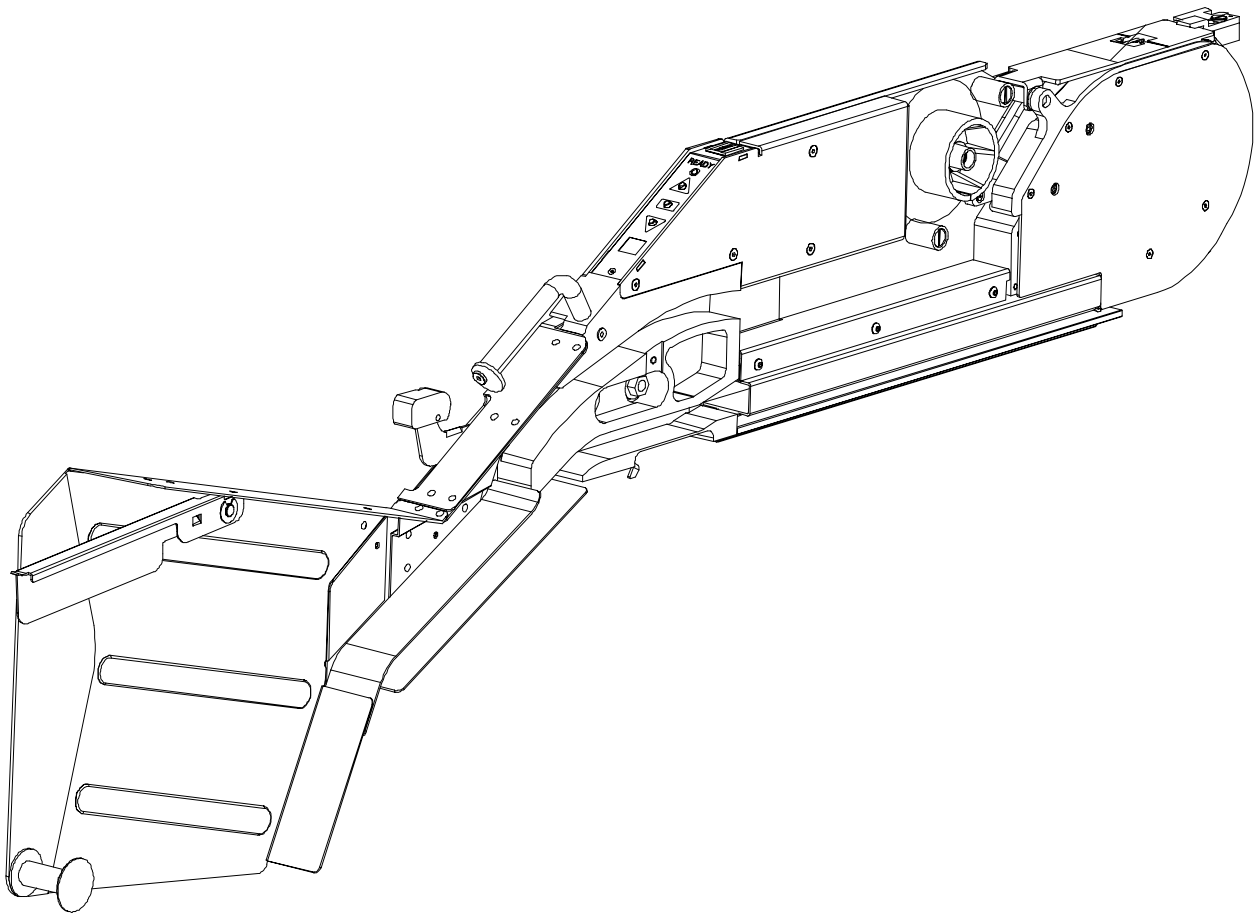


# 16mm Multi-Pitch Tape Feeder

T47175801 Rev. B

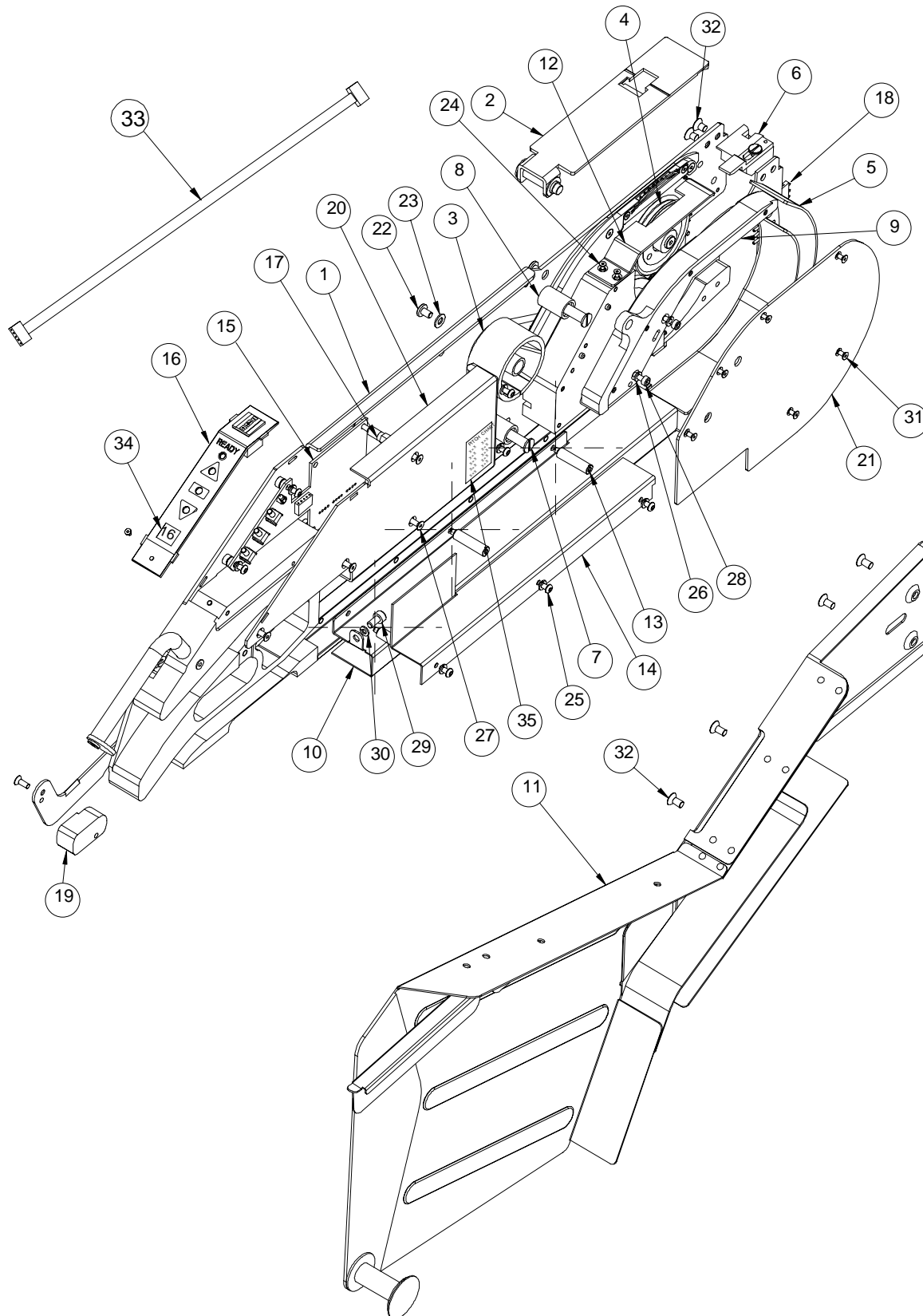


T47175801 Rev. B

16mm Multi-Pitch Tape Feeder

16MM MULTI - PITCH TAPE FEEDER  
FINAL ASSEMBLY

47175801



**16mm Multi-Pitch Tape Feeder****T47175801 Rev. B****16MM MULTI - PITCH TAPE FEEDER****47175801****FINAL ASSEMBLY****BILL OF MATERIALS**

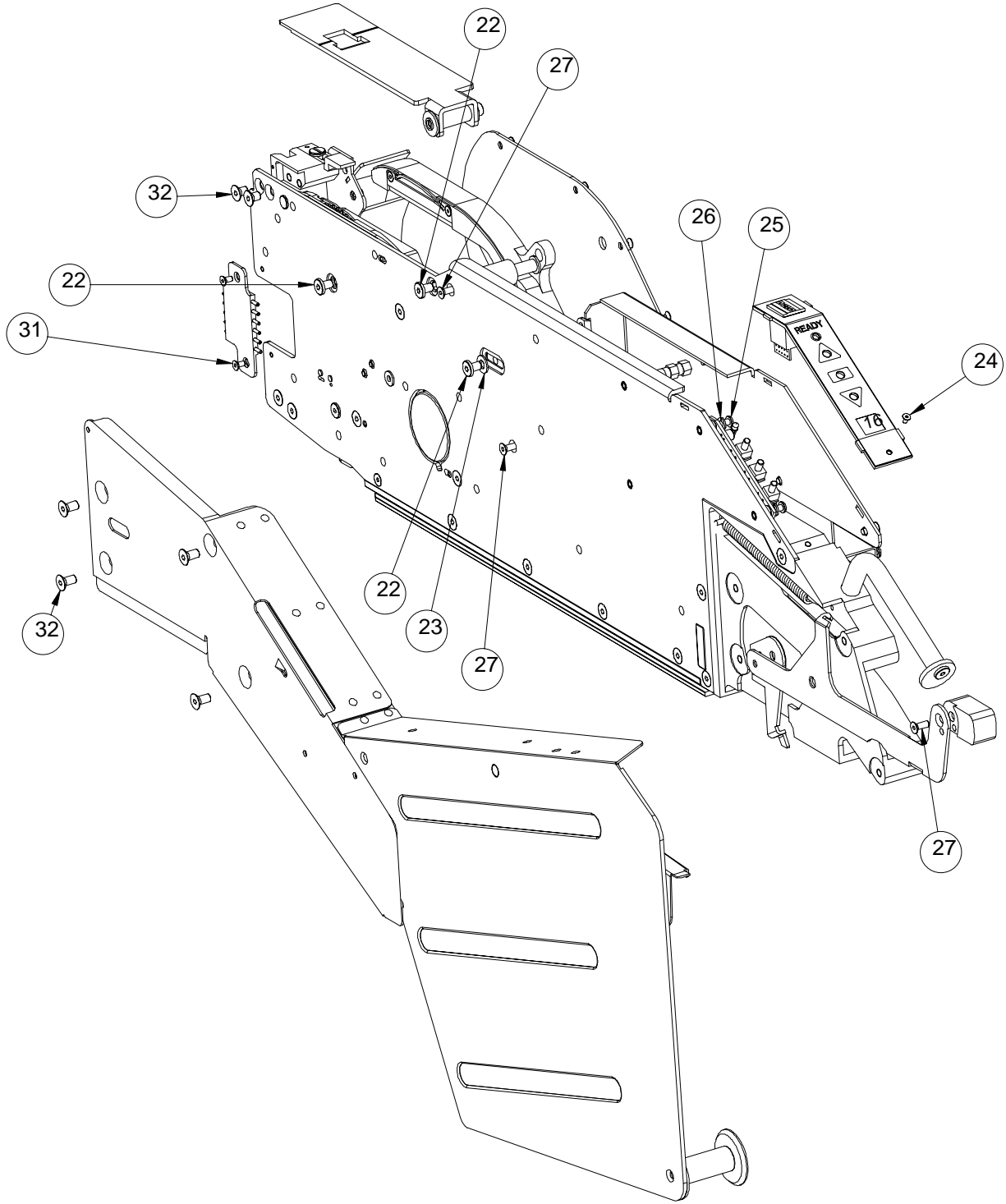
NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S10	BASE PLATE GENERIC ASSY	1
2	ASSEMBLY	042A - S09	16mm TAPE WINDOW ASSY	1
3	ASSEMBLY	103A - S12	24mm TUW ASSY	1
4	ASSEMBLY	042A - S03	SWD MAIN DRIVE ASSY	1
5	PART	042C - 011	16 / 24 FRONT FENDER	1
6	ASSEMBLY	040A - S00	WINDOW LATCH ASSY	1
7	PART	F12065	TAPE ROLLER PIN	2
8	PART	103C - 034	INPUT ROLLER	2
9	ASSEMBLY	042A - S11	16mm OUTSIDE TAPE RAIL	1
10	PART	042C - 018	16 / 24 LOWER EXIT TUBE	1
11	ASSEMBLY	043A - S13	16 / 24 TAIL SECTION	1
12	PART	042C - 004	16 / 24 BELT GUARD	1
13	PART	040C - 041	WIRE GUIDE STAND	3
14	PART	040C - 040	WIRE GUIDE LONG	1
15	PART	048A - 002	MPU CONTROLLER	1
16	PART	040A - S12	CONTROL PANEL ASSY	1
17	PART	040C - 003	BOARD STANDOFF STUD	2
18	ASSEMBLY	048A - 010	I / O CABLE	1
19	PART	111C - 032	LATCH HANDLE ASSY	1
20	PART	040C - 001	BOARD COVER	1
21	PART	040C - 021	OUTSIDE COVER	1
22	PART	109C - 067	M4 x 08 - SSLHCS	3
23	PART	80031701	M4 FLAT WASHER	1
24	PART	80028907	M3 x 05 - FHCS	8
25	PART	80029806	M3 x 06 - BHCS	8
26	PART	80055605	M3 LOCK WASHER	10
27	PART	80028901	M3 x 08 - FHCS	7
28	PART	M3 X 08 - SHCS	M3 X 08 - SHCS	2
29	PART	80026903	M4 x 08 - SHCS	1
30	PART	80055607	M4 LOCK WASHER	1
31	PART	80047002	M2.5 x 05 - FHCS	8
32	PART	80029001	M4 x 08 - FHCS	8
33	ASSEMBLY	048A - 009	SENSOR CABLE	1
34	PART	109C - 019	16MM FEEDER SIZE STICKER	1
35	PART	109C - 020	PITCH LABEL	1

# T47175801 Rev. B

# 16mm Multi-Pitch Tape Feeder

## 16MM MULTI - PITCH TAPE FEEDER FINAL ASSEMBLY

47175801



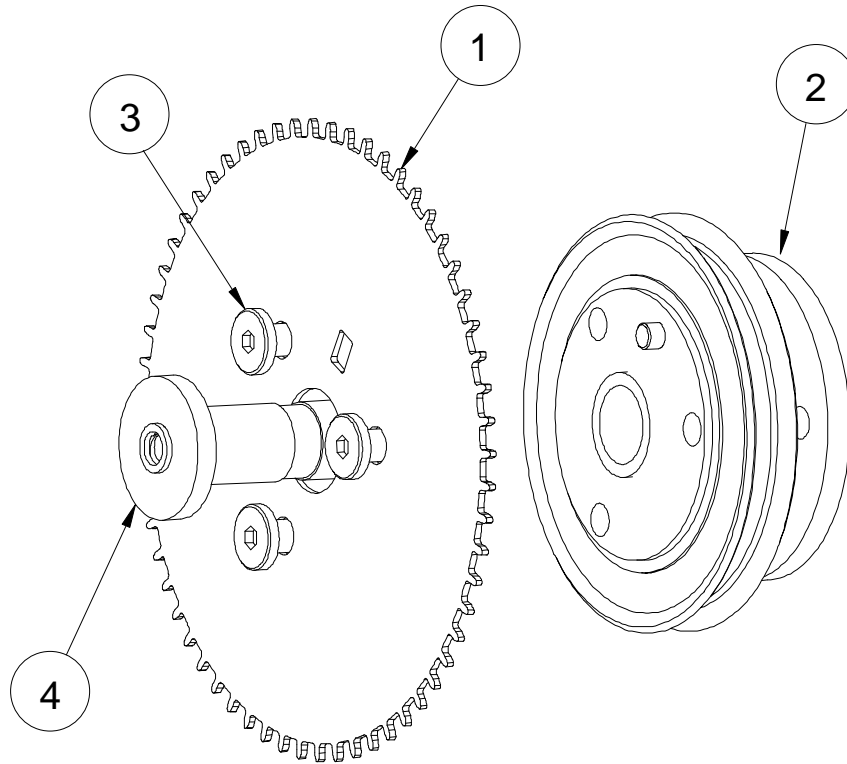
**16mm Multi-Pitch Tape Feeder****T47175801 Rev. B****16MM MULTI - PITCH TAPE FEEDER  
FINAL ASSEMBLY****47175801****BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S10	BASE PLATE GENERIC ASSY	1
2	ASSEMBLY	042A - S09	16mm TAPE WINDOW ASSY	1
3	ASSEMBLY	103A - S12	24mm TUW ASSY	1
4	ASSEMBLY	042A - S03	SWD MAIN DRIVE ASSY	1
5	PART	042C - 011	16 / 24 FRONT FENDER	1
6	ASSEMBLY	040A - S00	WINDOW LATCH ASSY	1
7	PART	F12065	TAPE ROLLER PIN	2
8	PART	103C - 034	INPUT ROLLER	2
9	ASSEMBLY	042A - S11	16mm OUTSIDE TAPE RAIL	1
10	PART	042C - 018	16 / 24 LOWER EXIT TUBE	1
11	ASSEMBLY	043A - S13	16 / 24 TAIL SECTION	1
12	PART	042C - 004	16 / 24 BELT GUARD	1
13	PART	040C - 041	WIRE GUIDE STAND	3
14	PART	040C - 040	WIRE GUIDE LONG	1
15	PART	048A - 002	MPU CONTROLLER	1
16	PART	040A - S12	CONTROL PANEL ASSY	1
17	PART	040C - 003	BOARD STANDOFF STUD	2
18	ASSEMBLY	048A - 010	I / O CABLE	1
19	PART	111C - 032	LATCH HANDLE ASSY	1
20	PART	040C - 001	BOARD COVER	1
21	PART	040C - 021	OUTSIDE COVER	1
22	PART	109C - 067	M4 x 08 - SSLHCS	3
23	PART	80031701	M4 FLAT WASHER	1
24	PART	80028907	M3 x 05 - FHCS	8
25	PART	80029806	M3 x 06 - BHCS	8
26	PART	80055605	M3 LOCK WASHER	10
27	PART	80028901	M3 x 08 - FHCS	7
28	PART	M3 X 08 - SHCS	M3 X 08 - SHCS	2
29	PART	80026903	M4 x 08 - SHCS	1
30	PART	80055607	M4 LOCK WASHER	1
31	PART	80047002	M2.5 x 05 - FHCS	8
32	PART	80029001	M4 x 08 - FHCS	8
33	ASSEMBLY	048A - 009	SENSOR CABLE	1
34	PART	109C - 019	16MM FEEDER SIZE STICKER	1
35	PART	109C - 020	PITCH LABEL	1

**16MM MULTI - PITCH TAPE FEEDER  
SUB - ASSEMBLIES**

**47175801**

**042A - S03 SWD MAIN DRIVE ASSEMBLY**



**BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	PART	040C - 034	SWD TOOTH PLATE	1
2	ASSY	042A - S17	SWD DRIVE HUB ASSY	1
3	PART	109C - 066	M4 X 06 - SSLHCS	3
4	PART	040C - 008	SWD DRIVE SHAFT	1

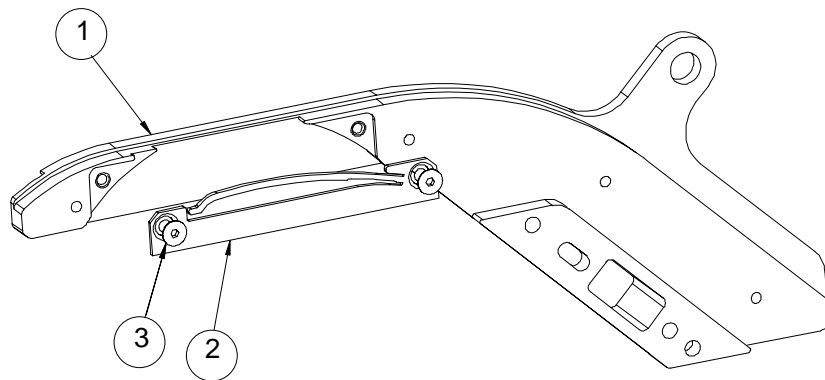
# 16mm Multi-Pitch Tape Feeder

T47175801 Rev. B

**16MM MULTI - PITCH TAPE FEEDER  
SUB - ASSEMBLIES**

47175801

**042A - S11 16MM OUTSIDE TAPE RAIL ASSEMBLY**



## BILL OF MATERIALS

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	PART	042C - 022	16MM TAPE RAIL	1
2	PART	040C - 039	TAPE SUPPORT OUT	1
3	PART	80047002	M2.5 x 05 FHCS	2

T47175801 Rev. B

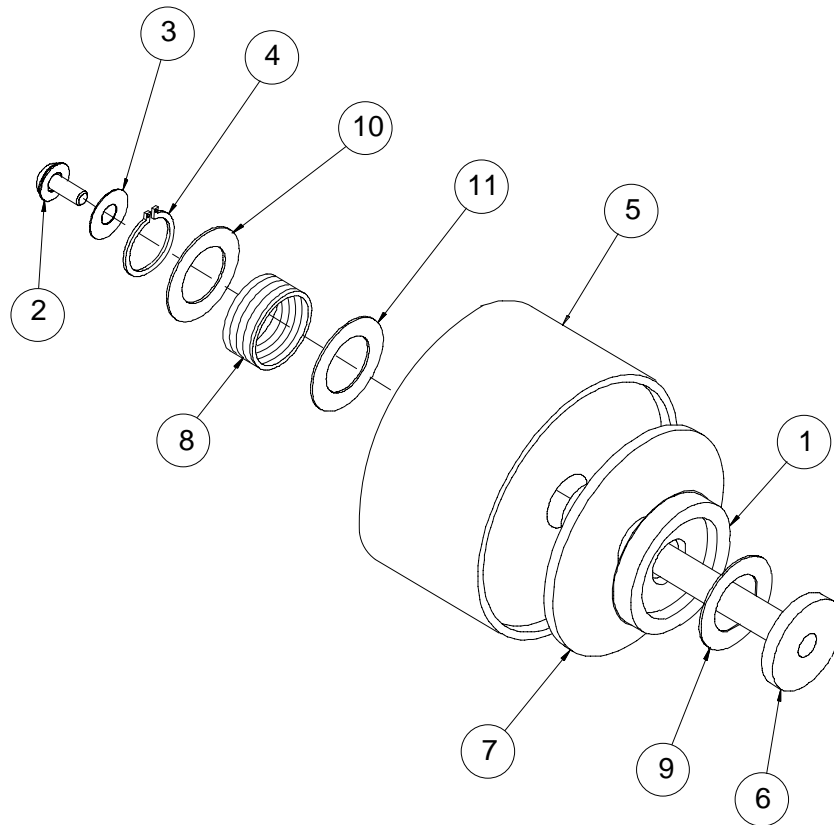
16mm Multi-Pitch Tape Feeder

16MM MULTI - PITCH TAPE FEEDER

47175801

SUB - ASSEMBLIES

## 103A - S12 16MM TAKE UP WHEEL ASSEMBLY



### BILL OF MATERIALS

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSY	103A - S13	TUW PULLEY ASSY	1
2	PART	80029806	M3 X 06 - BHCS	1
3	PART	80031704	M3 WASHER	1
4	PART	109C - 021	M9 RETAINING RING	1
5	PART	103C - 024	24mm TAKE UP WHEEL	1
6	PART	103C - 032	SM. TUW SHAFT	1
7	PART	0002 - 064	TAKE UP WHEEL CORK	1
8	PART	109C - 025	COMPRESSION SPRING	1
9	PART	109C - 036	MPF TUW WASHER	1
10	PART	030C - 106	PTU TUW WASHER	1
11	PART	109C - 085	FLAT WASHER	1



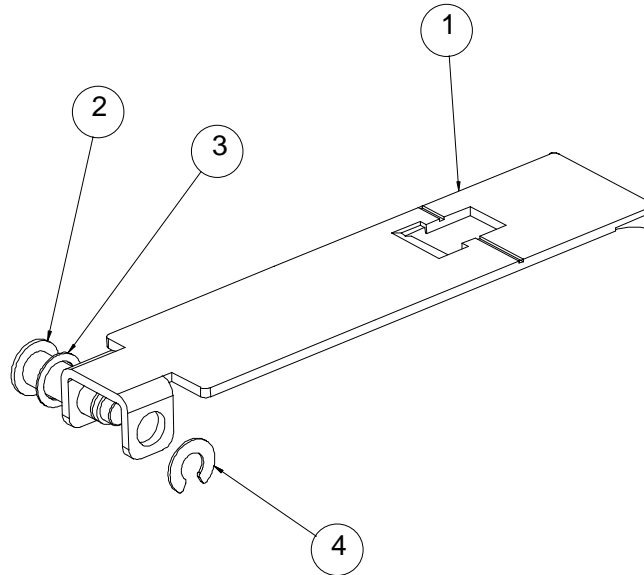
# 16mm Multi-Pitch Tape Feeder

T47175801 Rev. B

16MM MULTI - PITCH TAPE FEEDER  
SUB - ASSEMBLIES

47175801

042A - S09 16MM TAPE WINDOW ASSEMBLY



## BILL OF MATERIALS

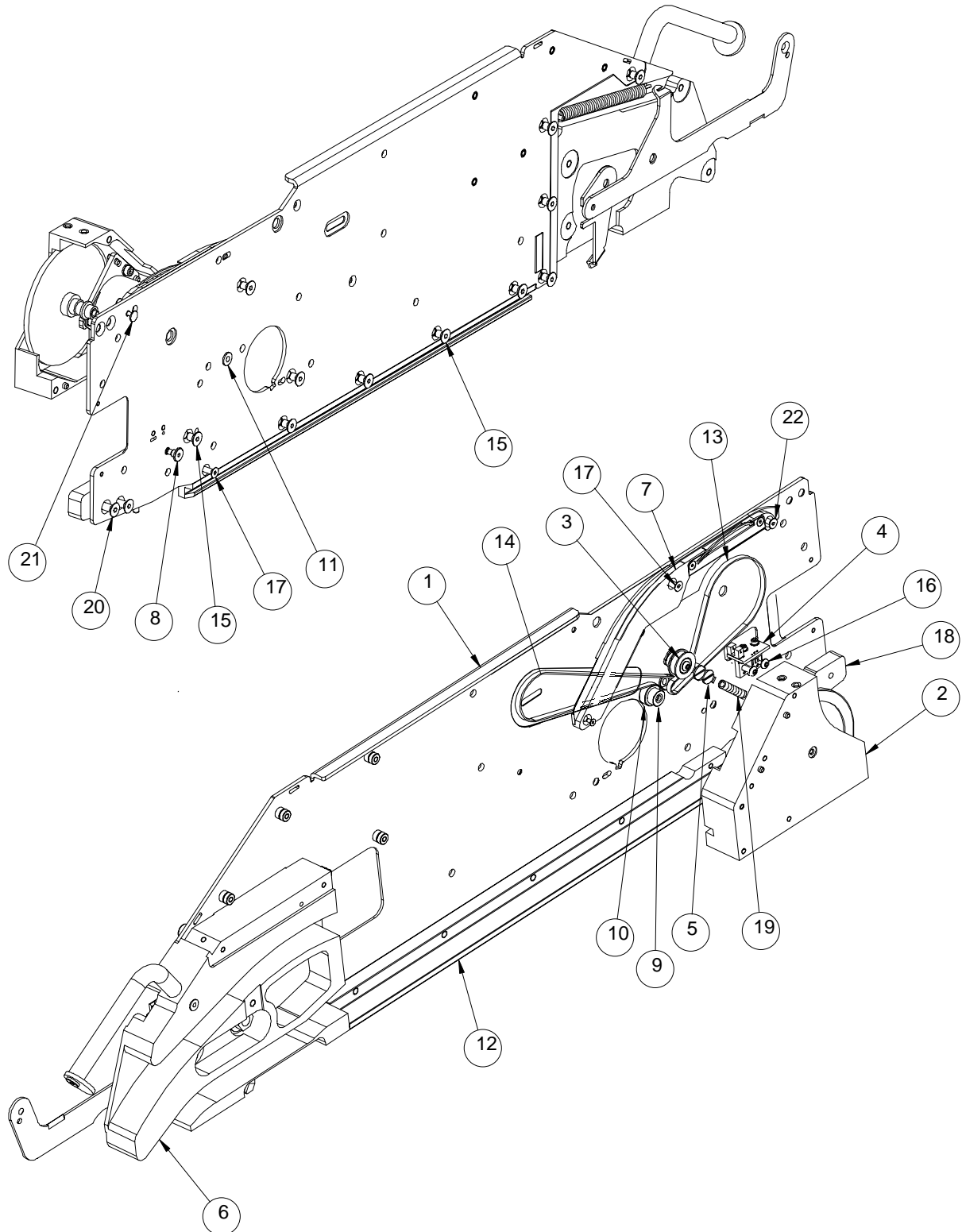
NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	042A - S23	16mm WINDOW/DEFLECTOR	1
2	PART	042C - 030	1624mm WINDOW SHAFT	1
3	PART	040C - 103	WINDOW SPRING	1
4	PART	040C - 102	WINDOW E - RING	1

# T47175801 Rev. B

# 16mm Multi-Pitch Tape Feeder

040A - S10

## BASE PLATE ASSEMBLY

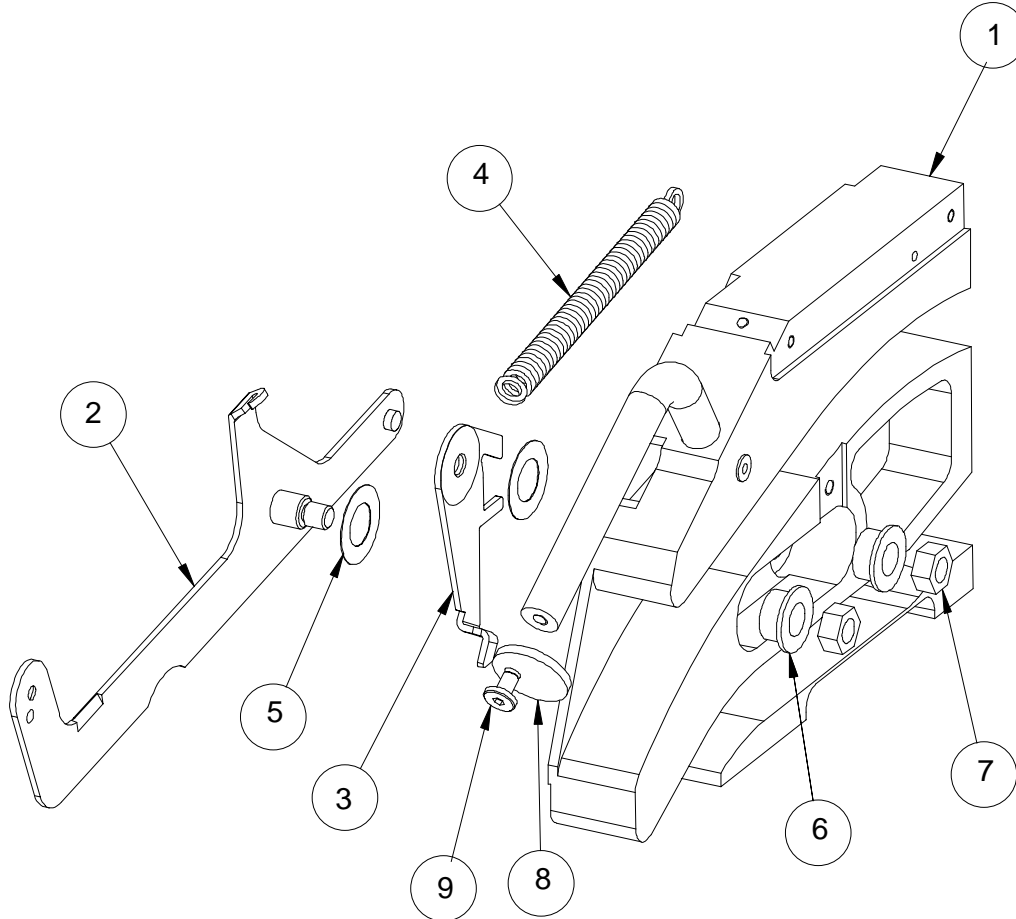


**16mm Multi-Pitch Tape Feeder****T47175801 Rev. B****040A - S10****BASE PLATE ASSEMBLY****BILL OF MATERIALS**

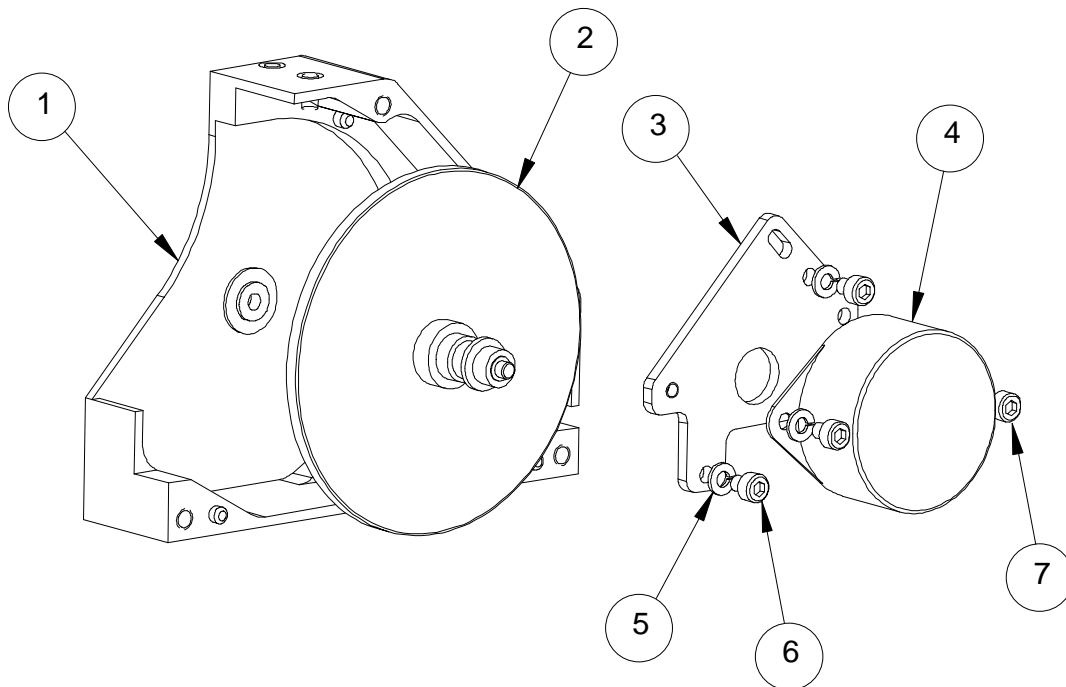
NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S24	MEC PLATE ASSY	1
2	ASSEMBLY	040A - S01	GEAR COVER ASSY	1
3	ASSEMBLY	040A - S02	TENSIONER ASSY	1
4	ASSEMBLY	040A - S05	SLOT SENSOR ASSY	1
5	PART	F10720	SHOULDER SCREW	2
6	ASSEMBLY	040A - S07	TAIL BLOCK ASSY	1
7	ASSEMBLY	040A - S08	INSIDE TAPE RAIL ASSY	1
8	ASSEMBLY	040C - 033	TENSIONER SPRING HOOK	1
9	PART	040C - 032	TENSIONER IDLER POST	1
10	PART	109C - 013	TENSIONER BEARING	1
11	PART	109C - 005	JACKSHAFT BEARING	1
12	PART	040C - 010	FEEDER RAIL	1
13	PART	040C - 100	DRIVE BELT	1
14	PART	040C - 101	TAKE UP BELT	1
15			Deleted	
16	PART	80029806	M3 x 06 BHCS	2
17	PART	80028901	M3 x 08 FHCS	2
18	ASSEMBLY	040A - S18	LOWER LOCATOR	1
19	PART	040C - 104	TENSIONER SPRING	1
20	PART	80029001	M4 x 08 FHCS	13
21	PART	040C - 057	INSIDE TAPE RAIL PIN	1
22	PART	80028907	M3 x 05 FHCS	1

T47175801 Rev. B

16mm Multi-Pitch Tape Feeder

**040A - S10 BASE PLATE ASSEMBLY****SUB - ASSEMBLIES COMMON TO ALL SIZES****040A - S07 TAIL BLOCK ASSEMBLY****BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S22	TAIL BLOCK / HANDLE	1
2	PART	040C - 043	MPU LATCH LEVER	1
3	PART	040C - 044	TAIL LATCH	1
4	PART	111C - 033	LATCH SPRING	1
5	PART	111C - 029	LATCH WASHER	2
6	PART	111C - 030	LATCH BEARING	2
7	PART	111C - 031	LATCH LEVER NUT	2
8	PART	040C - 056	HANDLE CAP	1
9	PART	109C - 067	M4 x 08 - SSLHCS	1

**16mm Multi-Pitch Tape Feeder**
**T47175801 Rev. B**
**040A - S10 BASE PLATE ASSEMBLY**
**SUB - ASSEMBLIES COMMON TO ALL SIZES**
**040A - S01 GEAR COVER ASSEMBLY**


## BILL OF MATERIALS

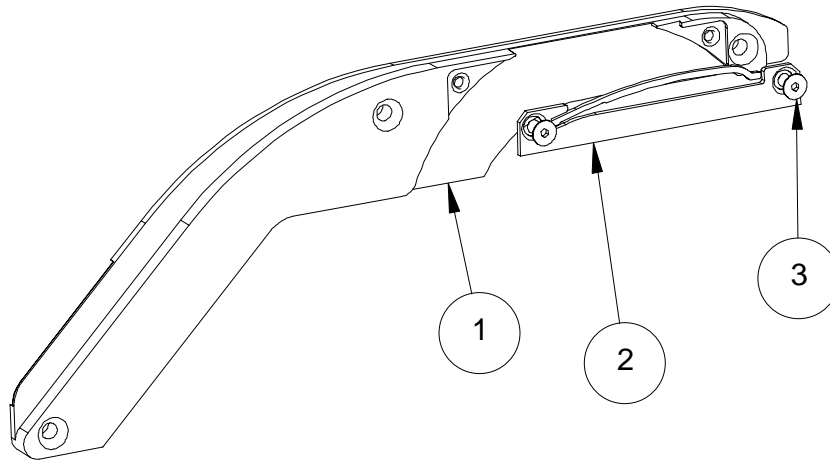
NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S21	GEAR COVER / BEARING	1
2	ASSEMBLY	040A - S06	SPUR GEAR	1
3	PART	040C - 020	MOTOR PLATE	1
4	ASSEMBLY	040A - S04	DRIVE MOTOR	1
5	PART	80055605	M3 LOCK WASHER	4
6	PART	M3 x 06 - SHCS	M3 x 06 - SHCS	2
7	PART	M3 x 05 - SHCS	M3 x 05 - SHCS	2

T47175801 Rev. B

16mm Multi-Pitch Tape Feeder

**040A - S10 BASE PLATE ASSEMBLY**  
**SUB - ASSEMBLIES COMMON TO ALL SIZES**

**040A - S08 INSIDE TAPE RAIL ASSEMBLY**



## BILL OF MATERIALS

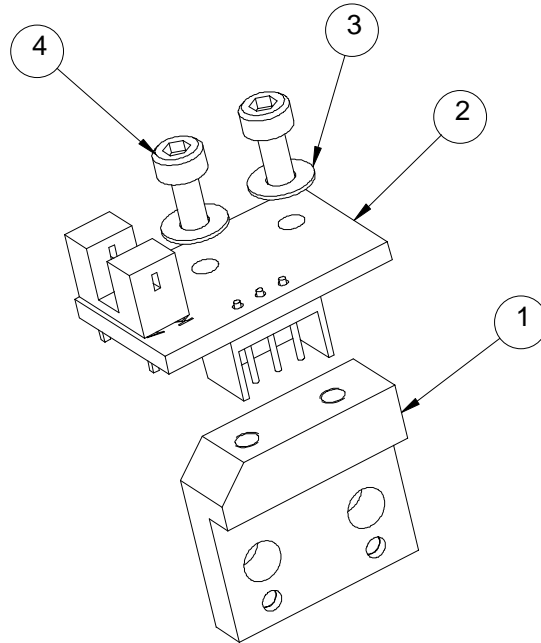
NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S28	INSIDE GUIDE / DOWEL	1
2	PART	040C - 038	TAPE SUPPORT IN	1
3	PART	80047002	M2.5 x 05 FHCS	2

**16mm Multi-Pitch Tape Feeder**

**T47175801 Rev. B**

**040A - S10 BASE PLATE ASSEMBLY**  
**SUB - ASSEMBLIES COMMON TO ALL SIZES**

**040A - S05 SLOT SENSOR ASSEMBLY**

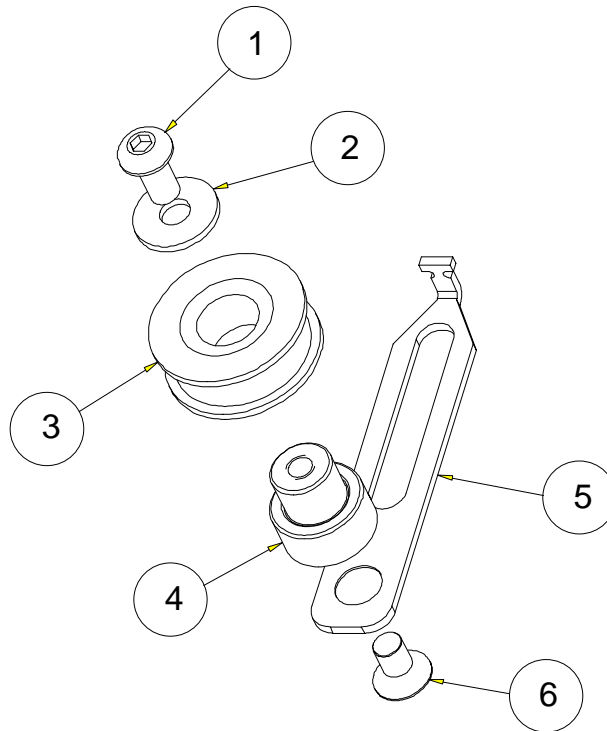


**BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	ASSEMBLY	040A - S16	SENSOR BRACKET W / DOWEL	1
2	ASSEMBLY	048A - 005	SLOT SENSOR	1
3	PART	80031705	M2 FLAT WASHER	2
4	PART	M2 x 04 SHCS	M2 x 04 SHCS	2

T47175801 Rev. B

16mm Multi-Pitch Tape Feeder

**040A - S10 BASE PLATE ASSEMBLY****SUB - ASSEMBLIES COMMON TO ALL SIZES****040A - S02 TENSIONER ASSEMBLY****BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	PART	80029806	M3 x 06 - BHCS	1
2	PART	80031701	M4 FLAT WASHER	1
3	ASSEMBLY	040A - S20	BEARING / ROTOR	1
4	PART	040C - 035	TENSIONER BEARING POST	1
5	PART	040C - 031	TENSIONER CARRIER	1
6	PART	80028907	M3 x 05 - FHCS	1

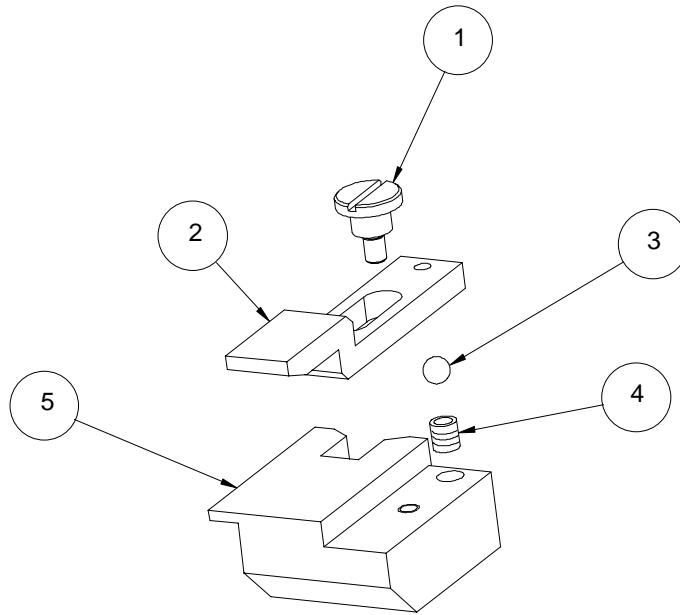


**16mm Multi-Pitch Tape Feeder**

**T47175801 Rev. B**

**16 - 56MM MULTI - PITCH TAPE FEEDERS  
SUB - ASSEMBLIES COMMON TO ALL SIZES**

**040A - S00 WINDOW LATCH ASSEMBLY**



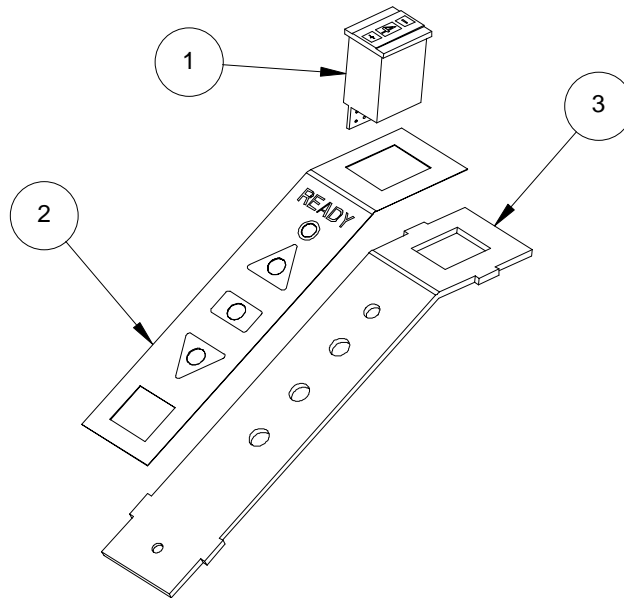
**BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	PART	040C - 037	LATCH PIN	1
2	PART	040C - 036	WINDOW LATCH SLIDER	1
3	PART	040C - 105	WINDOW LATCH BALL BEARING	1
4	PART	040C - 107	WINDOW LATCH SPRING	1
5	PART	040C - 017	LOCATOR / LATCH BASE	1



**16 - 56MM MULTI - PITCH TAPE FEEDERS  
SUB - ASSEMBLIES COMMON TO ALL SIZES**

**040A - S12 CONTROL PANEL ASSEMBLY**



**BILL OF MATERIALS**

NO.	TYPE	PART NUMBER	DESCRIPTION	QTY
1	PART	048A - 011	PITCH SWITCH	1
2	PART	040C - 005	OVERLAY LABEL	1
3	PART	040C - 006	CONTROL PANEL PLATE	1

**16mm Multi-Pitch Tape Feeder****T47175801 Rev. B****Functional Description**

The 4697A 16mm Multi-Pitch Tape Feeder advances a component from the reel holder to the peeler blade, where the mylar (cover) tape is removed. The component is then advanced to the feeder pick-up position, where it waits for pick-up by the machine.

**Maintenance Concept**

The following table defines the recommended Maintenance Concept for the 4697A 16mm Multi-Pitch Tape Feeder. For a more detailed explanation of the Maintenance Concept and its structure, refer to the *Prerequisite Information and Introduction* module.

Note that cycle count data are available through the Universal Platform Software (UPS) system's Management Information application. Refer to the *Platform Configuration Options* for details on how to access this application.

<b>Maintenance Procedures</b>	<b>Recommended Frequency</b>	<b>Minimum Skill Required</b>	<b>Spares Kit Required</b>	<b>Tool Kit Required</b>
Loading the Tape Feeder	As Required	Machine Operator	No	No
Installing the Tape Feeder	As Required	Machine Operator	No	No
Unloading the Tape Feeder	As Required	Machine Operator	No	No
Checking the Overall Condition of the Tape Feeder	Every 1,000,000 Cycles	Maintenance Technician	No	No
Cleaning and Lubricating the Tape Feeder	Every 1,000,000 Cycles	Maintenance Technician	No	No
Replacing Drive Belts	As Required	UIC Field Service Engineer	Yes	No
Replacing Motor Controller Board	As Required	UIC Field Service Engineer	Yes	No
Replacing Feeder Connectors or Pins	As Required	Maintenance Technician	Yes	No

**Related Information**

The following table defines documents and sources containing information that may be required/useful while performing, or are additional to, the procedures/functions of this document.

<b>Document Title</b>	<b>Document #</b>	<b>Procedure or Section</b>
16mm Multi-Pitch Tape Feeder	47175802	N/A

**T47175801 Rev. B****16mm Multi-Pitch Tape Feeder****CAUTION**

Use extreme caution when ordering motors for the tape feeders. There are two different 16-56mm Multi-Pitch Tape Feeder part number series. The 47178801 uses a 040A-S04 motor, and the 47178802 uses a 042A-S04 motor. The motors are not interchangeable.

Also, use extreme caution when working with the control boards because the part number of the control board did not change. Do not remove an old control board (from a 47178801 feeder) and place it in the (47178802 feeder), because the boards appear the same, but electronically are not interchangeable. If this happens the board will be damaged. A control board from the 47178802 will work with either a 042A-S04 or a 040A-S04 motor.

# 16mm Multi-Pitch Tape Feeder

T47175801 Rev. B

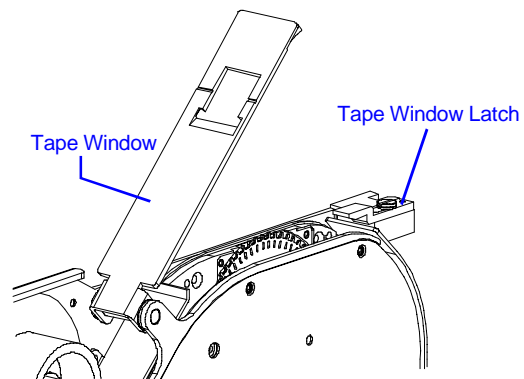
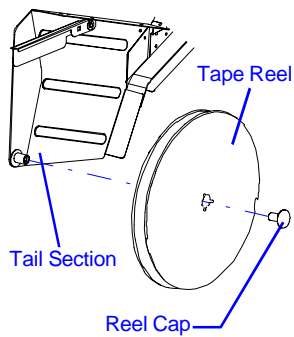
## Procedures and Adjustments

Adjustments and corrective maintenance procedures required of the customer are presented in the following subsections.

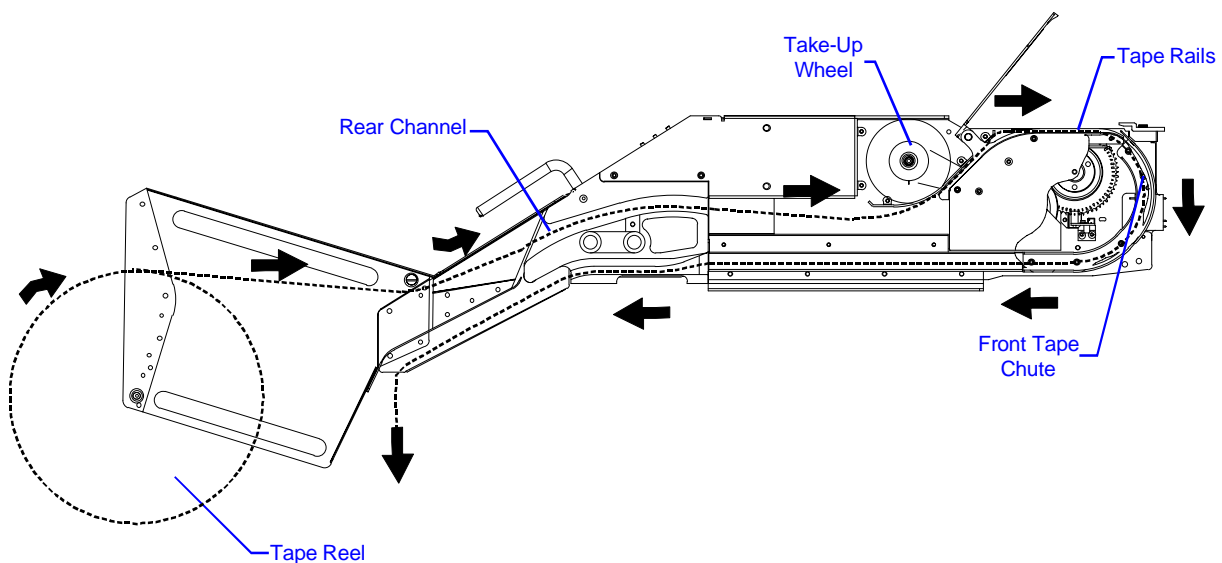
### Loading the Tape Feeder

Load the 16mm Multi Pitch Tape Feeder using the following procedure.

1. Remove the plastic Reel Cap from the tail section of the tape feeder, install the tape reel, and replace the Reel Cap. Refer to the diagram to the left.
2. Release the Tape Window by sliding the Tape Window Latch forward. Rotate the Tape Window up.



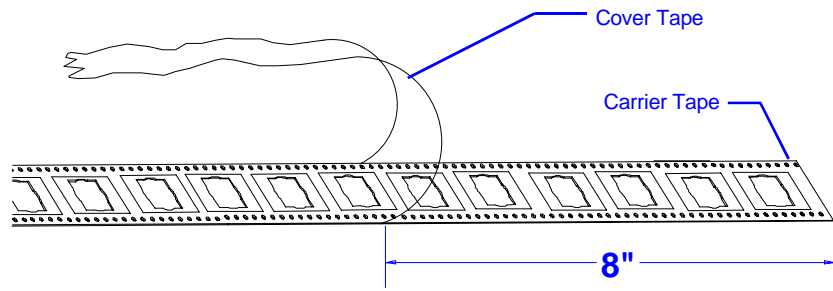
3. Thread the Carrier Tape through the rear channel of the feeder and then over the top of the tape rails. Refer to the tape path below. The front inch of the tape should be directed into the Front Tape Chute.



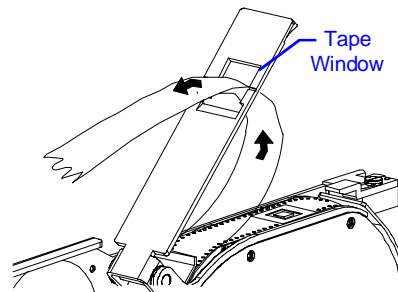
## T47175801 Rev. B

## 16mm Multi-Pitch Tape Feeder

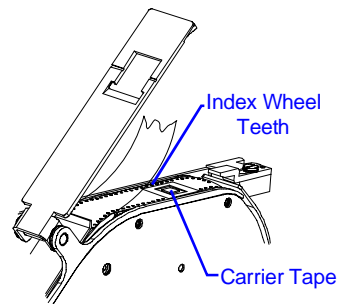
4. Separate about eight inches of Cover Tape from the Carrier Tape. Peel the Cover Tape back from the Carrier Tape, but avoid detaching it completely.



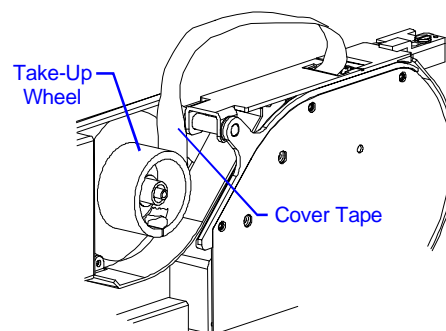
5. Pull the Cover Tape through the Tape Window.



6. Align the holes in the Carrier Tape with the index wheel teeth that are visible. Close the tape window and then secure it with the Tape Window Latch.



7. Secure the mylar Cover Tape to the take-up wheel by tying a knot in the end of the tape and inserting it through the slot into the take-up wheel as shown below.



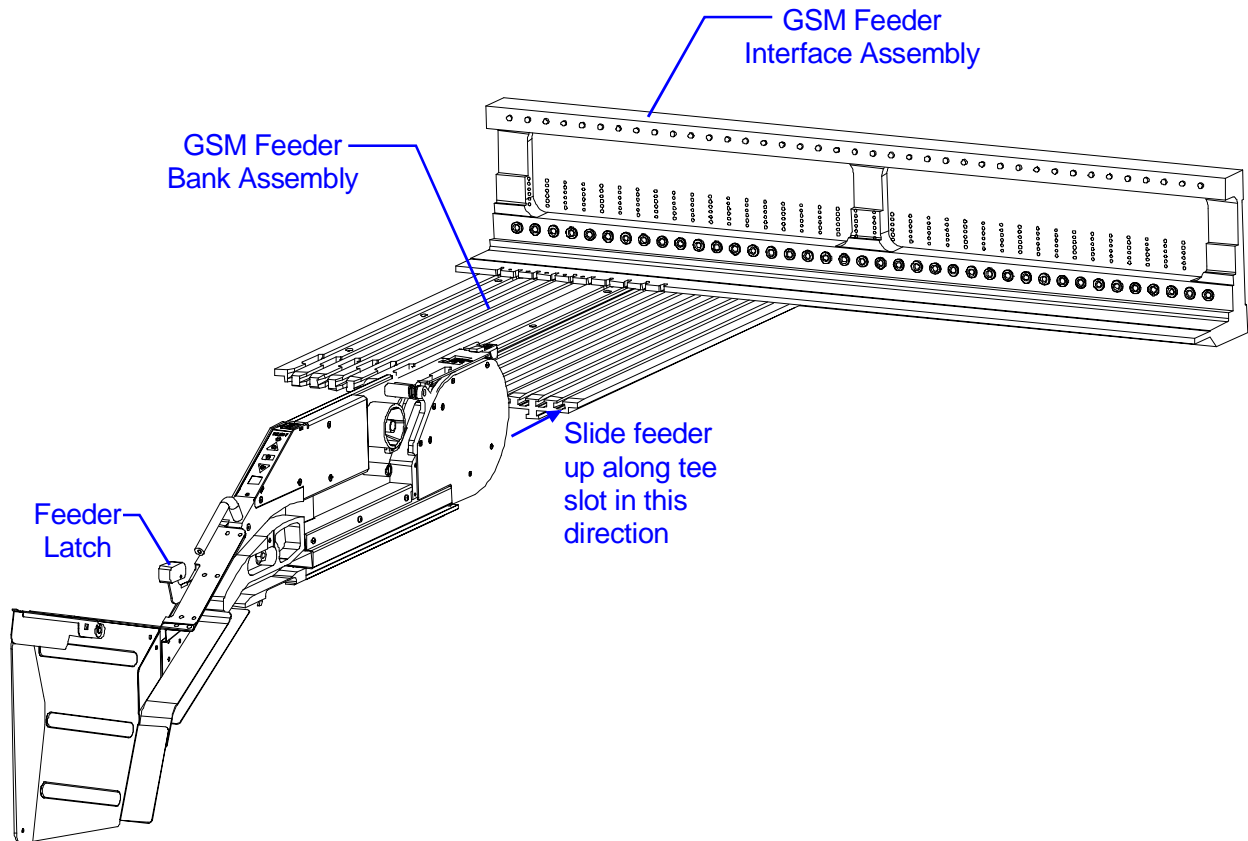
# 16mm Multi-Pitch Tape Feeder

## T47175801 Rev. B

### *Installing the Tape Feeder*

Install the 16mm Multi-Pitch Tape Feeder using the following procedure.

1. Push the tape feeder latch down so that it locks down. Slide the feeder onto the feeder bank assembly as shown in the following illustration.

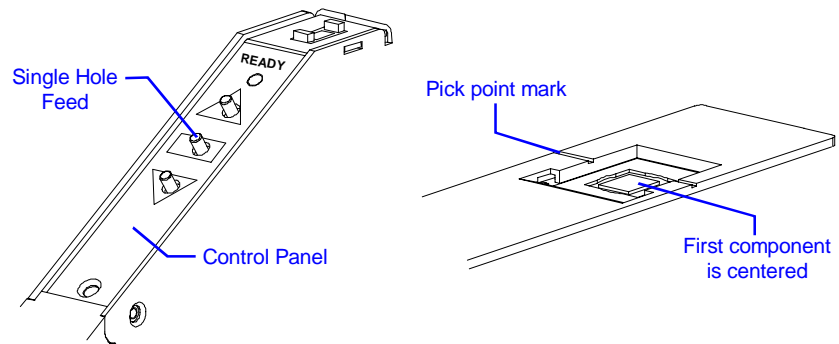


2. Slide the feeder in until it connects with the interface assembly.
3. Once the Status Light illuminates, signaling a firm connection between the feeder and the interface, release the Feeder Latch and pull it up. This locks the feeder into its operational position.

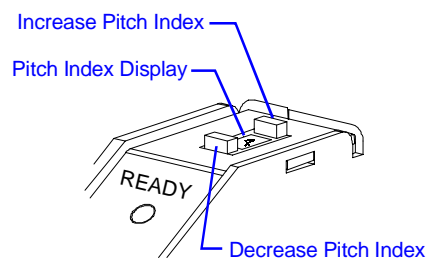
## Operating the Tape Feeder

When operating the 16mm Multi-Pitch Tape Feeder on the Platform or on a Feeder Setup Cart use the following procedure.

1. With the tape securely loaded into the feeder and the feeder mounted on a Platform Machine or a Feeder Setup Cart, locate the first component of the reel at the Pick Point. Center the first component in the Pick Point mark (see below) by holding the Single Hole Feed button and pressing either the Forward Feed or the Reverse Feed buttons.



2. Configure the pitch setting of the unit.
  - a. Identify the pitch of the components being used on the tape feeder.
  - b. Use the Pitch Selection Chart to determine the corresponding pitch number.
  - c. Set the Pitch Selector to the value on the Pitch Chart.



### Pitch Selection Chart

1 = 4p	7 = 28p
2 = 8p	8 = 32p
3 = 12p	9 = 36p
4 = 16p	10 = 40p
5 = 20p	11 = 44p
6 = 24p	12 = 48p

3. Verify that the feeder is still at a “home” position. A “home” position is indicated by a green Ready Light.
4. If the Ready light is green go to step 7. If the Ready light is not green proceed with the following steps.

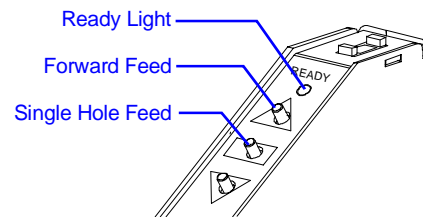


# 16mm Multi-Pitch Tape Feeder

## T47175801 Rev. B

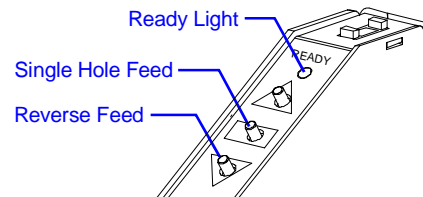
5. Perform the Single Hole Forward sequence. (Shown below)

### Single Hole Forward

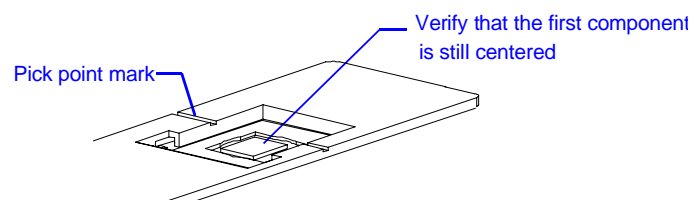


- Push the Single Hole Feed button on the Control Panel.
  - Push the Forward Feed button on the Control Panel.
6. Perform the Single Hole Reverse sequence. (Shown below)

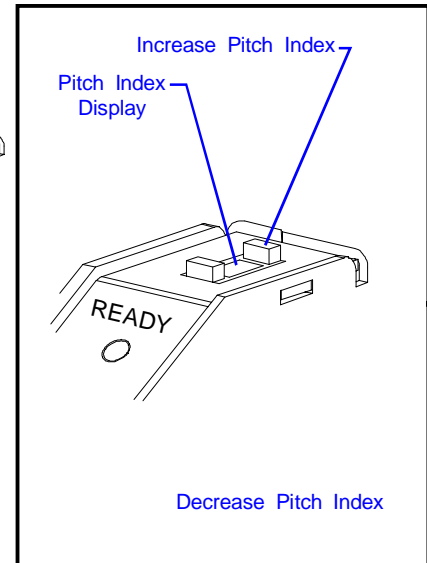
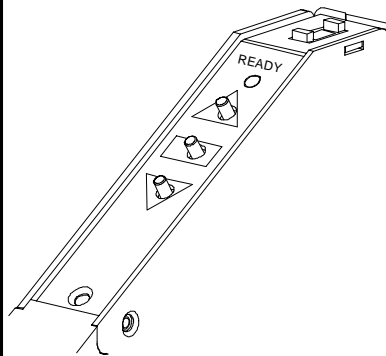
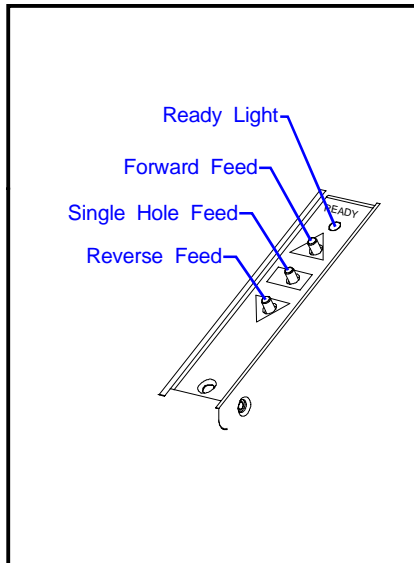
### Single Hole Reverse



- Push the Single Hole Feed button on the Control Panel.
  - Push the Reverse Feed button on the Control Panel.
- The Ready Light should now be green. If not repeat steps 5 and 6 again.
7. Verify that the component is still centered at the Pick Point.



**Feeder Control Panel Detail**



<b>Decrease Pitch Index</b>	When pressed, the pitch setting will decrease by 1 (equivalent to 4 mm).
<b>Pitch Index Display</b>	Represents the distance the tape will advance in 4 mm increments. Setting is calculated by multiplying numbers shown by 4 mm.
<b>Increase Pitch Index</b>	When pressed, the pitch setting will increase by 1 (equivalent to 4 mm).
<b>Ready Light</b>	<p>RED FLASHING = feeder in tape jam error mode.</p> <p>GREEN = feeder in ready mode, at home position.</p> <p>GREEN FLASHING = feeder advancing.</p> <p>OFF = feeder in sleep mode, or not at home position.</p>
<b>Forward Feed</b>	Advances tape pitch. Pitch is equal to pitch index displayed.
<b>Single Hole Feed</b>	When pressed with FORWARD FEED or REVERSE FEED, feeder advances or retracts 4 mm.
<b>Reverse Feed</b>	Retracts tape pitch. Pitch is equal to pitch index displayed.

# 16mm Multi-Pitch Tape Feeder

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## Pick Point Adjustment

To restore the Default Pick Point on the 16mm Multi-Pitch Tape Feeder, refer to the *Default Pick Point Adjustment* section later in this document.

To restore the Factory Default Pick Point refer to the *Factory Default Pick Point* section later in this document.

To operate the 16mm Multi-Pitch Tape Feeder for specialty applications, adjust the Default Pick Point using the following procedure.

## Special Application Adjustment

These instructions are intended to be used for specialty applications where the Pick Point needs to be changed.

### NOTE

The 16mm Multi-Pitch Tape Feeder is manufactured and calibrated to comply with the GSM Interface. The Pick Point has been set at the factory before shipping.

Proceeding with these instructions will replace the Factory Default Pick Point with a custom Pick Point.

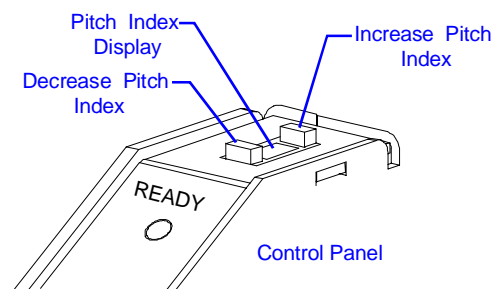
1. Locate the serial number on the tape feeder.
  - If the serial number is 000000 through 000729, the feeder is a Model A.
  - If the serial number is 000730 or greater, the feeder is a Model B.

### CAUTION



Model A feeders need to have the Factory Default settings recorded before programming a Custom Pick Point for the first time. Follow the instructions for recording of the Factory Default Settings

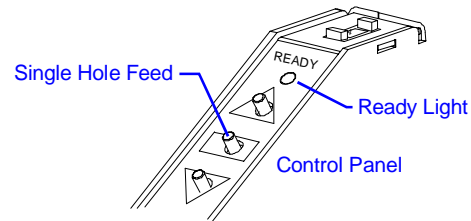
2. Set the Pitch Selector to zero.



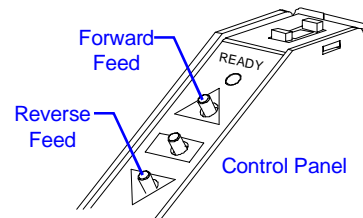
## T47175801 Rev. B

## 16mm Multi-Pitch Tape Feeder

3. Hold down the center Single Hole Feed button until the Ready Light turns off. (Refer to steps 4 and 5 of the *Factory Default Pick Point* procedure later in this document.)



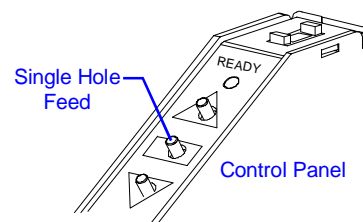
4. To adjust the Pick Point forwards or backwards, push the Forward Feed button or the Reverse Feed button. Each unit of offset is equal to .0025 inches of adjustment.

**NOTE**

When Making Pick Point adjustments, the Ready Light is:

- Green** = forward of the default location
- Yellow** = at the default location
- Red** = behind the default location

5. After the Pick Point is adjusted, push Single Hole Feed button to resume picking parts. The new Pick Point will be permanently stored in the feeder's memory.



# 16mm Multi-Pitch Tape Feeder

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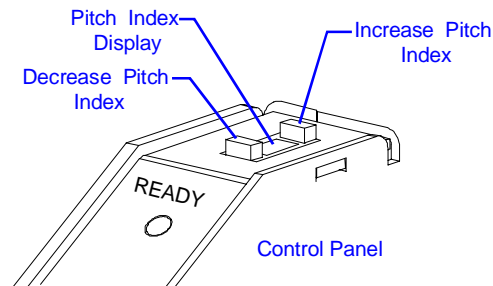
## Pick Point Restore

Use the following procedure to restore the Default Pick Point on the 16mm Multi-Pitch Tape Feeder.

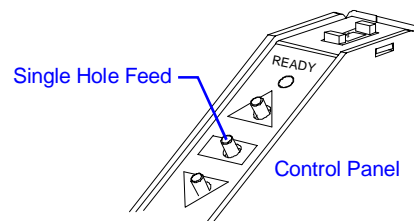
**NOTE**

The 16mm Multi-Pitch Tape Feeder is manufactured and calibrated to comply with the GSM Interface. The Pick Point has been set at the factory before shipping.

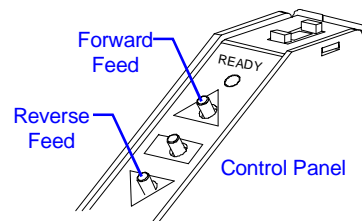
1. Locate the serial number on the tape feeder.
  - If the serial number is 000000 through 000729, the feeder is a Model A. The Default Pick Point needs to be recorded by the operator.
  - If the serial number is 000730 or greater, the feeder is a Model B. The Default Pick Point is recorded by the feeder.
2. Set the Pitch Selector to zero.



3. Hold down the Single Hole Feed button until the Ready Light turns off.



4. Push the Forward Feed and the Reverse Feed buttons simultaneously.

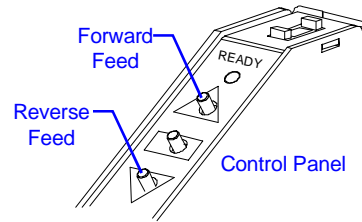


- If the feeder is a Model A, continue with step 5.

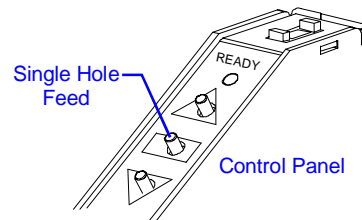
## T47175801 Rev. B

## 16mm Multi-Pitch Tape Feeder

- If the feeder is a Model B, go to step 7.
5. Retrieve the Default Pick Point that was recorded previously. (Refer to steps 4 and 5 of the *Factory Default Pick Point* procedure later in this document.)
  6. If red flashes were recorded, push the Reverse Feed button the same number of times as were previously recorded. If green flashes were recorded, push the forward feed button the same number of times as were previously recorded.



7. Push the Single Hole Feed button to store the Pick Point in the feeder's memory.



## 16mm Multi-Pitch Tape Feeder

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### ***Factory Default Pick Point***

Use the following procedure to set the Factory Default Pick-Point on the 16mm Multi-Pitch Tape Feeder. These instructions are intended to be used after replacing a Motor Controller Board, Slot Sensor Assembly, or adjusting the feeder Pick Point.

**NOTE**

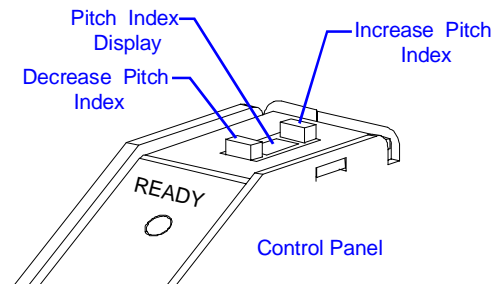
The 16mm Multi-Pitch Tape Feeder is manufactured and calibrated to comply with the GSM Interface. The Pick Point has been set at the factory before shipping.

Proceeding with these instructions will replace the Factory Pick Point setting.

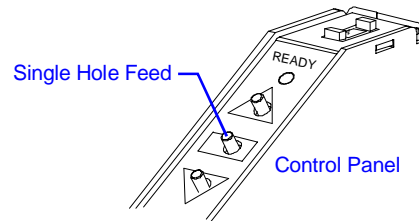
1. Locate the serial number on the tape feeder.
  - If the serial number is 000000 through 000729, the feeder is a Model A. The Default Pick Point needs to be recorded by the operator.
  - If the serial number is 000730 or greater, the feeder is a Model B. The Default Pick Point is recorded by the feeder.
2. Set the Pitch Selector to zero.

If the tape feeder is a Model A, go to step 4.

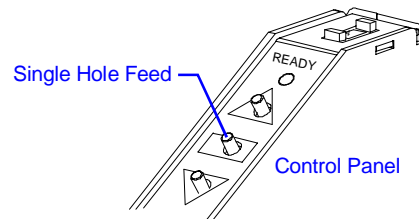
If the tape feeder is a Model B, continue with the following steps.
3. Increase or decrease the Pitch Selector of the feeder to setting 13. The new Factory Default Pick Point will be permanently stored in the feeders memory. Skip to step 6.



4. Hold down the Single Hole feed button until the Ready Light turns off. Note the color of the LED and how many times it flashes. The count number will indicate the Default Pick Point.



5. Record the number and color of the flashes in a safe place. This number is needed to restore the Pick Point. (Refer to the *Restore Pick Point* procedure earlier in this manual.)
6. Press the center Single Hole Feed button. The new Factory Default Pick Point will be permanently stored in the feeder's memory.



### ***Unloading the Tape Feeder***

Unload the 16mm Multi-Pitch Tape Feeder using the following procedure.

1. Remove the feeder from the Feeder Bank Assembly. Follow, in reverse order, the steps in the *Installing the Tape Feeder* procedure.
2. Place the feeder on its side with the Take-up Wheel facing upwards.
3. Release the tape window latch and open the tape window.
4. Unwind about eight inches of cover tape from the Take-up Wheel and cut it from the rest of the tape wound up on the wheel.
5. Pull back on the carrier tape until there is about eight inches of tape without components exposed and tear off the carrier tape. Pull the excess cover tape off of the Take-up Wheel and remove the excess carrier tape from the Tape Exit Guide.
6. Clear any loose components from the peeler and scrap guide.



## 16mm Multi-Pitch Tape Feeder

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### Feeder Maintenance

#### Checking the Overall Condition of the Tape Feeder

Tape feeders require periodic inspection as prescribed in the Maintenance Concept table. Replace worn or defective parts as necessary. Inspect the overall condition of the tape feeder using the following procedure.

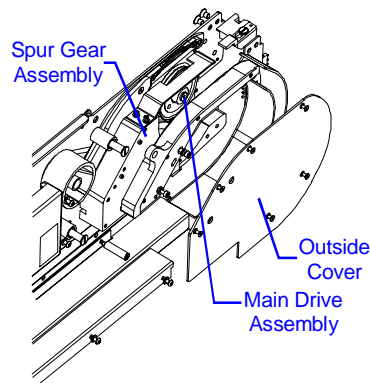
1. After every reel of components, clean any contamination from the tape window.
2. Check the Main Drive wheel for chipped or broken pins.
3. Check the I/O Assembly for broken or damaged electrical pins. For more information, refer to the *Replacing the Feeder Connector Assembly* procedure in this module.

#### Lubricating the Tape Feeder

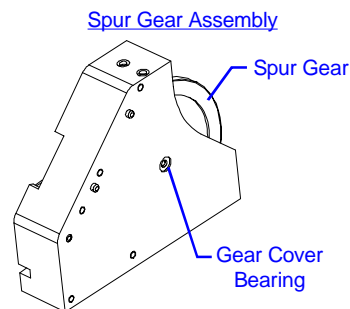
Clean and lubricate the 16mm Multi-Pitch Tape Feeder using the following procedure.

#### Spur Gear Maintenance

Lubricate the Spur Gear Assembly using the following procedure.



1. Unload the tape feeder. Refer to the *Unloading the Tape Feeder* procedure.
2. Remove six (6) M2.5 screws to remove the Outside Cover.
3. Turn the Main Drive Assembly while lubricating the Gear Cover Bearing with lithium grease.

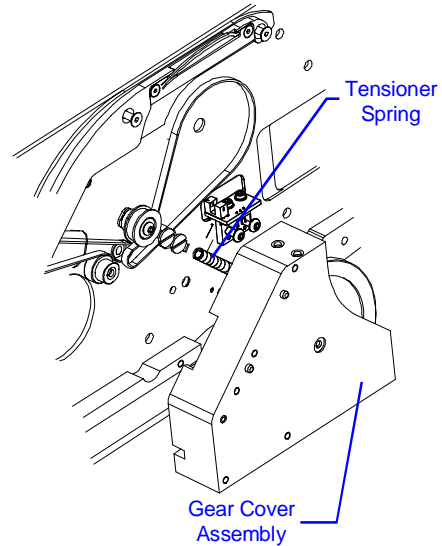


4. Perform the Drive Hub Assembly Maintenance procedure.

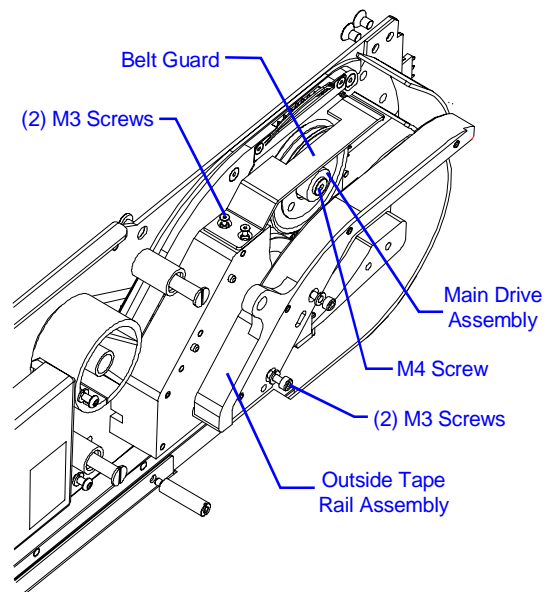
### ***Drive Hub Assembly Maintenance***

Perform Drive Hub Assembly maintenance using the following procedure.

1. Remove six M2.5 screws to remove the Outside Cover.
2. Release the Tensioner Spring (as shown below.)



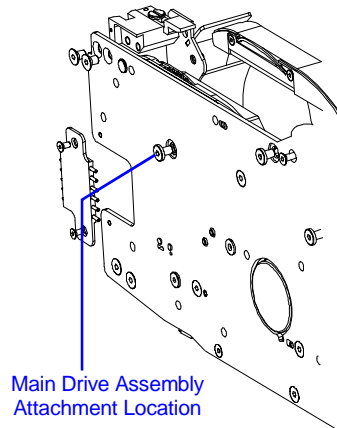
3. Remove two M3 screws to remove the Outside Tape Rail Assembly.



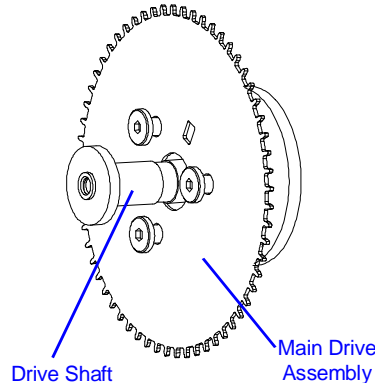
# 16mm Multi-Pitch Tape Feeder

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4. Remove two M3 screws to remove the Belt Guard. (See above diagram.)
5. Remove one M4 screw from the Main Drive Assembly. (See above diagram.)
6. Remove one M4 screw from the back of the feeder at the Main Drive Assembly Attachment Location to release the Drive Shaft.



7. Tilt the Main Drive Assembly to one side to gain access to the Drive Shaft. Lightly lubricate the Drive Shaft with a thin line of Duralube down the length of the shaft.

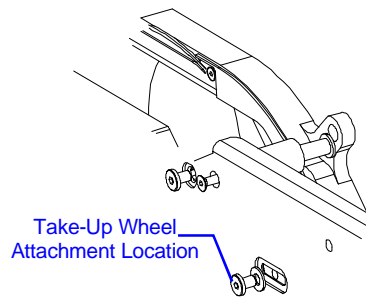


**Use extreme caution when working around or handling either of the drive belts, as they are delicate elements. These drive belts can be easily crimped or bent. Mishandling causes damage to the belts and as a result they will need to be replaced. To replace any damaged or broken belts refer to the *Replacing Drive Belts* procedure later in this document.**

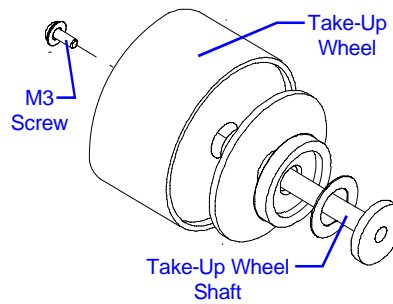
8. Reverse the above steps to reassemble the Main Drive Assembly.
9. Perform the Take-up Wheel maintenance procedure.

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## 16mm Multi-Pitch Tape Feeder

**Take-Up Wheel Maintenance**

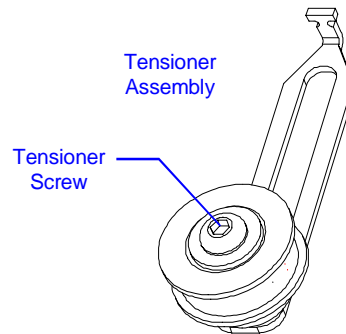
1. Decrease belt tension by loosening the M4 screw on the back of the feeder at the Take-up Wheel Attachment Location. Do not remove screw.
2. Remove one M3 screw to remove Take-up Wheel Shaft. (Refer to the diagram below.)



3. Lightly lubricate the Take-up Wheel Shaft with a thin line of Duralube lubricant down the length of the shaft .
4. Reinstall the Take-up Wheel by reversing the above procedure.

**Take- Up Wheel Belt Tensioning**

1. Apply upward pressure of approximately 2 to 4 lbs to the Belt Tensioner screw, and rotate Take-up Wheel to confirm belt engagement.



2. Tighten the Tensioner screw. Be sure not to apply excessive force to tension the belt. The belt should be just tight enough to prevent slippage without causing excessive drag.
3. Replace the Outside Cover.

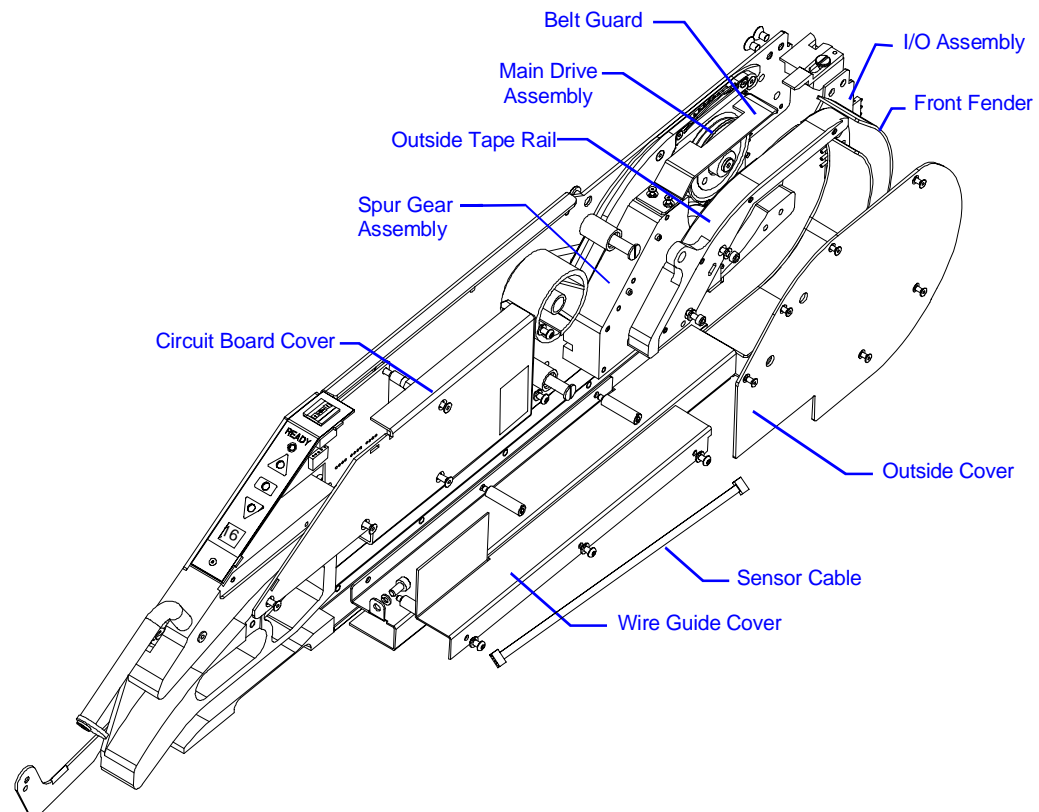
# 16mm Multi-Pitch Tape Feeder

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## Replacing the Feeder Connector Assembly

The I/O, Sensor Cable, or Probe Assemblies (pogo pins) require periodic replacement as prescribed in the Maintenance Concept. Replace these parts using the procedure below.

1. Remove the tape feeder. Follow in reverse order, the steps in the *Installing the Tape Feeder* procedure.
2. To replace the Sensor Cable go to step 6. To replace only the Probe Assembly (pogo pin), continue with the next step.
3. Using needle-nose pliers, carefully pull the bad probe from the connector assembly.
4. Carefully insert the new assembly into the I/O Assembly. Push the probe in until the outside cylinder is flush with the edge of the connector assembly.
5. Install the feeder. Refer to the *Installing the Tape Feeder* procedure in this document.

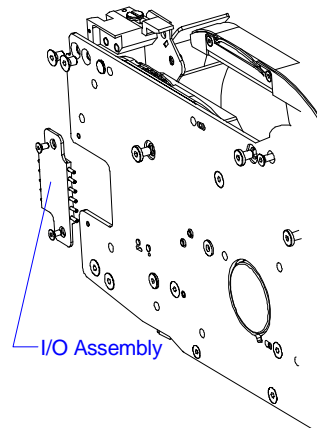


6. Replace the I/O or the Sensor Cable Assemblies using the following steps.
7. Remove the Outside Cover and the Front Fender from the feeder.
8. Remove the Wire Guide Cover and the Circuit Board Cover.

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## 16mm Multi-Pitch Tape Feeder

9. Release the Tensioner Spring.
10. Remove the Outside Tape Rail Assembly.
11. Remove the Belt Guard.
12. Remove the Main Drive Assembly from the feeder.
13. Disconnect the Sensor Cable from the circuit board.
14. Replace as needed the I/O Assembly by removing it from the Base Plate Assembly and disconnecting it from the Sensor Cable.



Replace as needed the Sensor Cable by disconnecting from the I/O Assembly and the feeder controller board.

15. Install the I/O Assembly or Sensor Cable.
16. Replace the Circuit Board and Wire Guide Cover.

**CAUTION**

**Use extreme caution when replacing the Circuit Board and Wire Guide covers. Pinching or mishandling may cause damage to the Sensor Cable.**

17. Replace the Main Drive Assembly.
18. Replace the Belt Guard.
19. Replace the Tensioner Spring.
20. Replace the Front Fender and the Outside Cover.
21. Install the feeder in the machine. Refer to the *Installing the Tape Feeder* procedure.

## Replacing the Drive Belts

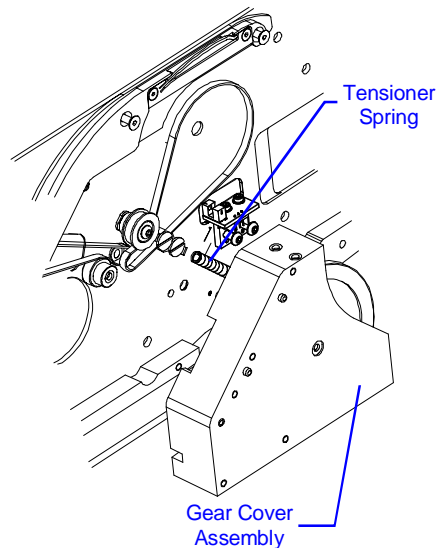
The Drive Belt and the Take-Up Wheel belt require periodic replacement. Replace these parts using the following procedure(s).

**CAUTION**

Use extreme caution when working around or handling either of the drive belts, as they are delicate elements. These drive belts can be easily crimped or bent. Mishandling causes damage to the belts and as a result they will need to be replaced.

### Drive Belt Replacement

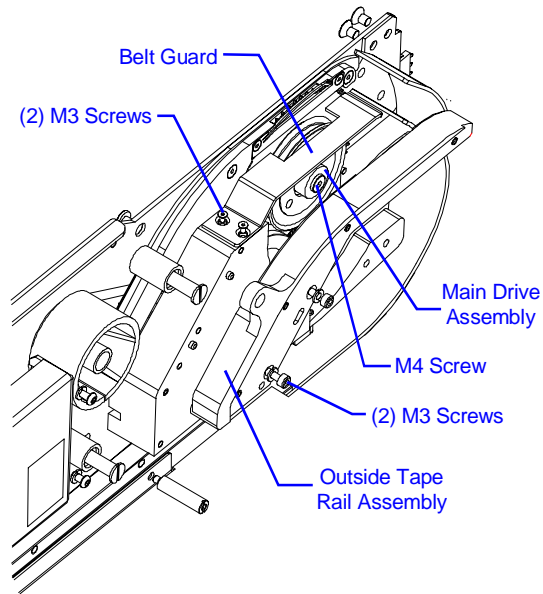
1. Remove six M2.5 screws to remove the Outside Cover.
2. Release the Tensioner Spring (as shown below.)



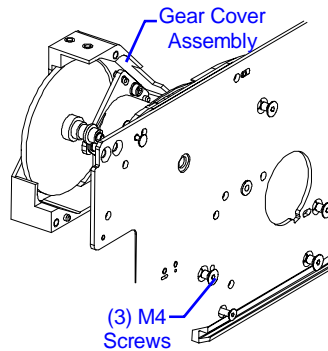
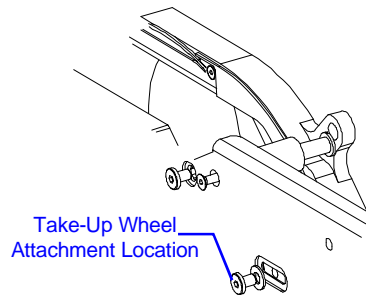
3. Remove two M3 screws to remove the Outside Tape Rail Assembly.

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## 16mm Multi-Pitch Tape Feeder



4. Remove two M3 screws to remove the Belt Guard. (See above diagram.)
5. Decrease Take-Up Wheel belt tension by loosening the M4 screw on the back of the feeder at the Take-up Wheel Attachment Location. Do not remove screw.
6. Remove three M4 screws from the back of the feeder and lift the Gear Cover Assembly to one side.



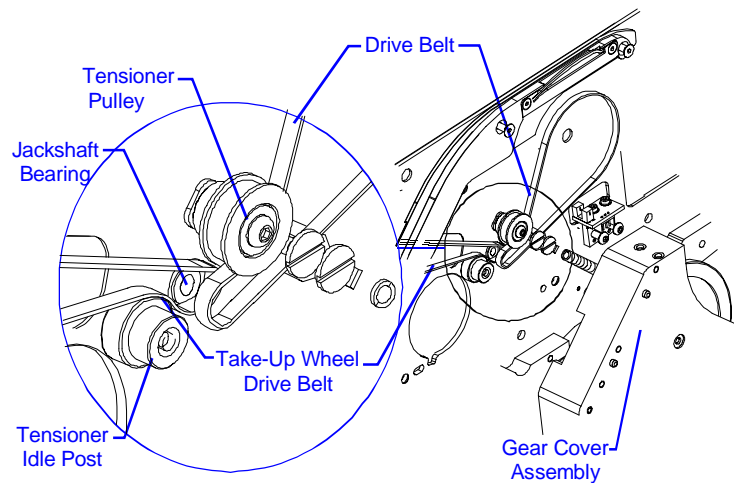
7. Remove the damaged, broken, or worn Drive Belt from the Drive Hub. Discard the old belt.
8. Place the Take-Up Wheel Drive Belt as shown below. The lower end of the belt should travel around the Jackshaft Bearing, above the Tensioner Idler Post, and below the Tensioner Pulley.



# 16mm Multi-Pitch Tape Feeder

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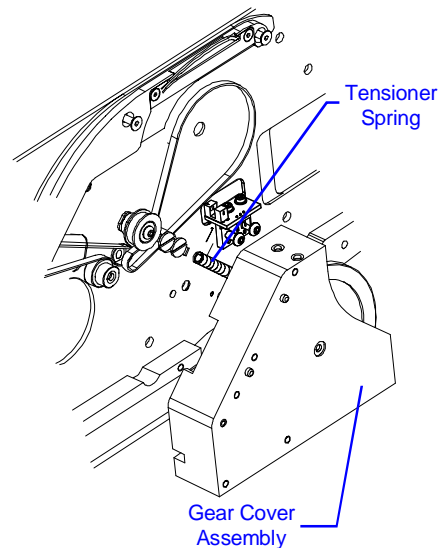
9. Place the new Drive Belt as shown below. It should travel around the Jackshaft Bearing and ride on the lower side of the Tensioner Pulley.



10. Replace the Gear Cover Assembly. Ensure that the Drive Belt and the Take-Up Wheel Drive Belt are seated around the Drive Hub.
11. Tighten the M4 screw on the back of the feeder at the Take-up Wheel Attachment Location. Adjust the Take-Up Wheel tension. (Refer to the *Take-Up Wheel Tensioning* procedure earlier in this document.)
12. Reverse the above steps to reassemble the tape feeder.

## Take-Up Wheel Belt Replacement

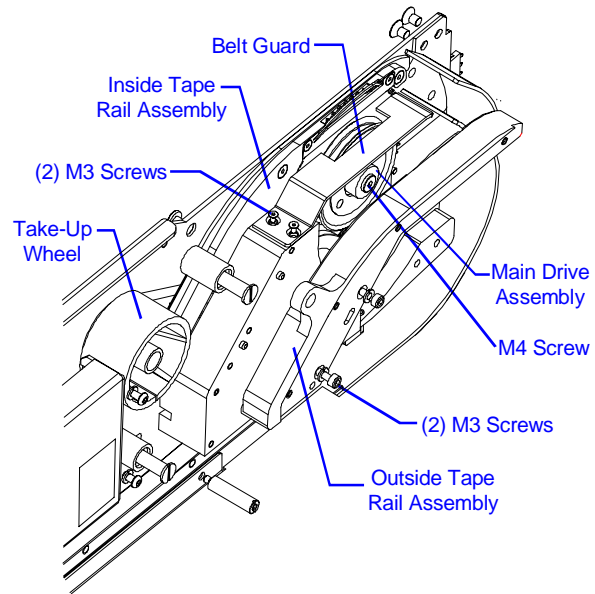
1. Remove six M2.5 screws to remove the Outside Cover.
2. Release the Tensioner Spring (as shown below.)



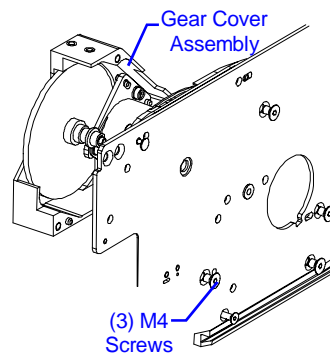
3. Remove two M3 screws to remove the Outside Tape Rail Assembly.

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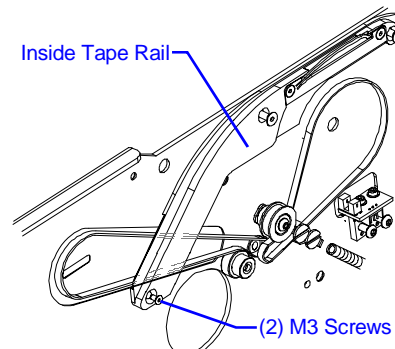
## 16mm Multi-Pitch Tape Feeder



4. Remove two M3 screws to remove the Belt Guard. (Refer to the diagram in step 3.)
5. Remove the Take-Up Wheel Assembly by removing the M3 screw from the Take-Up Wheel Shaft.
6. Remove three M4 screws from the back of the feeder and lift the Gear Cover Assembly to one side.



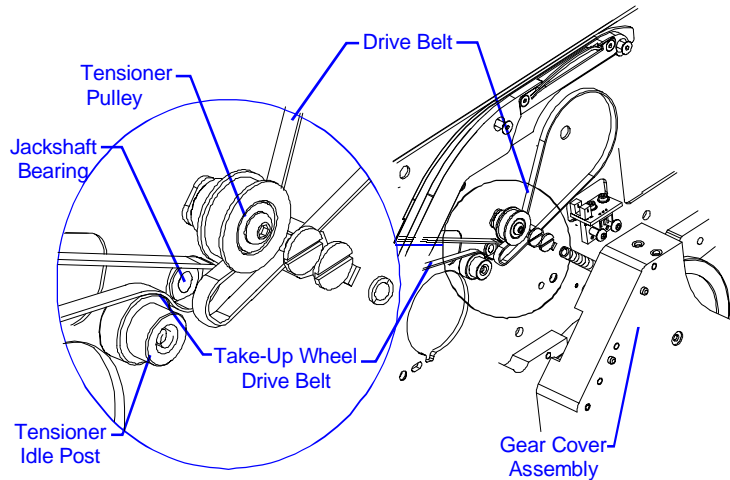
7. Remove three M3 screws from the Inside Tape Rail. Remove the Inside Tape Rail from the base plate.



## 16mm Multi-Pitch Tape Feeder

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8. Remove the Drive Belt from the Drive Hub. Remove the damaged, broken, or worn Take-Up Wheel Drive Belt from the Drive Hub.
9. Place the new Take-Up Wheel Drive Belt as shown below. The lower end of the belt should travel around the Jackshaft Bearing, above the Tensioner Idler Post, and below the Tensioner Pulley.
10. Place the Drive Belt as shown below. It should travel around the Jackshaft Bearing and ride on the lower side of the Tensioner Pulley.



11. Seat the Take-Up Wheel Drive Belt the Drive Hub first. Then ensure that the Drive Belt is seated around the Drive Hub. Replace the Gear Cover Assembly.
12. Tighten the M4 screw on the back of the feeder at the Take-up Wheel Attachment Location. Adjust the Take-Up Wheel tension. (Refer to the *Take-Up Wheel Tensioning* procedure earlier in this document.)
13. Reverse the above steps to reassemble the tape feeder.

**CAUTION**

Always use the proper ESD (Electric Static Discharge) protection devices (wrist strap, cable, and static dissipative mat) and techniques when handling electronic components such as the Motor Controller Board.

### ***Motor Controller Board Replacement***

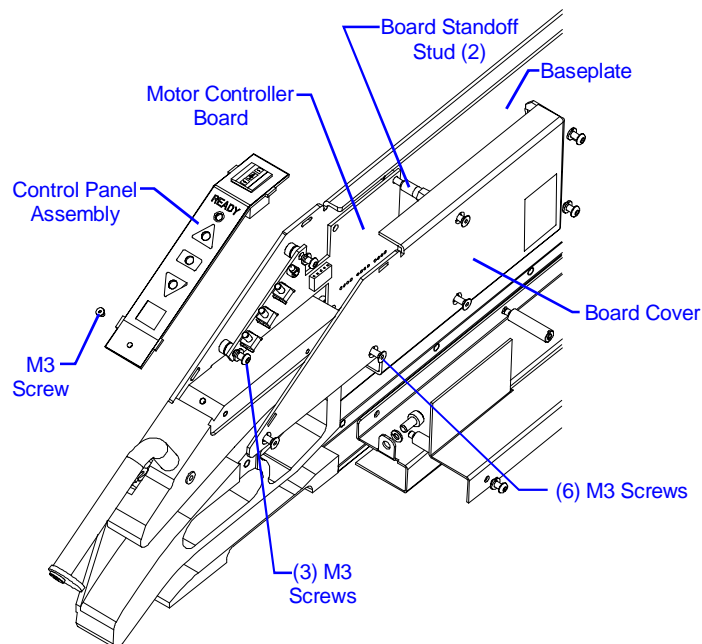
Use the following procedure to replace the Motor Controller Board.

**CAUTION**

Use extreme caution when ordering motors for the tape feeders. There are two different 16-56mm Multi-Pitch Tape Feeder part number series. The 47178801 uses a 040A-S04 motor, and the 47178802 uses a 042A-S04 motor. The motors are not interchangeable.

Also, use extreme caution when working with the control boards because the part number of the control board did not change. Do not remove an old control board (from a 47178801 feeder) and place it in the (47178802 feeder), because the boards appear the same, but electronically are not interchangeable. If this happens the board will be damaged. A control board from the 47178802 will work with either a 042A-S04 or a 040A-S04 motor.

1. Remove six M3 screws to remove the Board Cover from the Baseplate.



2. Remove two Board Standoff Studs and three M3 Screws from the Motor Controller Board. Refer to the above diagram.

## 16mm Multi-Pitch Tape Feeder

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3. Remove one M3 screw from the Control Panel Assembly. Remove the Control Panel Assembly. Refer to the above diagram.
4. Disconnect three wire assemblies from the Motor Controller Board and remove the board from the Baseplate.
5. Replace the new Motor Controller Board.
6. Reverse the above steps to reassemble the tape feeder.
7. Set the Factory Default Pick Point. (Refer to the *Factory Default Pick Point Adjustment* section earlier in this documentation.)

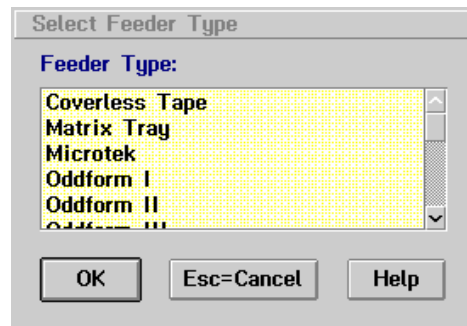
### **Feeder Database**

When operating 16mm Multi-Pitch Tape Feeders on Platform machines using UPS software prior to UPS 3.0.1 it is necessary to load Feeder Database information using the Feeder Database Window.

**NOTE**

When operating 16mm Multi-Pitch Tape Feeders on Platform machines operating on UPS 3.0.1 and higher, manual input of feeder database information is not necessary.

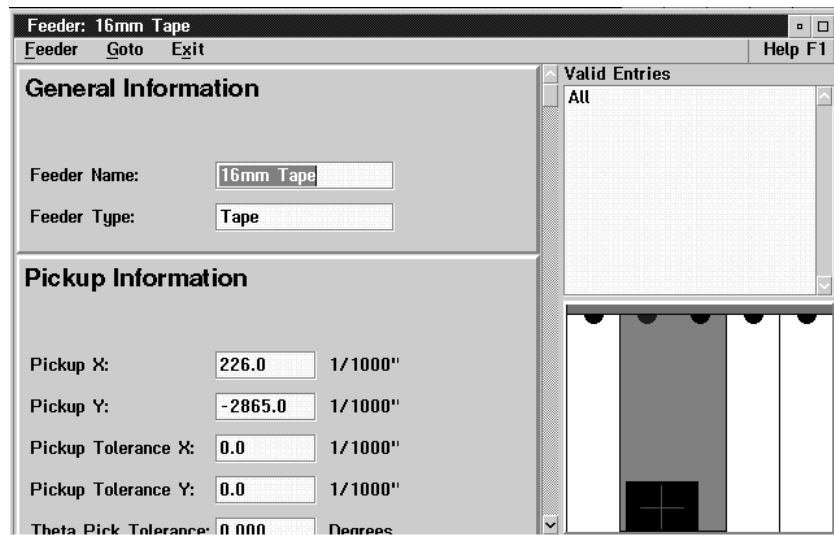
1. From the Feeder Database window, select **Add** from the Feeder menu bar heading. The Select Feeder Type dialog box is displayed.



2. Select **Tape** from the Feeder Type list box and then the **OK** push button. The New Feeder window is displayed.

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## 16mm Multi-Pitch Tape Feeder



General Information	
Feeder Name:	16mm Tape
Feeder Type:	Tape

Pickup Information	
Pickup X:	226.0 1/1000"
Pickup Y:	-2865.0 1/1000"
Pickup Tolerance X:	0.0 1/1000"
Pickup Tolerance Y:	0.0 1/1000"
Theta Pick Tolerance:	0.000 Degrees

3. Enter the following values in the Feeder Database Window. (Refer to the *Feeder Database Chart* later in this document.)
  - a. Enter a unique Feeder Name.
  - b. The Feeder Type is automatically entered when it is selected from the Select Feeder Type dialog box.

**NOTE**

**Do not change the Feeder Type. If a change is required, exit and begin the procedure again.**

- c. Enter the Pickup X value.
- d. Enter the Pickup Y value.



## 16mm Multi-Pitch Tape Feeder

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**NOTE**

If the Feeder Teach procedure will be used, enter a value of 0.0 for the Pickup X and Y values. Refer to the *Feeder Teach* procedure in the *User's Guide* or in *Platform Configurations/Options*.

- e. Enter the Pickup Tolerance X.
  - f. Enter the Pickup Tolerance Y.
  - g. Enter the Theta Pick Tolerance.
  - h. Enter the number of Pick Attempts.
  - i. Enter the Number of Slots the feeder occupies.
  - j. Enter the Width of the feeder. If the feeder is not used on a PPA machine, enter 0.0.
  - k. Designate the Reference Slot.
  - l. Enter the necessary Extend Delay.
  - m. Enter the necessary Retract Delay.
  - n. Enter the necessary Double Stroke.
4. Select the **Save** option under the Feeder menu bar heading. The feeder definition is saved to the current database.

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## 16mm Multi-Pitch Tape Feeder

### Feeder Database Chart

The following chart includes the values needed to input Feeder Database information for 16mm Multi-Pitch Tape Feeders.

	16mm	16/4	16/8	16/12	16/16
<b>Feeder Name</b>	MP(16MMGeneric)	MP(16MM/4MM)	MP(16MM/8MM)	MP(16MM/12MM)	MP(16MM/16MM)
<b>Feeder Type</b>	TAPE	TAPE	TAPE	TAPE	TAPE
<b>Pick Up X</b>	226	226	226	226	226
<b>Pick Up Y</b>	-2865	-2865	-2865	-2865	-2865
<b>Pick Up Tolerance</b>	0	0	0	0	0
<b>Pick Up Tolerance</b>	0	0	0	0	0
<b>Pick Attempts</b>	0	0	0	0	0
<b>Number of Slots</b>	2	2	2	2	2
<b>Width</b>	0	0	0	0	0
<b>Reference Slot</b>	0	0	0	0	0
<b>Extend Delay</b>	80	80	80	80	80
<b>Retract Delay</b>	445	118	223	332	445
<b>Double Stroke</b>	NO	NO	NO	NO	NO

### Troubleshooting Guide

The following chart is a troubleshooting guide for possible problems with the 16mm Multi-Pitch Tape Feeder.

Problem	Solution
After the feeder is loaded into the Platform, several components are advanced after the first pick.	The feeder has been improperly set up. (Refer to the <i>Operating the Tape Feeder</i> section earlier in this manual.)
The feeder constantly fails to present a component to the pick location.	<ul style="list-style-type: none"> <li>A. Verify that the parts reel spins freely.</li> <li>B. Verify that the carrier tape has a clear exit path.</li> <li>C. Inspect the Tape Window for signs of damage.</li> <li>D. Loose components have contaminated the tape path. Remove all loose components.</li> <li>E. The tape feeder requires standard maintenance. (Refer to the <i>Feeder Maintenance</i> section earlier in this document.)</li> </ul>
The component is not positioned properly below the pickup nozzle.	The feeder has been improperly set up. (Refer to the <i>Operating the Tape Feeder</i> section earlier in this document.)





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## *Changes To This Revision*

- Added caution to pages 19 and 44.



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**4697A 16mm  
Multi-Pitch Tape  
Feeder**

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**Rev. B**

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This document supports  
assembly

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