i141
USER MANUAL

SIC MARKING
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PRESENTATION

Thank you for choosing a dot marking system (also called micro-percussion) for your marking applications.

SIC MARKING systems contribute to improve the tracability of your products while complying with the industrial standards.

We would like to welcome you as a user of our systems.

This guide contains the installation and use instructions of the dot marking type machines. We recommend that you read it carefully before installing the system.

Please contact our technical department for any further information.

INSTALLATION AND START-UP

1. UNPACKING

Except if we deliver the system, it is generally supplied in an appropriate packaging, which needs to be kept for any return of the material.

Remove the sub-systems carefully (controller, control handbox, possible options …) from their packages.

The machine should only be lifted by the column and the base ; it should never be lifted by the head housing.
Weight of the machine : 35 kg

2. INSTALLATION

2.1. Fastening

- ✓ Column-type machines
  - Install the machine on a rigid and stable support frame
  - After installing the entire marking machine, fasten the base with 2 M10 screws.

- ✓ Integrated-type machines
  - Install the machine on a rigid and stable support frame
  - Fasten the marking head onto the machine by complying with the indications of the integration plan, **available thread length 12 mm max.**

- ✓ Portable-type machines
  - No fastening : marking gun designed to be held manually

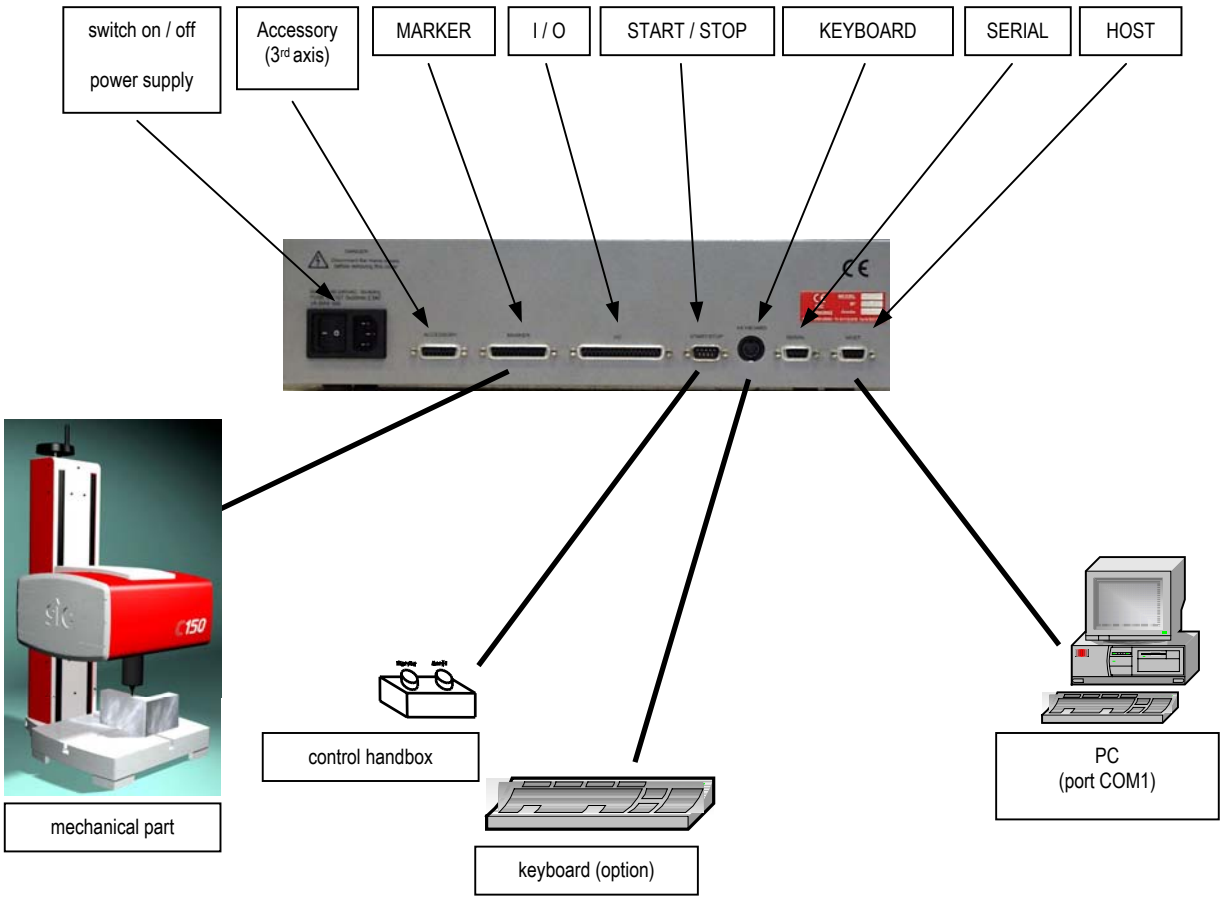
Note : The integrated and portable type machines are designed to function in all positions (vertical, horizontal, stylus towards the bottom or the top)

2.2. Connections

- Using the SUB-D 25 connector, connect the marking machine to the "marker" connector located at the rear of the controller. For the integrated type machines, proceed the same way using a connection cable.
- Correctly fasten the screws of the connector.

Note : for more details about the connections, please check the controller manual.

Never unplug the controller when it is under tension as it may seriously damage the material.



USE OF THE MACHINE

1. SAFETY

	An intense use may cause the temperature of the system to rise up to 100°C.
	It is recommended to wear safety glasses.
	It is also recommended to wear a noise reducing helmet. Acoustic value of the machine : 76 dB on a piece of steel at medium speed
	The marking system should never be used without any surface to mark as the marking head may break.

2. CONTROLLER

See controller manual

3. SOFTWARE

See software manual

4. MARKING MACHINE

4.1. Positioning and clamping of the part to be marked

Even if the part is not submitted to high forces, it is necessary to immobilize it in order to reach an optimal marking quality.

Depending on the type of parts and the working conditions, the clamping system can vary from the simple manual fastening of the part against an angle iron (bracket) to the mechanical, magnetic or pneumatic fastening.

When using a marking gun, place the universal non-skid support against the surface to be marked and manually hold the gun during the marking.

The fastening device should maintain the part so that the stylus movements are parallel to the surface to be marked.

For the portable type machines, if the marking is always conducted on the same type of parts, we advise you to make a customized tooling to always keep the same marking position.

4.2. Machine adjustment

The marking quality highly depends on the part to be marked ; a smooth and flat surface is much easier to mark than a rough and irregular surface.

It is generally necessary to adapt the marking force to the height of the character. The smaller the character is, the lower the impact has to be to obtain a good legibility. The software also enables to choose various widths for the marking matrix.

To obtain a good marking quality, it is fundamental to adjust the force and the distance. When using marking guns, the distance between the stylus and the part can be modified by adjusting the position of the front plate.

For your information, hereafter are some values about the distance between the stylus and the part depending on the marking force :

Force	1	2	3	4	5	6	7	8	9
Minimum distance	0.5	0.5	0.5	1	1	2	3	5	6
Maximum distance	1	2	3	5	6	7	9	9	9

Maximum distance between the stylus and the part : 9 mm

We recommend that you make trials before marking a new part.

4.3. Launch / Stop the marking

- Set the controller in marking mode (for more information, please see the software manual)

- Position the part to be marked
- Launch the marking by pressing the "Start" button on the control handbox or the "Marche" button on the gun handle (portable type machine)
- To stop the marking, press the "Stop" button on the control handbox or press the "Marche" button of the gun handle for more than 2 seconds.

MAINTENANCE

1. INTRODUCTION

Dot marking machines have been developed and realized especially to meet the needs of our clients who want a machine which is :

- Performing,
- Robust,
- Reliable,
- Ergonomic.

It requires very little maintenance and if you observe the preventive maintenance recommendations, you will *increase the life-expectancy* of your machine.

However, if a problem of any kind should occur, please refer to this manual, which will help you solve the problem.

2. AFTER-SALES SERVICE

Please contact our local distributor first.
To find out about our local distributor, you can check our website :
www.sic-marking.com
If you can not reach our distributor, please call SIC MARKING at +33.4.72.54.80.00.

SIC MARKING or its distributor offer the following services :

- ✓ ***Phone support***

Please do not hesitate to contact us for any technical problem.

- ✓ ***On-site intervention***

We can help you install, set up the machine on-site, as well as repair it and provide personal training.

- ✓ ***Maintenance contract***

Thanks to the maintenance contract, we provide regular maintenance of your marking machine.

3. PREVENTIVE MAINTENANCE

If you want to keep your machine in a good working condition, it is necessary to do the following actions :

- **clean** the stylus pin guide and the stylus assembly regularly
- **avoid** dust and abrasive particles on the guiding and driving elements

How to clean the stylus pin guide and the stylus assembly

- Unplug the marking machine
- Unscrew the stylus pin guide (see General layout of the stylus assembly in appendix)
- Remove the stylus, the spring and the core
- Clean all parts and remove the grease
- **Lubricate the stylus and the stylus pin guide using exclusively the oil supplied with your maintenance kit.**
- Reassemble the machine and **manually fasten the stylus pin guide**

Note : please pay attention to the direction when reassembling the core (see General layout of the stylus assembly in appendix)

4. TROUBLE SHOOTING

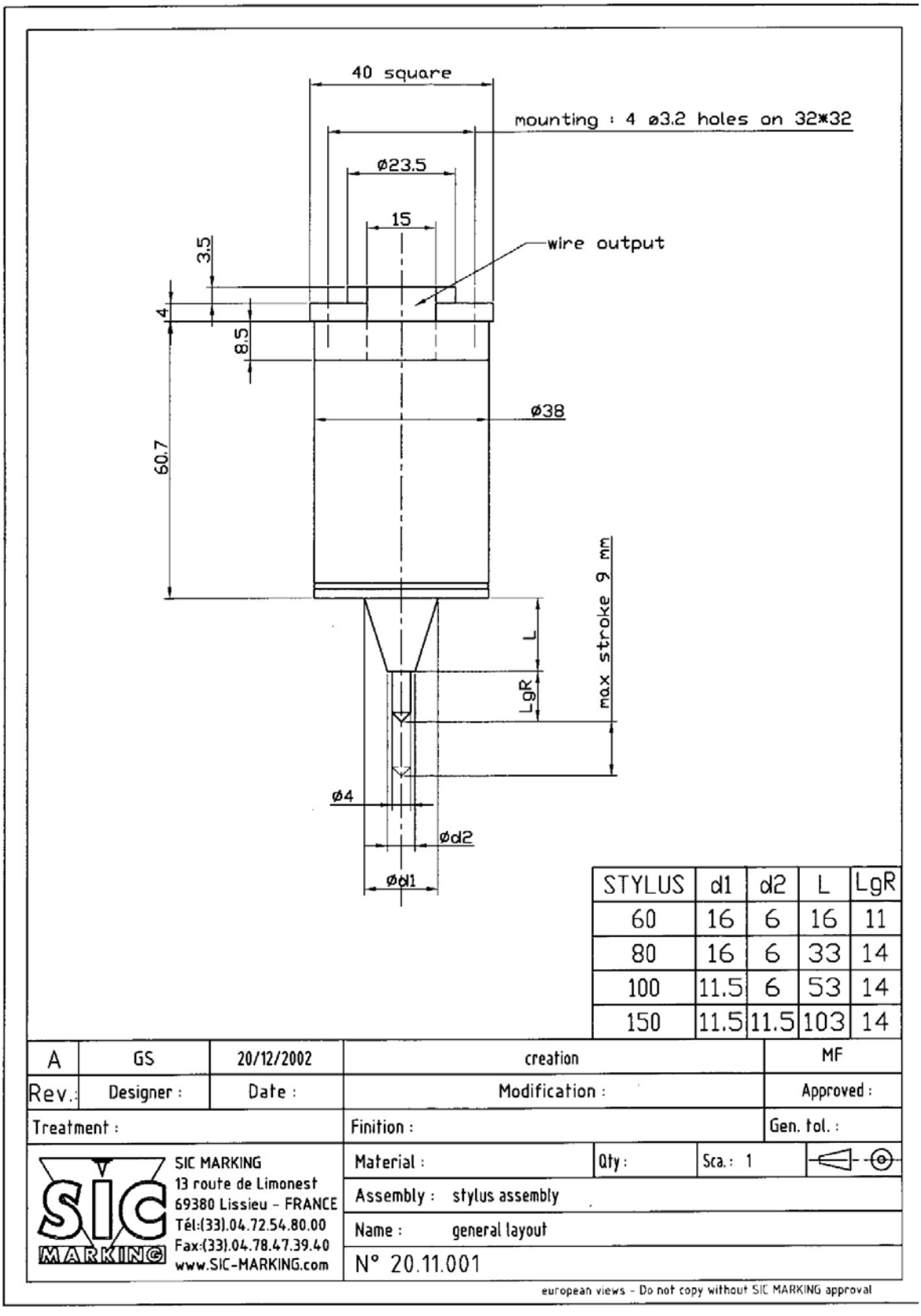
Problem	Check	Solution
The stylus assembly does not move on the X and Y axes	Check that : - The controller is on - A marking program is loaded and the controller is in marking mode (see software manual) - The machine is correctly linked to the controller - The cable is in working condition - The control handbox is connected (except for gun marking machines) - The movements on the X and Y axes are not blocked when the machine is on.	 - See controller manual - Load a program and set the machine in marking mode - Reposition the connectors - Open the connectors and check the wires either visually or with a ohmmeter. - Reposition the connectors - Remove any obstacle or clean the guiding rails and the driving mechanisms
The marking head does not go back home before marking	Check that : - The sensors cables are correctly connected and in good working condition - The origin sensors work properly (in home position, the red lights located on the sensors are off, otherwise they are on). - The driving belts are not broken on the integrated type or column type machines	 - Reconnect the wires or replace the damaged cables - Replace the sensors - Replace the damaged belt
The stylus assembly moves (X,Y) but the stylus does not	Check that : - The stylus is not blocked by anything - The solenoid is in good working condition (no overheating, short circuit…)	 - Disassemble the machine, clean it, lubricate it with the oil provided in your maintenance kit and re-assemble (see General layout in appendix) - Replace the solenoid
The marking quality is terrible : - The dots are not aligned - The impacts are not regular	Check that : - The part is correctly maintained during the entire marking process and the machine is correctly fastened - The marking speed is not too high compared with the marking to be made (size) - There is no backlash in the X and Y axes - The distance between the stylus and the part is correct - The stylus pin is in good working condition - The stylus can move correctly - There is no backlash between the stylus pin guide and the stylus	 - Redo the marking after fastening the part and/or the machine properly - Reduce the marking speed - Please contact the after sales service - Change the distance (see manual) - Replace the stylus - Clean the stylus pin guide and the stylus - Change the stylus pin guide

If you have checked everything and the system still does not work, please contact our after sales services.

APPENDIX

1. STYLUS ASSEMBLY

1.1. General layout (overall dimensions)



STYLUS	d1	d2	L	LgR
60	16	6	16	11
80	16	6	33	14
100	11.5	6	53	14
150	11.5	11.5	103	14

A	GS	20/12/2002	creation	MF
Rev.:	Designer :	Date :	Modification :	Approved :
Treatment :			Finition :	Gen. tol. :

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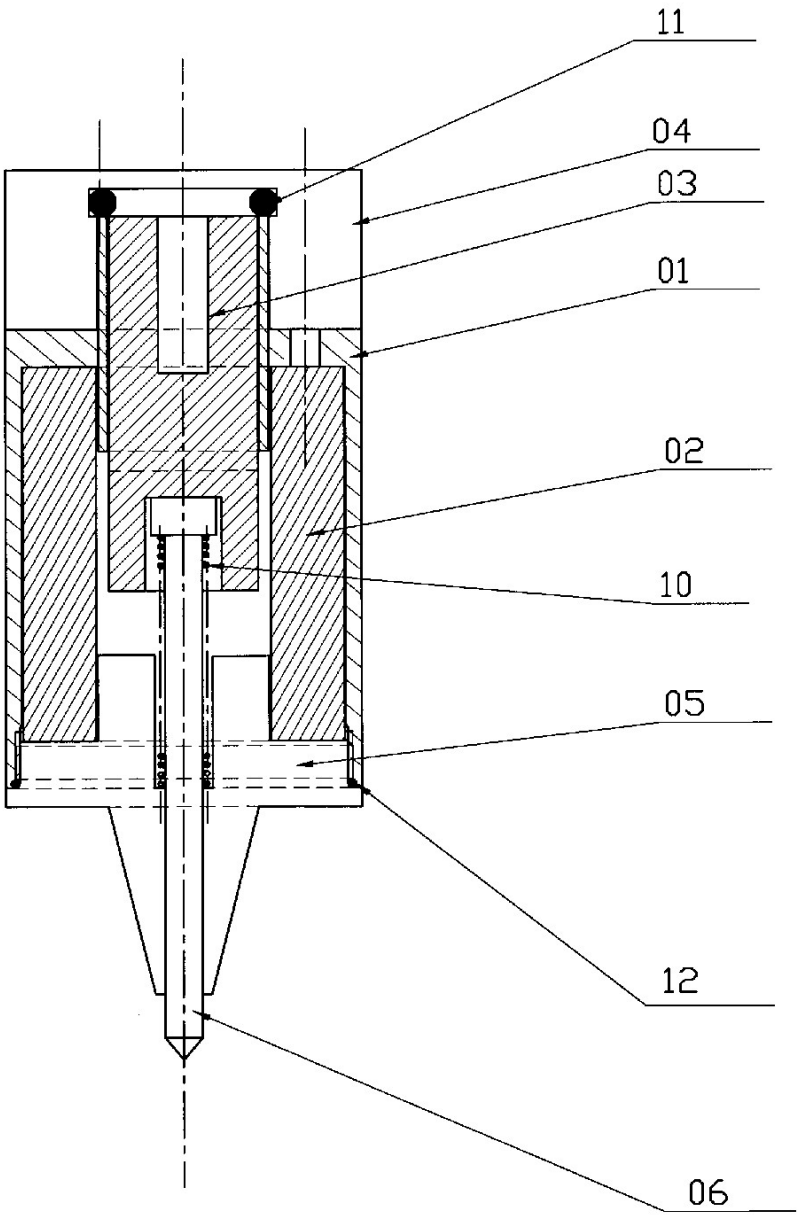
Material :	Qty :	Sca. : 1	
Assembly : stylus assembly			
Name : general layout			
N° 20.11.001			

1.2. General layout (References)



A	GS	20/12/2002	creation	MF
Rev.:	Designer :	Date :	Modification :	Approved :
Treatment :			Finition :	Gen. tol. :
SIC MARKING 13 route de Limonest 69380 Lissieu - FRANCE Tél:(33).04.72.54.80.00 Fax:(33).04.78.47.39.40 www.SIC-MARKING.com			Material : / Qty : / Sca. :	
			Assembly : stylus assembly	
			Name : terminology and references	
			N° 20.11.00 (US)	

1.3. Terminology and references general layout

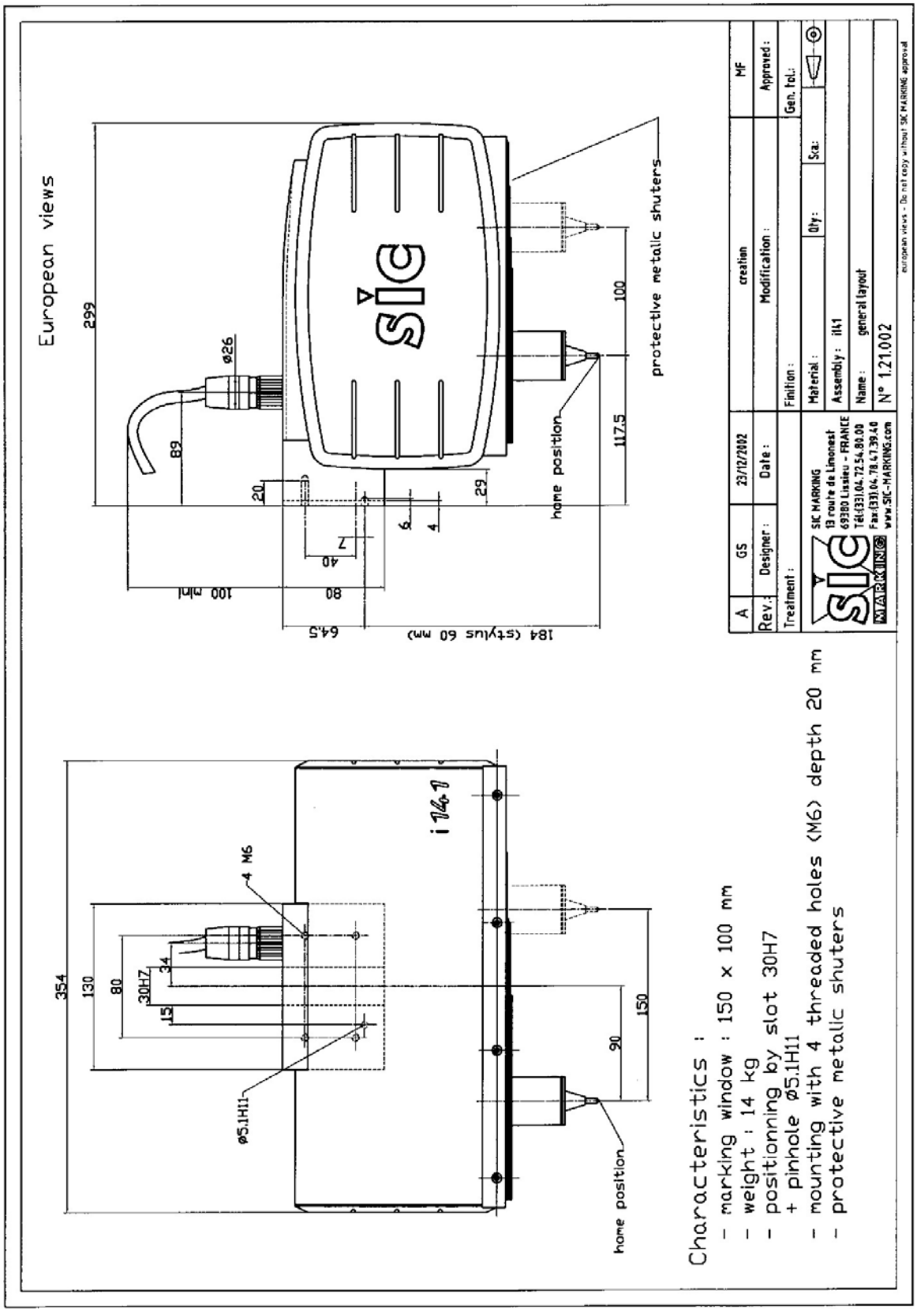
REF	*QTY*	*CODE*	*DESCRIPTION*
1	1		Body
2	1		Solenoid
3	1		Core
4	1		Support mount
5	1		Stylus guide l 60
6	1		Stylus pin l 60
10	1		Spring
11	1		O ring
12	1		Locking O ring

1.4. Terminology and references spare parts

REF	*QTY*	*CODE*	*DESCRIPTION*
1 à 4	1	3 200 003	Solenoid assembly
6	1	1 120 012	Stylus pin L 60
5	1	1 120 017	Stylus guide L 60
	1	1 120 013	Stylus pin L 80
	1	1 120 023	Stylus guide L 80
	1	1 120 014	Stylus pin L 100
	1	1 120 024	Stylus guide L 100
10	1	2 120 006	Spring

2. MARKING MACHINE

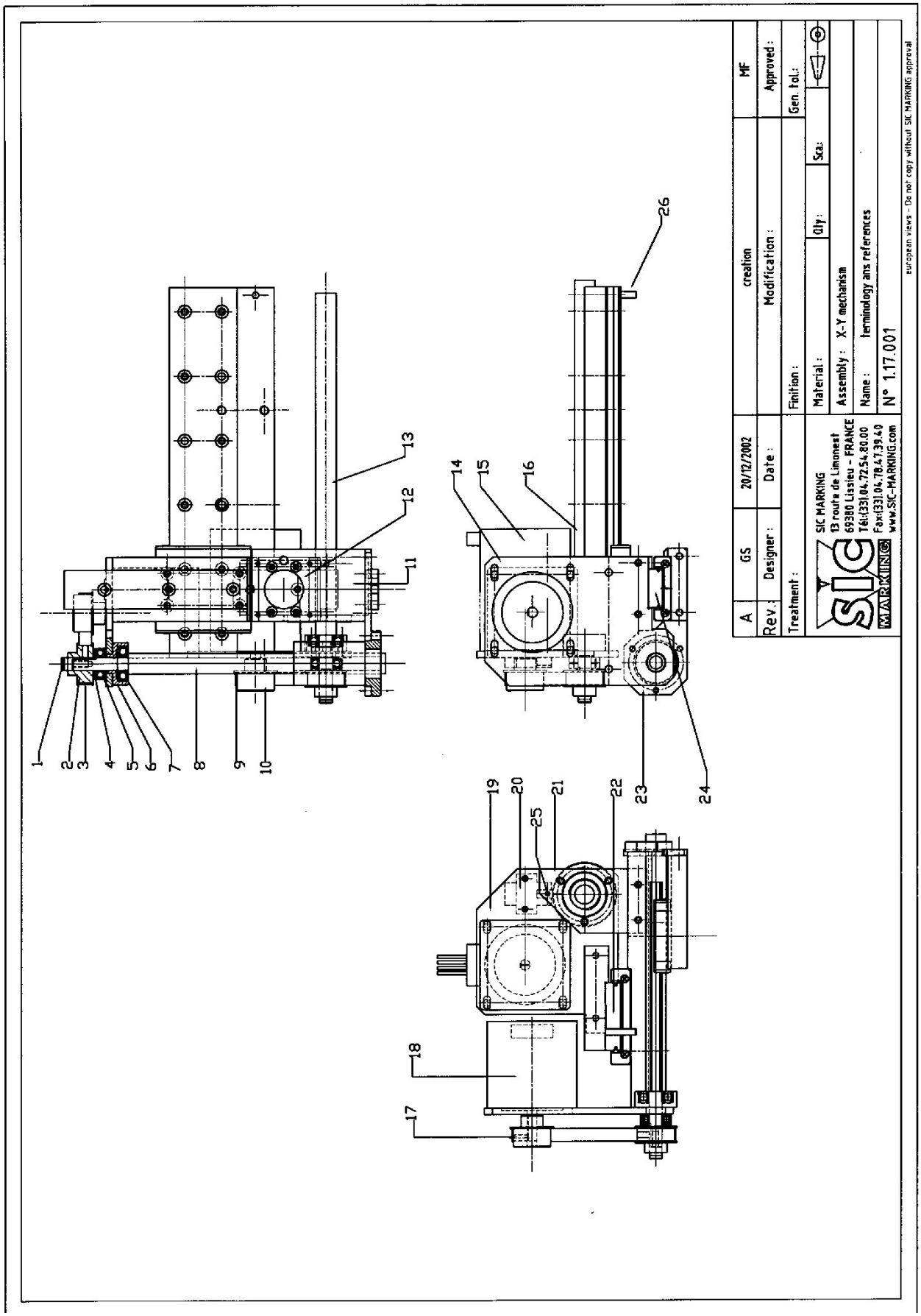
2.1. General layout (overall dimensions)



2.2. I 141 Terminology and references

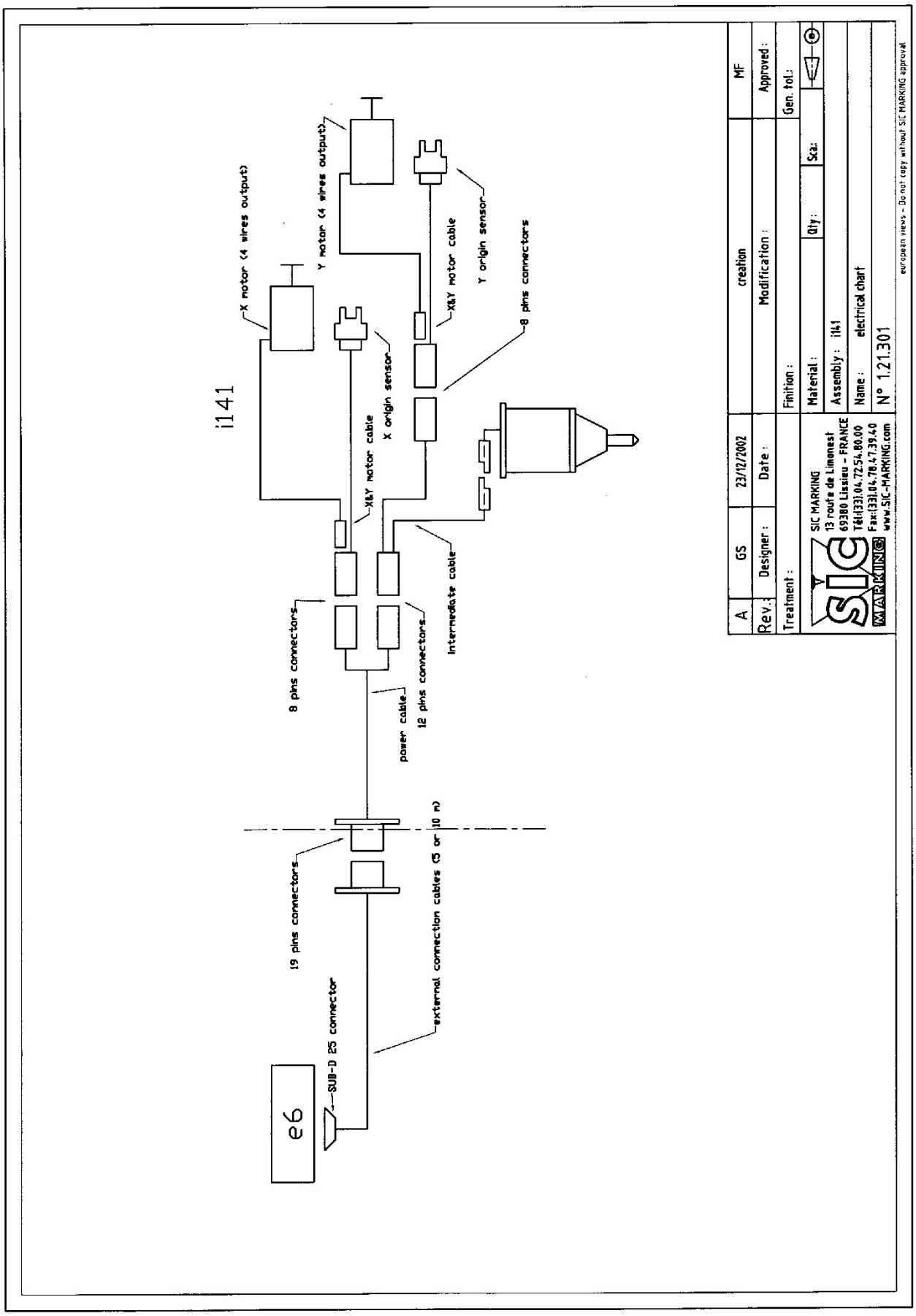
REF	*QTY*	*CODE*	*DESCRIPTION*
	1	4 100 312	X-Y mechanism
	1	1 220 073	Cover with identification
	1	3 100 040	Power cable
	2	1 310 010	Side cap
	1	3 100 037	Intermediate cable
	2	3 100 038	X and Y motor cable
	1	1 220 017	Sheet metal 2 way connector support
	1	1 310 014	Carriage and support frame
	1	1 110 093	Bracket
	1	1 110 094	table fixation plate
	1	1 120 096	fixation plate
	1	1 110 095	bellow support
	1	1 220 074	bellow 1
	1	1 220 075	bellow 2
	1	1 220 076	bellow 3
	1	1 220 077	bellow 4
	1	1 220 078	bellow 5
	1	1 220 080	bellow 6
	2	1 220 079	bellow support bracket
	2	2 120 090	pin ∅5 x 20

2.3. Terminology and references X-Y table



REF	*QTY*	*CODE*	*DESCRIPTION*
16	1	1 110 066	X axis mount
11	1	1 110 067	Y axis mount
12	1	1 110 068	Y chariot
19	1	1 220 057	X motor mount
14	1	1 220 058	Y motor mount
21	1	1 220 058	X lead screw support
23	1	1 220 059	Y lead screw support
6	2	1 120 073	Bushing
13	1	4 100 318	X axis lead screw + nut mount
8	1	4 100 319	Y axis lead screw + nut mount
22	1	2 120 018	X guiding rail
24	1	2 120 016	Y guiding rail
15	1	2 230 055	Wired X motor
18	1	2 230 054	Wired Y motor
7	2	2 120 021	608ZZ ball bearing
5	2	2 120 080	Bearing
17	2	2 110 003	Pressure screw
1	2	1 120 019	Washer
10	2	2 120 010	Motor pulley
2	2	2 120 011	Axis pulley
9	1	2 120 023	X driving belt
3	1	2 120 035	Y driving belt
20	2	2 230 004	Origin sensor
4	2	2 120 022	Seal
25	1	2 110 005	detection screw
26	1	2 110 006	pin ∅4x32

2.4. electrical chart



2.5. External connection cables (5 or 10 meters)

SUB D 25 connector	*19 pins connector*	*color (standard cable)*	*color (ROBOTIC cable)*	*element*
1	12	purple	green & brown	solenoid 1
2	12	black	green & white	solenoid 1
4	3	brown & gray	red & brown	Y axis motor
5	4	whie & gray	red & white	Y axis motor
6	5	brown	blue & brown	Y axis motor
7	7	white	blue & white	Y axis motor
8	8	yellow	pink	X axis motor
9	9	green	gray	X axis motor
10	10	brown & green	pink & white	X axis motor
11	11	green & white	pink & gray	X axis motor
12	1	pink	white	start / stop button
13	2	gray	brown	start / stop button
14	12	red	yellow	solenoid 1
15	12	blue	green	solenoid 1
16	18	white & yellow	red & blue	Dallas bus
17	13	red & blue	red	"L" & "+" sensors
18	14	pink & gray	blue	"-" sensors
19	17	yellow & brown	gray & pink	Dallas ground
20	15	red & white	black	Y sensor
21	16	red & brown	purple	X sensor
22	6	blue & white	yellow & brown	solenoid 2
23	6	brown & blue	yellow & white	solenoid 2
24	6	pink & brown	white & gray	solenoid 2
25	6	pink & white	gray & brown	solenoid 2

2.6. Internal cabling plan

19 pins connector	***8 pins connector***	***12 pins connector***	***color***	***element***
3		1	gray & pink	Y axis motor (red)
4		2	green	Y axis motor (yellow)
5		3	gray	Y axis motor (blue)
6		9	blue	solenoid 2
7		4	red & blue	Y axis motor (orange)
8	1		black	X axis motor (red)
9	2		white & gray	X axis motor (yellow)
10	3		white & green	X axis motor (orange)
11	4		white & yellow	X axis motor (blue)
12		8	green & yellow	solenoid 1
13	5		yellow & brown	"L" & "+" sensors
13		5	yellow & brown	"L" & "+" sensors
14	6		brown & green	"-" sensors
14		6	brown & green	"-" sensors
15		7	yellow	Y sensor
16	7		white	X sensor
17		11	brown & gray	Dallas ground
18		12	white & red	Dallas bus