Sure-Feed Engineering Inc.

SE-900-EX

Operation & Parts Manual

Pitney Bowes

SURE-FEED ENGINEERING

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SE 900 EX

OWNERS MANUAL

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Sure-Feed Engineering Inc.
Installation Instructions

1. Remove the two material stop tabs from the pocket in which the feeder will oppose. The feeder has material stops built in to the front of the feeder to replace the tabs.

2. Position the feeder in front of the pocket aligning the micro-switch with the ski arm on the inserter. Slide the two slotted feet into the table edge.

3. With the ski arm in the uppermost position rotate the micro-switch until the switch is activated.

4. Plug the feeder power cord into a 110 VAC grounded outlet.

5. Turn the power switch on and set the speed control to 35%.

6. Lift the ski arm and position the micro-switch so that the feeder starts at the top of the ski arm cycle.

7. The miss-detection circuit on the feeder is the blue wire that you must connect to the jam detection circuit of the inserter. On most inserters, this is terminal #20 on main p/c boards.

8. When a miss is detected, you must press the red reset button on top of the feeder before restarting.

9. You can now cycle the inserter observing the placement and timing of the piece. Moving the micro-switch position and regulating the speed can make slight adjustments. Be sure the piece you are feeding from the SE 900 EX is being fed under the piece being pulled from the opposing pocket.

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 separator.

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 device is not the same as under the other separating device, 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 devices 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 device (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 devices just contact the nip rollers. Move the paper strips to feel if the resistance is equal under each separating device. 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 device with the paper strips again and adjust accordingly. Once the resistance is equal under each separating device 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

There are (2) recessed buttons on the top of the feeder. The green button will cycle the feeder manually. The red button will reset the feeder in case of an error.

A red LED near the manual push buttons indicates errors. The feeder will stop and this LED will light up or flash if an error has occurred. The LED will flash for a missing piece, and the LED will stay lit for an out of paper condition.

With the power still off, turn the speed control counter-clockwise to the minimum position.

Turn the power switch on and cycle the feeder by repeatedly pressing the cycle button (the green button on top of the feeder). Observe the consistency in which the material is feeding.

By turning the separator knob slightly in either direction, you will change the way the material is separating.

By moving the back guide in and out, you will quickly find the position that creates the most consistent separation and gap.

One important item to note; There is no substitution for experience. By working with the SE 900 EX, 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.
SE 900 EX 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.
SE 900 EX Troubleshooting Guide

Problem	Solution
Feeder will not run.	**Check circuit breaker condition.** **Check outlet power source.** **Check power switch.**
Feeder runs but no material is being dispensed.	**Check material supply.** **Remove all material and follow setup procedure.** **Check rollers and belts for excessive wear or dirt.**
Feeder does not create a gap between pieces.	**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.**
Feeder does not detect material.	**Adjust position of the sensor.**
Thick material does not feed well.	**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).**

Sure-Feed Engineering Inc.
SE 900 EX Troubleshooting Guide Cont.

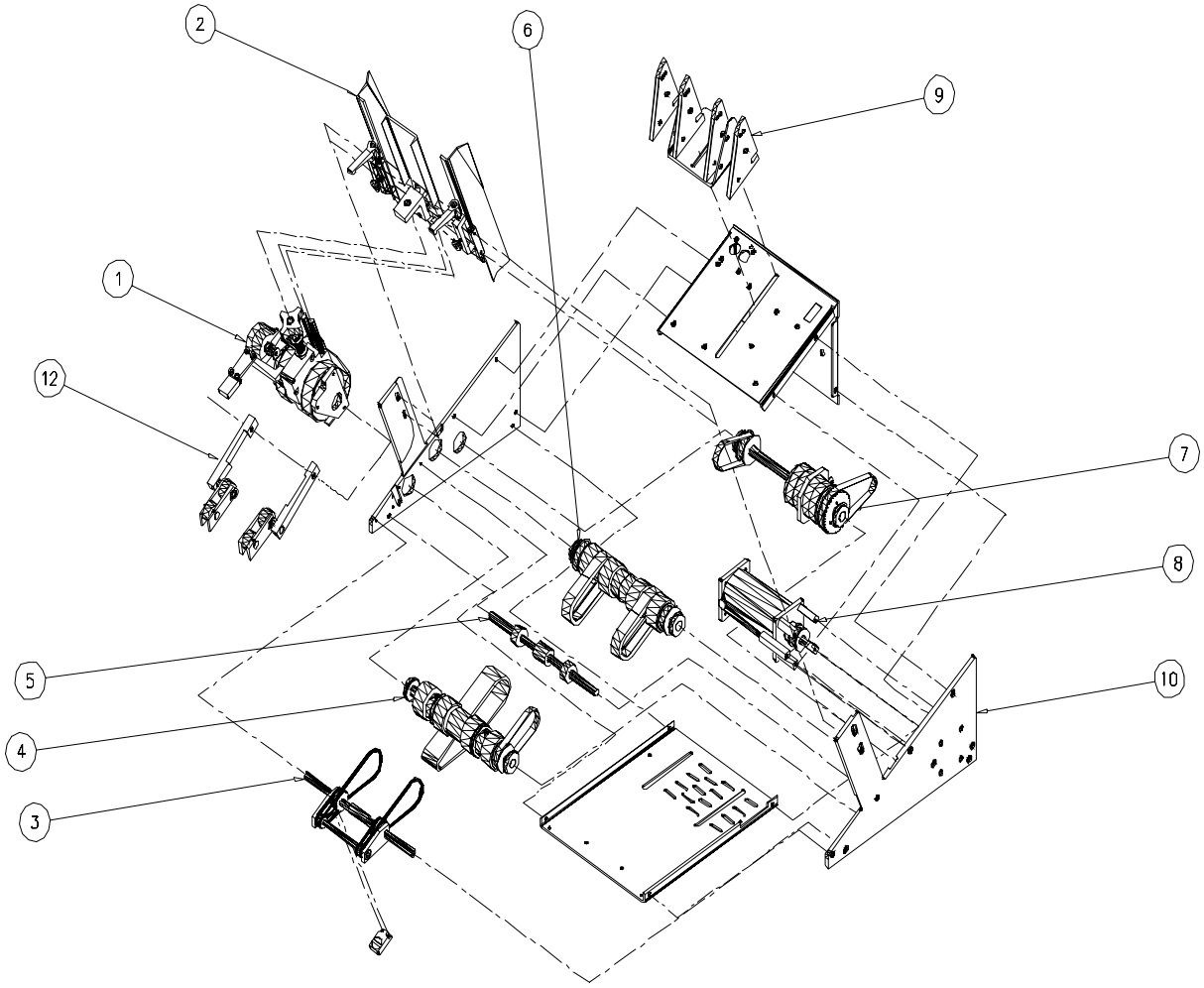
Problem	Solution
Thin material does not feed.	**Adjust separation device as described in section 2.** **Remove material and fan the stack allowing air to separate the pieces.** **Raise the rear of the material stack by moving the wedge forward.**
Material feeds double.	**After confirming set up is correct, remove the separator and inspect the o-rings. If the o-rings are worn past the depth of the groove in the separating device, 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.**
Material skews after nip rollers	**Loosen cap screws that secure the exit ramp spreader on the trailing arm assembly. Refer to figure 5-13, item 9. Twist the assembly so that the upstream nip rollers are even and they contact the o-ring belts with the same amount of force. Retighten cap screws.**

Sure-Feed Engineering Inc.
SE 900 EX parts manual

FEEDER ASSEMBLY (Fig. 6-1)

ITEM	FIGURE	QTY.	DESCRIPTION
1	6-2	1	SEPARATOR DEVICE ASSEMBLY
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)

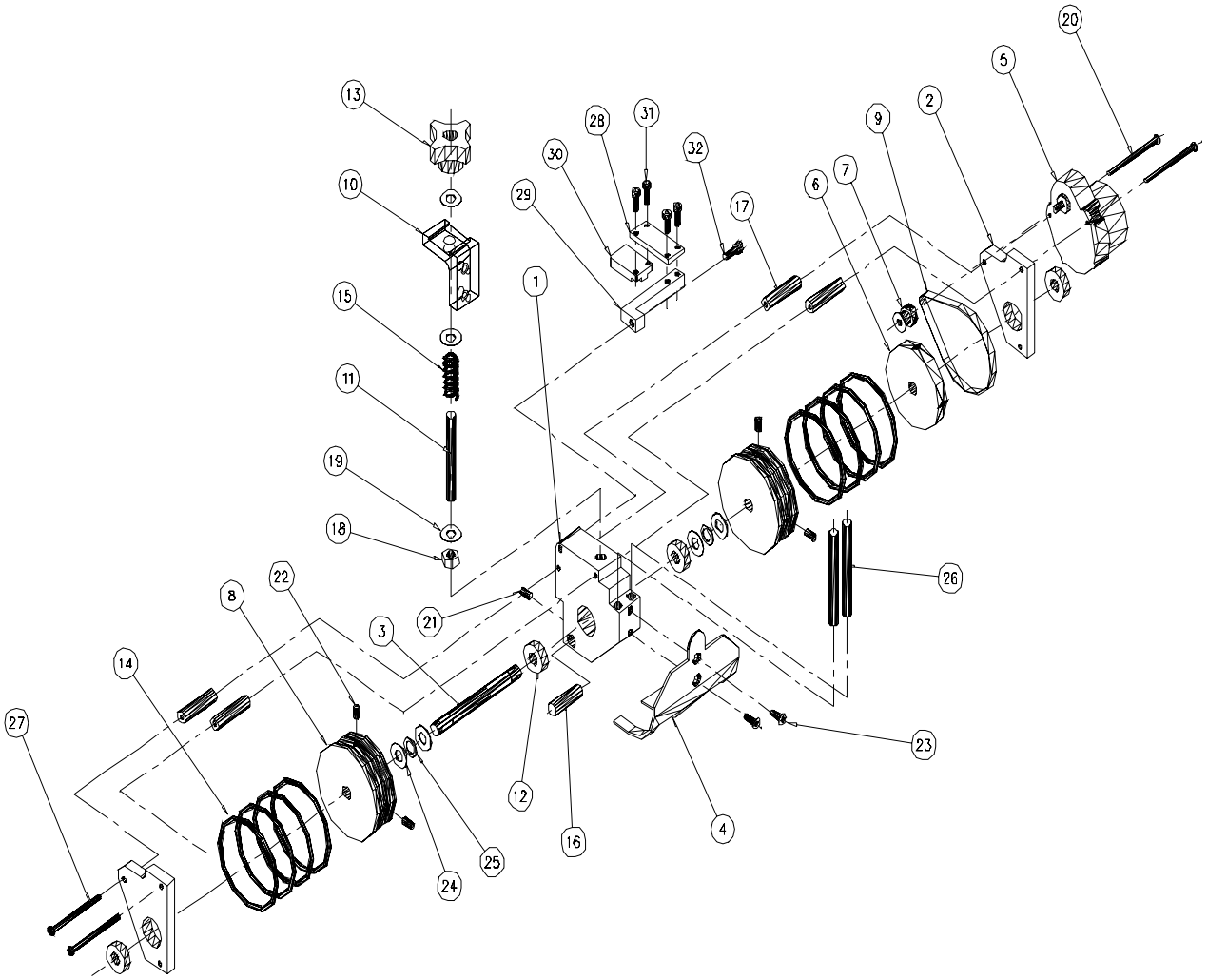
SEPARATOR DEVICE ASSEMBLY (Fig. 6-2)

ITEM	PART NO.	QTY.	DESCRIPTION
1	10007-001	1	BLOCK, SEPARATOR, 3” ROLLER
2	10011-001	2	PLATE, MOTOR MOUNT (SEPARATOR)
3	10004-001	1	SHAFT, SEPARATOR
4	10005-003	1	SHROUD, SEPARATOR
5	99001-001	1	MOTOR, SEPARATOR
6	99002-001	1	PULLEY, 100MXL025 (NO HUB 3/8” B.)
7	99002-002	1	PULLEY, 16MXL025 (3/16” B.)
8	10006-001	2	WHEEL, SEPARATOR, 3” DIA
9	99000-006	1	BELT, 115MXL025
10	10007-010	1	BLOCK, SEPARATOR ADJUSTING (REF ONLY)
11	10004-028	1	STUD, SEPARATOR ADJUSTING
12	99003-008	4	BEARING, 3/8” I.D. X 7/8” O.D.
13	99004-001	1	KNOB, 5/16-24 FE
14	10014-002	8	O-RING, SEPARATOR 3”
15	99005-001	1	SPRING, COMPRESSION
16	99006-001	1	PIN, DOWEL, 3/8” X 1-1/4”
17	10012-002	4	STANDOFF, SEPARATOR MOTOR
18		1	NUT, HEX, 5/16-24
19		2	WASHER, FLAT, 5/16
20		2	SCREW, PAN HD, 6-32 X 2-1/2
21		1	SCREW, SET, 10-24 X 1/8
22		4	SCREW, SET, 10-24 X 3/8
23		2	SCREW, FLAT HD, 8-32 X 1/2
24	99003-017	5	WASHER, NYLON, 3/8 ID X 1/16
25	99003-016	2	WASHER, NYLON, 3/8 ID X 1/32
26	99006-002	2	PIN, DOWEL, 5/16 X 3
27		2	SCREW, PAN HD, 6-32 X 2-1/4

SEPARATOR DEVICE ASSEMBLY CONT. (Fig. 6-2)

28	10009-001	1	BRACKET, SENSOR MTG. (UPPER)
29	10008-001	1	BAR, SENSOR MTG. (UPPER)
30	98009-001	1	SENSOR, RECEIVER
31		4	SCREW, SOCKET HD, 8-32 X 3/8
32		1	SCREW, SOCKET HD, 10-24 X 5/8

Fig. 6–2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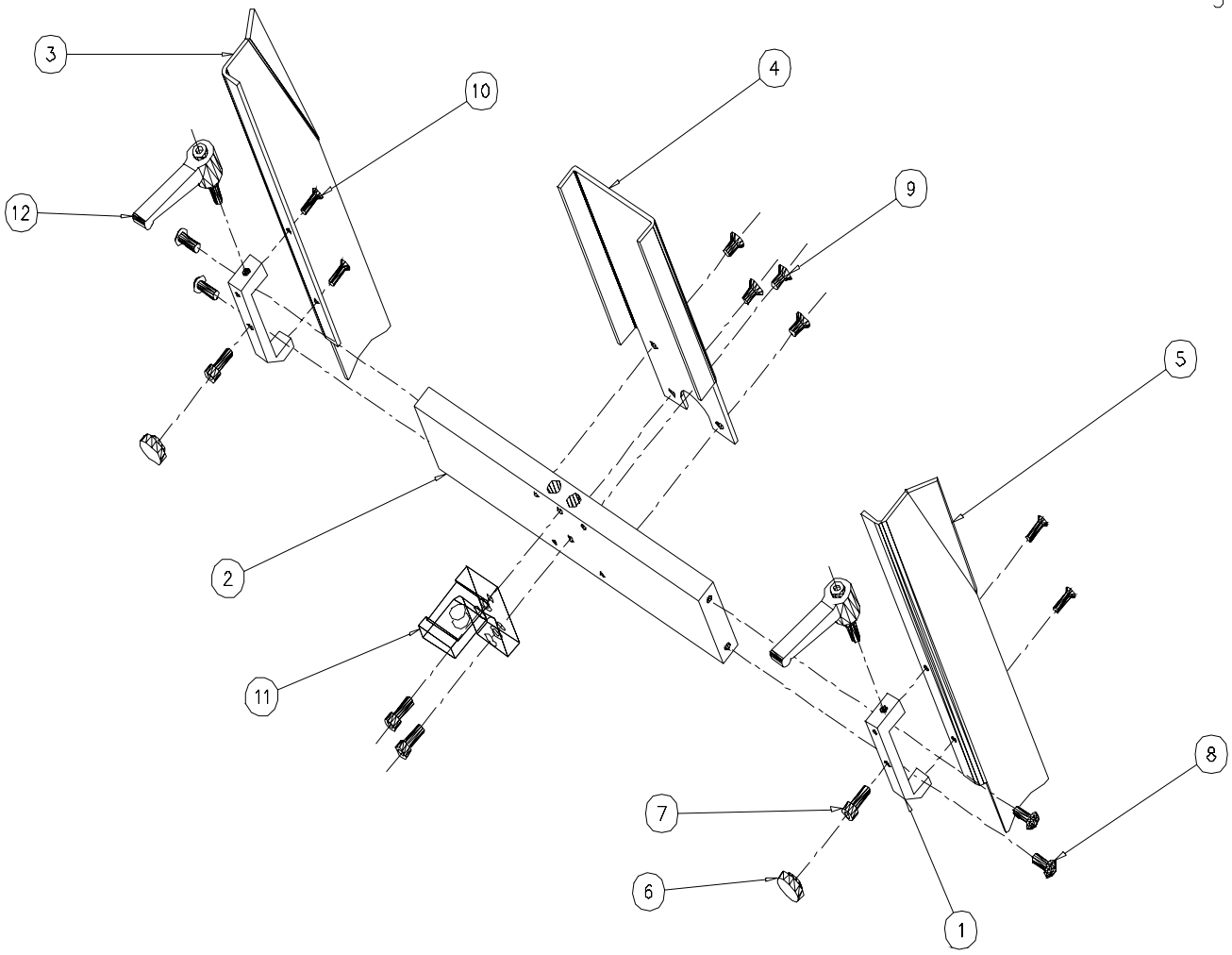
SIDE GUIDE ASSEMBLY (Fig. 6-3)

ITEM	PART NO.	QTY.	DESCRIPTION
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	GUIDE, FRONT PAPER (SHORT)
5	10005-005	1	SIDE GUIDE (900) LH (SHORT)
6	99004-002	4	KNOB, #10 SCREW
7		4	SCREW, SOCKET HD, 10-24 X 1/2
8		4	SCREW, BUTTON 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

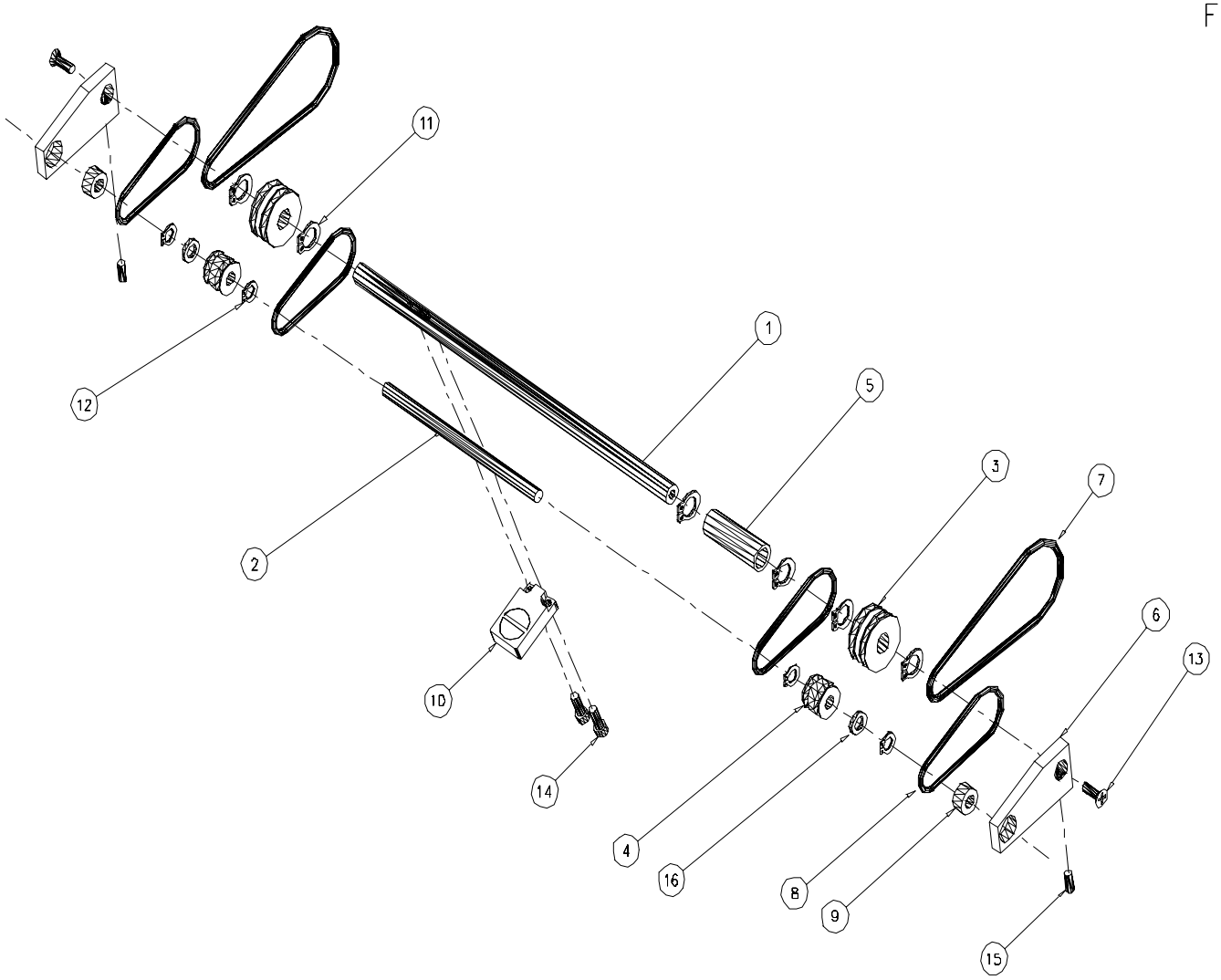
Fig. 6–3



FRONT SHAFT ASSEMBLY (Fig. 6-4)

ITEM	PART NO.	QTY.	DESCRIPTION
1	10004-004	1	SHAFT, FRONT
2	10004-011	1	SHAFT, IDLER EXTENSION
3	10006-010	2	PULLEY, TRIPLE O-RING
4	10006-009	2	PULLEY, DOUBLE O-RING IDLER
5	10006-008	1	ROLLER, NOSE
6	10011-005	2	PLATE, ACCELERATION EXTENSION
7		2	BELT
8		4	BELT
9	99003-002	2	BEARING, 1/4 ID X 5/8 OD, SEALED
10	98009-001	1	SENSOR, RECIEVER
11	99022-003	6	SNAP RING, 3/8
12	99022-001	6	SNAP RING, 1/4
13		2	SCREW, FLAT HD, 8-32 X 1/2
14		2	SCREW, SOCKET HD, 6-32 X 1/2
15		2	SCREW, SET, 8-32 X 3/8
16	99003-013	2	WASHER, NYLON, 1/4 ID X 1/16

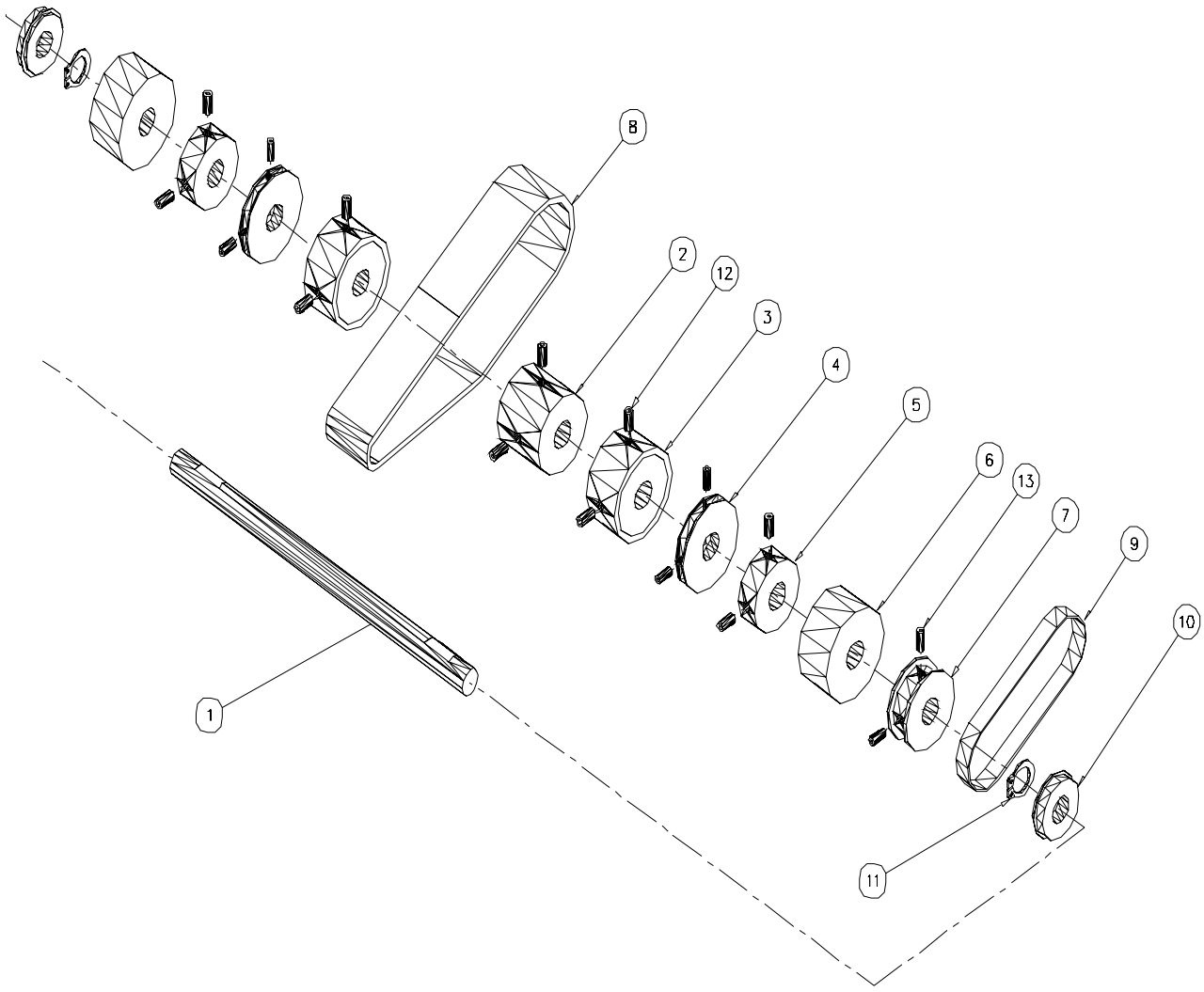
Fig.6-4



SUPPORT SHAFT ASSEMBLY (Fig. 6-5)

ITEM	PART NO.	QTY.	DESCRIPTION
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

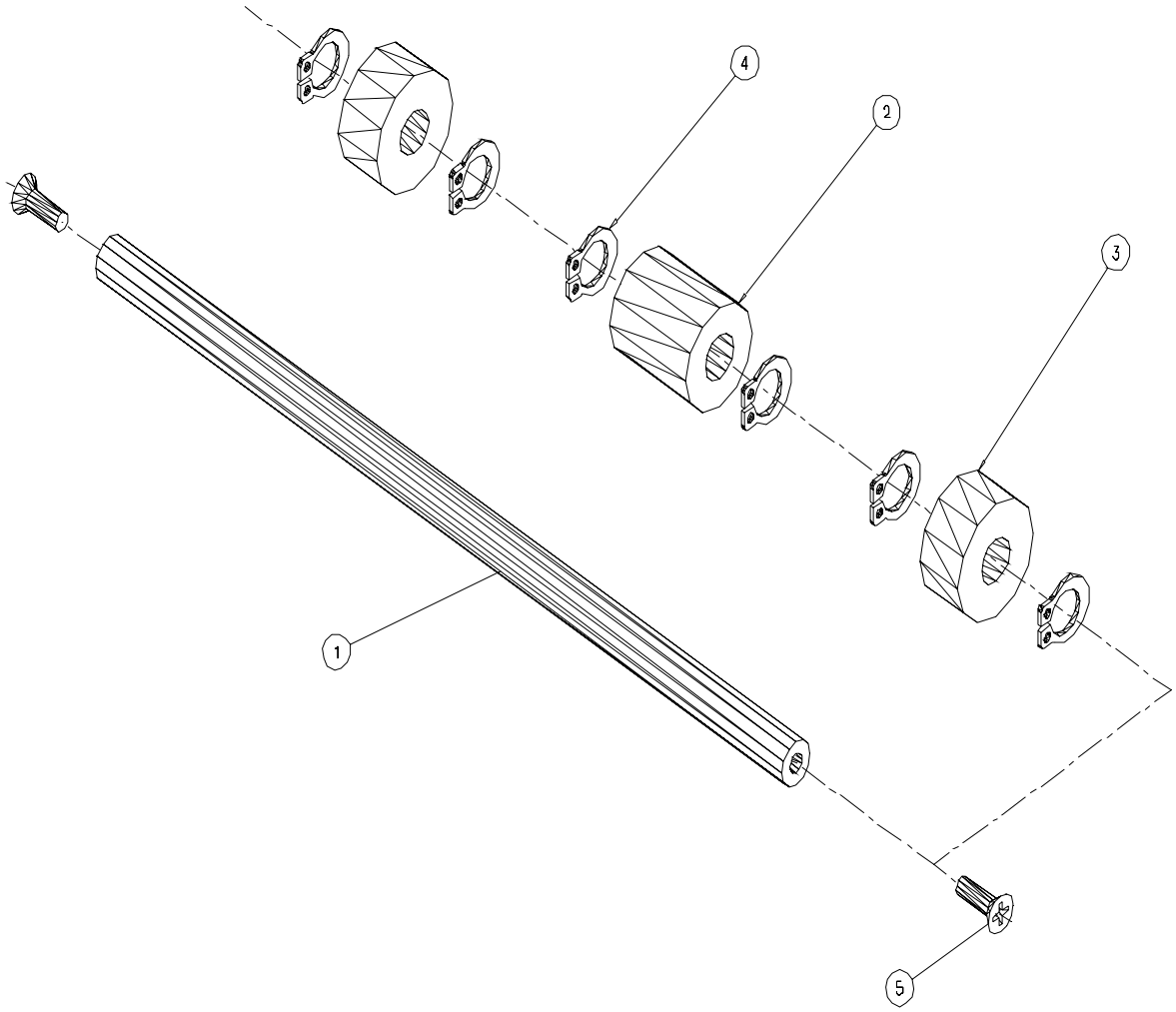
Fig. 6-5



SUPPORT IDLER SHAFT ASSEMBLY (Fig. 6-6)

ITEM	PART NO.	QTY.	DESCRIPTION
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	SNAP RING 3/8
5		2	SCREW, FLAT HD, 8-32 X 1/2

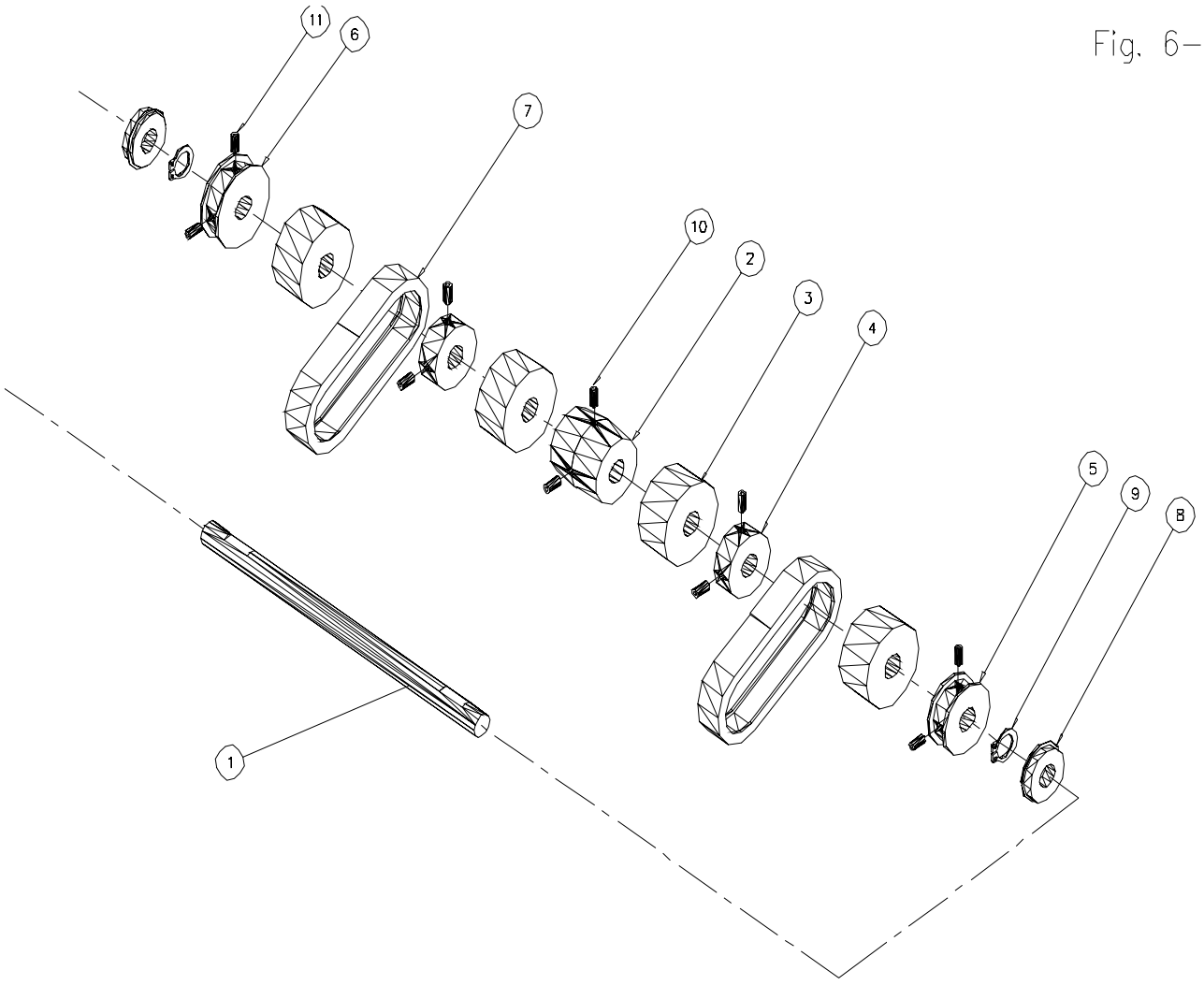
Fig. 6-6



MAIN SHAFT ASSEMBLY (Fig. 6-7)

ITEM	PART NO.	QTY.	DESCRIPTION
1	10004-002	1	SHAFT, MAIN
2	10006-018	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		6	SCREW, SET, 10-24 X 3/8
11		4	SCREW, SET, 8/32 X 3/8

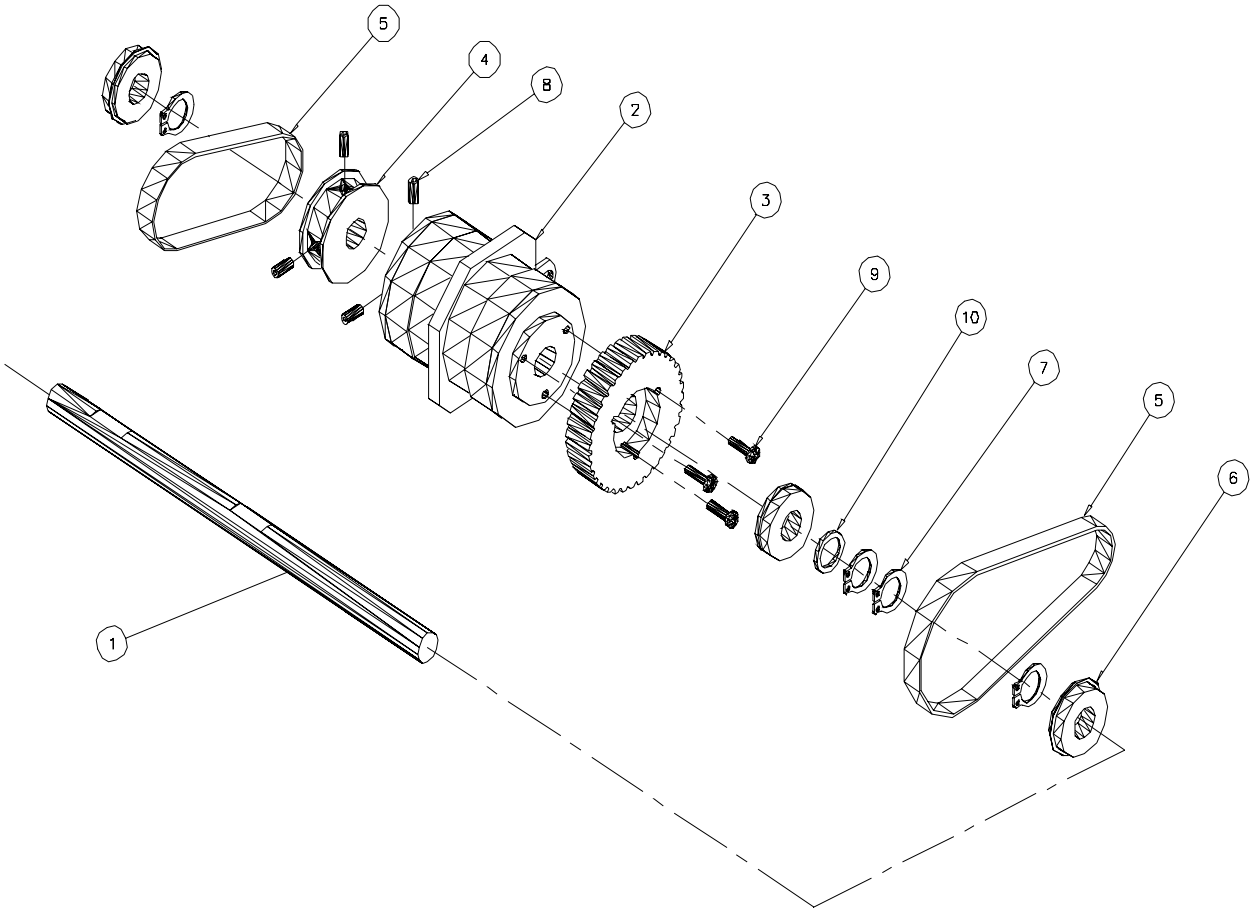
Fig. 6-7



CLUTCH SHAFT ASSEMBLY (Fig. 6-8)

ITEM	PART NO.	QTY.	DESCRIPTION
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	1	WASHER, NYLON, 1/2 ID X 1/16

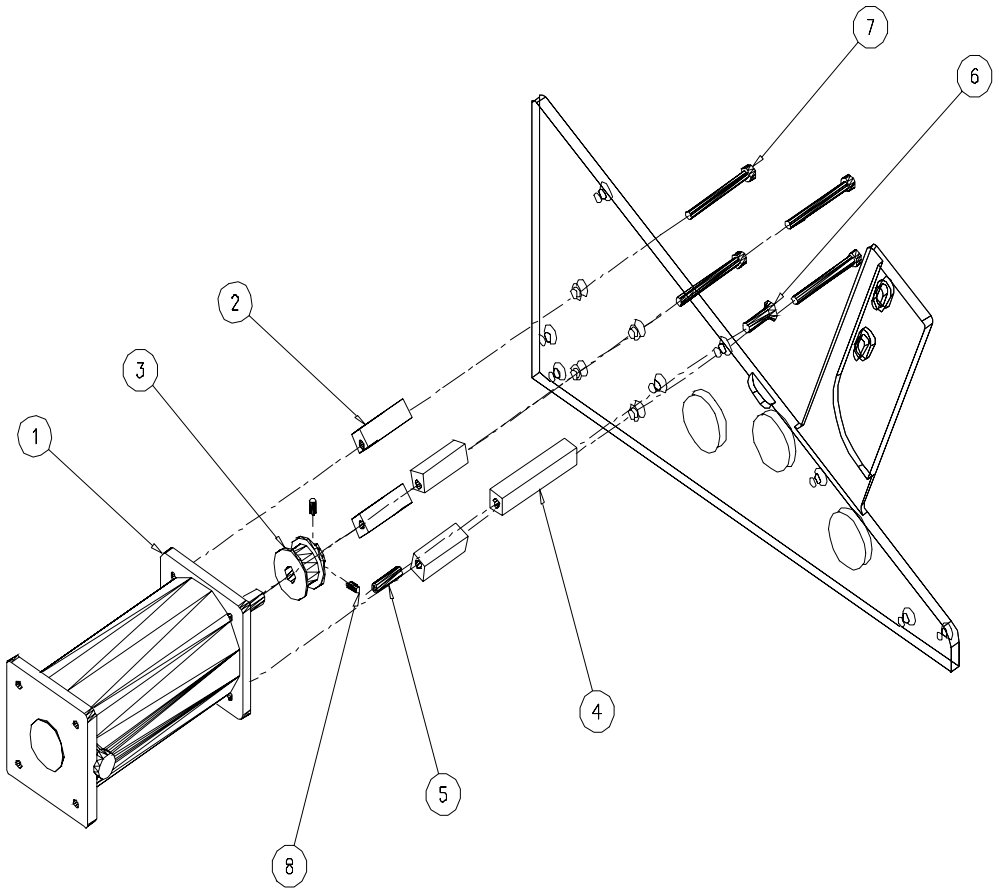
Fig. 6–8



MOTOR ASSEMBLY (Fig. 6-9)

ITEM	PART NO.	QTY.	DESCRIPTION
1	99001-003	1	MOTOR, 4Z142
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, SOCKET HD, 8-32 X 1-3/4
8		2	SCREW, SET, 6-32 X 1/4

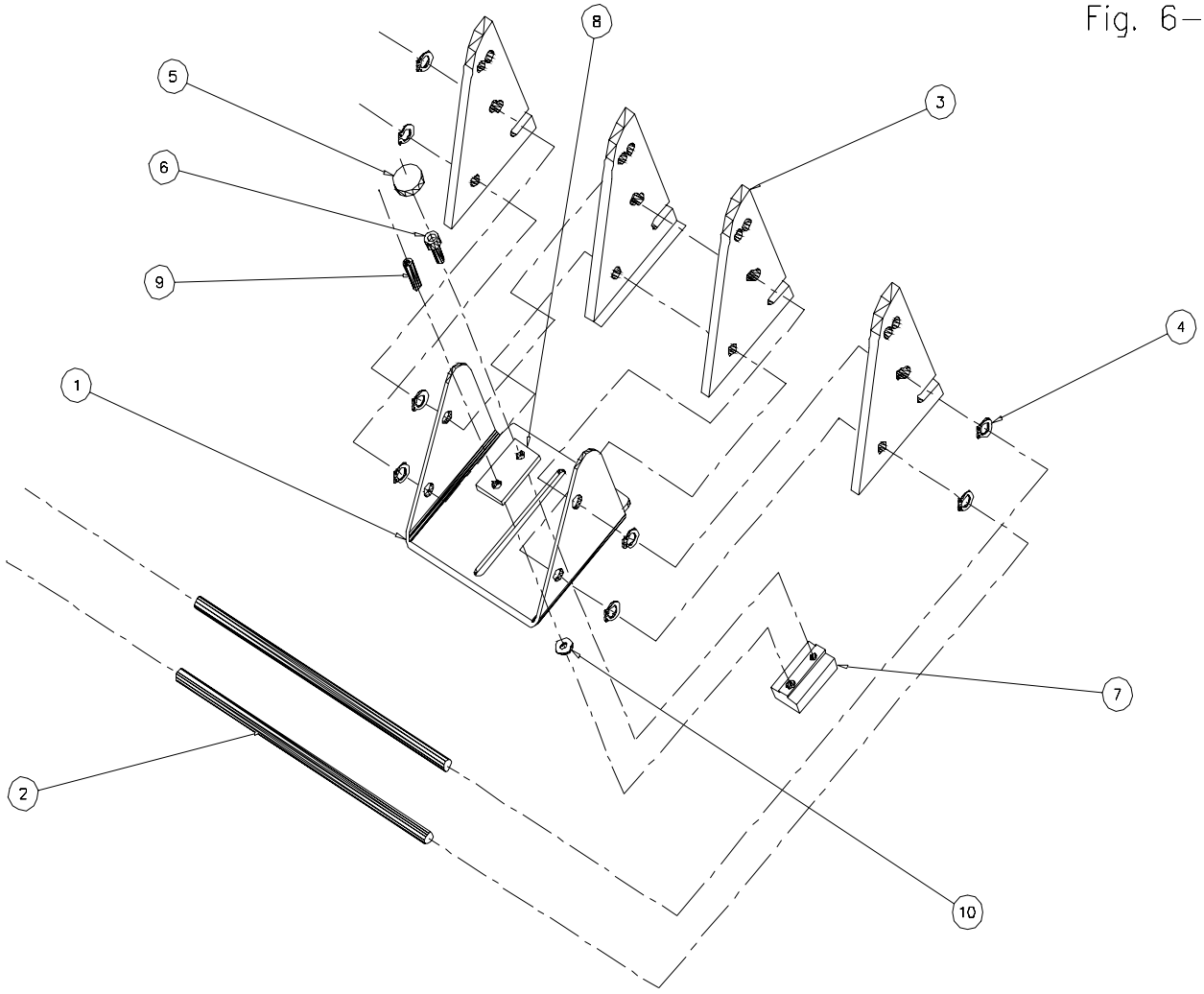
Fig. 6–9



PAPER SLIDE ASSEMBLY (Fig. 6-10)

ITEM	PART NO.	QTY.	DESCRIPTION
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

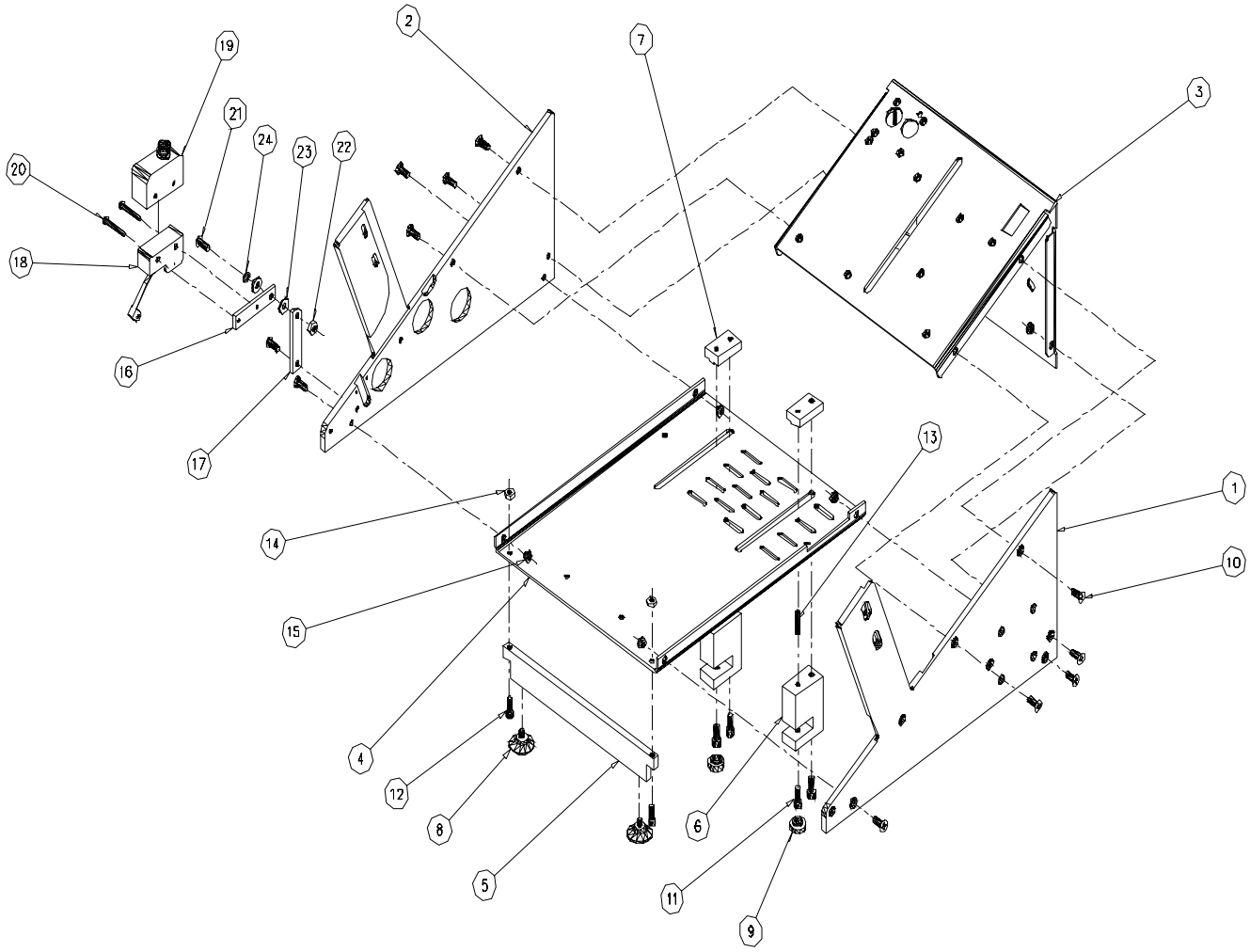
Fig. 6–10



CHASSIS ASSEMBLY (Fig. 6-11)

ITEM	PART NO.	QTY.	DESCRIPTION
1	10000-002	1	SIDE FRAME, L.H. (900)
2	10000-001	1	SIDE FRAME, R.H. (900)
3	10001-002	1	COVER, TOP SE-900-EX
4	10002-001	1	COVER, BOTTOM
5	10010-001	1	FOOT, FRONT
6	10010-002	1	FOOT, REAR
7	10007-003	2	NUT, REAR FOOT
8	99007-001	2	SUCTION CUP, FOOT
9	99004-002	2	KNOB, #10 SCREW
10		10	SCREW, FLAT HD, 10-24 X 1/2
11		4	SCREW, SOCKET HD, 10-24 X 3/4
12		2	SCREW, SOCKET HD, 10-32 X 5/8
13	99006-020	1	PIN, ROLL, 5/32 X 3/4
14		2	NUT, HEX 10-32
15		10	NUT, PEM 10-24
16	10009-019	1	BRACKET, SWITCH MTG
17	10009-018	1	BRACKET, SWITCH SUPPORT
18	98000-020	1	SWITCH, LIMIT
19	98000-021	1	COVER, SWITCH (LIMIT)
20		2	SCREW, PAN HD, 6-32 X 1
21		2	SCREW, BUTTON HD, 10-24 X 5/8
22		1	NUT, HEX, 10-24
23		2	WASHER, FLAT, #10
24		1	WASHER, SPLIT LOCK, #10

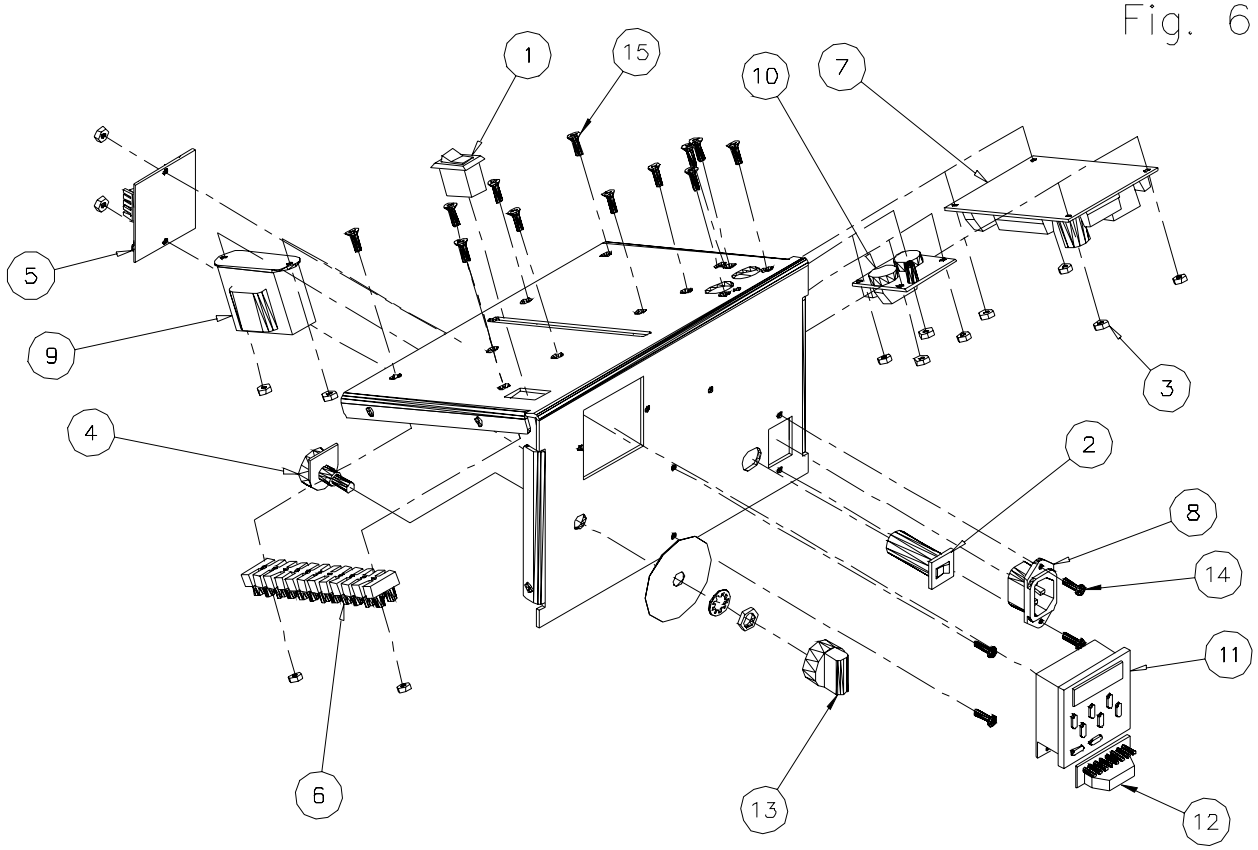
Fig. 6-11



ELECTRICAL COMPONENT ASSEMBLY (Fig. 6-12)

ITEM	PART NO.	QTY.	DESCRIPTION
1	98000-001	1	SWITCH, POWER (RED ROCKER)
2	98004-002	1	CIRCUIT BREAKER, 1 AMP
3		16	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	98006-005	1	CIRCUIT BOARD, SWITCH
11	98009-009	1	COUNTER, BATCH (OPTIONAL)
12	98006-006	1	CIRCUIT BOARD, BATCH COUNTER (OPTIONAL)
13	99004-015	1	KNOB, SPEED POT
14		4	SCREW, PAN HD, 6-32 X 1/2
15		10	SCREW, FLAT HD, 6-32 X 1/2

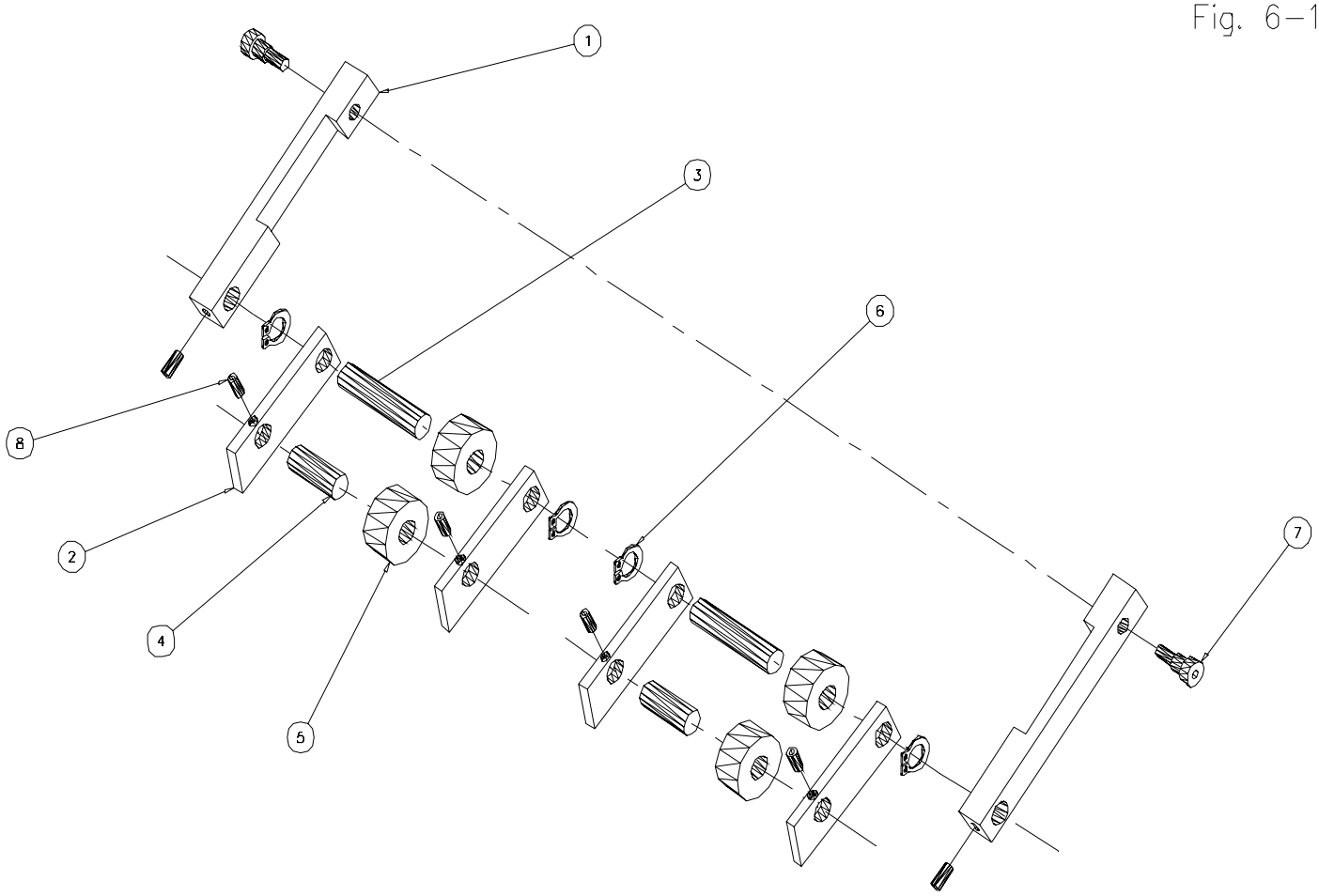
Fig. 6—12



TRAILING ARM ASSEMBLY (Fig. 6-13)

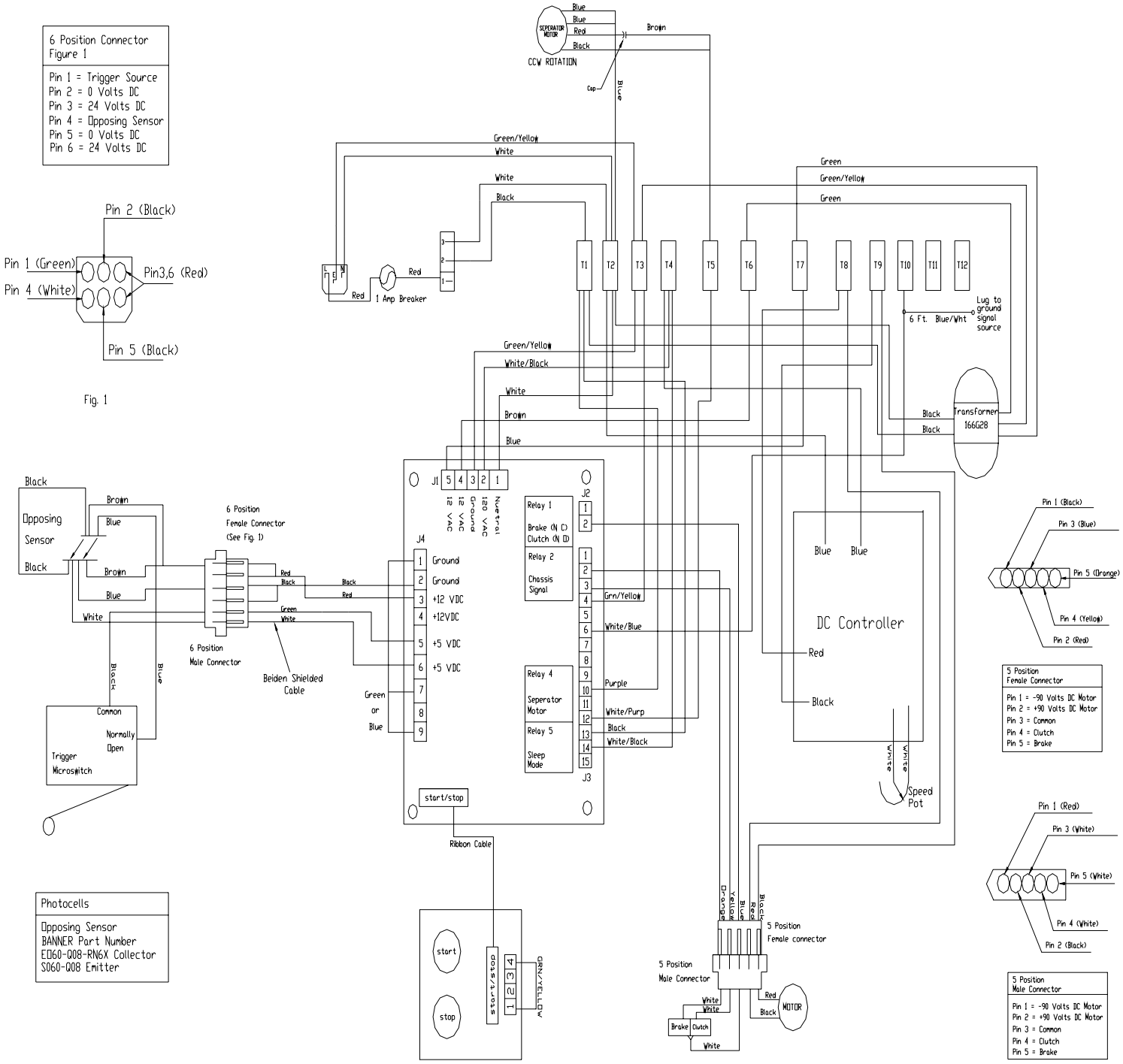
ITEM	PART NO.	QTY.	DESCRIPTION
1	10008-023	2	ARM, TRAILER (UPPER)
2	10008-025	2	ARM, TRAILER (LOWER)
3	10004-012	2	SHAFT, IDLER, 1/4 X 1/2
4	10004-013	2	SHAFT, IDLER, 1/4 X 1
5	10006-019	4	ROLLER, EXIT RAMP
6	99022-001	2	SNAP RING, 1/4
7	99033-006	2	BOLT, SHOULDER, 1/4 X 1/4
8		4	SCREW, SET, 8-24 X 1/8

Fig. 6–13



Sure-Feed Engineering Inc.
SE 900 EX Electrical Schematic

900 EX


6 Position Connector
Figure 1
Pin 1 = Trigger Source
Pin 2 = 0 Volts DC
Pin 3 = 24 Volts DC
Pin 4 = Opposing Sensor
Pin 5 = 0 Volts DC
Pin 6 = 24 Volts DC
Pin 2 (Black)
Pin 1 (Green)
Pin3,6 (Red)
Pin 4 (White)
Pin 5 (Black)
Fig. 1
SEPERATOR MOTOR
CCW ROTATION
Blue
Blue
Red
Black
Brown
Cap
Green/Yellow
White
White
Black
Green
Green/Yellow
Green
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
Red
1 Amp Breaker
Red
6 Ft. Blue/Wht
Lug to ground signal source
Green/Yellow
White/Black
White
Brown
Blue
Transformer 166628
Black
Black
J1
5
4
3
2
1
12 VAC
12 VAC
Ground
120 VAC
Nuetral
J2
Relay 1
Brake (N C)
Clutch (N O)
Relay 2
Chassis Signal
Relay 4
Seperator Motor
Relay 5
Sleep Mode
J3
J4
1 Ground
2 Ground
3 +12 VDC
4 +12VDC
5 +5 VDC
6 +5 VDC
7
8
9
Grn/Yellow
White/Blue
Purple
White/Purp
Black
White/Black
Blue
Blue
DC Controller
Red
Black
White
Speed Pot
Black
Brown
Opposing Sensor
Blue
Black
Brown
Blue
White
6 Position Female Connector (See Fig. 1)
6 Position Male Connector
Red
Black
Green
White
Black
Red
Beiden Shielded Cable
Green or Blue
Black
Blue
Common
Normally Open
Trigger Microswitch
start/stop
Ribbon Cable
Pin 1 (Black)
Pin 3 (Blue)
Pin 5 (Orange)
Pin 4 (Yellow)
Pin 2 (Red)
5 Position Female Connector
Pin 1 = -90 Volts DC Motor
Pin 2 = +90 Volts DC Motor
Pin 3 = Common
Pin 4 = Clutch
Pin 5 = Brake
Photocells
Opposing Sensor
BANNER Part Number
EQ60-Q08-RN6X Collector
SQ60-Q08 Emitter
start
stop
GRN/YELLOW
5 Position Male Connector
Orange
Yellow
Blue
Red
Black
5 Position Female connector
Red
Black
MOTOR
White
White
Brake
Clutch
White
Pin 1 (Red)
Pin 3 (White)
Pin 5 (White)
Pin 4 (White)
Pin 2 (Black)
5 Position Male Connector
Pin 1 = -90 Volts DC Motor
Pin 2 = +90 Volts DC Motor
Pin 3 = Common
Pin 4 = Clutch
Pin 5 = Brake