



ILLUSTRATED PARTS MANUAL

for

EMC 1

EMBROIDERY PERIPHERAL

Part Number: 110103-01

**A Complete Illustrated Parts Manual For The Melco EMC 1
Embroidery Peripheral.**

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Denver, Colorado 80234
United States of America

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INTRODUCTION

General

The information contained in this manual reflects the machine being manufactured as of the date of publication. While all precautions have been taken to avoid errors or misrepresentations of fact, it should be understood that this Manual may not be an accurate representation of earlier versions of the machine.

Model and Serial Numbers

The contents of this manual must be understood by the user to ensure that the correct part for the correct machine model is selected.

Some equipment built by Melco containing the same "common" name may be identified by more than one model part number. In some cases, a different serial number sequence is also prevalent between two models of the same machine.

There are two models of the Melco EMC 1 Sewing Peripheral built with the Melco Head. The Peripheral has a domestic (120v) and an international (220v) version. This manual represents both models of the product. The EMC 1 is identified as model part number 006330-01 (120v) and 006330-02 (220v).

Determine the model number of your machine before you use this manual to order parts. The machine MODEL number is located on the label that is placed on the rear of the chassis, next to the power supply.

Remember, although many parts are identical between the various embroidery peripheral models, this manual should only be used for identifying and ordering parts for the machines described above.

How To Use This Manual

The manual is divided into several sections, each containing a set of parts most common to each other, or to a function of the machine.

FIGURES

Accompanying each section is a figure showing the general area of the machine that is represented in that section. Parts are identified with letters and numbers in these figures. Letters contained in circles generally are used to refer the user to a different

figure or section of the manual that identifies the assembly with more detail. Part numbers and part identifications of the numbers inside circles are found on the pages adjacent to the figure.

ITEM NUMBERS

All the numbers in circles on a diagram are listed in the first column of the parts listing accompanying that figure. Each item number in each figure is identified independently in hopes to help prevent any confusion that may occur by trying to "cross-referencing" part numbers.

PART NUMBERS

The Melco part number is found in the second column of the parts list, directly in line with each item number from the first column.

PART DESCRIPTIONS

Each part listed has a descriptive name in the third column of the parts listing. Hardware (such as screws, washers, etc.) are described by size in order to help the user to identify common hardware items that can be obtained by local sources if desired.

CAUTION: When purchasing hardware from a source other than Melco, it is the user's responsibility to ensure that such hardware is of sufficient quality and grade to meet or exceed Melco's original equipment hardware. Melco assumes no liability for the use of inadequate hardware that was purchased by and/or installed by other than an authorized Melco factory representative.

Special Parts Handling

If care is not taken in handling certain parts of the sewing head, there is a good probability the sewing head will not function properly or the parts will fail prematurely.

These parts are to have special handling considerations from the vendor, through quality control inspection, into spare parts inventories, then on to packaging for shipping, and finally to installation.

Handling of these parts (and for that matter all parts), is not limited to the considerations below. Please use common sense, good judgment, and accepted handling practices in handling all parts. If you have any questions or concerns, please call your area service department.

General Considerations

- * Painted surfaces need to be protected from dirt, other foreign matter, nicks, and scratches.
- * Non-painted surfaces must not be touched by the human hand, to prevent corrosive body oils, dirt, and other foreign matter from contaminating the surfaces.
- * Protect all bearings, bushings, cams, rails, gears, rollers, needle bars, pins, studs, connecting rods, guide shafts, and other surface finishes from dirt, other foreign matter, marring, scratches, and nicks, etc.
- * Bearing surfaces and shaft bore surfaces need to be thoroughly cleaned and mating parts oiled before assembly.

Special Packaging

Several parts are packaged in specially sealed packages. These packages keep lubricant on the parts and protect them from contamination during shipment. To install these parts, clean your hands and place a small amount of sewing machine oil on your fingers to keep the integrity of the part intact.

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MACHINE ASSEMBLIES (COVERS/TABLE TOP)

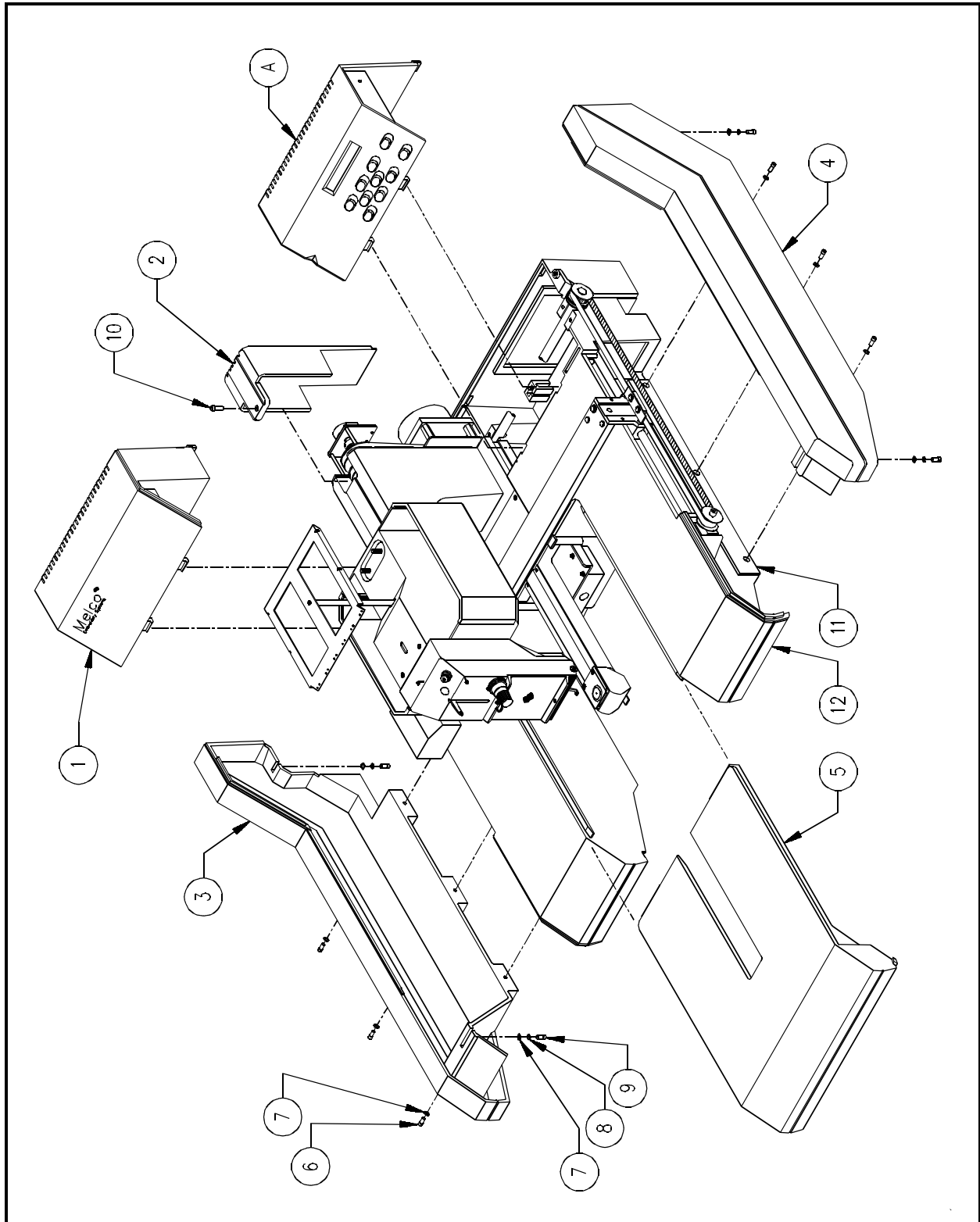


Figure P - 1

Machine Assemblies (Covers/Table Top)**Reference Figure P-1**

Item No.	Part Number	Item Description	Comments
A	-----	Keyboard Cover Assembly	See Page P-3
1	004748-21	Cover, Electronics, Sub-assembly	
2	003618-21	Cover, Z Drive	
3	004520-21	Cap, End, Left	
4	004520-22	Cap, End, Right	
5	004521-21	Insert, Table Top	
6	670038-08	Screw, Socket Head Cap, 10-32 x 1/2 "	
7	690034-03	Washer, Flat, #10	
8	690033-03	Washer, Lock, #10	
9	670038-12	Screw, Socket Head Cap, 10-32 x 3/4 "	
10	672018-14	Screw, Socket Head Cap, M4 x 0.7 x 14 Lg	
11	003821-01	Pan, Bottom	
12	003825-21	Chassis	

KEYBOARD COVER ASSEMBLY

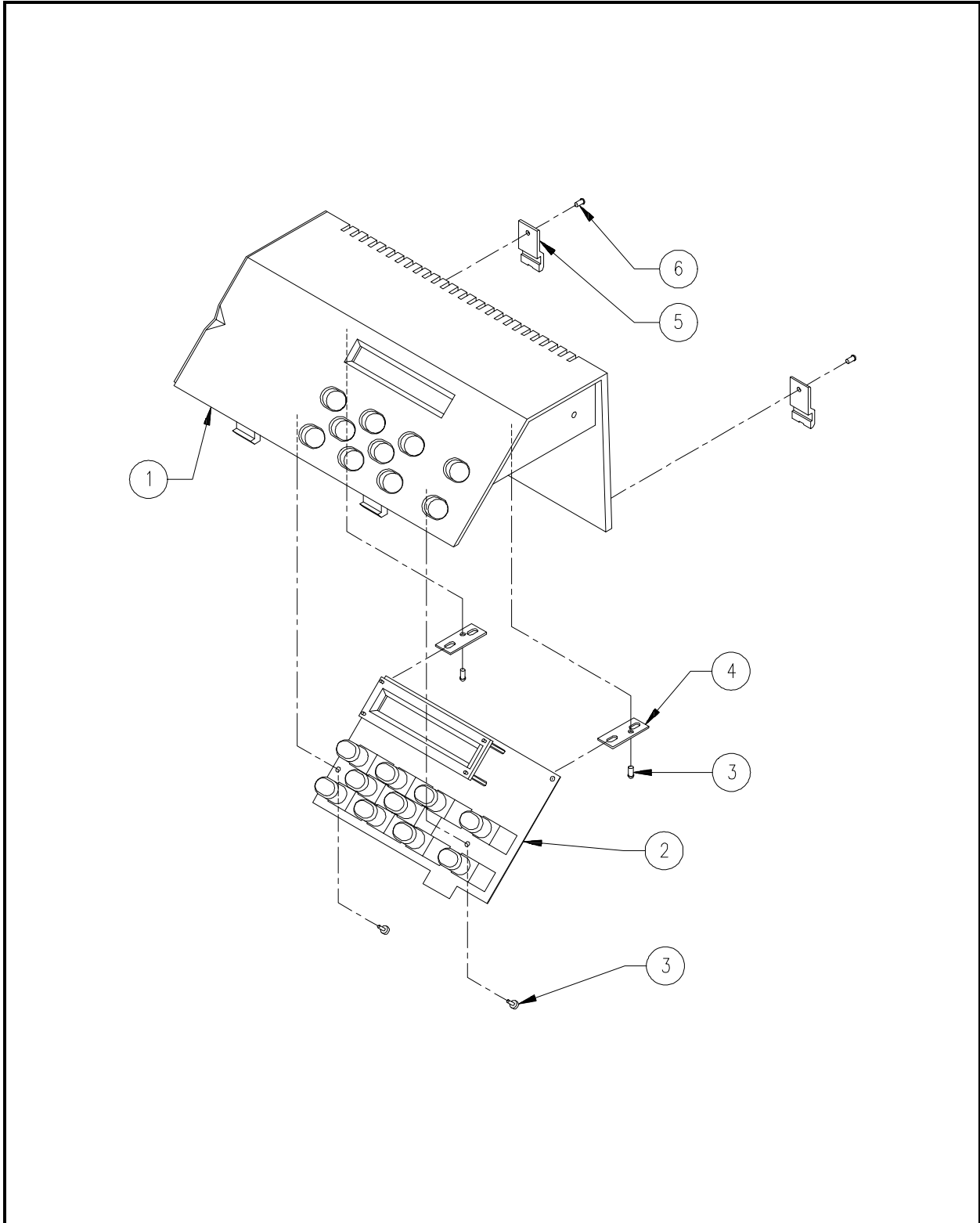


Figure P - 2

Keyboard Cover Assembly**Reference Figure P-2**

Item No.	Part Number	Item Description	Comments
1	004747-01	Cover, Keyboard, Sub-assembly	
2	384309-11	PCB, Keyboard	
3	674433-06	Screw, Thread Forming, #6 x 3/8"	
4	555325-01	Bracket, Retainer	
5	003846-01	Catch, Cover	
6	670406-04	Screw, Button Head Cap, 4-40 x 1/4"	

MACHINE ASSEMBLIES (GENERAL)

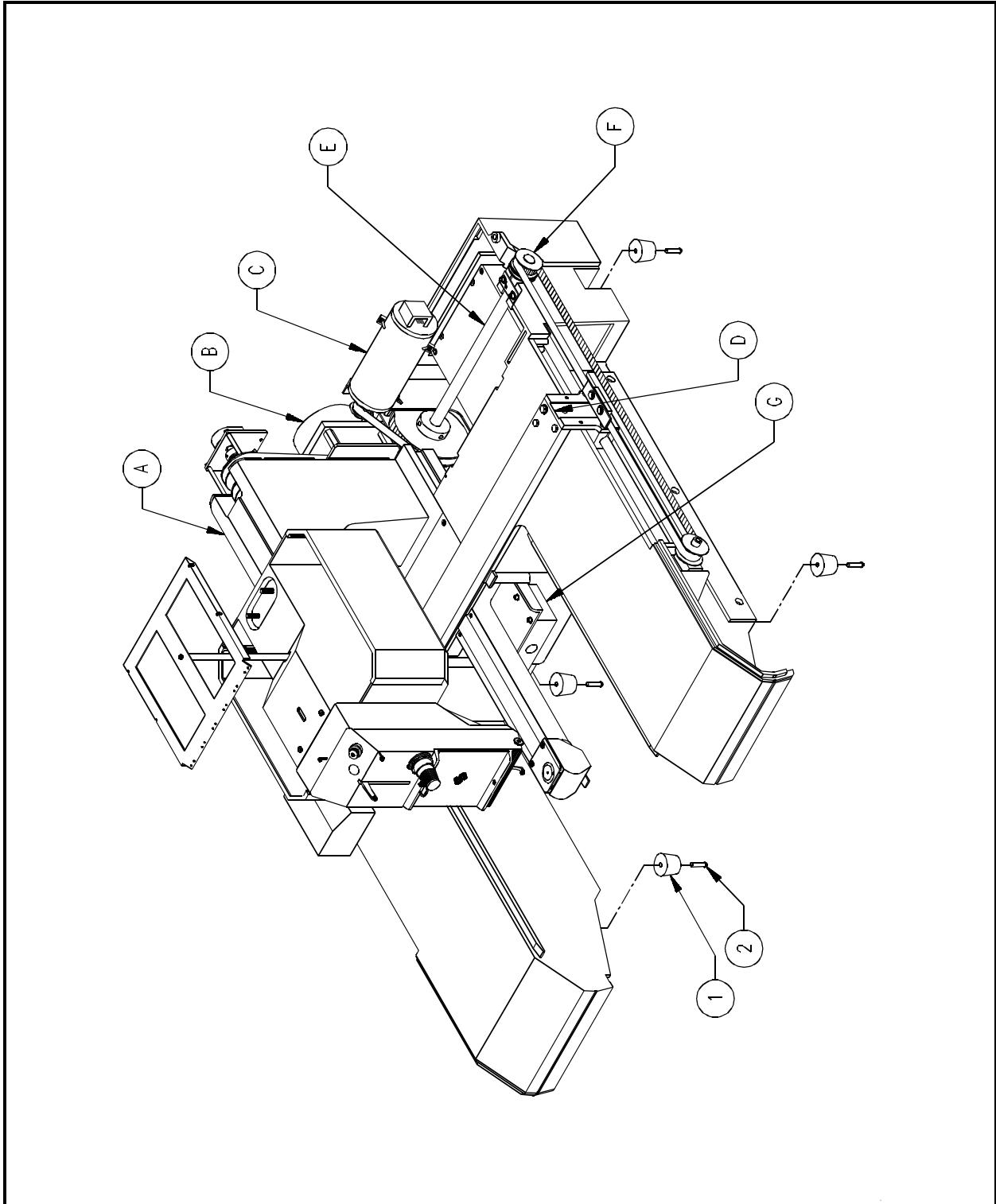


Figure P - 3

Machine Assemblies (General)**Reference Figure P-3**

Item No.	Part Number	Item Description	Comments
A	-----	Sewing Head Assemblies	See Page P-7
B	-----	Z Drive/Encoder Assembly	See Page P-39
C	-----	Y Drive Motor Assembly	See Page P-25
D	004724-01S	X Beam Assembly	See Pages P-29 to P-37
E	-----	Y Drive Assembly	See Page P-41
F	-----	Y Carriage Assembly	See Page P-43 & P-45
G	-----	Cap Frame Mount Assembly	See Page P-47
1	341643-01	Foot, Rubber	
2	670149-16	Screw, Socket Head Cap, 8-32 x 3/4"	

SEWING HEAD ASSEMBLIES

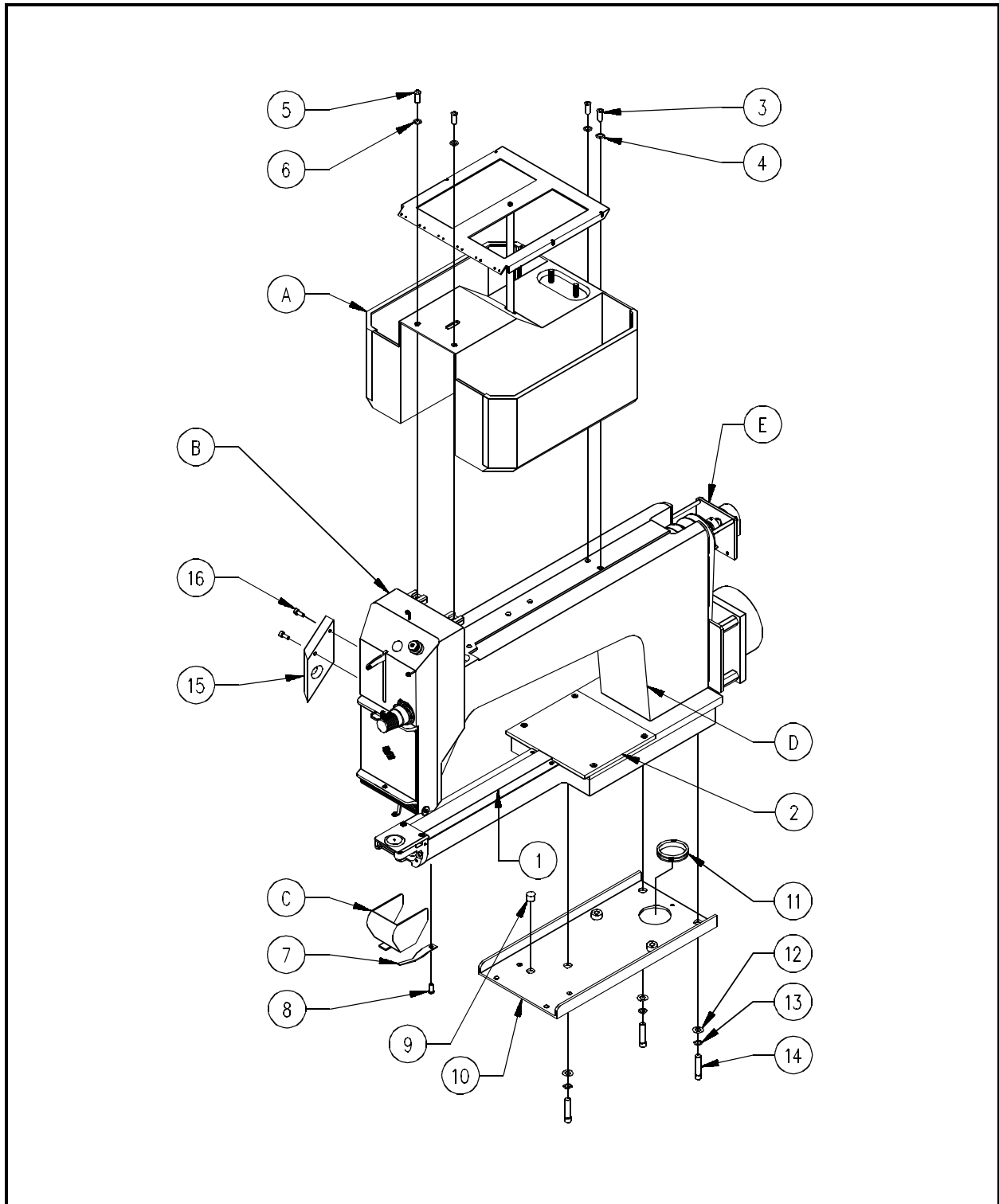


Figure P - 4

Sewing Head Assemblies**Reference Figure P-4**

Item No.	Part Number	Item Description	Comments
A	-----	Thread Tree Assembly	See Page P-11
B	-----	Needle Case Assembly	See Page P-13
C	-----	Rotary Hook Cover Assembly	See Page P-9
D	-----	Sewing Head Components	See Pages P-15 & P-19
E	-----	Z Drive/Encoder Assembly	See Page P-39
1	001964-01	Cover, Bed, Front	
2	003669-01	Cover, Bed, Rear	
3	003509-20	Screw, Button Head Socket, M4 x 0.7 x 20 Lg	
4	690364-38	Washer, Flat, #8, Nylon	
5	003509-12	Screw, Button Head Socket, M4 x 0.7 x 12 Lg	
6	005033-01	Washer, Shoulder, .156" ID x .188" Lg, Nylon	
7	003144-01	Spring, Presser, Cover	
8	003509-08	Screw, Button Head Socket, M4 x 0.7 x 8 Lg	
9	004953-01	Plug, Dome	
10	004801-01	Plate, Base, Sewing Head	
11	342375-01	Grommet, Round, 1-1/8" ID	
12	690034-05	Washer, Flat, 5/16"	
13	690033-05	Washer, Lock, Split, 5/16"	
14	671687-30	Screw, Socket Head Cap, M8 x 30 Lg	
15	005023-01	Cover, Solenoid, Jump Stitch	
16	001922-10	Screw, Socket Head Cap, M3 x 0.5 x 10 Lg	

ROTARY HOOK COVER ASSEMBLY

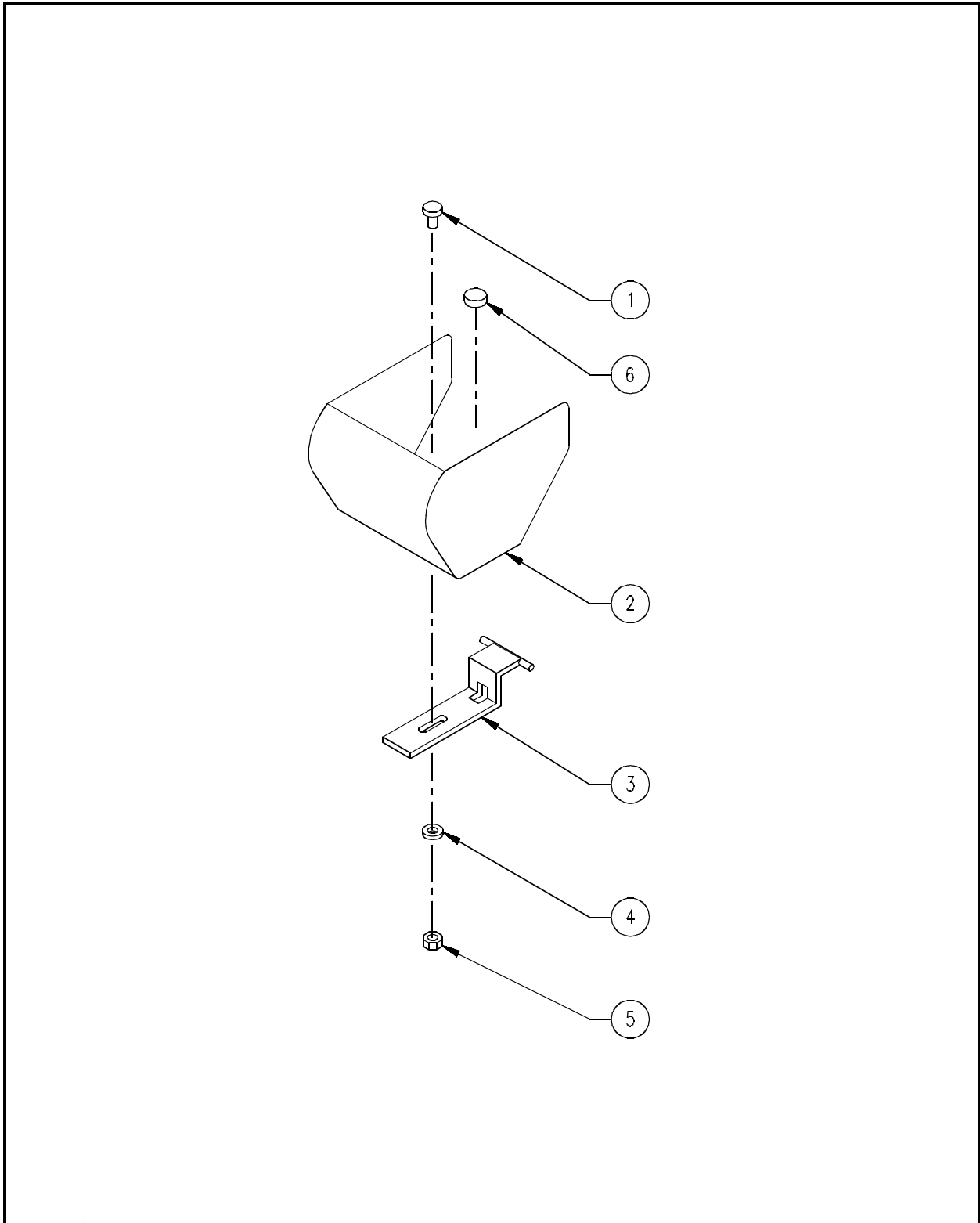


Figure P - 5

Rotary Hook Cover Assembly**Reference Figure P-5**

Item No.	Part Number	Item Description	Comments
1	001935-06	Screw, Flat Head Phillips, M3 x 0.5 x 6 Lg	
2*	003574-01	Cover, Rotary Hook	
3	003138-01	Holder, Cover	
4	690439-03	Washer, Flat, M3	
5	680430-03	Nut, Hex, M3 x 0.5	
6*	005145-01	Pad, Rubber, .250" Diameter	

*NOTE: Due to manufacturing processes, items 2 and 6 should be replaced as a factory built assembly: 005177-01 Assembly, Cover, Rotary Hook

THREAD TREE ASSEMBLY

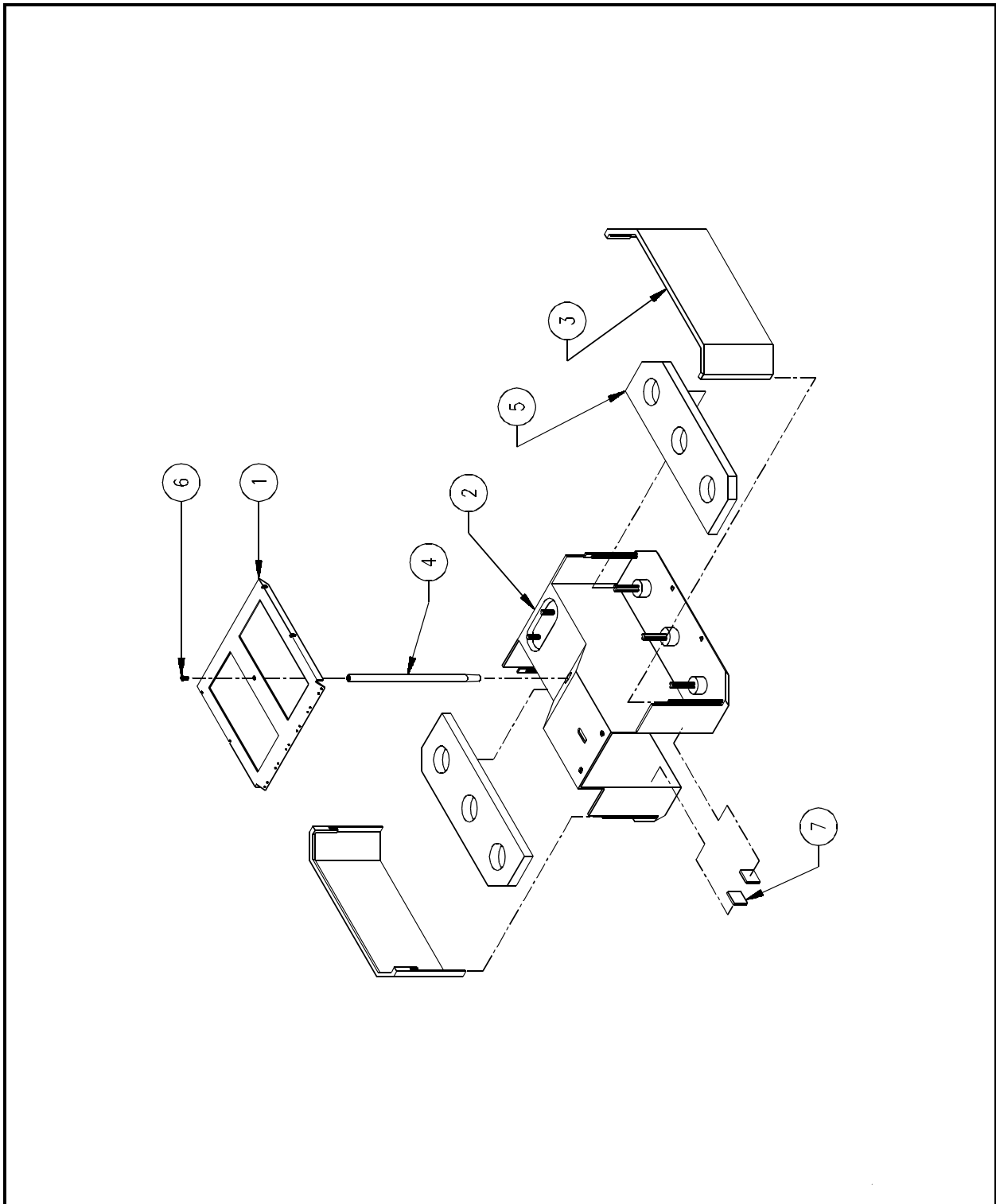


Figure P - 6

Thread Tree Assembly**Reference Figure P-6**

Item No.	Part Number	Item Description	Comments
1	003572-01	Spreader, Thread Tree	
2*	005014-01	Base, Thread Tree	
3	001994-01	Panel, Side	
4	002653-01	Support, Thread Tree	
5*	003526-01	Pad, Thread Holder	
6	004480-08	Screw, Phillips, Truss Head, M5 x 0.8 x 8 Lg	
7	005004-01	Pad, Cushion, Side, Thread Tree Base	

*NOTE: Due to manufacturing processes, items 2 and 5 should be replaced as a factory built assembly: 005915-01 Base, Thread Tree, with Pad

NEEDLE CASE ASSEMBLY

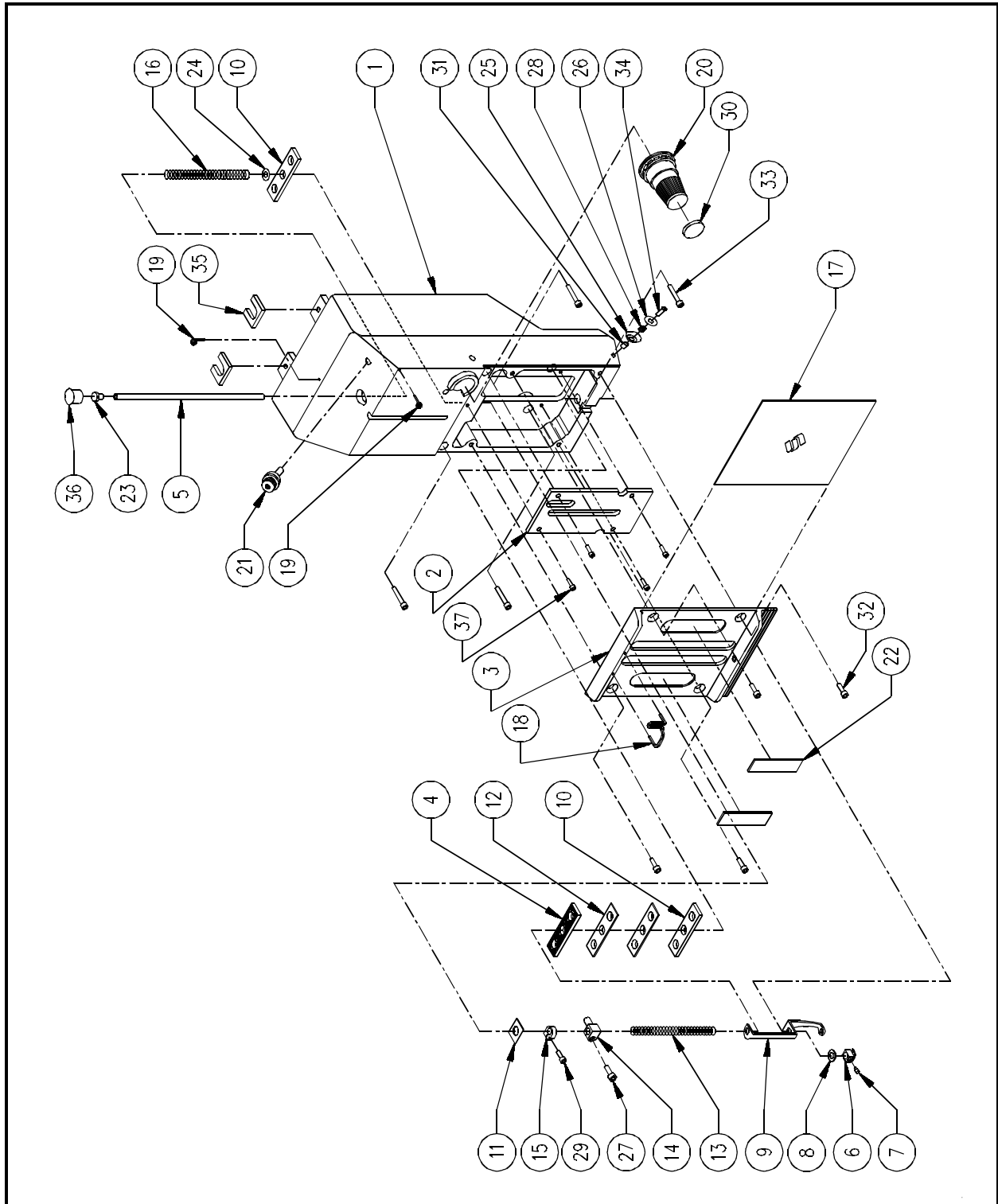


Figure P - 7

Needle Case Assembly**Reference Figure P-7**

Item No.	Part Number	Item Description	Comments
1	005000-01	Case, Needle, Machined	
2	005019-01	Plate, Guide, Needle Bar	
3	005016-01	Cover, Needle Case	
4	342003-33	Packing, Rubber	
5	001532-01	Bar, Needle	
6	001528-01	Clamp, Needle, Assembly	
7	001828-01	Screw, Set, Needle Clamp	
8	001988-01	O-Ring, Molded, Needle Bar	
9	005008-01	Foot, Presser	
10	001830-01	Felt, Needle Case	
11	001908-01	Damper, Needle Case	
12	002804-01	Shim, Needle Case	
13	001535-01	Spring, Presser Foot	
14	002808-02	Stud, Connecting, Needle Bar	
15	001840-01	Clamp, Stop, Needle Bar	
16	001537-01	Spring, Holding, Needle Bar	
17	005017-01	Plate, Cover, Needle Case	
18	005032-01	Guide, Thread, Middle	
19	002897-01	Post, Guide	
20	005171-01	Tensioner, Thread, Main, Assembly	
21	005136-01	Pre-Tensioner, Assembly	
22	005028-01	Magnet, Cover, Needle Case	
23	002637-08	Screw, Socket Head Cap, M5 x 8 Lg	
24	004237-01	Washer, Flat, .257" ID x .03" Thick	
25	005299-01	Disk, Thread Suspender	
26	005300-01	Presser, Spring	
27	001922-08	Screw, Socket Head Cap, M3 x 0.5 x 8 Lg	
28	005421-01	Spring, Thread Suspender	
29	001922-10	Screw, Socket Head Cap, M3 x 0.5 x 8 Lg	
30	003560-01	Tab, Tensioner	
31	005047-01	Spacer, Thread, Tie-off	
32	001926-12	Screw, Flat Head Socket, M4 x 0.7 x 12 Lg	
33	672018-16	Screw, Socket Head Cap, M4 x 0.7 x 16 Lg	
34	671855-08	Screw, Pan Head Slotted, M3 x 0.5 x 8 Lg	
35	005025-01	Pad, Cushion, Top, Thread Tree Base	
36	005024-01	Plug, Dome, .437" Diameter	
37	001922-10	Screw, Socket Head Cap, M3 x 0.5 x 10 Lg	

Sewing Head Components (1 of 2)**Reference Figure P-8**

Item No.	Part Number	Item Description	Comments
A	004504-01S	Large Bobbin Idler Assembly	See Page P-21
B	-----	Take-Up Drive Lever Assembly	See Page P-23
1	003539-01	Counterweight, PHS II	
2	003535-01	Shaft, Bobbin	
3	003541-01	Bracket, Needle Plate	
4	001522-01	Pulley, Drive, Bobbin, Bottom, 16T, 1/5P	
5	003545-01	Cam, Drive, Lever, Take-Up, PHS II	
6	003546-01	Screw, Set, Cam	
7	002698-01	Rod, Crank, 90 Degrees	
8	003532-01	Shaft, Arm, PHS II	
9	001523-01	Pulley, Drive, Bobbin, Top, 32T, 1/5P	
10	002809-01	Belt, Timing, 1/5P, 104 Groove, 3/8" Wide	
11	001939-01	Rod, Connecting, Machined, Assembly	
12	003531-01	Plate, Retainer, Bearing, Arm Shaft	
13	004261-01	Collar, Shaft, Head Up	
14	001801-01	Solenoid, Jump Stitch	
14a	-----	Nut, Panel	Included in Item #14
15	001850-01	Bracket, Solenoid	
16	001851-01	Plate, Interface, Bracket, Solenoid	
17	004267-01	Case, Bobbin, Small	
18	001917-01	Hook, Rotary, Small Bobbin	
18a	-----	Screw, Rotary Hook	Included in Item #18
19	001572-01	Plate, Needle	
20	004643-01	Screw, Needle Plate	
21	001916-01	Support, Rotary Hook	
22	001955-18	Ring, Retainer, External, 5/16" ID	
23	002697-09	Washer, Wave, 35mm OD	
24	002696-15	Bearing, Ball, Radial, 15mm ID	
25	001926-12	Screw, Flat Head Socket, M4 x 0.7 x 12 Lg	
26	003534-10	Ring, Retaining, External, Bobbin Shaft	
27	002696-08	Bearing, Ball, Radial, 8mm ID	
28	002697-03	Washer, Wave, 22mm OD	
29	671855-06	Screw, Pan Head Slotted, M3 x 0.5 x 6 Lg	
30	761002-11	Thread, Bobbin, White	
31	002610-14	Pin, Spring, 3mm x 14mm Lg	
32	672018-16	Screw, Socket Head Cap, M4 x 0.7 x 12 Lg	
33	001971-06	Screw, Set, Flat Point, M6 UNF x 6 Lg	
34	002637-10	Screw, Socket Head Cap, Low Head, M5 x 0.8 x 10 Lg	
35	001926-12	Screw, Flat Socket, M4 x 0.7 x 12 Lg	
36	702946-30	Spacer, Shaft, .187" ID x .312" OD x .03" Thick	
37	690427-04	Washer, Lock, Split, M4	
38	672018-08	Screw, Socket Head Cap, M4 x 0.7 x 8 Lg	

Sewing Head Components (1 of 2) (cont)**Reference Figure P-8**

Item No.	Part Number	Item Description	Comments
39	001927-12	Screw, Set, M5 x 0.8 x 12 Lg	
40	003622-01	Cover, Solenoid	
41	005022-01	Plate, Cover, Arm	
42	003164-01	Bracket, Picker	
43	003509-08	Screw, Button Head Socket, M4 x 0.8 x 8 Lg	

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SEWING HEAD COMPONENTS (2 of 2)

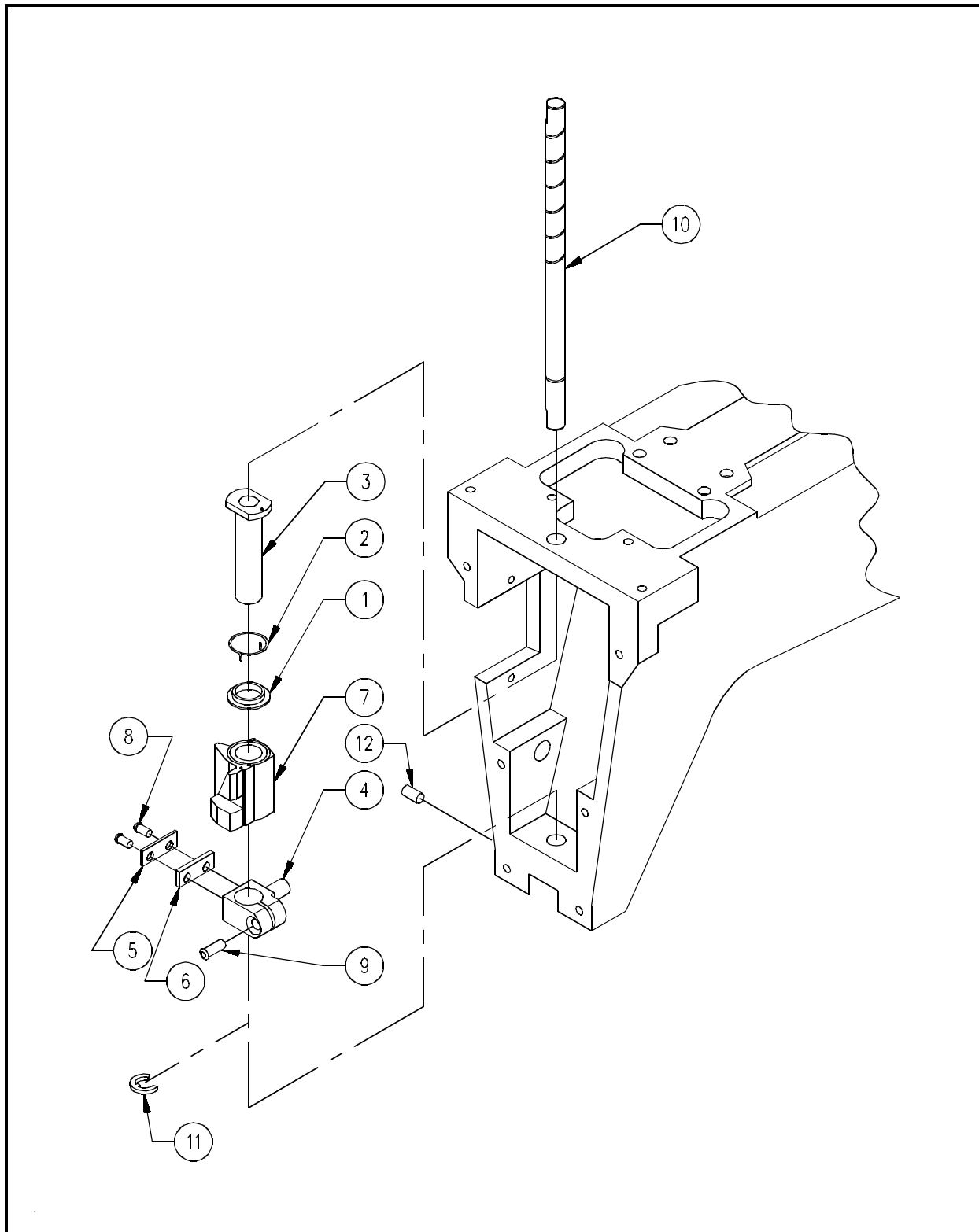


Figure P - 9

Sewing Head Components (2 of 2)**Reference Figure P-9**

Item No.	Part Number	Item Description	Comments
1*	001845-01	Bushing, Spring Cradle	
2*	001864-01	Spring, Jump, Reciprocator	
3*	001865-01	Bushing, Shaft, Needle Bar	
4*	002807-01	Stud, Connector, Reciprocator	
5*	001842-01	Bracket, Stopper, Steel	
6*	004676-01	Bracket, Stopper, Delrin	
7*	004878-01	Reciprocator	
8*	671855-06	Screw, Pan Head Slotted, M3 x 0.5 x 6 Lg	
9*	672018-10	Screw, Socket Head Cap, M4 x 0.7 x 10 Lg	
10	001858-01	Shaft, Guide, Needle Bar	
11	001955-18	Ring, Retainer, External, 5/16" ID	
12	004264-08	Screw, Set, Cone Point, M4 x 0.7 x 8 Lg	

*NOTE: Due to manufacturing processes, items 1-9 should be replaced as a factory built assembly: 001990-01S Assembly, Reciprocator

LARGE BOBBIN IDLER ASSEMBLY

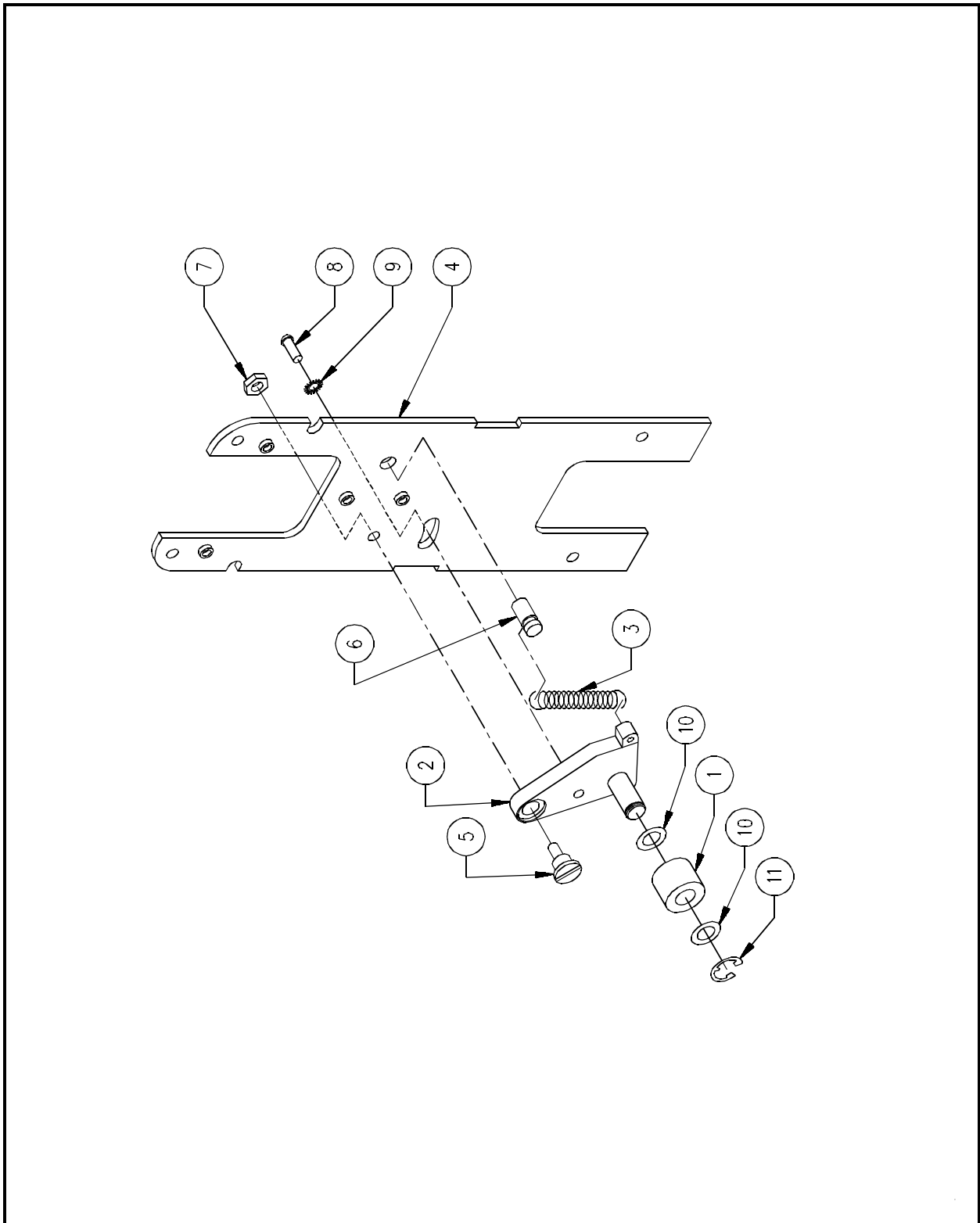


Figure P - 10

Large Bobbin Idler Assembly (004504-01S)**Reference Figure P-10**

Item No.	Part Number	Item Description	Comments
1	003593-01	Roller, Idler	
2	002817-01	Bar, Idler, Assembly	
3	002816-06	Spring, Idler	
4	003668-01	Cover, Head, Rear	
5	003188-01	Screw, Shoulder, 7mm OD x 0.8" Lg	
6	660278-01	Stud, Press, 1/4" x 1/2" Lg	
7	003543-05	Nut, Jam, Hex, M5 x 0.8	
8	672036-10	Screw, Button Head Cap, M5 x 0.8 x 10 Lg	
9	690713-04	Washer, Lock, External Star, 1/4"	
10	702876-08	Spacer, Shaft, 5/16" ID x .016" Thick	
11	001955-18	Ring, Retainer, External, 5/16" ID	

TAKE-UP DRIVE LEVER ASSEMBLY

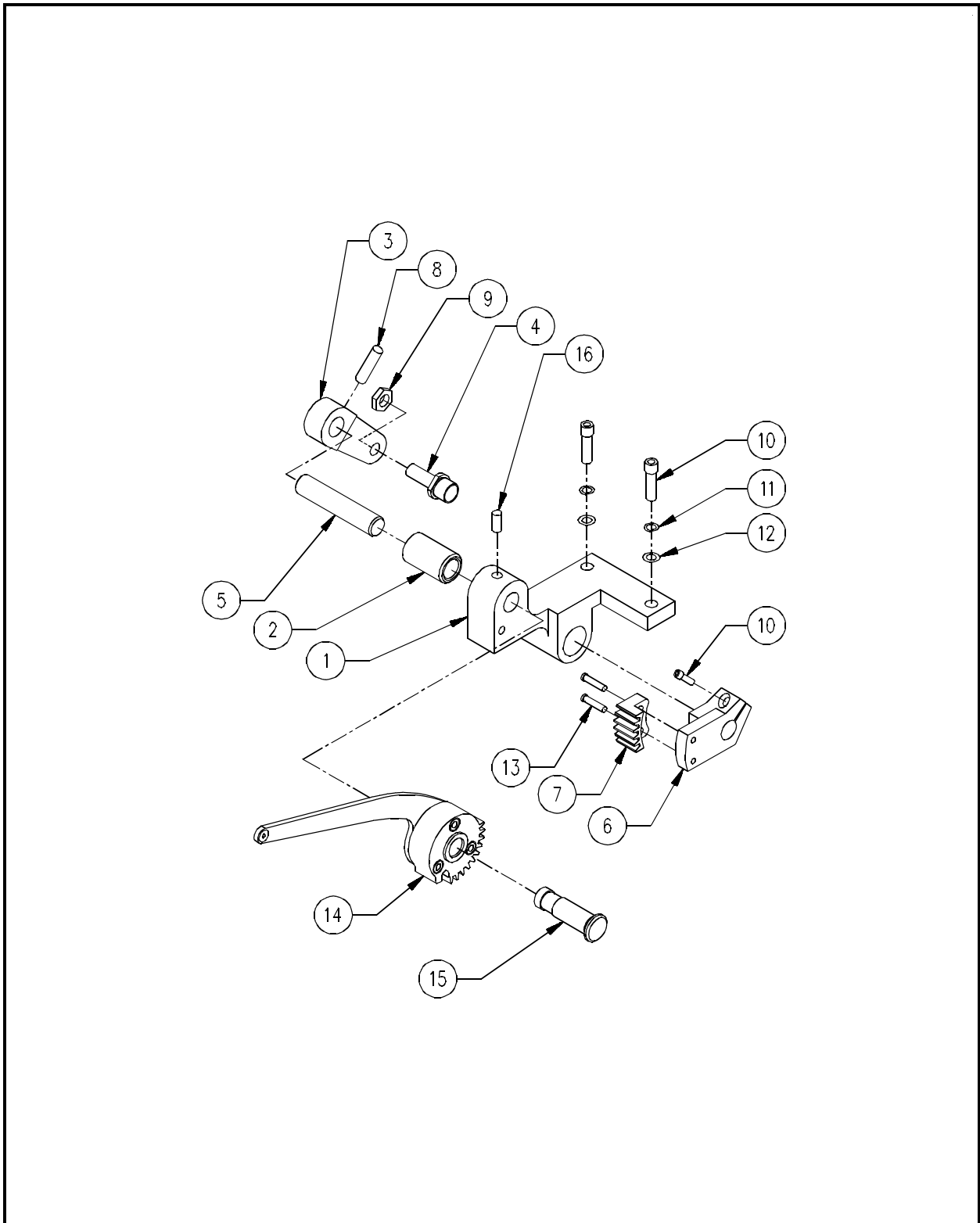


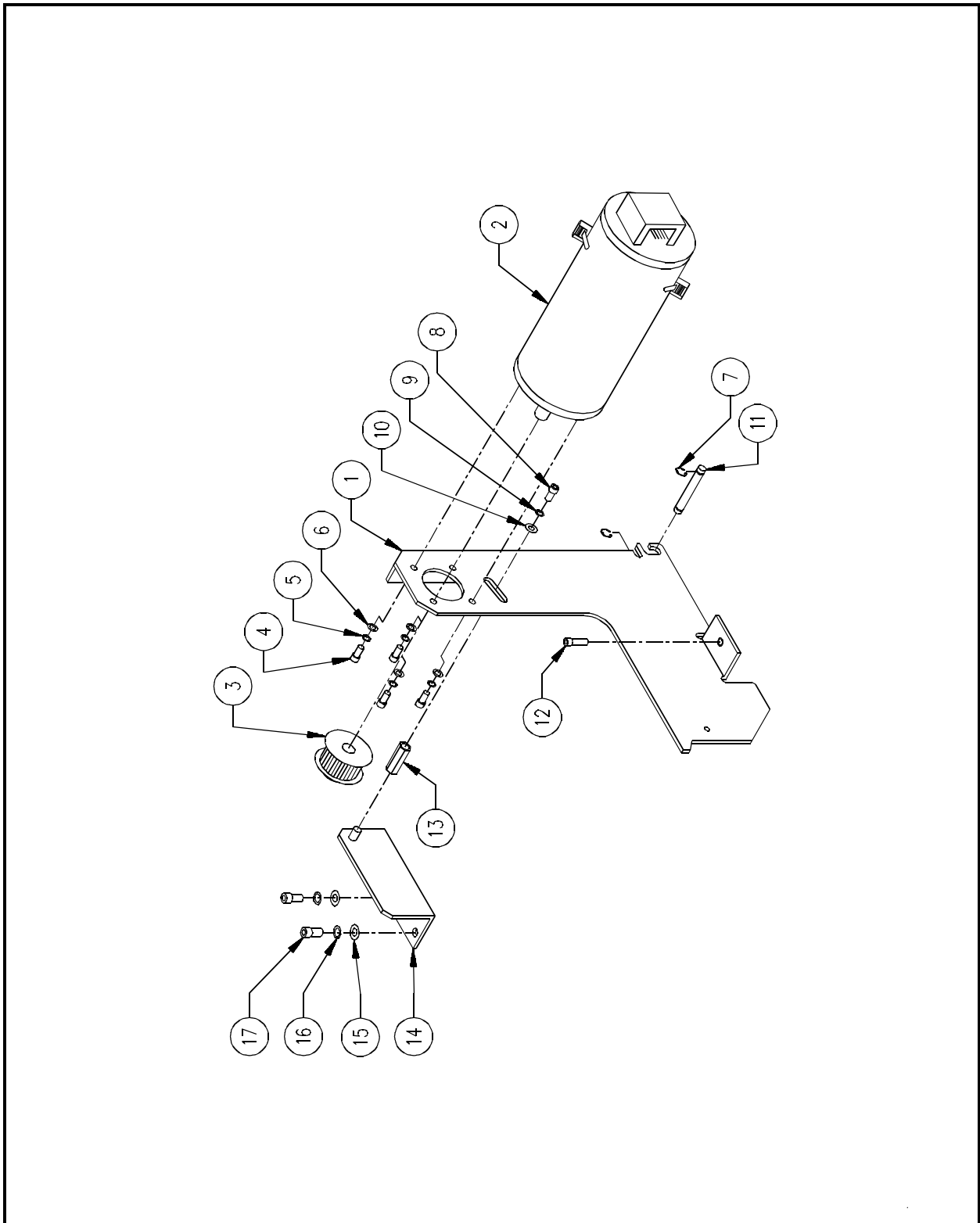
Figure P - 11

Take-Up Drive Lever Assembly**Reference Figure P-11**

Item No.	Part Number	Item Description	Comments
1	005003-01	Base, Drive, Lever, Take-Up	
2	001947-01	Bushing, Base, Drive, Lever, Take-Up	
3*	004821-01	Lever, Drive, Lever, Take-Up	
4	001983-01	Follower, Assembly	
5*	004820-01	Shaft, Drive, Lever, Take-Up	
6	001893-01	Case, Gear, Drive, Lever, Take-Up	
7	001894-01	Gear, Drive, Lever, Take-Up	
8*	660830-10	Pin, Groove, 1/8" Dia x 5/8" Lg	
9	003543-05	Nut, Jam, Hex, M5 x 0.8	
10	672018-10	Screw, Socket Head Cap, M4 x 0.7 x 10 Lg	
11	690427-04	Washer, Lock, Split, M4	
12	690439-04	Washer, Flat, M4	
13	671855-06	Screw, Pan Head Slotted, M3 x 0.5 x 6 Lg	
14	001868-01	Assembly, Lever, Take-Up	
15	005021-01	Pin, Pivot, Take-Up Lever	
16	001960-04	Screw, Set, Flat Point, M4 x 0.7 x 4 Lg	

*NOTE: Items 3, 5, and 8 should be replaced as a factory built assembly:
004768-01 Assembly, Lever, Drive, Lever, Take-up

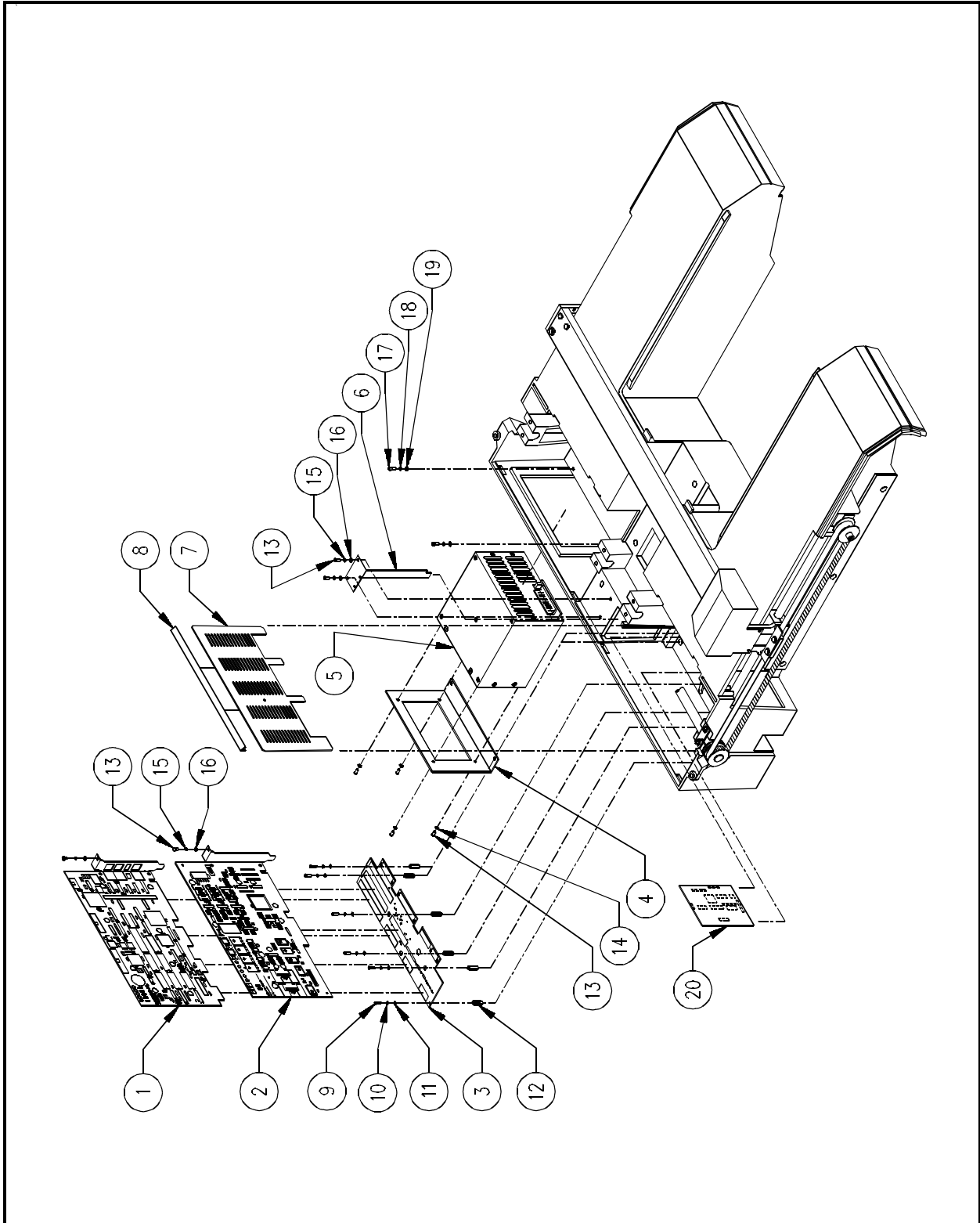
Y DRIVE MOTOR ASSEMBLY



Y Drive Motor Assembly**Reference Figure P-12**

Item No.	Part Number	Item Description	Comments
1	003664-01	Bracket, Mounting, Y Motor	
2	000465-01	Motor, X-Y Servo	
3	004962-01	Pulley, 5.08mm P, 15 Groove	
4	670174-06	Screw, Pan Head Phillips, 6-32 x 3/8"	
5	690033-36	Washer, Lock, Split, #6	
6	690034-36	Washer, Flat, #6	
7	344378-02	Ring, Retaining, .238" ID	
8	670038-08	Screw, Socket Head Cap, 10-32 x 1/2"	
9	690033-03	Washer, Lock, Split, #10	
10	690034-03	Washer, Flat, #10	
11	662744-24	Pin, Dowel, .250" Dia x 1.5" Lg	
12	670038-14	Screw, Socket Head Cap, 10-32 x 7/8"	
13	712145-16	Standoff, Female, 10-32 x 1" Lg, 3/8" Hex	
14	004519-01	Bracket, Support, Y Motor	
15	690034-38	Washer, Flat, #8 Nom.	
16	690033-38	Washer, Lock, Split, #8 Nom.	
17	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	

ELECTRONICS

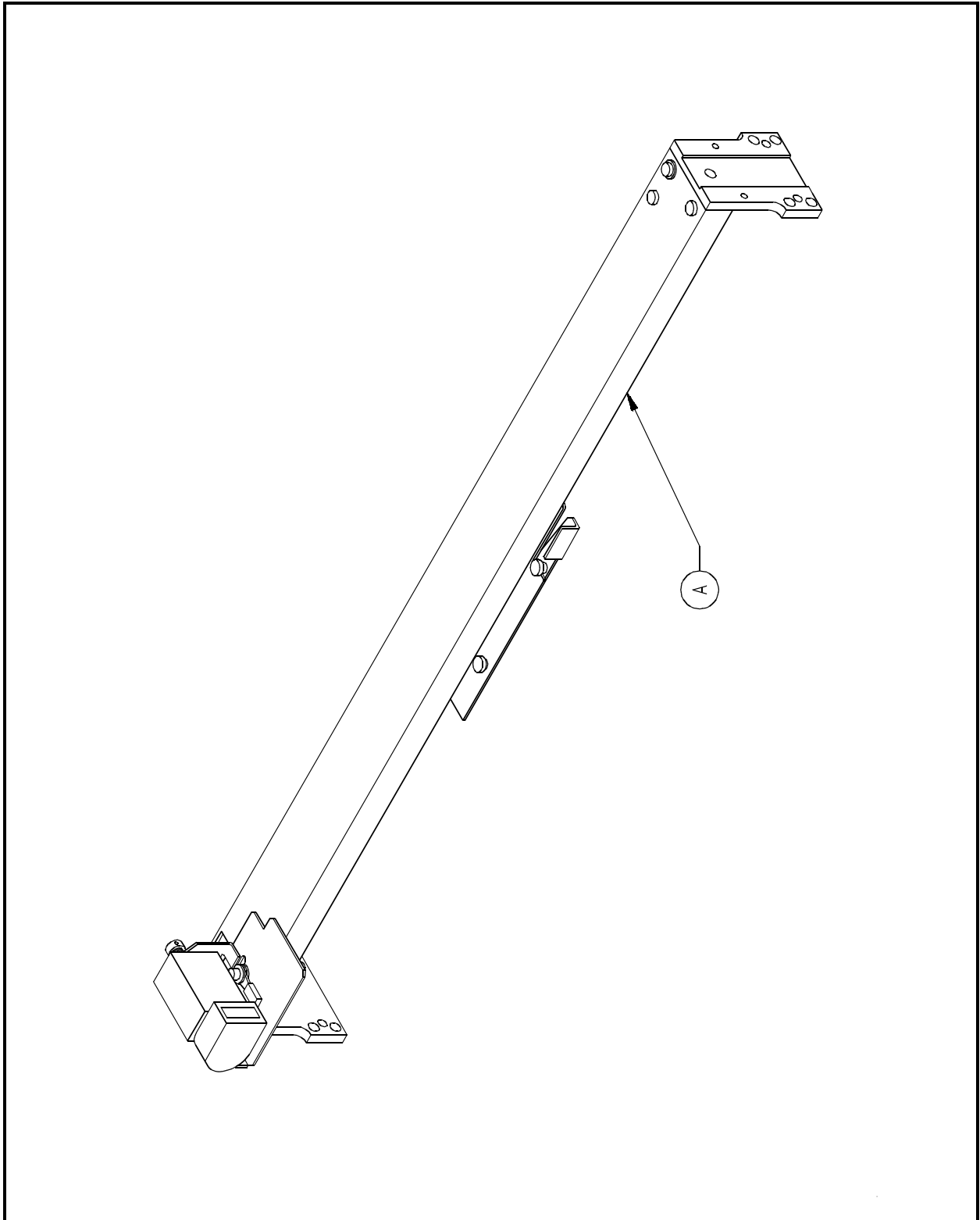


Electronics**Reference Figure P-13**

Item No.	Part Number	Item Description	Comments
1	005106-01	PCB, CPU188/Disk	
2	003663-01	PCB, XYZ Interface	
3	003675-01	PCB, Backplane	
4	004523-01	Bracket, Power Supply	
5*	005570-01	Power Supply, 265W	
6	004526-01	Bracket, Slot Cover, Single	
7	004525-01	Wall, Shielding, RFI	
8	345095-11	Seal, EM-1, 10"	
9	670131-10	Screw, Pan Head Phillips, 4-40 x 5/8"	
10	690033-34	Washer, Lock, Split, #4	
11	690034-34	Washer, Flat, #4	
12	710420-15	Standoff, Female, 4-40 x 15/16" Lg, 1/4" Hex	
13	670174-06	Screw, Pan Head Phillips, 6-32 x 3/8"	
14	690713-36	Washer, Lock, External Star, #6	
15	690033-36	Washer, Lock, Split, #6	
16	690034-36	Washer, Flat, #6	
17	670149-10	Screw, Socket Head Cap, 8-32 x 5/8"	
18	690033-38	Washer, Lock, Split, #8	
19	690034-38	Washer, Flat, #8	
20	001309-01	PCB, Color Change	

*NOTE: The following Serial Number indicates the first production machine using the identified item: EMC 1M, S/N 5060077

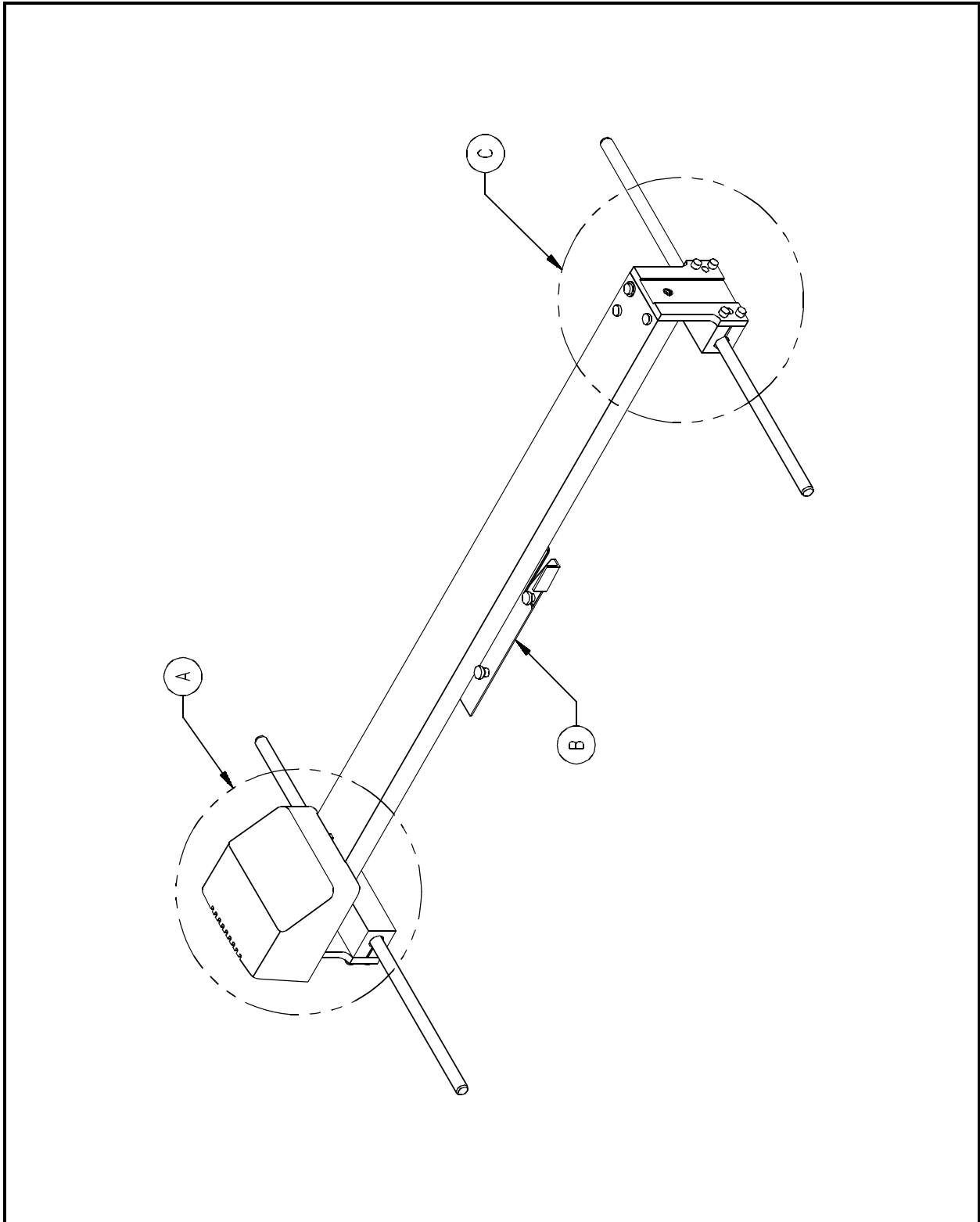
X DRIVE SYSTEM (1 of 5)



X Drive System (1 of 5)**Reference Figure P-14**

Item No.	Part Number	Item Description	Comments
A	004724-01S	X Drive Assembly, Safety Compliant	

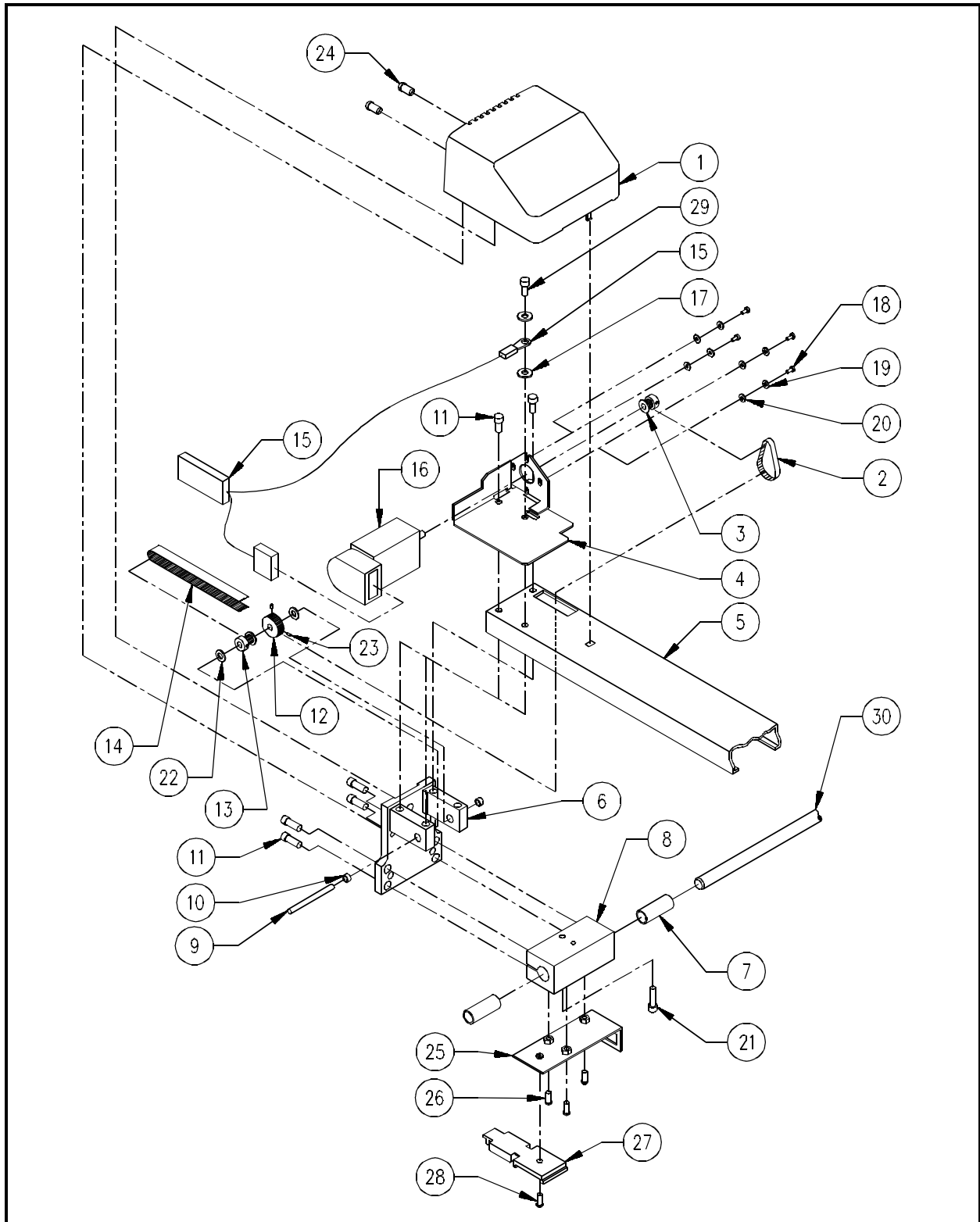
X DRIVE SYSTEM (2 of 5)



X Drive System (2 of 5)**Reference Figure P-15**

Item No.	Part Number	Item Description	Comments
A	-----	X Drive Sub-assembly (Motor End)	See Page P-33
B	004835-01S	Assembly, X Carriage, Safety Compliant	See Page P-35
C	-----	X Drive Sub-assembly (Idler End)	See Page P-37

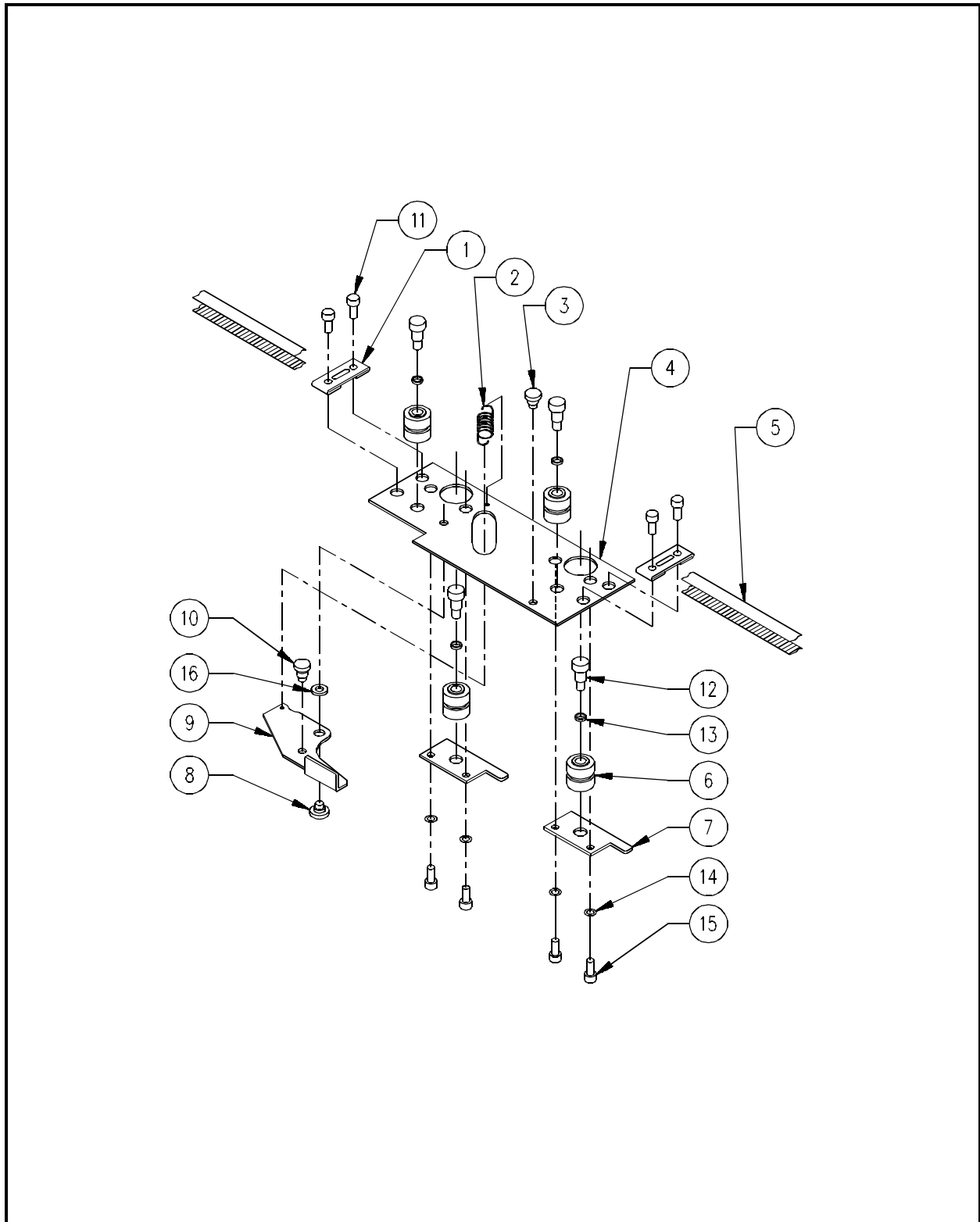
X DRIVE SYSTEM (3 of 5)



X Drive System (3 of 5)**Reference Figure P-16**

Item No.	Part Number	Item Description	Comments
1	004813-01	Cover, X Motor	
2	005156-01	Belt, Timing, 63 Groove, .080P, 1/4" Wide	
3	344371-15	Pulley, Timing, 15 Groove, .080P, 1/4" Wide	
4	004812-01	Mount, X Motor	
5	005070-01	Channel, X Drive	
6	005119-01	Carriage, Y Axis, Safety Compliant	
7	504370-12	Bearing, 3/8" x 3/4" Lg, Self Lube	
8	454326-01	Housing, Bearing	
9	005066-01	Shaft, Drive, X Axis	
10	006416-01	Bearing, X Drive	
11	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	
12	344373-15	Pulley, Timing, 15 Groove, .080P, 3/8" Wide	
13	006044-01	Pulley, Drive, X Axis	
14	005117-01	Belt, Timing, X Drive, 577 Groove	
15	003804-01	Harness, X Beam	
16	005121-01	Motor/Encoder, X Axis	
17	690713-38	Washer, Lock, External Star, #8	
18	672386-04	Screw, Pan Head Phillips, 2-56 x 1/4"	
19	690033-32	Washer, Lock, Split, #2	
20	690034-32	Washer, Flat, #2	
21	670149-08	Screw, Socket Head Cap, 8-32 x 1/2"	
22	702875-03	Spacer, Shaft, 3/16" ID x .006" Thick	
23	670166-03	Screw, Set, Knurled Cup Point, 4-40 x 3/16"	
24	670406-04	Screw, Button Head Cap, 4-40 x 3/16"	
25	003814-01	Bracket, Connector	
26	670174-06	Screw, Pan Head Phillips, 6-32 x 3/8"	
27	004725-01	Strain Relief	
28	670131-04	Screw, Pan Head Phillips, 4-40 x 1/4"	
29	670267-06	Screw, Button Head Cap, 8-32 x 3/8"	
30	441423-02	Rail, Y Axis	

X DRIVE SYSTEM (4 of 5)

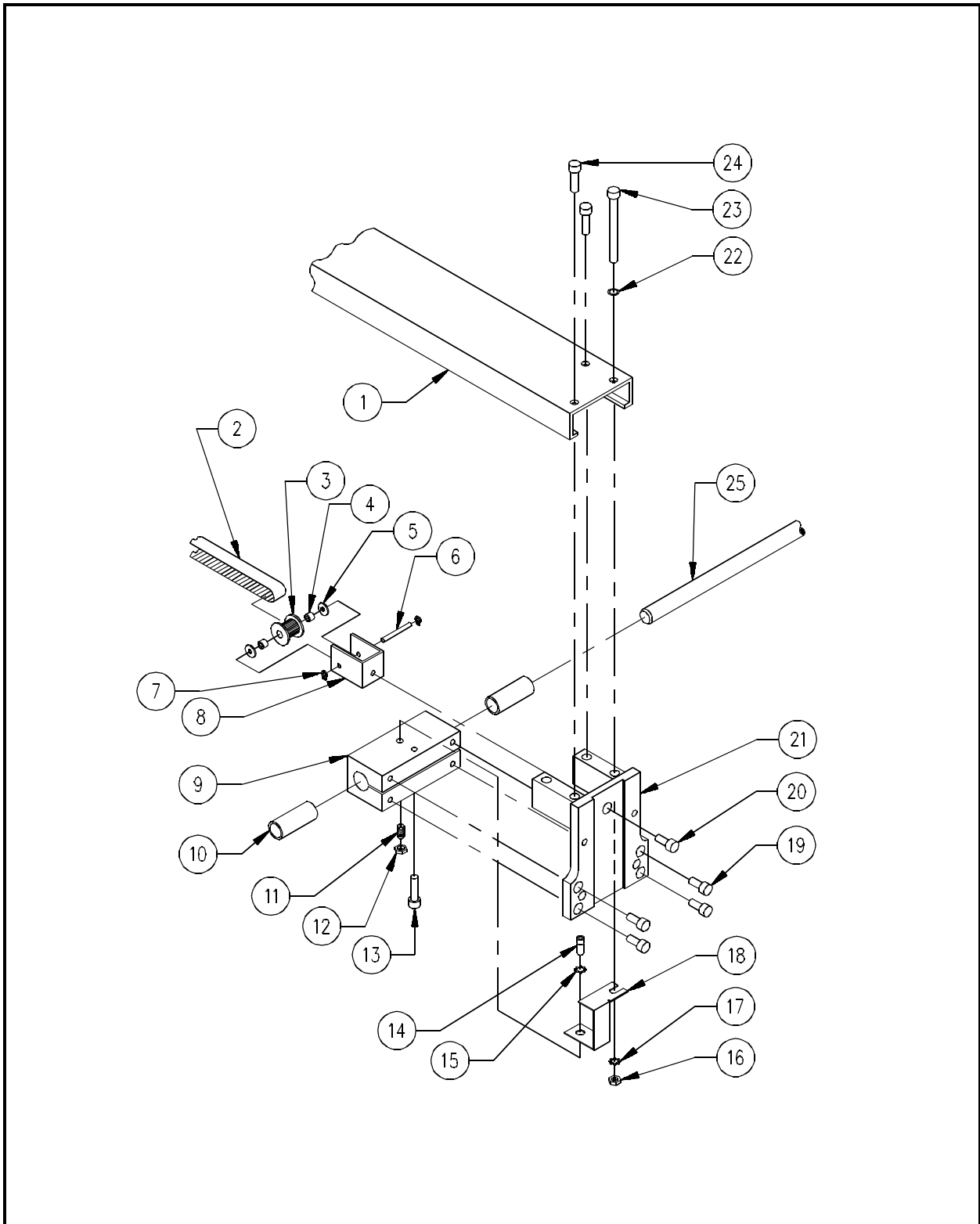


X Drive System (4 of 5) (004835-01S)**Reference Figure P-17**

Item No.	Part Number	Item Description	Comments
1*	554305-01	Clamp, Belt, X Drive	
2	504396-01	Spring, Extension	
3	454308-01	Pin, Hoop Holder, Carriage	
4	004815-01	Carriage, X Axis	
5*	005117-01	Belt, Timing, X Drive, 577 Groove	
6	444302-01	Roller, X Carriage	
7	554306-01	Plate, Roller, Adjustable	
8	454307-01	Pivot, Hoop Holder	
9	554304-01	Actuator, Hoop Holder	
10	454308-02	Pin, Hoop Holder, Actuator	
11*	670267-06	Screw, Button Head Cap, 8-32 x 3/8"	
12	674395-05	Screw, Shoulder, 1/4" Dia x .312" Lg	
13a	702875-01	Spacer, Shaft, 3/16" x .002"	Use as Required
13b	702875-02	Spacer, Shaft, 3/16" x .004"	Use as Required
13c	702875-03	Spacer, Shaft, 3/16" x .006"	Use as Required
13d	702875-04	Spacer, Shaft, 3/16" x .008"	Use as Required
13e	702875-05	Spacer, Shaft, 3/16" x .010"	Use as Required
14	690811-38	Washer, Internal Star, #8	
15	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	
16	344377-01	Washer, Flat, Teflon	

*NOTE: Items 1, 5, and 11 are not included in Assembly 004835-01S, and must be replaced seperately.

X DRIVE SYSTEM (5 of 5)

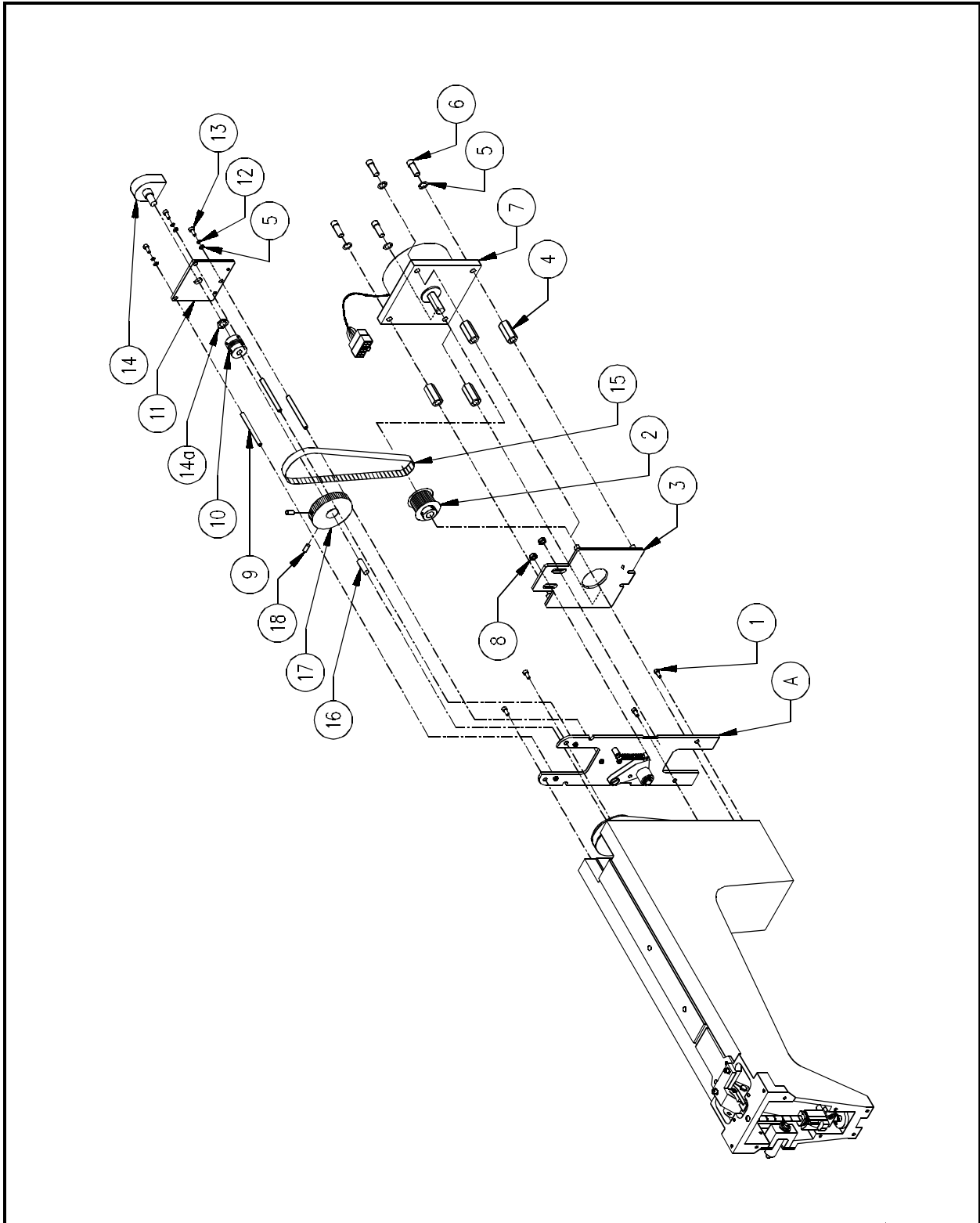


X Drive System (5 of 5)**Reference Figure P-18**

Item No.	Part Number	Item Description	Comments
1	005070-01	Channel, X Drive	
2	005117-01	Belt, Timing, X Drive, 577 Groove	
3*	-----	Pulley, X Drive	
4*	005095-01	Bearing, X Drive, Idler	
5*	003419-30	Spacer, Shaft, .190" ID x .310" Thick	
6*	000378-14	Pin, Dowel, 1/8" Nom	
7*	344378-03	Ring, Retaining, .125" ID	
8*	554327-01	Tensioner, Belt, X Axis	
9	454326-01	Housing, Bearing	
10	504370-12	Bearing, 3/8" x 3/4" Lg, Self Lube	
11	344883-01	Plunger, Ball, 1/4-20	
12	680032-04	Nut, Hex, 1/4-20	
13	670149-08	Screw, Socket Head Cap, 8-32 x 1/2"	
14	670038-06	Screw, Socket Head Cap, 10-32 x 3/8"	
15	690713-03	Washer, External Star, #10	
16	680032-38	Nut, Hex, 8-32	
17	690713-38	Washer, External Star, #8	
18	555044-01	Strap, Ground	
19	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	
20*	670149-10	Screw, Socket Head Cap, 8-32 x 5/8"	
21	004522-01	Carriage, Y Axis	
22	690811-38	Washer, Internal Star, #8	
23	670267-18	Screw, Button Head Cap, 8-32 x 1-1/8"	
24	670267-06	Screw, Button Head Cap, 8-32 x 3/8"	
25	441423-02	Rail, Y Axis	

*NOTE: Due to manufacturing processes, items 3-8, & 20 should be replaced as a factory built assembly: 855185-01 Assembly, Pulley, X Idler

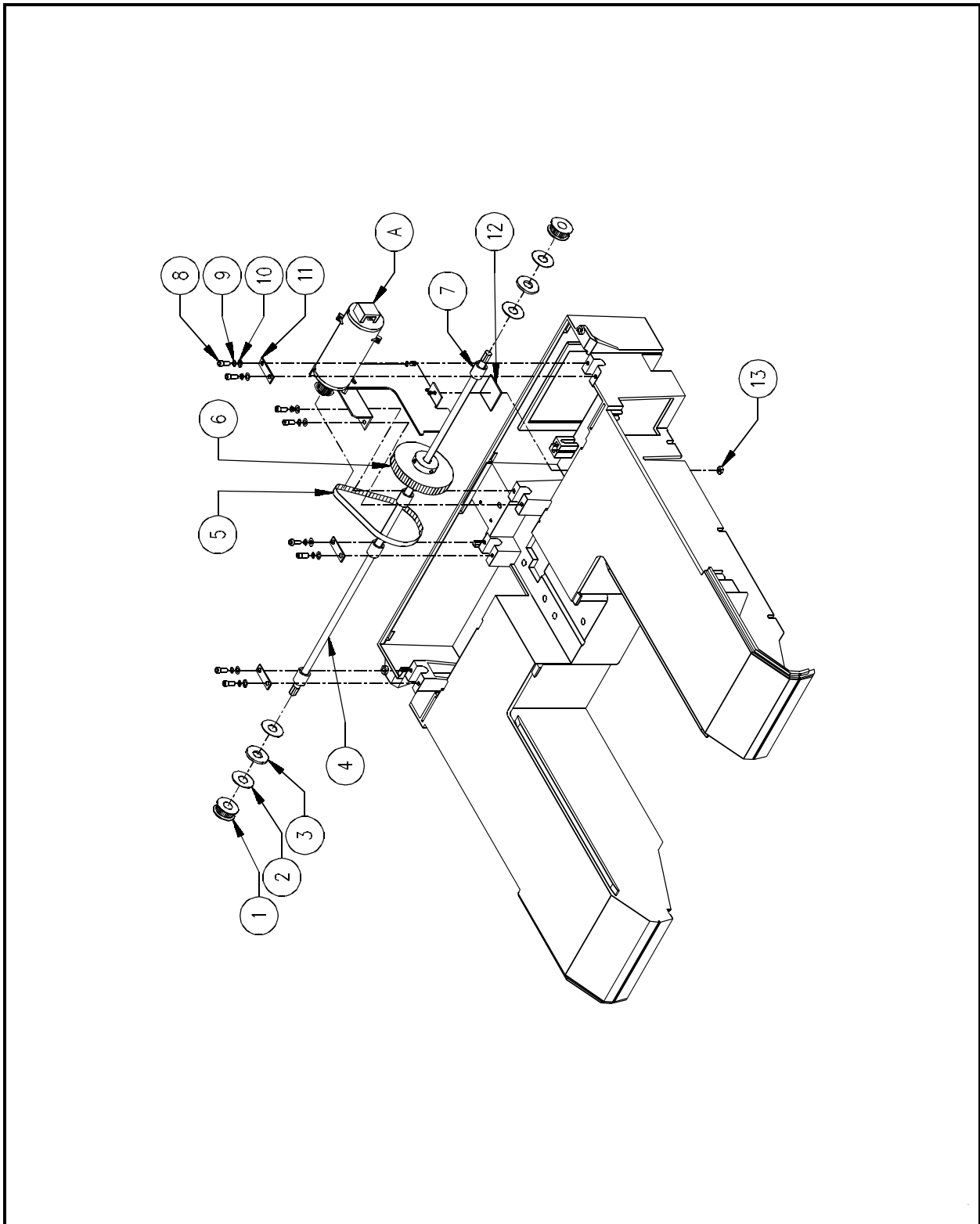
Z-DRIVE/ENCODER ASSEMBLY



Z Drive/Encoder Assembly**Reference Figure P-19**

Item No.	Part Number	Item Description	Comments
A	004504-01S	Large Bobbin Idler Assembly	See Page P-21
1	001926-01	Screw, Flat Head Socket, M4 x 0.7 x 12 Lg	
2	340090-01	Pulley, 16T, 3/8" ID, with Hub	
3	003667-01	Plate Mounting, Z Drive Motor	
4	714399-16	Standoff, F/F, 1/4-20 x 1" Lg, 1/2" Hex	
5	690033-04	Washer, Lock, Split, 1/4	
6	670035-08	Screw, Socket Head Cap, 1/4-20 x 1/2"	
7	003688-01	Motor, Z Drive	
8	005284-01	Nut, Lock, M6	
9	004829-01	Standoff, Encoder	
10	003553-01	Coupler, Shaft, Helical, 1/4" x 1/4"	
11	004730-01	Plate, Encoder	
12	690427-04	Washer, Lock, Split, M4	
13	672018-16	Screw, Socket Head Cap, M4 x 0.7 x 16 Lg	
14	004729-01	Encoder, Z Axis	
14a	-----	Nut, Panel	Included with Item #14
15	344394-01	Belt, Timing, 80 Groove, 1/5P, 3/8" Wide	
16	662744-12	Pin, Dowel, 1/4" Dia x .750" Lg	
17	001523-01	Pulley, Drive, Bobbin, Top, 32T, 1/5P	
18	001927-12	Screw, Set, Socket, Flat Point, M5 x 0.8 x 12 Lg	

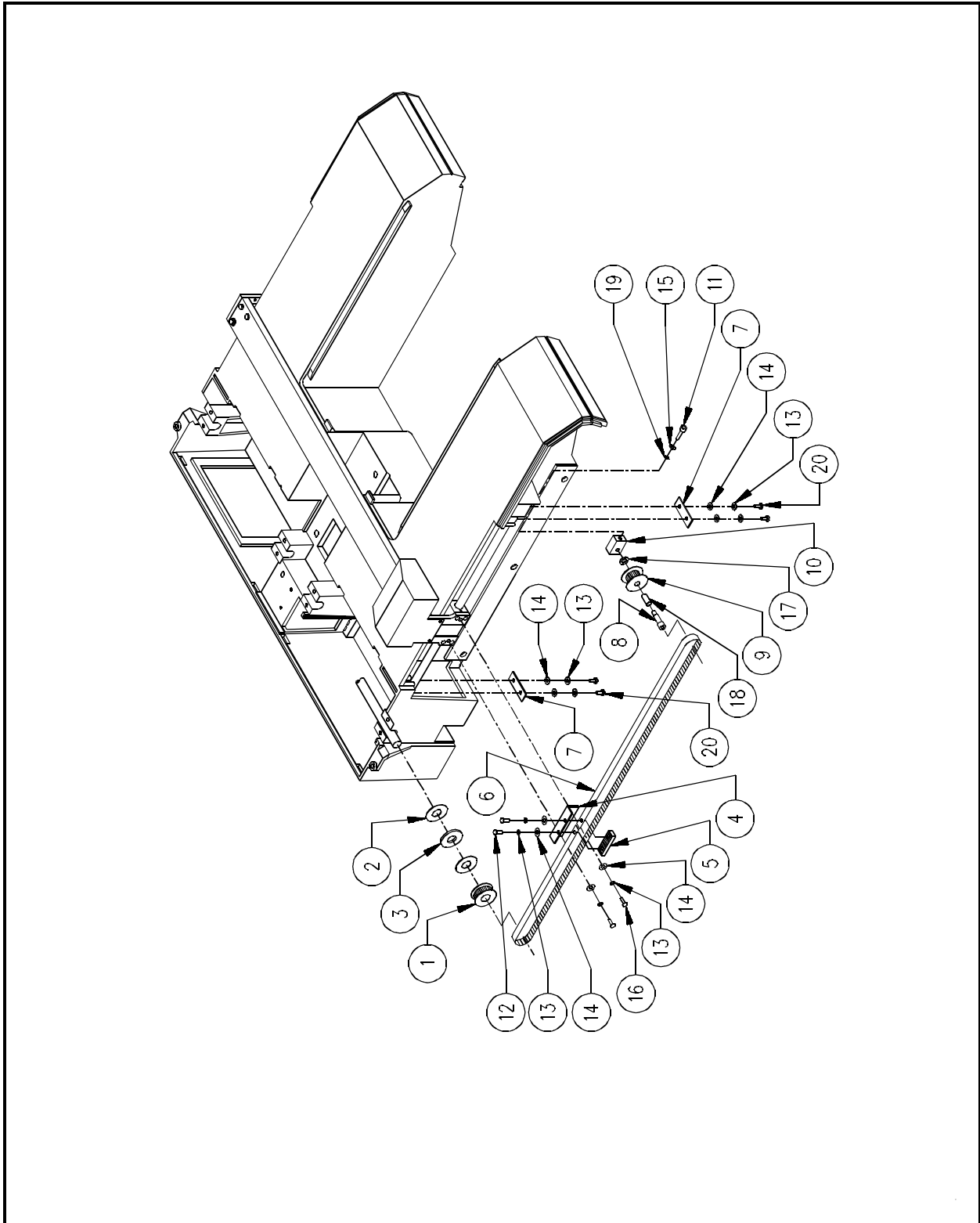
Y DRIVE ASSEMBLY



Y Drive Assembly**Reference Figure P-20**

Item No.	Part Number	Item Description	Comments
A	-----	Y Drive Motor Assembly	See Page P-25
1	504358-01	Pulley, Idler, Y Drive	
2	694397-08	Washer, Thrust, .50" x .031"	
3	344402-08	Bearing, Thrust, .50" ID	
4	444404-01	Shaft, Drive, Y Axis	
5	341781-01	Belt, Timing, 74T, 1/5P, 3/8" Wide	
6	344349-01	Pulley, Timing, 60 Groove, 1/5P, 1/2" Bore	
7	344403-12	Bearing, Roller, 1/2" Bore x 3/4" Lg	
8	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	
9	690033-38	Washer, Lock, Split, #8	
10	690034-38	Washer, Flat, #8	
11	555325-01	Bracket, Retainer	
12	003666-01	Plate, Tensioner, Y Belt	
13	680043-38	Nut, Lock, 8-32	

LEFT Y CARRIAGE ASSEMBLY

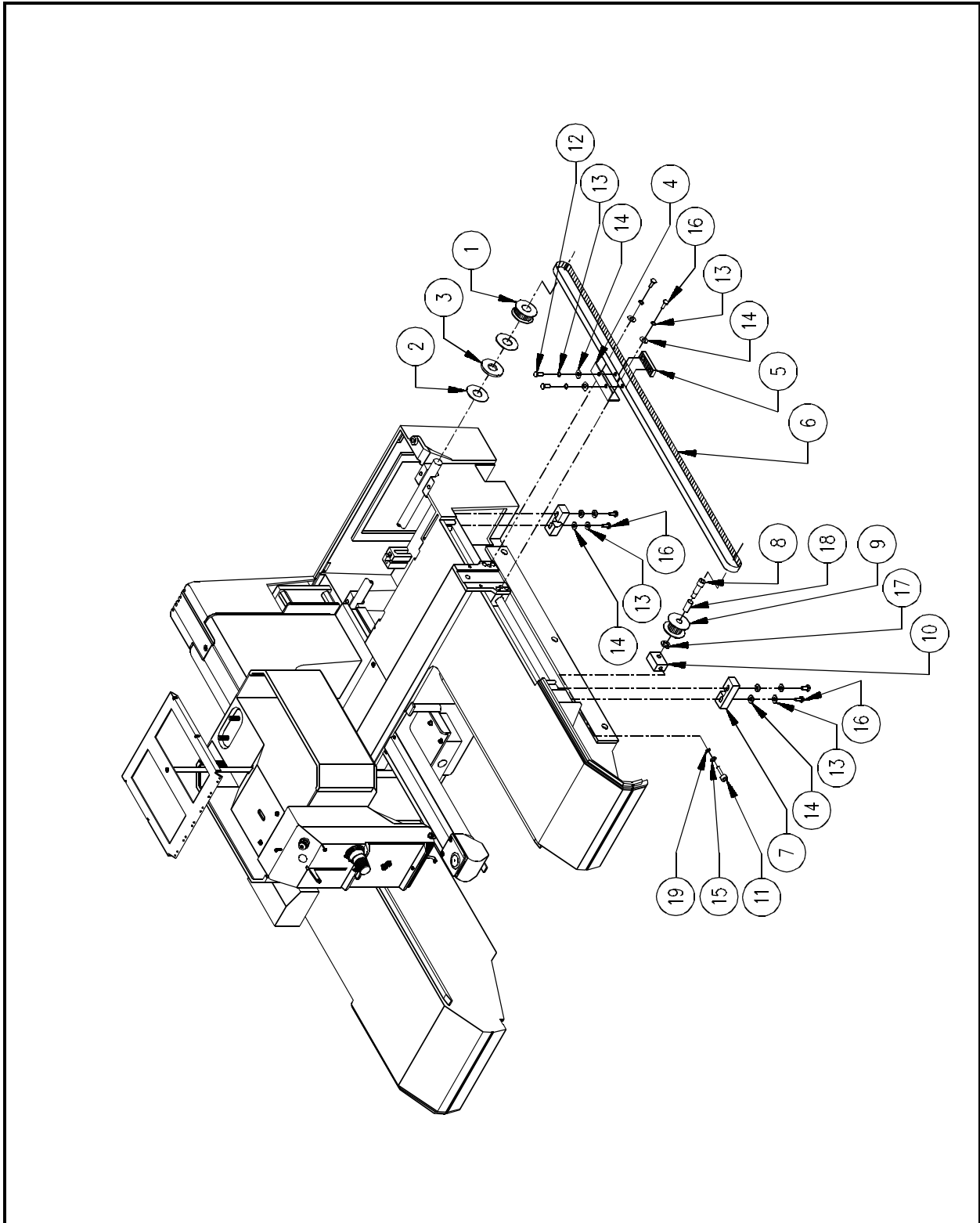


Left Y Carriage Assembly**Reference Figure P-21**

Item No.	Part Number	Item Description	Comments
1*	504358-01	Pulley, Idler, Y Drive	
2	694397-08	Washer, Thrust, .50 ID x .031	
3	344402-08	Bearing, Thrust, .50 ID	
4	554329-01	Bracket, Belt	
5	000372-01	Clamp, Belt	
6	504449-01	Belt, Y Drive, 199 Groove	
7	555325-01	Bracket, Retainer	
8	672852-01	Screw, Shoulder, 1/4-20 x 5/16" x 5/8" Lg	
9	452165-01	Block, Pulley, Idler	
10	670038-14	Screw, Socket Head, Cap, 10-32 x 7/8"	
11	670267-06	Screw, Button Head Cap, 8-32 x 3/8"	
12	690033-38	Washer, Lock, Split, #8	
13	690034-38	Washer, Flat, #8	
14	690034-03	Washer, Flat, #10	
15	670149-12	Screw, Socket Head Cap, 8-32 x 3/4"	
16	693158-03	Washer, Precision, 5/16" ID x .048" Thick	
17*	342877-09	Bearing, Roller, 5/16" ID x 9/16" Lg	
18	690713-03	Washer, Lock, External Star, #10	
19	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	

*NOTE: Due to manufacturing processes, items 1 and 17 should be replaced as a factory built assembly: 005294-01: Assembly, Pulley, Idler

RIGHT Y CARRIAGE ASSEMBLY

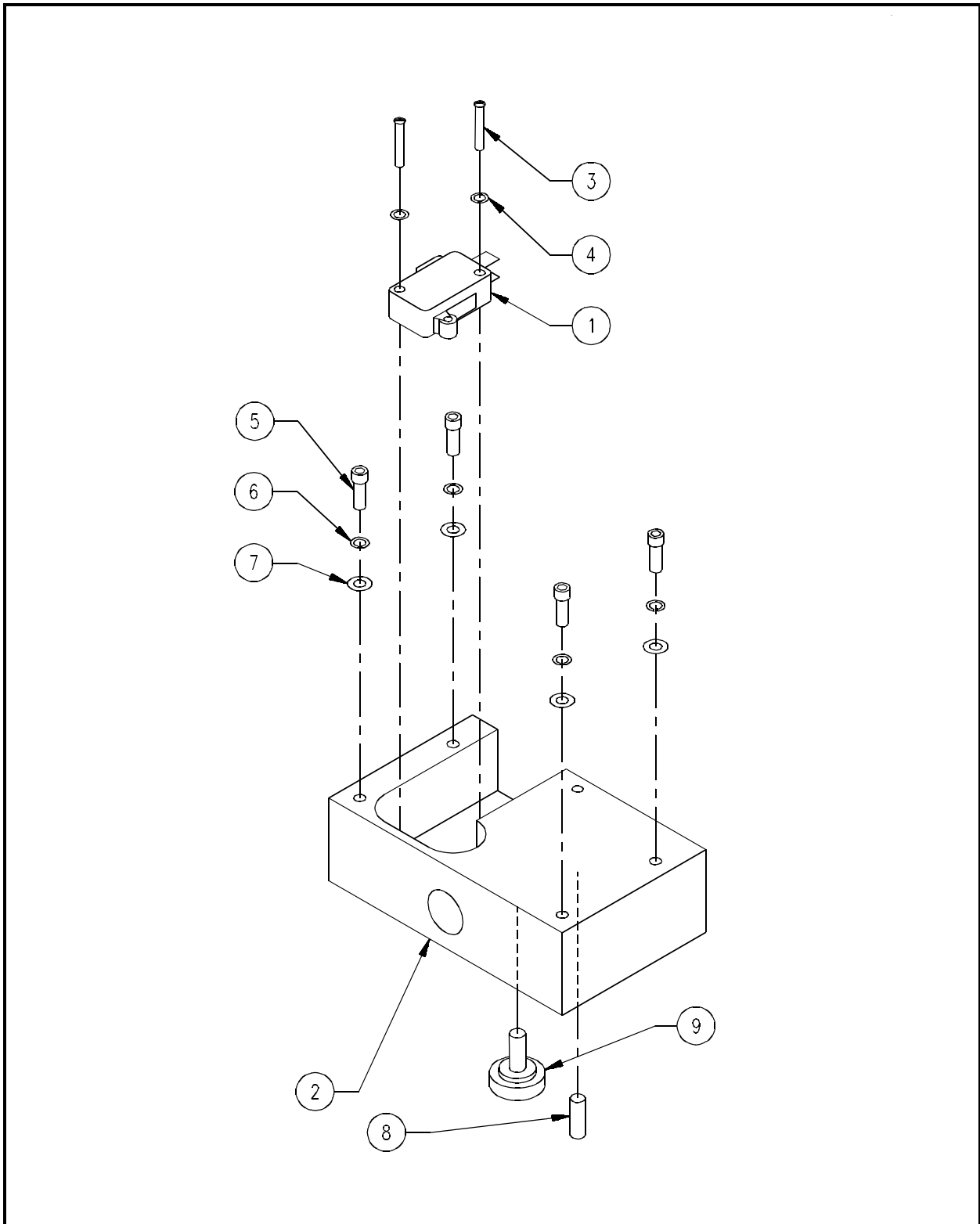


Right Y Carriage Assembly**Reference Figure P-22**

Item No.	Part Number	Item Description	Comments
1*	504358-01	Pulley, Idler, Y Drive	
2	694397-08	Washer, Thrust, .50" ID x .031"	
3	344402-08	Bearing, Thrust, .50" ID	
4	554329-01	Bracket, Belt	
5	000372-01	Clamp, Belt	
6	504449-01	Belt, Y Drive, 199 Groove	
7	000530-01	Retainer, Y Rail, Front	
8	672852-01	Screw, Shoulder, 1/4-20 x 5/16" x 5/8" Lg	
9	452165-01	Block, Pulley, Idler	
10	670038-14	Screw, Socket Head, Cap, 10-32 x 7/8"	
11	670267-06	Screw, Button Head Cap, 8-32 x 3/8"	
12	690033-38	Washer, Lock, Split, #8	
13	690034-38	Washer, Flat, #8	
14	690034-03	Washer, Flat, #10	
15	670149-12	Screw, Socket Head Cap, 8-32 x 3/4"	
16	693158-03	Washer, Precision, 5/16" ID x .048" Thick	
17*	342877-09	Bearing, Roller, 5/16" ID x 9/16" Lg	
18	690713-03	Washer, Lock, External Star, #10	

*NOTE: Due to manufacturing processes, items 1 and 17 should be replaced as a factory built assembly: 005294-01 Assembly, Pulley, Idler

CAP FRAME MOUNT ASSEMBLY

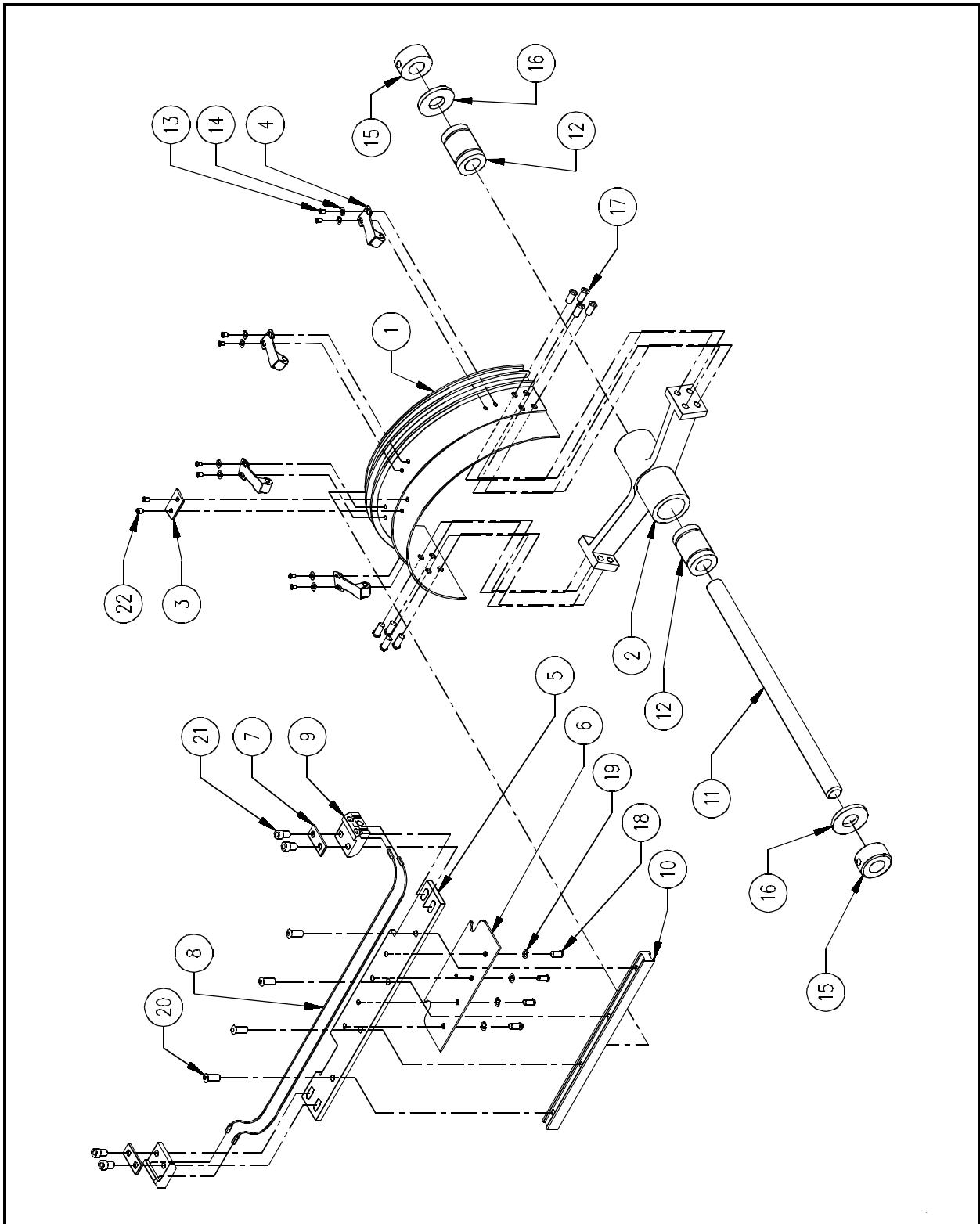


Cap Frame Mount Assembly**Reference Figure P-23**

Item No.	Part Number	Item Description	Comments
1	282911-01	Switch, Limit, Roller	
2*	004427-01	Mount, Cap Frame	
3	670131-10	Screw, Pan Head Phillips, 4-40 x 5/8"	
4	690034-34	Washer, Flat, #4	
5	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	
6	690033-38	Washer, Lock, Split, #8	
7	690034-38	Washer, Flat, #8	
8*	660831-12	Pin, Press, 3/16" Dia x 3/4" Lg	
9	672927-33	Screw, Thumb, 10-32 x 1/2"	

*NOTE: Due to manufacturing processes, items 2 and 8 should be replaced as a factory built assembly: 374981-01S Assembly, Mount, Cap Frame

CAP FRAME DRIVE ASSEMBLY



Cap Frame Drive Assembly**Reference Figure P-24**

Item No.	Part Number	Item Description	Comments
1	452732-01	Ring, Cap Frame	
2	472897-01	Hub, Cap Frame	
3	552912-01	Locator, Cap Frame	
4	004229-01	Clip, Roller, Cap Frame Driver, Assembly	
5	454861-01	Bracket, Drive	
6	554862-01	Mount, Drive Ring	
7	552915-01	Washer, Flat, Rectangle	
8	402913-01	Cable, Drive Ring	
9	452916-01	Bracket, Cable	
10	442917-01	Bar, Guide	
11	452749-03	Rail, Shaft	
12	005342-08	Bearing, Sleeve, Frelon	
13	670131-03	Screw, Pan Head Phillips, 4-40 x 3/16"	
14	690034-34	Washer, Flat, #4	
15	342872-08	Collar, Shaft, 1/2" ID	
16	342910-01	Washer, Rubber, 1/2" ID	
17	672982-06	Screw, Pan Head Phillips, 8-32 x 3/8"	
18	670174-04	Screw, Pan Head Phillips, 6-32 x 1/4"	
19	690033-36	Washer, Lock, Split, #6	
20	670267-06	Screw, Button Head Cap, 8-32 x 3/8"	
21	670149-06	Screw, Socket Head Cap, 8-32 x 3/8"	
22	670131-02	Screw, Pan Head Phillips, 4-40 x 1/8"	