PEGASUS®

TW Series

Model: TW300

Thank you for purchasing Pegasus' labor saving device.

Study this manual very carefully before beginning any of the procedures and then use the device correctly and safely.

Keep this manual in a convenient place for quick reference when needed.

Looper thread break detector

INSTRUCTIONS

9A2790E

CONTENTS

Be sure to study very carefully **for safety.**

1.Introduction

●This manual describes the instructions for using this device safely.

●Study this manual very carefully and understand fully how to operate, check, adjust and maintain the labor saving device before beginning any of the procedures.

●You always perform operations close to moving parts such as needles when using industrial sewing machines. Therefore you have to keep in mind you could easily touch them. To prevent accidents, it is essential that you use the safe products supplied by Pegasus correctly.
All the people who will use sewing machines must study this manual and the instruction manual for sewing machines very carefully and then take necessary safety measures before beginning any of the procedures.

2.Indications of dangers, warnings and cautions

To prevent accidents, indications (symbols and/or signs) which show the degree of danger are used on our products and in this manual. Study the contents very carefully and follow the instructions.

Indication labels should be found easily.

Attach new labels when they are stained or removed.

Contact our sales office when new labels are needed.

Symbols, signs and/or signal words which attract users' attention

⚠ **DANGER**	Indicates an immediate hazard to life or limb.
⚠ **WARNING**	Indicates a potential hazard to life or limb.
⚠ **CAUTION**	Indicates a possible mistake that could result in injury or damage.

Symbols and messages

	Be sure to follow the instructions when you operate the machine and/or labor saving device.
	If you use the machine and/or labor saving device incorrectly, you may get an electrical shock.
	If you use the machine and/or labor saving device incorrectly, your hands and/or fingers may be injured.
	If you use the machine and/or labor saving device incorrectly, you may cause fire.
	Never do this.
	Unplug the machine or shut off the power when checking, adjusting and/or repairing the machine and/or labor saving device, or when lightning may strike.
	Be sure to connect to ground.
	If you use the machine and/or labor saving device incorrectly, your fingers and/or hands may be caught in them or it, causing trouble.
	If you use the machine and/or labor saving device incorrectly, you may burn yourself.

3.Safety precautions

①Applications, purpose

The labor saving device is designed to increase quality and productivity according to you needs.
Therefore never use the device for the applications which may defeat the above purpose.

②Circumstances

Some circumstances when you are using the labor saving device may affect its life, function, performance, and safety.

For safety, do not use the labor saving device under the circumstances below.

1.Do not use the device near objects which make noise such as a high-frequency welder, etc.
2.Do not use or store the device in the air which has vapor from chemicals, or do not expose the device to chemicals.
3.Do not leave the device outside, in high temperatures or the direct sun.
4.Do not use the device in high humidity or ambient temperatures which may affect them.
5.Do not use the device on the condition that the voltage fluctuation range is more than ± 10% of the rated voltage.
6.Do not use the device at the place where the supply voltage specified for the control motor cannot be properly obtained.
7.Do not use the device at the place where the air supply specified for the device cannot be properly obtained.
8.Do not expose the device to the water.

③Safety measures

(1)Safety precautions when you perform maintenance on the labor saving device.

●When performing maintenance such as when checking, repairing, cleaning the labor saving device, turn off the power, disconnect the power plug from the outlet and press the machine treadle in order to make sure the machine does not run.
If you have to perform maintenance on the machine and/or labor saving device with the power on, always be careful because the machine and/or device could start operating unexpectedly.
To prevent accidents caused by incorrect operation, you should establish your own procedures for safe operation and follow them.

●Only well-trained people should perform routine daily maintenance and/or repair the machine and/or device.

●Do not modify the machine and device yourself.

※Consult you local Pegasus' sales office or representative for modification.

(2)Before operating the device

●Before operating the device, check the machine head, machine unit and device to make sure they do not have any damage and/or defects.
Repair or replace any defective parts immediately.

●To prevent accidents, always make sure the safety covers and safety guards are properly secured.
Never remove the safety covers and safety guards.

(3)Training

●To prevent accidents, operators and service/maintenance personnel should have proper knowledge and skills for safe operation.
To ensure so, managers must design and conduct training for these people.

4.Notes for each procedure

CAUTION

①Unpacking

The machine and device are packed in boxes (and plastic bags) in the factory before shipment. Unpack the boxes and bags properly and sequentially by following the instructions shown on them.

②Installation, preparation

CAUTION

Connecting the air lines

1.Always turn off the power first and then connect the air lines to the joints. Be sure to connect all the air lines before connecting them to the air source.
2.When connecting the air lines to the joints, be sure to insert the joints to the proper depth of the air lines and fasten securely.
3.Do not allow excessive force to be exerted on the air lines while using the device.
4. Do not bend the air lines too much.
5.If necessary, protect the air lines by positioning them safely and/or using the cover.
6. Do not use staples to secure the air lines. Otherwise it may cause damage.

WARNING

Connecting the cords

1. When connecting the power cord, be sure to turn off the power and disconnect the power plug from the outlet.
2. Check the voltage designation to make sure the power relay cord matches the local supply voltage. The use of wrong cord may cause damage to parts and/or fire.
3.Do not allow excessive force to be exerted on the cords while using the device.
4. Do not bend the cords too much.

5.Confirm that the cord is at least 25mm away from moving part of the machine and/or the device when you connect the cord.
6.If necessary, protect the cords by positioning them safely and/or using the cover.

7. Do not use staples to secure the cords. Otherwise it may cause damage.

Ground

1.Connect each of the ground wires in the sewing machine system to the ground terminal. Do not connect one devices' ground wire to another devices'.

2. Connect the ground wires securely to the indicated ground points on the machine head.

WARNING

③Before operation

1.Check the cords, connector and air lines to make sure they do not have any damage, disconnections or tangles and then turn on the power.

2. Do not bring your hands and/or any part of your body close to the needle and pulley when turning on the power.
3.Well-trained people who studied this manual and the instruction manual very carefully should use the machine with the labor saving device.
4.Study the contents on "2. Indications of dangers, warnings and cautions" very carefully and then provide users with safety training as required.

WARNING

④Precautions for work and operation

1. The area near the presser foot is very dangerous during sewing. Do not bring your hands and/or any part of your body close to the presser foot.
2.To prevent accidents, be careful that any foreign matter such as water, other liquids or metals do not get into the device.
3.Wear clothes that cannot be caught in the machine.

4. Do not leave tools or other unnecessary objects near the device.
5.To prevent accidents, always make sure the safety cover are properly secured.
6.Drain and clean the filter regulator periodically, if the device is pneumatic. Otherwise drainage will flow into the solenoid valve and/or air cylinder, causing trouble.
7.Always turn off the power before leaving the machine table.
8.If any trouble occurs, stop using the machine and turn off the power. Check, repair and/or perform other necessary procedures immediately.

9. Pay close attention to the knife edges not to injure your hands and/or fingers.

CAUTION

⑤Maintenance, check & repair

1.Well-trained people who studied this instructions very carefully should maintain, check and repair the machine and device.
2.Perform routine daily maintenance and periodical maintenance by following this instructions.
3.Use Pegasus' genuine parts when repairing and/or replacing parts.
Pegasus disclaims all responsibility for accidents caused by improper repair/adjustment and/or use of parts which are not genuine.

4. Do not modify the device yourself.
Pegasus disclaims all responsibility for accidents caused by modification.
5.After maintaining, checking, and/or repairing the machine and device, always make sure that any trouble does not occur when the power is turned on.
6.Before and after operation clean lint and any other foreign from the device not to cause trouble.
7.Make sure to replace the safety covers when you need to remove them for checking and/or maintenance.

Applications and performance

TW300 (Looper thread break detector) detecting the looper thread stops the machine by stopping the motor urgently when looper thread breakage occurs. This prevents the looper thread from winding around the looper thread take-up.

Components of TW300

Fig.1

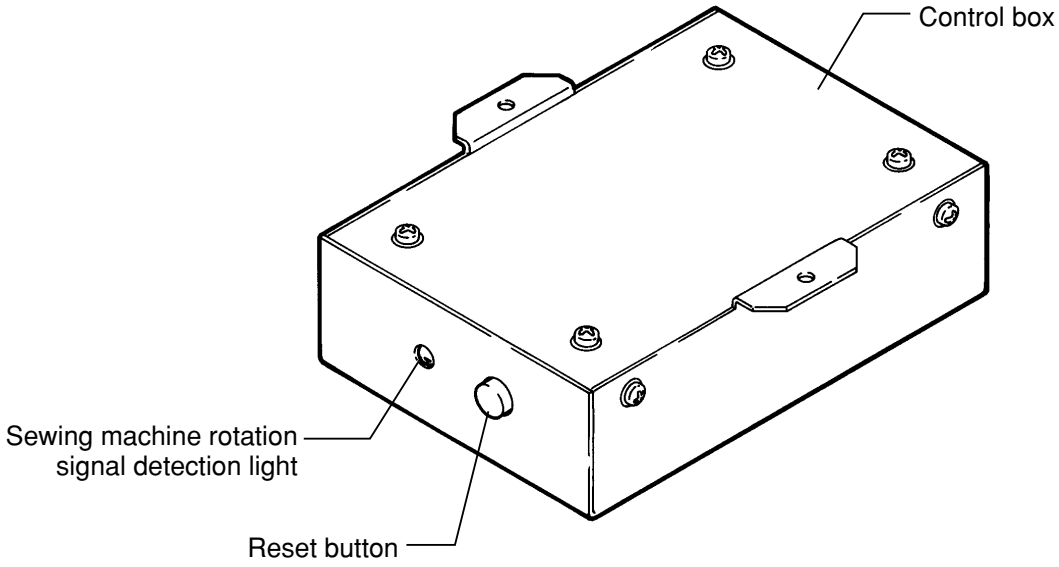
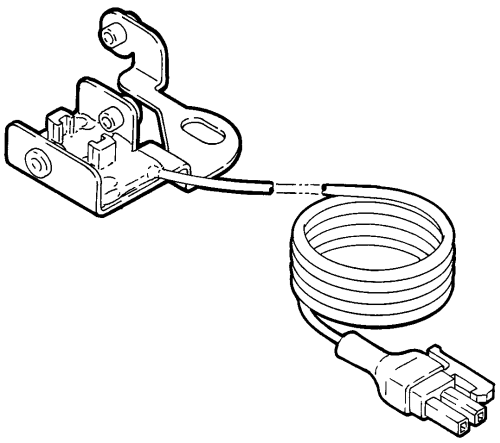
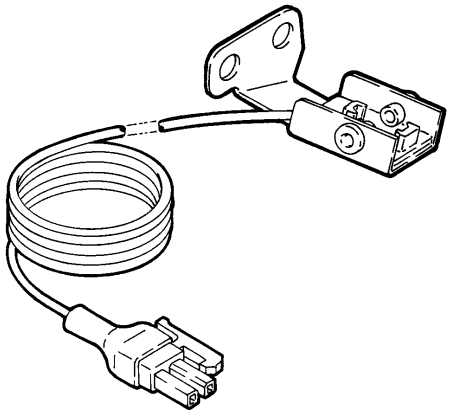


Fig.2

Looper thread detection sensor for W500



Looper thread detection sensor for W600



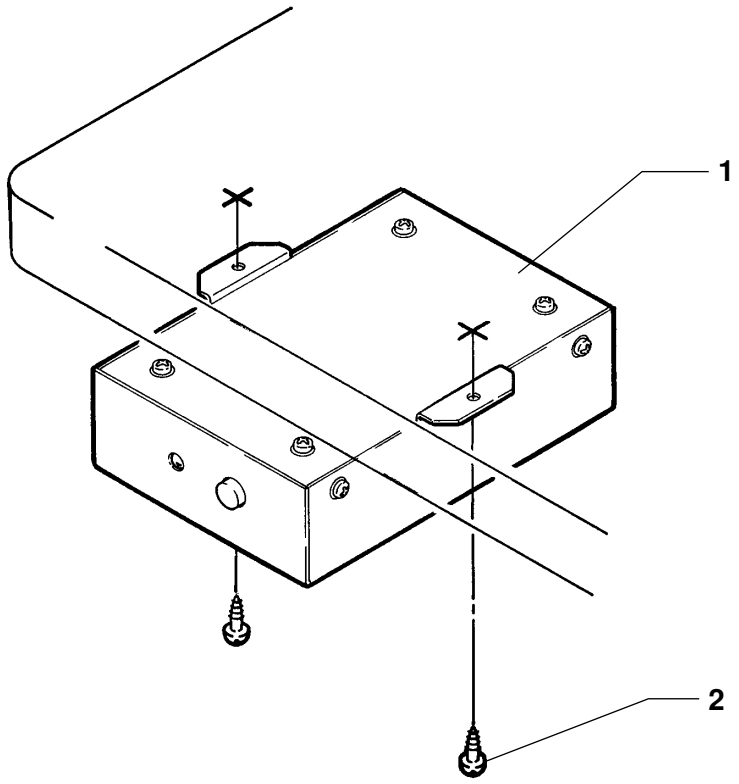
Installation

Mechanic level

Installing the control box

Install control box **1** on the left underside of the table with wood screws **2**.

Fig.3



Installation

Mechanic level

Installing the looper thread detection sensor for W500

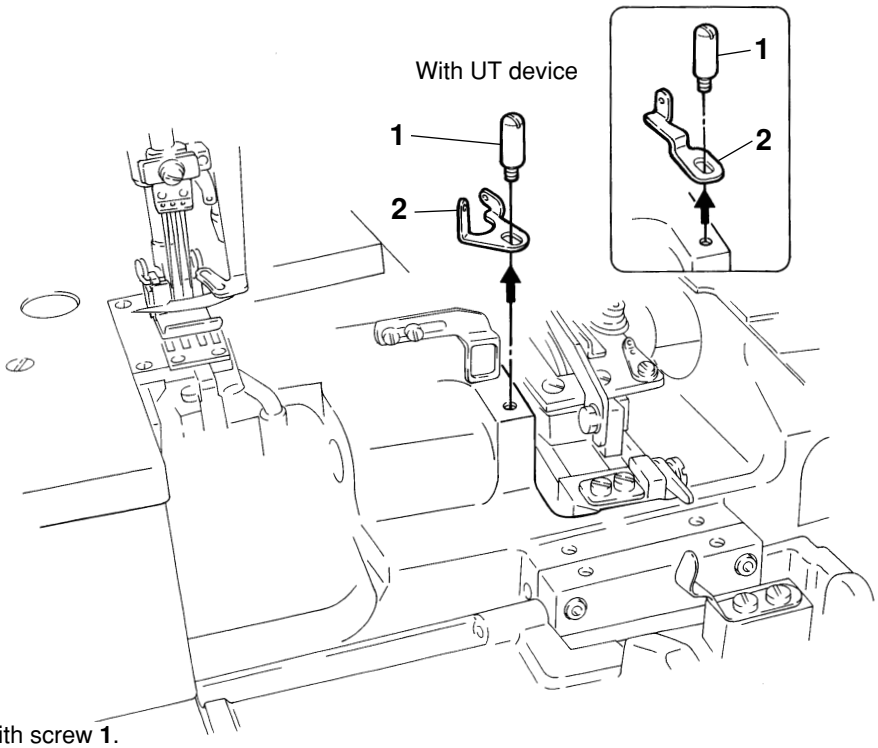
⚠ CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should install the looper thread detection sensor.

To install the looper thread detection sensor for W500

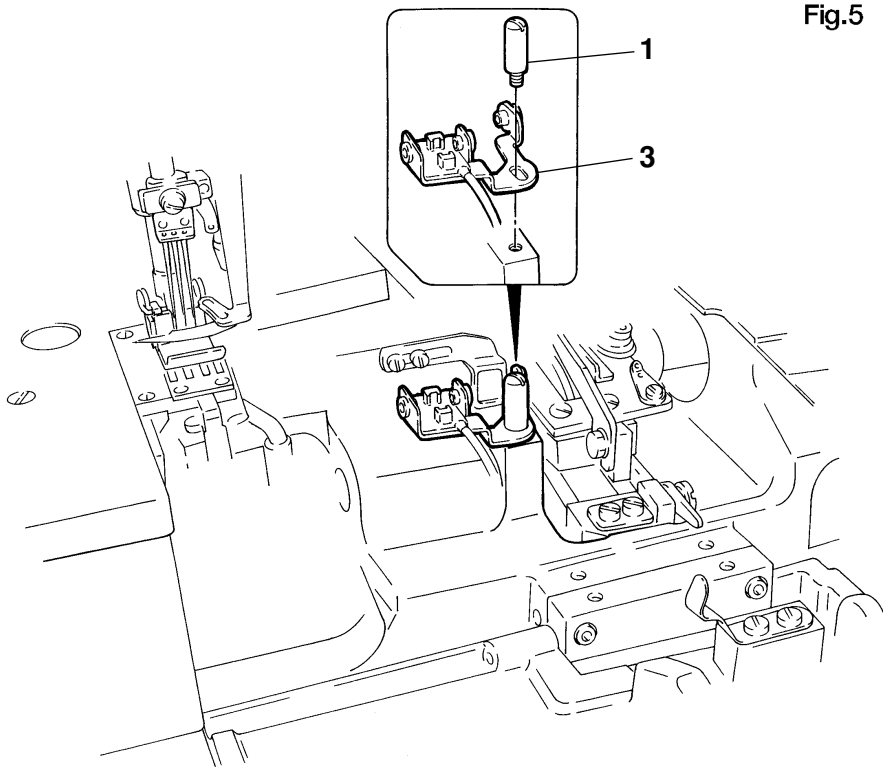
1. Remove screw **1** and thread guide **2**.

Without UT device **Fig.4**



2. Install looper thread detection sensor **3** with screw **1**.

Fig.5



Installation

Mechanic level

Installing the looper thread detection sensor for W600

⚠ CAUTION

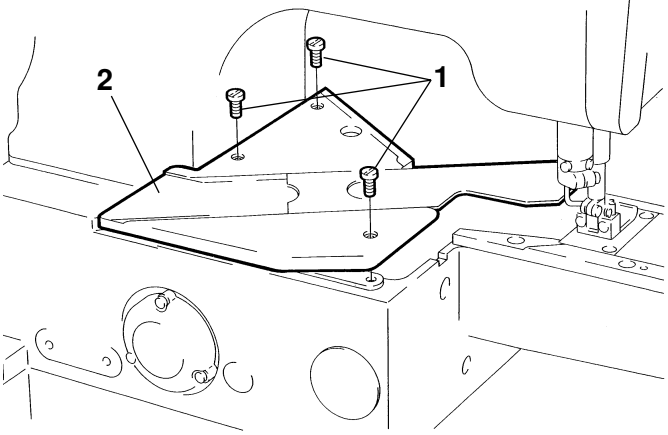
Always turn off the power, unplug the machine and then well-qualified technicians should remove the UT device.

To remove the UT device

If the machine has the UT device, remove it by following the procedure below.

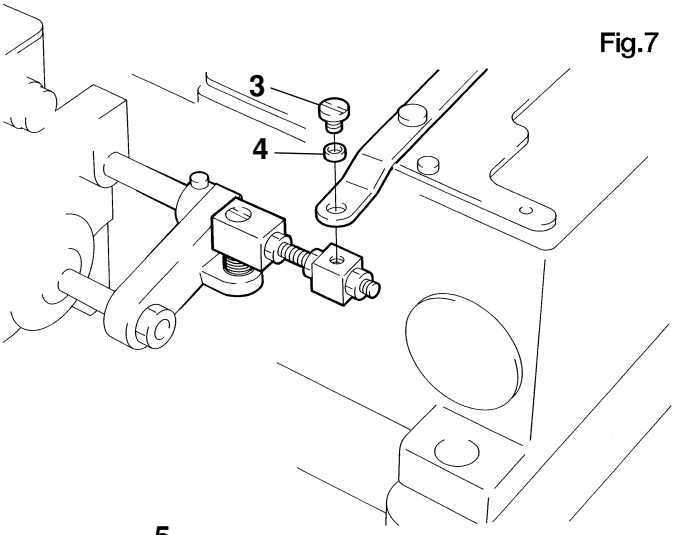
1. Remove screws **1** and then bed cover **2**.

Fig.6



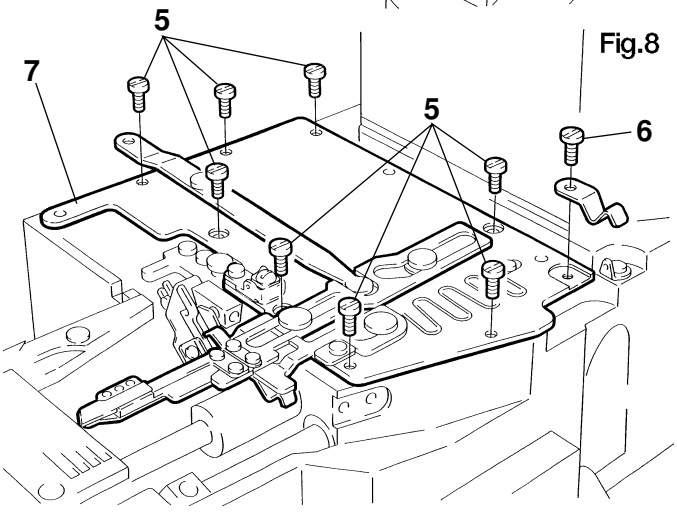
2. Remove screw **3** and then spacer **4**.

Fig.7



3. Remove screws **5**, **6** and then bracket **7**.

Fig.8



Installation

Mechanic level

Installing the looper thread detection sensor for W600

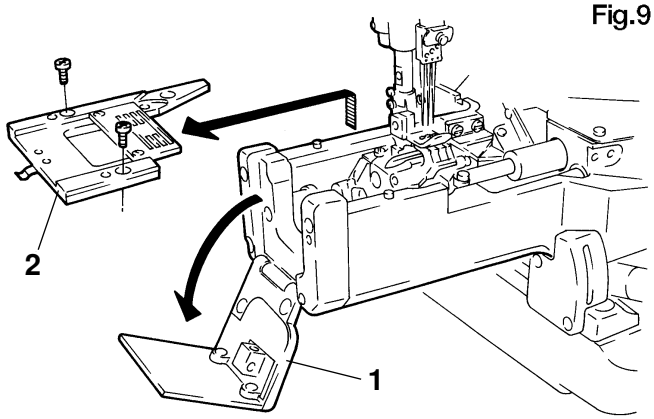
⚠CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should install the looper thread detection sensor.

To install the looper thread detection sensor

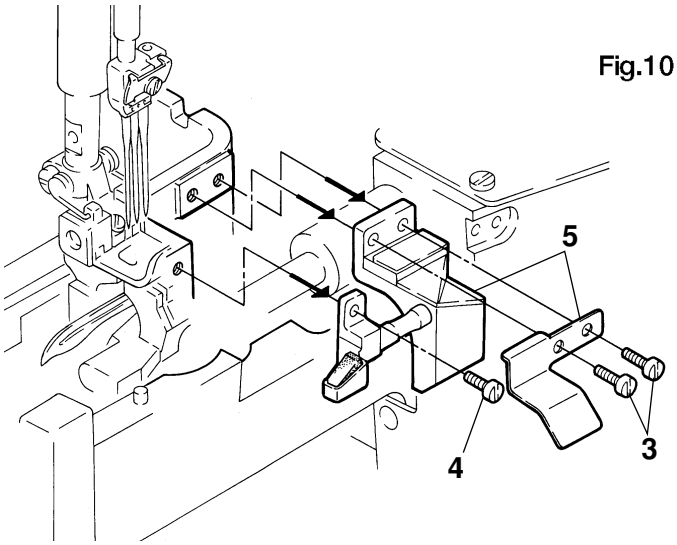
1. Open cover **1**. Remove needle plate bracket **2**.

Fig.9



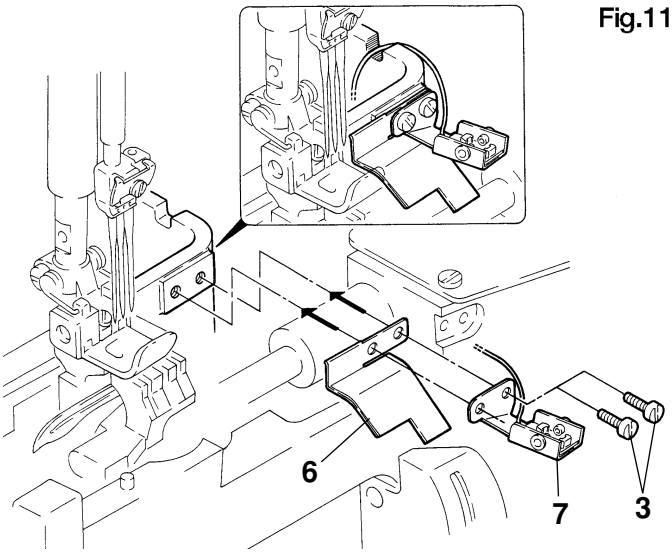
2. Remove screws **3** and **4**. Remove lower HR device **5**.

Fig.10



3. Install cover **6** and looper thread detection sensor **7** with screws **3** (see Fig.11).

Fig.11



4. Install the UT device (see Figs. 6 to 8).
   After this installation check the operation by referring to the instruction manual for the UT device.

5. Replace needle plate bracket **2**. Close cover **1**.

Installation

Mechanic level

Connecting cords (Mitsubishi's motor XC-FPS)

⚠ WARNING

A faulty connection of each pin may cause a malfunction. To prevent accidents and damage to the machine, check that each pin is connected correctly.

⚠ CAUTION

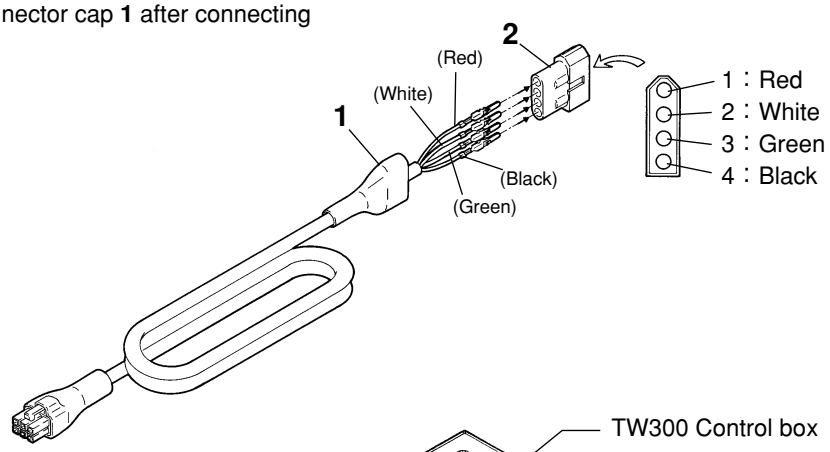
Always turn off the power, unplug the machine and then well-qualified technicians should connect relay cords.

Match the colors and shapes of the connectors when connecting the relay cords.

1. To cover the connector with the connector cap

Fit connector cap **1** onto the connection cord supplied with the motor. Connect each pin of the connection cord to connector **2**. See Fig.12. (Connector cap **1** and connector **2** are supplied with the motor.)
Cover connector **2** with connector cap **1** after connecting each pin to connector **2**.

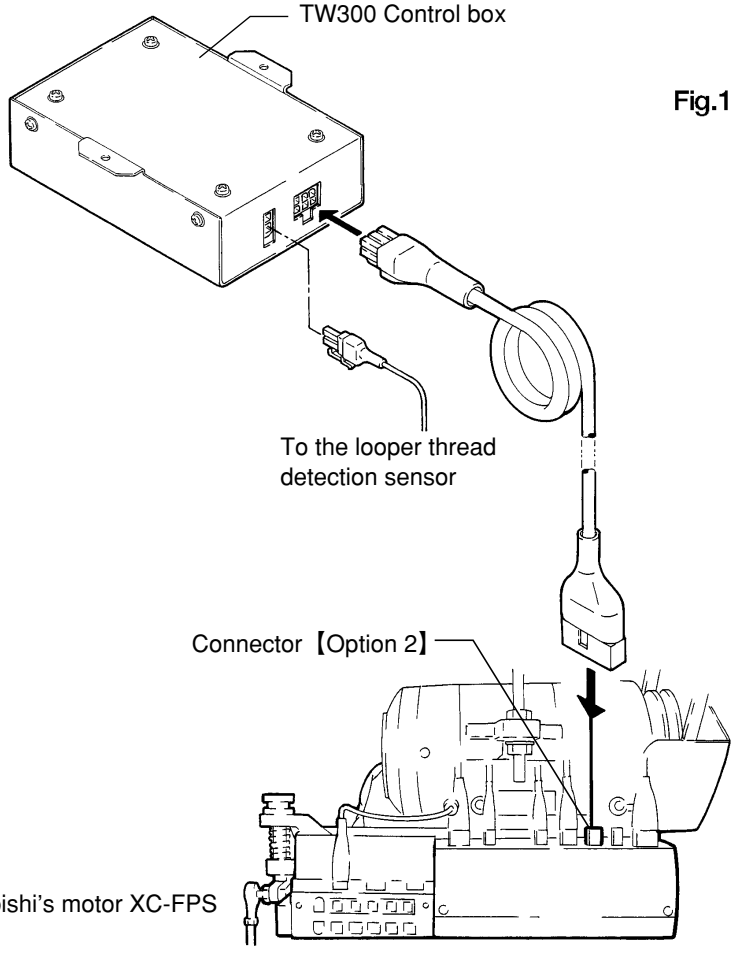
Fig.12



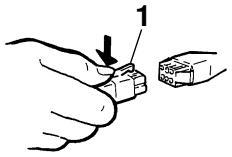
2. To connect cords

Connect cords by referring to Fig.13.

Fig.13



To disconnect the locking connector, hold down the locking mechanism **1** with finger as you pull the connector out.



Installation

Mechanic level

Connecting cords (Mitsubishi's motor XC-EPS)

⚠ WARNING

A faulty connection of each pin may cause a malfunction. To prevent accidents and damage to the machine, check that each pin is connected correctly.

⚠ CAUTION

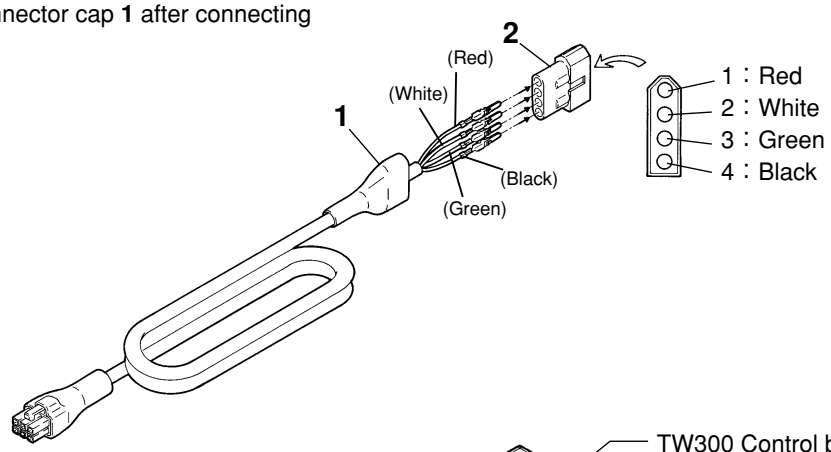
Always turn off the power, unplug the machine and then well-qualified technicians should connect relay cords.

Match the colors and shapes of the connectors when connecting the relay cords.

1. To cover the connector with the connector cap

Fit connector cap **1** onto the connection cord supplied with the motor. Connect each pin of the connection cord to connector **2**. See Fig.14. (Connector cap **1** and connector **2** are supplied with the motor.)
Cover connector **2** with connector cap **1** after connecting each pin to connector **2**.

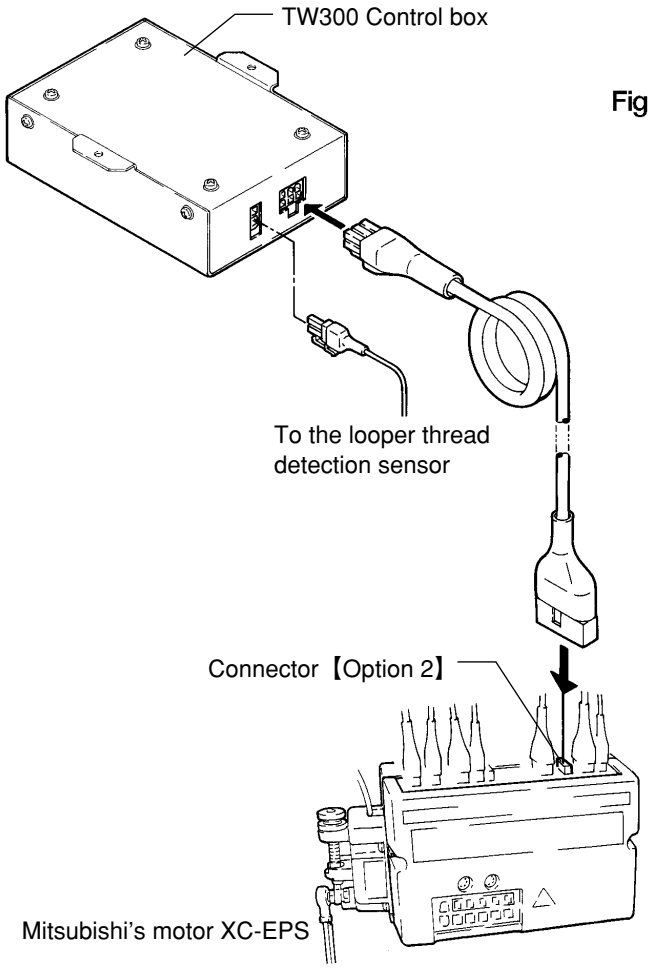
Fig.14



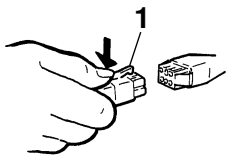
2. To connect cords

Connect cords by referring to Fig.15.

Fig.15



To disconnect the locking connector, hold down the locking mechanism **1** with finger as you pull the connector out.



Installation

Mechanic level

Connecting cords (Mitsubishi's motor XC-BPS,BPSA)

⚠ WARNING

A faulty connection of each pin may cause a malfunction. To prevent accidents and damage to the machine, check that each pin is connected correctly.

Great care should be taken not to injure your fingers and/or hands when you work on the connection cord.

⚠ CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should connect relay cords.

Match the colors and shapes of the connectors when connecting the relay cords.

1. To cover the connector with the connector cap

Strip the connection cord supplied with the motor so that the lead is 100mm long (Connector caps **1** and **2**, connectors **3** and **4** are supplied with the motor). Insert the connection cord into connector caps **1** and **2**. Connect each pin of the connection cord to connectors **3** and **4**. See Fig.17. Cover connectors **3** and **4** with connector caps **1** and **2** after connecting each pin to connectors **3** and **4**.

Fig.16

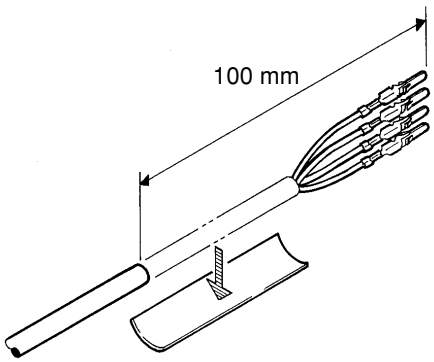
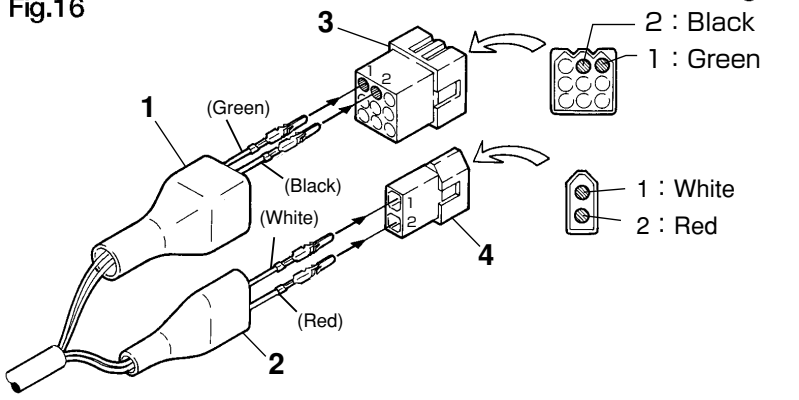


Fig.17



2. To connect cords

Connect cords by referring to Fig.18.

To disconnect the locking connector, hold down the locking mechanism **1** with finger as you pull the connector out.

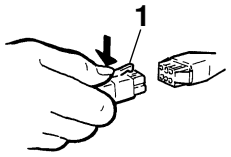
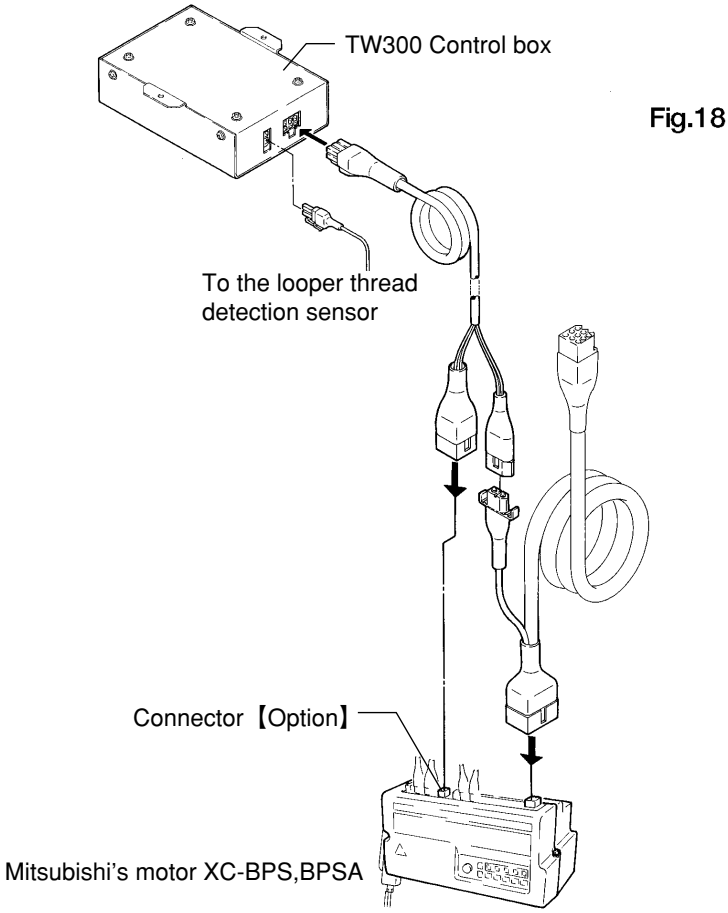


Fig.18



Installation

Mechanic level

Connecting cords (Matsushita's PANAMINAS Motor)

⚠ WARNING

A faulty connection of each pin may cause a malfunction. To prevent accidents and damage to the machine, check that each pin is connected correctly.

Great care should be taken not to injure your fingers and/or hands when you work on the connection cord.

Well-qualified technicians should perform a soldering operation while taking care not to burn their hands and/or bodies.

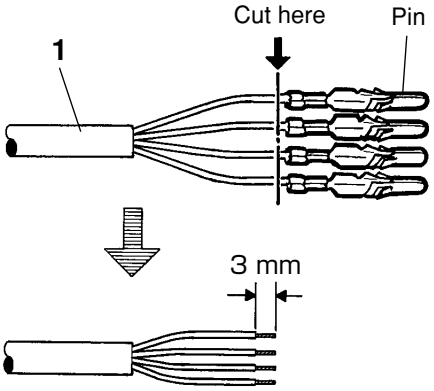
⚠ CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should connect relay cords.

1. To work on the connection cord

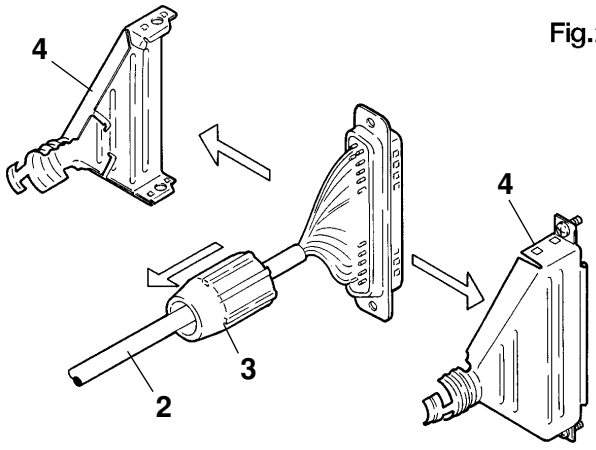
(1) Remove each pin by cutting the end of each vinyl lead from connection cord **1** supplied with the TW device. Strip off about 3mm of insulation from each lead wire. See Fig.19.

Fig.19



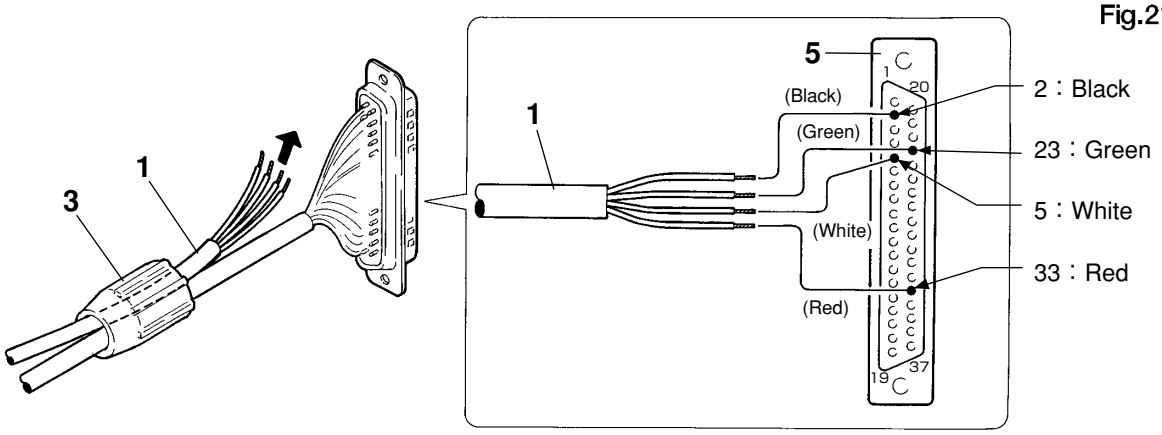
(2) Loosen screw **3** of connection cord **2** (D-SUB37 pin connector) and remove screw **3** from connector cover **4**. Disassemble connector cover **4**.

Fig.20



(3) Insert connection cord **1** into screw **3**. Solder each lead wire from connection cord **1** onto connector **5**. See Fig.21.

Fig.21



(4) Assemble connector cover **4**. Tighten screw **3**.

Installation

Mechanic level

Connecting cords (Matsushita's PANAMINAS Motor)

⚠ CAUTION

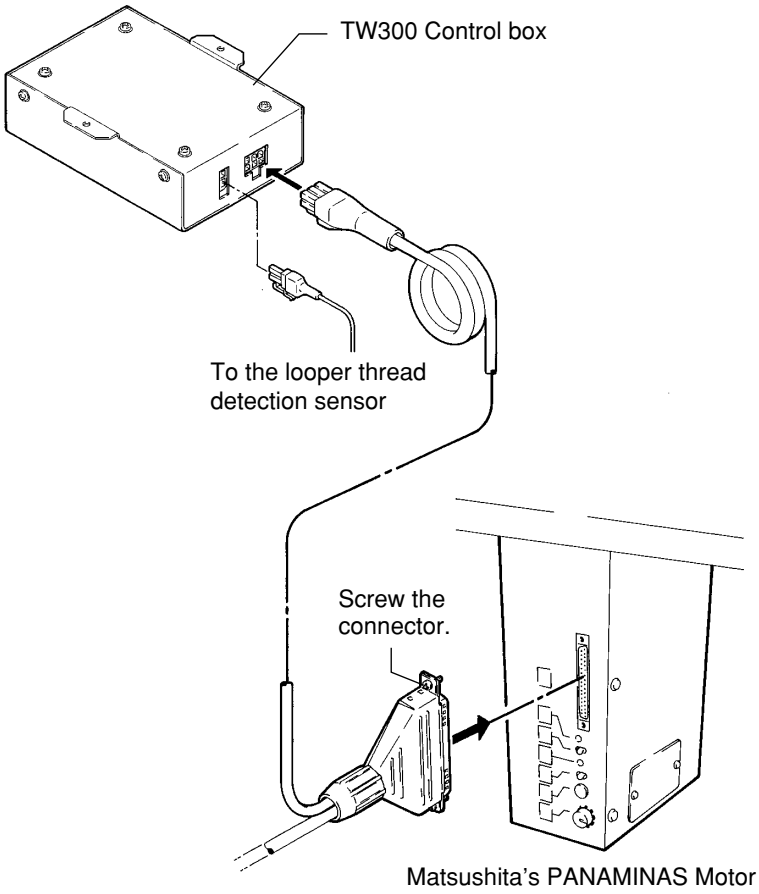
Always turn off the power, unplug the machine and then well-qualified technicians should connect relay cords.

⚠ Match the colors and shapes of the connectors when connecting the relay cords.

2. To connect cords

Connect cords by referring to Fig.22.

Fig.22



Installation

Mechanic level

Connecting cords (to other motors)

⚠ WARNING

A faulty connection of each pin may cause a malfunction. To prevent accidents and damage to the machine, check that each pin is connected correctly.

⚠ CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should connect relay cords.

In the case of other motors that are not described in this manual
Motors that can input/output the signals shown below are available.

Color of the cord	Signal
Red	Power source (DC24V)
White	Rotation signal (1 pulse/r)
Green	Output of stop signal
Black	0 V

Table 1

Fig.23

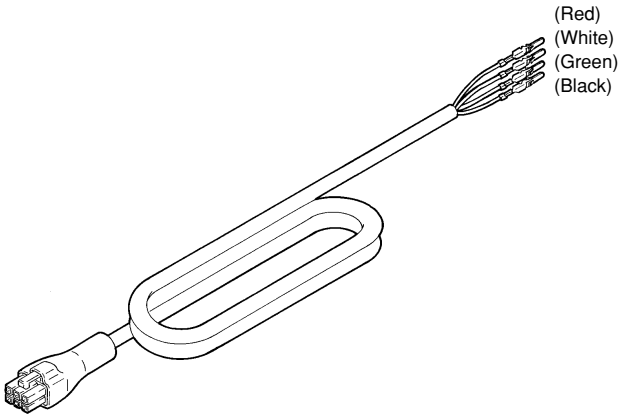
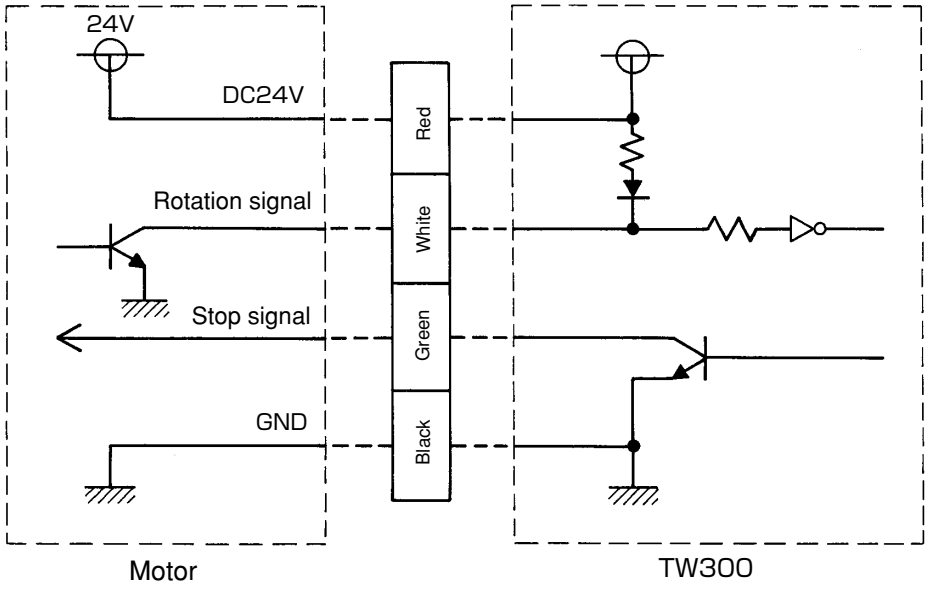


Fig.24



Schematic circuit diagram of TW300 input/output signals

Installation

Mechanic level

Adjusting the setting of the motor

To use Mitsubishi's motors (XC-EPS, XC-BPS, XC-BPSA)
Program the motor controller so that it can output the rotation signal and input the emergency stop signal.

● In the case of XC-EPS
See pages 18 to 19 ("Adjusting the setting of Mitsubishi's XC-EPS").

● In the case of XC-BPS
See pages 22 to 23 ("Adjusting the setting of Mitsubishi's XC-BPS").

● In the case of XC-BPSA
See pages 20 to 21("Adjusting the setting of Mitsubishi's XC-BPSA").

※ If you use Mitsubishi's XC-FPS or Matsushita's PANAMINAS motor, there is no need to adjust the setting of the motor.

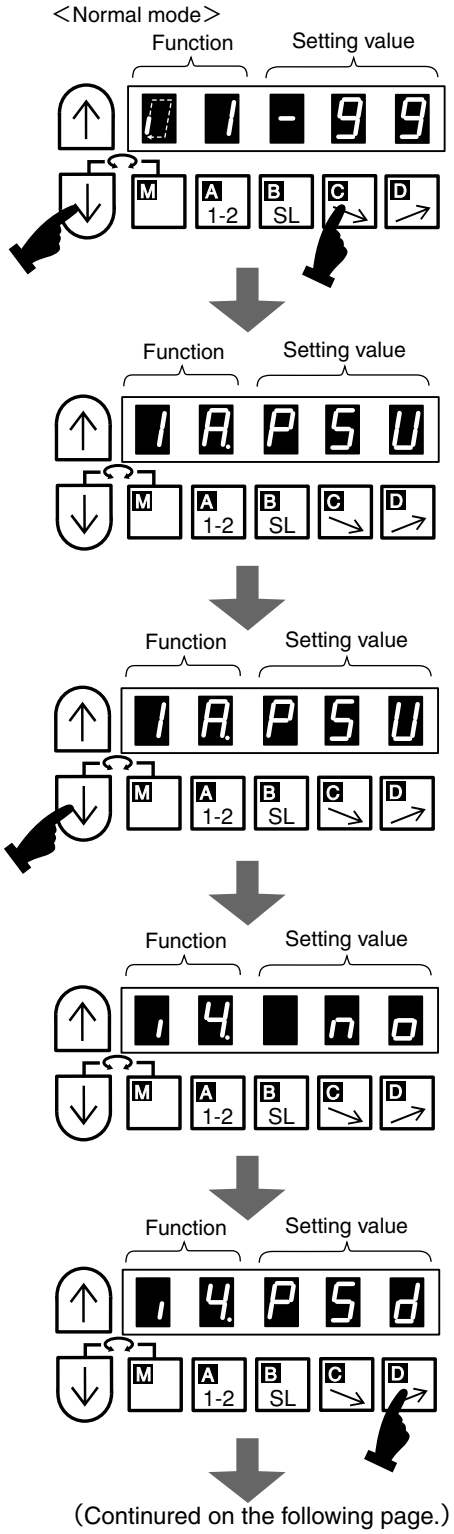
Installation
Mechanic level

Adjusting the setting of the motor (Mitsubishi's motor XC-EPS)

⚠ CAUTION

⚠ The power is on while the data is being entered. Therefore, the machine could start unexpectedly.
Well-qualified technicians should adjust the setting of the motor while taking great care.

Adjust the setting of Mitsubishi's motor (XC-EPS) by following the procedure shown below.
※ How many the keys are pressed may vary according to the version of the motor.



1. Press ↓ and C keys simultaneously for more than two seconds to call up program mode [C].

2. The display on the left appears.

3. Press ↓ key 69 times to show 14. on the function display window.

Note
If you press ↓ key more than 69 times, press ↑ key to call up the previous display (see 3).

4. The display on the left appears.

5. Press D key 18 times to show PSd on the setting value display window.

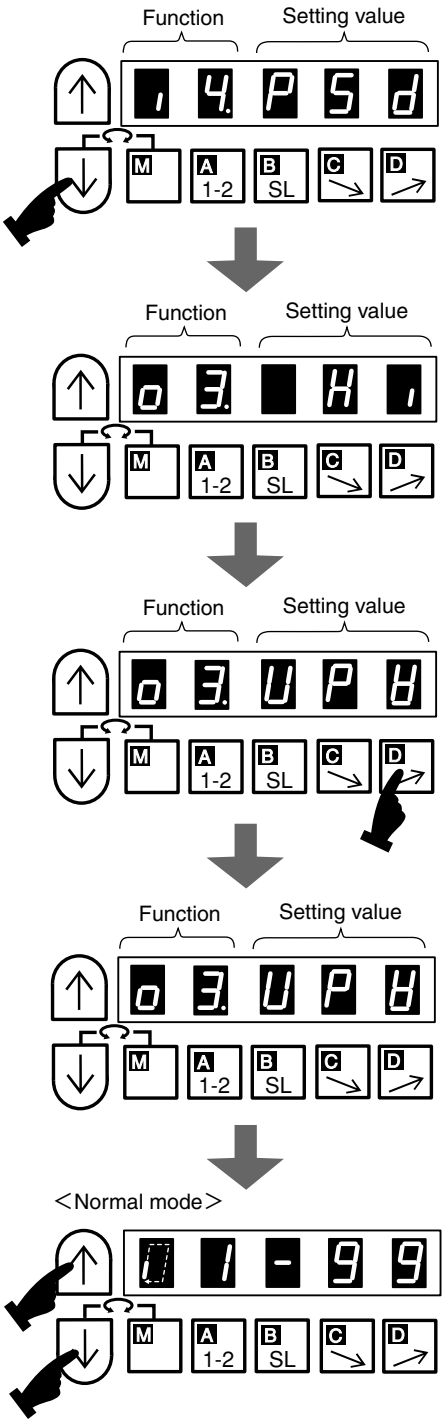
Note
If you press D key more than 18 times, press C key to call up the previous display (see 5).

(Continured on the following page.)

Installation

Mechanic level

Adjusting the setting of the motor (Mitsubishi's motor XC-EPS)



6. Press ↓ key 48 times to show 03. on the function display window.

Note

If you press ↓ key more than 48 times, press ↑ key to call up the previous display (see 6).

7. The display on the left appears.

8. Press D key 26 times to show UPH on the setting value display window.

Note

If you press D key more than 26 times, press C key to call up the previous display (see 8).

9. The setting is completed.

10. Press ↑ and ↓ simultaneously to return to the normal mode.

Installation

Mechanic level

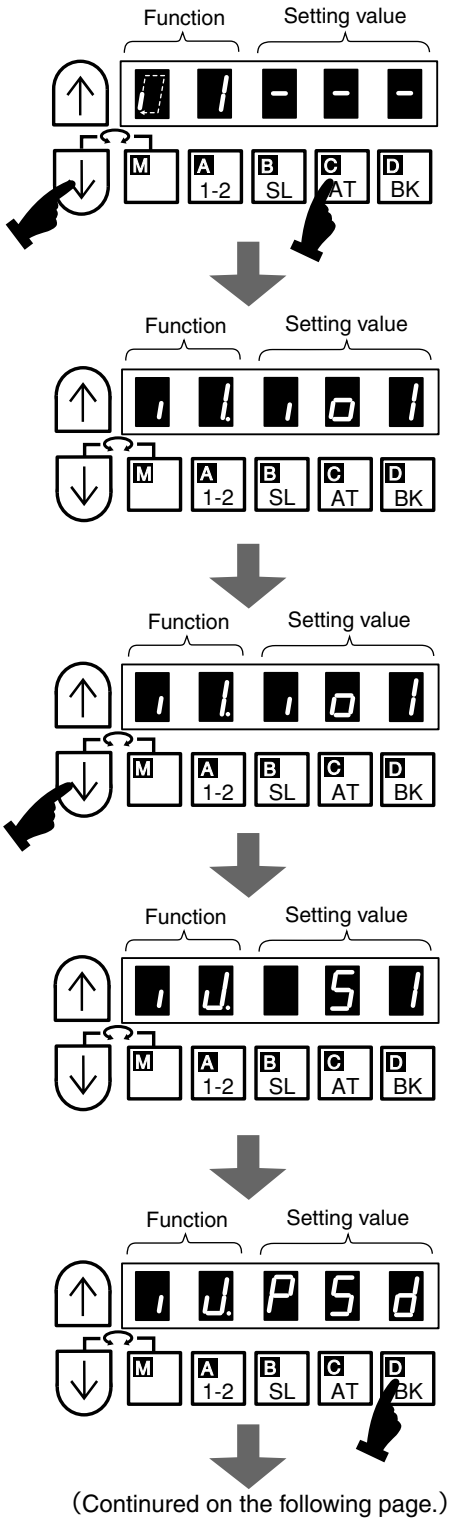
Adjusting the setting of the motor (Mitsubishi's motor XC-BPSA)

⚠ CAUTION

⚠ The power is on while the data is being entered. Therefore, the machine could start unexpectedly.
Well-qualified technicians should adjust the setting of the motor while taking great care.

Adjust the setting of Mitsubishi's motor (XC-BPSA) by following the procedure shown below.
※ How many the keys are pressed may vary according to the version of the motor.

＜Normal mode＞



1. Press ↓ and C AT keys simultaneously for more than two seconds to call up program mode [C].

2. The display on the left appears.

3. Press ↓ key 44 times to show 1J. on the function display window.

Note
If you press ↓ key more than 44 times, press ↑ key to call up the previous display (see 3).

4. The display on the left appears.

5. Press D BK key 16 times to show PSd on the setting value display window.

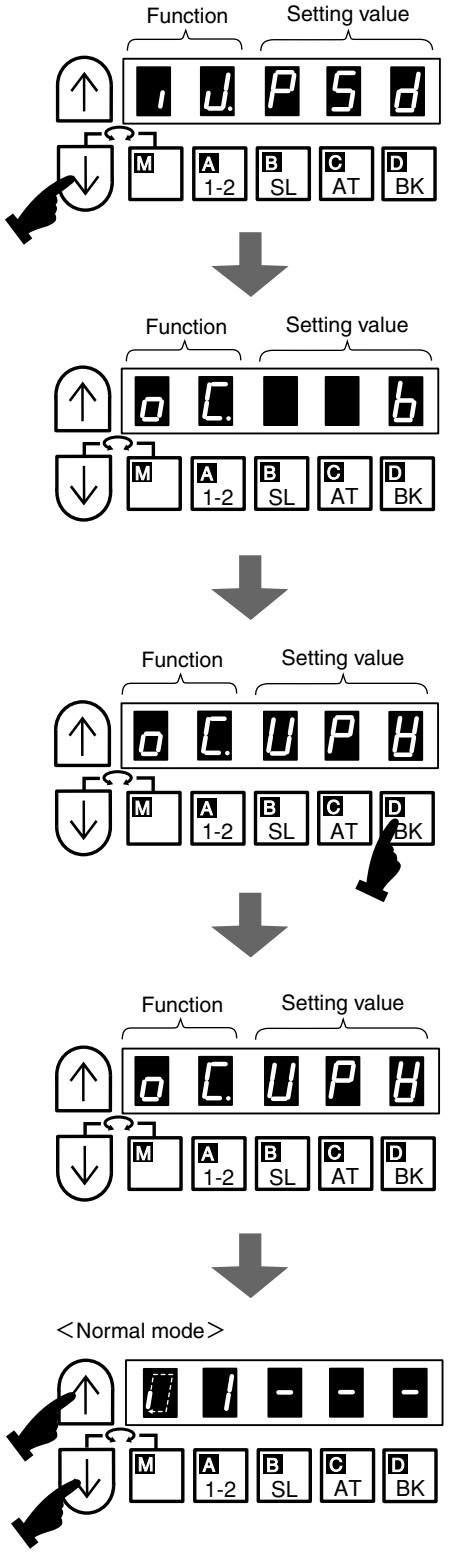
Note
If you press D BK key more than 16 times, press C AT key to call up the previous display (see 5).

(Continured on the following page.)

Installation

Mechanic level

Adjusting the setting of the motor (Mitsubishi's motor XC-BPSA)



6. Press ↓ key 31 times to show oC. on the function display window.

Note

If you press ↓ key more than 31 times, press ↑ key to call up the previous display (see 6).

7. The display on the left appears.

8. Press D BK key 7 times to show UPH on the setting value display window.

Note

If you press D BK key more than 7 times, press C AT key to call up the previous display (see 8).

9. The setting is completed.

10. Press ↑ and ↓ simultaneously to return to the normal mode.

Installation

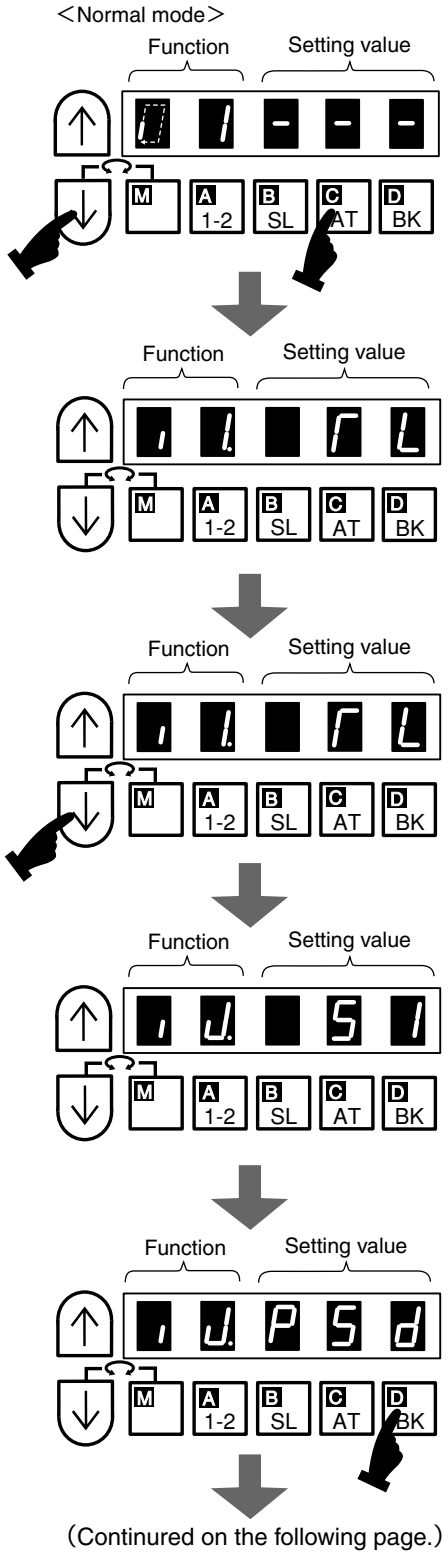
Mechanic level

Adjusting the setting of the motor (Mitsubishi's motor XC-BPS)

⚠ CAUTION

⚠ The power is on while the data is being entered. Therefore, the machine could start unexpectedly.
Well-qualified technicians should adjust the setting of the motor while taking great care.

Adjust the setting of Mitsubishi's motor (XC-BPS) by following the procedure shown below.
※ How many the keys are pressed may vary according to the version of the motor.



(Continured on the following page.)

1. Press ↓ and C AT keys simultaneously for more than two seconds to call up program mode [C].

2. The display on the left appears.

3. Press ↓ key 44 times to show ,J. on the function display window.

Note

If you press ↓ key more than 44 times, press ↑ key to call up the previous display (see 3).

4. The display on the left appears.

5. Press D BK key 16 times to show PSd on the setting value display window.

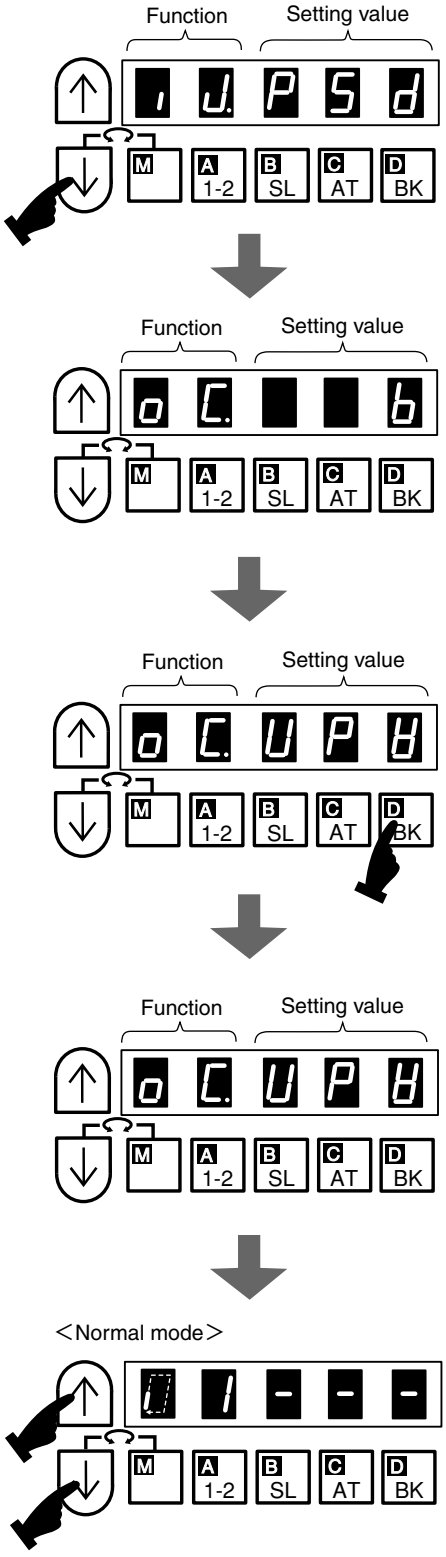
Note

If you press D BK key more than 16 times, press C AT key to call up the previous display (see 5).

Installation

Mechanic level

Adjusting the setting of the motor (Mitsubishi's motor XC-BPS)



6. Press ↓ key 28 times to show oC. on the function display window.

Note

If you press ↓ key more than 28 times, press ↑ key to call up the previous display (see 6).

7. The display on the left appears.

8. Press D BK key 7 times to show UPH on the setting value display window.

Note

If you press D BK key more than 7 times, press C AT key to call up the previous display (see 8).

9. The setting is completed.

10. Press ↑ and ↓ simultaneously to return to the normal mode.

Installation

Mechanic level

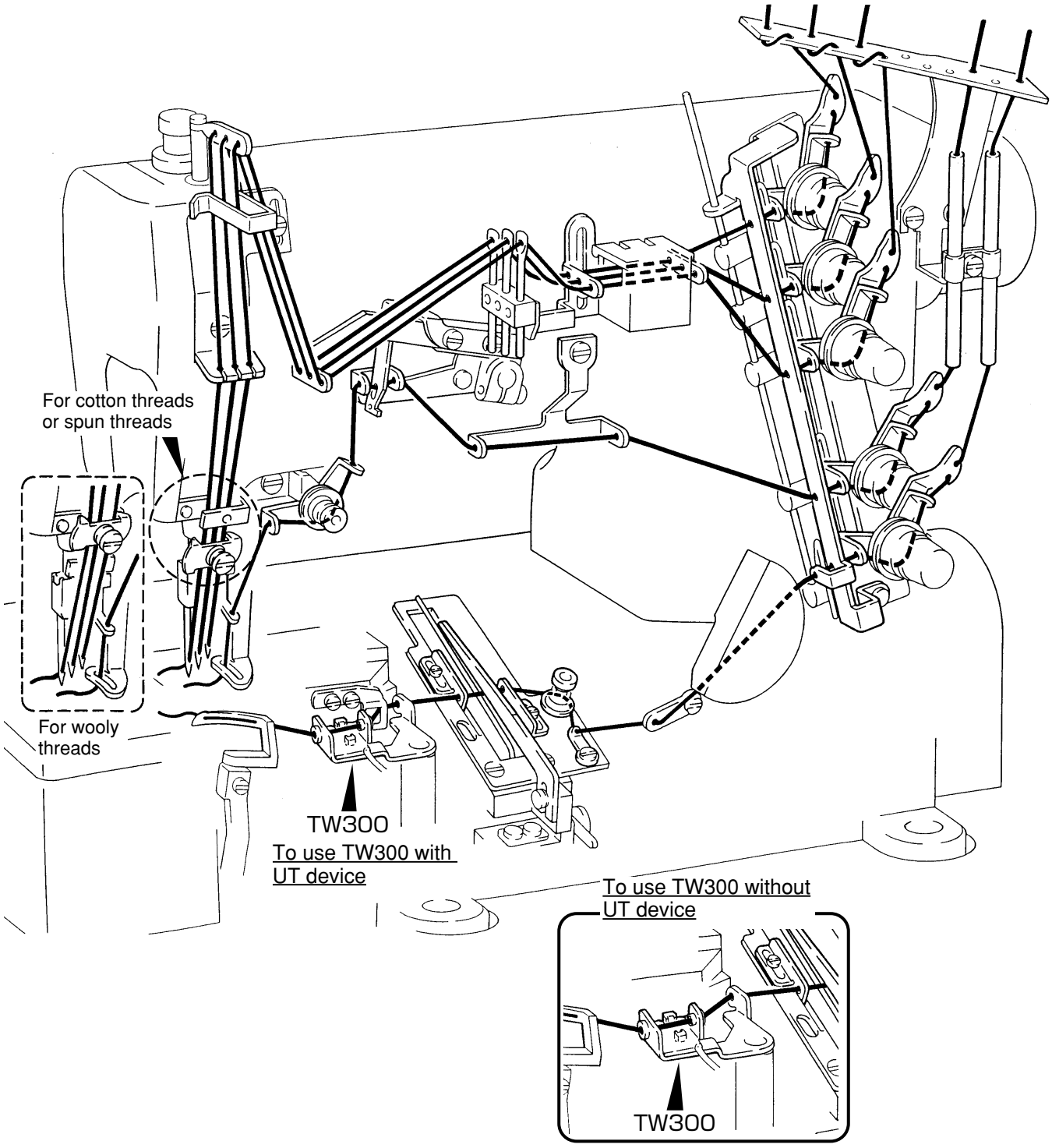
Threading the machine (W500)

⚠ CAUTION

Always turn off the power and unplug the machine before threading the machine.

Thread the machine as shown below.

Fig.25



Installation

Mechanic level

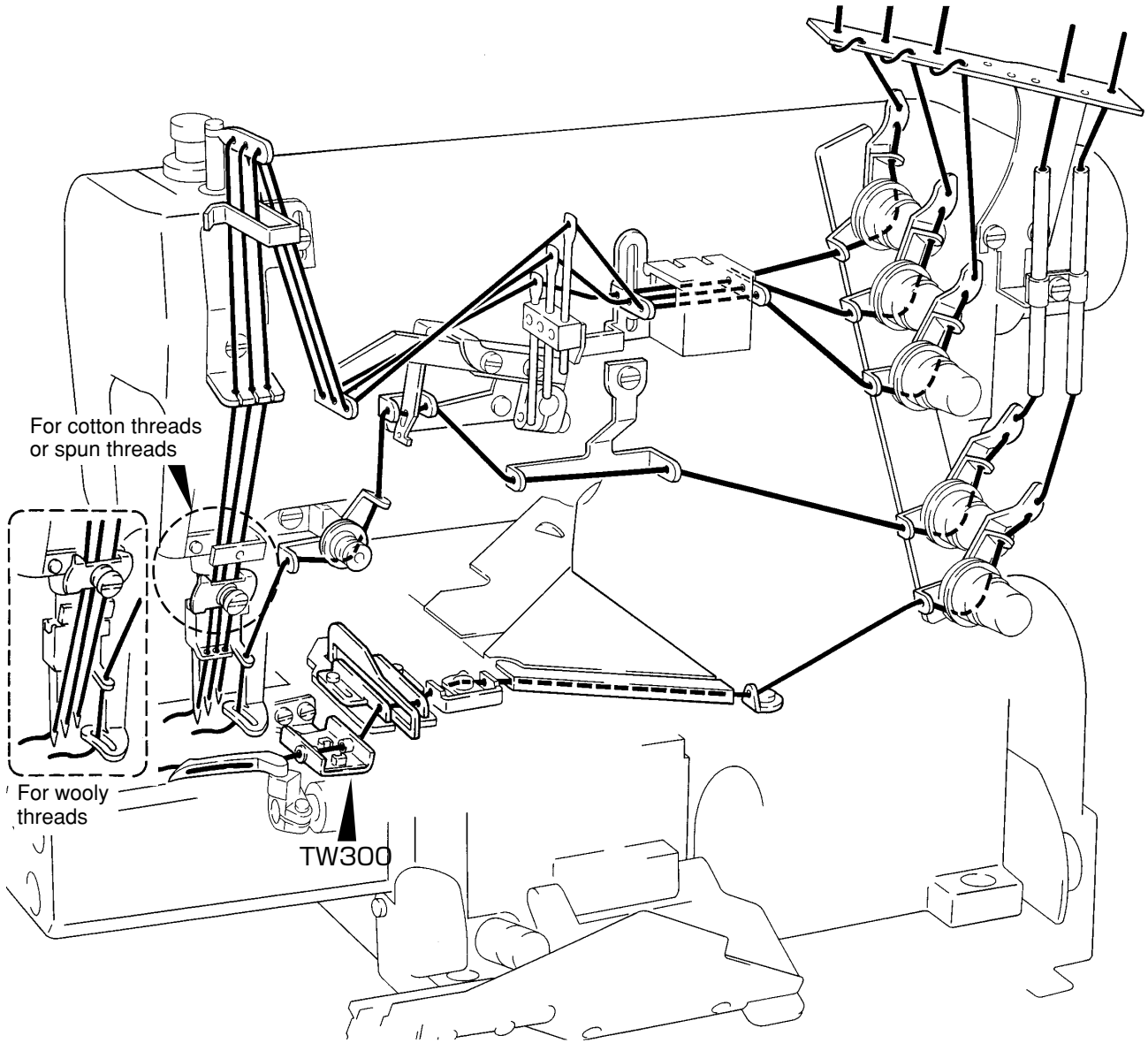
Threading the machine (W600)

⚠ CAUTION

Always turn off the power and unplug the machine before threading the machine.

Thread the machine as shown below.

Fig.26

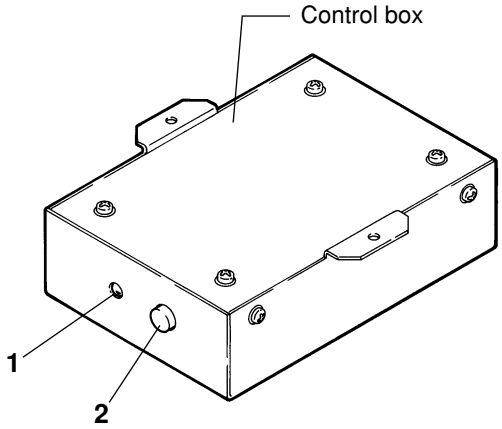


Using TW300

⚠ CAUTION

Always turn off the power and unplug the machine before threading the machine and/or removing the threads that are wound around.

Fig.27



1. Rotation signal detection light **1** starts blinking as soon as the machine starts running.
   If rotation signal detection light **1** does not blink when the machine is running, check to see if the cords are connected properly.

2. If the looper thread breaks and/or winds around the looper thread take-up during sewing, the machine will stop while TW300 will stop the motor urgently sensing an emergency.
   To release the emergency stop, press reset button **2**.

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