



YOYO

Yarn Organizer

User's manual



ING046-01.doc

APRIL '09 V01/ING

 **WARNINGS**

- ! This manual is an integral part of YOYO unit and must be read carefully before starting using it.
- ! YOYO device must NOT be used in explosive rooms.
- ! YOYO has been expressly devised to work as yarn feeder. It must be used as mentioned in this manual only. Dinema is not responsible in case of wrong or improper use and in case of any use different from what provided by this manual.
- ! Moreover, Dinema is not responsible when YOYO is used by unskilled people, when it is improperly power supplied, in case of unauthorized modifications and/or repairs, in case of serious failures in planned maintenance or when spare parts used are not original or are not specific for the model considered.
- ! Any alteration or modification is forbidden, specially referring to protections and safety parts.
- ! Be sure that plant voltage is the one required by YOYO device.
- ! Before any maintenance or cleaning operations, be sure that power supply is off.
- ! YOYO device must be disposed according to regulations in force in the countries where it is sold.
- ! This manual must be kept, for eventual future references. When the device is handed over to others, the producer should be informed about the address of the new owner. In this way, sending eventual manual updatings to the new customer will be easier.
- ! DINEMA reserves the right to modify the product and/or the present manual without any notice.

Regulations and directives

YoYo device has been carried out and tested according to technical specifications and to all applicable checking- and testing-standards.

It complies particularly with:

- **EN ISO 12100-1** Safety of machinery – Basic concepts, general principles for design - Part 1: Basic terminology, methodology.
- **EN ISO 12100-2** Safety of machinery – Basic concepts, general principles for design - Part 2: Technical principles.
- **EN 60204-1** Safety of machinery – Electrical Equipment of Machines - Part 1: General Requirements



The device herein described, complies with the requirements of following directives:

- **2004/108/CE** EMC Directive
- **2006/95/CE** Low Voltage Directive
- **2006/42/CE** Machinery Directive

YOYO device complies with above mentioned regulations and directives only when used together with the fittings provided.

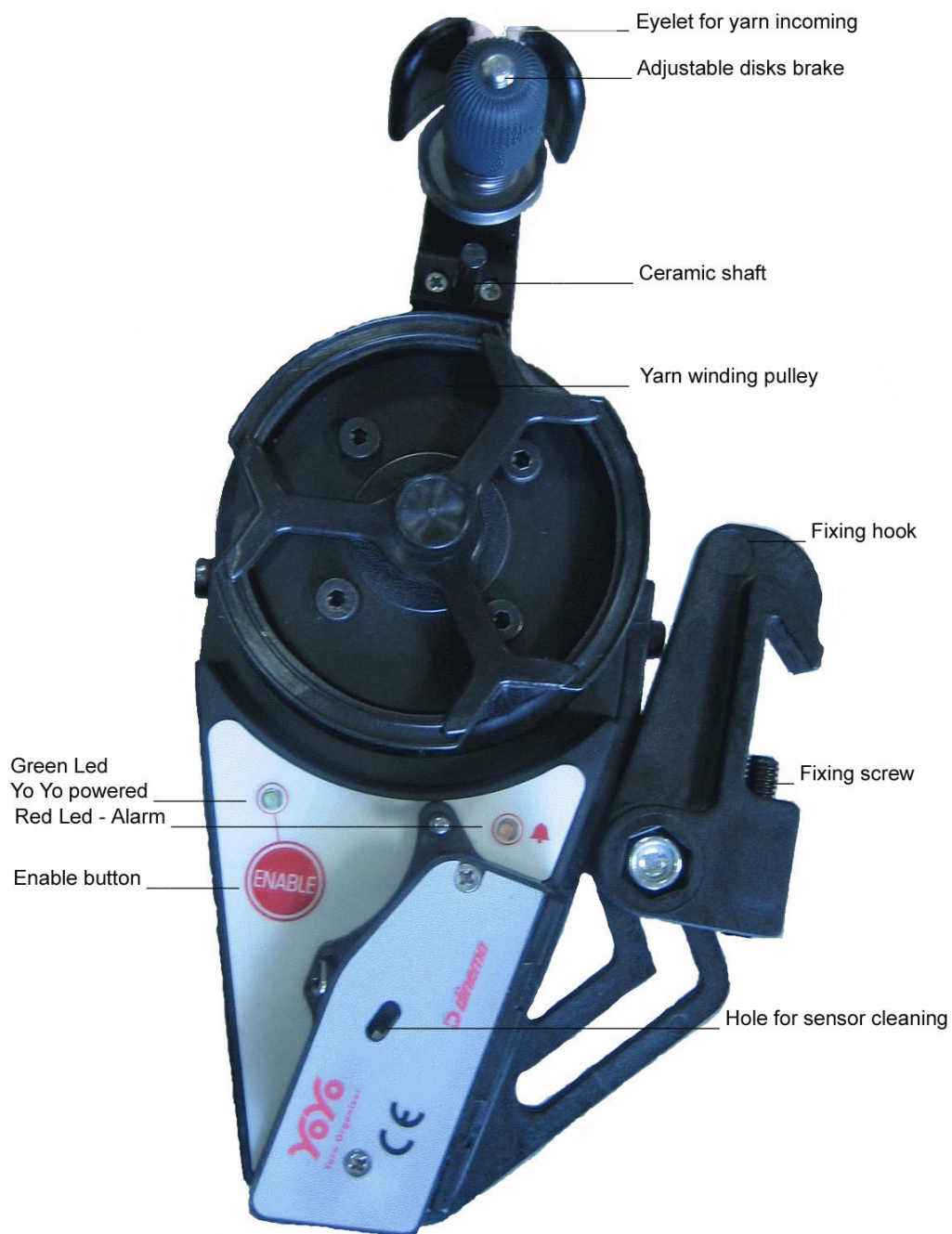
Any different configuration may require particular adjustments to get the conformity.



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DESCRIPTION

◆ YoYo



Yo Yo device is used to control yarn feeding to knitting machines. The distinctive feature of this device is the possibility to be programmed to feed the yarn changing the tension depending on the phase of garment production. Once the tension needed is set, Yo Yo device is able to keep the yarn tensions unchanged for each yarn working phase.

Yarn feeding tension is due to revolution speed of yarn winding pulley. After this pulley there is a sensor measuring yarn tension. When the sensor detects any difference between the tension set and the one measured, it transmits to the motor the necessary speed adjustment to get the correct yarn tension again.

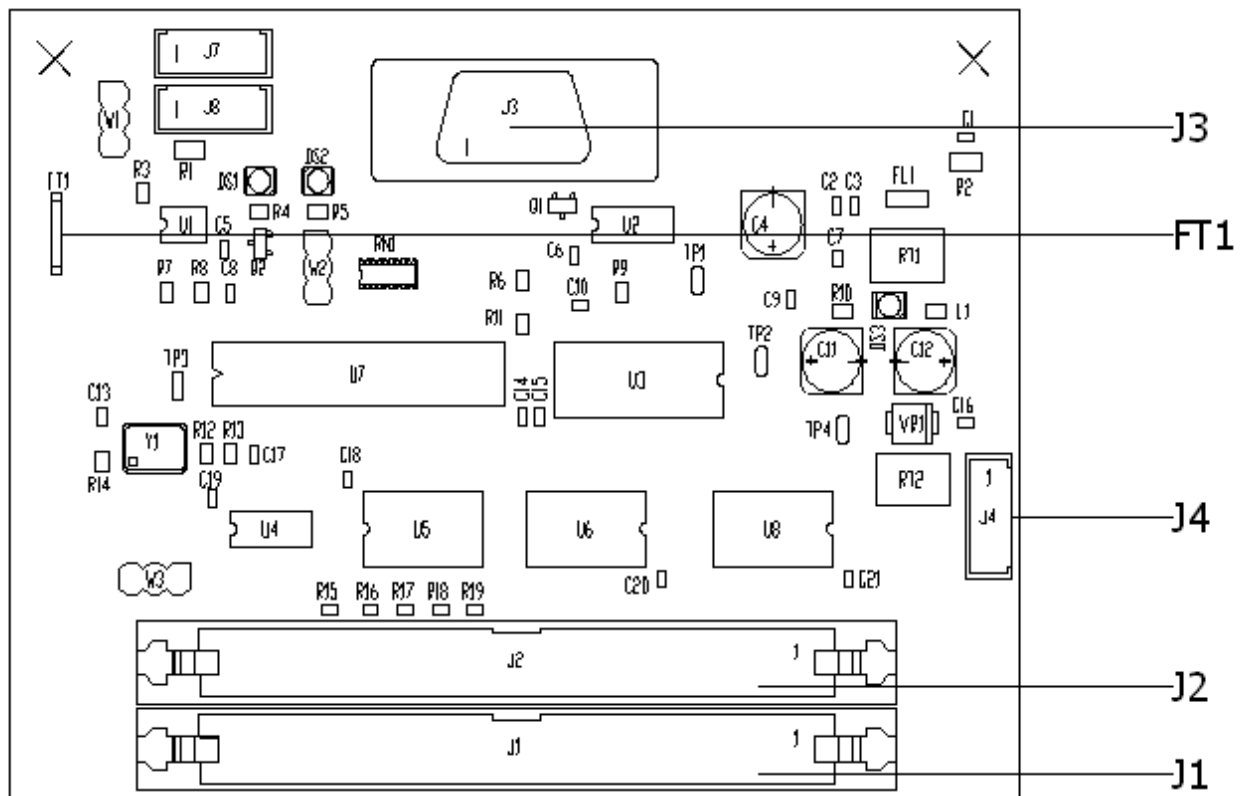


Two male connectors are available on Yo Yo rear side: J2 and J3. J2 connector is used for service operations only. J3 connector is needed for connection of Yo Yo device to the machine, through PCBs 4725 and 3858 whose descriptions follows.

J3 CONNECTOR

PIN #	SIGNAL	V min	V max	I max	NOTE
1	24V	21.6 Vdc	26.4 Vdc	-	Nominal 24V
2	24V	21.6 Vdc	26.4 Vdc	-	Nominal 24V
3	CANL	-36 Vdc	36 Vdc	-100 / -600 uA	Low level can voltage (input/output)
4	CANH	-36 Vdc	36 Vdc	-200 / 30 uA	High level can voltage (input/output)
5	GND	-	-	-	
6	GND	-	-	-	

◆ PCB 4725 CAN CONTROLLER



The main function of PCB 4725 is the conversion of parallel signals coming from machine data BUS into the serial protocol "CAN" of Yo Yo device and viceversa.

! The use of CAN CONTROLLER is not necessary if machine is already equipped with PCB 2008.

J3 connector is used to connect PCB 4725 to the board "INTERFACE 12 YOYO" here below described.

J1 and J2 connect PCB 4725 to the DATA BUS coming from machine.

J4 is needed for the connection of power supply board.

! FT1 faston must be always earth connected by a yellow-green wire with proper section.

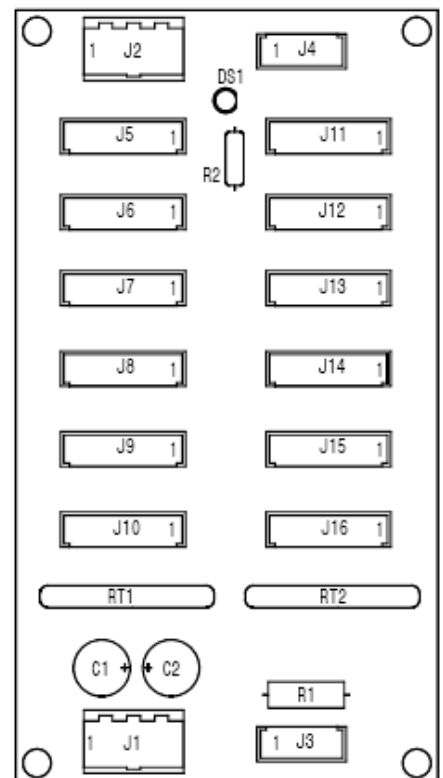
◆ PCB 3858 INTERFACE 12 YOYO

PCB 3858 is the interface between YoYo and machine. It's possible to connect up to 12 YoYo devices (J5/J16).

J3 connector is used to connect the board to the communication system "CAN".

J1 connector is used to connect the power supply board.

When the machine has to be equipped with more than 12 Yo Yo (max. 24), PCB 3858 can be extended through connection to another PCB 3858, by means of J2 and J4 connectors.



 **THECHNICAL FEATURES**

All technical features of YoYo device are here below stated.

◆ **YOYO TECHNICAL FEATURES**

Dimensions

Height	200 mm (max)
Depth	70 mm
Width	75 mm (fixing hook not included)

Weight

0,4 Kg

Temperature

On working conditions	0 ÷ +40 °C
On standoff	0 ÷ +50 °C
During shipment	-15 ÷ +85 °C

Power Supply

Min and max voltage	21,6 ÷ 26,4 Vdc
Nominal voltage	24 Vdc
Max power absorbed on steady conditions	12 W

Relative Humidity

(without condensations)

On working conditions 20 °C	40 ÷ 80 %
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Altitude (above sea level)

0 ÷ 2000 m

About the yarn

Max. yarn speed	25 m/sec.
Tension	1 ÷ 50 g
Tension resolution	0,5 g

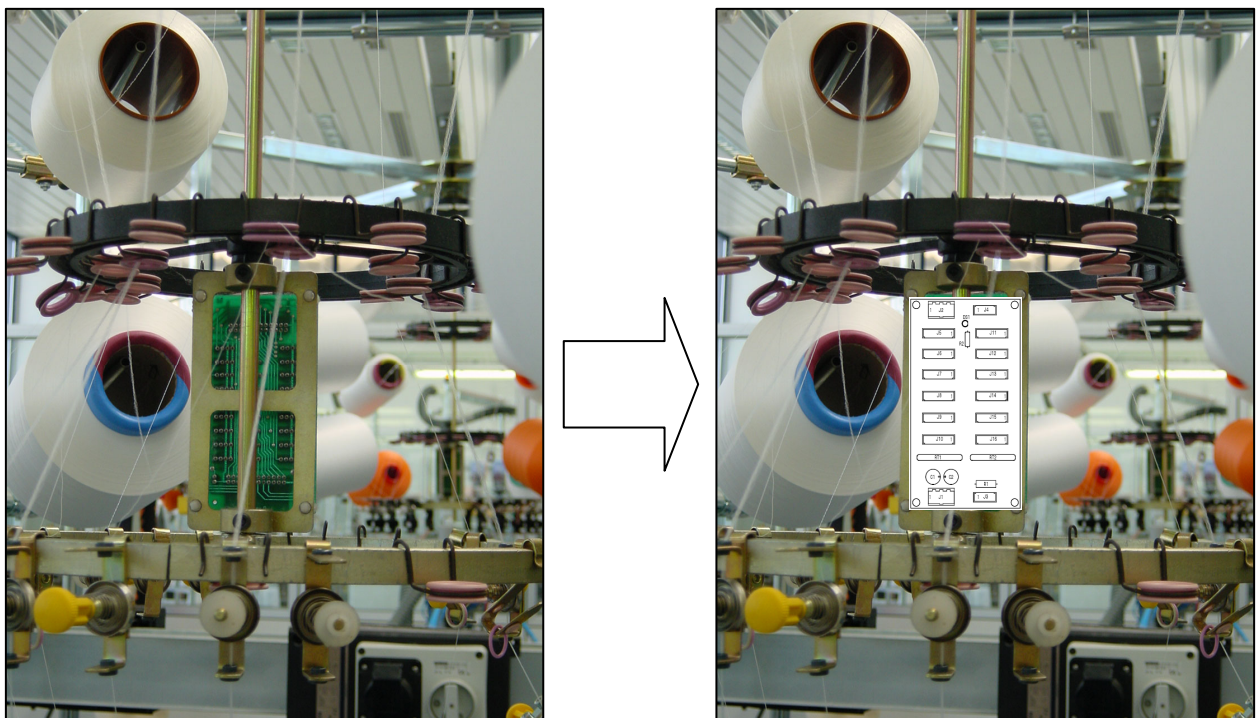
INSTALLATION

◆ **INSTALLATION OF PCB 4725**

Installation procedure of PCB 4725 may be different depending on machine model.
For further details see the document “installation instructions” herewith enclosed.

◆ **INSTALLATION OF PCB 3858**

PCB 3858 must be fixed on the specific bracket included in the KIT supplied by Dinema.



For further details see the document “installation instructions” herewith enclosed.

◆ INSTALLATION OF YOYO DEVICE

FIXING

YoYo device must be fixed on the specific “support ring”:

- Hook the Yo Yo on the support ring, by means of the fixing hook;
- Tighten the fixing screw placed inside the Yo Yo hook, by using an allen screw of 3 mm.



! Eventual Yo Yo vibrations due to wrong fixing can affect the quality of final product.

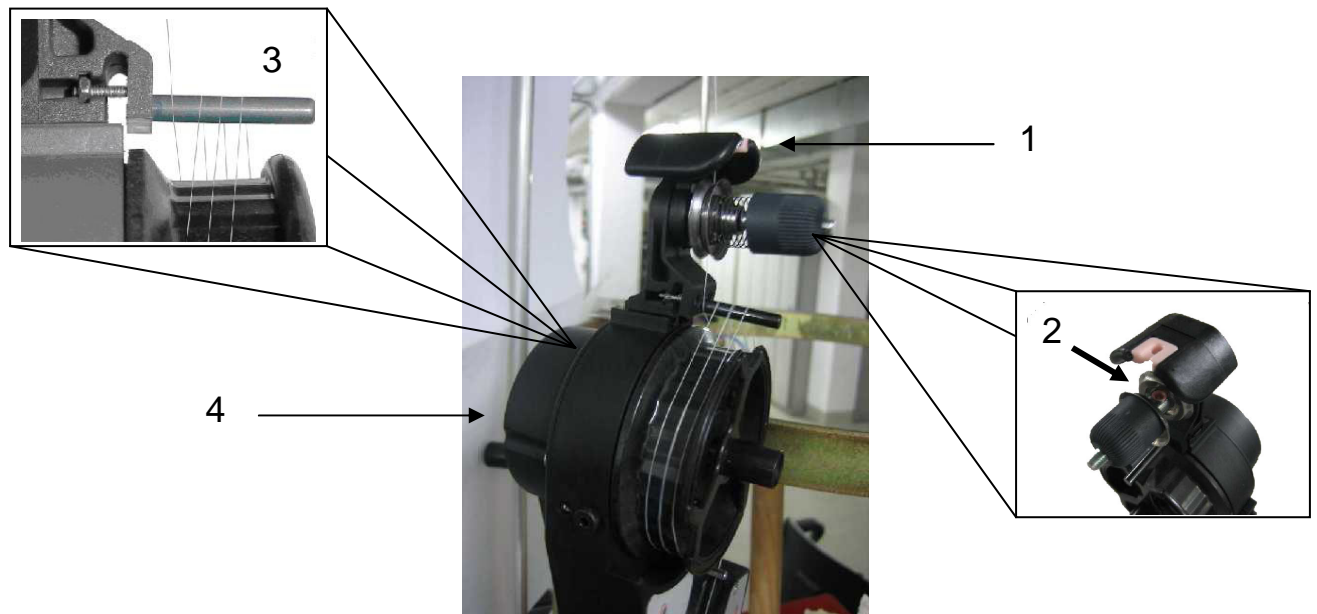
HOW TO PUT THE YARN IN

The correct proceeding for yarn positioning is here below stated:

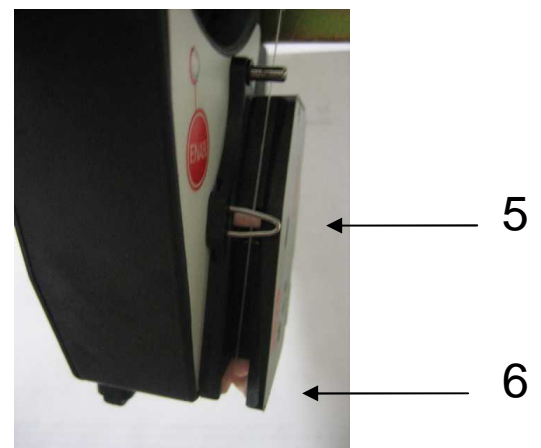
- Put the yarn into the eyelet for yarn incoming (1)
- Open the brake disks and thread the yarn into the ceramic eyelet inside the brake shaft (2).
- Wind the yarn on the pulley and the ceramic shaft as shown in the pictures (3) (4).

REMARK

The number of windings on the pulley and the shaft has to be stated considering yarn type and environmental conditions, to enable then Yo Yo device to unwind the yarn easily.



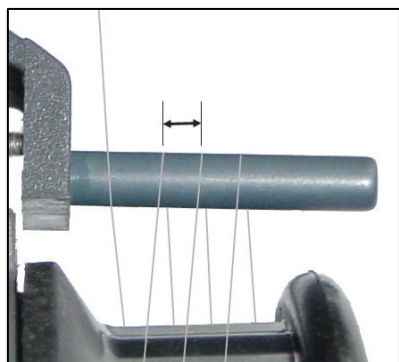
- The yarn coming from the pulley must pass over the sensor for tension measuring (5) and after that, it has to be put into the eyelet for outgoing (6).



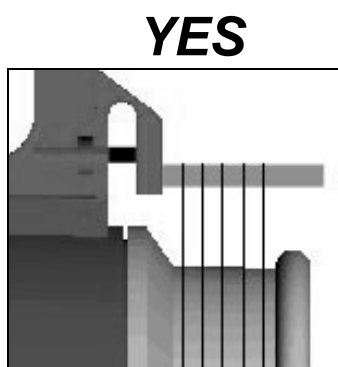
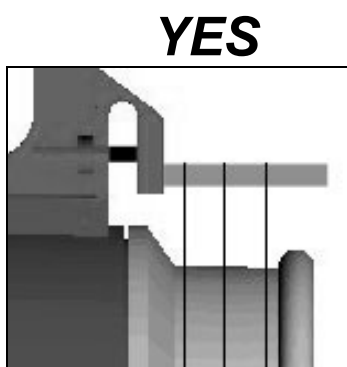
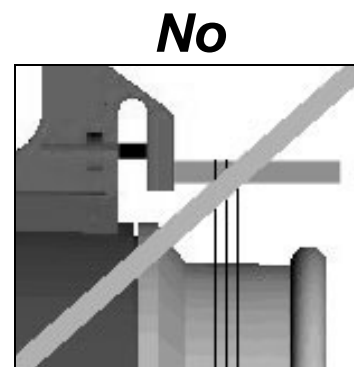
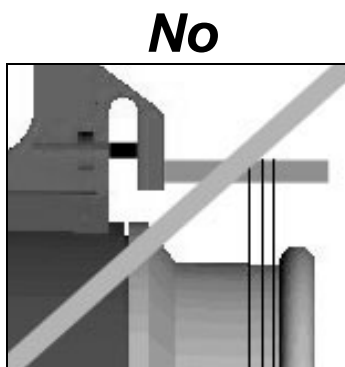
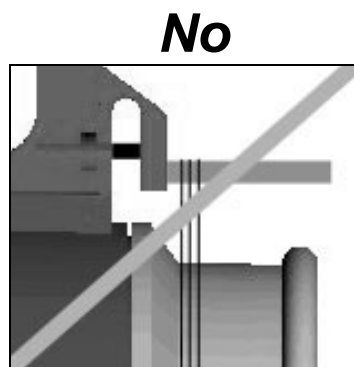
WINDINGS SPACING



To avoid eventual yarn overlapping on the pulley, the windings must be properly spaced. Windings spacing can be adjusted by using the “adjust screws”, to change ceramic shaft inclination.



Windings spacing has to be stated considering the number of windings effected, in order to cover the whole width of the pulley. Winding spacing must be effected when YoYo device is running.



◆ CALIBRATION

Before starting the use of YoYo device, a proper calibration is required.

Calibration must be effected when YoYo device is powered but stopped.

Be sure that tension sensor is on standoff condition and proceed as follows: remove the yarn from the sensor and keep ENABLE button pushed down for 7 seconds long; when calibration succeeds the green led makes three flashing and than goes off.

At this moment, the yarn has to be repositioned on tension sensor.



To assure the exact result when measuring yarn tension, a new calibration should be effected **periodically**.

 **MAINTENANCE****◆ CLEANING**

No particular maintenance operations are required but just usual cleaning.
YoYo device has to be cleaned by using a wet cloth only, if necessary some neutral soap can be added.

! NEVER use any solvent or alcool

◆ AFTER SALES TECHNICAL ASSISTANCE

Dinema S.p.A. offers to the customer the support of a skilled technical staff, to solve any eventual problem faced when using and maintaining the machine.

 **DISPOSAL OF YOYO UNIT****WARNING!**

To avoid any possible negative effect on both environment and health and to promote materials recycle, YoYo device must be disposed according to the regulations in force in the countries where it has been sold.



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ENCLOSURES

 **ANNEX 1****HOW TO INSTALL THE YOYO KIT FOR LONATI UNIFY MACHINES WITH PCB 2004:**

Installation must be effected when machine is off, discovering the rear movable plate of the electronic box.

WARNING!!

- Before installing the yoyo kit, it is necessary to switch the main power off.
- Following operations must be executed by skilled operators only.

1) Installation of PCB 4725 on machine already equipped with PV 029 (Machine with colour display):

Machines with colour display are already equipped with PV 029. Replace it by the PV 029 included in the kit. After that fix PCB 4725, referring to sheet T001 and using the material provided.

2) Installation of PCB 4725 on machine with no PV 029 (Machine with black/white display):

Machines with black/white display have not PV 029. Install the one included in the kit, referring to sheet T003. After that fix PCB 4725 to PV 029 referring to sheet T001 and using the material provided.

3) Connection of PCB 4725:

Disconnect the flat cable plugged into J2 connector of PCB 2004 and J6 connector of PCB 1114 (rack board).

Connect CVP 267 (total length 900mm) supplied with the kit between J1 connector of PCB 4725, J2 connector of PCB 2004 and J6 connector of PCB 2004, referring to sheet T004.

Plug into J4 connector of PCB 4725 the corresponding Modu2 female connector of CBL 4131 cable ; screw the wire "0V" of CBL 4131 into pole 4 of J6 connector of PCB 2004 and screw the wire "+5V" of CBL 4131 into pole 2 of J16 connector of PCB 2004. Plug into J3 connector of PCB 4725 the corresponding 9-pole male connector of CBL 4128 and fix the connector to the PCB 4725 by means of the two spacers supplied. Connect the wire "FL 381" to FT1 faston of PCB 4725; the eyelet of FL 381 must be then connected to the closest earth screw.

4) Connection of PCB 3858:

PCB 3858 must be fixed to PM 674 and then to machine structure referring to sheet T002. Connect to J1 connector of PCB 3858, the corresponding Modu1 female connector of CBL 4130 coming from the power supply box.

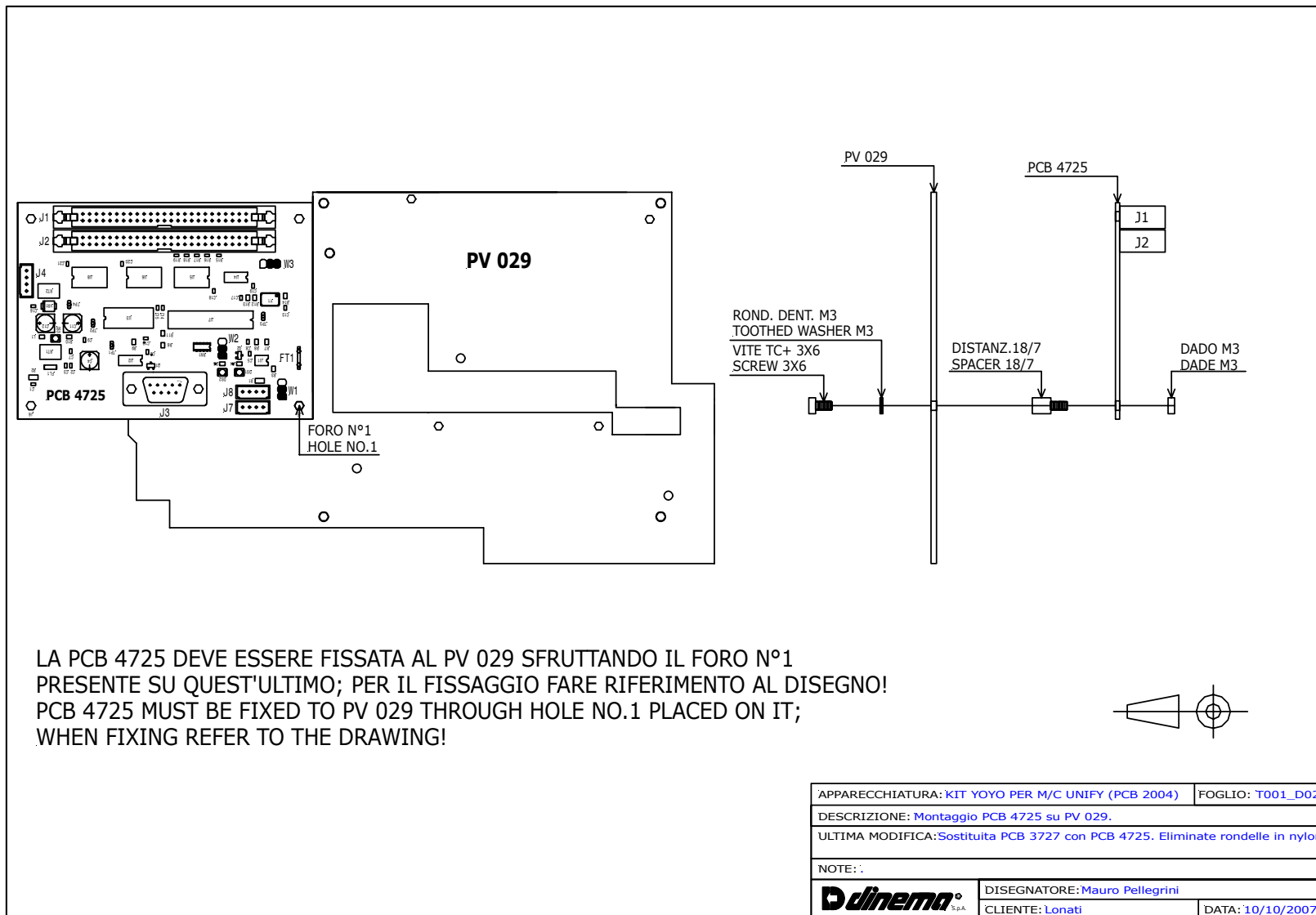
Connect to J3 connector of PCB 3858 the corresponding Modu2 female connector of CBL 4128 coming from J3 connector of PCB 4725.

Connect YOYO devices to one of the 6-pole Modu2 female connectors of PCB 3858 through cable CBL 4531 (450 mm) or cable CBL 4532 (1000 mm).

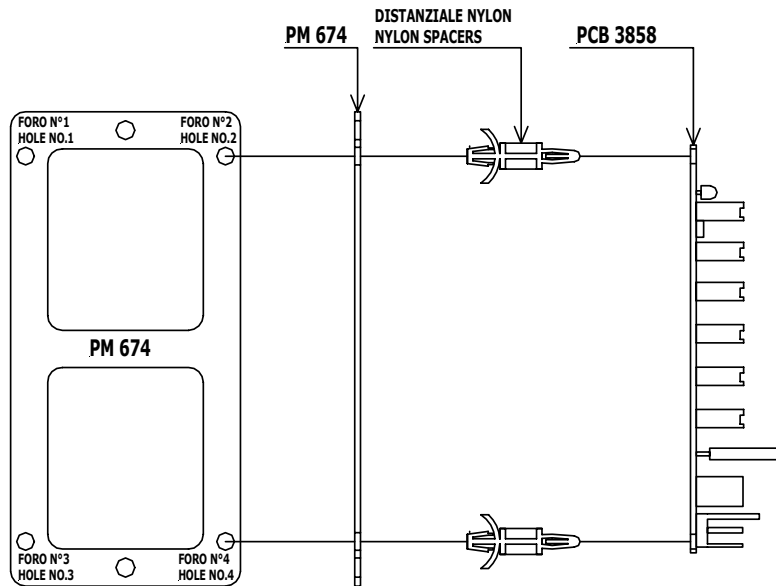
IMPORTANT!

It's necessary to connect CBL 4531 and/or CBL 4532 to YoYo device, on the side showing "YOYO" printing (the shielded side).

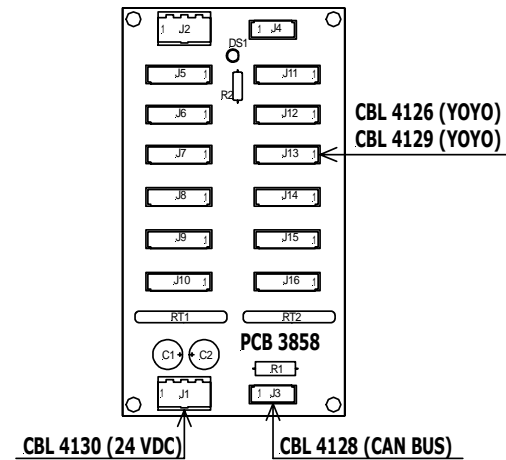
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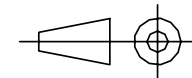
MONTAGGIO PCB 3858 SU PM 674 CON DISTANZIALI IN NYLON
ASSEMBLING PCB 3858 ON PM 674 BY NYLON SPACERS



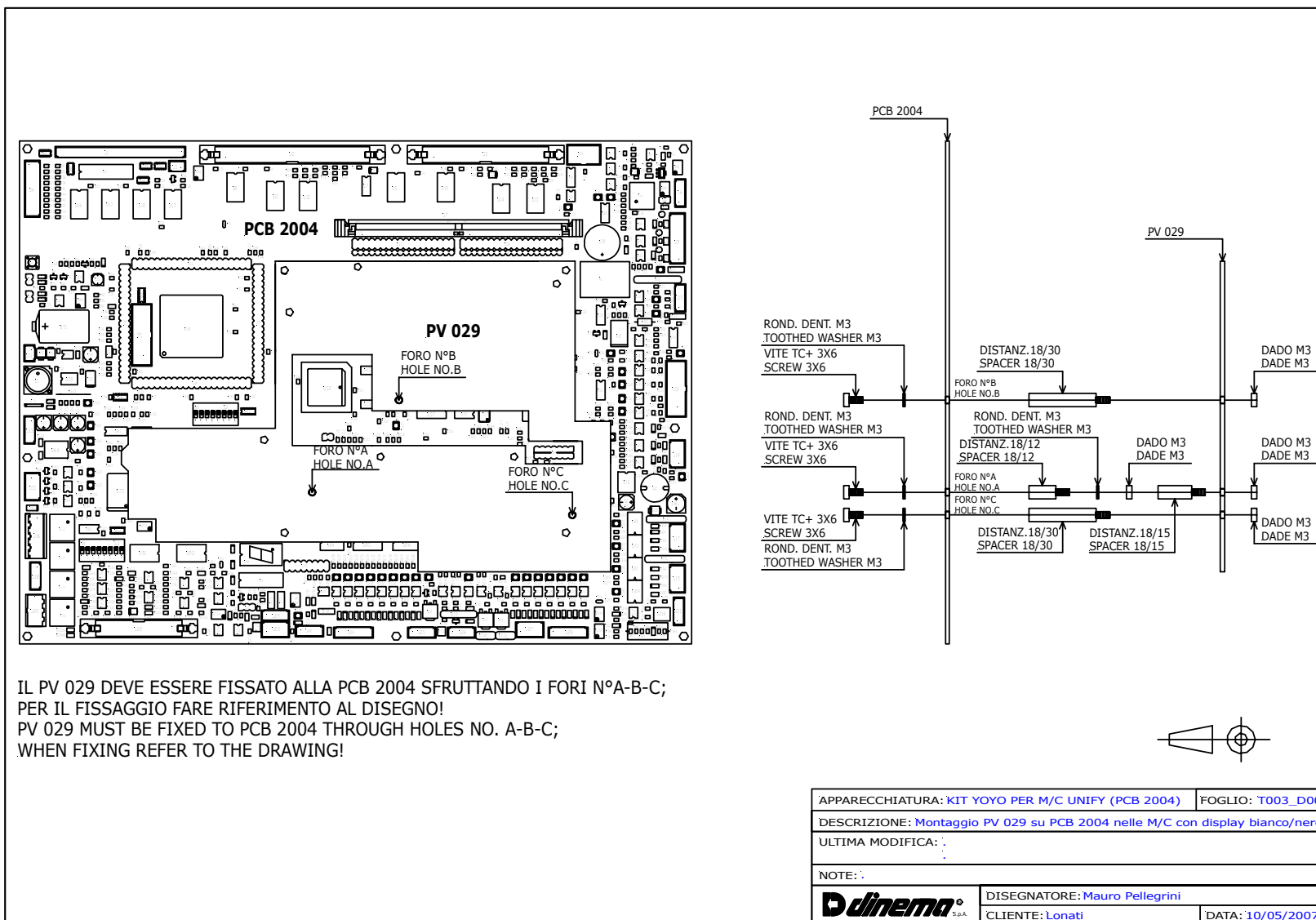
VISTA TOPOGRAFICA PCB 3858
 COMPONENTS VIEW OF PCB 3858



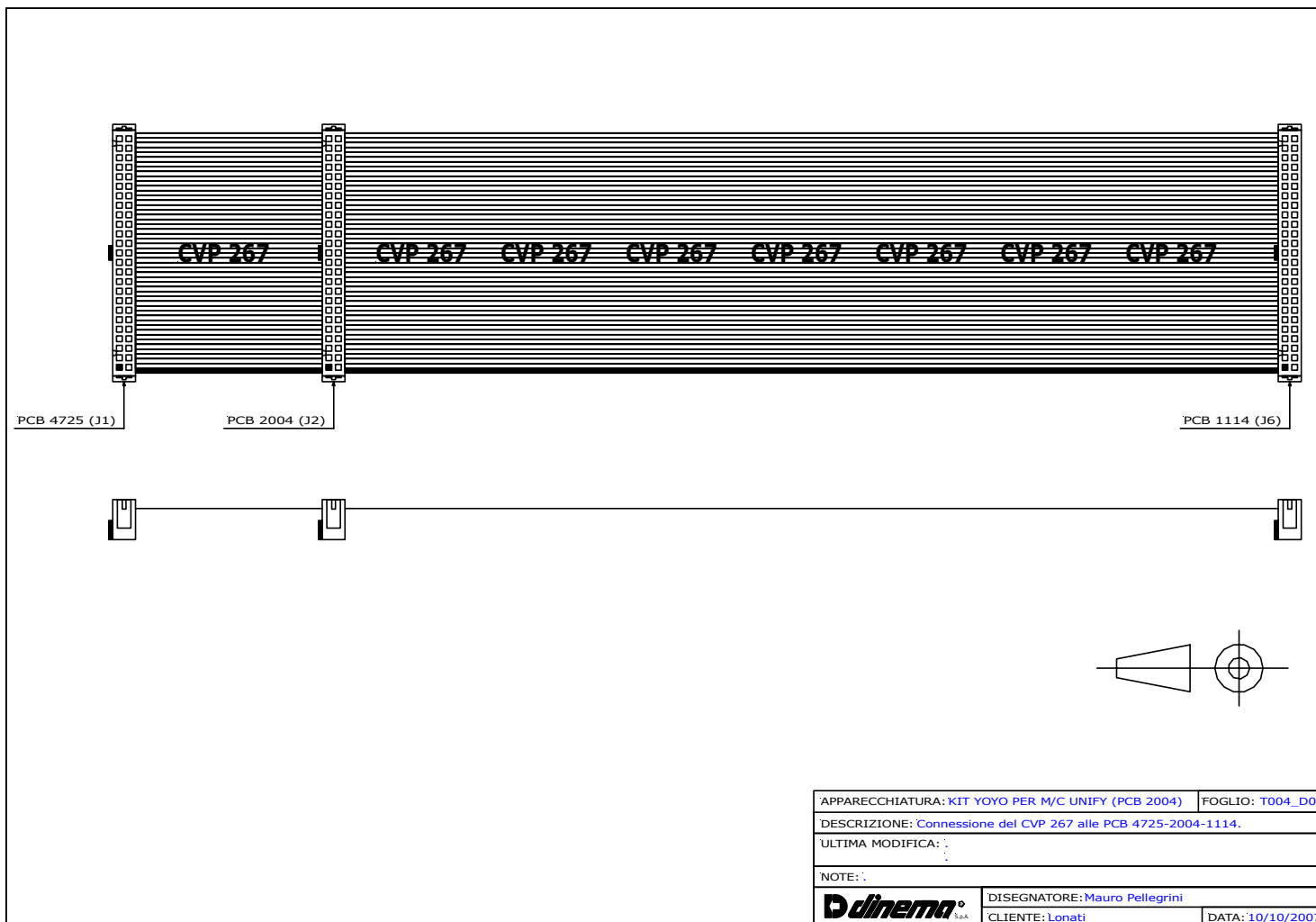
MONTARE N°4 DISTANZIALI IN NYLON SUL PM 674 NEI FORI N°1-2-3-4,
 DOPODICHE' FISSARE LA PCB 3858 AI DISTANZIALI STESSI (VEDI DISEGNO).
 FIX THE NO.4 NYLON SPACERS ON PM 674 INTO HOLES 1-2-3-4,
 AFTER THAT FIX PCB 3858 TO THE SAME SPACERS (SEE THE DRAWING).



APPARECCHIATURA: KIT YOYO PER M/C UNIFY (PCB 2004)	FOGLIO: T002_D01
DESCRIZIONE: Montaggio PCB 3858 su PM 674 con distanziali in nylon e connessione della PCB 3858.	
ULTIMA MODIFICA: Inserite viste e note.	
NOTE: .	
dinema s.p.a.	DISEGNATORE: Mauro Pellegrini
CLIENTE: Lonati	DATA: 10/05/2007



Enc. 4/12



APPARECCHIATURA: KIT YOYO PER M/C UNIFY (PCB 2004)	FOGLIO: T004_D00
DESCRIZIONE: Connessione del CVP 267 alle PCB 4725-2004-1114.	
ULTIMA MODIFICA:	
NOTE:	
Dinema S.p.A.	DISEGNATORE: Mauro Pellegrini
CLIENTE: Lonati	DATA: 10/10/2007

Enc. 5/12



ANNEX 2:

INSTRUCTIONS FOR INSTALLATION OF YOYO KIT ON CE MACHINE EQUIPPED WITH PCB 2008

WARNING!!

- Before installing the YOYO kit, it is necessary to switch the main power off.
- Following operations must be executed by skilled operators only.

1. INSTALLATION OF PCB 3858/1

Pcb 3858/1 must be mounted on the holder, installed on the creel.

Plug the Modu1 female connector of CBL. 4130, coming from J1 connector of local power source SK 3787A/1 mounted on the machine, into the J1 connector of SK 3858.

Plug J2 conn. of local power source SK 3787A/1 into the terminal strip of the CBL. 0999.

Plug the 3 faston of CBL. 0999 into the corresponding male faston connectors 12,17 and 22 of the D4840496 board.

Connect to earth, the earth eyelet coming from the CBL.0999, by one of the screws placed on the plate.

Plug the J3 connector of SK the 3858, into the female modu2 connector of the CBL. 4127.

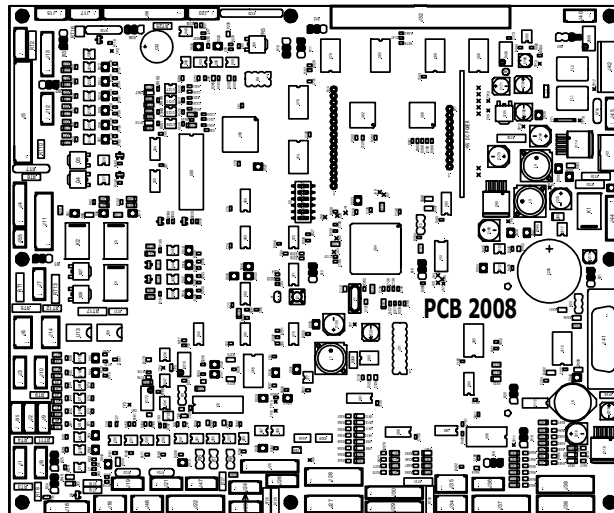
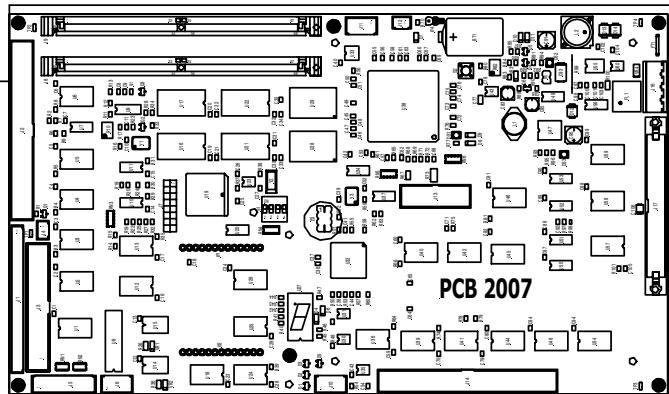
Connect the J24 connector of SK 2008, to the modu2 female connector of the CBL. 4127.

Connect the YOYO devices to one of the 6-pole modu2 female connectors of SK 3858, by the CBL. 4532 (450mm) or CBL. 4532 (1000mm).

IMPORTANT

It's necessary to connect CBL 4531 and/or CBL 4532 to YoYo device, on the side showing "YOYO" printing (the shielded side).

PIASTRA POSTERIORE REAR PANEL

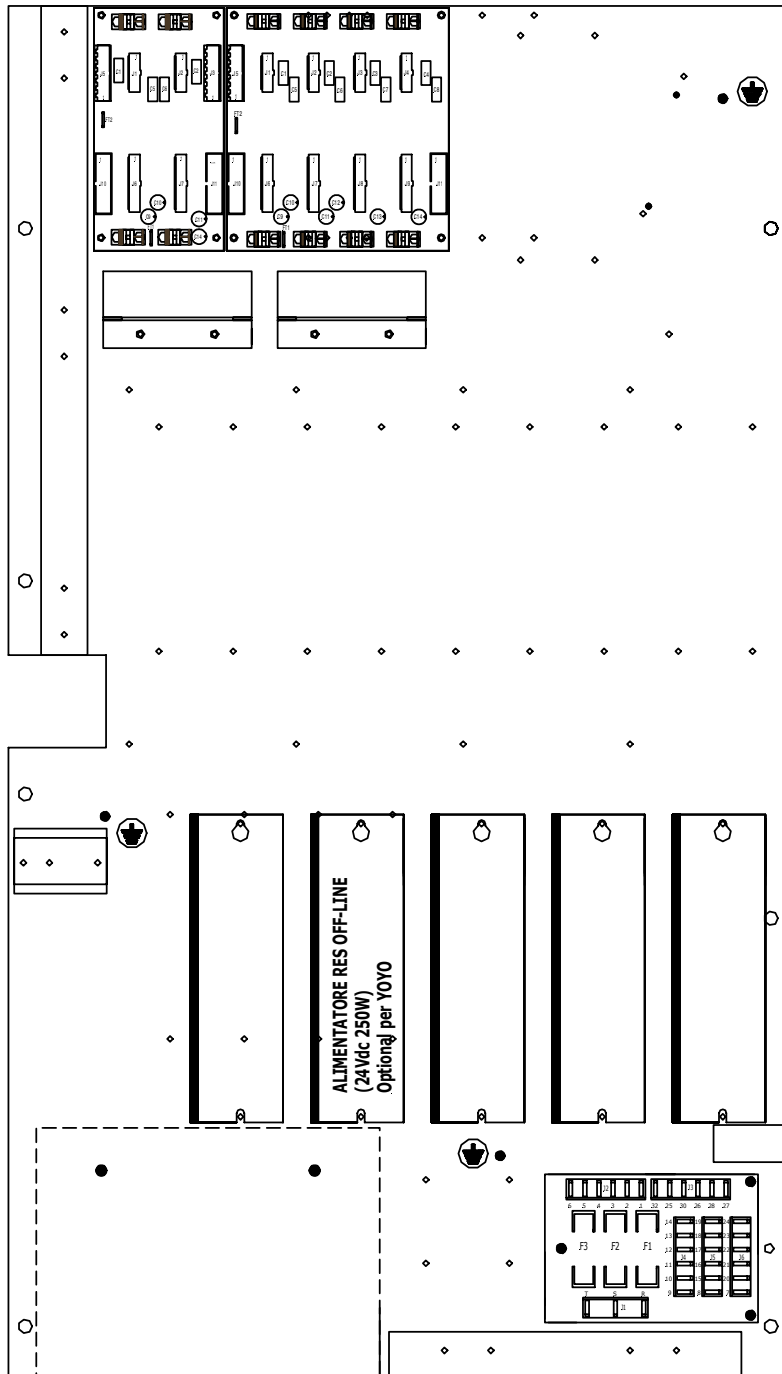


PCB 2008 J24 (CBL 4127)

APPARECCHIATURA: Kit YOYO per M/C Lonati Modulare Donna	FOGLIO: T001_D01
DESCRIZIONE: Vista piastra posteriore.	
ULTIMA MODIFICA: Aggiornato disegno.	
NOTE: .	
dinema S.p.A.	DISEGNATORE: Mauro Pellegrini
	CLIENTE: Lonati
	DATA: 24/09/2007

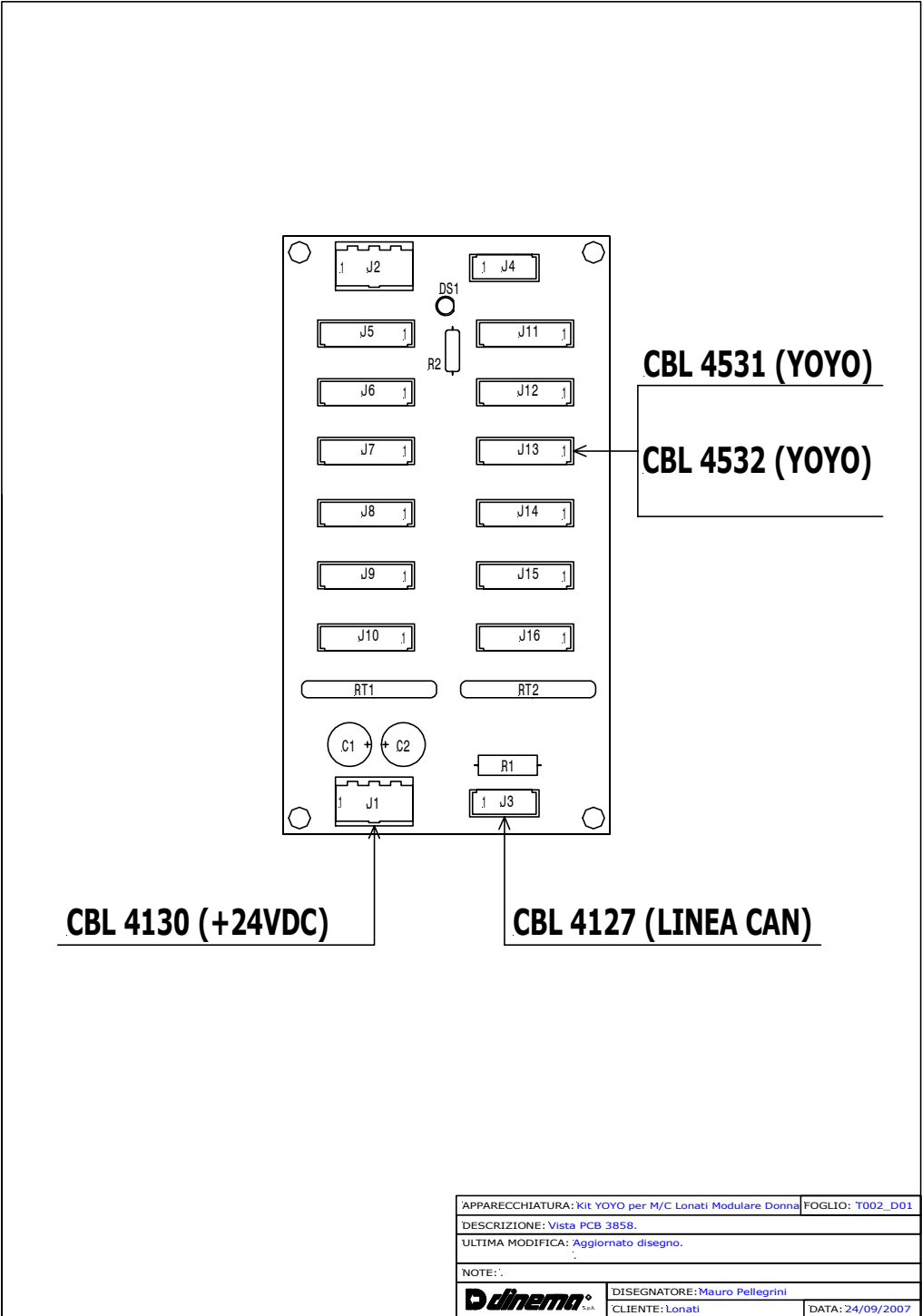
Enc. 7/12

PIASTRA ANTERIORE



APPARECCHIATURA: Kit YOYO per M/C Lonati Modulare Donna	FOGLIO: T003_D00
DESCRIZIONE: Vista montaggio alimentatore 24Vdc (PCB 3787A/1)	
ULTIMA MODIFICA: .	
NOTE: .	
Dinema s.p.a.	DISEGNATORE: Mauro Pellegrini
CLIENTE: Lonati	DATA: 24/09/2007

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INSTRUCTIONS FOR INSTALLATION OF YOYO KIT ON CE MACHINE EQUIPPED WITH PCB 2008 – LONATI MODULAR GOAL MACHINES

WARNING!!

- **Before installing the YOYO kit, it is necessary to switch the main power off.**
- **Following operations must be executed by skilled operators only.**

PCB 3858 CONNECTION:

PCB 3858 must be installed on the fixing clamp arranged on machine structure.

Connect J1 connector of PCB 3858 with the corresponding Modu1 female connector of CBL 4370 cable. On the other end this cable has to be connected to the +24Vdc terminal box of machine.

Connect J3 connector of PCB 3858 with the corresponding Modu2 female connector of CBL 4127 cable.

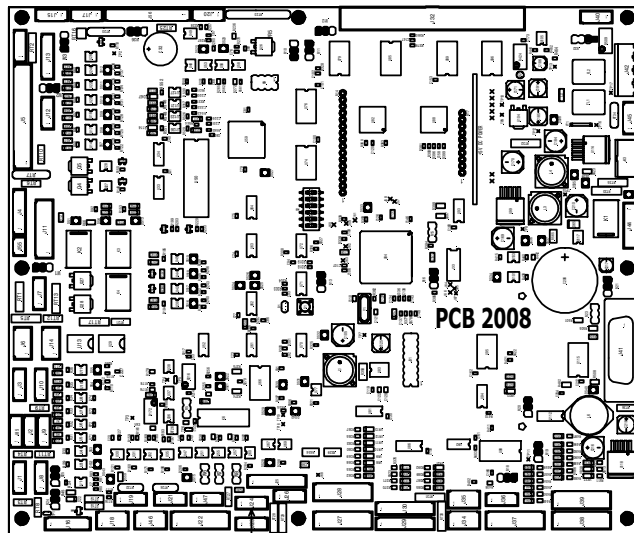
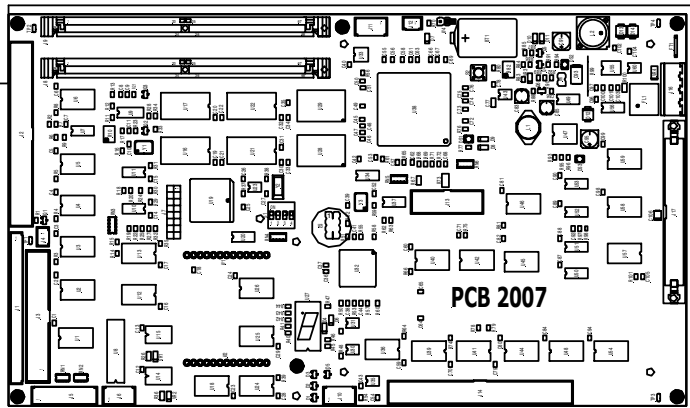
Connect J24 connector of PCB 2008 with the corresponding Modu2 female connector of CBL 4127 cable.

Connect YOYO devices to one of Modu2 6-pole female connectors of PCB 3858, by means of CBL 4531 cable (450mm) or CBL 4532 (1000mm) cable.

IMPORTANT

It's necessary to connect CBL 4531 and/or CBL 4532 to YoYo device, on the side showing "YOYO" printing (the shielded side).

PIASTRA POSTERIORE REAR PANEL



PCB 2008 J24 (CBL 4127)

APPARECCHIATURA: Kit YOYO per M/C Lonati Modulare Goal	FOGLIO: T001_D00
DESCRIZIONE: Vista piastra posteriore.	
ULTIMA MODIFICA: .	
NOTE: .	
dinema S.p.A.	DISEGNATORE: Mauro Pellegrini
CLIENTE: Lonati	DATA: 22/09/2007

Enc. 11/12

