Tanaka

自 動 巻 線 機

AUTOMATIC COIL WINDING MACHINES

AW−850
AW−850V
AW−852V
AW−853V

取 扱 説 明 書

OPERATION MANUAL

田中精機株式会社

TANAKA SEIKI CO., LTD.

Table of Contents

1. INTRODUCTION

The AW-850 (V) and AW-852V are microprocessor controlled models for winding a very wide range of wire sizes from 0.02 Ø to 2 Ø simply by changing the bobbin stand, wire guide and tension devise.

1. **Model AW-850 Coil Winding Machine**

   This is a front spindle type coil winding machine. The induction motor is standard for winding fine wires of less than 0.4 Ø and the spindle speed can be set to one of three speeds by adjusting the 3 step pulley. There are a number of bobbing stands to choose from. A special combination tension devise/wire guide is used for winding wires thicker than 0.4 Ø. This variation is called model AW-850V and comes with a DC motor with variable speed control and a 2 step pulley so that the spindle speed can be set as desired. Any of the control unit models M-55, M-55R, M-56R or M-58R can be used.

2. **Model AW-852V·AW-853V Coil Winding Machine**

   This is a side spindle type coil winding machine. It can wind wires with diameters from 0.02 Ø to 2 Ø by changing the boddin stand and tension devise just like model AW-850. The AW-853V has a maximum 300 mm winding width. A variable speed DC motor is standard with a 2 step pulley so that the spindle speed can be set as desired. The spindle speed during start up, winding and slow down can be changed freely by turning the speed control dial. Either M-56R or M-58R control unit can be used with the AW-852V. The M-56R is standard with the AW-853V, but the M-58R can be used as a special. However, the control units for the AW-850, AW-852V and AW-853V are not interchangeable.

3. **M-55 Control Unit**

   This is a control unit for one stage windings. Number of turns, wire feed pitch and winding width are set directly on the digital switches.

4. **M-55R Control Unit**

   This unit offers a speed reduction feature to the functions of the M-55 control unit so that there is adsolutely no over or under winding.

5. **M-56R Control Unit**

   This unit is most appropriate for coils with taps as it has a memory capacity of 100 different coil stages. The memory can also be used to store the specifications of different coil patterns.

   This unit offers a speed reduction feature so that there is absolutely no over or under winding.

6. **M-58R Control Unit**

   This unit can do everything the M-56R can, plus wind sections, offset the winding start position, and start winding in the middle of the bobbin among others. On this control unit only, the feeding pitch can be set to an accuracy of 0.001 mm for wires of 0.999 Ø or less, and 0.01 mm for wires of 1.0 Ø or more.

7. **Standard Features**

   1. Spindle Direction change.

2. Memory Function (M-56R, M-58R)

The memory can store up to 100 winding patterns.

3. Braking Device (M-55R, M-56R, M-58R)

The spindle speed can be slowed down at a set number of turns before the end of winding.

8. Customer's Options

1. 1/10 Turn Set

1/10 turn can be set controlled and displayed.

2. Synchronized Start

The movements of the traverse and spindle are synchronized as soon as the power switch is turned on.

3. Double Start

After finishing one program, the machine stops in that position without going on to the next program. Push the start button once to reset the counter and call up the next program. Push the start button again and winding begins, but the counter is not reset. (On machines with the double start option, any spindle turning, whether by motor or by hand, is counted in the turns display. On machines without this option only spindle rotation by the motor is counted.)

2. NAME & FUNCTION OF PARTS
1. COIL WINDING MACHINES
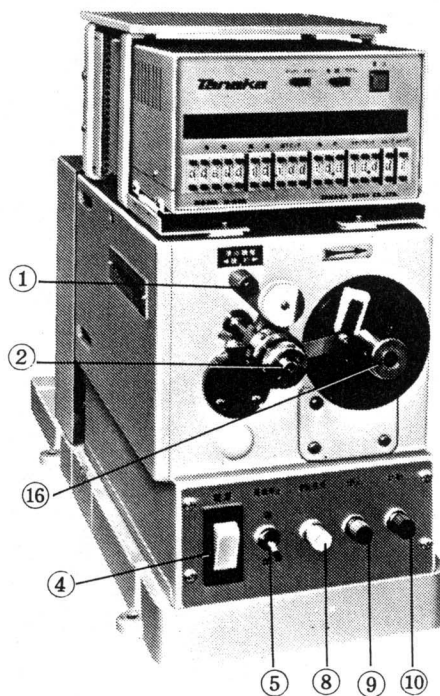
AW—850　for fine wires
AW—850　細線用
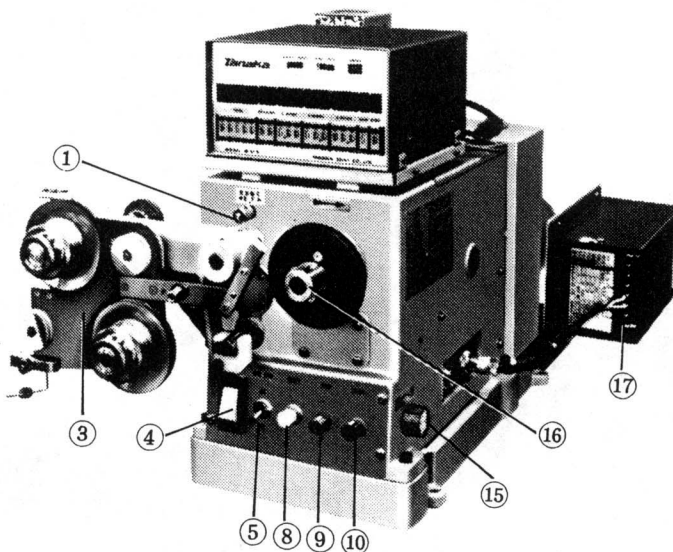
AW—850 V　for thick wires
AW—850 V　太線用

2 各部の名称と機能

1 巻線機本体
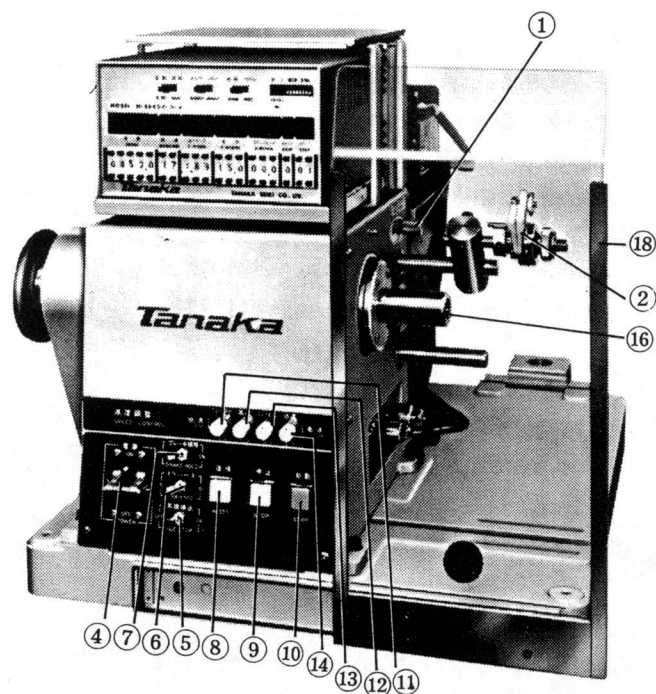
AW—852V　細線用
AW—852V for fine wires
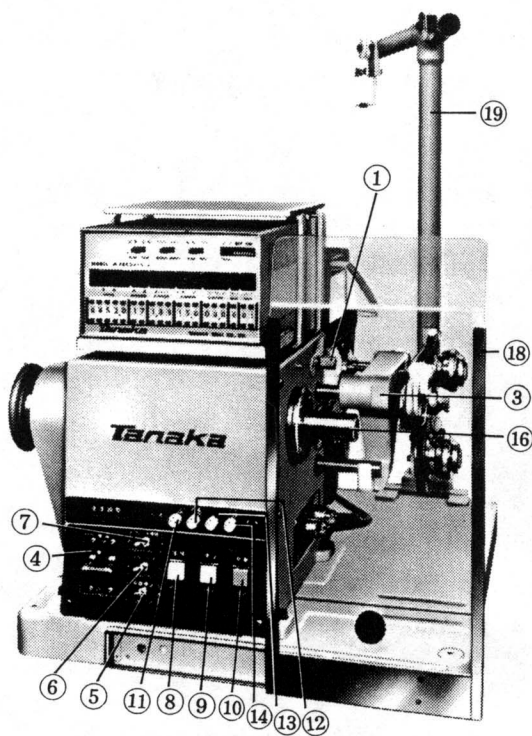
AW—852V　太線用
AW—852V for thick wires

1. **Starting Position Knob**

   Turn this knob to adjust the winding start position. On Model AW-850, turn clockwise to move the starting position towards the operator and counter-clockwise to move it towards the machine frame (1 mm/revolution). On Model AW-852, turn clockwise to move the starting position to the right and counter-clockwise to move it to the left (towards the machine frame). On both models, the starting position cannot be changed only by turning this knob. The reset button no. 8 must also be pushed either while turning the knob or after the knob has been turned.

2. **Wire Guide**

   This is a guide for winding fine wires of 0.4 Ø or less. Turn the knob to set the position of the guide. For larger wires of 0.4 Ø or more, use tension devise for large wires no. 3.

3. **Tension Devise for Large Wires**

   Use this for winding wires of over 0.4 Ø.

4. **Power Switch**

   This also acts as a circuit breaker. In case of excessive voltage, the switch automatically turns off.

5. **Side Stop Switch**

   When this switch is on, only one stage will be wound when the start button no. 10 is pushed. Then the wire guide will stop at the opposite end of the winding width. When the start button is pushed again, the wire guide will move in the reverse direction and again wind only one stage. To wind continuously, turn this switch off.

6. **Traverse Switch** (Model AW-852V, AW-583V)

   With this switch, the windisng start position can be moved from A, the left side, to B, the right side.

7. **Brake Hold Switch** (Model AW-852V, AW-853V)

   When off, the brake is released while the spindle is stopped. When on, the brake holds even when the spindle stops. When the start button no. 10 is pushed, the brake releases and winding begins.

8. **Reset Button**

   When this sutton is pushed, the wire guide no. 2 or 3 will automatically return to the winding start position. The turns counter, "total", will also be reset. Be sure to depress this button after the program is set or changed.

9. **Stop Button**

   This button is to stop the machine during winding. If pushed while the machine is stopped, the total number of completed coils will be displayed in the total display. To reset to 0, turn the power switch no. 4 off, then on, with this button depressed.

10. **Start Button**

    Push to start the machine. If pushed while the machine is running, current spindle speed will be displayed in the total display.

11. **Slow Start Dial** (Model AW-852V, AW-553V)

This dial is to adjust the acceleration of the spindle from a low starting speed to a high maximum speed.

12. **High Speed Dial** (Model AW-852V, AW-853V)

This is to set the maximum speed (rpm) of the spindle.

13. **Slow Down Dial** (Model AW-852V, AW-583V)

This dial is to set the time when the spindle decelerates from a high speed to a low speed.

14. **Low Speed Dial** (Model AW-852V, AW-853V)

This dial is to set the minimum spindle speed (rpm).

15. **Speed Dial** (only on Models AW-850/AW-850V and machines with R functions)

This dial controls the spindle revolution speed. Push the start button no. 10, and the spindle speed will appear in the total display. Set the speed accordingly.

16. **Jig Holder**

Insert the jig onto the jig holder and secure with set screws. The inner diameter is 15 Ø +0.02/−0 or 12 Ø +0.02/−0.

17. **Motor**

Model AW-850 uses a 200 W induction motor, and Models AW-852V/ AW-850V use a 200 W DC motor. The AW-853V uses a 400W DC motor. The induction motor for fine wires has the following pulleys (a) 10,000-7500-5000 rpm, (b) 8000-6000-4000 rpm, (c) 6000-4500-3000 rpm & (d) 4000-3000-2000 rpm. The pulley of your choice is supplied with the machine. The DC motor has the following 2 step pulley —3000 (max.)—1000 (min)

18. **Protective Cover** (Model AW-852V)

Slide to right and left by hand.

19. **Support** (Model AW-852V, AW-853V)

This devise leads the wire on the back of the coil winding machine to the tension devise no. 3 for large wires.

Tailstock (option)

This device is used to hold the coil on both sides and can be adjust to the coil length by moving back and forth. Be sure to remove it when not in use.

2. CONTROL UNITS
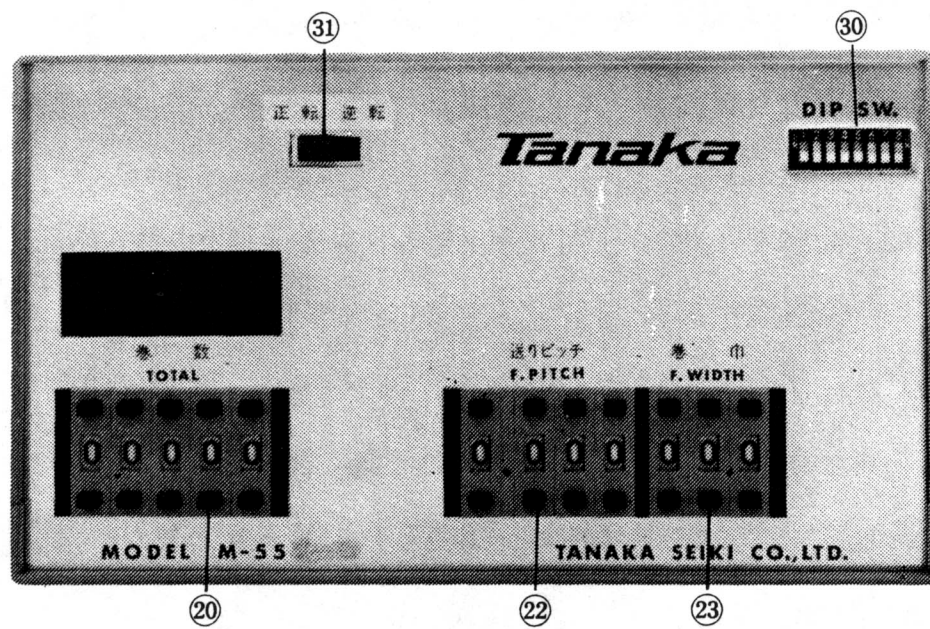
M—55
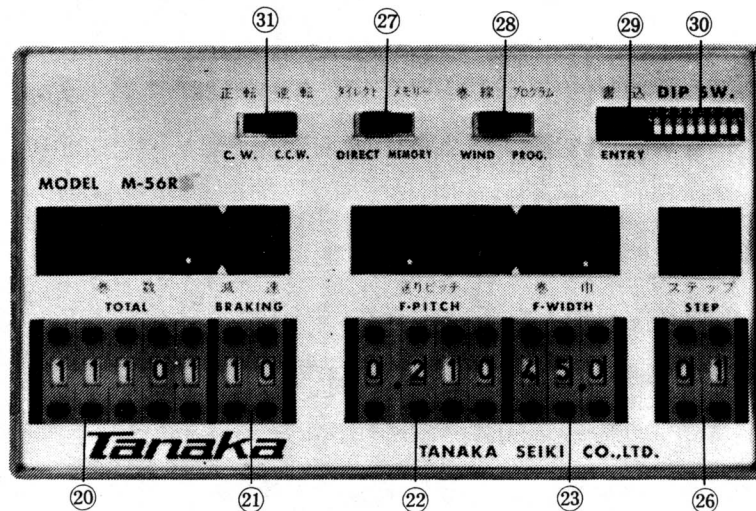
M—56R

20. Total Switch

This is a digital switch to preset the number of turns. In the total display, the number of turns, spindle revolution speed or number of completed coils can be displayed.

21. Braking Switch

This is a switch for decelerating the spindle speed. For example, when the number of turns is 500 and the slow down switch is set at 15, the spindle decelerates at turn number 485. Note: Model AW-852V. AW—853V does not momentarily stop with a mechanical brake cand then slowly wind to the end like the Model AW-850. Model AW-852V uses a dynamic brake (electro magnetic) that slows the spindle down slowly, and so you need to set the braking switch to a larger value than for Model AW-850.

22. Feeding Pitch Switch

This is a digital switch for setting the wire feeding pitch (wire size). Set the actual diameter of the wire plus insulation.

23. Winding (Feeding) Width Switch
This is a digital switch for setting the winding width.

24. Step Pitch Switch
It is to set the pitch by which the wire guide no. 2 or 3 moves to start winding the second section after the first section has been wound. Set the winding width + the thickness of the bobbin flange. This switch can be used when the winding start position is offset or when the jig is to be exchanged, as each winding start position can be entered into the memory.

25. Skip Switch
In section winding the wire does not always move completely to the next section only with the dimension set in the step pitch switch no. 24. This switch gives the wire guide an extra push. Once the wire moves fully to the next section, the wire guide moves to the position set in the step pitch switch and winding begins. The skip switch is set in increments of 1 mm. For section winding on the memory mode, this switch must have a value other than 0. For section winding on the direct mode, any value is acceptable.

26. Step Switch
For multi-step windings, it indicates the step number. And when numerous coil patterns are stored in the memory, it indicates the memory

number. When operating Model M-58R control unit in the direct mode for section winding, it indicates the section number. In memory mode, it indicates the memory number; in multi-step winding, the step number; and in section winding, the section number.

27. Direct/Memory Switch

When set to Direct, the machine winds the coil to the specifications shown on the digital switches. When set to Memory, the machine winds the coil to the specifications in the memory.

28. Winding/Program Switch

To enter specifications into the memory, set to Program. To wind the coil, set to Winding.

29. Entry Button

By pushing the entry button, the specifications shown on the digital switches and the Dip Switches No.1, No.2, No.3, No.4, & No.7 (see no. 30 below) will enter the memory referenced under the memory number shown on the step switch no. 26.

30. Dip Switches

No. 1 for choosing Starting Position

This switch is to set the winding start position. When off, the wire guide no. 2 or 3 starts winding from the position near the machine frame; and when on, it starts from the oposite side. When operating control units M-56, M-56R or M-58R in the memory mode, the position of this switch

can be memorized for each memory number. When the winding of one step ends, the wire guide automatically moves to the winding start position for the next stage entered in the memory.

No. 2 for continuous winding mode
This switch can be used when the winder is operated in the memory mode only. If this switch is entered as ON in the memory of the second stage, once the first stage of winding is finished, the second stage will be wound automatically without pushing the start button no. 10. In most cases this switch is set to OFF.

No. 3 for 0.001mm accuracy in the wire feeding pitch
For control units M-55, M-55R, & M-56R, the wire pitch can be set to an accuracy of 0.001 when this switch is OFF. When ON, the accuracy increases to 0.0001mm. (Note: wire size must be 0.999mm or less.) For M-58R, control unit, when using wires of 0.999 Ø or less, set to ON, for wires of 1.0 Ø or more, set to OFF. (As an option, the wire feeding pitch can be adjusted for settings of 0.0001mm accuracy.)

No. 4 for 0.01mm accuracy in winding width
When set to OFF, the accuracy is 0.1mm. When ON, the accuracy is 0.01mm, but wire diameter must be less than 10mm.

No. 5 for 0.01mm accuracy in the step pitch

When set to OFF, the accuracy is 0.1mm. When ON, the accuracy is 0.01mm, but wire diameter must be less than 10mm.

No. 6 winding start point set switch (Models AW-850 & AW-850V only)
When winding should start from the position nearest the machine frame, set to OFF. When winding should start from the position nearest the operator, set to ON. When set to ON, remove the cover on the right-hand side of the machine and loosen the screw for moving the starting point sensor. Slide the screw as far as possible to the right and then tighten. Note: This switch is not used on Model AW-852V, and the traverse switch no. 6 performs this function. There is no need to move the starting point sensor.)

No. 7 winding finish position stop switch
When set to OFF, once winding finishes, the wire guide no. 2 or 3 moves to the winding start position set in dip switch no. 1. When ON, the wire guide stops once winding finishes. When operated in the memory mode, of control units M-56R & M-58R, this switch can be entered as either ON or OFF depending on the winding requirements.

No.8 fixed/floating spindle switch
When off, the spindle has a fixed starting point. When on, the spindle has a floating starting point. Generally speaking, the fixed spindle starting point is recommended for section windings, and the floating spindle starting point is recommended for other windings.

31. Spindle Direction Change Switch

This switch is able to change the spindle revolution direction.

3. BOBBIN STAND

32. **Reel**
33. **Tension Bar**
34. **Hook**

    For test runs, hang the tension bar no. 32 on this hook.

35. **Wire Guide**
36. **Micro Switch**

    This stops the machine when the bobbin stand runs out of wire or the wire breaks.

37. **Spring**

    This is to adjust the balance of the tension bar no. 32.

38. **Tension Pulley**

    Use this to wind wires of diameters from 0.1 – 0.4 Ø. For finner wires, replace the tension pulley with the felt holder provided.

39. **Adjusting Nut, Fixing Nut** for adjusting tension.
40. **Adjusting Nut, Fixing Nut** for adjusting strength of spring no. 36.
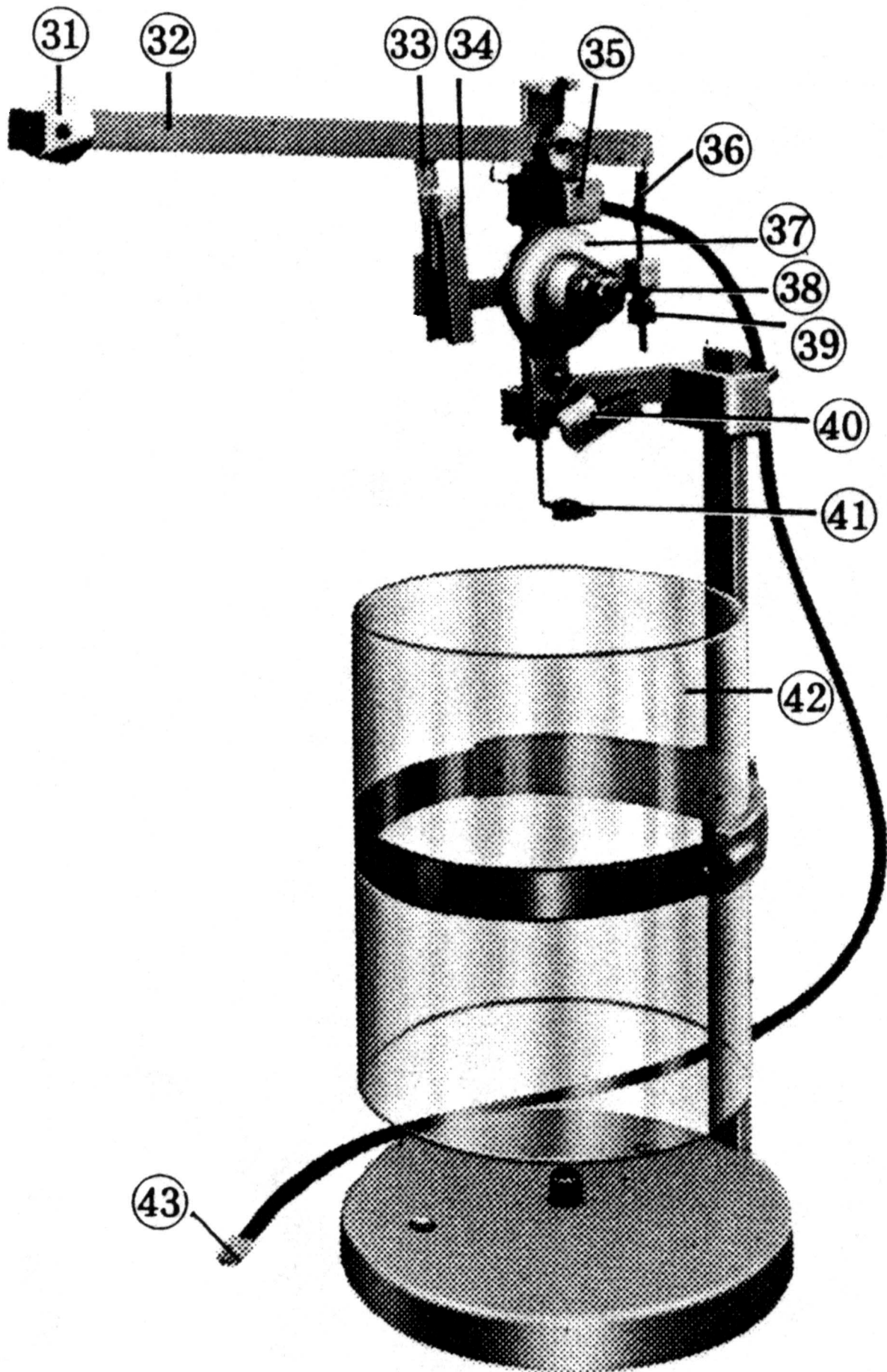41. **Wire Guide**
42. **Guide Ring**

    To Adjust the height.

43. **Cylindrical Cover**
44. **Connector**

    Insert into the socket on the back of the control unit.

3. HOW TO OPERATE

1. Setting up the Winding Machine, Bobbin Stand & Tension Devise

1. Put the winding machine on a sturdy, level table.
2. **For winding fine wires,** set the bobbin stand on the top of the control unit and fix with the provided screws. Insert the bobbin stand connector no. 43 into the 2P socket in the back of the control unit. Fix the wire guide for fine wires no. 2 to the wire guide shaft.

   For winding thick wires, insert the provided short pin into the 2P socket on the back of the control unit. Connect the tension devise for thick wires no. 3 to the wire guide shaft.
3. Insert the power cord into the connector on the winding machine and the plug into the power socket.

2. Setting the Wire

For winding fine wires

1. Lift and push the tension devise of the bobbin stand to the back. After putting the supply bobbin into the cylindrical cover no. 42, return the tension devise to the original position.
2. Pull out the wire, thread through the guide ring no. 41 to the wire guide no. 40—wrap once around the tension pulley no. 37—then to the wire guide no. 34—and through the reel no. 31, and then the reel of the wire guide no. 2—and finally to the wire guide.

For winding extremely fine wires of 0.09 Ø or less

1. Remove the tension pulley assembly no. 37 and 38 of the bobbin stand.
2. Wrap felt around the provided felt holder.
3. Attach the felt holder where the tension pulley was fixed.
4. Do not wrap the wire around the felt, let it slide over the felt.
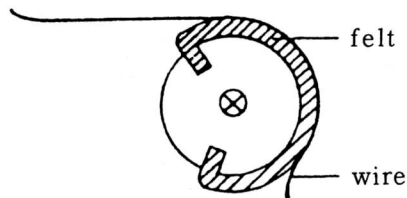
For winding thick wires

1. Place the wire behind the winding machine.
2. Thread the wire through the reel of the support for thick wires no. 19 and then from the guide ring of the tension devise for thick wires no. 3 to the wire guide, and then through the pulleys as shown below.

AW—850V　　　　　　AW—852V·853V
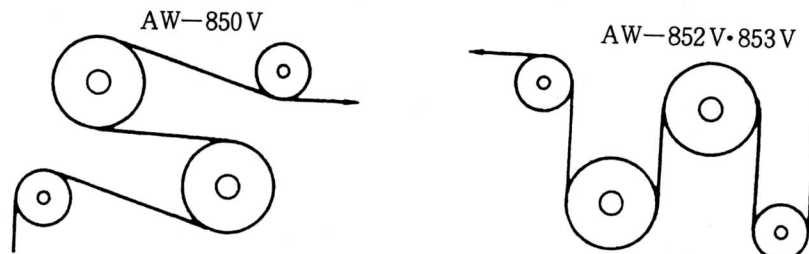
3. **Setting the Winding Start Position**
    1. Insert the jig into the jig holder no. 16 and fix set screws with supplied hexagonal wrench.
    2. Insert the bobbin onto the jig.
    3. Turn on the power switch no. 4 and set the winding start position by dip switch no. 30.
    4. With the reset button no. 5 depressed, adjust the winding start position by turning the winding start position knob no. 1, 1 revolution = 1mm. (Note: if the reset button is not depressed, the winding start position will not change.) Winding start position can also be adjusted by the wire guide no.

4. **Adjusting the Spindle Speed**
    1. This series of winding machines have built-in microcomputers. When the winding speed is too fast for the feeding pitch (i.e., wire diameter), accurate feeding cannot be guaranteed. Determine appropriate winding speed by referring to the "Winding Pitch Range" chart on the side of the winding machine.
    2. Models AW-850 and AW-850V (without the R function) use a 3 step pulley, and model AW-852V, AW-853V and models with the R function use a 2 step pulley. Fix the puelly belt to the pulley stage that will produce the appropriate speed.
    3. Models AW-850V, AW-852V, AW-853V and those with the R function have variable speed controls.
    4. For the exact spindle speed, push the start button while the machine is in operation. Spindle speed will appear in the total counter.

5. **How to Reset or Display the Number of Completed Coils**
    1. To check the number of completed coils, push the stop button no. 9 while the machine is stopped. The number of completed coils will appear in the total counter.
    2. Reset the counter for number of completed coils on Model M-55 (without memory) by turning off the power switch.
    3. On models with memory turning off the power switch alone will not reset the counter. To reset, turn the power switch OFF, then ON with the stop button depressed.

6. **How to Choose the Starting Point of the Traverse**
    For Model AW-850
    The setting of Dip Switch No. 6 (machine part no. 30) determines whether the starting point sensor searches toward the machine frame or toward the operator when the reset button no. 8 is pushed. Depending on the winding start position, move the starting point sensor on the left hand side of the winding machine.

Dip Switch No. 6 Setting	Traverse Direction	Position of Starting Point Sensor
OFF	towards winding machine frame	move towards machine frame
ON	towards operator	move towards operator

Please refer to the explanation of how to move the traverse starting point sensor on page 28 Dip Switch No. 6, machine part no. 30.

For Model AW-852V · AW-853V

The starting point can be set in the traverse switch no. 6. There is no need to move the starting point sensor. Refer to page 14 Traverse Switch no. 6, machine part no. 30.

7. **Types of Spindle Start Positions**

The number of turns shown in the total counter is a record of spindle revolution. There are two different points from which counting of spindle revolution can begin, but each machine starts counting from only one of the below points.

1. **Floating Spindle Start Position (Dip switch No. 8 is up.)**

Count of spindle revolutions starts only when the start button is pushed.

2. **Fixed Spindle Start Position (Dip switch No. 8 is down.)**

The count of spindle revolutions starts immediately when the power switch is turned on.

4. HOW TO PROGRAM

1. To Wind a One Stage Coil in the Direct Mode

Ex. 1   winding start (S) ——⌐   ⌐—— finish (F)
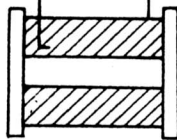
number of turns: 500T
wire size: 0.1 Ø
winding width: 15mm

1. Turn on the power switch (4).
2. Set the Direct/Memory switch (27) to Direct (models M-56, M-56R & M-58R only).
3. Set the Winding/Program switch (28) to Winding (models M-56, M-56R & M-58R only).
4. Set the number of turns in the total switch (20). However, on machines without the R function, set the number of turns minus the appropriate figure to prevent overwinding.
5. Set the number of turns in the slow down switch (21) necessary to prevent overwinding (on models with the R function only).
6. In the feeding pitch switch (22), set the actual diameter of the wire plus the insulation if any. On model M-58R, set the dip switch No. 3 (30) to ON for winding wires of 0.999 Ø or less (and use the red point on the pitch switch display as the decimal point), and set to OFF for wires of 1.0 Ø or more (and use the black point on the pitch switch display as the decimal point).
7. Set the winding width in the winding width switch (23).
8. For Model M-58R, set the step pitch switch (24) & the skip switch (25) to 0.
9. For models M-56R & M-58R, set the step switch (26) to 1.
10. Set the winding start position in the dip switch No. 1 (30) When winding starts from the end close to the machine frame, set to OFF.
11. Now push the reset button (8) to clear previous specifications.
12. Set the appropriate spindle speed for the wire size by referring to the chart on the side of the winding machine. To check the speed, push the start button while the spindle is turning and the rpm will appear in the total display.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
							dip switches								
00500	10	.112	15.0	00.0	0	1	ON								
							OFF	o	o	o	o	o	o	o	o

2. To Wind a Sectioned Coil in the Direct Mode (model M-58R only)

Ex. 2
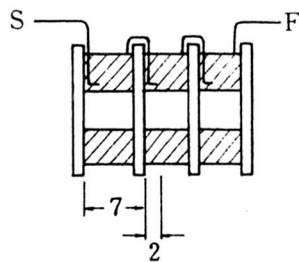
number of turns: 250
wire size: 0.06 Ø
winding width: 5mm
step pitch: 7mm
skip: 2mm
number of sections: 3

1 ~ 7. Same as the Ex. 1 "To Wind a One Stage Coil in the Direct Mode"
8. Set the step pitch in the step pitch switch (24).
9. Set the skip distance necessary for carrying the wire fully into the next section in the skip switch (25).
10. Set the number of sections in the step switch (26).
11. Set the winding start position in the dip switch No. 1 (30).
12. Now push the reset button (8), to erase the previous settings.
13. Set the appropriate spindle speed the same as before.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
							dip switches								
00250	12	.071	05.0	07.0	2	3	ON			o					
							OFF	o	o		o	o	o	o	o

3. To Wind a Multi-Stage Coil in the Memory Mode

Ex. 3

F 2 —————————— S 2
S 1 —————————— F 1

	1st stage	2nd stage
number of turns:	1000	300
wire size:	0.12 Ø	0.18 Ø
winding width:	20mm	20mm
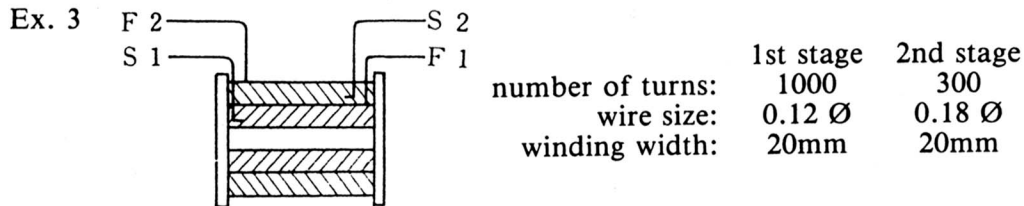
1. Set the power switch (4) to ON.
2. Set the Direct/Memory switch (27) to Memory.
3. Set the Winding/Program switch (28) to Program.
4. Set the step switch (26) to 1 meaning 1st stage or memory position No. 1.
5. Set the number of turns in the total switch.
6. In the slow down switch set the number of turns necessary for braking (models M-56R & M-58R only).
7. Set the feeding pitch in the feeding pitch switch (22). For model M-58R, set the dip switch No. 3 (30) to ON for wires of 0.999 Ø or less and to OFF for wires of 1.0 Ø or more.
8. Set the winding width in the Winding Width switch (23).
9. On model M-58R, set the step pitch switch (24) & skip switch (25) to 0.
10. Set the winding start position in the dip switch No. 1 (30).
11. Press the entry button (29) to display and enter the specifications into the memory.
12. Set the step switch to 2 and set & enter into memory the other specifications for the 2nd stage the same as those for the 1st stage. Follow the same procedure for all subsequent stages.
13. Set the step switch to 3 and the digit farthest to the left in the total switch to 9 (the end mark). By pressing the entry button, the end mark is entered into the memory.
14. To wind be sure to return step switch to 1, move the Winding/Program switch to Winding and push the reset button (8) to erase the previous specifications.

If you still have room in the memory, other coil patterns can be entered in the same way.

Ex. 4

S 2 —————————— F 2
S 1 —————————— F 1

	1st stage	2nd stage
number of turns:	600	200
wire size:	0.14 Ø	0.16 Ø
winding width:	25mm	15mm
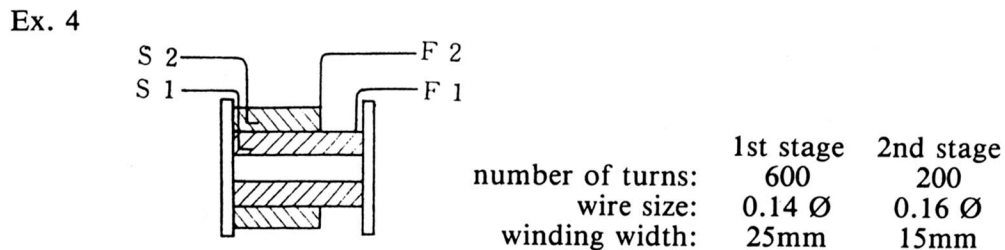
Ex. 3 - control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
01000	12	.138	20.0	00.0	0	1	ON								
							OFF	o	o	o	o	o	o	o	o
00300	12	.205	20.0	00.0	0	2	ON	o							
							OFF		o	o	o	o	o	o	o
9 - - - -	—	—	—	—	—	3	ON								
							OFF								

Ex. 4 - control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
00600	12	.161	25.0	00.0	0	4	ON								
							OFF	o	o	o	o	o	o	o	o
00200	12	.184	15.0	00.0	0	5	ON								
							OFF	o	o	o	o	o	o	o	o
9 - - - -	—	—	—	—	—	6	ON								
							OFF								

For winding Ex. 3, set the step switch to 1; for winding Ex. 4, set the step switch to 4.

4. To Start Winding of the 2nd Stage at the Point where the 1st Stage Ended without Resetting the Wire Guide.

Ex. 5 F 1 —— F 2
S 1 —— S 2
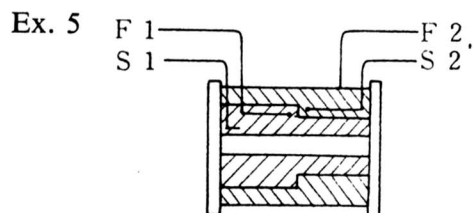
	1st stage	2nd stage
number of turns:	350	100
wire size:	0.4 Ø	0.8 Ø
winding width:	30mm	30mm

1. Turn the power switch on.
2. Set the step switch to 1. Set and enter specifications for the 1st stage (number of turns, slow down, f. pitch, f. width & winding stage position).

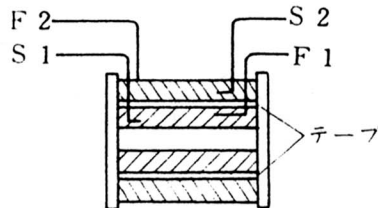3. Set the step switch to 2 and set the specifications for the 2nd stage. Set the dip switch No. 7 to ON and enter into the memory.
4. Set the switch to 3 and enter the end mark into the memory.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
00350	12	.441	30.0	00.0	0	1	ON								
							OFF	o	o	o	o	o	o	o	o
00100	12	.879	30.0	00.0	0	2	ON							o	
							OFF	o	o	o	o	o	o		o
9‐‐‐‐	—	—	—	—	—	3	ON								
							OFF								

5. **To Start Winding of the 2nd Stage at the Point where the 1st Stage Ended without Resetting the Wire Guide but with Taping Between the 1st and 2nd Stages (without the taping turns being counted among the turns for the 2nd stage).**

Ex. 6

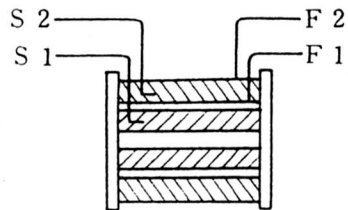|	1st stage	2nd stage
number of turns:	800	500
wire size:	0.12 Ø	0.16 Ø
winding width:	30mm	30mm

1. Set the step switch to 1 and enter specifications for the 1st stage into the memory.
2. Set the step switch to 2 and set all other switches to 0. Set dip switch No. 7 to ON and enter into memory.
3. Set the step switch to 3 and set the specifications for the 2nd stage. Set dip switches No. 2 & No. 7 to ON and enter into the memory.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		dip switches							
								1	2	3	4	5	6	7	8
00800	14	.138	30.0	00.0	0	1	ON								
							OFF	o	o	o	o	o	o	o	o
00000	00	.000	00.0	00.0	0	2	ON							o	
							OFF	o	o	o	o	o	o		o
00500	14	.184	30.0	00.0	0	3	ON		o					o	
							OFF	o		o	o	o	o		o
9- - - -	—	—	—	—	—	4	ON								
							OFF								

Ex. 7 when starting winding from one end of the bobbin after taping

	1st stage	2nd stage
number of turns:	800	500
wire size:	0.12 Ø	0.16 Ø
winding width:	30mm	30mm

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		dip switches							
								1	2	3	4	5	6	7	8
00800	14	.138	30.0	00.0	0	1	ON								
							OFF	o	o	o	o	o	o	o	o
00000	00	.000	00.0	00.0	0	2	ON							o	
							OFF	o	o	o	o	o	o		o
00500	14	.184	30.0	00.0	0	3	ON								
							OFF	o	o	o	o	o	o	o	o
9- - - -	—	—	—	—	—	4	ON								
							OFF								

Push the start button after tape winding to move the wire guide to the preset position. Push the start button again to start winding the 2nd stage.

6. When the Winding Widths are Different for the 1st and 2nd Stages (Model M-58R only)

Ex. 8
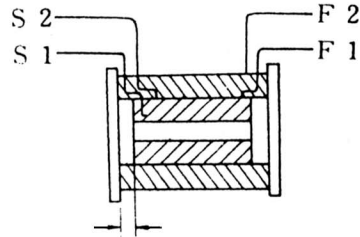
	1st stage	2nd stage
number of turns:	250	100
wire size:	0.8 Ø	1.2 Ø
winding width:	25mm	30mm

1. Adjust the starting position knob (1) to one end of the widest winding width.
2. Set the step switch to 1 and the specifications for the 1st stage winding in the appropriate switches. Then set the pitch to the winding start position of the 2nd stage in the step pitch switch (24) and enter this data into the memory.
3. Set the step switch to 2, the step pitch to 0 and the other specifications for the 2nd stage winding in the appropriate switches. Enter into the memory.
4. Set the step switch to 3 and enter the end mark into the memory.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		dip switches							
								1	2	3	4	5	6	7	8
00250	20	.881	25.0	02.5	0	1	ON			○					
							OFF	○	○		○	○	○	○	○
00100	20	1.29	30.0	00.0	0	2	ON								
							OFF	○	○	○	○	○	○	○	○
9----	—	—	—	—	—	3	ON								
							OFF								

7. To Wind Sectioned Coils in the Memory Mode (Model M-58R only)

Ex. 9
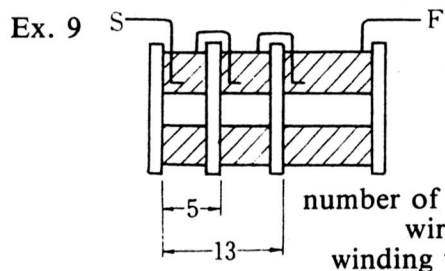
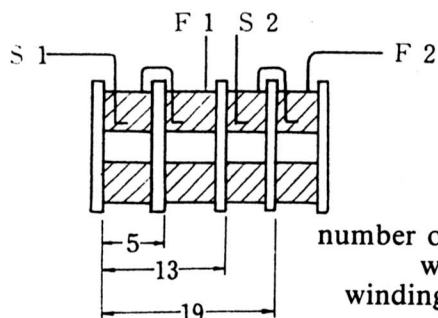|	1st section	2nd section	3rd section
number of turns:	200	400	600
wire size:	0.06 Ø	0.06 Ø	0.06 Ø
winding width:	3mm	6mm	9mm

1. Set the step switch to 1 and the coil specifications for the 1st section into the appropriate switches.
2. Set the step switch to 2 and the coil specifications for the 2nd section into the appropriate switches. In the step pitch switch set the pitch between the winding start position of the 1st section and winding start position of the 2nd section. Set the necessary distance for the skip into the skip switch. Push the entry button to enter into the memory.
3. Set the step switch to 3 and the coil specifications for the 3rd section into the appropriate switches. Enter into the memory after setting the step pitch and skip.
4. Set the step switch to 4 and enter the end mark.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		dip switches							
								1	2	3	4	5	6	7	8
00200	25	.071	03.0	00.0	2	1	ON			o					
							OFF	o	o		o	o	o	o	o
00400	25	.071	06.0	05.0	2	2	ON			o					
							OFF	o	o		o	o	o	o	o
00600	25	.071	09.0	13.0	2	3	ON			o					
							OFF	o	o		o	o	o	o	o
9----	—	—	—	—	—	4	ON								
							OFF								

8. **When Wire Size Changes in Section Winding (Model M-58R only)**

Ex. 10

	section number			
	1st	2nd	3rd	4th
number of turns:	300	500	400	350 T
wire size:	0.08	0.08	0.1	0.1 Ø
winding width:	3	6	4	3.5 mm

1. Set the step switch to 1 and the coil specifications for the 1st section into the appropriate switches. Enter into the memory.
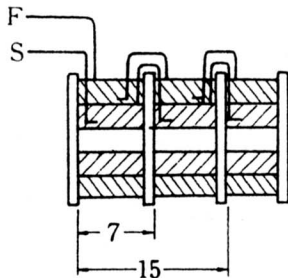
2. Set the step switch to 2 and the coil specifications for the 2nd section into the appropriate switches. Enter into memory after setting the section pitch and skip.

3. Set the step switch to 3 and the coil specifications including step pitch for the 3rd section into the appropriate switches. To stop winding at the end of the 2nd section, set the skip switch to 0 and enter into memory.

4. Set the step switch to 4 and the coil specifications for the 4th section as before. Enter into memory after setting the step pitch and skip.

5. Set the step switch to 5 and enter the end mark.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		dip switches							
								1	2	3	4	5	6	7	8
00300	24	.092	03.0	00.0	0	1	ON			○					
							OFF	○	○		○	○	○	○	○
00500	24	.092	06.0	05.0	2	2	ON			○					
							OFF	○	○		○	○	○	○	○
00400	24	.112	04.0	13.0	0	3	ON			○					
							OFF	○	○		○	○	○	○	○
00350	24	.112	03.5	19.0	2	4	ON			○					
							OFF	○	○		○	○	○	○	○
9----	—	—	—	—	—	5	ON								
							OFF								

9. To "Round Trip" Wind Sectioned Coils, (Multiple Layer Winding of Sectioned Coils—Model M-58R only)

Ex. 11

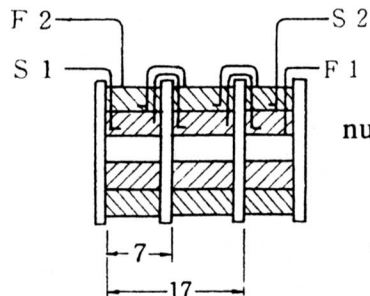|	section number		
	1st	2nd	3rd
number of turns:	300	400.	700
	400	300	
wire size:	0.08	0.08	0.08 Ø
winding width:	5.0	6.0	5.0 mm

1. Set the step switch to 1 and the coil specifications for the 1st section into the appropriate switches. Enter into the memory.

2. Set the step switch to 2 and the coil specifications for the 2nd section including step pitch & skip and then enter into the memory.

3. Set the step switch to 3 and the coil specifications for the 3rd section including step pitch and skip and then enter into the memory.

4. Set the step switch to 4 and the coil specifications for the second layer of the 2nd section including the step pitch and skip. Set the dip switch No. 1 to ON and enter into memory.

5. Set the step switch to 5 and the coil specifications for the second layer of the 1st section including the step pitch and skip. Set the dip switch No. 1 to ON and enter into memory.

6. Set the step switch to 6 and enter the end mark into the memory.

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
00300	24	.092	05.0	00.0	0	1	ON			○					
							OFF	○	○		○	○	○	○	○
00400	24	.092	06.0	07.0	2	2	ON			○					
							OFF	○	○		○	○	○	○	○
00700	24	.092	05.0	15.0	2	3	ON			○					
							OFF	○	○		○	○	○	○	○
00300	24	.092	06.0	07.0	2	4	ON	○		○					
							OFF		○		○	○	○	○	○
00400	24	.092	05.0	00.0	2	5	ON	○		○					
							OFF		○		○	○	○	○	○
9 - - - -	—	—	—	—	—	6	ON								
							OFF								

Ex. 12

	section number		
	1st	2nd	3rd
number of turns:	300	350	400
	300	250	200
wire size:	0.006	0.006	0.006 Ø
	0.09	0.09	0.09 Ø
winding width:	5.0	8.0	6.0 mm

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		dip switches 1	2	3	4	5	6	7	8
00300	24	0.69	05.0	00.0	0	1	ON			o					
							OFF	o	o		o	o	o	o	o
00350	24	0.69	08.0	07.0	2	2	ON			o					
							OFF	o	o		o	o	o	o	o
00400	24	0.69	06.0	17.0	2	3	ON			o					
							OFF	o	o		o	o	o	o	o
00200	24	.104	06.0	17.0	0	4	ON	o		o					
							OFF		o		o	o	o	o	o
00250	24	.104	08.0	07.0	2	5	ON	o		o					
							OFF		o		o	o	o	o	o
00300	24	.104	05.0	00.0	2	6	ON	o		o					
							OFF		o		o	o	o	o	o
9----	—	—	—	—	—	7	ON								
							OFF								

10. When the Length of each Jig (the Winding Start Position) Differs (Model M-58R only—off-set starting position function)

Ex. 13
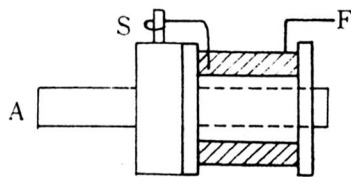
number of turns: 800
wire size: 0.12 Ø
winding width: 25mm
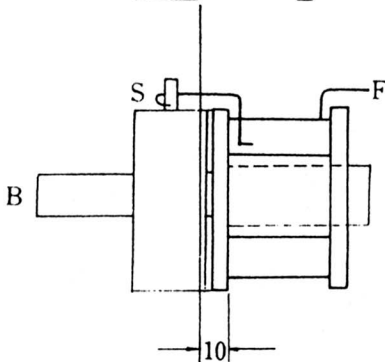
number of turns: 200
wire size: 1.4 Ø
winding width: 30mm

control unit settings

total	braking	f.pitch	f.width	s.pitch	skip	step		1	2	3	4	5	6	7	8
										dip switches					
00800	24	.132	25.0	00.0	0	1	ON			○					
							OFF	○	○		○	○	○	○	○
9 - - - -	—	—	—	—	—	2	ON								
							OFF								
00200	16	1.54	30.0	15.0	0	3	ON								
							OFF	○	○	○	○	○	○	○	○
9 - - - -	—	—	—	—	—	4	ON								
							OFF								

5. HOW TO WIND

1. Winding in the Direct mode or by M-55

   1. Turn the power switch on.

   2. (DIRECT - MEMORY) Move the swich to the side of DIRECT.

   3. Check that the values shown in the dip switch and set switch displays are correct.

   4. Set the machine by pushing the reset button.

   5. On models M-56R and M-58R only, push the stop button to check the number of coils completed. To reset to 0, turn the power switch OFF, then ON, with the stop button depressed.

   6. Set the appropriate speed for the wire size by referring to the chart on the frame of the coil winding machine. On induction or DC motor types, adjust the speed by changing the belt of 3 stage pulley. On machines with the R function, speed can be controlled by either the "speed control knob" or by changing the belt of the 2 step pulley. When you push the start button, the spindle begins to turn. By depressing the button again, the current spindle rpm will be displayed in the total counter.

2. Winding in the Memory mode

   1. Turn the power switch ON.

   2. Set the Direct/Memory switch to Memory.

   3. Set the Winding/Program switch to Winding.

   4. Set the memory number for the coil in the step switch.

   5. Push the reset button to clear the previous pattern.

   6. Adjust the speed with respect to the wire size.

   7. Set the number of completed coils to 0.

6. COMMENTS

1. The machine should be operated on voltage within ± 10% of the value shown on the machine.
2. Do not run the machine at a speed higher than that recommended for the wire size. Doing so may result in improper functioning of the machine.
3. Make sure the jig is well balanced and straight. Also be sure it is mounted firmly.
4. Make sure to lubricate regularly the felt parts (except that in the tension devise of the bobbin stand) with silicon oil or parafin oil. Replace with new felt as soon as it gets dirty.
5. Please lubricate regularly so that the machine works smoothly.

place to lubricate	kind of oil	frequency
reel shaft	spindle oil	once every 2 days
tension bar support shaft	spindle oil	once a week
felt parts	silicon or parafin oil	once a day

Please refer further questions to your nearest agent or directly to the manufacturer.
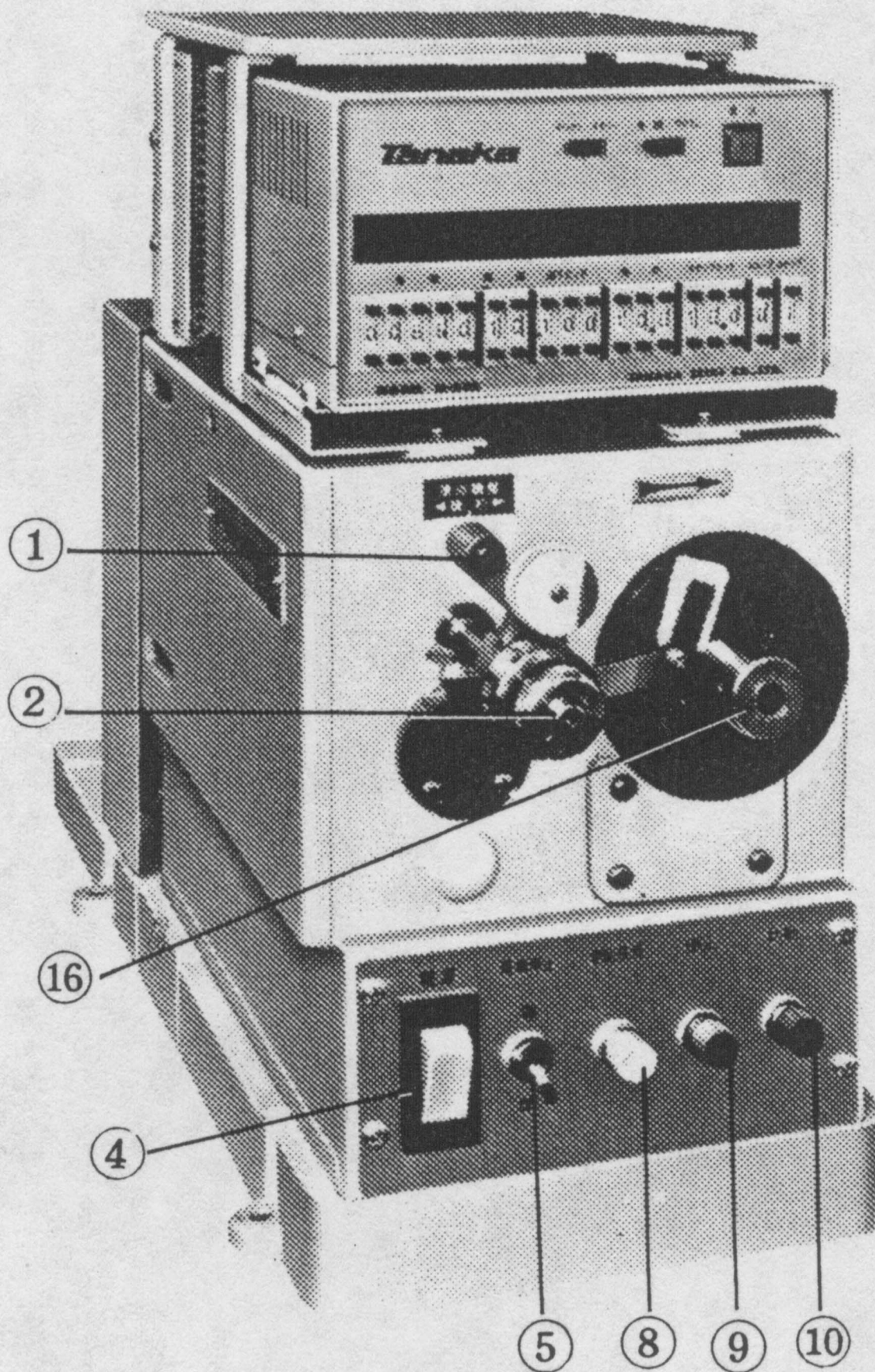
AW—850 for fine wires
AW—850 細線用

AW—852V　　細線用
AW—852V　for fine wires

M—56R

M—56R

DIP SW.

ENTRY

#12 DIP SW.

⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖

㉗ ㉘ ㉙ ㉚ ㉛

プログラム
ダイレクト メモリー
WIND PROG.
DIRECT MEMORY

正転 逆転
C.W. C.C.W.

MODEL M-58R

本数 制動 送りピッチ 送り幅 ステップピッチ スキップ ステップ
TOTAL BRAKING F.PITCH F.WIDTH S.PITCH SKIP STEP

1 0 0.3.0   1 2   0.2.0   3.0.0   0.0   0.0.0   0.0
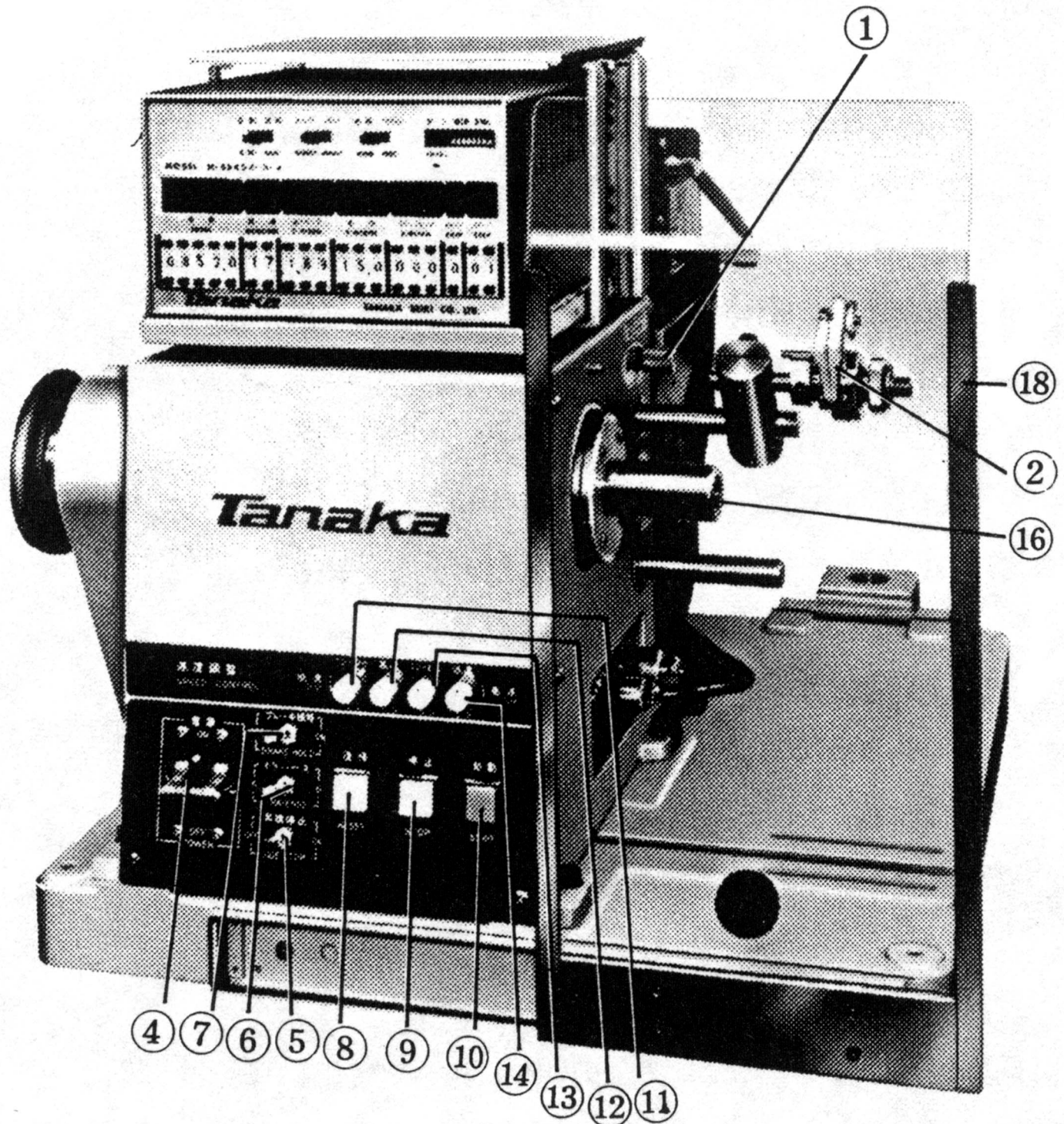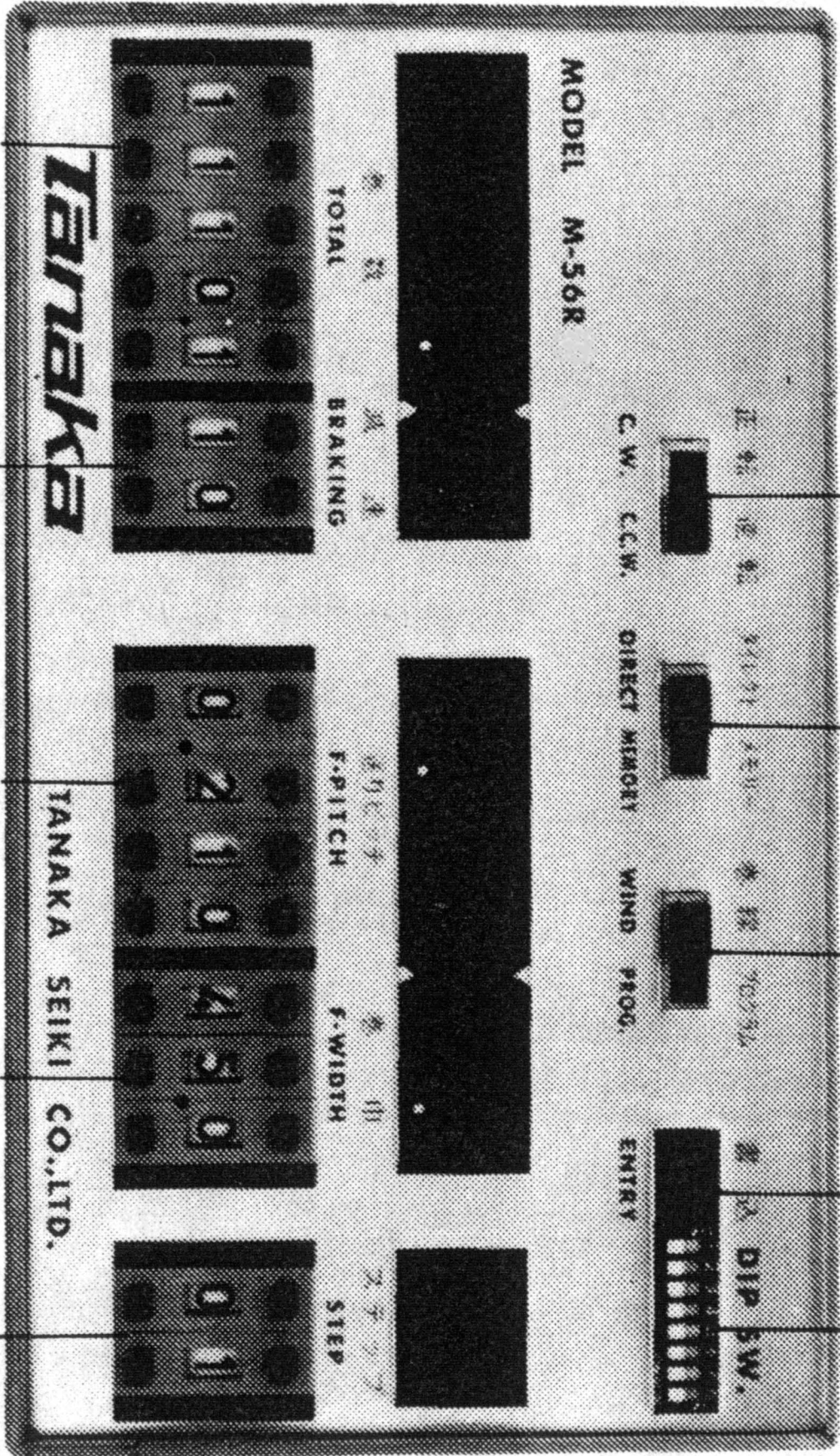
TANAKA

TANAKA SEIKI CO., LTD.

M—58 R