAN HD 8/32 X 3/8
7		4	WASHER, LOCK INT. TOOTH #8

Fig. 6-13



**Sure-Feed Engineering Inc.  
SE 900 MP Electrical Schematic  
ECO - Series**

**900 MP - ECO**

