

J5 & J5 LX Series Maintenance Manual



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Chapter 1 : Overview

1.1 Introduction

This manual is prepared for distributors to maintain or repair Auto feeder. Briefly,

- Chapter 1
System overview
- Chapter 2
We have diagrams to show the part number for every part in different sections.
- Chapter 3
Circuit System, there is detailed information for the connection circuits.
- Chapter 4
Introduction to show you how to replace parts.
- Chapter 5
Trouble shooting & System Diagnostics
- Chapter 6
We have the parts list to show the part no. of difference size of J5 series.

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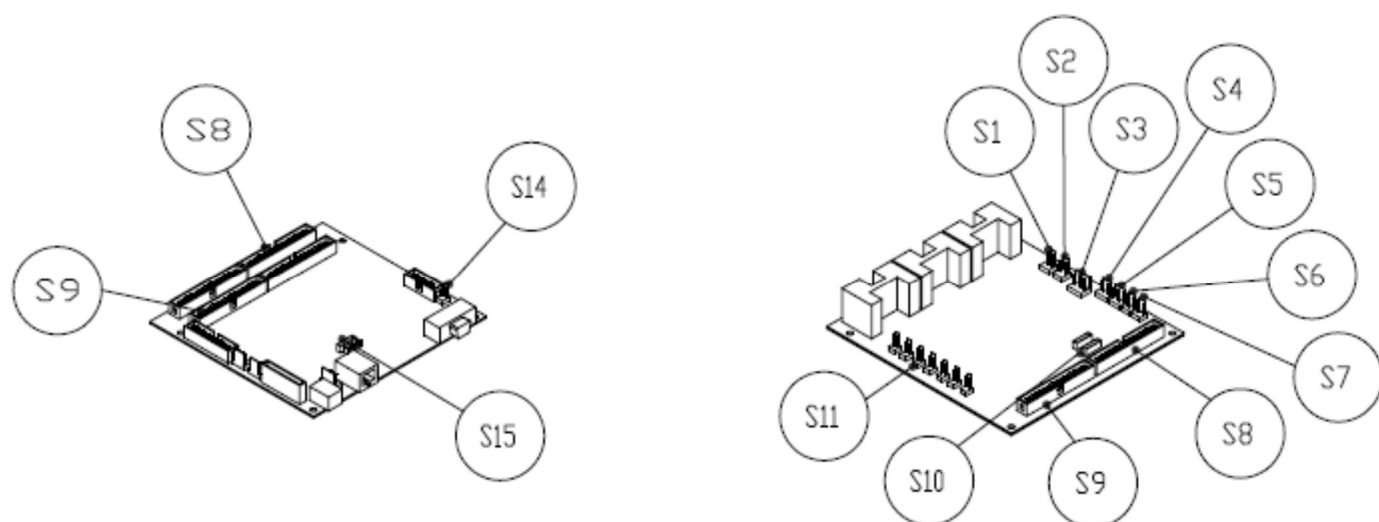
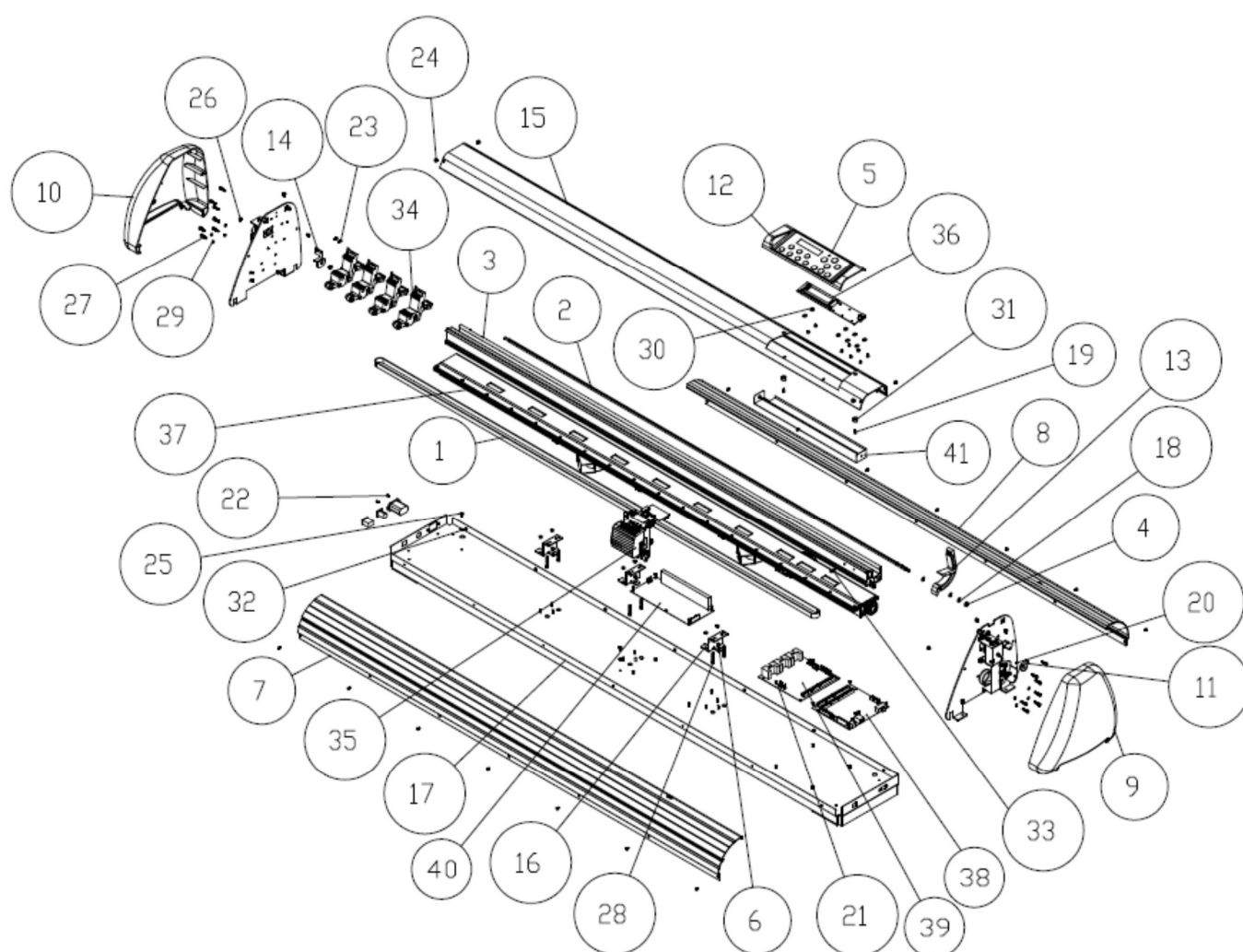
by calling at 886-2-2694-6687 or e-mailing to tech.support@gccworld.com for services.

Chapter 2 : Mechanical System

We will have diagrams to show the part number for every part in the following sections.
They are:

- Main unit
- Left End Assembly
- Right End Assembly
- X Motor Bracket and Belt Assembly
- Carriage Assembly
- LX Carriage Assembly
- Pinch Roller Assembly
- Main Beam Assembly
- Drum Assembly

2.1 Main Unit Assembly



Main Unit Assembly – Parts List

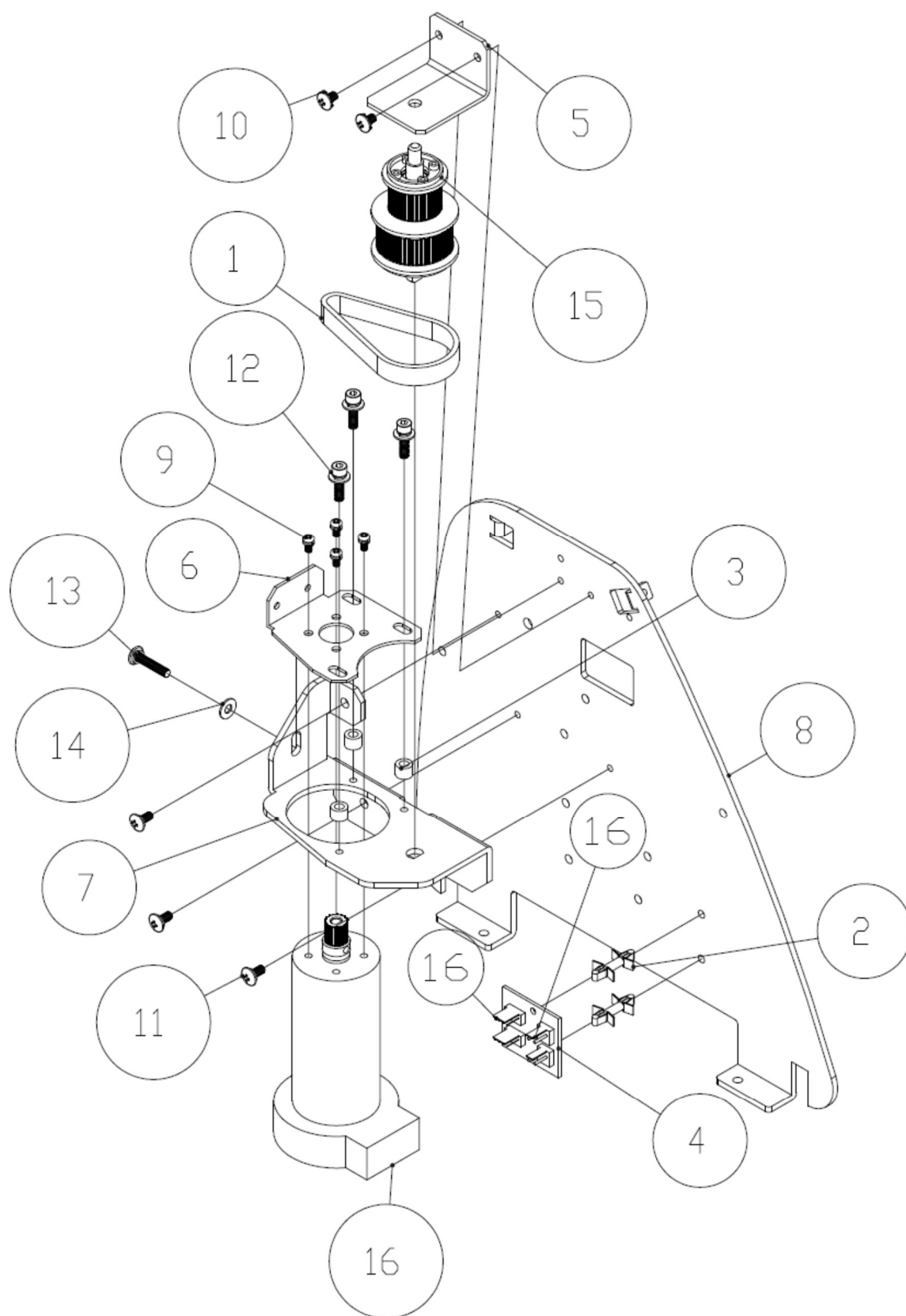
No.	Part No.	Description	QTY
1	20600051G	Y axis carriage belt (2GT-L3366-W14)	1
2	22801068G	Square bar	1
3	22801149G	Top Rail	1
4	22801466G	White Bush 0604	2
5	234000410G	Control Panel Sticker	1
6	23500005G	Nut(M4xt3.2xS7)	11
7	241006780G	Front platen extension 132	1
8	241006810G	Rear platen extention 132	1
9	24100247G	Right cover Jaguar.(Black)	1
10	24100246G	Left cover Jaguar.(Black)	1
11	24100253G	Shift-Lever Cam	1
12	24100237G	Control panel base (Black)	1
13	24100311G	Lever	1
14	24400048G	Square bar bracket	1
15	244053900G	Top cover 132	1
16	24400759G	Main beam support	3
17	244053520G	Jaguar V 132 Base Unit	1
18	24900002G	E-shape retaining ring.D11*d5*t0.6	3
19	25200003G	panhead machine screw(white) M3*8	2
20	25200006G	Socket headness set screw.(M3*5L)	1
21	25200115G	Truss head machine screw(M3*6L SUS)	36
22	25200122G	90° dish flat head machine screw M3*8	2
23	25200129G	Truss head machine screw & spring washer M3*8.	3
24	25200181G	Truss head machine screw(M4*6L)	10
25	25200198G	Truss head machine screw(M4*8L)	2
26	25200199G	Truss head screw including external teeche washer	4
27	25200237G	Socket head set screw.(M4*16L sus+coating)	14
28	25200253G	Socket head set screw.(M4*30L)	6
29	26000006G	Spring washer. (d4xD7xt0.8)NI	14
30	26000008G	Plastic washer	8
31	26000010G	Nylon washer U-7	2
32	26000026G	External toothed lock washer (M4-Ni)	2
33	290094210G	Carriage stopper Assembly.	1
34	29002348G	Pinch roller Assembly	4
35	290094062G	Carriage assembly for J5LX (from S/N:S80000)	1
36	290094190G	Control Panel Board assembly with 8051 English LCM Firmware	1

No.	Part No.	Description	QTY
37	290107330G	MainBoard with J5-61 Firmware (from S/N S70549)	1
	290107340G	Mainboard with J5-101 Firmware (from S/N R88284)	1
	290107350G	Mainboard with J5-132 Firmware (from S/N S70664)	1
	290107410G	Mainboard with J5-101LX Firmware (from S/N R88289)	1
	290107420G	Mainboard with J5-132LX Firmware (from S/N R70069)	1
	290107430G	Mainboard with J5-183LX Firmware (from S/N R88374)	1
38	29006251G	Main Beam Assembly	1
39	290077800G	DC Motor Driver Board Assembly with L6203	1
40	24500083G	250W Isolated Dual Output with PFC(Power Factor Correction) Function(PID-250C)	1
41	244060280G	cover	1

No.	Part No.	Description	QTY
S8	209027600G	Simple Cattle Horn Female 2*20P to Simple Cattle Horn Female 2*20P Cable L:80mm	1
S9	209027600G	Simple Cattle Horn Female 2*20P to Simple Cattle Horn Female 2*20P Cable L:80mm	1
S14	209023150G	Lever SW to M/B Cable330mm	1
S15	290099990G	Touch Key sensor control board to Main Board Cable Assembly	1

No.	Part No.	Description	QTY	Remark
S1	209026810G	Motor Driver cable 3.96-2pin 160mm	1	
S2	20901915G	Motor Driver cable 3.96-2pin 1100mm	1	J5-61
	20901913G	Motor Driver cable 3.96-2pin 1900mm	1	J5-132
	20901912G	Motor Driver cable 3.96-2pin 2400mm	1	J5-183
S3	20901911G	Power Board to Motor Driver Board Cable 650mm	1	J5-61, J5-132
	20901976G	Power Board to Main Board Cable 1350mm (1001182)	1	J5-183
S4	209026890G	Motor Encoder Cable 2.54-4PIN 110mm	1	
S5	209023200G	Motor Encoder Cable 2.54-4PIN 1100mm	1	J5-61
	209023170G	Motor Encoder Cable 2.54-4PIN 1600mm	1	J5-132
	209023190G	Motor Encoder Cable 2.54-4PIN 2400mm	1	J5-183
S6	209023120G	2.54-3Pin Motor Driver Board to Paper Sensor Cable 600mm	1	J5-61, J5-132
	209027850G	Rear Paper Sensor Cable1050mm	1	J5-183
S7	209023120G	2.54-3Pin Motor Driver Board to Paper Sensor Cable 600mm	1	J5-61, J5-132
	209027860G	Front Paper Sensor Cable1050mm	1	J5-183
S8	209027600G	Simple Cattle Horn Female 2*20P to Simple Cattle Horn Female 2*20P Cable L:80mm	1	
S9	209027600G	Simple Cattle Horn Female 2*20P to Simple Cattle Horn Female 2*20P Cable L:80mm	1	
S10	290108300G	Flat cable assembly (30cm)	1	
S11	209023130G	Fan Cable 80mm	1	J5-61, J5-183
	209023130G	Fan Cable 80mm	2	J5-132

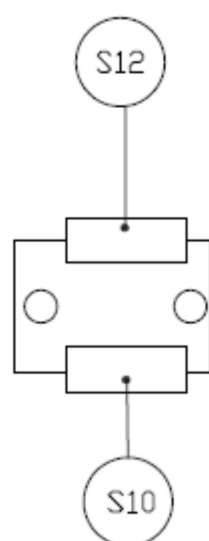
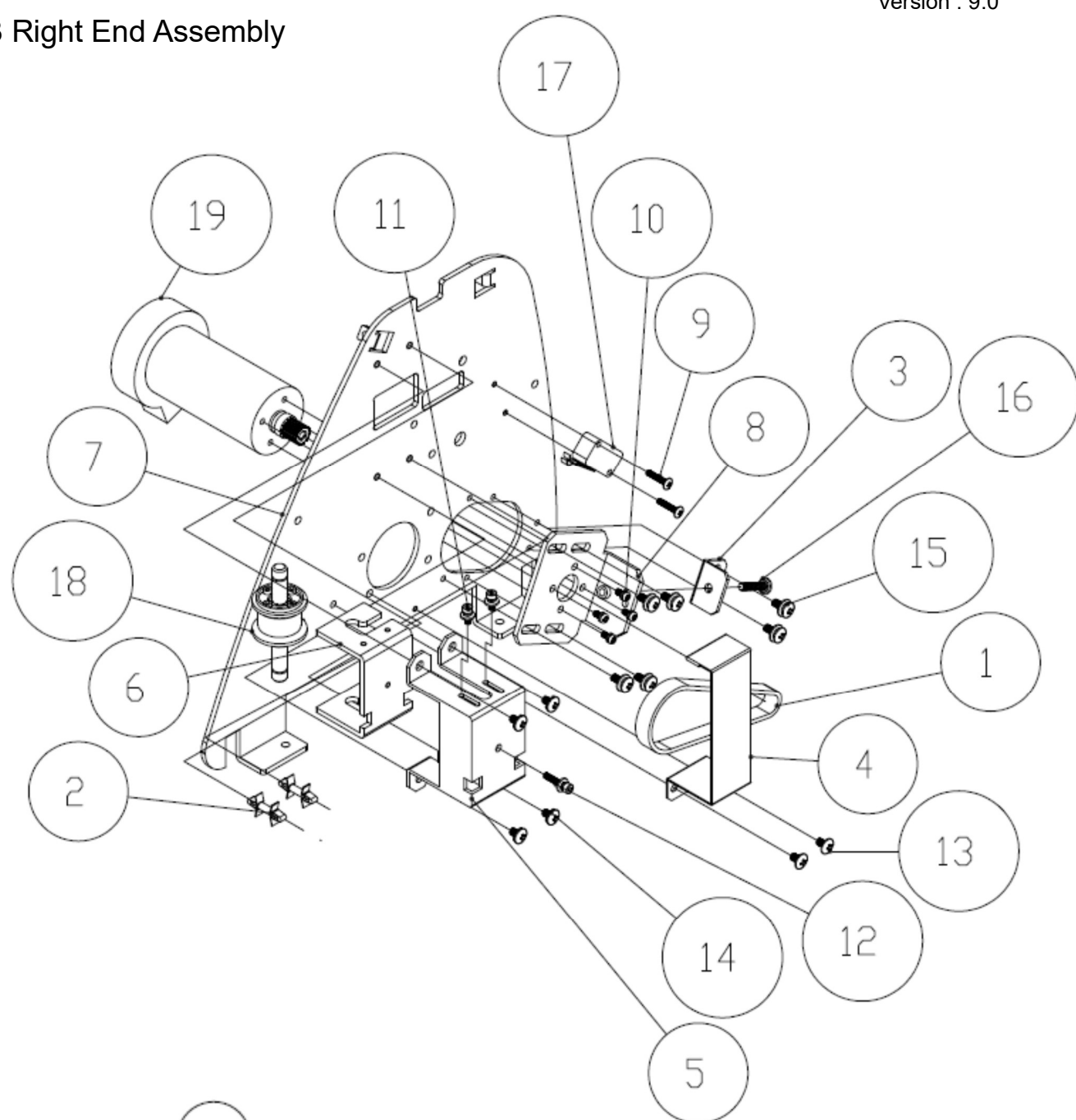
2.2 Left End Assembly



Left End Assembly – Parts List

No.	Part No.	Description	QTY
1	20600007G	Y-axis belt. 2GT-L172-W10	1
2	22000149G	P.C.B interval pillar (LCA4-10A)	2
3	22801359G	Y-axis Motor Spacer	3
4	23800032G	Motor board. (12258)	1
5	24400039G	Pully bottom bracket	1
6	24400041G	Y-motor bracket	1
7	24400526G	Pully top bracket	1
8	24400755G	Side support left	1
9	25200052G	Pan head machine screw including spring washer	4
10	25200182G	Truss head screw including external teeche washer	2
11	25200196G	Truss head machine screw including spring washer	3
12	25200233G	Truss head machine screw(M4*15L).	3
13	25200245G	Truss head machine screw including spring washer	1
14	26000004G	Flat washer. (d4.4xD10xt0.8 NI)	1
15	29000936G	Active Gear Assembly	1
16	29001804G	Motor Assembly	1

2.3 Right End Assembly



290106350G Flat cable 9 pin to 8 pin PCB Assembly

Right End Assembly – Parts List

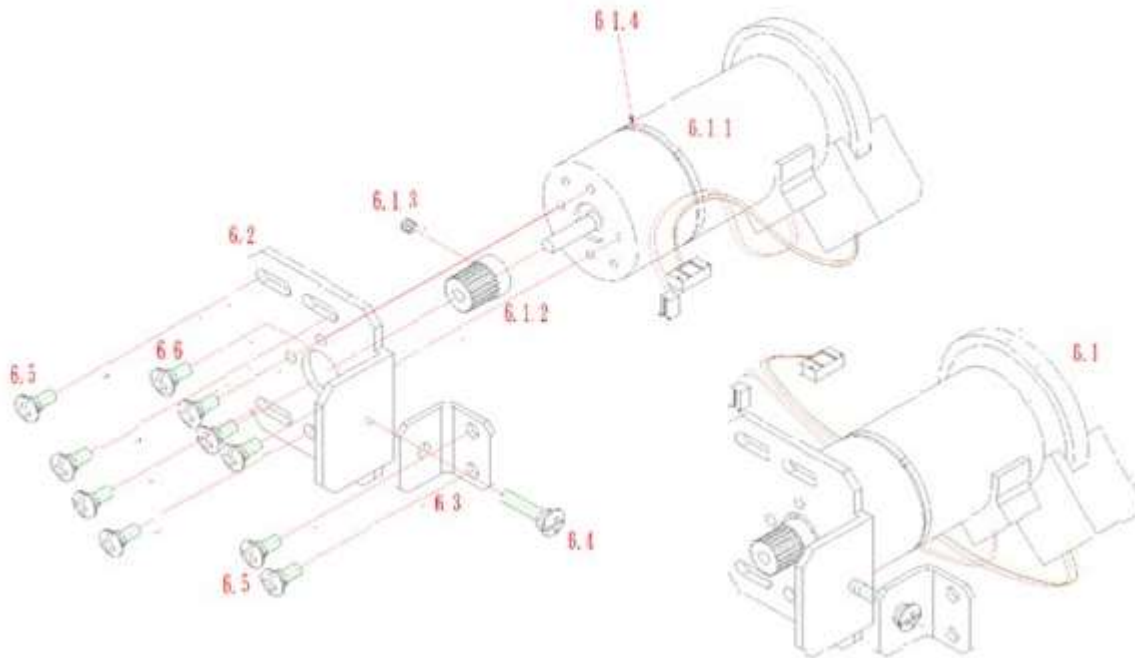
No.	Part No.	Description	QTY
1	20600039G	X-axis belt (2GT-L240-W10)	1
2	22000149G	P.C.B interval pillar (LCA4-10A)	2
3	24400038G	X-motor adjusting bracket	1
4	244060930G	Cable basket	1
5	24400304G	Ideal pulley ass y bracket	1
6	24400715G	Idel pulley Assembly adjusting bracket	1
7	24400757G	Right Side Plate	1
8	24400761G	X-motor bracket	1
9	25200017G	Truss head machine screw(M3*15L).black	2
10	25200052G	Pan head machine screw including spring washer	4
11	25200117G	HexagonalSocketHead including spring&flat washer(M3*8L)	2
12	25200157G	HexagonalSocketHead including spring&flat washer(M3*16L)	1
13	25200181G	Truss head machine screw(M4*6L)	2
14	25200182G	Truss head screw including external tee ch washer	4
15	25200208G	Truss head screw including spring & flat washer(M4*10)	6
16	25200245G	Truss head machine screw including spring washer	1
17	25700002G	Lever Switch (VM3-04N-80S-U3 (390))	1
18	29000560G	Y idel pulley assembly	1
19	29001804G	Motor Assembly	1

290106350G Flat cable 9 pin to 8 pin PCB Assembly

No.	Part No	Description	QTY
S10	290108300G	Flat cable assembly (30cm)	1
	290108340G	Flat cable Assembly for 61 model (1050mm)	1
S12	290108320G	Flat cable assembly for 132 model (1830mm)	1
	290108310G	Flat cable assembly J5-183.(2250mm)	1

2.4 Motor Bracket and Belt Assembly

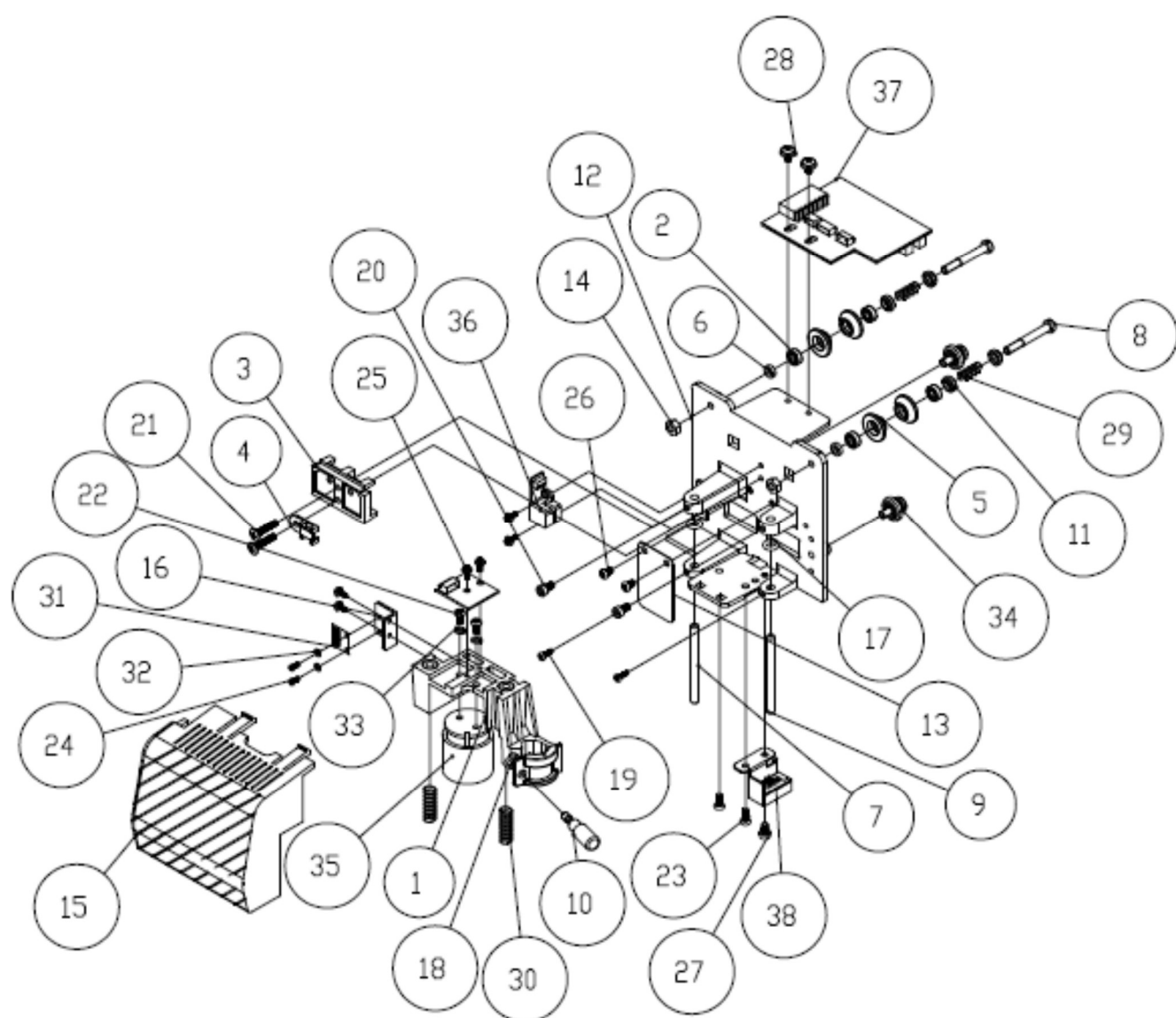
Jaugar V : Motor Bracket and Belt Assembly



Motor Bracket and Belt Assembly – Parts List

No.	Part no.	Description	Qty
6	29001804G	Motor assembly, Jaguar.	1
6.1.1	23100014G	Motor MS090600, Jaguar.	1
6.1.2	21700009G	Motor pulley, 2GT-P18, Jaguar.	1
6.1.3	25200169G	Headless Screw, M4x3.5.	1
6.1.4	22000107G	Cable Tie, YJ-160.	1
6.2	24400761G	X-motor bracket, Jaguar.	1
6.3	24400038G	X-motor adjusting bracket, Jaguar.	1
6.4	25200245G	Truss head screw & spring washer, M4x20.	1
6.5	25200208G	Truss head screw & spring & flat washer,	6
6.6	25200052G	Pan head screw & spring washer, #6x8.	4

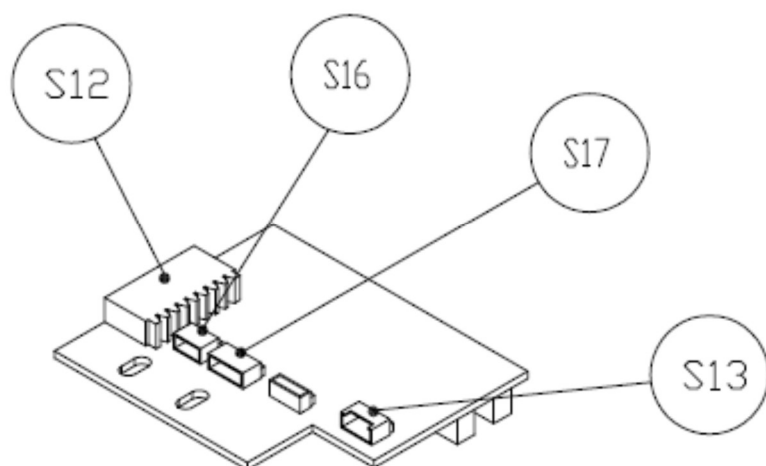
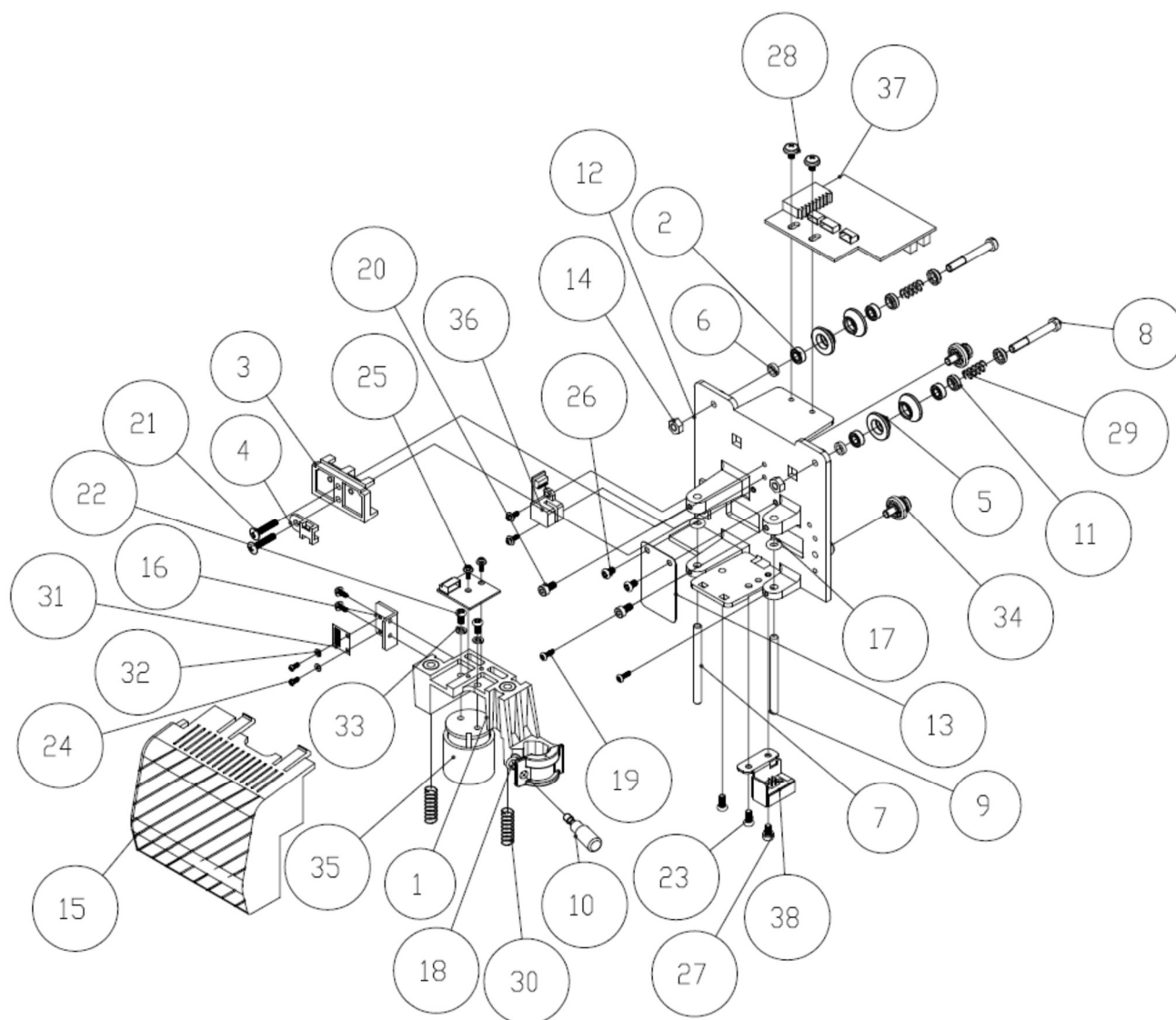
2.5 Carriage Assembly



Carriage Assembly – Parts List

No.	Part No.	Description	QTY
1	20200071G	Blade holder slide bracket assembly	1
2	20700029G	Bearing	4
3	21700034G	Y-axis belt bracket	1
4	22000036G	Cable saddle (YL-1)	1
5	22800410G	Carrier guide roller(DU type)	4
6	22800411G	Spacer for carrier guide roller(DU type)	2
7	22800769G	Right-Slide shaft in tool carriage.	1
8	22800767G	Carrier guide roller(DU type)shaft	2
9	22800769G	Right-Slide shaft in tool carriage.	1
10	22800838G	Blade holder bracket screw	1
11	24100054G	Spring bracket for carrier guide roller	4
12	22802197G	carriage base finishing(Jaguar IV)	1
13	23300824G	Cable Fix	1
14	23500005G	Nut(M4xt3.2xS7)	2
15	24100307G	Carriage plastic cover	1
16	24400400G	Encoder grid bracket	1
17	24700073G	O-Ring(d3.5*t2.0)	2
18	24700044G	O-Ring(d2.0*r1.5)	1
19	25200004G	Pan head machine screw(M2.6*6L)	2
20	25200008G	Socket head set screw.(M3*6L)while+coating	2
21	25200017G	Truss head machine screw(M3*15L).black	2
22	25200048G	Pan head machine screw.M3*5	2
23	25200049G	Pan head machine screw.M3*6	2
24	25200059G	Pan head machine screw(M2*4L)	2
25	25200065G	Pan head machine screw including flat washer.(2*6)	6
26	25200093G	Pan head machine screw(M3*4L black)	2
27	25200107G	Pan head machine screw including spring washer.	1
28	25200112G	Truss head screw including flat washer	2
29	25500041G	Spring for carrier guide roller	2
30	25500043G	Tool carriage spring	2
31	25600019G	VCM Encoder grid	1
32	26000003G	Flat washer. (d2xD4xt0.4 NI)	2
33	26000009G	Spring washer.(d3xD5.3x0.7 Ni)	2
34	290072830G	A roller Assembly	2
35	29000940G	VCM Assembly.	1
36	29001802G	Encoder PCB Assembly.	1
37	290110320G	AAS II carriage board Assembly(with firmware)	1
38	29005382G	AAS II sensor assembly with braket	1

2.6 LX Carriage Assembly (AAS)

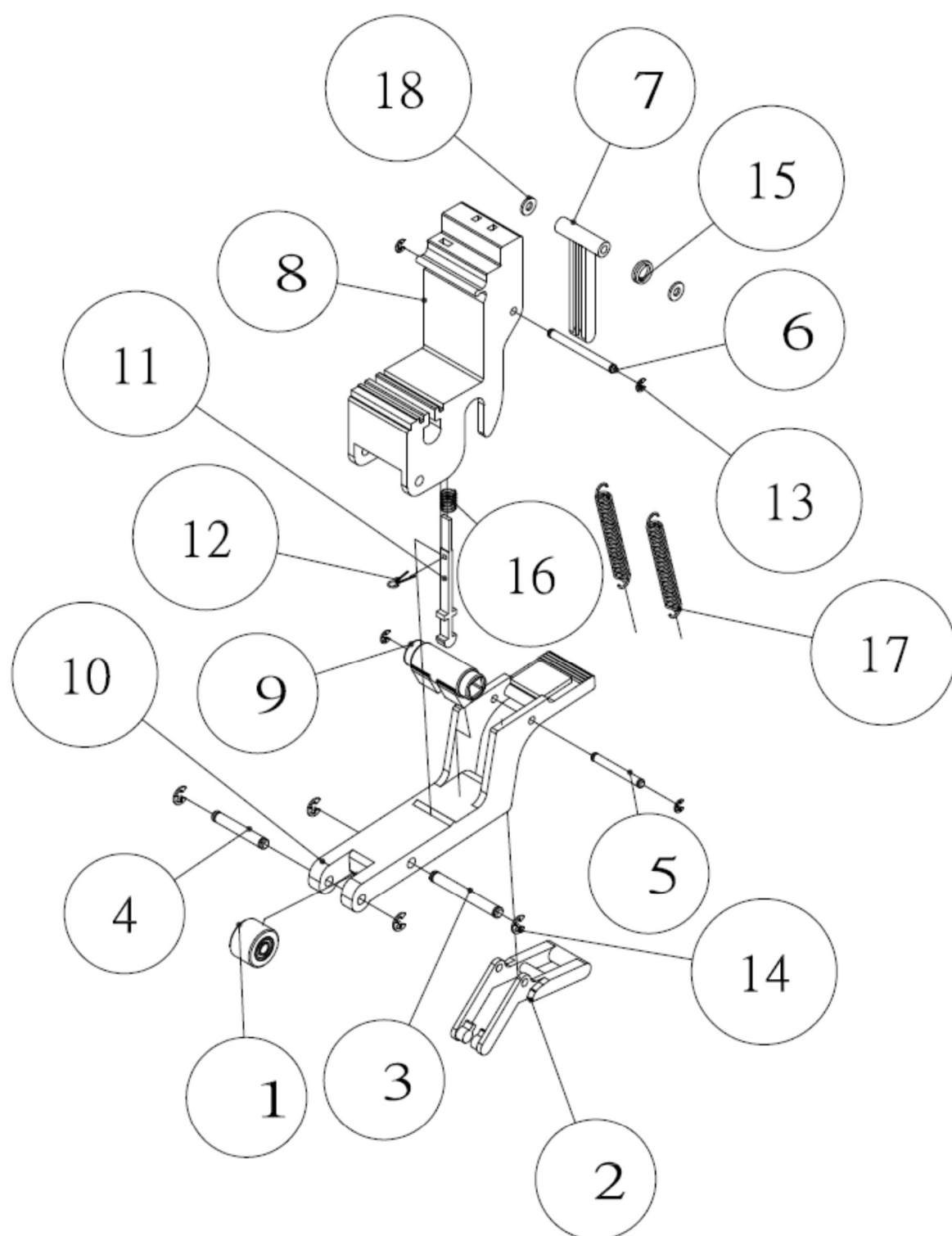


LX Carriage Assembly – Parts List

No.	Part No.	Description	QTY
1	20200071G	Blade holder slide bracket assembly	1
2	20700029G	Bearing	4
3	21700034G	Y-axis belt bracket	1
4	22000036G	Cable saddle (YL-1)	1
5	22800410G	Carrier guide roller(DU type)	4
6	22800411G	Spacer for carrier guide roller(DU type)	2
7	22800769G	Right-Slide shaft in tool carriage.	1
8	22800767G	Carrier guide roller(DU type)shaft	2
9	22800769G	Right-Slide shaft in tool carriage.	1
10	22800838G	Blade holder bracket screw	1
11	24100054G	Spring bracket for carrier guide roller	4
12	22802197G	carriage base finishing(Jaguar IV)	1
13	23300824G	Cable Fix	1
14	23500005G	Nut(M4xt3.2xS7)	2
15	24100307G	Carriage plastic cover	1
16	24400400G	Encoder grid bracket	1
17	24700073G	O-Ring(d3.5*t2.0)	2
18	24700044G	O-Ring(d2.0*r1.5)	1
19	25200004G	Pan head machine screw(M2.6*6L)	2
20	25200008G	Socket head set screw.(M3*6L)while+coating	2
21	25200017G	Truss head machine screw(M3*15L).black	2
22	25200048G	Pan head machine screw.M3*5	2
23	25200049G	Pan head machine screw.M3*6	2
24	25200059G	Pan head machine screw(M2*4L)	2
25	25200065G	Pan head machine screw including flat washer.(2*6)	6
26	25200093G	Pan head machine screw(M3*4L black)	2
27	25200107G	Pan head machine screw including spring washer.	1
28	25200112G	Truss head screw including flat washer	2
29	25500041G	Spring for carrier guide roller	2
30	25500043G	Tool carriage spring	2
31	25600019G	VCM Encoder grid	1
32	26000003G	Flat washer. (d2xD4xt0.4 NI)	2
33	26000009G	Spring washer.(d3xD5.3x0.7 Ni)	2
34	290072830G	A roller Assembly	2
35	29000940G	VCM Assembly.	1
36	29001802G	Encoder PCB Assembly.	1
37	290110320G	AAS II carriage board Assembly(with firmware)	1
38	29005382G	AAS II sensor assembly with braket	1

No.	Part No.	Description	QTY
S12	290108340G	Flat cable Assembly for 61 model (1050mm)	1
	290108320G	Flat cable assembly for 132 model (1830mm)	1
	290108310G	Flat cable assembly J5-183.(2250mm)	1
S13	20901523G	AAS II Sensor PCB to carriage PCB	1
S16	20900128G	Cable (from VCM Encoder to tool carriage)	1
S17	20900430G	VCM Board to Carriage Board Cable (1.5*5pin soft cable 12cm)	1

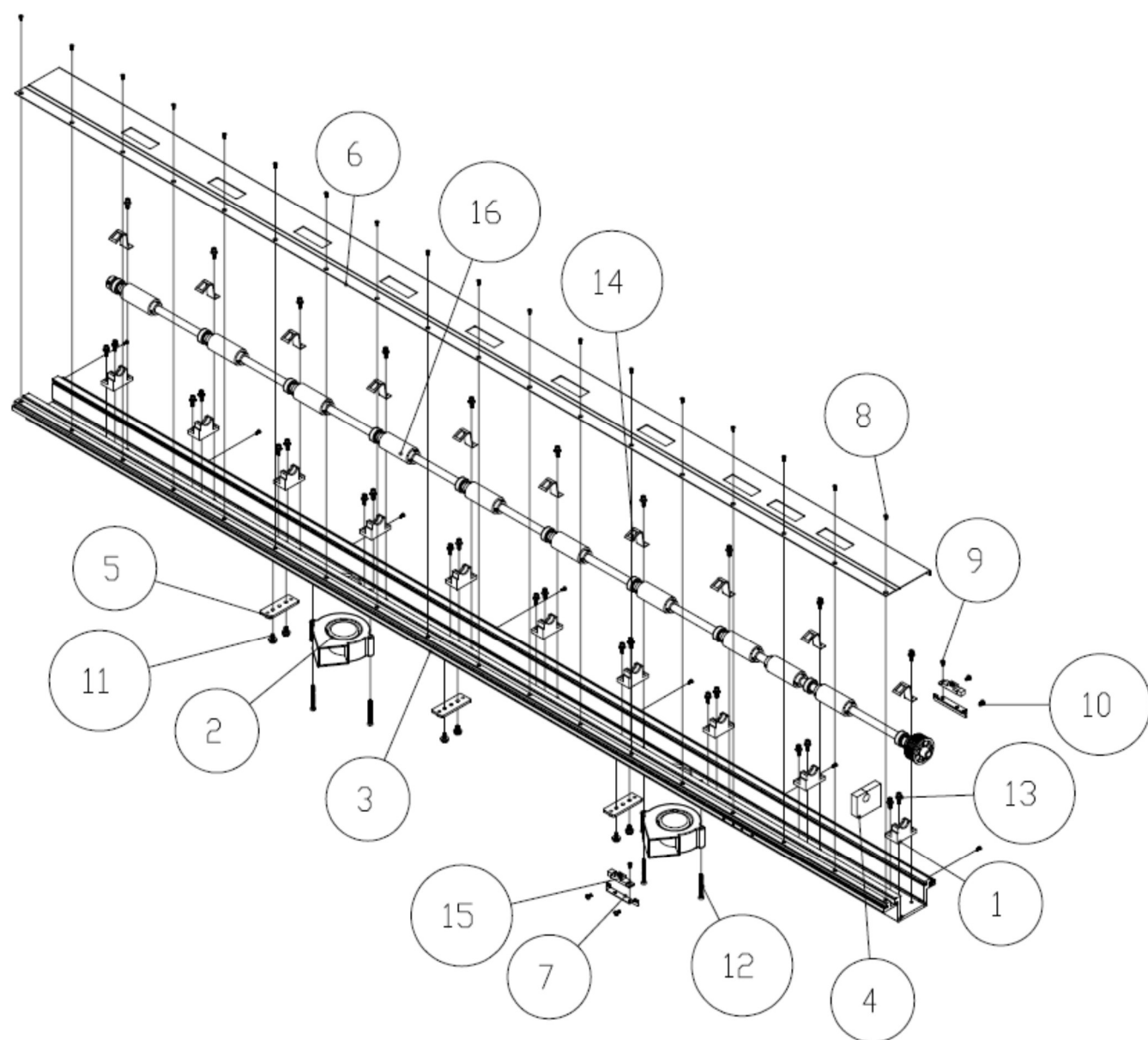
2.7 Pinch Roller Assembly



Pinch Roller Assembly – Parts List

No.	Part No.	Description	QTY
1	20200003G	Pinch roller wheel	1
2	21700010G	Releasing arm	1
3	22800028G	Pinch roller active arm shaft	1
4	22800029G	Pinch roller shaft	1
5	22800030G	Releasing arm shaft	1
6	22800031G	Blocking arm shaft	1
7	24100142G	Blocking arm	1
8	24100268G	Pinch roller base	1
9	24100276G	CAM roller	1
10	24100355G	Pinch roller active arm	1
11	241005730G	Sensor Sheet	1
12	26500080G	Indexer fixture.JT-1N.	1
13	24900001G	E-shape retaining ring.d2*D5*t0.4	4
14	24900006G	E-shape retaining ring.(D7*d3*t 0.6)	4
15	25500013G	Blocking arm spring	1
16	25500014G	Sensor indexer Spring.	1
17	25500039G	Pinch Roller Spring	2
18	26000001G	Plastic washer.WS-1M	2

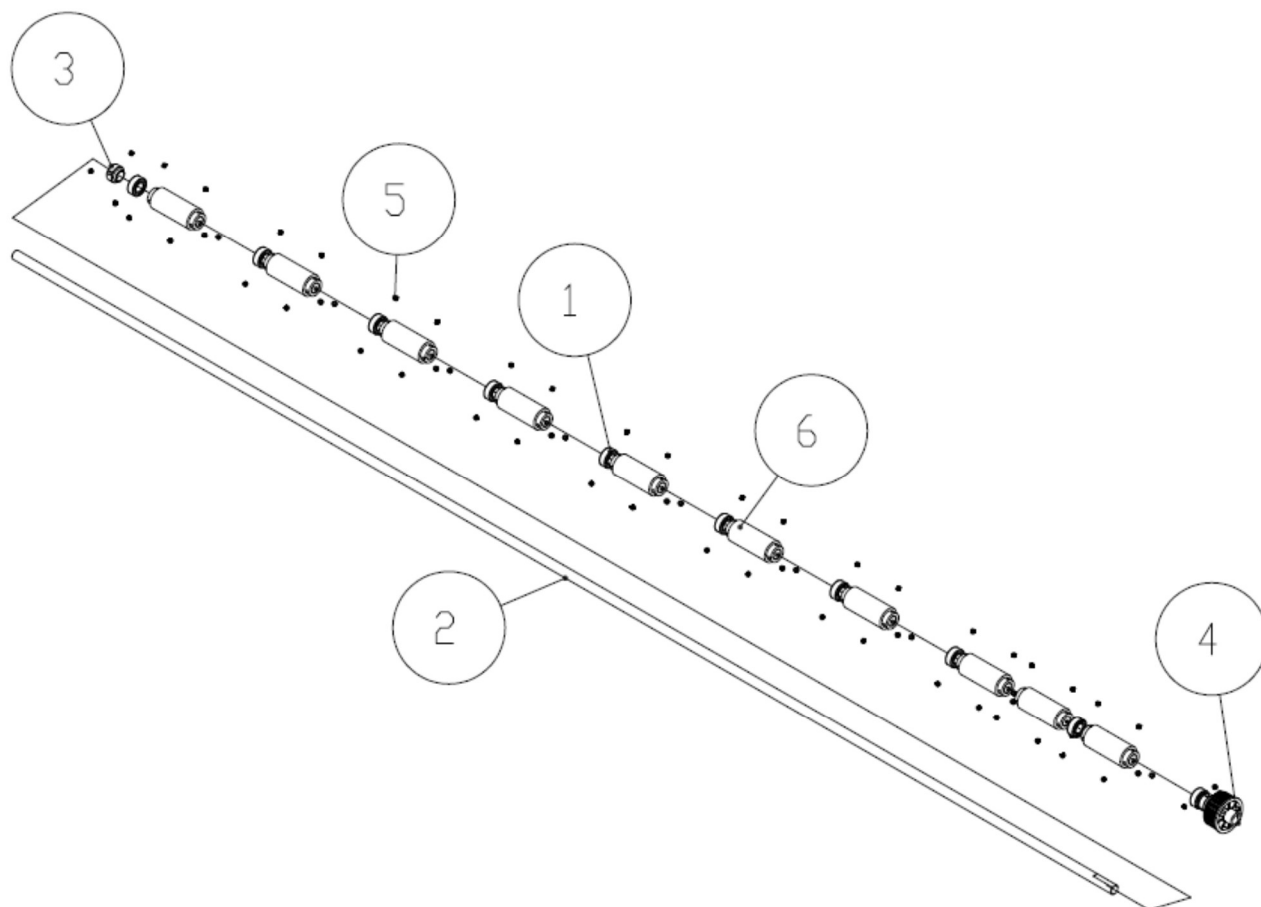
2.8 Main Beam Assembly



Main Beam Assembly – Parts List

No.	Part No.	Description	QTY
1	21700003G	Bearing supprt	10
2	22200040G	DC FAN	2
3	22802179G	Main beam	1
4	24000570G	SPACE PE styrofoam	1
5	24400760G	Main beam support fixer	3
6	24400879G	Platen	1
7	24402272G	Sensor Bracket	2
8	25200084G	90° dish flat head machine screw M2.6*6	25
9	25200093G	Pan head machine screw(M3*4L black)	2
10	25200115G	Truss head machine screw(M3*6L SUS)	4
11	25200208G	Truss head screw including spring & flat washer(M4*10)	6
12	25200465G	Pan head machine screw M4*35L	4
13	25200454G	Socket head set screw including spring&flat washer.(M3*12L)	30
14	25500011G	Bearing reed spring	10
15	290078460G	Paper Sensor Assembly	2
16	29005993G	Grid Drum Assembly	1

2.9 Drum Assembly

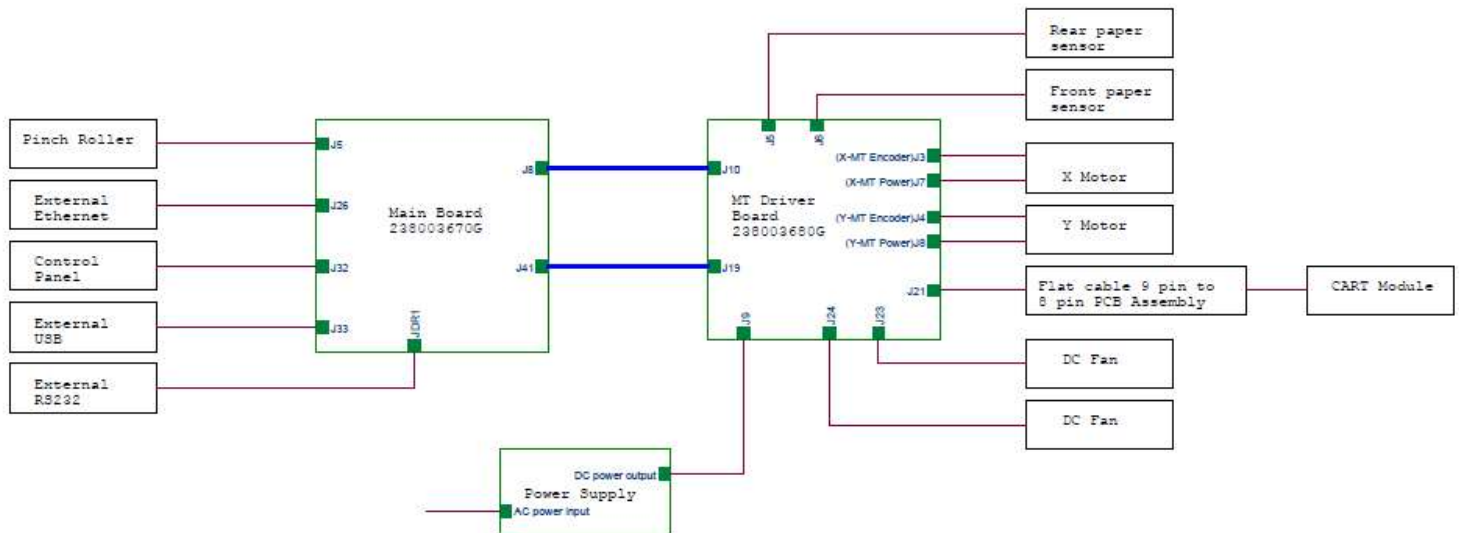


Drum Assembly – Parts List

No.	Part No.	Description	QTY
1	20700039G	Grid Drum Bearing	10
2	22800407G	Grid Drum shaft	1
3	22800564G	Bearing Blocker	2
4	24100189G	X axis actively belt gear	1
5	25200169G	Socket headness set screw.(M4*3.5L)	66
6	26500432G	5cm Japanese grid drum	10

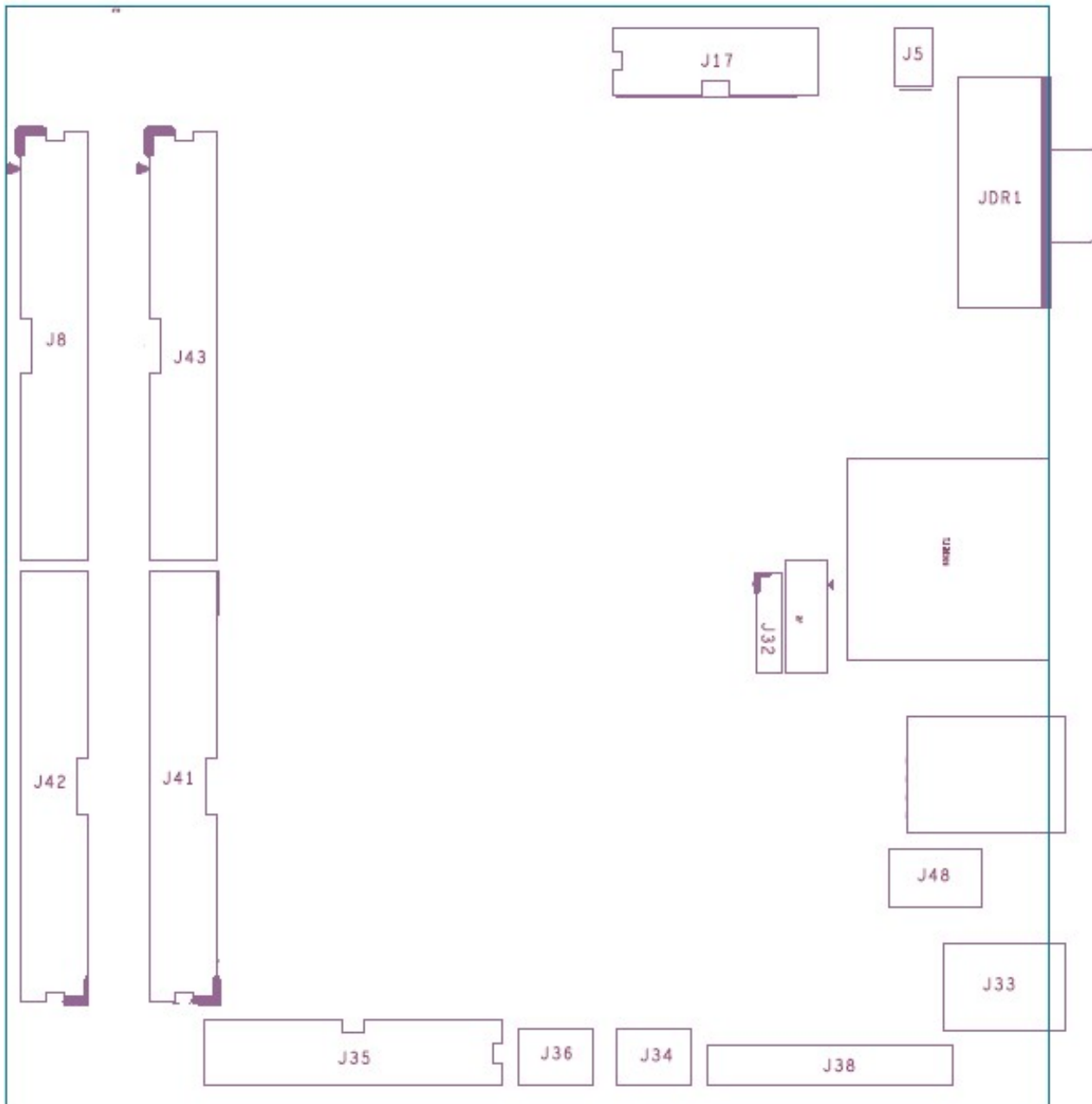
Chapter 3 : Circuit System

3.1 System Diagram



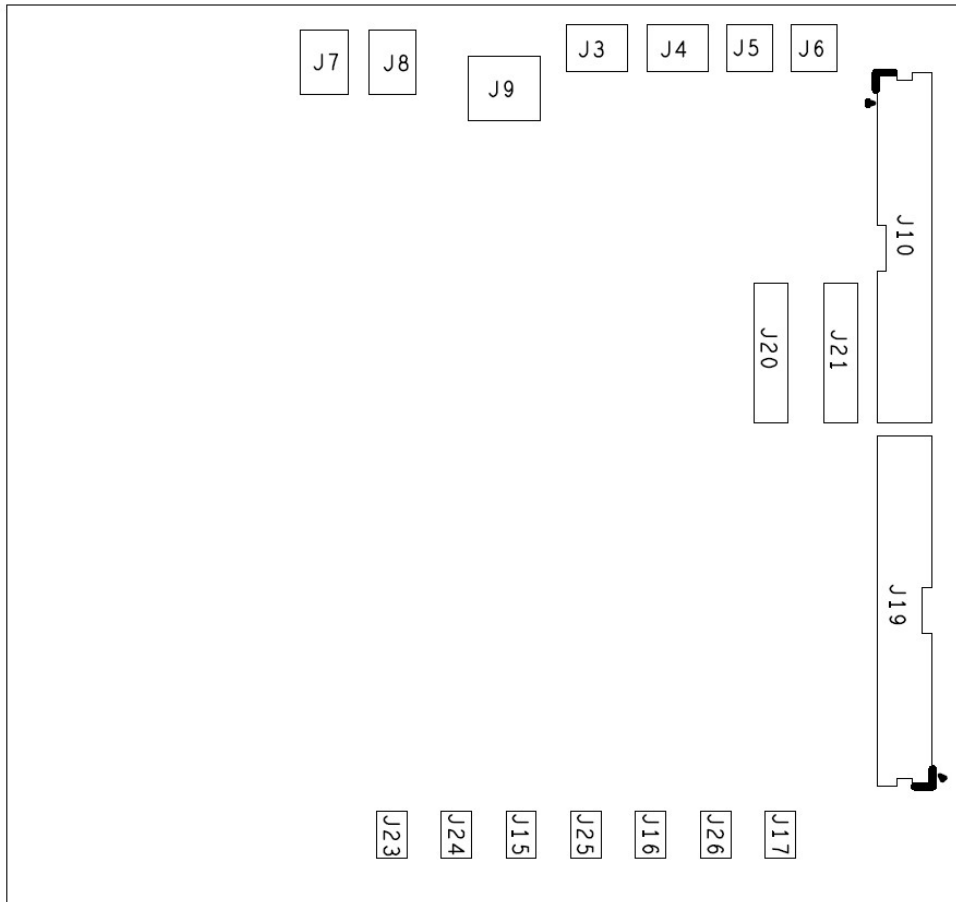
3.2 J5 Wiring Diagram

3.2.1 Mainboard



Mainboard	
Port	Connected to
J5	Pinch Roller switch
J8	20x2 Ribbon Cable connect to Motor Drive Board J10
J26	External Ethernet Port
J32	Control Panel
J33	External USB Port
J41	20x2 Ribbon Cable connect to Motor Drive Board J19
JDR1	External RS-232C Port

3.2.2 Motor Driver Board



Mainboard	
Port	Connected to
J3	X Motor encoder
J4	Y Motor encoder
J5	Rear paper sensor
J6	Front paper sensor
J7	X Motor power
J8	Y Motor power
J9	DC Power input
J10	20x2 Ribbon Cable connect to Main Board J8
J19	20x2 Ribbon Cable connect to Main Board J41
J21	Flat cable connect to Flat cable 9 pin to 8 pin PCB Assembly
J23	DC FAN
J24	DC FAN

Chapter 4 Maintenance

This chapter deals with component replacement and maintenance of the J5 Cutting Plotter. It gives detailed step-by-step instruction on how to replace or adjust the components of this machine.

4.1 Components Replacement and Belt Tension Adjustment

4.1.1 Removing the Front, Back, End and Top Covers

The following steps are those involved in removal of the front, back, end and top covers.

To Remove the End Covers:

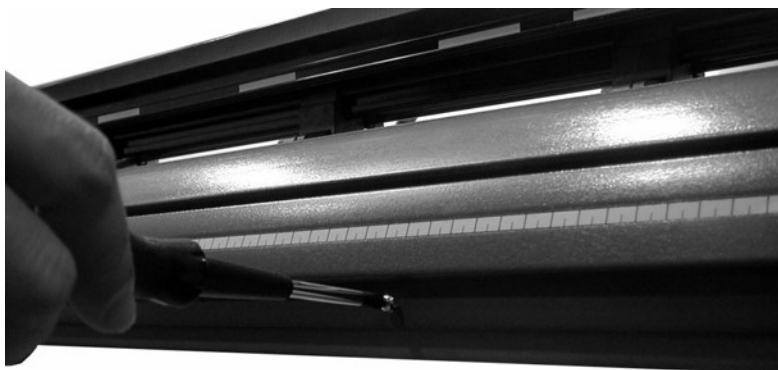


1. Remove the end cover screws.



2. Put equal pressure on both sides of the End Cover and pull to remove.

To Remove the Front and Back Covers :



1. Unscrew the 7 Front Cover and 7 Back Cover screws

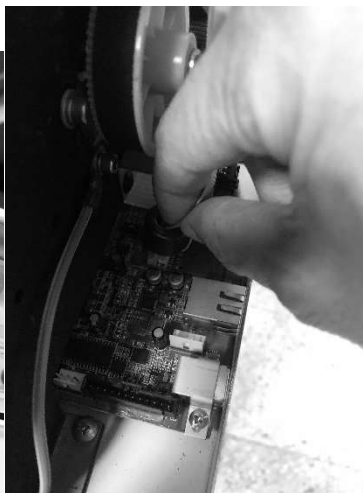
To Remove the Top Cover:



Unscrew the two screws at each end of the Top Cover



Remove the panel PCB cover screws and take out the cover.



Disconnect the grounding cable. Disconnect control panel on the main board side.

4.1.2 Replacing the Pinch Roller Sets

The following steps are those involved in replacing pinch roller sets.

To Unlatch the Pinch Roller Lever:

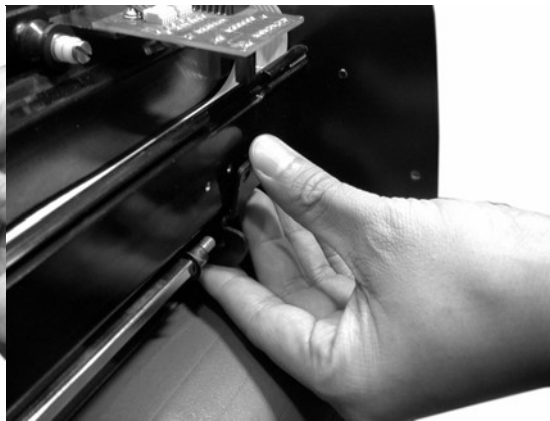


Pull down the Square Bar Lever to unlatch the Pinch Rollers

To Remove the Square Bar Holding Bracket:

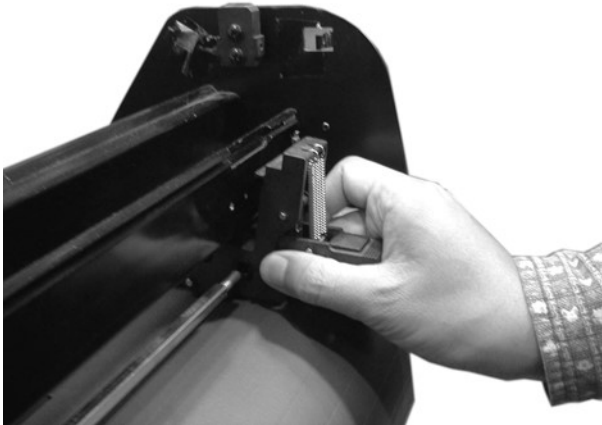


Unscrew the 2 bracket screws.



Remove the bracket and washer.

To Remove the Pinch Roller Sets:

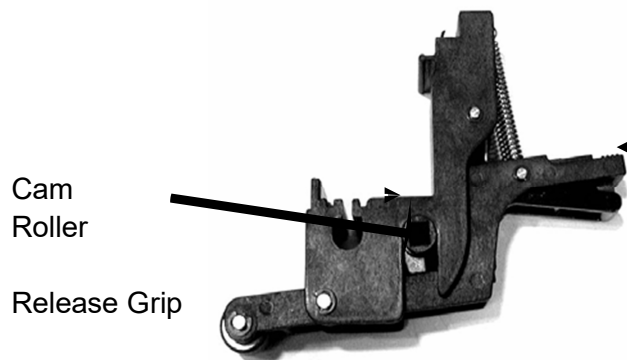


Slide the pinch roller to the notch at the right end of the Square Bar.



Remove the pinch roller set through the notch.

Note: When re-installing the Pinch Roller Set, the Cam Roller must be aligned squarely to the Square Bar.



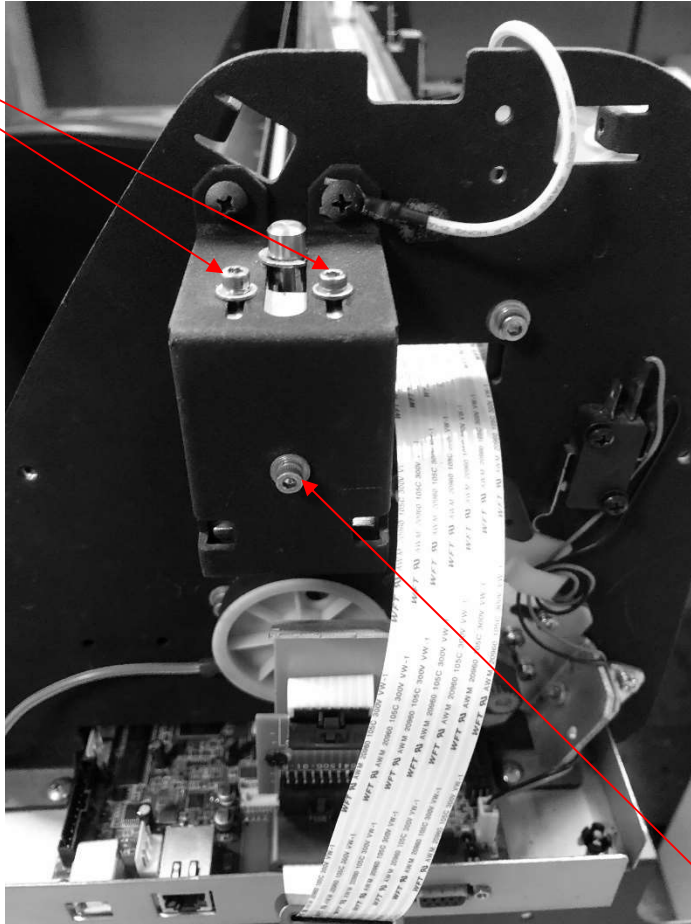
Note: When aligning the Cam Roller please remember to keep the release grip locked down.

4.1.3 Replacing the Tool Carriage

The following are those you must follow to successfully replace the Tool Carriage.

To Loosen the Carriage Belt:

Retaining
Screws



Adjustment screw

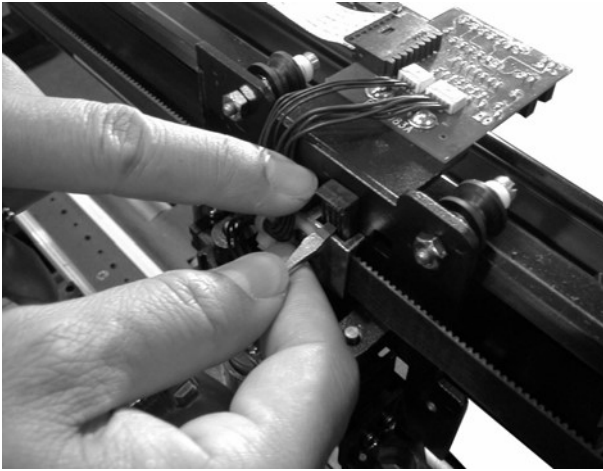
Unscrew the 2 retaining screws, but don't remove them. Then turn the Adjustment Screw anti-clockwise to loosen the carriage belt.

To Remove the Tool Carriage cover:

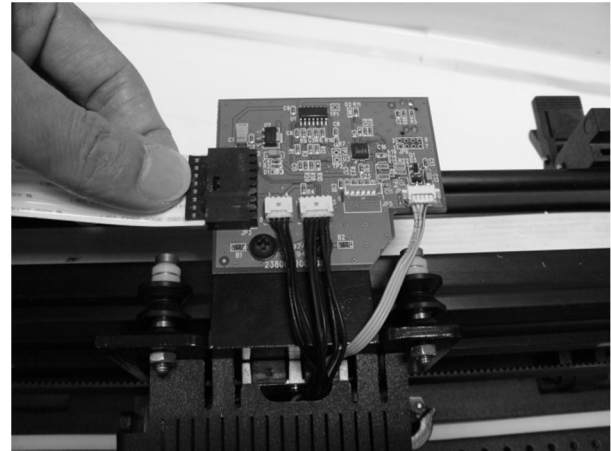


Depress the two locking clips at the top of the Tool Carriage Cover and pull the Cover away.

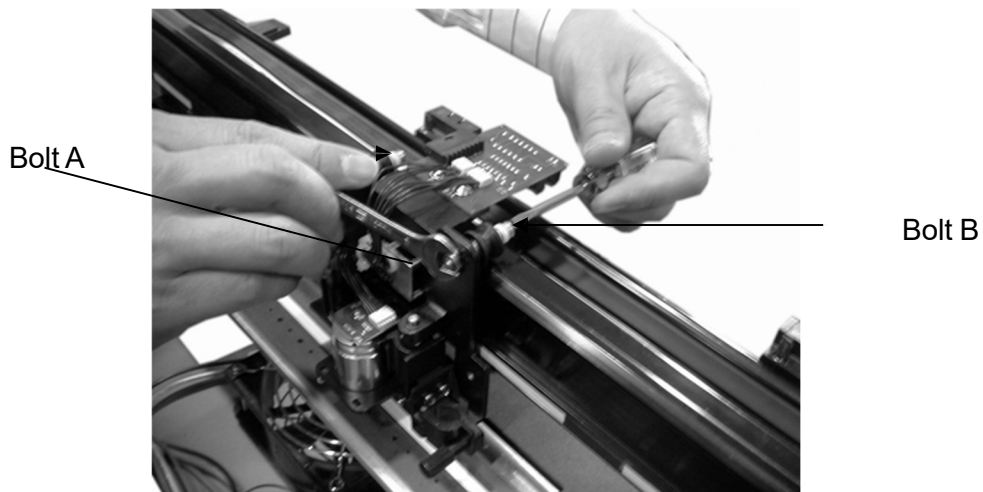
To Prepare the Tool Carriage for Removal:



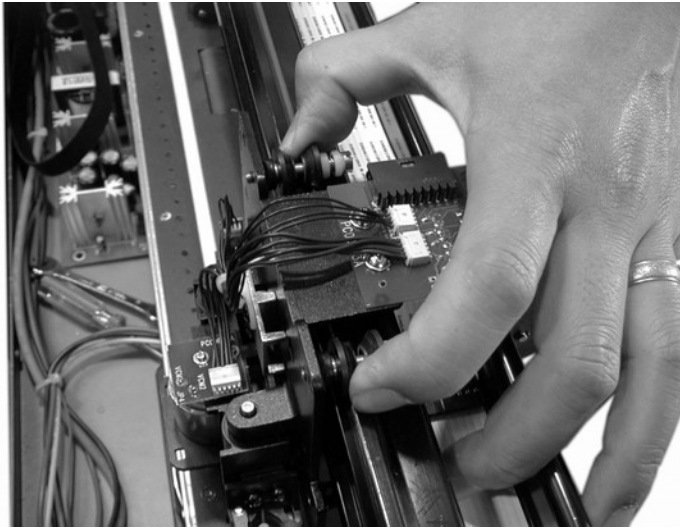
Pop up the plastic locking pins using a flathead screwdriver.



Disconnect the Flat Sensor Cable.



Unbolt and remove nut A and B, and then unscrew both Bolt A and Bolt B until they are flush with the bracket.

To Remove the Tool Carriage:

Separate the Sprung Washer/Rollers as seen in the figure above.

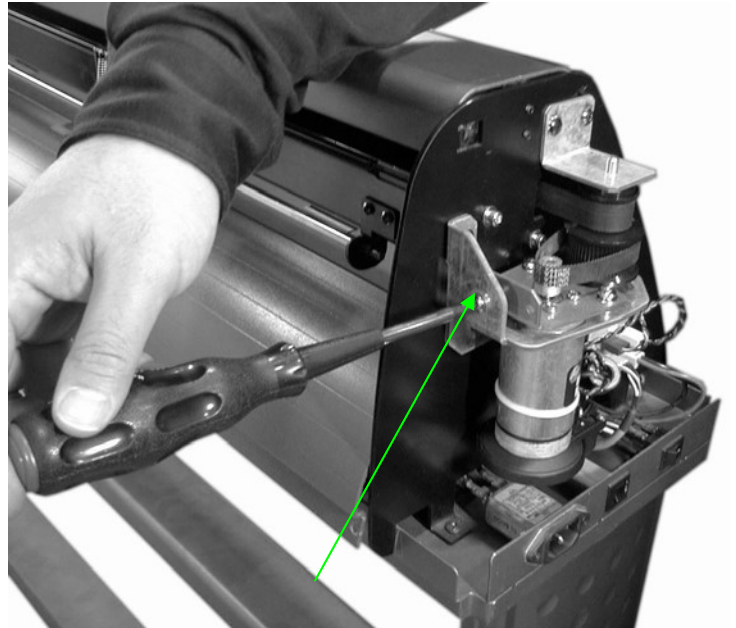
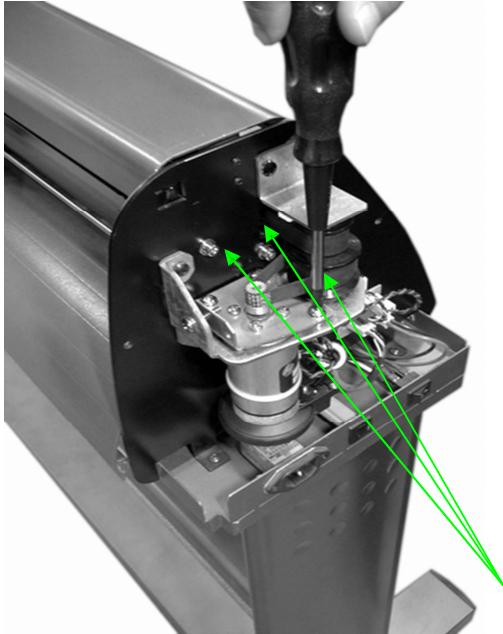


Swing the Tool Carriage down and out while keeping the Sprung Washer/Rollers apart.

- Note**
1. To install a new Tool Carriage or replace the original Tool Carriage simply reverse the steps for Tool Carriage removal.
 2. Remember to separate the Sprung Washer/Rollers, and then place them on the Carriage track before you swing the Tool Carriage back into place

4.1.4 Replacing the Y-Motor

The following steps are those involved in the replacement of the Y-motor.



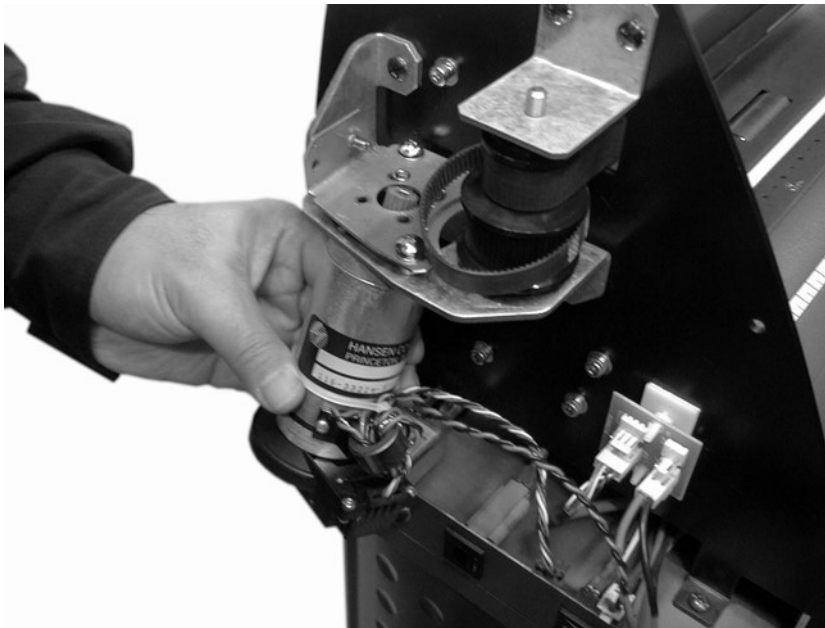
1. Loosen the all 3 tension-bracket retaining screws as well as the tension adjustment screw, but do not remove them.



2. Depress the jumper clips, and pull to unplug the 2 Y-motor Jumpers.



3. Lift the belt off of the Y-motor then unscrew and remove the 4 motor screws.



Note 1: To install or replace the Y-motor, simply reverse the steps to remove it.

Note 2: After the Y-motor is in place, you must adjust the Y- motor belt tension as described in the Y-motor belt tension adjustment section of this chapter.

Note 3: Make the Y-motor jumper reconnection the last step after the Y-motor tension belt adjustment when you have finished installing or replacing the Y-motor.

4.1.5 Replacing the VCM PC Board

The following is what is involved in replacement of the VCM PC board.



Unplug the two sensor connectors, then loose the two PC board screws to remove the board.

Note : If the Pinch Roller Sensor is still not effective after replacement the Tool Carriage or the may need replacement.

4.1.6 Main board Connection or Replacement

Main board connection or replacement must follow the following steps to be sure that no damage comes to either service personnel or the components:

Note: To ensure absolute safety for service personnel and components, please follow the safety instruction at the beginning of this manual, before installing or replacing any current carrying components

1. Unplug all of the jumpers and connectors attached to all of board components.

(Note: Please refer to the Jaguar Wiring Diagram for more detail on jumper and connector attachment)

4.1.7 Replacement of Fuses

The Fuse pops out for easy replacement as follows:



Holding clip

Holding clip

With your fingers apply equal pressure to both of the holding clips on the Fuse housing, and push it out.

4.1.8 Adjusting the Tool Carriage Transmission Belt

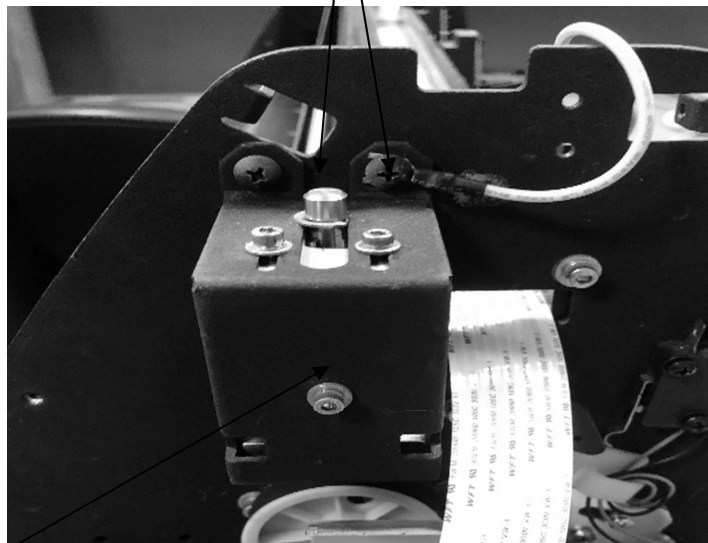
When you replace the tool carriage or belt itself, the belt tension needs to be adjusted to 150g. This is done as follows:



1. Move the tool carriage to the far left end of the guide beam after the tool carriage or belt being replaced.

3. Use a tension gauge to measure the belt's tension by placing the gauge's push arm

2. Loosen the 2 retaining screws on top of the carriage belt roller housing.

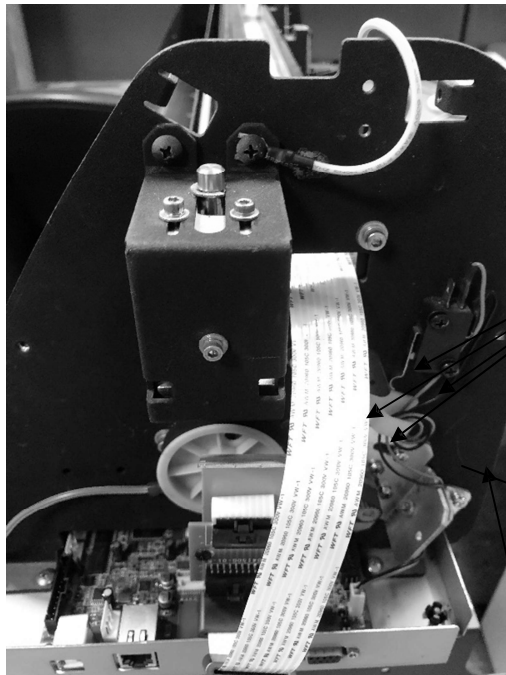


4. To change belt tension adjust the belt tension screw on the side of the carriage belt roller housing.

5. To tighten the tension, turn the belt tension screw clockwise. To loosen the tension turn the belt tension screw anticlockwise, until the desired adjustment tension is reached. The desired tension is 150g

Note: Fasten the retaining screws on the top of the carriage belt roller housing once the adjustment is made

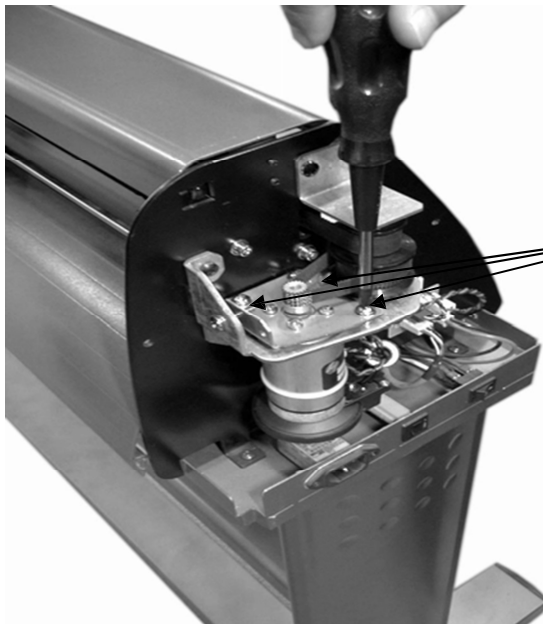
4.1.9 Adjusting the X Motor Tension Belt



1. Loosen the 4 retaining screws locking the X-motor bracket in place.
2. Place the push-pull tension gauge's hook-arm at the hole of X motor bracket and pull the motor toward yourself along the direction parallel to the racket edge, and keep it at the 4kg tension position.
3. Tighten the 4 retaining screws to lock the bracket in place.
4. Fix the tension retaining screw

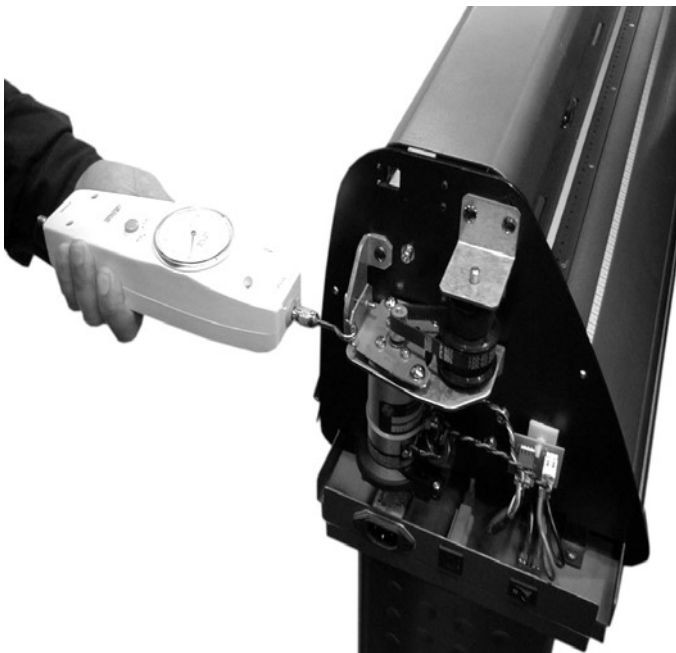
Note: The belt connecting the drum and X motor needs to be tightened to a tension of 4 kg.

4.1.10 Adjusting the Y Motor Tension Belt



1. Loosen the 3 retaining screws locking the tension bracket in place but do not remove them.

2. Place the push-pull tension gauge's hook-arm at the hole of Y motor bracket and pull the motor toward yourself along the direction parallel to the line that passes through the motor shaft and the drive pulley shaft.



3. Once the desired tension is found tighten the 3 retaining screws to lock the tension bracket in place.



4. Tighten the tension screw to retain the tension.

Note: The belt connecting the drive pulley and Y motor needs to be tightened up with a tension of 4 kg.

Chapter 5. Troubleshooting

5.1 Maintenance Diagnostics

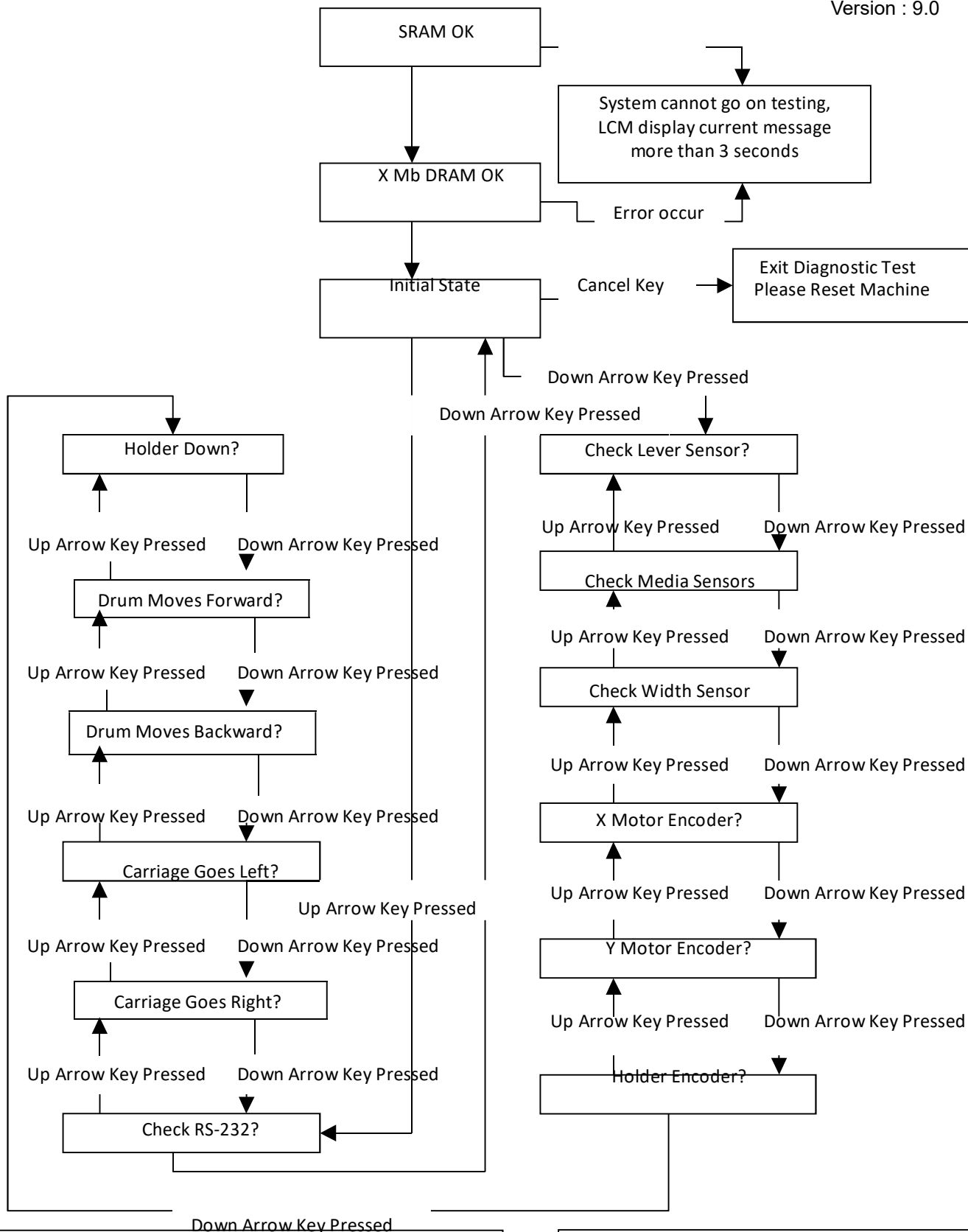
This section provides maintenance diagnostics as troubleshooting aids. This diagnostic feature is to check hardware to find out which components are good or defective. Using this diagnostic test facility enables the diagnosing of the hardware components.

- How to Begin Maintenance Diagnostics
- Diagnostic test for the media sensors
- Diagnostic test for the width sensor
- Diagnostic test for the motor encoder and tool holder encoder
- Diagnostic test for Tool Force (VCM)
- Diagnostic test for motor movement
- Diagnostic test for the RS-232 interface
- Problems and Solutions

5.1.1 How to Begin Maintenance Diagnostics

To start the Maintenance Diagnostics facility hold down the On/Off Line button and CUT TEST button while turning on the cutter.

The following sub-sections will explain the function of each maintenance diagnostic sequence.



This is a flow chart of the control system tests.

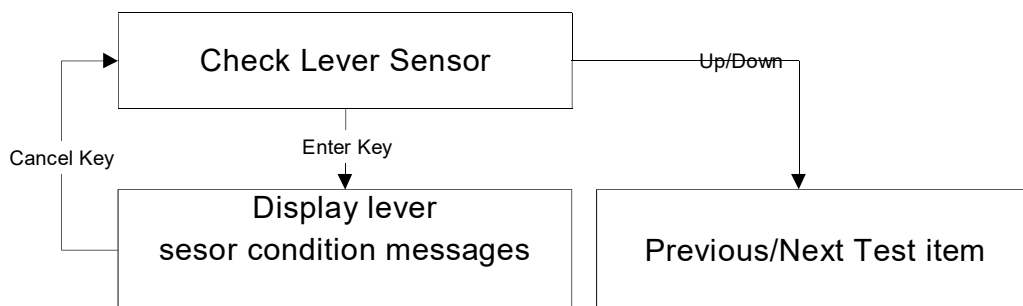
Note: X may be 16Mb of DRAM

5.1.2 Diagnostic Test for SRAM and DRAM

This test provides the ability to diagnose the SRAM and DRAM. If these two components are bad, replace them. Otherwise the cutting plotter will not work properly.

5.1.3 Diagnostic Test for Lever Sensor

This feature diagnoses the lever sensor. If the sensor is faulty, the cutting plotter cannot sense that the pinch rollers have been lowered or not. If the lever sensor is down, you will see a lift the lever message on the LCM. If the lever is up, you will see a lower the lever message on the LCM. You can use the ON/OFF LINE KEY to abort your test when you have finished the lever sensor test.



Note that: LCM will display one of following messages

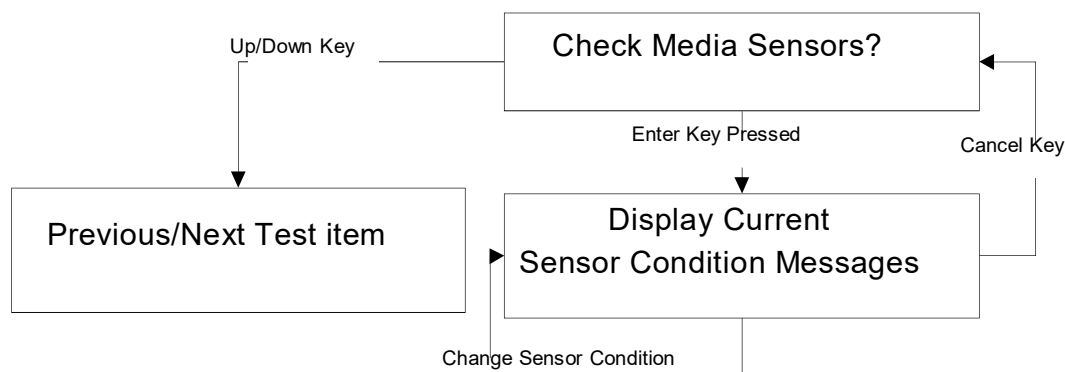
- 1.Lower The Lever Please CANCEL
- 2.Lift The Lever Please CANCEL

The first message means that the current lever condition is up

The second message means the lever is down

5.1.4 Diagnostic Test for Media Sensors

This test is to diagnose the media sensors. If they are faulty, the cutting plotter cannot detect the media length correctly. You can see the current front and rear sensor condition, you can turn it on or off to see if sensors are out of order or not.

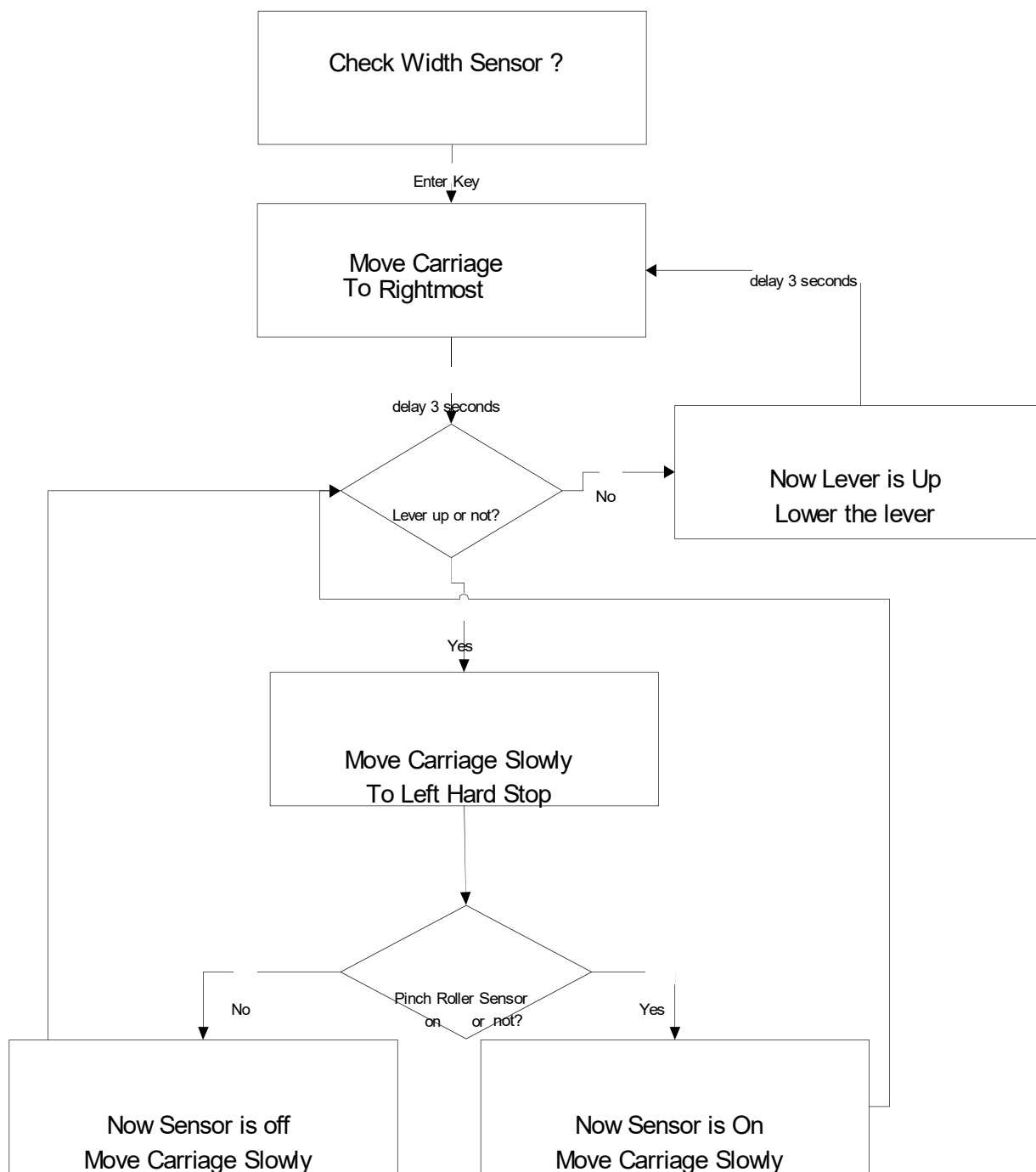


Note that: the LCM displays one of following messages

- 1.Now Open Front Eye Cover Rear Eye CANCEL
- 2.Now Cover Front Eye Open Rear Eye CANCEL
- 3.Now Open Front Eye Cover Rear Eye CANCEL
- 4.Now Cover Front Eye Cover Rear Eye CANCEL

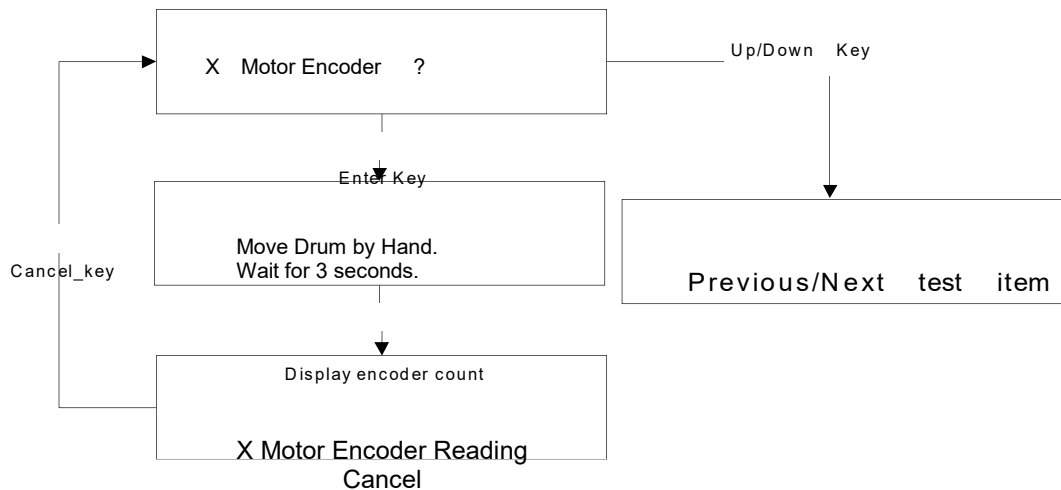
5.1.5 Diagnostic Test for Width Sensor

If the sensor is faulty, the cutter cannot sense the media width correctly. Refer to the maintenance chapter to replace it. You must first move the tool carriage to the rightmost position; the lever must be down to do this. Once this is done please move the tool carriage to left. Be careful when moving the tool carriage close to the pinch roller, since the message changes quickly when sensor is between on and off.

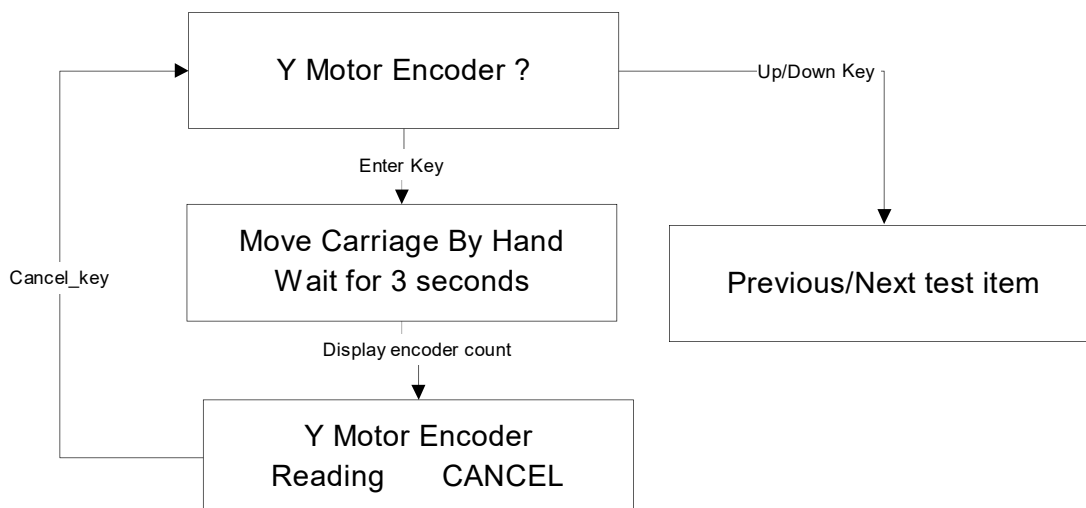


5.1.6 Diagnostic Test for Motor Encoder and Tool Holder Encoder

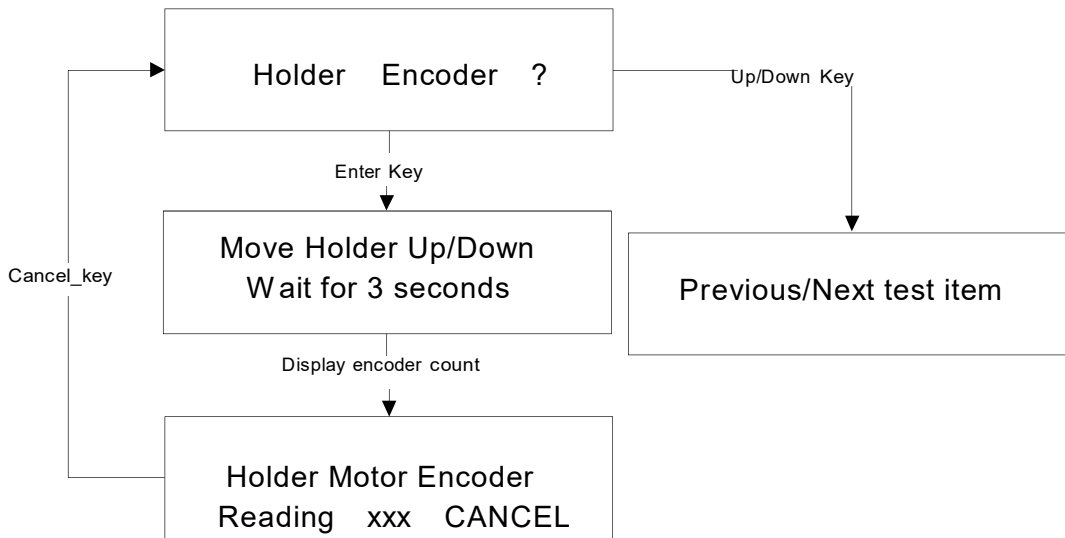
This feature provides the ability to diagnose the X and Y motor encoder and tool holder encoder. If the encoder is defective, the cutting plotter cannot work properly. To check if the encoder is bad or good, you can apply a slight force to the tested part (such as a drum, the tool carriage or the tool holder) then examine the readings. If the encoder reading changes dramatically, the encoder is bad. Refer to the maintenance chapter to replace the motor or tool carriage.



X Motor Encoder Test



5.1.7 Y Motor Encoder Test



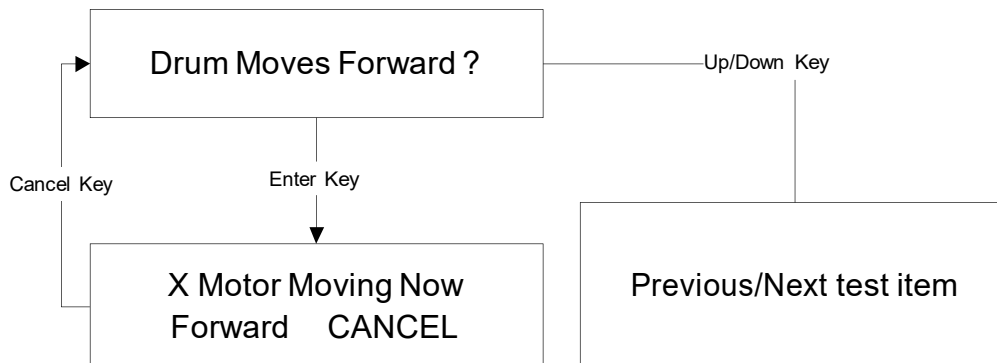
5.1.8 Diagnostic Test for Tool Force (VCM)

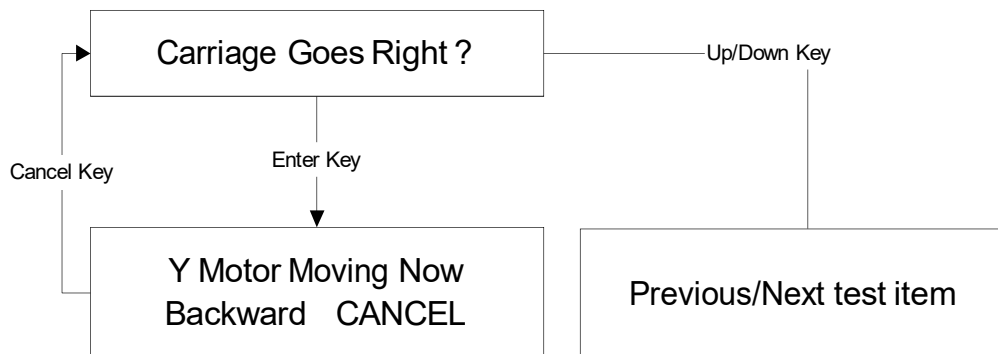
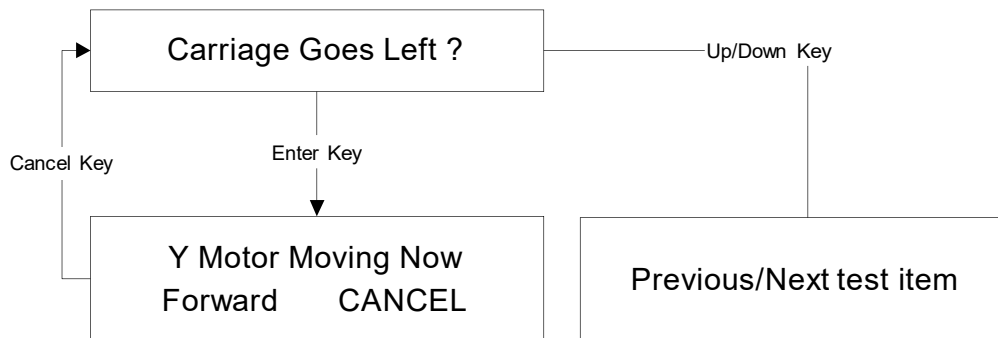
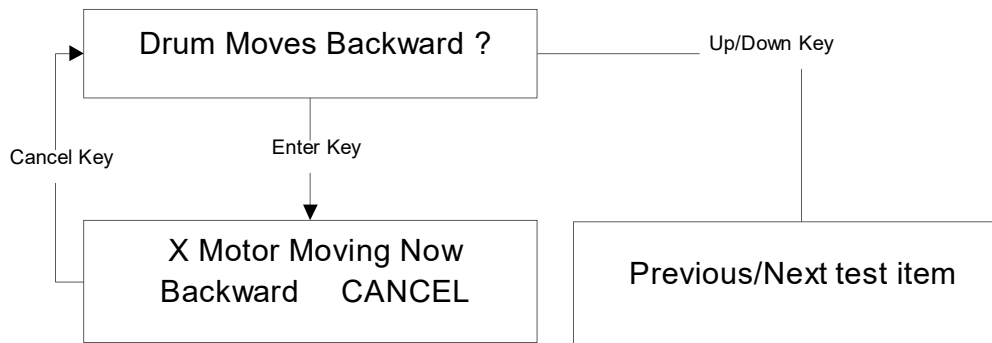
This test is to diagnose the VCM. If the VCM is bad, the tool carriage cannot perform the up/down action that generates the tools force on the material.

Note: VCM means Voice Coil Motor that generates tool force

5.1.9 Diagnostic Test for Motor Movement

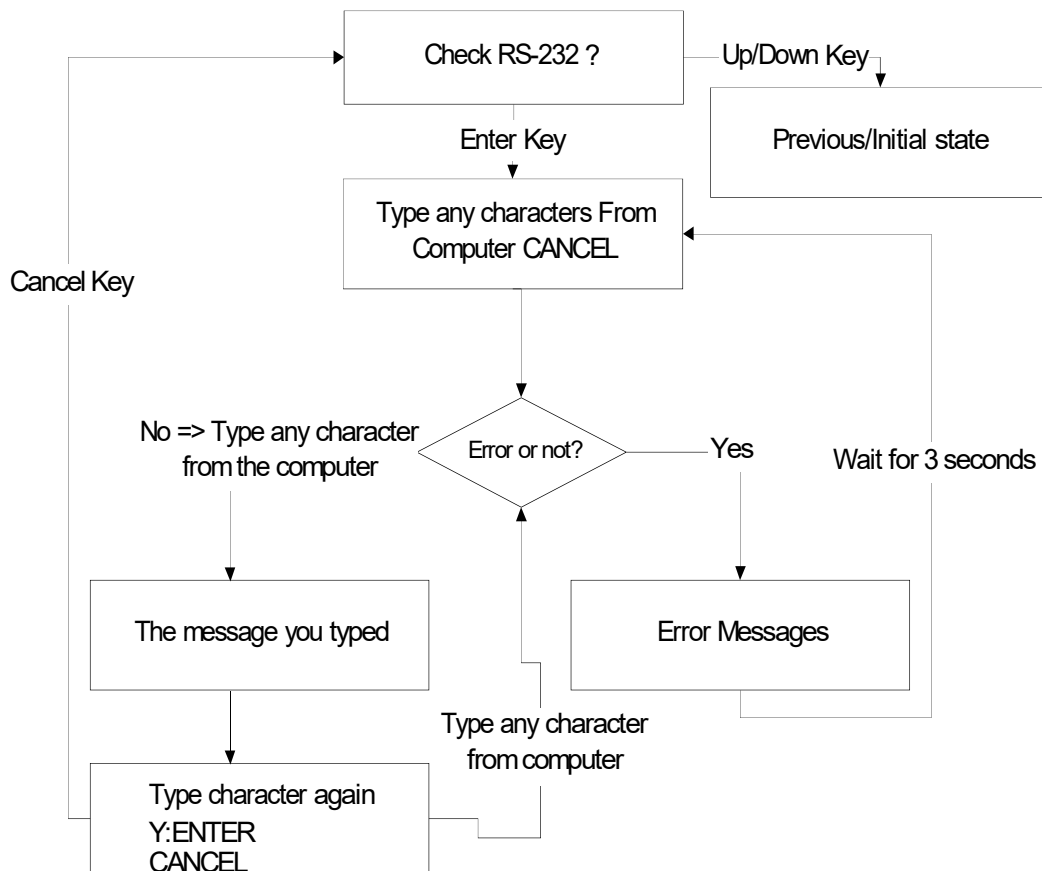
This feature is to diagnose the X and Y motors and drivers. If you encounter a motor movement problem, try to change the main board first. If the problem still remains after replacing the main board, try replacing the motor.





Note: The X motor controls the Drum. The Y motor controls the Carriage.

5.1.10 Diagnostic Test for the RS-232 Interface



Note that: Do not press keys too quickly, or it may cause an overrun error

5.2 Problems and Solutions

This section discusses typical problems you may encounter while operating the cutting plotter and offers you possible solutions

1. **The line quality is not good enough at the corner or the end point.**

Causation and recovery:

- a. Forgetting to fasten the tool (Fasten it.)
- b. The blade is worn. (Change it.)
- c. The offset value is wrong. (Correct the offset value.)
- d. Media is not flat enough. (Reload the media.)
- e. Media is wet. (Change it.)
- f. The quality of media is not good enough. (Change the media.)
- g. Drum or pinch roller is worn. (Change the drum set or pinch roller.)

2. **The position of pinch roller cannot be detected so that the media width cannot be determined correctly.**

Causation and recovery:

- a. Forgetting to lower the pinch roller. (Enable the pinch roller and push the lever forward to lower down the pinch roller)
- b. The orientation of the width sensor on the carriage PCB is not correct. (Adjust the orientation of the carriage PCB)
- c. The position of the width sensor on the carriage PCB is too high to sense the block bar on the pinch roller. (Lower the carriage PCB)
- d. Flat cable is broken. (Change it.) Width sensor is damaged. (Change it.)
- e. Carriage PCB set is damaged. (Change carriage set.)

3. **The function of “Set New Origin” does not work.**

Causation and recovery:

- a. The origin point will be set by pressing the ENTER button when the Jaguar is in an OFFLINE state, only then will the LCD display the distance between the new and old origin.

4. **Media shifts away when plotting a long drawing.**

Causation and recovery:

- a. The media is not accurately aligned. (Reload the media.)
- b. Pre-run the media back and forth using the arrow key will help. (Reload the media and pre-run.)
- c. The edge of the media is not straight. (Change the media.)
- d. Media is too thin. (Change it.)
- e. Drum is coated with paper chips or dust. (Clean the surface of drum.)
- f. Drum or pinch roller is worn. (Change the drum set or pinch roller.)

5. The lines quality is wavy.

Causation and recovery:

- a. Forget to fasten the tool fastening screw. (Fasten it.)
- b. The blade is worn. (Change it.)
- c. The acceleration is too high. (Set the acceleration to a lower value; please refer to the default value.)
- d. The carriage belt tension is incorrect. (Adjust the belt tension.)
- e. X or Y motor belt tension is incorrect. (Adjust the belt tension.)
- f. The spring loading bearing of carriage is damaged. (Change the carriage set.)
- g. The length of the media is too short in X direction. (Change the media.)
- h. Media is too thin. (Change it.)
- i. Drum or pinch roller is worn. (Change the drum set or pinch roller.)
- j. X or Y motor is damaged. (Change it.)

6. Data loses when plotting.

Causation and recovery:

- a. Memory chip is bad. (Change it.)
- b. Main board set is bad. (Change it.)

7. Fatal error occurs when loading media.

Causation and recovery:

- a. Forget to pull out some media from the media roll. (Pull out some media from the roll before you start to load media.)
- b. X motor belt is too tight. (Adjust the belt tension.)

8. Feel electrostatic discharge.

Causation and recovery:

- a. Power out let does not have ground connection. (Improve it.)

9. Carriage locked, cannot move.

Causation and recovery:

- a. The spring loading bearing of carriage is damaged. (Change the carriage set.)
- b. The carriage belt is too tight. (Adjust the belt tension.)
- c. Some fasten screws are loose so that the shaft bearing of carriage belt drops. (Fasten the screws.)

10. The keyboard does not work.

Causation and recovery:

- a. The connection between keyboard and main board is broken. (Re-plug the connector or change the keyboard set.)
- b. Dust or moist surface makes a bad keyboard contact. (Change the keyboard set.)

11. The machine makes noise when it is on the standby status.

Causation and recovery:

- a. The screws of tool carriage cover are loose. (Fasten the screws.)
- b. X or Y motor belt is loose. (Adjust the belt tension.)
- c. The carriage belt is loose (Adjust the carriage belt tension)
- d. The driver board set is damaged. (Change it.)

12. The machine makes abnormal noise from the drum set when it is running.

Causation and recovery:

- a. X or Y motor belt is loose. (Adjust the belt tension.)
- b. The driver board set is damaged. (Change it.)
- c. The gear at the left of drum set is not tightly mounted on the shaft. (Change it.)
- d. The screws that fasten the drum to the shaft are loose. (Fasten the screws.)
- e. X or Y motor is damaged. (Change it.)

13. The tool carriage does not perform the up/down action.

Causation and recovery:

- a. The blade holder is not installed properly. (Re-install it, please refer to user's guide.)
- b. The flat cable is broken. (Change it.)
- c. The carriage PCB is damaged. (Change it.)
- d. VCM is damaged. (Change the Carriage set.)
- e. The encoder of the VCM is damaged. (Change the Carriage set.)
- f. The driver board set is damaged. (Change it.)
- g. The linear bearing shaft of VCM is rusty. (Change the Carriage set.)
- h. The two small bearings clamp the linear bearing shaft too tight. (Adjust them).

14. There are some unexpected lines on the final plot.

Causation and recovery

- a. The blade holder is not installed properly. (Re-install it; please refer to user's guide.)
- b. The media is not flat enough.
- c. Maybe there are some bubbles on the surface. (Re-load the media)
- d. The fan cannot make enough airflow to suck the media. (Change the fan or driver board)
- e. The carriage does not perform the up action. (Please refer to the previous paragraph)
- f. The command of output file of cutting software package is not compatible with HPGL or HPGL/2. (Ask your cutting software package agent for help.)
- g. There are some communication errors. (Check the communication protocol.)

15. There appears an unexpected tool force.

Causation and recovery:

- a. The setting of tool force is wrong. (Reset the tool force.)
- b. The blade length out of the blade holder is too short. (Re-load the blade.)
- c. The initial force setting is wrong. (Reset the initial force. please contact the manufacturer.)
- d. VCM is damaged. (Change the carriage set.)
- e. VCM encoder is damaged. (Change the carriage set.)

16. Media drops sometimes.

Causation and to recovery:

- Media is loaded askew. (Re-load the media.)
- The position of pinch roller is not on the top of drum. (Move the pinch roller to a right position.)
- The edge of media is broken. (Change the media.)
- The front of media is not even. (Cut the front edge of the media evenly and reload the media.)
- Drum is coated with paper chips or dust. (Clean the surface of drum.)
- Drum or pinch roller is worn. (Change the drum set or pinch roller.)

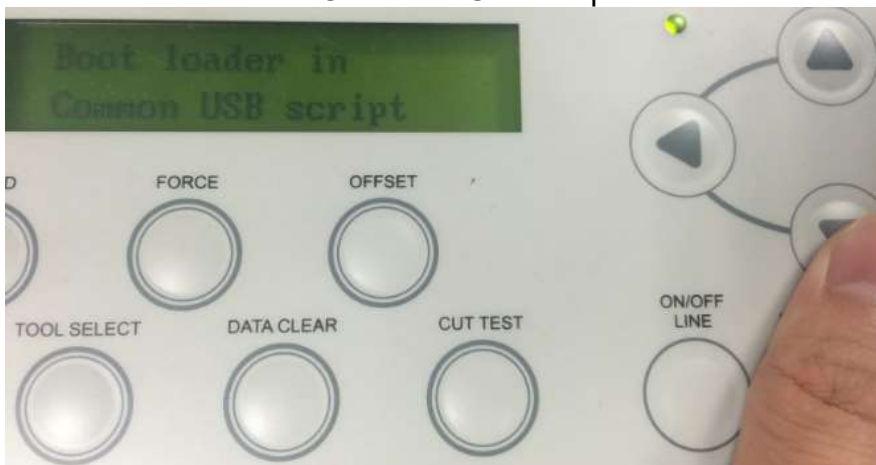
5.3 Firmware update

Normally, before a new machine or spare main board is ready to ship, a loader or even a firmware will be uploaded first on it. In case of functionality problem happening due to incorrect firmware version, please verify if the existing firmware on this main board is the desired one. A program called 'Firmware Uploader' is a tool for users to easily upgrade firmwares, followed by the steps listed below :

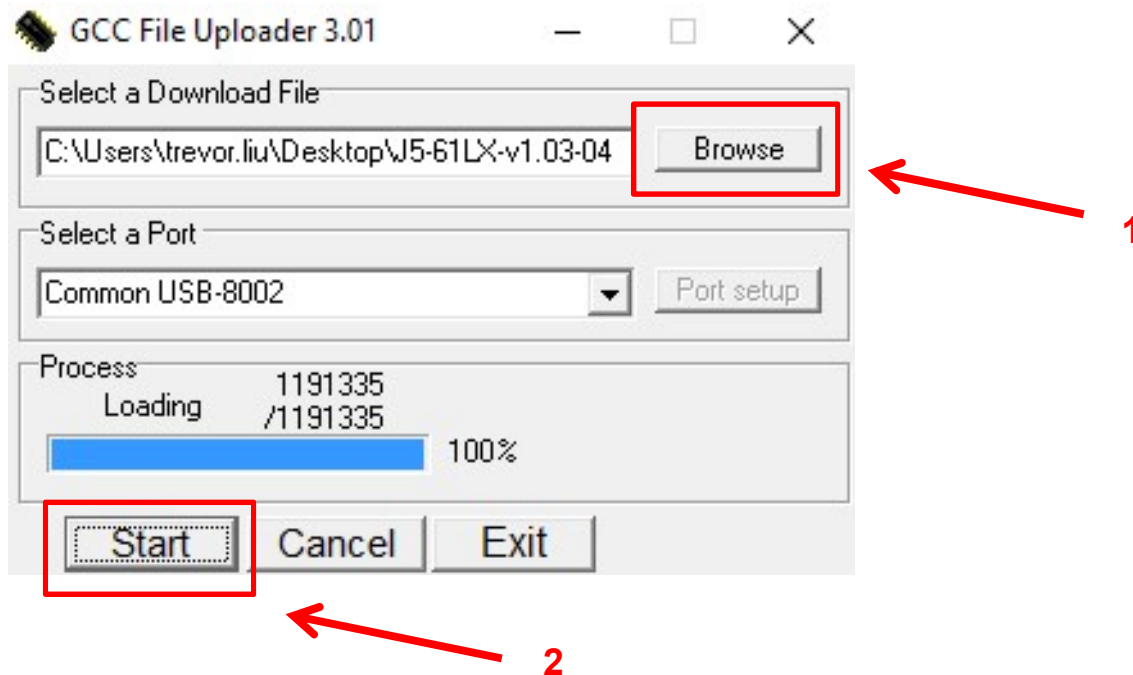
Step1: Power off machine



Step2: Press and hold “▼” key, then power on machine. Please hold “▼” key until LCM shows “Boot loader in Commom USB script”



Step3: Plug USB cable to computer, select a desired firmware and port on "Uploader.exe" dialogue box, then press "START" for uploading.



Firmware and Uploader can be downloaded from GCC website:
<http://gccf.gcc.com.tw/distributor/login.aspx>

Step4: When firmware is updated completely, LCM will show as below, then "factory default" the machine



Step 5: Machine off line and press "tool select", use arrow key to select "Factory Default" then press enter. Re-power on when default complete.



Chapter 6 Appendix

6.1 Recommended Parts and Accessory List

Following table shows the Part No. of each size of J5 series.

Part No.	Description	J5-61	J5-61LX	J5-101	J5-101LX	J5-132	J5-132LX	J5-183LX
241006740G	Front Platen Extension 183							V
241006750G	Back Platen Extension 183							V
241007000G	Front Platen extension 160							
241006990G	Back Platen Extension 160							
241006780G	Front platen extension 132					V	V	
241006810G	Back platen extension 132					V	V	
241006800G	Front platen extension 101			V	V			
241006790G	Rear platen extension 101			V	V			
241006760G	Front platen extension 61	V	V					
241006770G	Rear platen extension 61	V	V					
290094072G	Carriage assembly Jaguar V 183 LX							V
290094062G	Carriage assembly Jaguar V LX serial		V		V		V	
290094051G	Carriage assembly Jaguar V serial	V		V		V		
290092030G	Carriage PCB NO AAS	V		V		V		
290094260G	Carriage PCB with AAS		V		V		V	V
290093610G	Control panel assembly	V	V	V	V	V	V	V
234000410G	Control Panel Sticker	V	V	V	V	V	V	V
290094260G	AASII carriage board assembly		V		V		V	V
290108330G	Flat cable Assembly Jaguar V 101			V	V			
290108320G	Flat cable Assembly Jaguar V 132					V	V	
290108310G	Flat cable Assembly Jaguar V 183LX							V
290108340G	Flat cable Assembly Jaguar V 61	V	V					
241006800G	Front platen extension 101			V	V			
241006780G	Front platen extension 132					V	V	
241007000G	Front platen extension 160							
241006740G	Front Platen Extension 183							V

Part No.	Description	J5-61	J5-61LX	J5-101	J5-101LX	J5-132	J5-132LX	J5-183LX
241006760G	Front platen extension 61	V	V					
29001804G	Motor Assembly	V	V	V	V	V	V	V
29004856G	Paper Sensor Assembly 183							V
29004854G	Paper Sensor Assembly Jaguar II ~ Jaguar V	V	V	V	V	V	V	
29002348G	Pinch roller Assembly	V	V	V	V	V	V	V
241006790G	Rear platen extension 101			V	V			
241006810G	Rear platen extension 132					V	V	
241006990G	Rear platen extension 160							
241006750G	Rear platen extension 183							V
241006770G	Rear platen extension 61	V	V					
24100247G	Right cover Jaguar.(Black)	V	V	V	V	V	V	V
24100246G	Left cover Jaguar.(Black)	V	V	V	V	V	V	V
22801066G	Square Bar 61	V	V					
22801065G	Square Bar 101			V	V			
22801068G	Square Bar 132					V	V	
228042640G	Square Bar 160							
22801137G	Square Bar 183							V
244053910G	Top Cover 61	V	V					
244053930G	Top Cover 101			V	V			
244053900G	Top Cover 132					V	V	
244059020G	Top Cover 160							
244053920G	Top Cover 183							V
290094270G	Watch dog-Interface converter board Assembly	V	V	V	V	V	V	V