

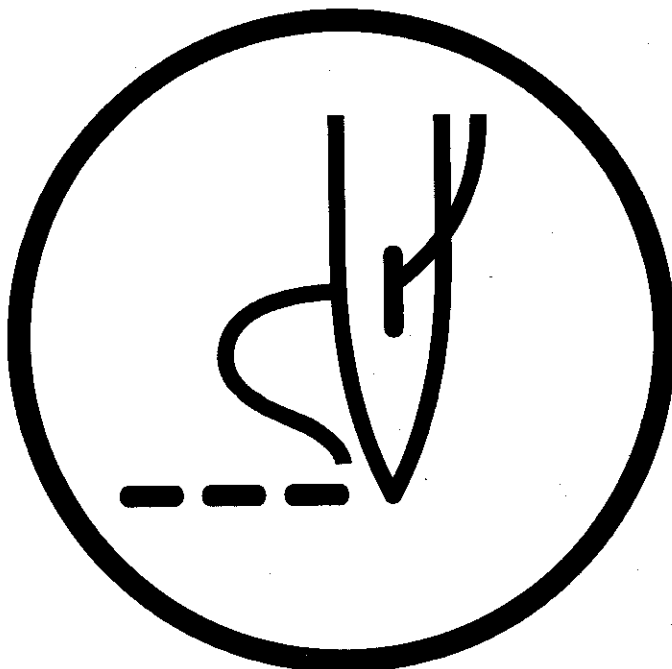
LK3-B434E

INSTRUCTION MANUAL



Please read this manual before using the machine.
Please keep this manual within easy reach for quick reference.

ELECTRONIC LOCKSTITCH PATTERN TACKER



brother[®]

Thank you very much for buying a BROTHER sewing machine. Before using your new machine, please read the safety instructions below and the explanations given in the instruction manual.



With industrial sewing machines, it is normal to carry out work while positioned directly in front of moving parts such as the needle and thread take-up lever, and consequently there is always a danger of injury that can be caused by these parts. Follow the instructions from training personnel and instructors regarding safe and correct operation before operating the machine so that you will know how to use the machine correctly.

SAFETY INSTRUCTIONS

1 Safety indications and their meanings


This instruction manual and the indications and symbols that are used on the machine itself are provided in order to ensure safe operation of this machine and to prevent accidents and injury to yourself or other people. The meanings of these indications and symbols are given below.

Indications

 DANGER	The instructions which follow this term indicate situations where failure to follow the instructions will almost certainly result in death or severe injury.
 CAUTION	The instructions which follow this term indicate situations where failure to follow the instructions could cause injury when using the machine or physical damage to equipment and surroundings.

Symbols




----- This symbol() indicates something that you should be careful of. The picture inside the triangle indicates the nature of the caution that must be taken.
(For example, the symbol at left means "beware of injury".)



----- This symbol() indicates something that you must not do.



----- This symbol() indicates something that you must do. The picture inside the circle indicates the nature of the thing that must be done.
(For example, the symbol at left means "you must make the ground connection".)

2 Notes on safety













DANGER











- Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box. Touching areas where high voltages are present can result in severe injury.

CAUTION

Installation

- | | |
|---|--|
| <ul style="list-style-type: none"> • Machine installation should only be carried out by a qualified technician. • Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done. • The sewing machine weighs more than 49 kg. The installation should be carried out by two or more people. • Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury. • Hold the machine head with both hands when tilting it back or returning it to its original position.
Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine. • If using a work table which has casters, the casters should be secured in such a way so that they cannot move. | <ul style="list-style-type: none"> • All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cable or secure it too firmly staples, otherwise there is the danger that fire or electric shocks could occur. • Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock. • Install the belt covers to the machine head and motor. • Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea.
Keep the oil out of the reach of children. • Avoid setting up the sewing machine near sources of strong electrical noise such as high-frequency welding equipment.
If this precaution is not taken, incorrect machine operation may result. |
|---|--|

Sewing

- | | |
|---|---|
| <ul style="list-style-type: none"> • This sewing machine should only be used by operators who have received the necessary training in safe use beforehand. • The sewing machine should not be used for any applications other than sewing. • Attach all safety devices before using the sewing machine. If the machine is used without these devices attached, injury may result. • Turn off the power switch at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.<ul style="list-style-type: none">• Threading• When replacing the bobbin and needle• When not using the machine and when leaving the machine unattended | <ul style="list-style-type: none"> • Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine. • If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest Brother dealer or a qualified technician. • If the machine develops a problem, contact your nearest Brother dealer or a qualified technician. • If using a work table which has casters, the casters should be secured in such a way so that they cannot move. |
|---|---|

⚠ CAUTION

Cleaning



- Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.



- Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

Maintenance and inspection



- Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.



- Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.



- Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.

- When carrying out inspection, adjustment and maintenance
- When replacing consumable parts such as the rotary hook and knife



- If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.



- Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.



- Use only the proper replacement parts as specified by Brother.



- If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.



- Any problems in machine operation which result from unauthorized modifications to the machine will not be covered by the warranty.

Vielen Dank, daß Sie sich für eine BROTHER-Nähmaschine entschieden haben. Lesen Sie bitte vor der Inbetriebnahme der neuen Nähmaschine die nachstehenden Sicherheitshinweise und die in der Bedienungsanleitung angegebenen Erklärungen durch.



Bei industriellen Nähmaschinen ist es üblich direkt vor sich bewegenden Teilen zu arbeiten und deshalb besteht immer eine gewisse Verletzungsgefahr durch die Nadel und den Fadenabnahmehebel. Befolgen Sie bitte alle die Anweisungen und Instruktionen für eine sichere und fehlerfreie Bedienung sorgfältig und machen Sie sich vor der Inbetriebnahme mit der Maschine vertraut.

SICHERHEITSHINWEISE




1 Sicherheitshinweise und ihre Bedeutung

Diese Bedienungsanleitung und die Hinweise und Symbole auf der Maschine sollen einen sicheren Betrieb der Maschine sicherstellen und die Unfall- und Verletzungsgefahr verringern. Die Bedeutung dieser Hinweise und Symbole wird nachstehend erklärt.

Hinweise

 GEFAHR	Die Anweisungen, die diesem Ausdruck folgen, sind für Gefahrensituationen, bei deren Mißachtung eine hohe Verletzungsgefahr oder sogar Lebensgefahr besteht.
 ACHTUNG	Diese Anweisungen, die diesem Ausdruck folgen, sind für Situationen, bei deren Mißachtung Verletzungsgefahr für das Bedienungspersonal vorhanden ist oder das Nähgut und die Maschinenteile beschädigt werden können.

Symbole

-  ----- Bei diesem Symbol (\triangle) müssen Sie Sorgfalt anwenden. Das Symbol im Dreieck weist auf die Natur der Gefahr hin.
(Zum Beispiel weist das linksstehende Symbol auf eine Verletzungsgefahr hin.)
-  ----- Dieses Symbol (\circ) weist darauf hin, daß Sie etwas nicht machen dürfen.
-  ----- Dieses Symbol (\bullet) weist darauf hin, daß Sie etwas machen müssen. Das Symbol im Kreis gibt einen Hinweis darauf, was gemacht werden muß. (Zum Beispiel bedeutet das rechtsstehende Symbol, daß der Erdungsanschluß gemacht werden muß.)

2 Hinweise zur Sicherheit

⚠ GEFAHR

- ⚡ • Warten Sie mindestens 5 Minuten nach dem Ausschalten und Herausziehen des Netzkabels aus der Steckdose, bevor Sie die Stirnplatte des Schaltkastens öffnen. Beim Berühren von Stellen, an denen Hochspannung vorhanden ist, besteht Verletzungsgefahr.

⚠ ACHTUNG

Montage

- ⊘ • Die Nähmaschine darf nur von einem Fachmann montiert werden.
- ⚠ • Falls Elektrikerarbeiten gemacht werden müssen, wenden Sie sich an Ihren Brother-Händler oder an einen qualifizierten Elektriker.
- ⚠ • Weil die Nähmaschine mehr als 49 kg wiegt, sind zur Montage mindestens zwei Personen notwendig.
- ⊘ • Schließen Sie das Netzkabel erst nach vollständiger Montage an, weil sonst Verletzungsgefahr besteht, wenn die Nähmaschine durch unbeabsichtigtes Betätigen des Fußschalters in Gang gesetzt wird.
- ⊘ • Halten Sie bitte das Maschinenoberteil zum Um- und Zurückklappen mit beiden Händen fest und drücken Sie im umgeklappten Zustand nicht auf die Stirnplatten- oder die Riemenscheibenseite, weil die Maschine umfallen und beschädigt werden kann, bzw. Verletzungen verursacht werden können.
- ⚡ • Erden Sie die Maschine unbedingt. Bei falsch geerdeter Maschine besteht die Gefahr eines elektrischen Schlages.
- ⚠ • Alle Kabel müssen mindestens 25 mm von sich bewegenden Teilen sicher befestigt werden. Die Kabel dürfen auch nicht zu stark gebogen oder zu fest mit Klammern befestigt werden, weil sonst die Gefahr eines elektrischen Schlages besteht.
- ⚠ • Bringen Sie den Riemenschutz am Maschinenoberteil und am Motor an.
- ⊘ • Tragen Sie zur Handhabung von Schmieröl und Schmierfett eine Schutzbrille und Schutzhandschuhe, so daß kein Öl oder Fett in die Augen oder auf die Haut gelangen kann, weil sich sonst diese Stellen entzünden können.
Schmieröl und Schmierfett darf nicht eingenommen werden, weil sonst Erbrechen und Durchfall verursacht werden können.
Bewahren Sie das Schmieröl nicht in Reichweite von Kindern auf.
- ⚠ • Stellen Sie die Nähmaschine nicht an Orten, an denen starke elektrische Störsignale auftreten, wie in der Nähe von Hochfrequenz-Schweißgeräten auf.
Durch Mißachtung dieser Vorsichtsmaßnahmen können Betriebsstörungen der Maschine verursacht werden.
- ⚠ • Falls Sie einen Nähtisch mit Rollen verwenden, müssen die Rollen richtig blockiert werden, so daß sich der Nähtisch nicht bewegen kann.

Nähen

- ⊘ • Diese Nähmaschine darf nur von Personen bedient werden, die zuerst das notwendige Training zur sicheren Bedienung absolviert haben.
- ⊘ • Diese Nähmaschine darf nur zum Nähen verwendet werden.
- ⚠ • Vor Inbetriebnahme müssen alle Sicherheitsvorrichtungen angebracht werden. Beim Betrieb ohne Sicherheitsvorrichtungen können Verletzungen verursacht werden.
- ⚠ • Schalten Sie den Netzschalter in den folgenden Fällen immer aus, weil sonst Verletzungsgefahr besteht, wenn die Nähmaschine durch unbeabsichtigtes Betätigen des Fußschalters in Gang gesetzt wird.
 - Einfädeln
 - Beim Ersetzen der Spule und Nadel
 - Wenn die Maschine nicht verwendet wird oder unbeaufsichtigt ist
- ⚠ • Berühren Sie keine sich bewegenden Teile und drücken Sie auch keine Gegenstände an solche Teile, weil Sie sich verletzen können und die Nähmaschine beschädigt werden kann.
- ⚠ • Bei einem Bedienungsfehler oder falls abnormale Geräusche oder Gerüche auftreten, muß der Netzschalter sofort ausgeschaltet werden. Wenden Sie sich danach an den nächsten Brother-Händler oder an einen qualifizierten Fachmann.
- ⚠ • Bei einer Betriebsstörung wenden Sie sich bitte an den nächsten Brother-Händler oder an einen qualifizierten Fachmann.
- ⚠ • Falls Sie einen Nähtisch mit Rollen verwenden, müssen die Rollen richtig blockiert werden, so daß sich der Nähtisch nicht bewegen kann.

ACHTUNG

Reinigen



- Schalten Sie zum Reinigen immer den Netzschalter aus. Es besteht Verletzungsgefahr, wenn die Nähmaschine durch unbeabsichtigtes Betätigen des Fußschalters in Gang gesetzt wird.



- Tragen Sie zur Handhabung von Schmieröl und Schmierfett eine Schutzbrille und Schutzhandschuhe, so daß kein Öl oder Fett in die Augen oder auf die Haut gelangen kann, weil sich sonst diese Stellen entzünden können.
Schmieröl und Schmierfett darf nicht eingenommen werden, weil sonst Erbrechen und Durchfall verursacht werden können.
Bewahren Sie das Schmieröl nicht in Reichweite von Kindern auf.

Wartung und Inspektion



- Die Wartung und Inspektion darf nur durch einen qualifizierten Fachmann ausgeführt werden.



- Wenden Sie sich für die Wartung und Inspektion des elektrischen Systems an Ihren Brother-Händler oder an einen qualifizierten Elektriker.



- Schalten Sie den Netzschalter immer aus und ziehen Sie das Netzkabel aus der Steckdose, weil sonst Verletzungsgefahr besteht, wenn die Nähmaschine durch unbeabsichtigtes Betätigen des Fußschalters in Gang gesetzt wird.

- Für die Prüfung, Einstellung und Wartung
- Beim Ersetzen von Verbrauchsteilen, wie Drehgreifer und Messer



- Falls der Netzschalter für gewisse Einstellungen eingeschaltet sein muß, müssen die Vorsichtsmaßnahmen besonders sorgfältig beachtet werden.



- Halten Sie bitte das Maschinenoberteil zum Um- und Zurückklappen mit beiden Händen fest und drücken Sie im umgeklappten Zustand nicht auf die Stirnplatten- oder die Riemenscheibenseite, weil die Maschine umfallen und beschädigt werden kann, bzw. Verletzungen verursacht werden können.



- Verwenden Sie nur die richtigen, von Brother vorgeschriebenen Austauschteile.



- Falls Sicherheitsvorrichtungen entfernt wurden, müssen sie unbedingt wieder in den ursprünglichen Positionen montiert werden. Kontrollieren Sie vor der Inbetriebnahme die Sicherheitsvorrichtungen auf richtige Funktion.



- Störungen der Nähmaschine, die auf unerlaubte Modifikationen der Nähmaschine zurückgeführt werden können, werden nicht durch die Garantie gedeckt.

Nous vous remercions d'avoir acheté une machine à coudre BROTHER. Avant d'utiliser votre nouvelle machine, veuillez lire attentivement les instructions de sécurité ci-dessous et les explications données dans le manuel d'instructions.



Pour utiliser les machines à coudre industrielles, l'opérateur doit se trouver juste en face des parties mobiles telles que l'aiguille et le levier de releveur de fil; par conséquent, ces pièces présentent un risque permanent de blessures. Pour utiliser la machine correctement et en toute sécurité, se conformer aux instructions données par les instructeurs et le personnel de formation.

INSTRUCTIONS DE SECURITE

1 Indications de sécurité et leur signification

Ce manuel d'instructions et les indications et symboles figurant sur la machine elle-même permettent d'utiliser la machine en toute sécurité et d'éviter des accidents et des blessures à votre entourage et à vous-même. Les significations de ces indications et de ces symboles sont indiquées ci-dessous.

Indications

 DANGER	Ce terme désigne les instructions qui, faute d'être respectées, ont de grandes chances de provoquer un décès ou des blessures graves.
 ATTENTION	Ces terme désigne les instructions qui, faute d'être respectées, risqueraient de provoquer des blessures lors de l'utilisation de la machine, ou d'endommager la machine et les objets environnants.

Symboles



----- Ce symbole (△) indique la chose à laquelle vous devez faire attention. L'image contenue dans le triangle indique la nature de la précaution à prendre. (Par exemple, le symbole à gauche signifie "Risque de blessures".)



----- Ce symbole (⊘) indique une chose que vous ne devez pas faire.



----- Ce symbole (●) indique une chose que vous devez faire. L'image contenue dans le cercle indique la nature de la chose à effectuer. (Par exemple, le symbole à gauche signifie "Vous devez effectuer le branchement de terre".)

2 Remarques concernant la sécurité

DANGER



- Attendre au moins 5 minutes après avoir mis l'interrupteur d'alimentation sur la position d'arrêt et avoir débranché le cordon d'alimentation de la prise murale, avant d'ouvrir la plaque frontale du boîtier de commande. Si on touche des zones sous haute tension, on risque de se blesser gravement.

ATTENTION

Installation



- L'installation de la machine doit être confiée exclusivement à un personnel qualifié.



- S'adresser à votre revendeur Brother ou à un électricien qualifié pour effectuer toute réparation éventuelle du système électrique.



- La machine à coudre pèse plus de 49 kg. L'installation nécessite donc le concours de deux personnes ou plus.



- Ne pas brancher le cordon d'alimentation avant d'avoir complètement terminé l'installation, sinon la machine risquera de se mettre en marche si on enfonce la pédale par erreur, et on risquera alors de se blesser.



- Tenir la tête de machine avec les deux mains en la basculant vers l'arrière ou en la remettant à sa position d'origine. En outre, après avoir basculé la tête de machine vers l'arrière, ne pas pousser les côtés de la plaque frontale ou de la poulie, par le côté supérieur, car ceci risquerait de renverser la tête de machine et donc de provoquer des blessures et d'endommager la tête de machine.



- Veiller à bien brancher la machine à la terre. Si le branchement de terre est mal fait, il y aura risque d'électrocution grave.



- Tous les câbles doivent être fixés à au moins 25 mm des parties mobiles. De plus, ne pas plier excessivement les câbles ni les fixer trop fermement, sinon on risquera de provoquer un choc électrique ou un incendie.



- Installer les couvercles de courroie sur la tête de machine et sur le moteur.



- Veiller à mettre des lunettes et des gants de protection lors de la manipulation de l'huile et de la graisse, afin qu'elles n'entrent pas en contact avec les yeux ou la peau, et d'éviter tout risque d'inflammation. De plus, l'ingestion de l'huile ou de la graisse est à proscrire absolument, car elle pourrait provoquer des vomissements ou des diarrhées. Conserver l'huile hors de portée des enfants.



- Eviter d'installer la machine près de sources de bruit électrique intense, telles que des appareils de soudure haute fréquence. Si on n'observe pas cette précaution, une anomalie de fonctionnement risque de s'ensuivre.



- Si on utilise une table de travail équipée de roulettes, il faut veiller à fixer les roulettes de manière qu'elles soient parfaitement immobilisées.



Couture



- Cette machine à coudre doit être utilisée seulement par des opérateurs qui ont préalablement reçu la formation nécessaire à l'utilisation sûre de la machine.



- Cette machine ne doit pas être utilisée pour d'autres usages que la couture.



- Fixer tous les dispositifs de sécurité avant d'utiliser la machine à coudre. Si on utilise la machine sans avoir d'abord fixé ces dispositifs, on risquera de se blesser.



- Mettre l'interrupteur d'alimentation sur la position d'arrêt aux moments suivants, sinon la machine risquera de se mettre en marche si on enfonce la pédale par erreur, et on risquera alors de se blesser.

- Enfilage
- Lors du remplacement de la canette et de l'aiguille
- Lorsqu'on n'utilise pas la machine et lorsqu'on laisse la machine sans surveillance



- Ne toucher aucune des parties mobiles, et ne pas presser d'objets contre la machine pendant la couture, car ceci pourrait causer des blessures ou endommager la machine.



- Si une anomalie de fonctionnement se produit, ou si on remarque des bruits ou des odeurs anormaux, mettre immédiatement l'interrupteur d'alimentation en position d'arrêt. S'adresser ensuite à un concessionnaire Brother ou à un technicien qualifié.



- En cas d'anomalie de fonctionnement, s'adresser à un concessionnaire Brother ou à un technicien qualifié.



- Si on utilise une table de travail équipée de roulettes, il faut veiller à fixer les roulettes de manière qu'elles soient parfaitement immobilisées.

ATTENTION

Nettoyage



- Mettre l'interrupteur d'alimentation sur la position d'arrêt avant d'entreprendre les travaux de nettoyage. La machine risquera de se mettre en marche si on enfonce la pédale par erreur, et on risquera alors de se blesser.



- Veiller à mettre des lunettes et des gants de protection lors de la manipulation de l'huile et de la graisse, afin qu'elles n'entrent pas en contact avec les yeux ou la peau, et d'éviter tout risque d'inflammation. De plus, l'ingestion de l'huile ou de la graisse est à proscrire absolument, car elle pourrait provoquer des vomissements ou des diarrhées. Conserver l'huile hors de portée des enfants.

Entretien et vérification



- L'entretien et la vérification de la machine à coudre doivent être confiés exclusivement à un technicien qualifié.



- S'adresser à un concessionnaire Brother ou à un électricien qualifié pour effectuer des travaux d'entretien ou de vérification du système électrique.



- Mettre l'interrupteur d'alimentation sur la position d'arrêt et débrancher le cordon d'alimentation de la prise murale aux moments suivants, sinon la machine risquera de se mettre en marche si on enfonce la pédale par erreur, et on risquera alors de se blesser.

- Lorsqu'on effectue des vérifications, des réglages ou des opérations d'entretien.
- Lors du remplacement des accessoires tels que le crochet rotatif et le couteau.



- Tenir la tête de machine avec les deux mains en la basculant vers l'arrière ou en la remettant à sa position d'origine. En outre, après avoir basculé la tête de machine vers l'arrière, ne pas pousser les côtés de la plaque frontale ou de la poulie, par le côté supérieur, car ceci risquerait de renverser la tête de machine et donc de provoquer des blessures et d'endommager la tête de machine.



- S'il faut laisser l'interrupteur d'alimentation sur la position de marche lorsqu'on effectue des réglages, veiller absolument à respecter toutes les précautions de sécurité.



- Utiliser seulement les pièces de rechange recommandées par Brother.



- Si des dispositifs de sécurité ont été déposés, veiller absolument à les remettre à leur place initiale et vérifier qu'ils fonctionnent correctement avant d'utiliser la machine.



- Toute anomalie de fonctionnement de la machine résultant de transformations non autorisées de la machine ne sera pas couverte par la garantie.

Muchas gracias por haber adquirido una máquina de coser BROTHER. Antes de usar su nueva máquina, por favor lea las instrucciones de seguridad a continuación y las explicaciones en este manual.



Al usar máquinas de coser industriales, es normal trabajar ubicado directamente delante de piezas móviles como la aguja y la palanca del tirahilos, y por consiguiente siempre existe peligro de sufrir heridas ocasionadas por estas partes. Siga las instrucciones para entrenamiento del personal y las instrucciones de seguridad y funcionamiento correcto antes de usar la máquina de manera de usarla correctamente.

INSTRUCCIONES DE SEGURIDAD


1 Indicaciones de seguridad y sus significados

Las indicaciones y símbolos usados en este manual de instrucciones y en la misma máquina son para asegurar el funcionamiento seguro de la máquina y para evitar accidentes y heridas. El significado de estas indicaciones y símbolos se indica a continuación.


Indicaciones

 PELIGRO	Las instrucciones a continuación de este término representan situaciones en las cuales el no respetar las instrucciones seguramente resultará en muerte o heridas serias.
 ATENCION	Las instrucciones a continuación de este término representan situaciones en las cuales el no respetar las instrucciones podría causar heridas durante el uso de la máquina o podrían dañar la prenda y piezas móviles de la máquina.

Símbolos


 ----- Este símbolo (△) indica algo con lo que usted debe tener cuidado. Esta figura dentro del triángulo indica la naturaleza de la precaución que se debe tener.
(Por ejemplo, el símbolo a la izquierda significa "cuidado puede resultar herido".)

 ----- Este símbolo (⊘) indica algo que no de hacer.

 ----- Este símbolo (●) indica algo que debe hacer. La figura dentro del círculo indica la naturaleza de la acción a realizar.
(Por ejemplo, el símbolo a la izquierda significa "debe hacer la conexión a tierra".)












2 Notas sobre seguridad

PELIGRO









-  Después de desconectar el interruptor principal y desenchufar el cable de alimentación del tomacorriente en la pared esperar al menos 5 minutos antes de abrir la placa delantera de la caja de controles. El tocar las áreas donde exista alto voltaje puede ocasionar heridas graves.

ATENCION

Instalación

-  La máquina debe ser instalada sólo por personal especializado.
-  Consultar a su distribuidor Brother o un electricista calificado por cualquier trabajo de electricidad que se debiera realizar.
-  La máquina de coser pesa más de 49 kg. La instalación debe ser realizada por dos o más personas.
-  No conectar el cable de alimentación hasta haber completado la instalación, de lo contrario la máquina podría comenzar a funcionar si por descuido se presionara el interruptor de pie de comienzo de costura, lo que podría resultar en heridas.
-  Sostener la cabeza de la máquina con ambas manos al inclinarla hacia atrás o volverla a su posición original. Después, al inclinar hacia atrás la cabeza de la máquina no empujar del lado de la placa frontal o la polea, pues esto podría causar que la máquina se de vuelta, lo cual puede ocasionarle heridas o dañar la cabeza de la máquina.
-  Asegurarse de hacer la conexión a tierra. Si la conexión a tierra no fuera segura, se corre el peligro de sufrir golpes eléctricos serios.
-  Todos los cables deben mantenerse al menos a 25 mm de las piezas móviles. Además, no se deben doblar demasiado los cables o apretarlos demasiado, de lo contrario existe el peligro de que ocurra un incendio o golpes eléctricos.
-  Instalar las cubiertas de correas en la cabeza de la máquina y el motor.
-  Asegurarse de usar anteojos de seguridad y guantes al manipular aceites lubricantes y grasa, de manera que no salpiquen sus ojos o la piel, de lo contrario podrían resultar inflamados. Además, bajo ningún concepto beba aceite lubricante o ingiera grasa pues podrían ocasionar vómitos y diarrea. Mantener el aceite lubricante lejos del alcance de los niños.
-  Evite instalar la máquina de coser próxima a fuentes de ruidos eléctricos fuertes como equipos de soldadura de alta frecuencia. Si no se tienen en cuenta estas precauciones, la máquina podría funcionar mal.
-  Si se usa una mesa de trabajo con ruedas, las ruedas deben estar trancadas de manera que no se puedan mover.

Costura

-  Sólo operarios que hayan sido entrenados especialmente deben usar esta máquina de coser.
-  La máquina de coser no debe ser usada para otro uso que no sea coser.
-  Instalar todos los dispositivos de seguridad antes de usar la máquina de coser. Si la máquina de coser se usa sin los dispositivos de seguridad podría resultar herido.
-  Desconectar el interruptor principal en los siguientes casos, de lo contrario la máquina podría comenzar a funcionar si por descuido se presionara el interruptor de pie de comienzo de costura, lo que podría resultar en heridas.
 - Enhebrado
 - Al cambiar la bobina y la aguja
 - Al no usar la máquina y alejarse de ella dejándola sin cuidado
-  No tocar ninguna de las piezas móviles o presionar ningún objeto contra la máquina al coser, pues podría resultar en heridas o la máquina podría resultar dañada.
-  Si comete un error al usar la máquina, o si se escuchan ruidos extraños o se sienten olores extraños, desconectar inmediatamente el interruptor principal. Luego consultar al distribuidor Brother más cercano o a un técnico calificado.
-  Si la máquina no funcionara correctamente, consultar al distribuidor Brother más cercano o a un técnico calificado.
-  Si se usa una mesa de trabajo con ruedas, las ruedas deben estar trancadas de manera que no se puedan mover.

ATENCION

Limpieza



- Desconectar el interruptor principal antes de comenzar cualquier trabajo de limpieza. La máquina podría comenzar a funcionar si por descuido se presionara el interruptor de pie de comienzo de costura, lo que podría resultar en heridas.



- Asegurarse de usar anteojos de seguridad y guantes al manipular aceites lubricantes y grasa, de manera que no salpiquen sus ojos o la piel, de lo contrario podrían resultar inflamados.
Además, bajo ningún concepto beba aceite lubricante o ingiera grasa pues podrían ocasionar vómitos y diarrea.
Mantener el aceite lubricante lejos del alcance de los niños.

Mantenimiento e inspección



- El mantenimiento y la inspección de la máquina debe ser realizado sólo por un técnico calificado.



- Consultar a su distribuidor Brother o un electricista calificado por cualquier trabajo de mantenimiento e inspección eléctrica que se debiera realizar.



- Desconectar el interruptor principal y desenchufar el cable de alimentación del tomacorriente en la pared en los siguientes casos, de lo contrario la máquina podría comenzar a funcionar si por descuido se presionara el interruptor de pie de comienzo de costura, lo que podría resultar en heridas.

- Al inspeccionar, ajustar o realizar el mantenimiento
- Al cambiar piezas como la lanzadera y la cuchilla



- Sustener la cabeza de la máquina con ambas manos al inclinarla hacia atrás o volverla a su posición original. Después, al inclinar hacia atrás la cabeza de la máquina no empujar del lado de la placa frontal o la polea, pues esto podría causar que la máquina se de vuelta, lo cual puede ocasionarle heridas o dañar la cabeza de la máquina.



- Si el interruptor principal debiera estar conectado al realizar un ajuste, se debe tener mucho cuidado de tener en cuenta las siguientes precauciones.



- Usar sólo las piezas de repuesto especificadas por Brother.



- Si se hubieran desmontado alguno de los dispositivos de seguridad, asegurarse de volver a instalarlos a su posición original y verificar que funcionan correctamente antes de usar la máquina.



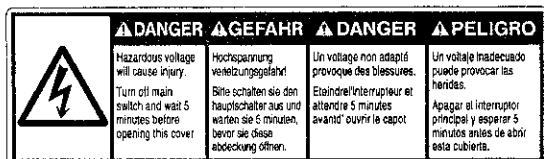
- Los problemas que resultaran de modificaciones no autorizadas en la máquina no serán cubiertos por la garantía.

③ Warning labels
③ Warnschilder

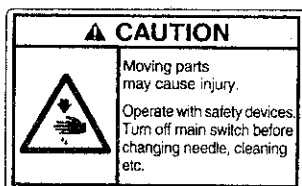
③ Etiquettes d'avertissement
③ Etiquetas de advertencia

- ★ The following warning labels appear on the sewing machine. Please follow the instructions on the labels at all times when using the machine. If the labels have been removed or are difficult to read, please contact your nearest Brother dealer.
- ★ An der Nähmaschine sind die folgenden Warnschilder angebracht. Falls Schilder entfernt wurden oder unleserlich geworden sind, wenden Sie sich an den nächsten Brother-Händler.
- ★ Les étiquettes d'avertissement suivantes sont fixées sur la machine à coudre. Veiller à suivre les instructions figurant sur les étiquettes à tout moment lors de l'utilisation de la machine. Si les étiquettes ont été retirées ou si elles sont difficiles à lire, contacter un concessionnaire Brother.
- ★ Las siguientes etiquetas de advertencia se encuentran en la máquina. Se deben tener en cuenta las instrucciones en las etiquetas en todo momento que se usa la máquina. Si las etiquetas fueron despegadas o no se pueden leer claramente, consultar al distribuidor Brother más cercano.

1



2



ACHTUNG

Verletzungsgefahr durch sich bewegende Teile!
Die Maschine darf nur mit angebrachten Sicherheitsvorrichtungen in Betrieb genommen werden. Zum Einfädeln, Spulen- und Nadelwechselln, Reinigen usw. muß der Hauptschalter ausgeschaltet werden.

ATTENTION

Les parties mobiles risquent de provoquer des blessures. Utiliser la machine équipée de ses dispositifs de sécurité. Mettre l'interrupteur principal sur la position d'arrêt avant d'entreprendre l'enfilage, le changement de la canette et de l'aiguille, le nettoyage, etc.

ATENCIÓN

Las piezas móviles pueden provocar heridas. Trabajar con dispositivos de seguridad. Desconectar el interruptor principal antes de enhebrar la aguja, cambiar la bobina y la aguja, limpiar, etc.

Safety devices:

- 1 Belt cover,
- 2 Thread take-up cover,
- 3 Eye guard,
- 4 Finger guard,
- 5 Motor cover, etc.

Sicherheitsvorrichtungen:

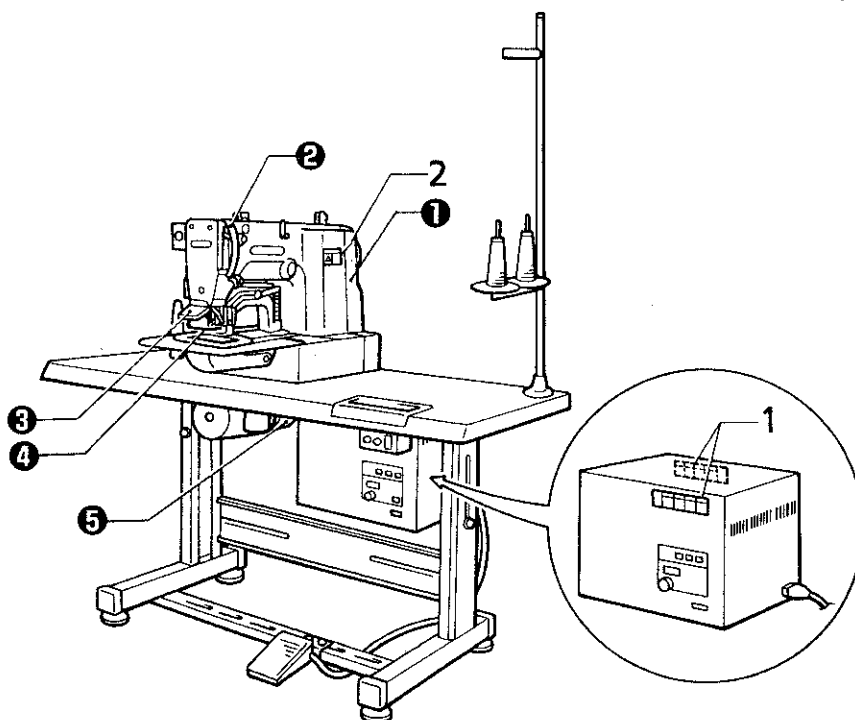
- 1 Riemenchutz,
- 2 Fadenabnahmeabdeckung,
- 3 Augenschutz,
- 4 Fingerschutz,
- 5 Motorabdeckung usw.

Dispositifs de sécurité:

- 1 Couvercle de courroie,
- 2 Couvercle du releveur de fil,
- 3 Garde-chas,
- 4 Garde-doigts,
- 5 Couvercle de moteur, etc.

Dispositivos de seguridad:

- 1 Cubierta de la correa,
- 2 Cubierta del tirahilos,
- 3 Protector de ojos,
- 4 Protector de dedos,
- 5 Cubierta del motor etc.



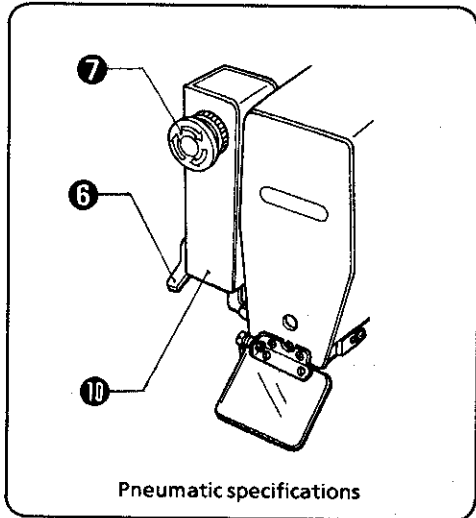
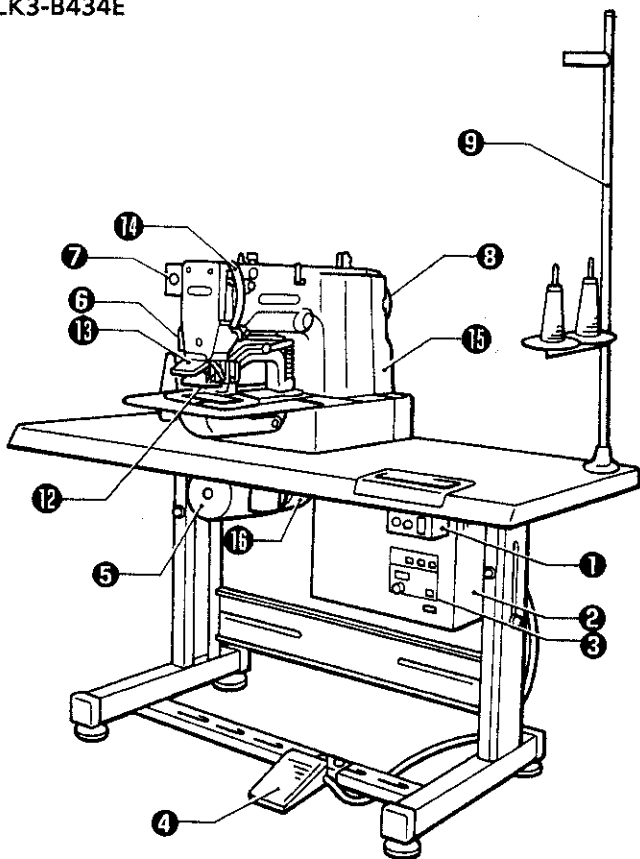
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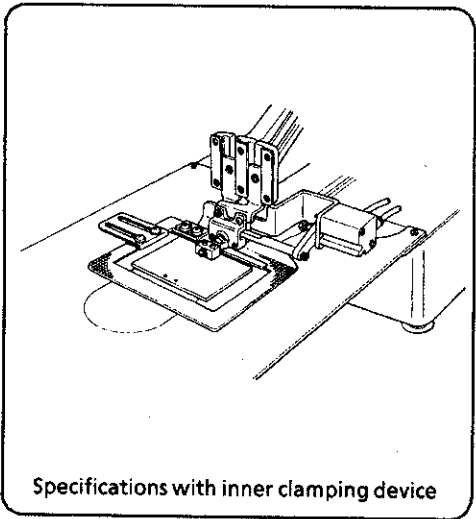
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1. NAME OF EACH PART

LK3-B434E

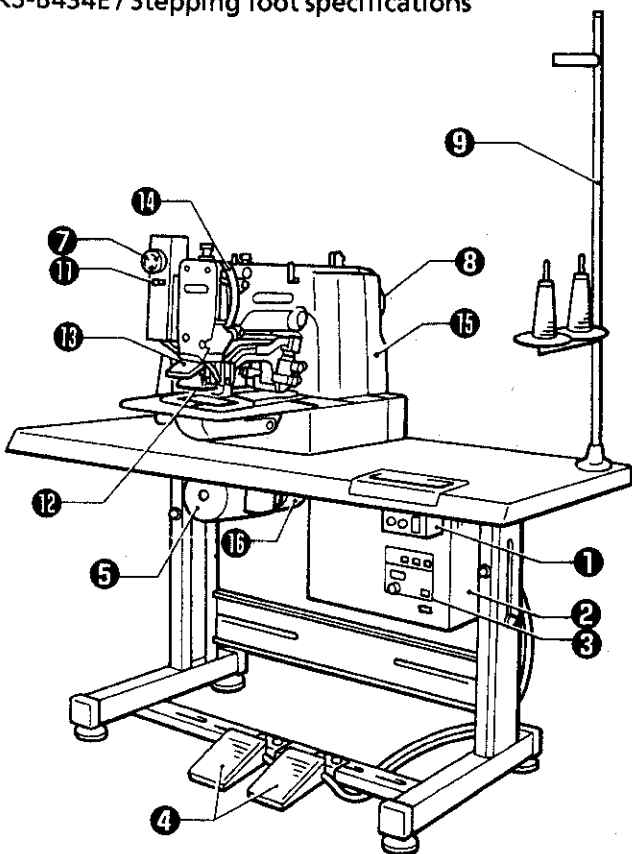


Pneumatic specifications



Specifications with inner clamping device

LK3-B434E / Stepping foot specifications



- ① Power switch
- ② Control box
- ③ Operation panel
- ④ Foot switch
- ⑤ Motor
- ⑥ Tension release lever
- ⑦ EMERGENCY STOP switch
- ⑧ Pulley
- ⑨ Spool stand
- ⑩ Wiper solenoid cover
- ⑪ Thread wiper switch

Safety devices;

- ⑫ Finger guard
- ⑬ Eye guard
- ⑭ Thread take-up cover
- ⑮ Belt cover
- ⑯ Motor cover

2. SPECIFICATIONS

2-1. Specifications

Stitch formation	Single needle lock stitch
Maximum sewing speed	2,000 spm (Pitch 3 mm * 1)
Maximum pattern size	100 x 60 mm max.
Feed mechanism	R-θ stepping feed mechanism (pulse-motor driven mechanism)
Stitch length	0.1-10.0 mm
Number of stitches	Variable
Maximum stitch number	5,000 stitches (including 4,000 stitches which can be added)
Work clamp lifter	Solenoid type or pneumatic type
Work clamp height	17 mm max (for solenoid), 20 mm max (for pneumatic) (Max. 17 mm for inner clamping device)
Rotary hook	Shuttle hook (shuttle hook 2, optional)
Wiper device	Standard equipment
Thread trimmer device	Standard equipment
Stepping foot lift amount	18 mm (Stepping foot specifications only)
Stepping foot stroke	0.3 - 8 mm (Stepping foot specifications only)
Safety equipment	built-in stopping mechanism
Data storage method	PROM (Any sewing pattern can be added using BAS-PC/300.)
Number of stored data	Up to 50 patterns can be added. Total number of stitches of stored data which can be added is within 4,000.
Motor	Three-phase 400 W induction motor
Weights	Machine head: 49 kg (50 kg for stepping foot specifications) Control box: 9-19 kg (depending on destination)
Power supply	Single-phase 220-230 V 3-phase 220, 380, 400, 415 V Maximum electric power consumption; 600 VA

*1 Because of the R-θ feed, sewing at maximum speed may not be possible for some sewing data, even if the sewing pitch is set to 3 mm or less.

Main use

Patterns up to a maximum size of 100 mm x 60 mm can be sewn.

For plain stitching of small articles, curtain darts, etc.


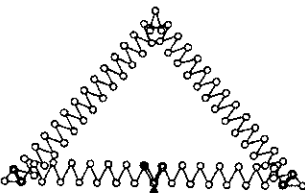
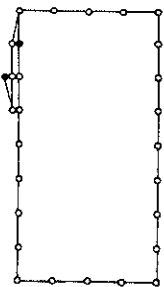
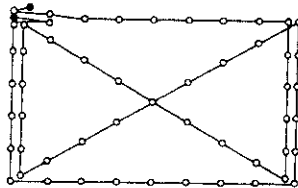
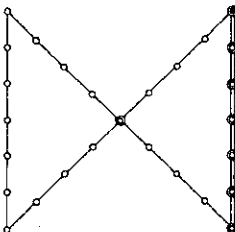
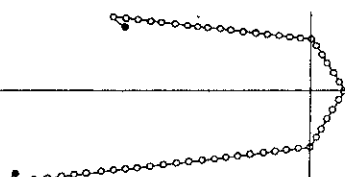
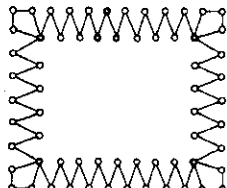
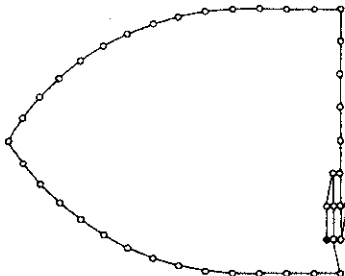
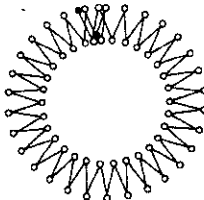
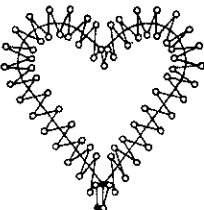
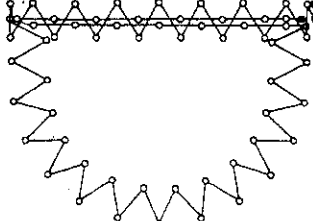
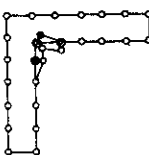
Two-stage work clamp, light work clamp and inner clamping device can be used (for pneumatic)

For attaching items, sewing labels, etc.

- If you want to sew a stitching pattern, you can create your original pattern using the BAS-PC/300. Consult with your local Brother Sales Office for details.

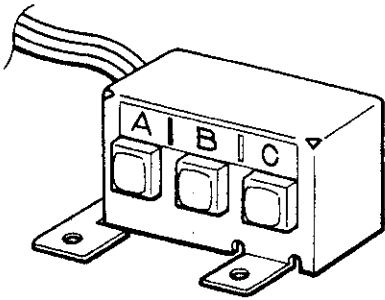
2-2. Examples of stitching patterns

The following are examples of possible patterns with the LK3-B434E.

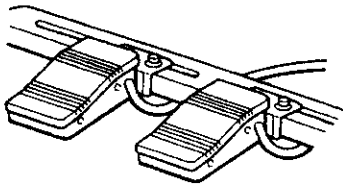
Stitching patterns			
Uses	Decorative tacking	Triangular chain tacking	Rectangular decorative tacking
Number of stitches	42	98	28
Stitching patterns			
Uses	Cross tacking	Open cross tacking	Buckle stitching
Number of stitches	56	42	112/2
Stitching patterns			
Uses	Square tacking	Bullet-nose tacking	Round tacking
Number of stitches	63	42	63
Stitching patterns			
Uses	Hart-shaped tacking	Half-moon tacking	L-shaped tacking
Number of stitches	70	64	28

2-3. Optional parts

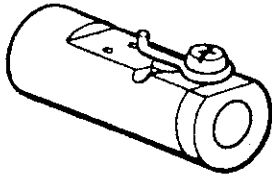
- Handy switch This switch enables the operator easy access to 6 different types of sewing data registered in the user program (see page 41). Sewing data can be switched easily even with workpiece clamped. Make sure that the sewing pattern is within the dimensional limits of the work clamp and feed plate.



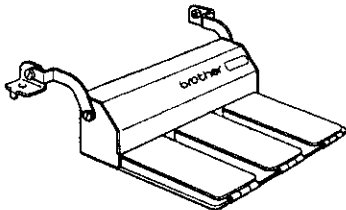
- Two-pedal foot switch The switch has an independent work clamp switch (left side) and start switch (right side).



- Liquid cooling tank This helps to prevent thread breakages caused by friction when using synthetic threads. Fill the tank with silicone oil (100 cs).



- Three-pedal foot switch .. The switch has an independent left work clamp switch (left side), right work clamp switch (center) and start switch (right side).
(For pneumatic)



- Work clamp plate, OT Use according to particular sewing needs in order to provide an even clamping force.
(For stepping foot specifications only)

*Refer to the separate parts book for further details.

3. INSTALLATION

⚠ CAUTION

- ⊘ Machine installation should only be carried out by a qualified technician.
- ⚠ Contact your Brother dealer or a qualified electrician for any electrical work that may need to be done.
- ⚠ The sewing machine head weighs more than 49 kg. The installation should be carried out by two or more people.
- ⊘ Do not connect the power cord until installation is complete, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
- ⊘ Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.
- ⚠ All cords should be secured at least 25 mm away from any moving parts. Furthermore, do not excessively bend the cable or secure it too firmly staples, otherwise there is the danger that fire or electric shocks could occur.
- ⚠ Be sure to connect the ground. If the ground connection is not secure, you run the risk of receiving a serious electric shock.
- ⚠ Install the belt covers to the machine head and motor.
- ⚠ Avoid setting up the sewing machine near sources of strong electrical noise such as high-frequency welding equipment. If this precaution is not taken, incorrect machine operation may result.

3-1. Power table

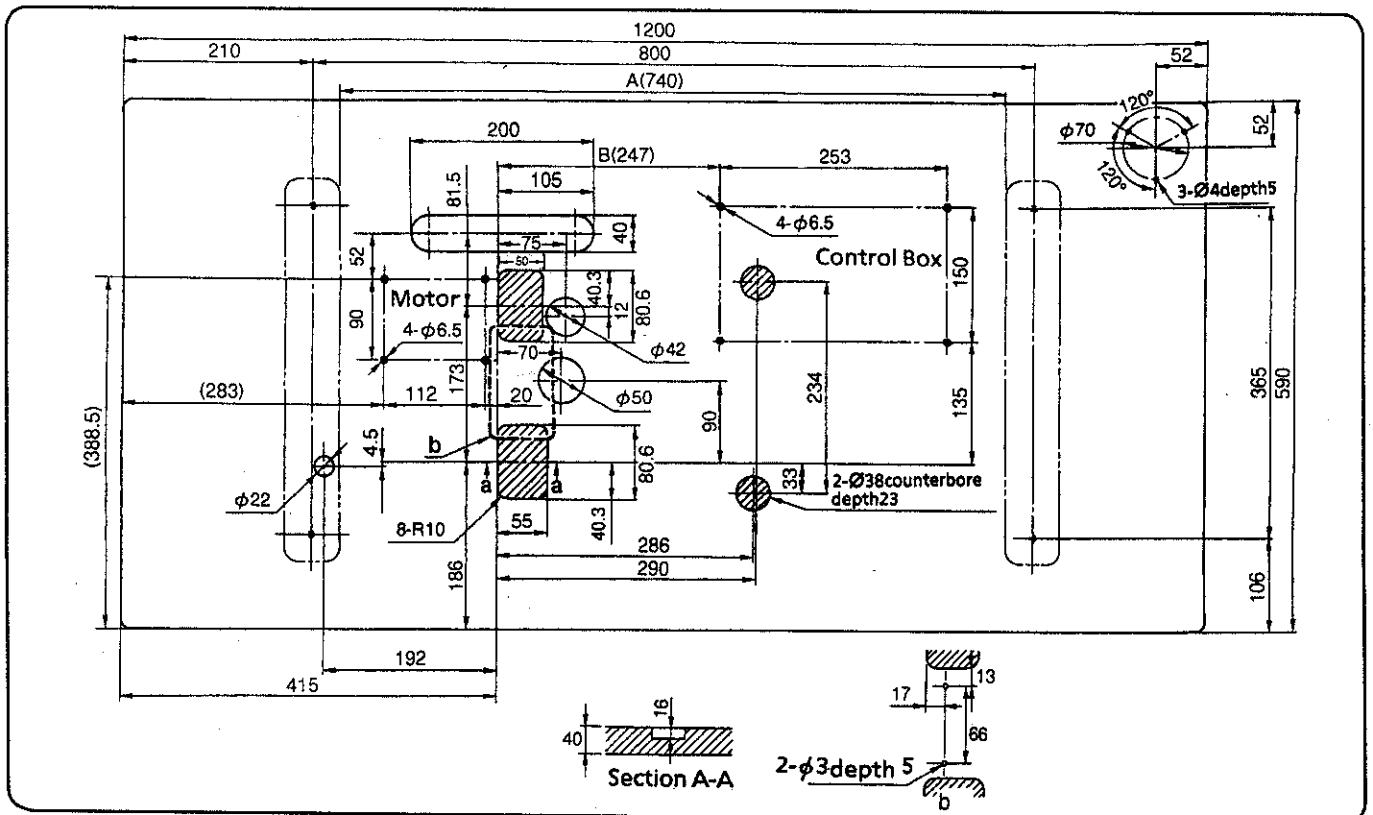
Use the power table which has been specially designed.

	Model
Table/legs assembly	127-Z30-00001

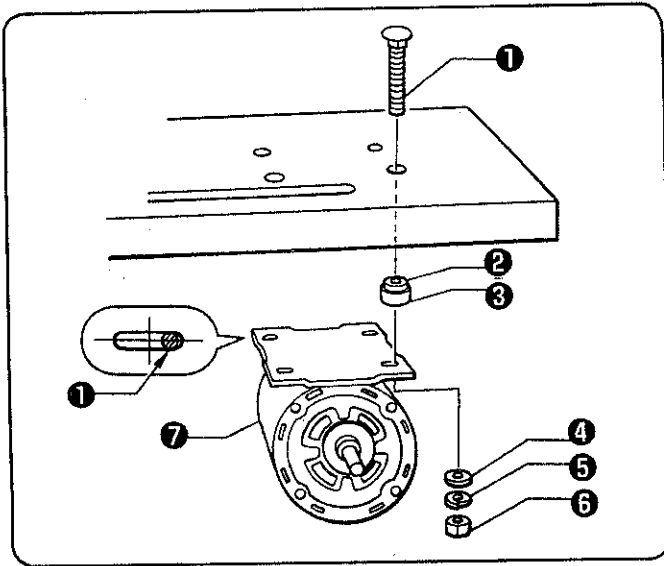
*If using a commercially-available table, process it as shown in the illustration below.

NOTE: The thickness of the table should be at least 40 mm, and it should be strong enough to bear the weight and vibration of the sewing machine.

If the distance A between the insides of the legs is less than 740 mm, move the control box installation position closer to the motor (B = 247 mm).

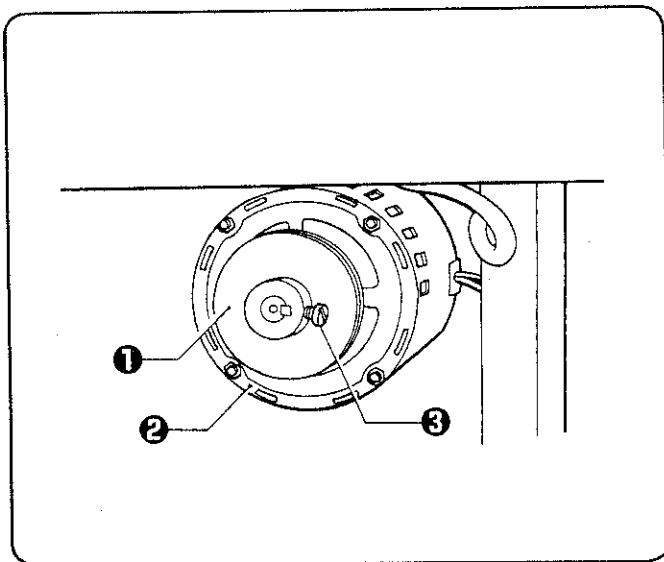


3-2. Installing the motor



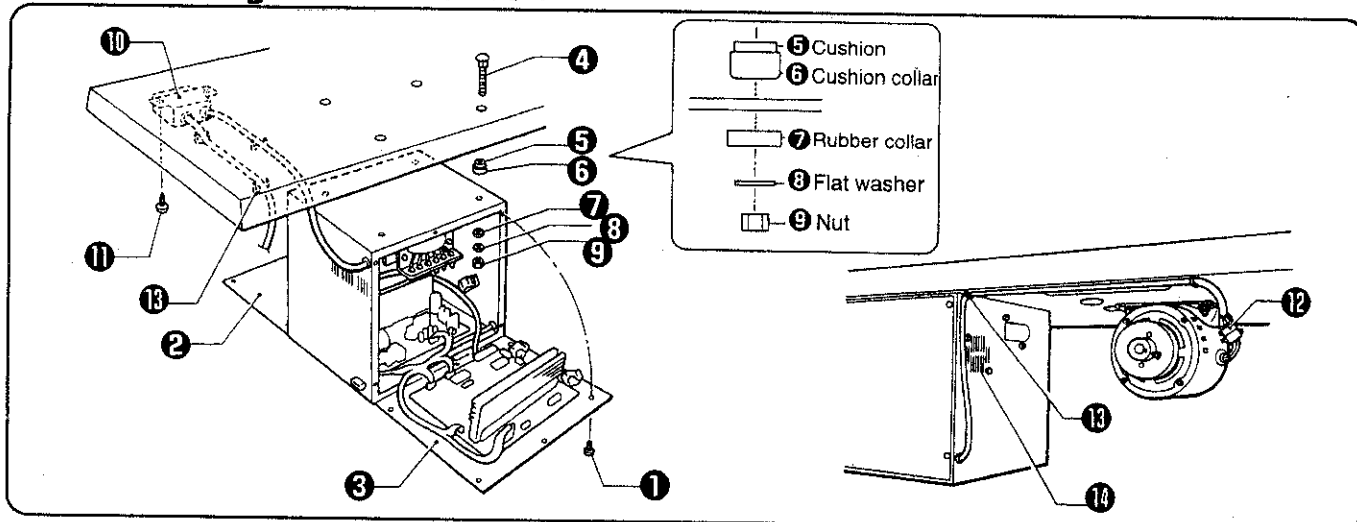
Install the motor ⑦ to the work table with the four accessory bolts ①, cushions ②, cushion collars ③, flat washers ④, spring washers ⑤ and nuts ⑥.
At that time, fix by setting bolts ① a little to the right of oval hole on motor.

3-3. Installing the motor pulley



Place the motor pulley ① onto the shaft of the motor ② so that the key groove is aligned, and then tighten the set screw ③ so that the center of the V groove in the motor pulley ① is aligned as closely as possible with the center of the belt hole in the power table.

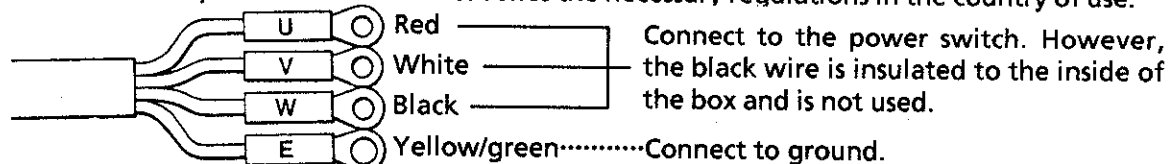
3-4. Installing the control box



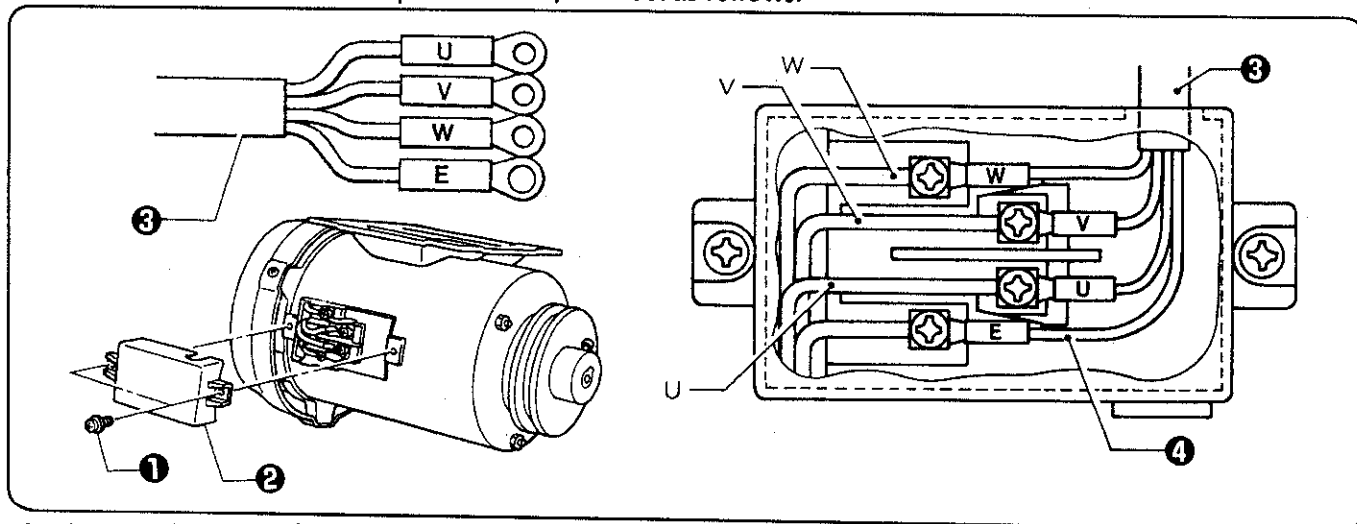
1. Remove the 12 screws ①, and then open the covers (panel mounting assembly ② and main P.C. board mounting plate ③).
Caution: When opening the cover, hold it securely so that it does not fall down.
2. Install the control box with the four accessory bolts ④, cushions ⑤, cushion collars ⑥, rubber collars ⑦, flat washers ⑧ and nuts ⑨ as shown in the illustration above.
 *At this time, leave a gap of approximately 1 mm between the work table and the top of the box.
3. Close the covers (panel mounting assembly ② and main P.C. board mounting plate ③), and tighten them with the screws ①.
 *The main P.C. board mounting plate ③ will be opened again during "3-11. Connecting the cords", so provisionally tighten it with the screw ①.
4. Install the power switch ⑩ with the two screws ⑪.
5. Insert the connector ⑫ into the connector on the motor.
6. Secure the power switch cord and the motor cord with the five staples ⑬.

NOTE:1 Secure the motor cord with staples in such a way that it does not cross over the outlet port of the cooling fan ⑭.

NOTE:2 Some specifications are not supplied with an accessory power switch ⑩. For these specifications, connect a power switch which satisfies the necessary regulations in the country of use.

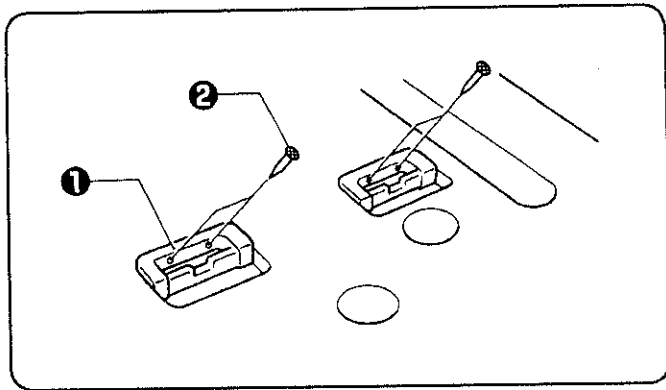


NOTE:3 Some specifications have a motor which is connected by means of a terminal board instead of by a connector. For such specifications, connect as follows.



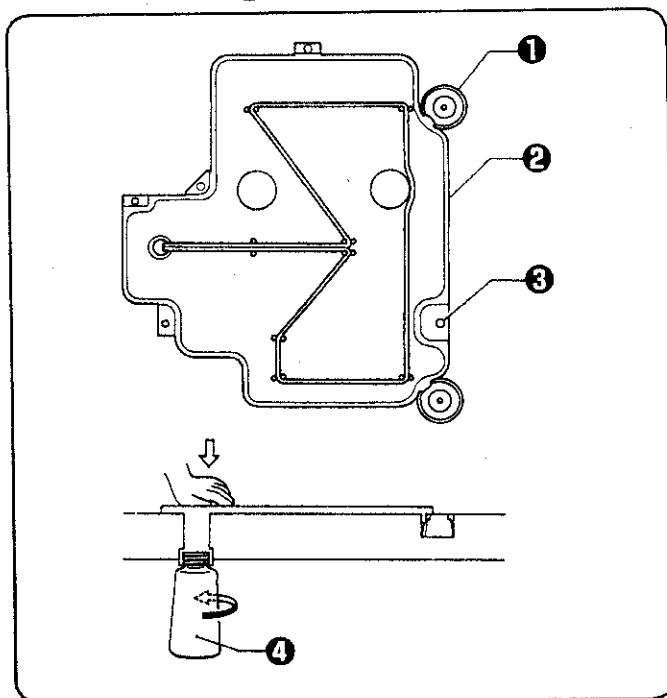
1. Loosen the screw ①, and then open the terminal board cover ②.
2. Pass the motor cord ③ through the hole in the top of the terminal board, align the U, V and W marks on the cord with the terminals marked U, V and W, and then secure the cords with the screws.
3. Secure the ground wire ④ of the motor cord ③ in the position shown in the illustration.
4. Install the terminal board cover ② with the screw ①.

3-5. Installing the rubber cushions



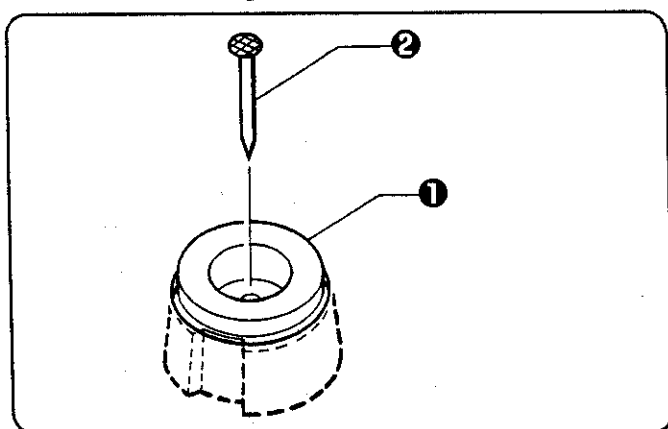
Install the rubber cushions ① with the nails ②.

3-6. Installing the oil pan



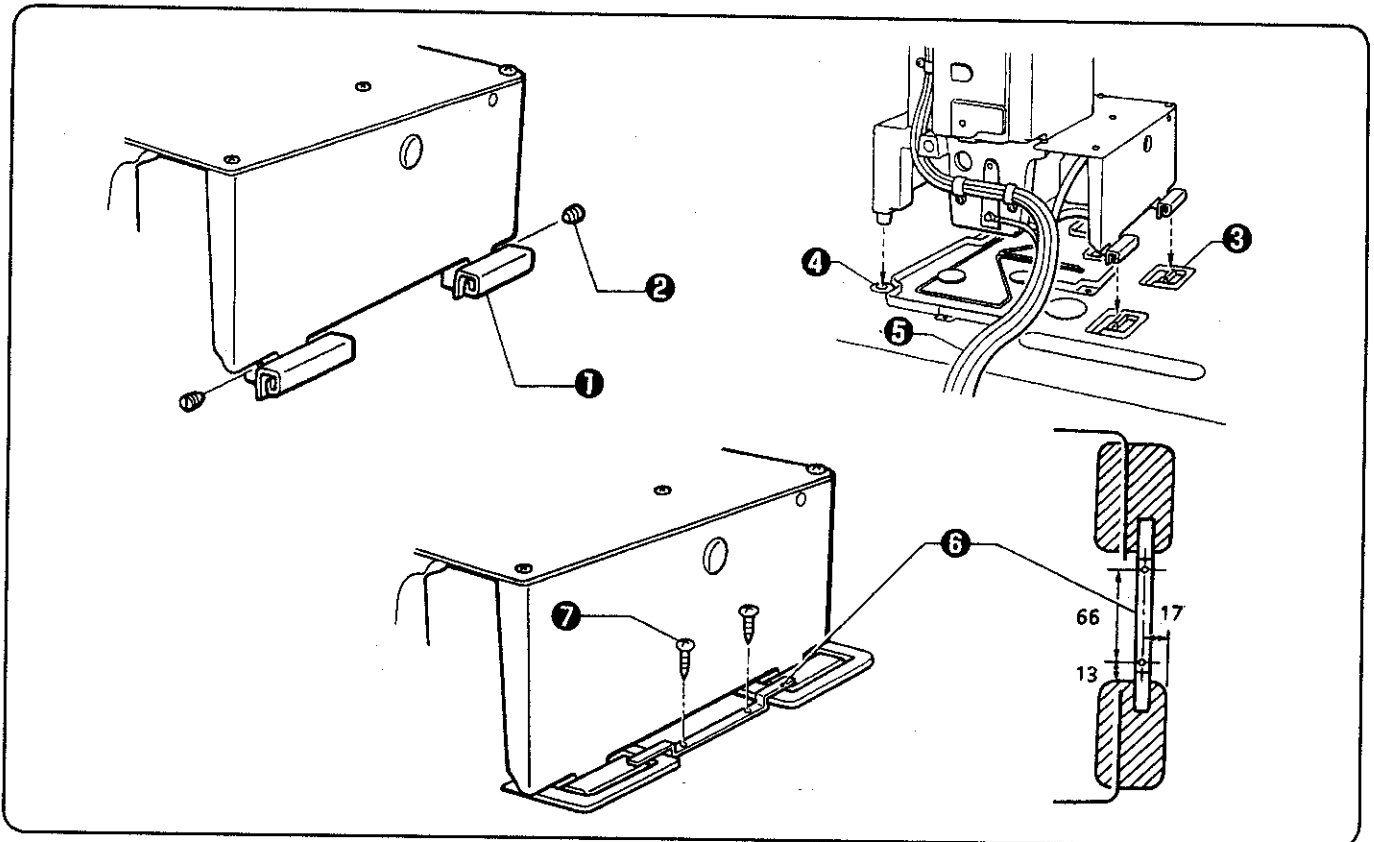
1. Insert the tabs of the oil pan ② into the holes for the cushions ①, and then secure it in place with the five nails ③ so that the oil pan ② is not at an angle.
2. While pushing the oil pan ② down from above, screw in the oil container ④.

3-7. Installing the cushions



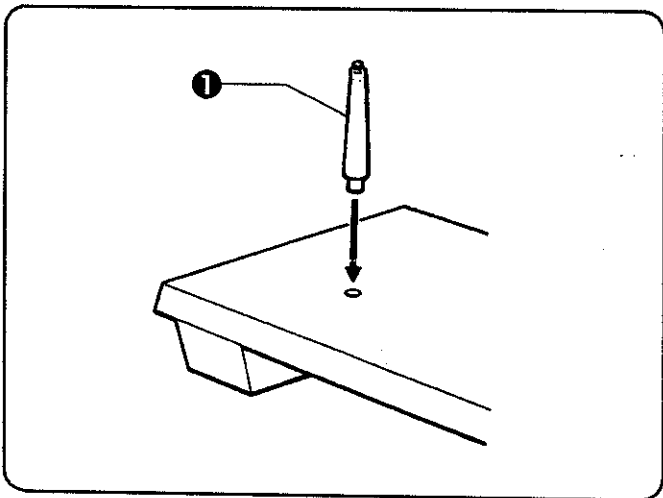
Place the two cushions ① into the holes in the work table, and secure them in place with the nails ②.

3-8. Installing the machine head



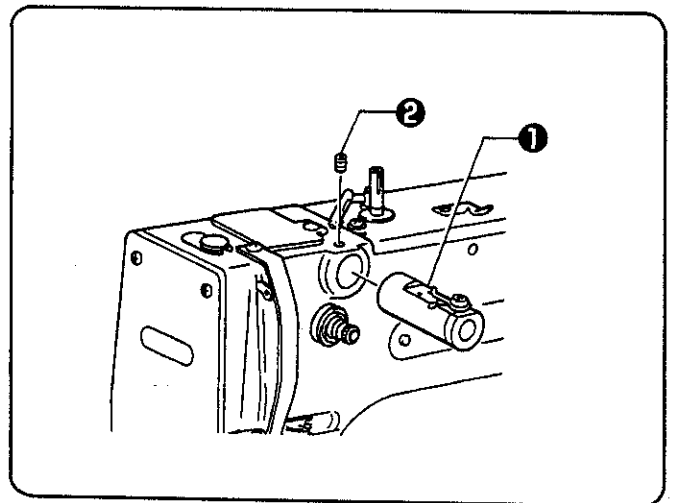
1. Insert the head hinges ① into the machine head so that they are parallel, and then secure them with the two set screws ②.
2. Place the machine head gently on top of the rubber cushions ③ and cushions ④.
NOTE: Pull the cords ⑤ out as shown in the illustration above in order to prevent them from being clamped by the machine head.
3. Install the hinge presser ⑥ with the two screws ⑦.

3-9. Installing the head rest



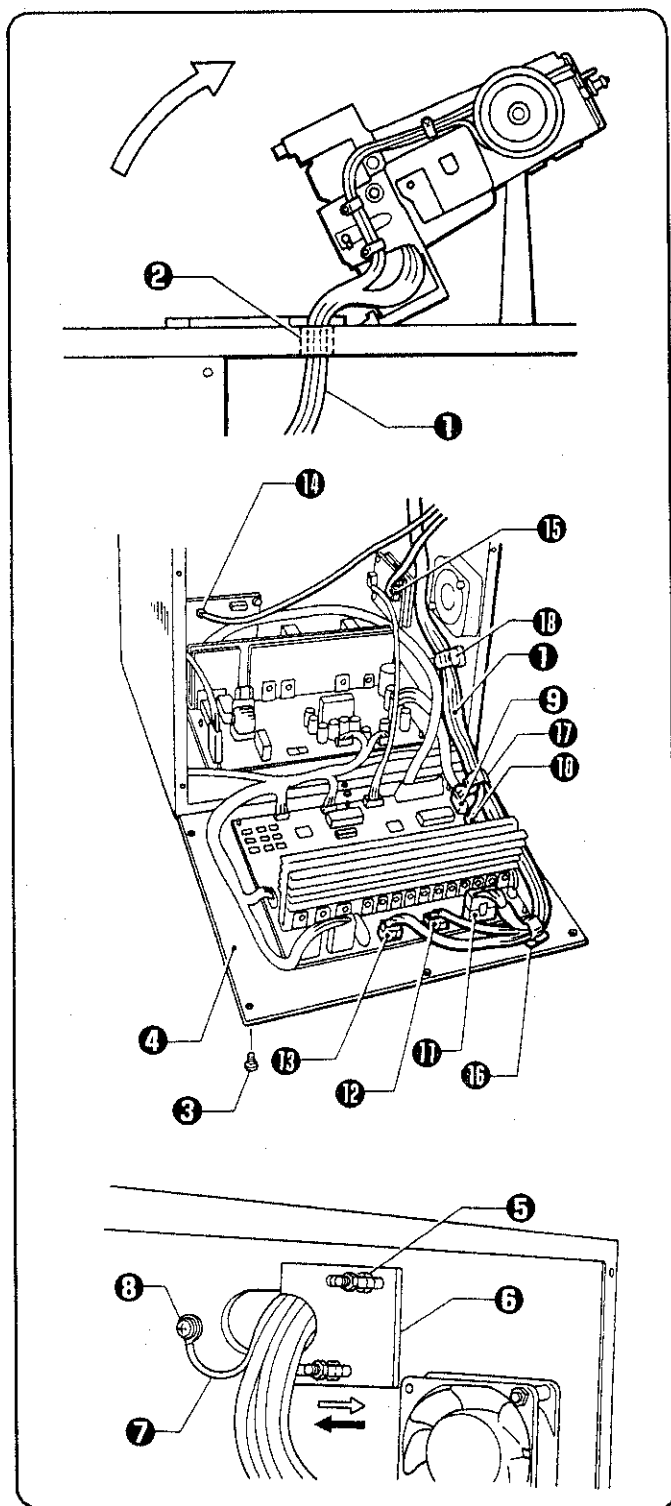
- Tap the head rest ① into the table hole.
NOTE: Tap the head rest securely into the table hole.

3-10. Installing the liquid cooling tank, optional



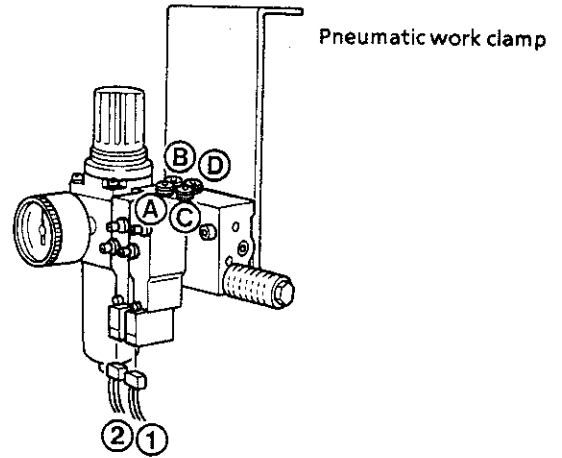
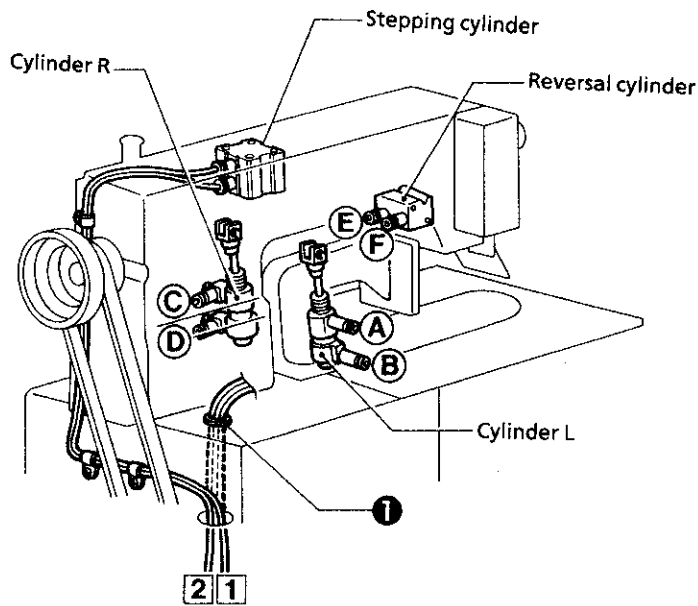
1. Remove the rubber plug, and then push the liquid cooling tank ①.
2. Tighten it with the set screw ②.

3-11. Connecting the cords

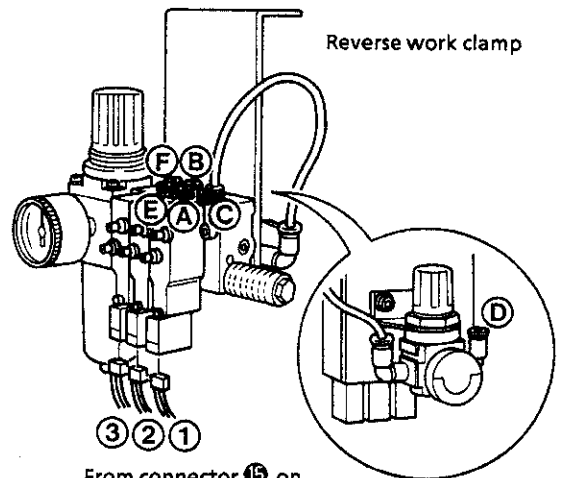


1. Gently tilt back the machine head.
Caution: After tilting back the machine head, do not push the face side or the pulley side from above.
 2. Pass the cords ① through the hole ② in the work table.
 3. Gently return the machine head to its original position.
 4. Remove the screws ③, and then open the control box cover (main P.C. board mounting plate ④).
Caution: When opening the cover, hold it securely so that it does not fall down.
 5. Loosen the two screws ⑤, and then open the cord presser plate ⑥ in the direction of the white arrow and pass the cords ① through the opening.
 6. Loosen the screw ⑧, and then connect the ground wire ⑦ that is coming from the machine head as shown in the illustration at left.
 7. Securely insert each of the connectors as indicated below.
(Connection indications)
*This is indicated on the P.C. board
- | | | |
|---|----|------------|
| Connector ⑨ for sensor
(9-pin with ① mark) | P1 | ORG |
| Connector ⑩ for synchronizer
(5-pin with ② mark) | P2 | SYNCHRO |
| Connector ⑪ for solenoid
(4-pin with ⑤ mark) | P5 | SOL |
| Connector ⑫ for pulse motor Y
(4-pin (blue) with ⑥ mark) | P6 | YPM (blue) |
| Connector ⑬ for pulse motor X
(4-pin with ⑦ mark) | P7 | XPM |
| Connector ⑭ for emergency stop switch | | |
| Connector ⑮ for valve (for pneumatic) | | |
8. Secure the cords ① with the cord clamps ⑯ ⑰ ⑱.
 9. Close the cord presser plate ⑥ in the direction of the black arrow, and secure it by tightening the screws ⑤.
NOTE: Check that the cords do not get pulled when the machine head is tilted back gently.
 10. Tighten the cover (main P.C. board mounting plate ④) with the six screws ③.

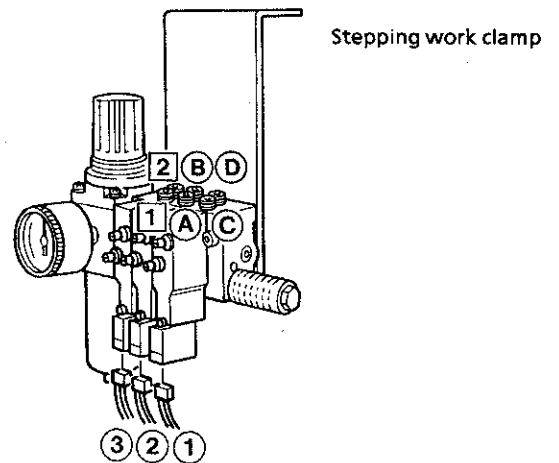
3-12. Piping (for pneumatic)



From connector 15 on previous page



From connector 15 on previous page

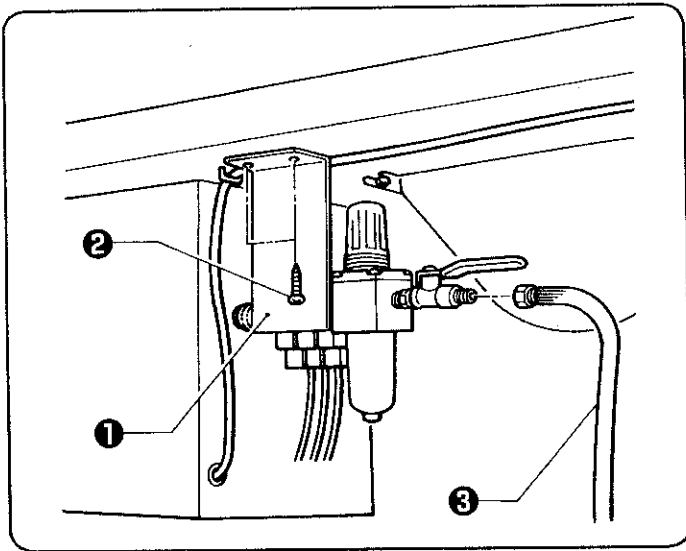


From connector 15 on previous page

Connect air tubes in accordance with the identified numbers in the figure. At this time, pass the air tubes through the hole 1 and then pass it through the work table hole.

- * After connecting the air tubes, bind them together with the fastening band.
- * Light work clamp mode can be used by changing over the air tube connections. (Refer to "13. Setting the work clamp mode".)

Installing the air unit



1. Install the air unit ① with the two screws ② in the position shown in the illustration so that it does not touch the control box and cables.
2. Connect the air hose ③.
3. Adjust the air pressure. (Refer to "10-12. Adjusting the air pressure".)

Adjusting the speed controller

The speeds at which the work clamps are raised and lowered can be adjusted by loosening or tightening the valve control knobs. The speeds should be adjusted to speeds which are suitable for the intended application.

- If the upper control knob is tightened, the raising speed becomes slower; if it is loosened, the raising speed becomes faster.
- If the lower control knob is tightened, the lowering speed becomes slower; if it is loosened, the lowering speed becomes faster.
- When the power is turned off, the work clamps can be operated by pressing the switch.

Caution

Pneumatic specifications

Adjust the control knobs so that the left and right work clamps both operate at the same speed.

Specifications with inner clamping device

First, adjust the speed for the reverse work clamp. (Valve ①)

Next, turn on the power and then adjust the speed of the left work clamp. (Valve ②)

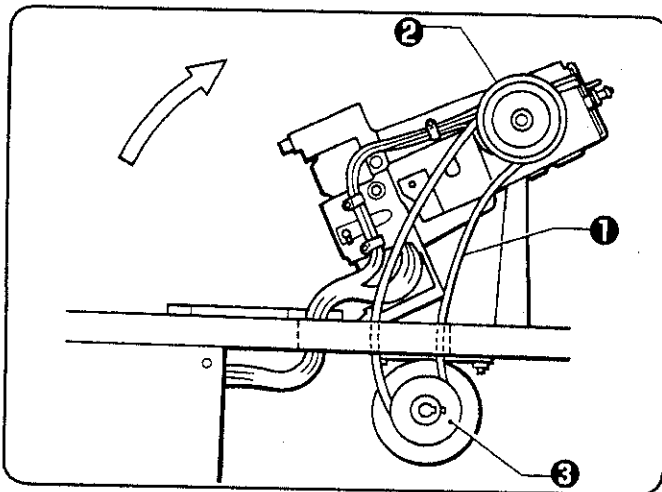
Adjust the control knobs so that the lowering speed of the left work clamp becomes faster than that of the reverse work clamp and the raising speed of it becomes slower than that of the reverse work clamp.

Next, adjust the control knobs so that the reverse work clamp operates more quickly. (Valve ③)

Stepping foot specifications

Adjust the control knobs so that the stepping presser foot operates more quickly. (Valve ③)

3-13. Installing the V-belt



1. Gently tilt back the machine head, and then place the V-belt ① into the V grooves on the machine head pulley ② and the motor pulley ③.

Caution: After tilting back the machine head, do not push the face plate side or the pulley side from above.

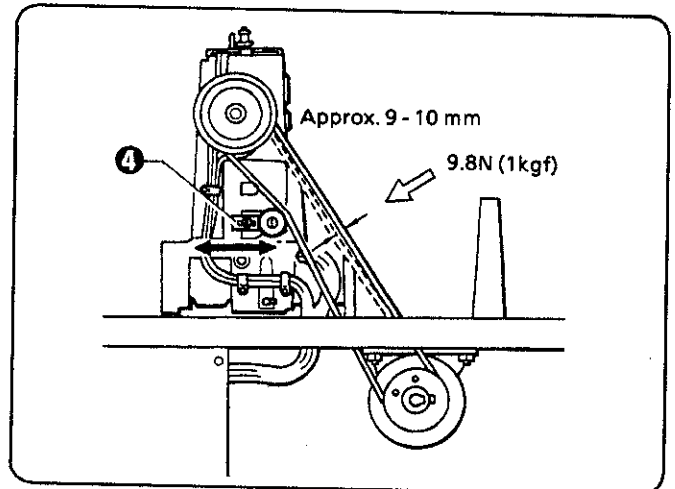
2. Gently return the machine head to its original position.
*Be careful not to clamp the cords at this time.

NOTE: Use brother specified V belt (belt, VM).

The V-belt may stretch slightly when it is first used.

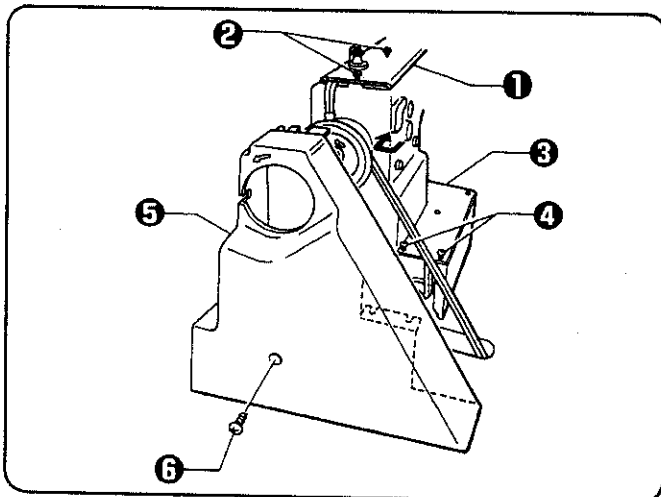
When above belt tension is weak, this will be cause of following problem;

- Noise & vibration become large.
- Needle up stop position becomes unstable.
- Error message (E-5) is displayed.



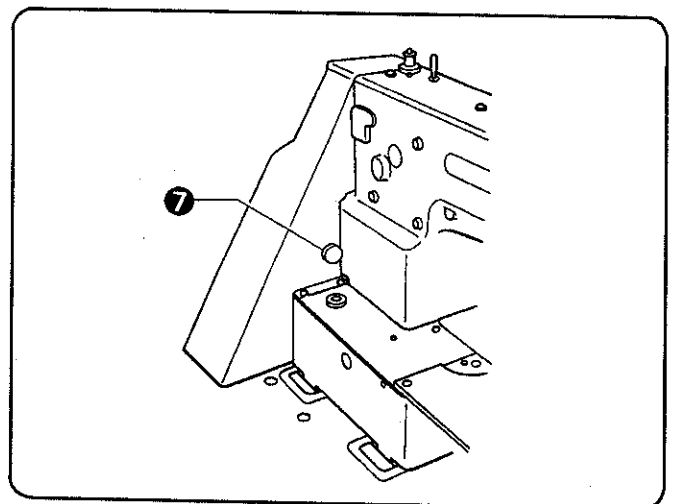
3. Install the accessory tension pulley assembly ④ to the machine head with the accessory flat washer, spring washer and bolt.
4. Adjust the belt tension by moving the tension pulley assembly to the right and left so that there is 9 - 10 mm of deflection in the V-belt ① when it is gently pushed in the middle with a force of approximately 9.8N (1kgf).
*This tension is slightly stronger than BAS-300 series.

3-14. Installing the belt cover



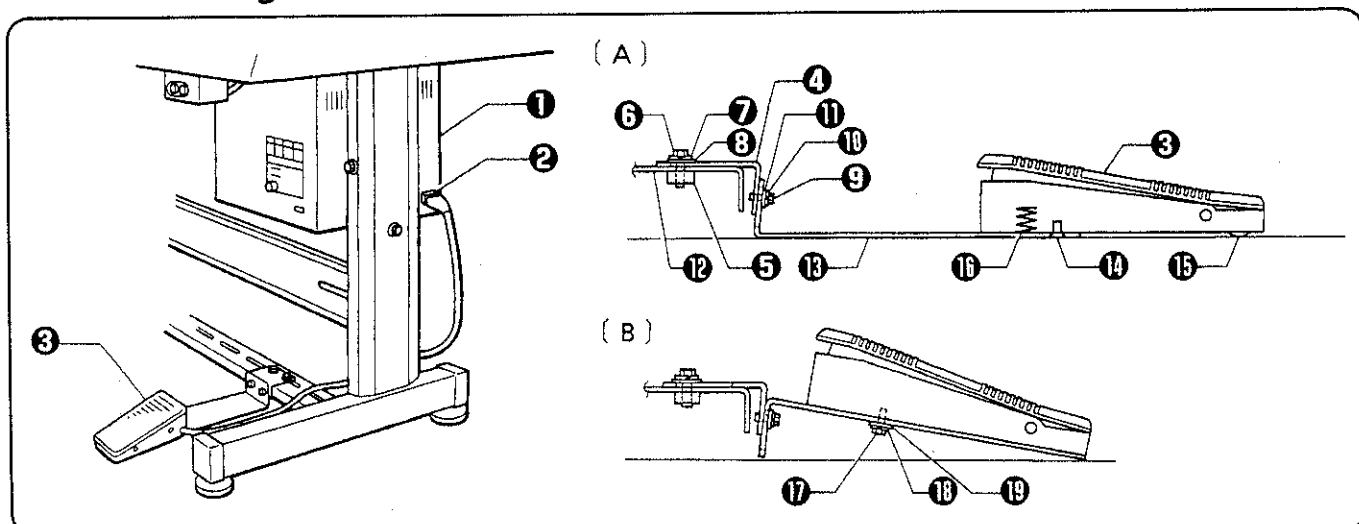
1. Loosen the two screws ② of the upper cover ① and the two screws ④ of bed cover L ③.
2. Insert the belt cover ⑤ in the direction of the arrow, and then secure it with the two screws ②, the two screws ④ and the screw ⑥.

*When tilting back the machine head, loosen the screws ② and ④, remove the screw ③ and then remove the belt cover ⑤ first.



3. Attach the rubber plug ⑦ to the belt cover.

3-15. Installing the foot switch



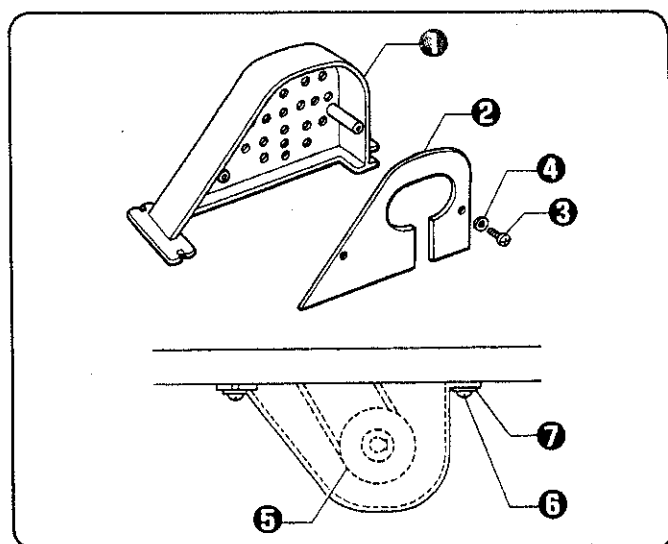
1. Insert the connector of the foot switch ③ into the connector ② of the control box ①.
2. Install the foot switch ③ to the work table leg ⑫ with foot switch support plate A ④, foot switch support plate C ⑤, the bolt ⑥, spring washer ⑦, flat washer ⑧, bolt ⑨, spring washer ⑩ and flat washer ⑪ as shown in Figure A.

★ If foot switch support plate B ⑬ is used in a back-to-front position, it can be used as shown in Figure B.

1. Remove the screw ⑭ and rubber plug ⑮.
*Note that the spring ⑯ will come out when the screw ⑭ is removed.
2. Turn foot switch support plate B ⑬ back to front, and then install it with the bolt ⑰, spring washer ⑱ and flat washer ⑲ as shown in Figure B.

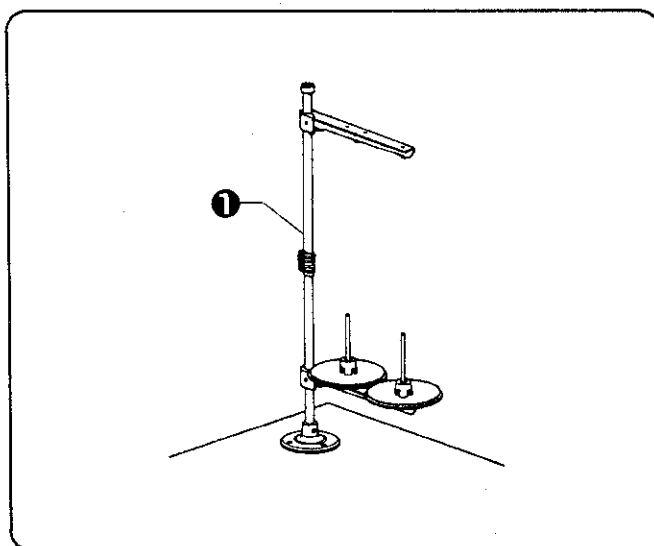
NOTE: If using the optional two-pedal foot switch with machines with solenoid work clamp, change the setting of DIP switch A on the operation panel while referring to "13. Setting the work clamp mode".

3-16. Installing the motor cover



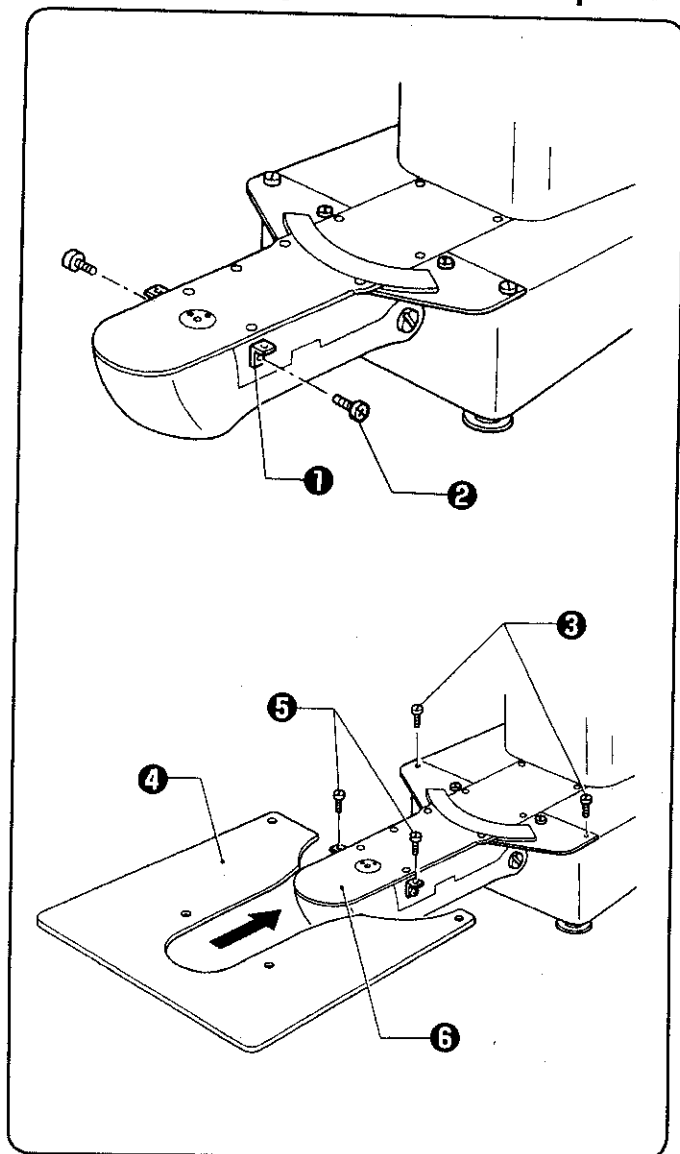
1. Install the motor cover ① to the motor back cover ② with the screws ③ and the flat washers ④.
2. Pass the motor shaft through the notch in the motor back cover ②, and then tighten the screws ⑤ and the washers ⑦ so that the clearance between the motor pulley ⑤ and the motor cover ① is uniform.

3-17. Installing the spool stand



Assemble the spool stand ① while referring to the spool stand instruction manual, and then install the spool stand ① at the right side of the work table.

3-18. Installing the needle sub plate



1. Install the two needle sub plate supports ① with the two screws ②.

2. Remove the screw ③, and then insert the needle sub plate ④ from the front of the machine so that it is level.

3. Install the needle sub plate ④ with the screws ③ and screws ⑤.

NOTE: Install the needle sub plate ④ so that it and the needle plate ⑥ are at the same height.

3-19. Setting the work clamp mode

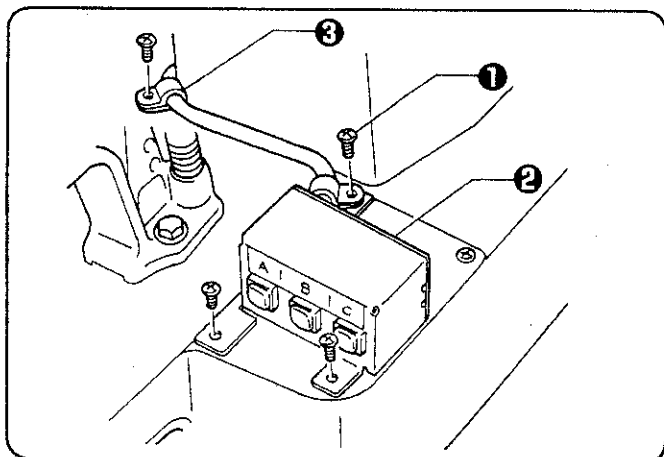
Set the work clamp mode while referring to "13. Setting the work clamp mode".

There are four work clamp modes available:

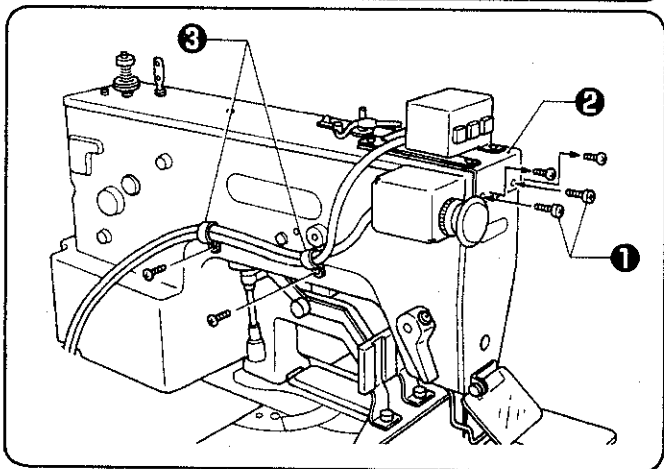
1. Solenoid work clamp
2. Pneumatic work clamp
3. Reverse work clamp
4. Stepping work clamp

Select the appropriate mode in accordance with the sewing machine specifications.

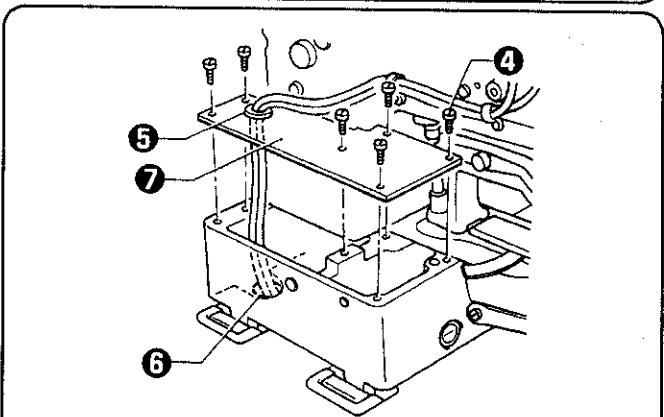
3-20. Installing the handy switch, optional



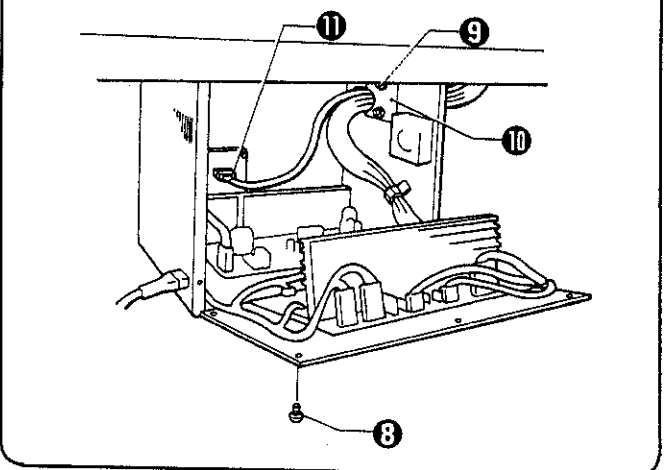
- [Side presser arm type] * Solenoid specifications only
1. Remove the four screws ①, and then install the handy switch ② as shown in the illustration.
 2. Secure the cord with the two accessory cord clamps ③.



- [Arm-mounted type]
1. Remove the two face plate screws, and then install the handy switch installation plate ② with the screw ① which is supplied as accessories with the handy switch.
 2. Secure the handy switch cord together with the emergency stop switch cord using the cord clamps ③ which are supplied as accessories with the handy switch.





3. Remove the six screws ④, pass the handy switch cord through the hole in the rubber stopper ⑤, and then pass it through the work table hole ⑥.
4. Install the bed cover L ⑦ with the screws ④.



5. Remove the six screws ⑧, and then open the control box cover.
Caution: When opening the cover, hold it securely so that it does not fall down.
6. Loosen the two screws ⑨, open the cord presser plate ⑩ and then pass the handy switch cord through.
7. Securely insert the connector ⑪ as shown in the illustration.
8. Close the cord presser plate ⑩ and then tighten the two screws ⑨.
9. Tighten the control box cover with the six screws ⑧.

4. LUBRICATION

⚠ CAUTION

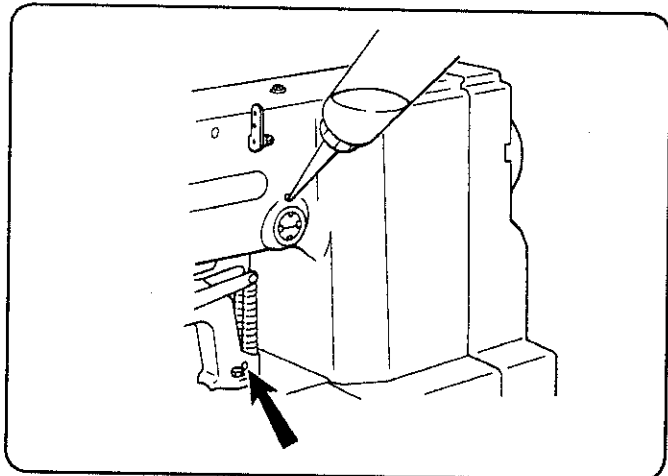
- 
 • Turn off the power switch before starting lubricating, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
- 
 • Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

NOTE 1: Fill the machine with oil when the oil level is down to about one-third full in the oil sight glass. If oil is not added and the oil drops below this level, there is the danger that the machine may seize during operation.

NOTE 2: Be sure to let the machine operate for a while after adding the oil.

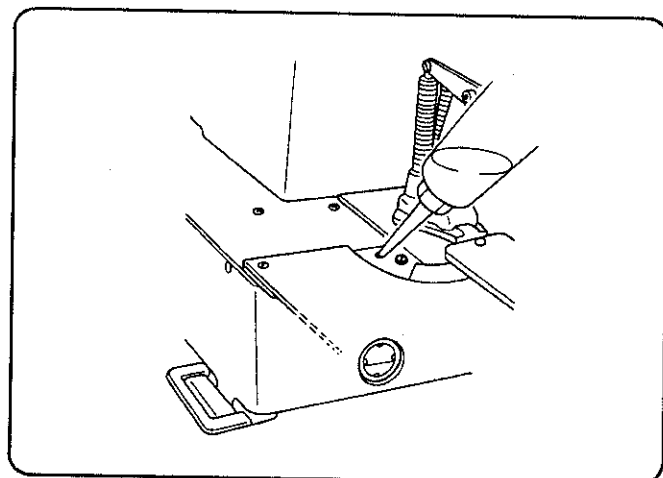
NOTE 3: Use only specified Brother oil (Nisseki Sewing Lube 10) for the machine oil.

4-1. Lubrication points

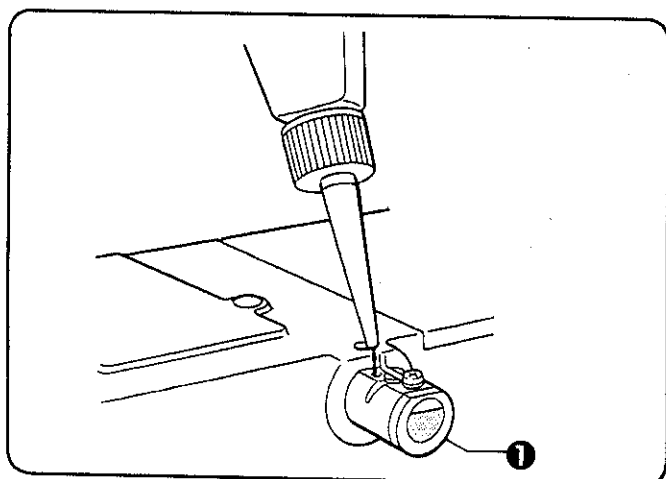


1. Fill the arm-side oil tank with oil.

*When setting up the sewing machine and when it hasn't been used for an extended period of time, be sure to add 2-3 drops of oil at the place indicated by the arrow.



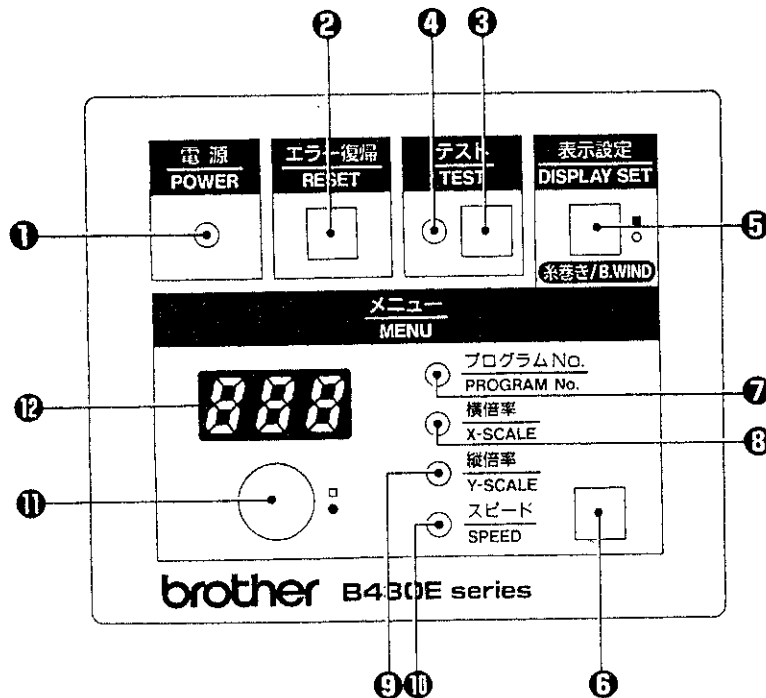
2. Fill the bed-side oil tank with oil.



3. If using the liquid cooling tank ①, fill it with silicon oil (100 cs).

5. OPERATION

5-1. Name and function of each operation panel item



- ❶ **POWER indicator**
Illuminates when the power switch has been turned on.
- ❷ **RESET switch**
Press this switch to reset the machine when an error occurs.
- ❸ **TEST switch**
Use this switch when you want to operate only the feed mechanism in order to check a pattern.
- ❹ **TEST indicator**
Illuminates when the TEST switch has been pressed.
- ❺ **DISPLAY SET/B.WIND switch**
Press this switch at the same time as you turn the rotary switch ❶. In addition, it is also used when winding the lower thread.
- ❻ **Menu switch**
Use this switch to select a menu (program number, X and Y feed and speed). Each time the switch is pressed, one of the menu indicators (❼ to ❶) illuminates, and the setting for that menu item appears in the display ❷. The illuminated indicator changes as follows each time the switch is pressed.
PROGRAM No. indicator ❷ → X-SCALE indicator ❸ → Y-SCALE indicator ❹ → SPEED indicator ❶
- ❼ **PROGRAM No. indicator**
Illuminates when the menu switch ❶ is pressed to shown the program number setting.
- ❸ **X-SCALE indicator**
Illuminates when the menu switch ❶ is pressed to shown the X-scale setting.
- ❹ **Y-SCALE indicator**
Illuminates when the menu switch ❶ is pressed to shown the Y-scale setting.
- ❶ **SPEED indicator**
Illuminates when the menu switch ❶ is pressed to shown the speed setting.
- ❶ **Rotary switch**
You can change the menu setting which appears in the display ❷ by turning this switch while pressing the DISPLAY SET/B.WIND switch ❺.
- ❷ **Display**
This display will indicate the current statu for the selected menu, error or memory switch.

5-2. Operating procedure

Preparation

Turn on the power switch.

(The POWER indicator ❶ will illuminate and the program number will flash in the display ❷.)

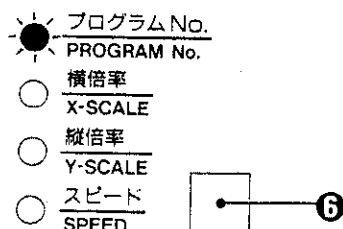
	Factory default	Variable range
Program No.	00 ※1	00, 50 - ※2
X-scale	100 (%)	50 - 150 (%)
Y-scale	100 (%)	50 - 150 (%)
Speed	200 (2,000spm)	100 - 200 (1,000 - 2,000spm)

※1 For checking the origin points for X and Y feed

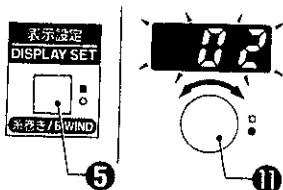
※2 Custom-made program

Setting the program number

- 1** Press the menu switch ❸ until the PROGRAM No. indicator illuminates.



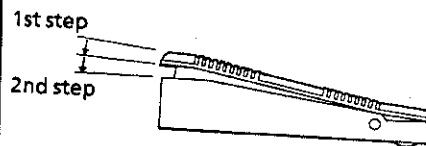
- 2** While pressing the DISPLAY SET switch ❹, turn the rotary switch ❶ until the desired program number is flashing in the display.



- 3** Depress the foot switch to the second step.

NOTE: For pneumatic, depress the work clamp switch to lower the work clamp, before depressing the start switch.

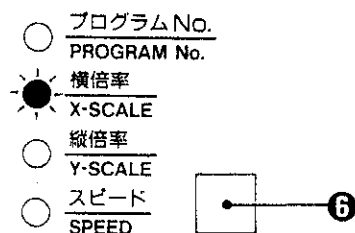
* The display will stop flashing and illuminate steadily, and the feed mechanism will move to the sewing start position.



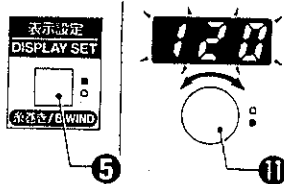
This completes the setting of the program number.

Setting the X-scale and Y-scale

- 1** Press the menu switch ❸ until the X-SCALE or Y-SCALE indicator illuminates.



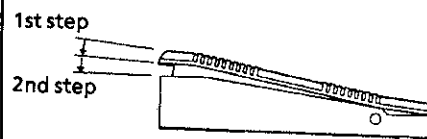
- 2** While pressing the DISPLAY SET switch ❹, turn the rotary switch ❶ until the desired scale setting is flashing in the display. (The setting is displayed as a percentage.)



- 3** Depress the foot switch to the second step.

NOTE: For pneumatic, depress the work clamp switch to lower the work clamp, before depressing the start switch.

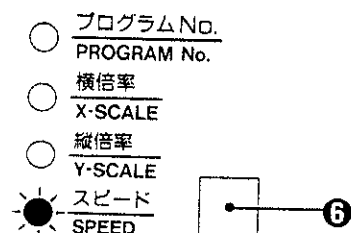
* The display will stop flashing and illuminate steadily, and the feed mechanism will move to the sewing start position.



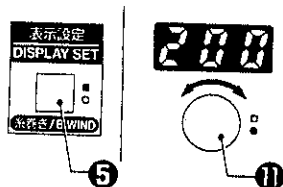
This completes the setting of the X-scale or Y-scale.

Setting the sewing speed

- 1** Press the menu switch ❸ until the SPEED indicator illuminates.



- 2** While pressing the DISPLAY SET switch ❹, turn the rotary switch ❶ until the desired speed setting is flashing in the display. (The setting is displayed in units of ten spm.)



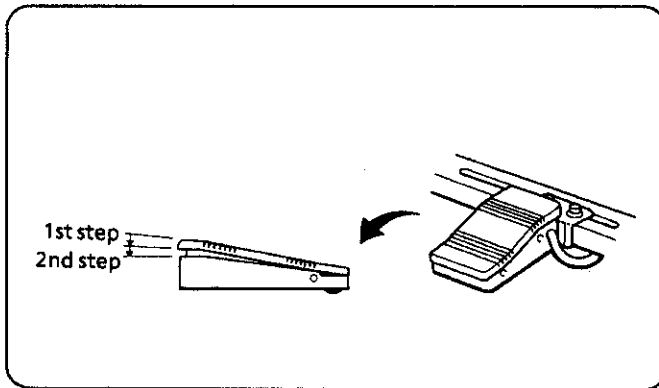
NOTE:

*Be sure to check the sewing pattern (refer to page 22) after setting has been completed to make sure that the needle hole does not go out of the area circumscribed by the work clamp.

*There may be some noticeable distortion in certain patterns if they are enlarged or reduced. If this happens, create a new pattern of the same size.

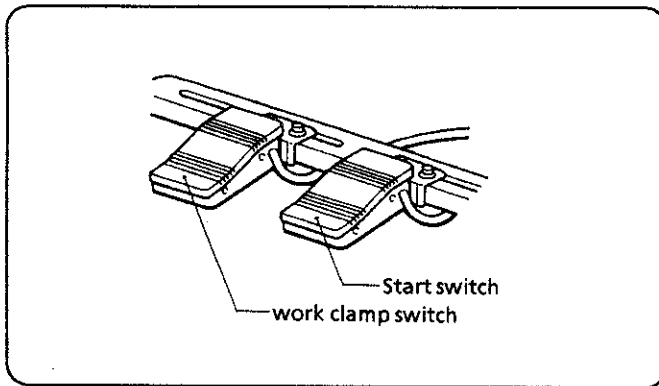
*The needle racking width for backtack stitches (with stitch widths of 1 mm or less) is not enlarged or reduced. If this results in problems, set memo-d to "ON".

5-3. Operating the foot switch



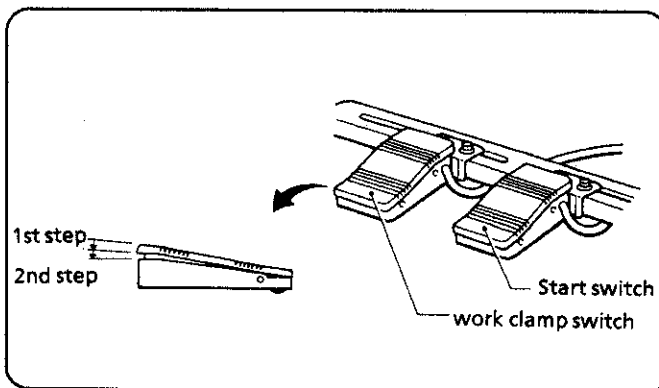
Single-pedal foot switch (two steps)

When the foot switch is depressed to step 1, the work clamp is lowered, and when it is depressed to step 2, sewing starts.



Two-pedal foot switch (one step + one step)

When the work clamp switch (left side) is depressed, the work clamp is lowered, and when the start switch (right-side) is depressed, sewing starts.



Two-pedal foot switch (two steps + one step)

* For pneumatic

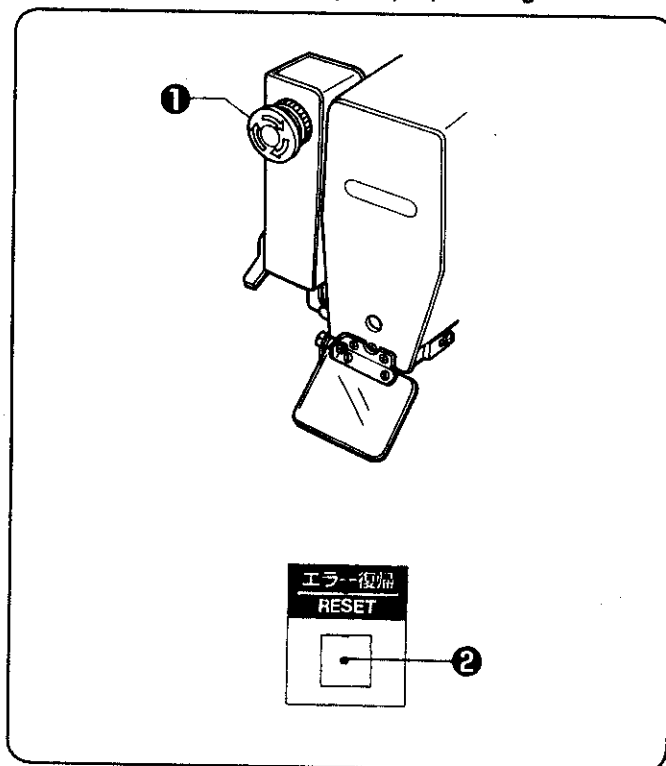
When the work clamp switch (left side) is depressed to step 1, the work clamp on one side is lowered, and when it is pressed to step 2, the work clamps on both sides are lowered.

*The work clamp lowering pattern can be set to a variety of different patterns. (Refer to "13. Setting the work clamp mode".

When the start switch (right-side) is depressed, sewing starts.

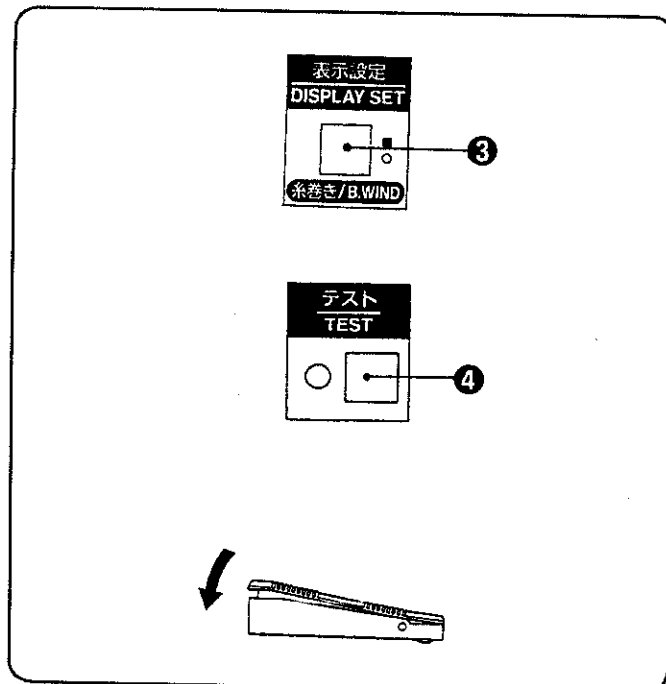
5-4. Operating the emergency stop switch

If the emergency stop switch is pressed while normal sewing or test sewing is being carried out, the sewing machine will immediately stop operating.



Canceling an emergency stop

1. Turn the emergency stop switch ① clockwise and then pull it out to release the lock.
2. Press the RESET switch ② on the control panel. (The electronic alarm will stop sounding.)
3. If not joining a new thread, press the RESET switch ② once more so that the display panel flashes, and then continue with sewing.



Continuing sewing from a stopping point

If the emergency stop switch was pressed because a thread breakage occurred or the lower thread ran out, sewing can be resumed from the point where the thread ended.

1. Press the emergency stop switch to release its lock.
2. Press the DISPLAY SET switch ③ to trim the thread.
3. Press the DISPLAY SET switch ③ once more. (The work clamp will move backward one stitch at a time while this switch is being pressed.)
If the work clamp moves back too far, press the TEST switch ④ to move the work clamp forward. Press the TEST switch ④ once more when you would like the work clamp to stop.
4. Once the work clamp has returned to the desired position, depress the foot switch. The sewing machine will then resume sewing.

6. CHECKING THE SEWING PATTERN

<When checking by operating only the feed mechanism>

1. Turn on the power switch.
(The POWER indicator will illuminate and the program number will flash in the display.)



2. Press the TEST switch.
(The TEST indicator will illuminate.)



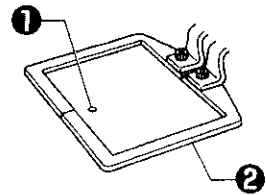
3. Depress the foot switch to the second step.
Only the feed mechanism will move.

*For pneumatic, lower the work clamp before depressing the start switch (right side).

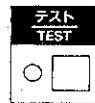
(Check that the needle hole ① does not protrude past the frame of the work clamp ②.)

*If you depress the foot switch again and keep it depressed after the feed mechanism has started to move, the feeding speed will increase.

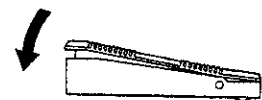
*If you would like to stop the feed while it is moving, press the TEST switch.



4. Press the TEST switch.
(The TEST indicator will switch off and the test mode will be cleared.)



5. Depress the foot switch.
The work clamp will rise and the preparation for sewing will be completed.
NOTE: If you would like to cancel test operation during feeding, start sewing from this position.



To ensure safety during use.....

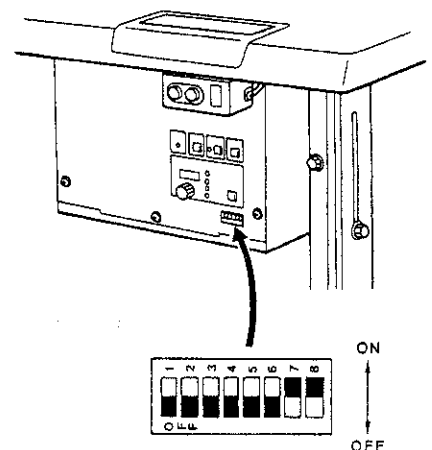
- You can prevent accidental changes being made to programs by setting DIP switches 7 and 8 to ON.

When DIP switch 7 is ON

... The sewing pattern cannot be enlarged.

When DIP switch 8 is ON

... The program number cannot be changed.



7. CORRECT USE

7-1. Selecting the needle and thread

Different needles and threads are used for different sewing applications.

Refer to the table at right for details on which needle and thread to select.

NOTE: For inner clamping device, use only the DP x 17 needle.

Needle	Thread	Main application
DP x 5 #16	#80 - #50	Medium materials
DP x 17NY #19	#50 - #20	Extra-heavy materials

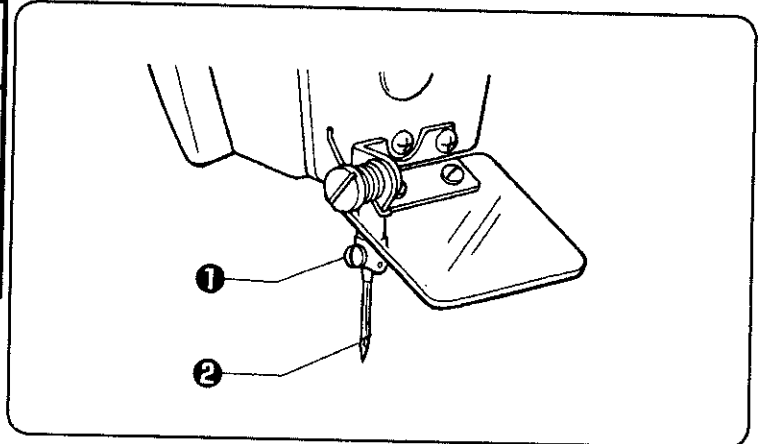
7-2. Installing the needle

⚠ CAUTION



- Turn off the power switch before installing the needle, otherwise the machine may operate if the foot switch is depressed by mistake and serious injury could result.

Loosen the set screw ①, insert the needle ② as far as it will go so that the groove is facing toward you, and then tighten the set screw ①.



7-3. Threading the upper thread

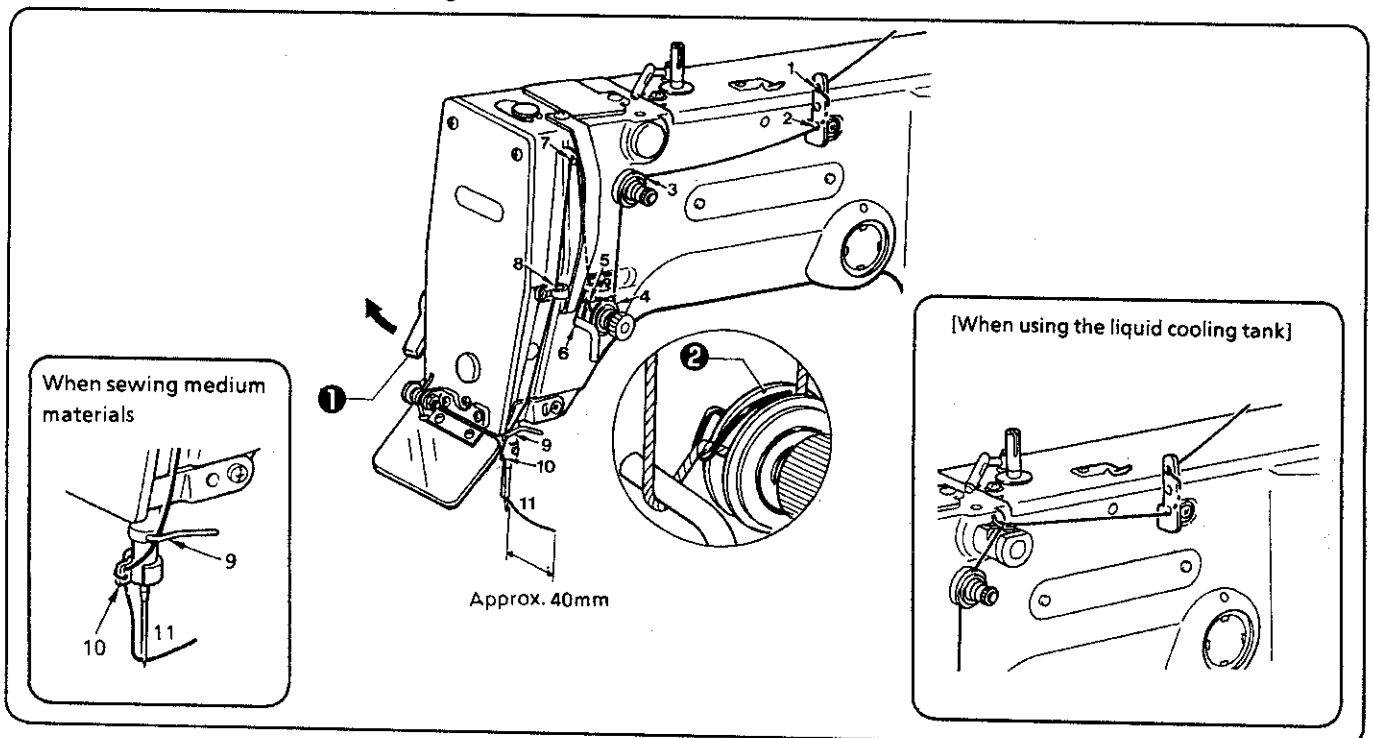
⚠ CAUTION



- Turn off the power switch before threading the thread, otherwise the machine may operate if the foot switch is depressed by mistake and serious injury could result.

Thread the upper thread correctly as shown in the illustration below.

*If the tension release lever ① is raised in the direction of the arrow, it will be easier to open the tension disc ② and pull the thread through.



7-4. Winding the lower thread

⚠ CAUTION

- ⚠ Do not touch or place anything against any of the moving parts while winding the lower thread, otherwise personal injury or damage to the machine may result.

1. Place the bobbin all the way onto the shaft.

2. Thread the thread as shown in the illustration at right, wind the thread around the bobbin several times in the direction of the arrow, and then press the bobbin presser ①.

3. Turn on the power switch. (The POWER indicator on the operation panel will illuminate.)

4. Check that the needle is not touching the work clamp, and then while pressing the DISPLAY SET/B.WIND switch ②, depress the foot switch ③ to start the machine. Keep depressing the foot switch ③ until the lower thread stops being wound onto the bobbin.

(Release the DISPLAY SET/B.WIND switch ② after the machine starts operating. If you release the foot switch before winding is completed, depress it once more while pressing and holding the DISPLAY SET/B.WIND switch ②.)

5. The bobbin presser ① will automatically return to its original position after a set amount of thread (80 - 90% of the bobbin capacity) has been wound on.

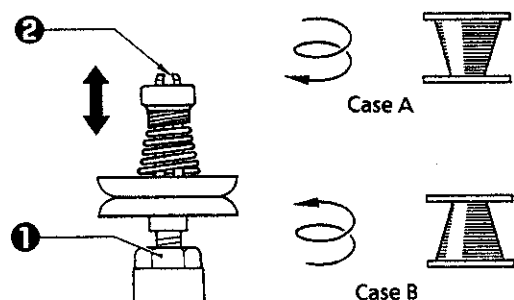
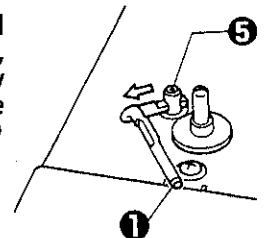
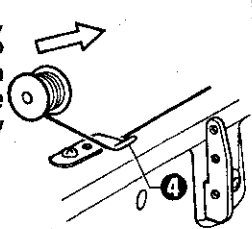
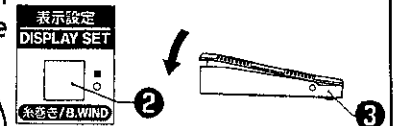
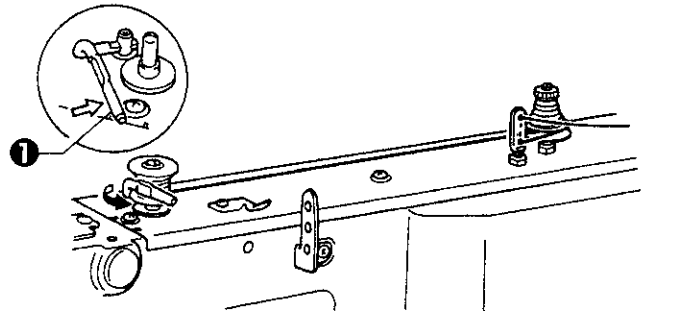
6. Release the foot switch ③.

7. Remove the bobbin, hook the thread onto the knife ④, and then pull the bobbin in the direction of the arrow to cut the thread.

8. To wind more thread onto the bobbin, loosen the set screw ⑤ and pull the bobbin presser ① outward.

◀ If the thread winds onto the bobbin unevenly ▶
If the thread winds onto the bobbin unevenly, loosen the nut ① and turn the bobbin winder thread tension stud ② to adjust.

*If the thread winds on as shown in A, turn the bobbin winder thread tension stud ② clockwise; if it winds on as shown in B, turn the bobbin winder thread tension stud ② counterclockwise.

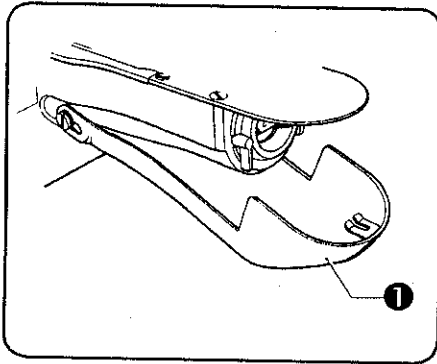


7-5. Replacing the bobbin case and threading the thread

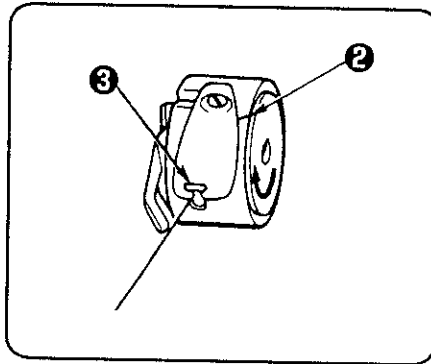
⚠ CAUTION



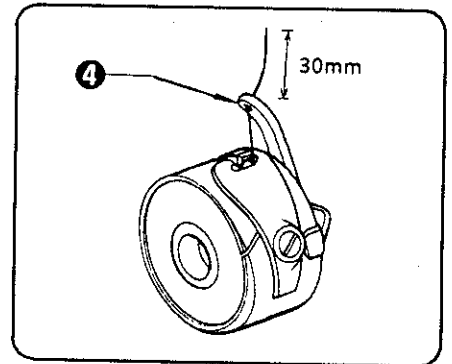
- Turn off the power switch before removing and replacing the bobbin case, otherwise the machine may operate if the foot switch is depressed by mistake and serious injury could result.



1. Pull the large shuttle hook cover ① toward you to open it.



2. Insert a new bobbin into the bobbin case, and then pass the thread through the slot ② and pull it out from the thread hole ③. Check that the bobbin turns in the direction of the arrow when the thread is pulled at this time.

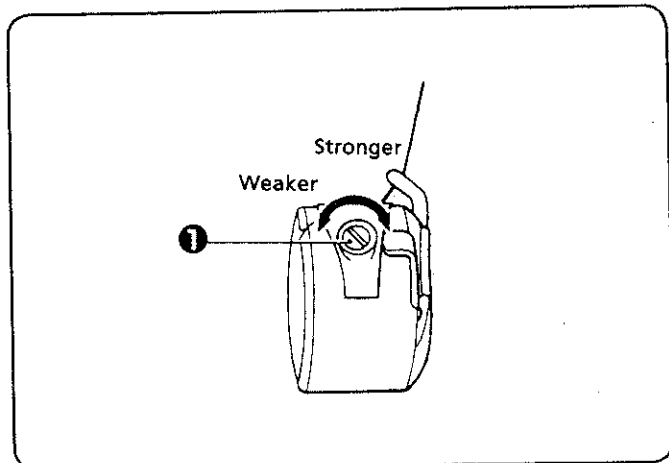


3. Pass the thread through the lever thread hole ④, and then pull out approximately 30 mm of thread.

7-6. Thread tension reference guide

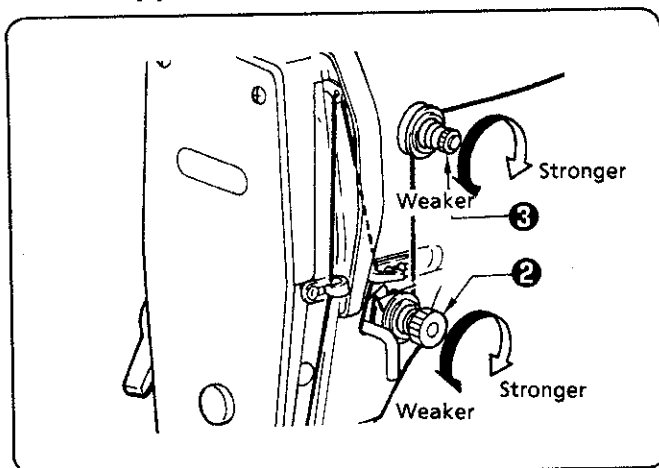
Uses	Extra-heavy materials		Medium materials
	Upper thread	#20 or equivalent	#30 or equivalent
Lower thread	#30 or equivalent	#50 or equivalent	#60 or equivalent
Upper thread tension	170 - 220 g	110 - 150 g	60 - 120 g
Lower thread tension	20 - 30 g	←	←
Thread takeup spring height	8 - 10 mm	←	6 - 8 mm
Thread takeup spring tension	150 - 200 g	←	40 - 60 g
Pre-tension	30 - 50g	←	10 - 15 g
Needle	DP x 17NY #19	←	DP x 5 #16

7-6-1. Lower thread tension



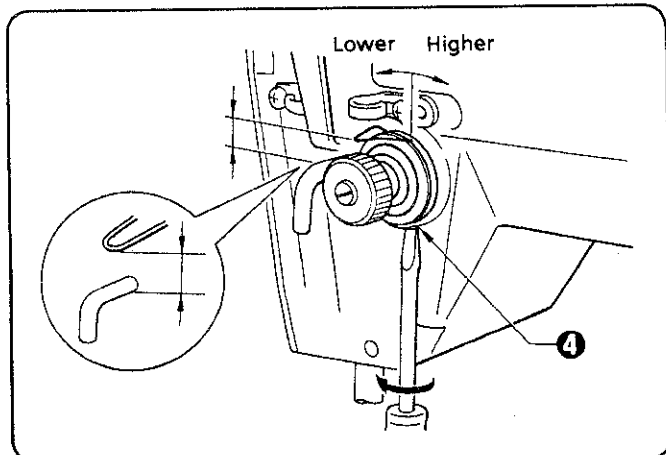
Adjust the thread tension to the weakest possible tension by turning the thread tension nut ① until the bobbin case will not drop by its own weight while the thread end coming out of the bobbin case is held.

7-6-2. Upper thread tension



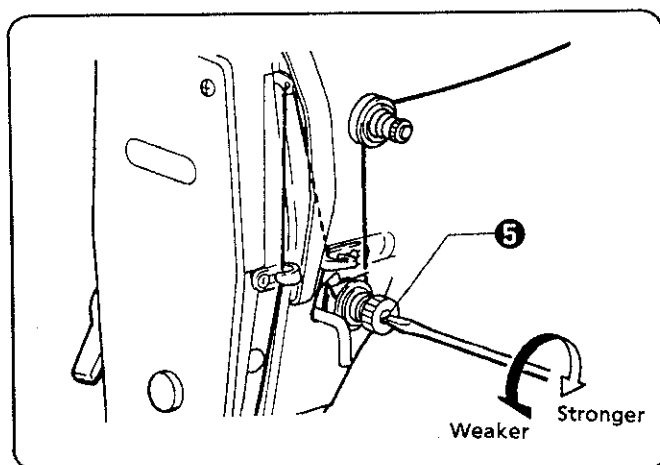
Turn the tension nut ② (main tension) to adjust the tension as appropriate for the material being sewn. Furthermore, turn the thread nut ③ (sub-tension) to adjust the remaining length of upper thread to 35 - 40 mm.

7-6-3. Thread takeup spring height



Loosen the set screw ④ and turn the tensioner body to adjust the thread takeup spring height.



7-6-4. Thread takeup spring tension



Turn the tension stud ⑤ with a screwdriver.

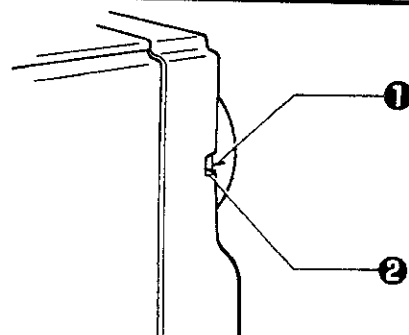
8. SEWING

⚠ CAUTION

- 
 • Turn off the power switch at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
 - Threading
 - When replacing the bobbin and needle
 - When not using the machine and when leaving the machine unattended
- 
 • Do not touch any of the moving parts or press any objects against the machine while sewing, as this may result in personal injury or damage to the machine.

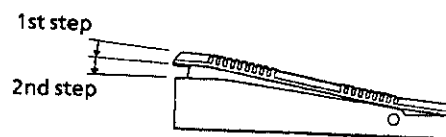
Before starting sewing.....

- Check that the needle bar is at its highest position. Turn the machine pulley so that the index mark ❶ on the pulley is between the marks ❷ on the belt cover.
- *If the machine is started while the index mark ❶ is not between these two marks ❷, error message "E-5" will be displayed.

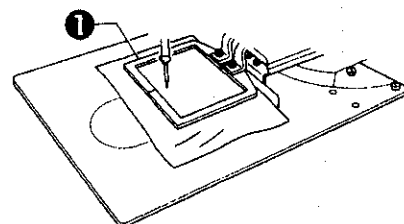


1. Turn on the power switch.
(The POWER indicator will illuminate and the program number will flash in the display.)

2. Depress the foot switch to the 2nd step.
 - *For pneumatic type, depress the start switch (right side).
(The feed mechanism will move to the starting position and the work clamp will rise.)
 - *Note that if the foot switch is pressed to the 2nd step while the display is illuminated, the machine will start operating.





3. Place the material to be sewn under the work clamp ❶, and then depress the foot switch.
 - When the foot switch is pressed to the 1st step, the work clamp ❶ will lower.
 - If you would like to shift the position of the material, release the foot switch.
 - The work clamp ❶ will then rise again.
 - When the foot switch is pressed to the 2nd step, the machine will start operating.
 - *For pneumatic, depress the work clamp switch (left side) to lower the work clamp before depressing the start switch (right side) in order to start the machine.



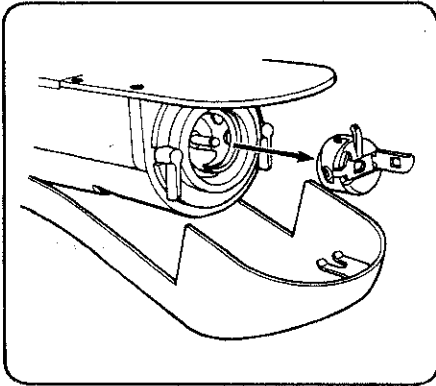
4. Once sewing is completed and the thread has been trimmed, the work clamp will rise.

9. MAINTENANCE AND INSPECTION

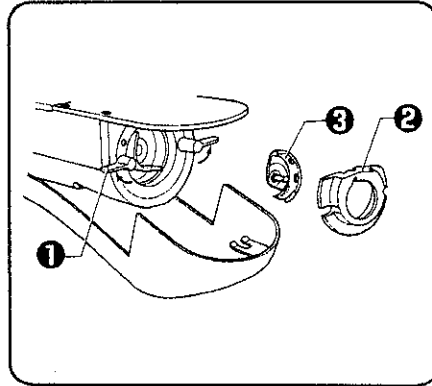
⚠ CAUTION

- 
 • Turn off the power switch before starting any cleaning work, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
- 
 • Be sure to wear protective goggles and gloves when handling the lubricating oil and grease, so that they do not get into your eyes or onto your skin, otherwise inflammation can result. Furthermore, do not drink the oil or eat the grease under any circumstances, as they can cause vomiting and diarrhoea. Keep the oil out of the reach of children.

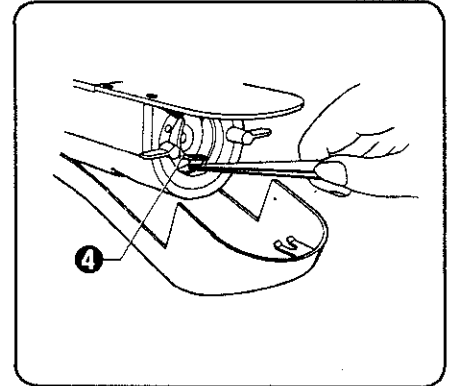
9-1. Cleaning the rotary hook



1. Pull the large shuttle hook cover toward you to open it, and then remove the bobbin case.



2. Open the large shuttle hook set claw ① in the direction indicated by the arrow, and then remove the large shuttle hook ② and the inner rotary hook ③.



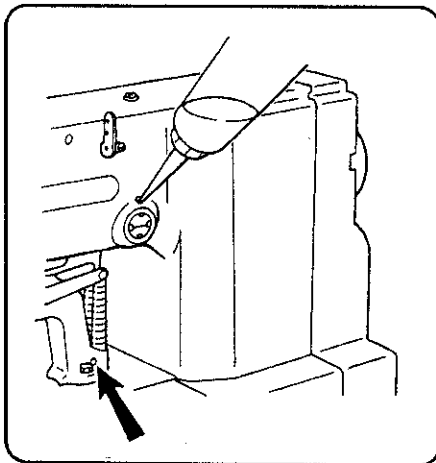
3. Clean all the dust and thread ends from around the driver ④, the top of the rotary hook thread guide and the shuttle race.

9-2. LUBRICATION

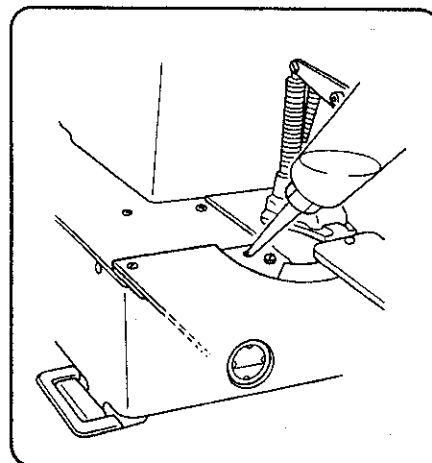
NOTE 1: Fill the machine with oil when the oil level is down to about one-third full in the oil sight glass. If oil is not added and the oil drops below this level, there is the danger that the machine may seize during operation.

NOTE 2: Be sure to let the machine operate for a while after adding the oil.

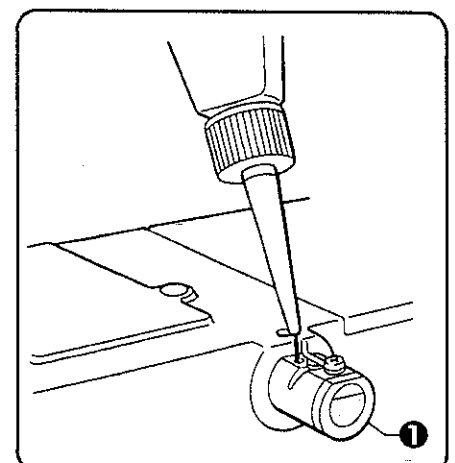
NOTE 3: Use only specified Brother oil (Nisseki Sewing Lube 10) for the machine oil.



1. Fill the arm-side oil tank with oil.
*When setting up the sewing machine and when it hasn't been used for an extended period of time, be sure to add 2-3 drops of oil at the places indicated by the arrow.

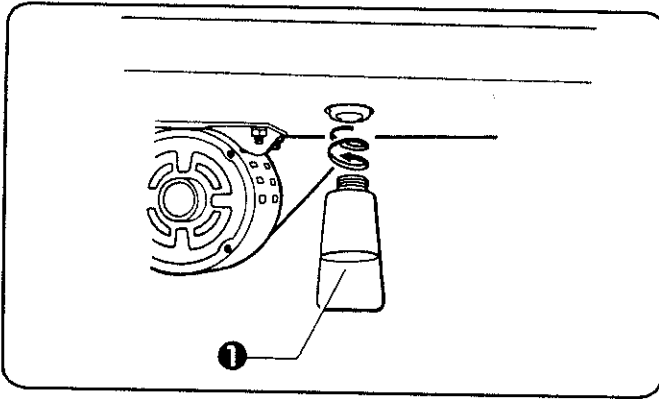


2. Fill the bed-side oil tank with oil.



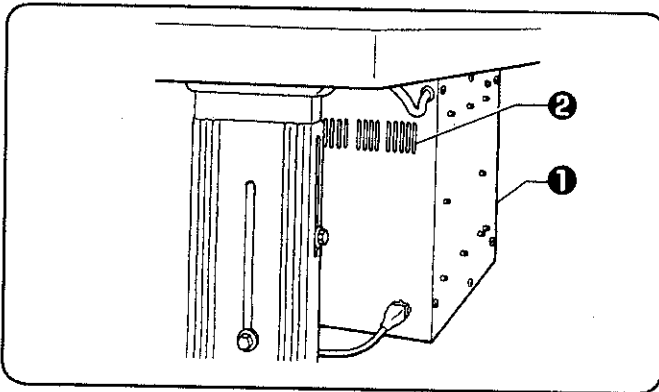
3. If using the liquid cooling tank ①, fill it with silicon oil (100 cs).

9-3. Draining the oil



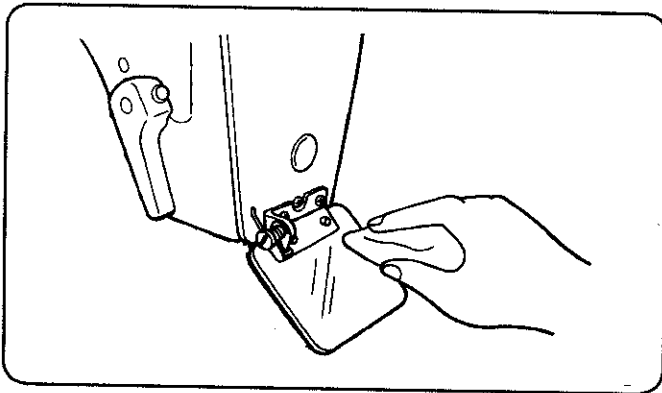
1. Remove and empty the waste oil container ① whenever it is full.
2. After emptying the waste oil container ①, screw it back into its original position.

9-4. Cleaning the control box air inlet port



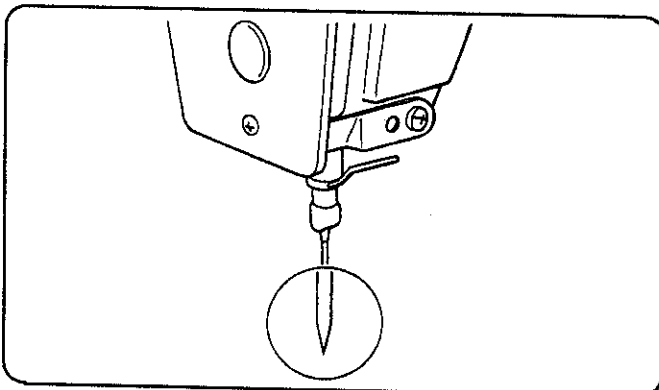
Use a vacuum cleaner to clean the filter in the air inlet port ② of the control box ① at least once a month.
 *If the machine is used while the air inlet port is blocked, the inside of the control box will overheat. When this happens, the overheating error code ("E-d") will be displayed and you will not be able to operate the sewing machine.

9-5. Cleaning the eye guard



Wipe the eye guard clean with a soft cloth.
 NOTE: Do not use solvents such as kerosene or thinner to clean the eye guard.







9-6. Checking the needle



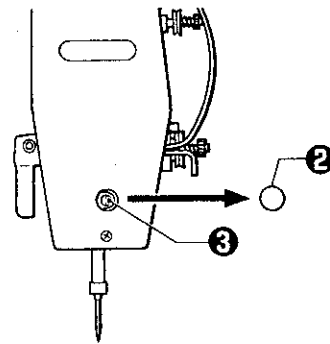
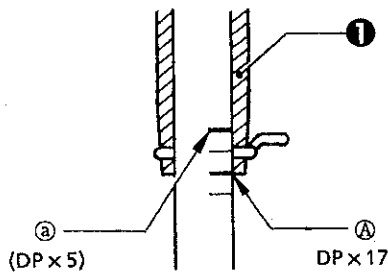
Always check that the tip of the needle is not broken before starting sewing.

10. STANDARD ADJUSTMENTS

⚠ CAUTION

- 
 • Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.
- 
 • Ask your Brother dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.
- 
 • Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the foot switch is depressed by mistake, which could result in injury.
 - When carrying out inspection, adjustment and maintenance
 - When replacing consumable parts such as the rotary hook and knife
- 
 • Hold the machine head with both hands when tilting it back or returning it to its original position. Furthermore, after tilting back the machine head, do not push the face plate side or the pulley side from above, as this could cause the machine head to topple over, which may result in personal injury or damage to the machine.
- 
 • If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions.
- 
 • If any safety devices have been removed, be absolutely sure to re-install them to their original positions and check that they operate correctly before using the machine.

10-1. Adjusting the needle bar height

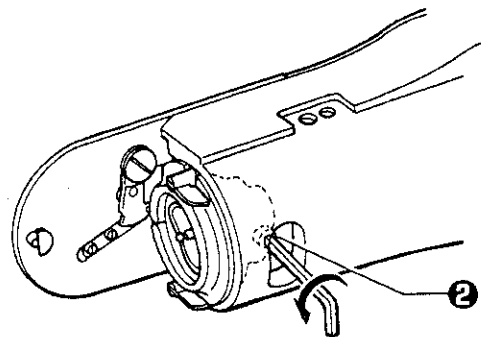
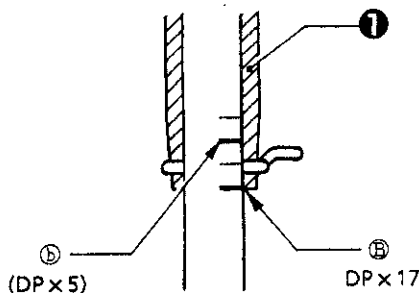


Turn the machine pulley to move the needle bar to the lowest position. Then remove the rubber plug ②, loosen the screw ③ and then move the needle bar up or down to adjust so that the second reference line from the bottom of the needle (reference line ①) is aligned with the lower edge of the needle bar bush ①.

*If using a DP x 5 needle, use the highest reference line (reference line ②).

NOTE: For inner clamping device, only the DP x 17 needle can be used, so be sure to align with ①.

10-2. Adjusting the needle bar lift amount

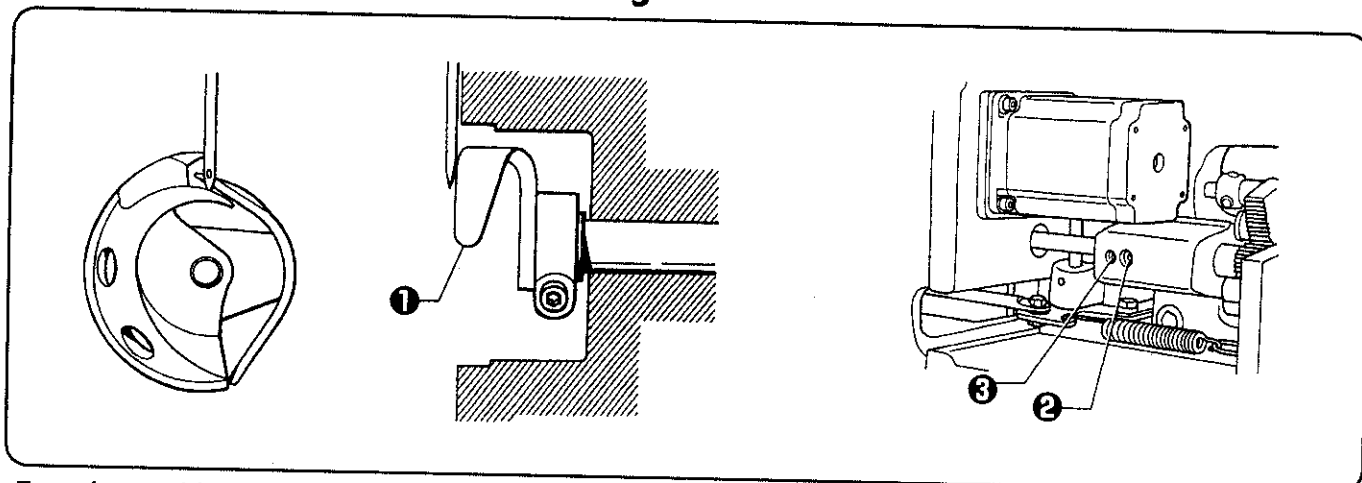


Turn the machine pulley to raise the needle bar from the lowest position until the lowest reference line on the needle (reference line ②) is aligned with the lower edge of the needle bar bush ①. Then loosen the screw ② and move the driver to adjust so that the tip of the rotary hook is aligned with the needle center line.

*If using a DP x 5 needle, use the second reference line from the top of the needle (reference line ①).

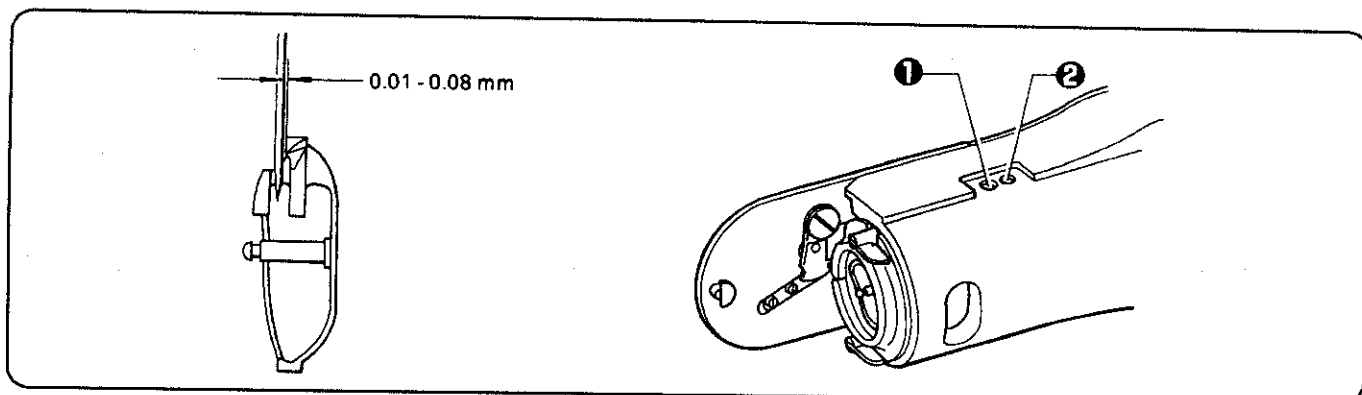
NOTE: For inner clamping device, only the DP x 17 needle can be used, so be sure to align with ②.

10-3. Adjusting the driver needle guard



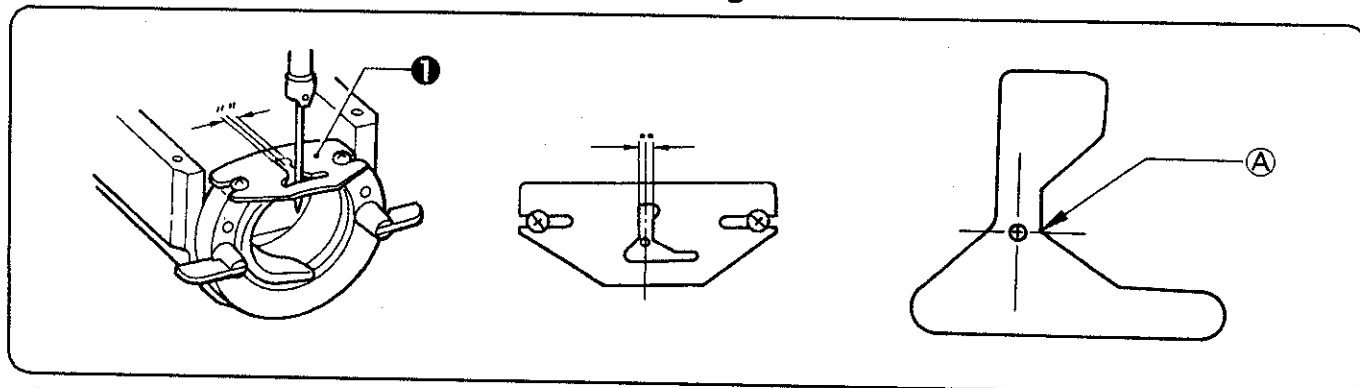
Turn the machine pulley to align the tip of the rotary hook with the needle center line. Then loosen the set screw ② and turn the eccentric shaft ③ to adjust so that the driver needle guard ① contacts the needle. If the needle contact pressure is too great, skipped stitches may occur. On the other hand, if the driver needle guard ① is not touching the needle, the tip of the inner rotary hook will obstruct the needle, resulting in an excessively high amount of friction.

10-4. Adjusting the needle clearance



Turn the machine pulley to align the tip of the rotary hook with the needle center line. Then loosen the set screw ① and turn the eccentric shaft ② to adjust so that the clearance between the needle and the rotary hook is 0.01 - 0.08 mm.

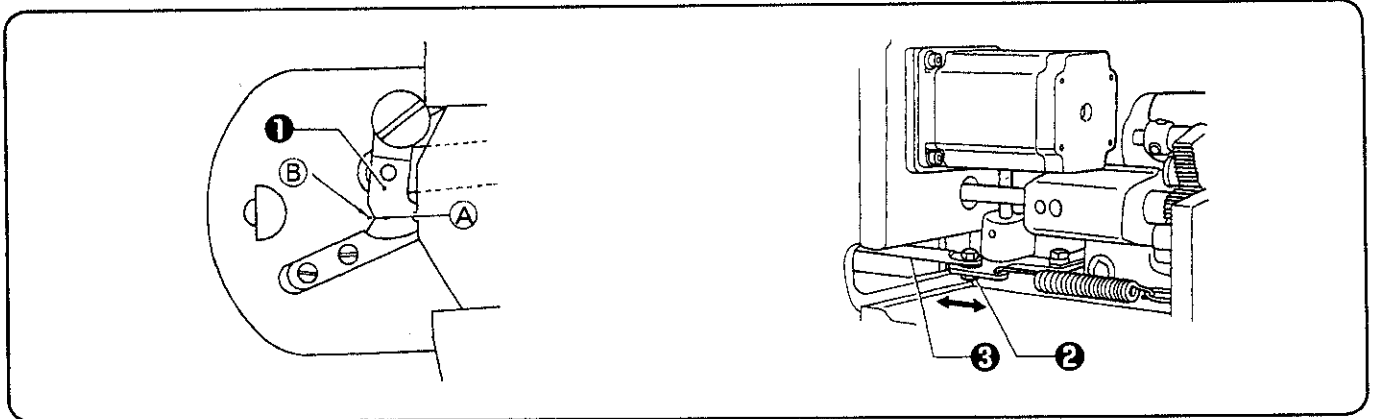
10-5. Adjusting the shuttle race thread guide



The needle groove of the shuttle race thread guide ① should be aligned with the center of the needle plate hole, and the needle center and the angled section ① should be aligned.

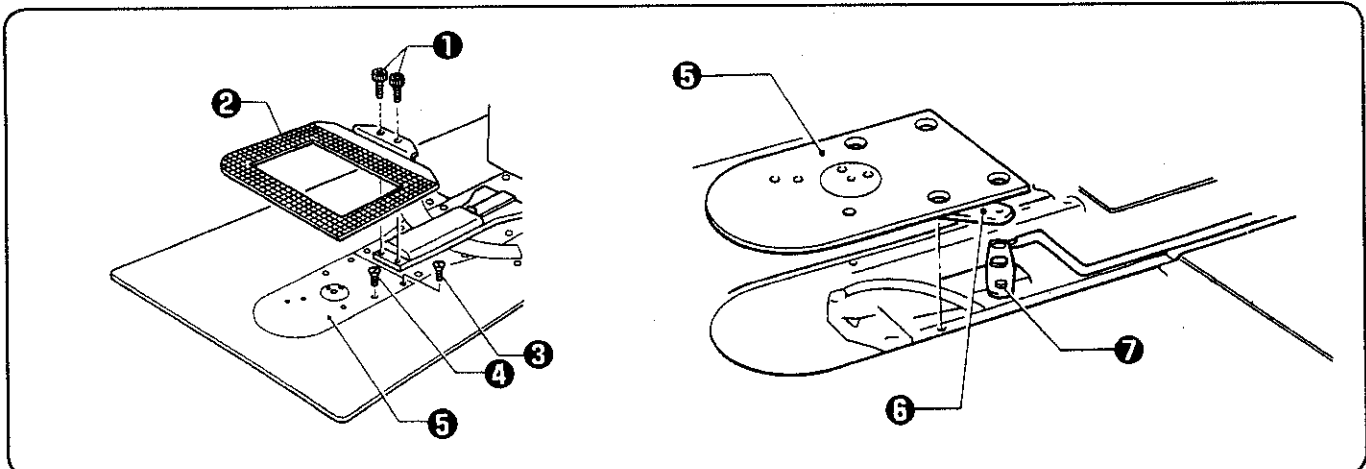
NOTE: If the shuttle race thread guide is in the wrong position, thread breakages, soiled thread or catching of the thread may occur.

10-6. Adjusting the movable knife

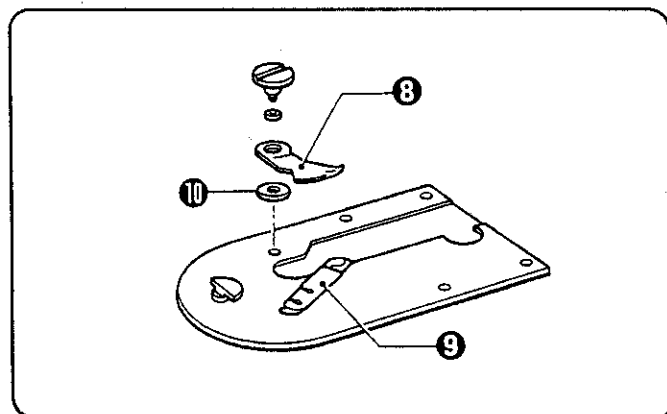


Loosen the nut ② and move thread trimmer rod L ③ to the left or right to adjust so that the V section ④ of the movable knife ① is aligned with the index mark ⑤ on the needle plate when the machine is at the stop position.

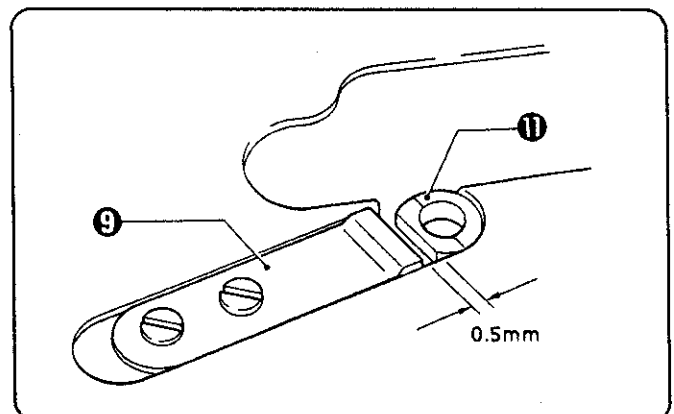
<Replacing the movable knife and fixed knife>



1. Open the large shuttle hook cover, remove the bolts ①, and then remove the feed plate ②.
2. Remove the two screws ③ and the two screws ④, and then remove the needle plate ⑤.
3. Remove the thread trimmer connecting rod ⑥ from the connecting rod lever pin ⑦.



4. Remove the movable knife ⑧ and replace it with a new one. At this time, check that the movable knife ⑧ and the fixed knife ⑨ cut the thread cleanly. If necessary, adjust by using the appropriate movable knife washer ⑩ (supplied as accessories).



5. Install the fixed knife ⑨ at a distance of 0.5 mm from the needle hole plate ⑪.
6. Place the thread trimming connecting rod ⑥ onto the connecting rod lever pin ⑦, and then install to the needle plate ⑤.

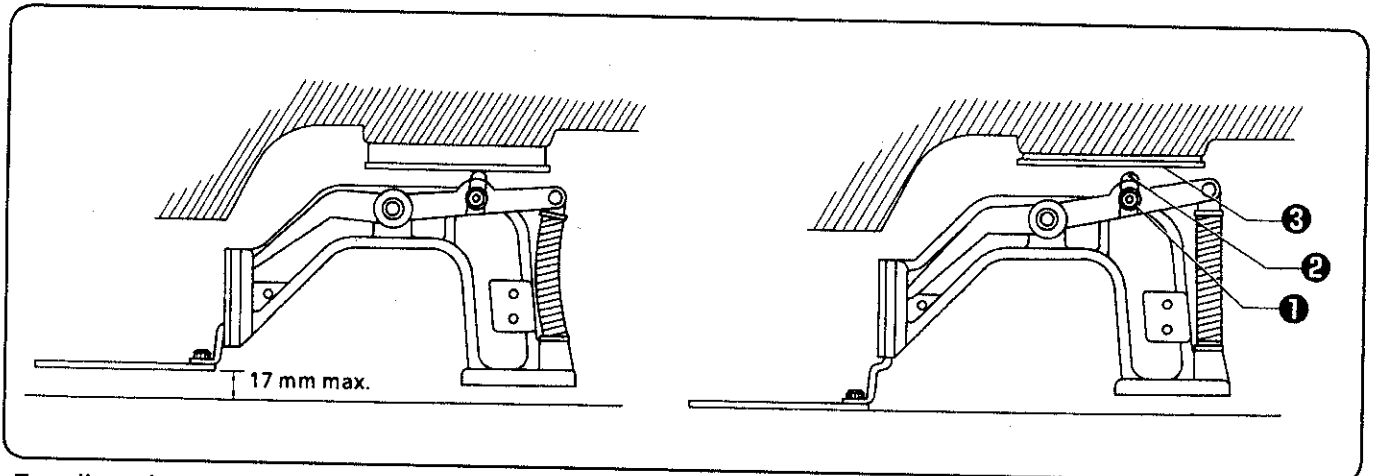
10-7. Adjusting the work clamp lift amount

The maximum work clamp lift amount is 17 mm (20 mm for pneumatic, 17 mm for machines with inner clamping device) from the top of the needle plate.

The lift amount is adjusted as shown in the table at the time of shipment.

Uses	Medium materials	Extra-heavy materials
Lift amount	10^{+1}_0 mm	14^{+1}_0 mm

[Solenoid type]



To adjust the work clamp lift amount, loosen the bolt ① and move the presser arm lever plate ② up or down.

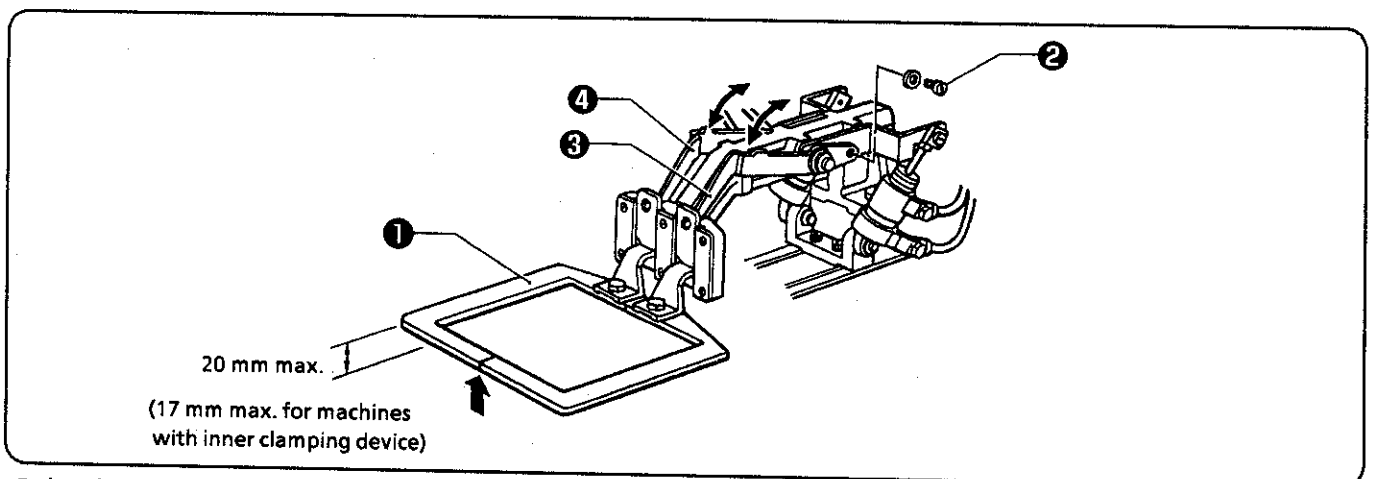
*If movement is sluggish when the work clamp is being raised and lowered, it may not be possible to increase the work clamp lift amount.

Apply grease to the bottom of the presser plate ③ to the top of the presser arm lever plate ② and to the sliding part of the presser foot (grease is already applied at the time of shipment), and check that the movement becomes easier.

*If the work clamp cannot be raised or lowered, error code "E-6" will be displayed.

*Check that there is a gap between the presser arm lever plate ② and the presser plate ③ when the presser foot is lowered.

[Pneumatic type]



Raise the work clamp ① and loosen the screws ②.

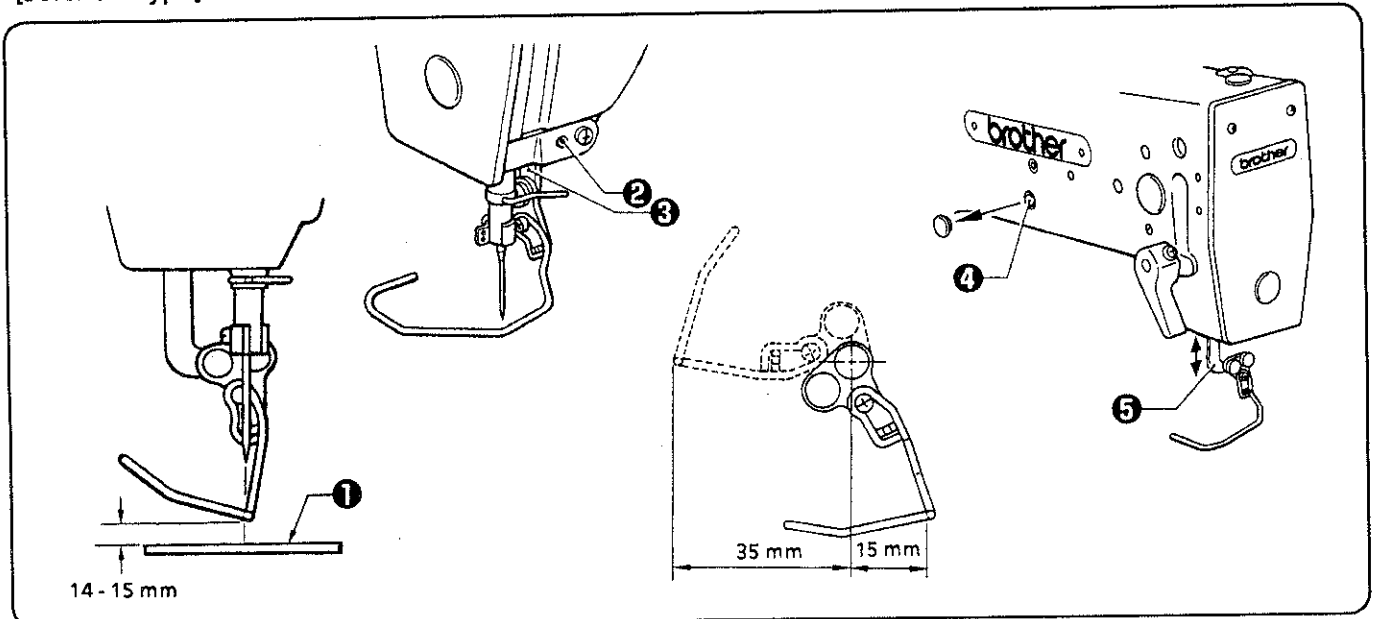
Adjust the work clamp lift by moving the presser levers ③ and ④ up and down and then tighten the screws ②.

*If movement is sluggish when the work clamp is being raised and lowered, it may not be possible to increase the work clamp lift amount.

Apply grease to the sliding part of the presser foot (grease is already applied at the time of shipment), and check that the movement becomes easier.

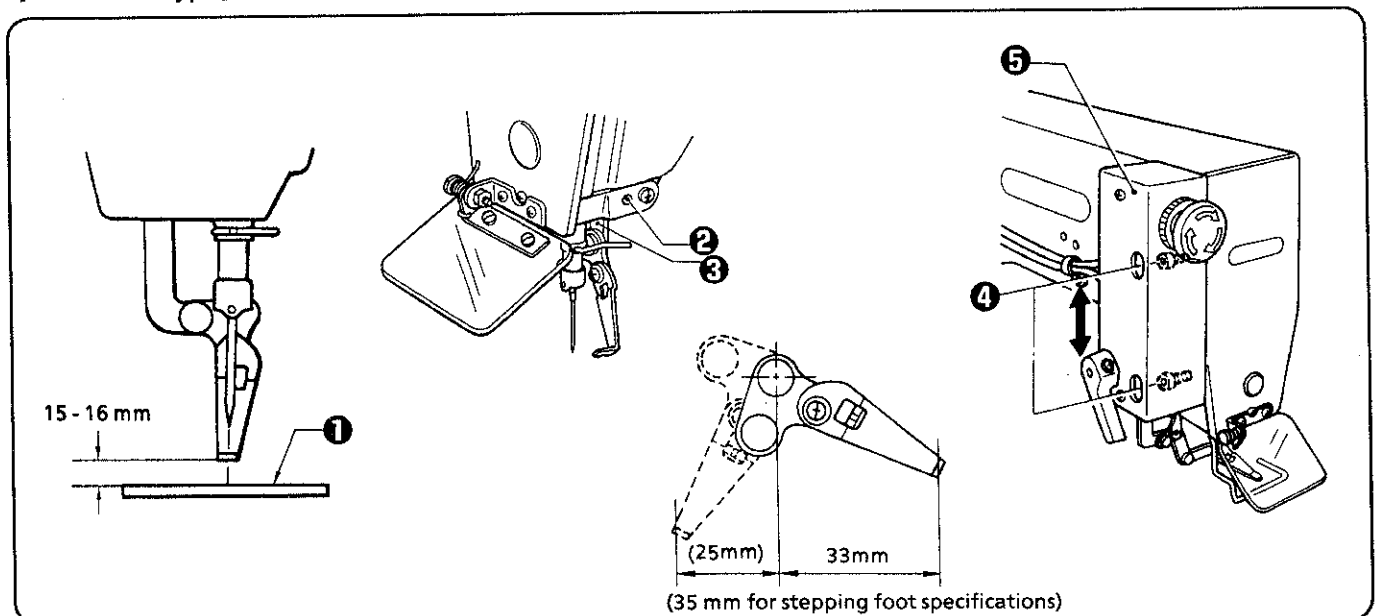
10-8. Adjusting the thread wiper

[Solenoid type]



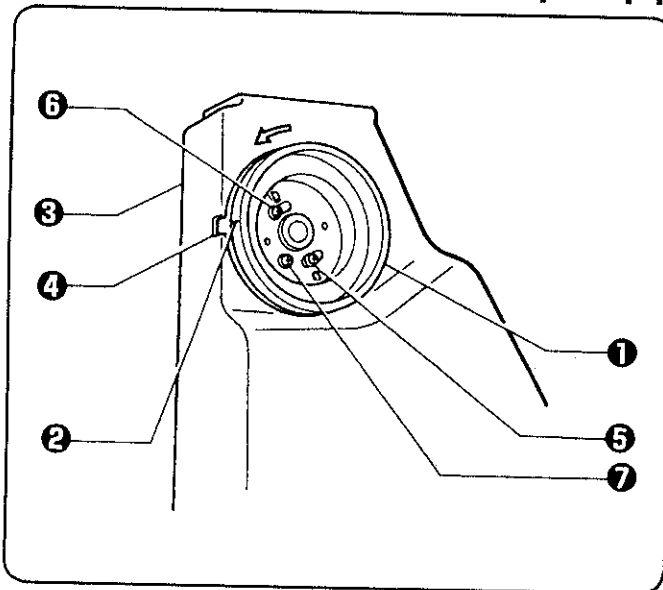
1. Loosen the set screw ② and move the wiper arm support ③ up or down to adjust so that there is a clearance of 14 - 15 mm between the bottom of the thread wiper and the needle plate ① when the thread wiper is aligned with the center of the needle bar.
2. Loosen the screw ④ and move the thread guide connecting plate ⑤ up or down to adjust so that the thread wiper is approximately 15 mm from the needle before it wipes the thread, or 35 mm from the same after it has wiped the thread.

[Pneumatic type]



1. Loosen the set screw ② and move the wiper arm support ③ up or down to adjust so that there is a clearance of 15 - 16 mm between the bottom of the thread wiper and the needle plate ① when the thread wiper is aligned with the center of the needle bar.
2. Loosen the bolts ④, and move the wiper solenoid cover ⑤ up or down so that the thread wiper will be 33 mm (35 mm for stepping foot specifications) from the center of the needle bar before it wipes the thread.

10-9. Adjusting the needle up stop position



The needle up stop position is adjusted so that the index mark ② on the machine pulley ① is inside the mark ④ on the belt cover ③.

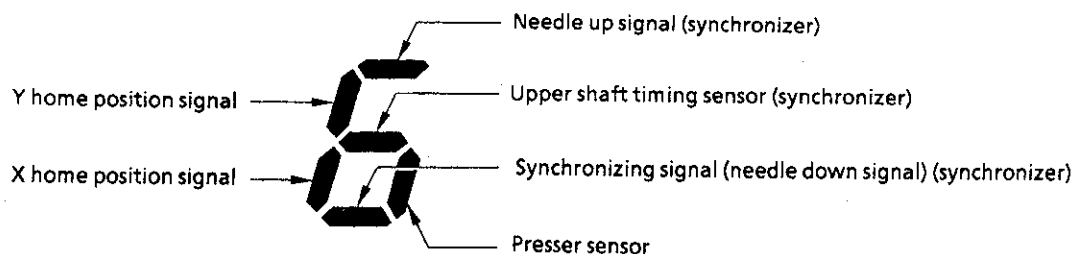
If adjustment is necessary, loosen the screw ⑤ at the "U" mark of the machine pulley ① and adjust the position of the machine pulley ①. The machine pulley ① stops later if it is turned clockwise, and it stops earlier if it is turned counterclockwise.

*The screw ⑥ at the "D" mark is an adjustment screw for the needle down detection function and is adjusted to match the feed timing, so it should not be loosened.

*The screw ⑦ is a screw for detecting the machine stop position, and should not be loosened.

*If the index mark ② is not inside the mark ④ when the sewing machine is started, error code "E-5" will be displayed. Turn the machine pulley to move the index mark ② to the correct position and then start the sewing machine.

10-10. Checking the input sensors



1. Turn on the power switch.
2. Press the menu switch until the X-SCALE indicator illuminates.
3. While pressing the TEST switch, press the RESET switch.
4. The conditions of the various input sensors will be shown in the first digit display area of the display as indicated above.

*If an external solenoid-type wiper has been installed, the wiper will operate when the work clamp switch is depressed.

*For inner clamping device, the reverse mechanism will operate when the start switch is depressed.

5. Press the TEST switch once more to return the display to the normal condition.

Display conditions

Y home position sensor	: Illuminates when at the home position
X home position sensor	: Illuminates when at the home position
Needle up signal	: Illuminates when the needle is raised
Upper shaft sensor	: Illuminates when a signal is being input
Synchronizing signal	: Illuminates when the needle is lowered
Presser sensor	: Illuminates when the presser is lowered

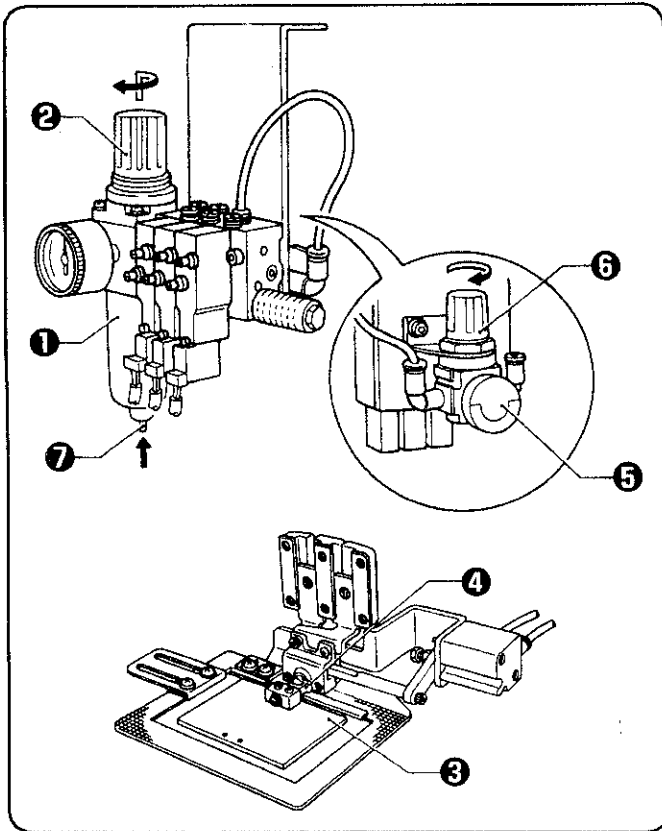
10-11. Checking the input voltage

1. Turn on the power switch.
2. Press the menu switch until the Y-SCALE indicator illuminates.
3. While pressing the TEST switch, press the RESET switch.
4. The input voltage conditions will be shown in the display.
 - *The voltage values are expressed as a percentage (100% when 200V is supplied to the power supply circuit board).
5. Press the TEST switch once more to return the display to the normal condition.

[When a normal voltage is input]

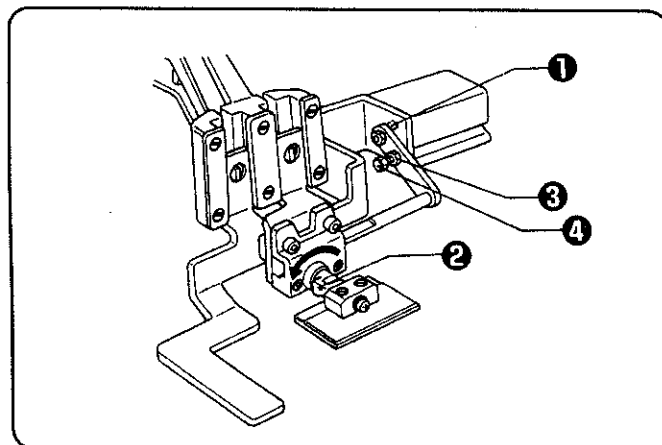
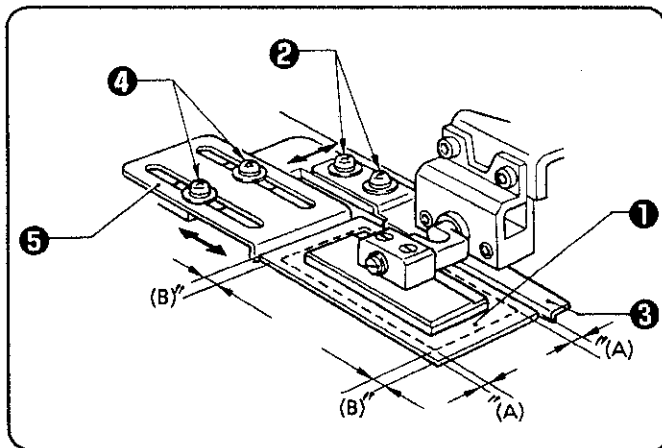
200-V specifications	[090] - [110]
220-V specifications	[100] - [120]
230-V specifications	[105] - [125]
100-V, 380-V, 400-V and 415-V specifications	[100] - [120]

10-12. Adjustment of air pressure (for pneumatic)



1. Air pressure should be 0.49 Mpa [5 kg/cm²]. The air pressure can be adjusted by pulling up and turning the control knob ② on the integrator ①.
2. Adjust the air pressure for the reversal cylinder to stay within such a range that the presser crank ④ rotates reversely when pressing the sewing material with the pressure plate ③. (Approx. 3 kg/cm²)
For adjustment, turn the control knob ⑥ on the air regulator ⑤.
3. If water stands in the bottle of the integrator ①, turn the drain cock ⑦ in the direction indicated by an arrow to drain the water.

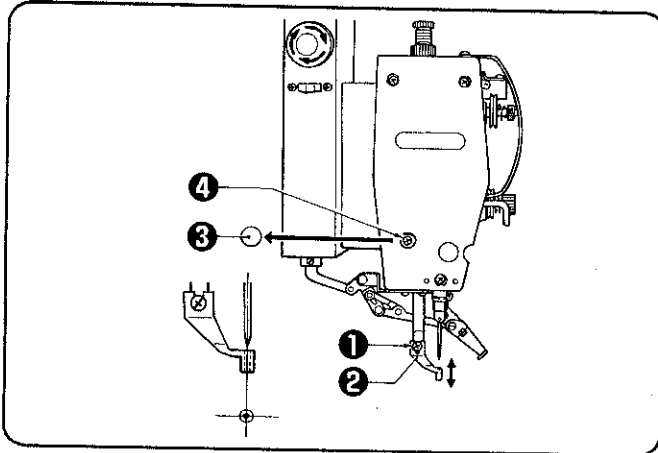
10-13. Adjustment of inner claming device



1. Adjustment of the positioning plates
Loosen the screws ②, and adjust the position of the positioning plate R ③ so that the label ① can be evenly laid out between the front and back seams (A).
Next, loosen the screws ④, and adjust the position of the positioning plate L ⑤ so that the presser plate can be evenly laid out between the left and right seams (B).
2. Adjustment of the presser crank horizontal position
Loosen the nut ③ and push in or pull out the adjusting bolt ④ so that the presser crank ② can be horizontal when the reversal cylinder plunger ① is moved to the left extreme.

10-14. Presser foot adjustment (For stepping foot specifications only)

- Turn the pulley by hand to lower the presser foot to the down position, and then proceed with the steps below.



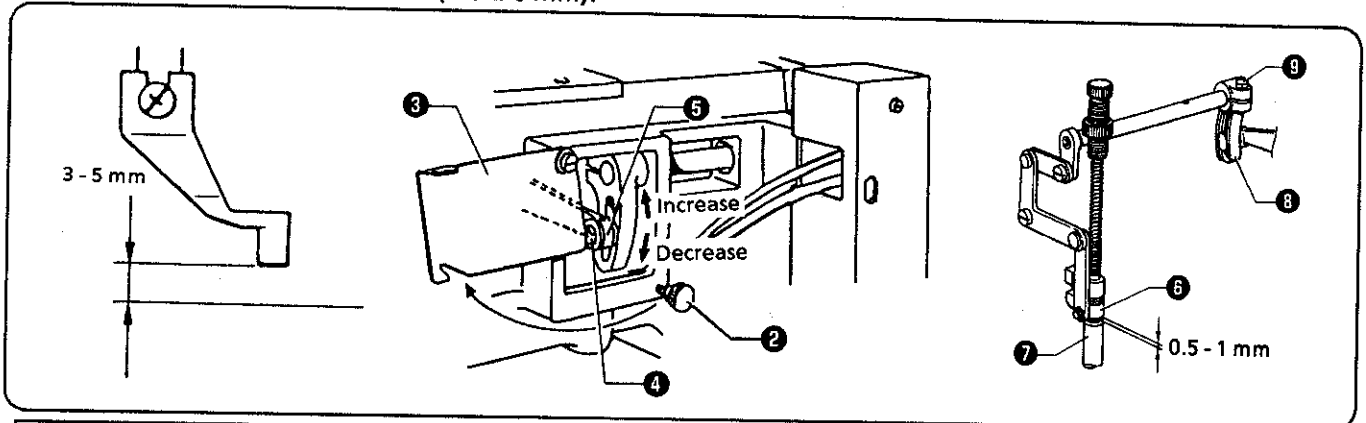
1. Loosen screw ①, set the bottom of the presser foot ② lightly against the work piece, and then tighten screw ①.

NOTE: If the presser foot is lowered too far, the work piece will shift when sewing. Also, if the presser foot is too high, skipped stitches may occur.

2. Turn the pulley by hand, and make sure the needle enters the center of the needle hole in the presser foot ②. If the needle is not aligned with the center of the needle hole, remove cap ③, loosen screw ④, and turn the presser foot (presser bar) to adjust.

10-15. Changing the presser foot lift (For stepping foot specifications only)

Standard presser foot lift is 3 mm (max. 8 mm).

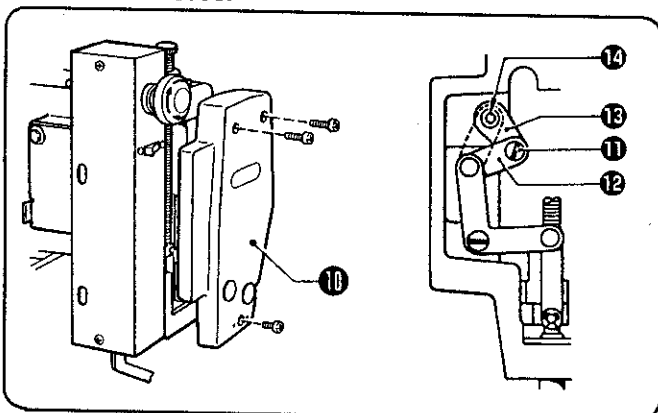


Adjusting presser foot lift to 3 - 5 mm

1. Loosen the stud screw ② and open the stepping cover ③.
2. Loosen the nut ④ and adjust the stepping presser connecting rod ⑤ position. (When the stepping presser connecting rod is raised, the lift will increase. When lowered, the lift will decrease.)

Adjusting presser foot lift to 5 - 8 mm

1. Turn the upper shaft to set the presser foot to its lowest point. Loosen the screw ⑤ of intermittent presser arm (R) ⑧. Adjust the clearance between the presser lifter ⑥ and the presser bar bush ⑦ to 0.5 - 1 mm.
2. Loosen the nut ④ and adjust the intermittent presser connecting rod ⑤ position. (When the intermittent presser connecting rod is raised, the lift will increase. When lowered, the lift will decrease.)



If vertical movement of the presser foot is not required

1. Remove the face plate ⑩.
2. Remove the stud screw ⑪ and re-attach the stepping connecting rod ⑫ to the upper screw hole ⑭ of the stepping presser arm R ⑬.

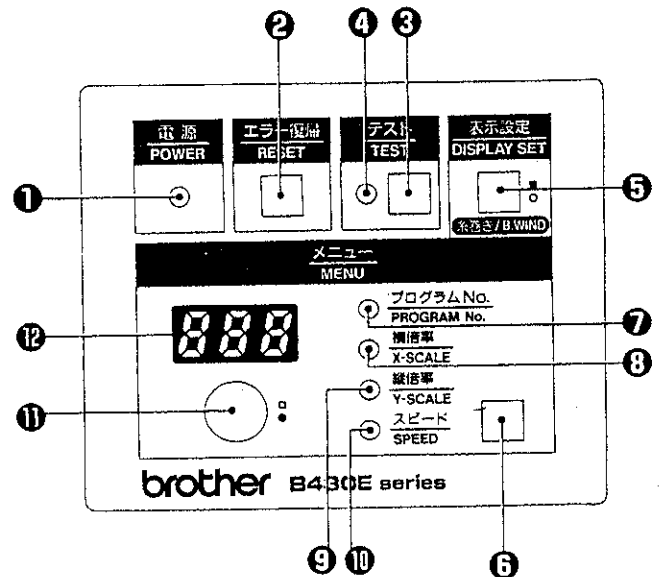
10-16. Moving stitch patterns

- Programs which have already been programmed can be moved up, down and to the left and right. (However, such patterns will be reset if the power supply is turned off or the program number is changed.)
- The feed position can be set to the any position desired.

1. Moving a stitch pattern

- (1) Select the program number, and then press the start switch once to move the feed mechanism to the sewing start position.
- (2) While pressing the TEST switch ③, press the RESET switch ②.

The TEST indicator ④ will illuminate and $\langle \bar{0} \bar{0} \bar{0} \rangle$ will appear in the display window ⑫.
- (3) Press the MENU switch ⑤ so that either the X-SCALE indicator ⑧ or Y-SCALE indicator ⑨ illuminates.
- (4) Turn the rotary switch ⑪ to move the feed mechanism one pulse at a time.
 - ① If the rotary switch is turned counterclockwise while the X-SCALE indicator is illuminated, the feed mechanism will move to the right.
 - ② If the rotary switch is turned clockwise while the X-SCALE indicator is illuminated, the feed mechanism will move to the left.
 - ③ If the rotary switch is turned counterclockwise while the Y-SCALE indicator is illuminated, the feed mechanism will move up.
 - ④ If the rotary switch is turned clockwise while the Y-SCALE indicator is illuminated, the feed mechanism will move down.
- (5) When the TEST switch ③ is pressed after the above fine adjustments have been made, the TEST indicator ④ and display window ⑫ will both switch off and movement of the stitch pattern will be completed. (*1)

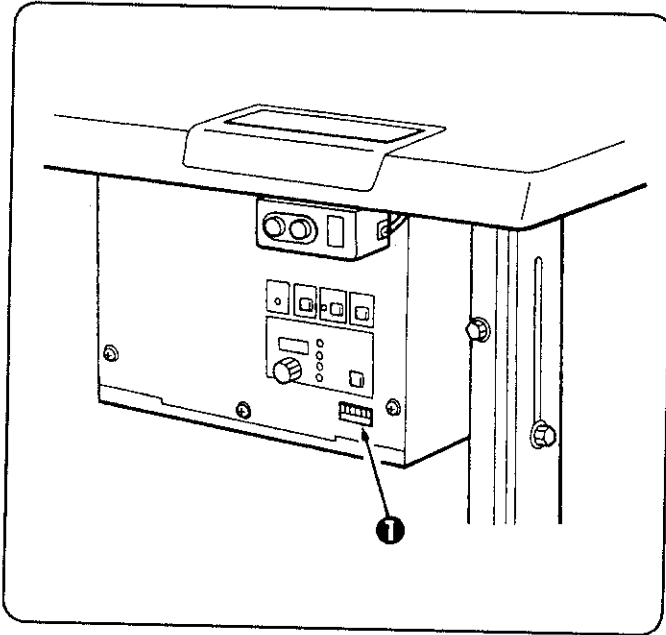


2. Moving the feed mechanism to the desired position (feed test)

- (1) Same as 1-(2).
 - (2) Same as 1-(3).
 - (3) Same as 1-(4).
 - (4) Same as 1-(5).
- (*1) When moving the stitch pattern, the sewing start position can be moved to any desired point within the sewing area, but if the pattern goes outside the sewing area, an error will occur during sewing and you will not be able to sew the pattern. Give consideration to the pattern as a whole when moving it.

11. CHANGING FUNCTIONS USING THE DIP SWITCHES

11-1. Operation panel DIP switches

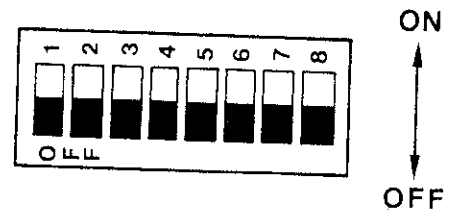


The operation panel DIP switches ❶ are used to change functions which might need to be changed depending on the sewing conditions.

Caution: Always turn off the power before setting the DIP switches.

The functions shown in the table below can be changed by means of these DIP switches.

*All DIP switches are set to OFF at the time of shipment.

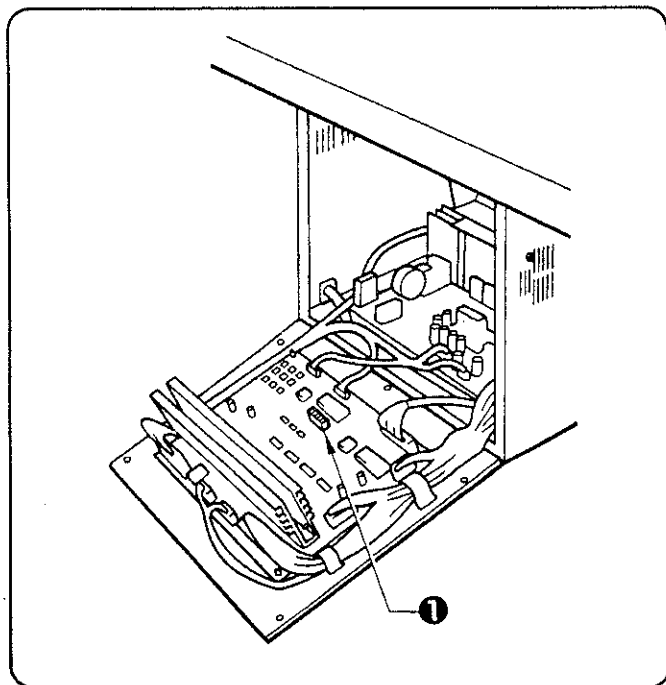


Switch	Motion when set to ON	
DIP A-1	Work clamp does not automatically lift after sewing is completed.	See "13. Setting the work clamp mode"
DIP A-2	Two-pedal mode is available.	
DIP A-3	User program mode is available.	
DIP A-4	Option panel mode can be used.	
DIP A-5	The work clamp does not rise automatically when a split is found.	
DIP A-6	The stitches at the sewing start are sewn at a low speed of approximately 400 spm.	
DIP A-7	Enlargement of pattern size is not available.	
DIP A-8	Program number is fixed.	

11-2. DIP switches inside the control box

⚠ DANGER

- Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box. Touching areas where high voltages are present can result in severe injury.



The DIP switches ① inside the control box are used to change functions which do not often need to be changed once they have been set.

The functions can be changed as shown in the table below by changing the positions of the DIP switches ①.

①

*All DIP switches are set to OFF at the time of shipment.

Caution: When opening the cover, hold it securely so that it does not fall down.

Switch	Motion when set to ON
DIP B-1	First two stitches are sewn at a low speed of 260 spm.
DIP B-2	Last two stitches are sewn at a low speed of 260 spm.
DIP B-3	Last two stitches are sewn at a low speed of 400 spm regardless of the pattern. SEE NOTE
DIP B-4	Last two stitches are sewn at a low speed of 700 spm regardless of the pattern. SEE NOTE
DIP B-5	—
DIP B-6	Low speed sewing is not performed at the start of sewing.
DIP B-7	—
DIP B-8	Sets the sewing area to an unlimited area.

NOTE: When the DIP switch Nos. 2, 3 and 4 are all off, last two stitches of sewing pattern No. 2, 3 or 6 will be sewn at 700 spm for denim specification; other than those, about 400 spm will be set automatically.

11-3. Using user programs

User program...

It can store seven different programs (designated as A, b, c, d, E, F and H) which can include details such as the program number, X scale, Y scale and sewing speed. If you are sewing certain patterns over and over again, it is useful to record the settings for these patterns into a user program.

Recording a user program

1. Turn off the power switch and then set DIP switch A-3 of the DIP switches ① to ON.

2. Turn on the power switch. While pressing the TEST switch ②, press the menu switch ③.

* All of the menu indicators (④ to ⑦) will illuminate and the mode will switch to recording mode.

* In addition, "P A" will appear in the display ⑧ to indicate that user program A is being recorded. (Once recording of A is completed, b will be displayed; once b is completed, c will be displayed. Thus the next unrecorded program letter is always displayed.)

3. Press the menu switch ③.

* The PROGRAM No. indicator ④ will illuminate.

4. Turn the rotary switch ⑤ to select the number for the program that you would like to record.

5. Press the menu switch ③. * The X-scale indicator ⑥ will illuminate.

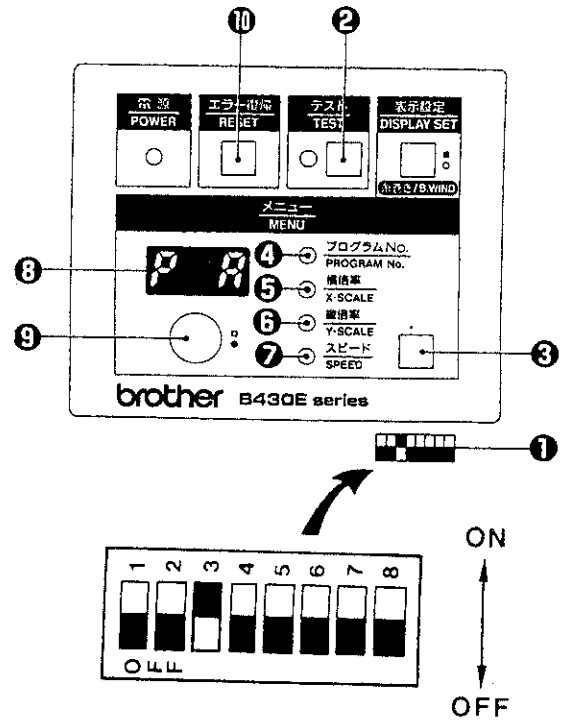
6. Turn the rotary switch ⑤ to select the X scale setting that you would like to record.

7. Press the menu switch ③. * The Y-scale indicator ⑥ will illuminate.

8. Turn the rotary switch ⑤ to select the Y scale setting that you would like to record.

9. Press the menu switch ③. * The SPEED indicator ⑦ will illuminate.

10. Turn the rotary switch ⑤ to select the sewing speed setting that you would like to record.



11. Press the menu switch ③.

- * This completes the recording of user program A.
- * "P b" will then appear in the display ⑤, to indicate that user program b is now being recorded. Repeat steps 3. through to 11 to record further programs as desired.

12. Press the TEST switch ②. This completes the recording.

- * The menu indicators (④ to ⑦) will all illuminate and " A" will appear in the display to indicate that user program A is currently selected.
- * If the TEST switch ② is pressed before recording is completed, the current user program will not be recorded.

Using a user program

1. While pressing the DISPLAY SET/B. WIND switch, turn the rotary switch ⑨ to select the program number for the user program that you would like to use.

2. Depress the foot switch to the second step.

3. Check the sewing pattern (see page 22), and then sew the pattern selected.

*In addition, you can use the optionally-available handy switch ⑩ to quickly and conveniently switch between the user programs which have been recorded.

To select A



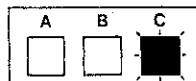
Press switch A; indicator A will illuminate.

To select b



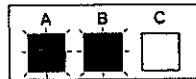
Press switch B; indicator B will illuminate.

To select c



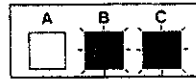
Press switch C; indicator C will illuminate.

To select d



Press switches A and B simultaneously; indicators A and B will illuminate.

To select E



Press switches B and C simultaneously; indicators B and C will illuminate.

To select F



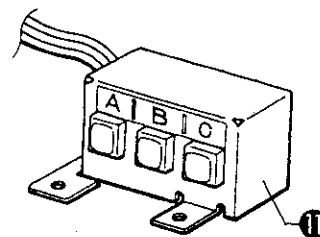
Press switches A and C simultaneously; indicators A and C will illuminate.

To select H



Press switches A, B and C simultaneously; indicators A, B and C will illuminate.

NOTE: This cannot be used if DIPA-4 is set to ON.



Clearing the user programs

1. Switch the machine to recording mode by the procedure in steps 1. and 2. of recording a user program.

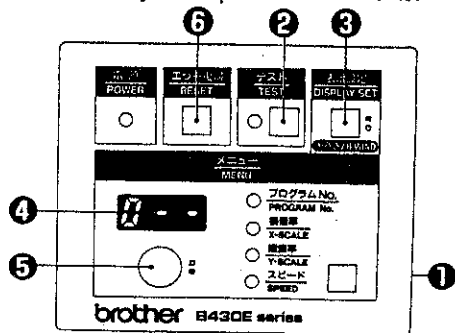
2. Press the RESET switch ⑩.

All of the user programs which have been recorded will then be cleared.

12. CHANGING SPECIAL FUNCTIONS USING THE MEMORY SWITCHES

The functions of the switches on the operation panel ① can be changed to carry out special functions.

1. Turn on the power switch.
2. While pressing the TEST switch ②, press the DISPLAY SET switch ③.
"0 - -" will appear in the display ④.
3. Turn the rotary switch ⑤ until the character at the left side of the display ④ matches the character ("0" to "7" of the function in the table below that you would like to assign.)
4. When the DISPLAY SET switch ③ is pressed, the two spaces at the right in the display window will change from "- -" to "on". If this switch is pressed once more, the display will change from "on" to "- -".
5. Press the TEST switch ②. The display will return to normal.



Switch	Motion when set to ON	Standard conditions	
		Solenoid type	Pneumatic type
memo-0	At the end of sewing, the feed plate will be returned to the sewing start point via mechanical home position.	--	--
memo-1	Work clamp will move to the sewing start point, and then will be lifted. *	on	on
memo-2	When using the handy switch to select a user program, the feed will move automatically to the next starting point at the same time as the program is switched. (Normally it moves to the starting point after sewing starts.)	--	--
memo-3	When sewing using user programs, the programs which have been set will be sewn in numerical order.	--	--
memo-4	Fixes the sewing speed at the minimum speed for the data.	--	--
memo-5	Changes the feed timing. (Refer to the "Feed timing settings" table on next page.)	on	on
memo-6		--	--
memo-7	--	--	--
memo-8	Switches to single-stitch test mode.	--	--
memo-9	The sewing start point becomes the reference point for enlargements and reductions.	--	--
memo-A, b	--	--	--
memo-c	During an emergency stop, the needle bar stops in the raised position, the work clamp moves forward one stitch and then the thread is trimmed. (For thick threads)	--	--
memo-d	Enlargement and reduction of needle racking width for backtack stitches (with stitch widths of 1 mm or less) is carried out.	--	--
memo-E	Test feeding will be performed at the same speed as that for actual sewing. (This is used for checking feeding operation.)	--	--
memo-F	At the end of sewing, the clamp will automatically open and close once. (This is used for running-in operation.)	--	--
memo-0■	Changes the work clamp mode setting. (Refer to "13. Setting the work clamp mode".)	--	--
memo-1■		--	--
memo-2■		--	--
memo-3■	The inner clamping device operates for 1/4 of the pattern and returns for 3/4 of the pattern.	--	--
memo-4■	The external solenoid wiper operates.	--	on
memo-5■	In reverse work clamp mode, the work clamp does not retract after sewing is finished.	--	--
memo-6■	The mode switches to reverse work clamp mode.	--	--
memo-7■	The mode switches to pneumatic work clamp mode (memo-4■ and memo-8■ also turn on at the same time).	--	on
memo-8■	The mode switches to stepping work clamp mode.	--	on

*When set to OFF, the work clamp rises at the sewing end so that the workpiece can be removed more easily. However, check that the needle is not in the way when moving the work clamp from the sewing end point to the sewing start point.

Clearing the memory (Initial setting of memory)

Clear the memory after setting up the sewing machine and after replacing the PROM.

There are two methods of clearing the memory:

- Turn the power on while pressing the RESET switch .
- Press the RESET switch  while changing a memory switch setting (after step 2. of the previous topic).

Once the memory has been cleared, all memory switches will be restored to their standard conditions.

There are two different sets of standard conditions, governed by whether solenoid or pneumatic specifications are active.

Before clearing the memory, set memory switch memo 7. as follows:

- OFF → Solenoid
- ON → Pneumatic

NOTE:

- When clearing the memory, be sure to make the basic settings which match the type of work clamp being used. Refer to "13. Setting the work clamp mode" for details.
- When using the sewing machine after the memory switch settings have been returned to the standard condition, note that the act of clearing the memory will restore all switch settings to the standard condition. Thus you will need to change the settings for individual switches again if necessary before using the sewing machine.

Feed timing settings

Memory switch positions		Feed timing	Standard settings for each model	Example (* 1)				Thread tightening
memo-5	memo-6			3 mm stitch length				
				2000 spm	1600 spm	1300 spm	1000 spm	
off	off	Slow	B430E Standard	135°	160°	180°	200°	Stronger
off	on	Medium slow		125°	125°	130°	130°	↑
on	off	Medium fast	B434E Standard	85°	90°	100°	110°	↓
on	on	Fast	B430E for thick materials	45°	55°	70°	80°	Weaker

*1 The angles given in the table are the angles of rotation of the upper shaft from the point where the needle down signal is input until the feed mechanism starts to operate, and are for reference only. Action angles will vary depending on factors such as the weight of the material being sewn and the stitch length.

13. SETTING THE WORK CLAMP MODE

The operation of the work clamp can be changed in a variety of ways through the use of different DIP switch and memory switch settings. (Refer to "11. Changing functions using the DIP switches" and "12. Changing special functions using the memory switches".)

13-1. Setting solenoid work clamp mode

- | | |
|---------------|--|
| Basic setting | <ol style="list-style-type: none"> 1. Set memory switch memo 7■ to OFF. 2. Clear the memory. (Refer to page 44.) |
|---------------|--|

Setting the work clamp operating mode

The work clamp operating mode changes as shown in the table below in accordance with the settings for DIP switches DIPA-1 and DIPA-2.

DIP A-1	DIP A-2	Pedal specifications	Raising the presser at the sewing end
–	–	Single pedal	Work clamp is raised automatically.
ON	–	Single pedal	Work clamp is raised by pressing the pedal.
–	ON	Two pedals	Work clamp is raised automatically, then it is lowered by pressing the pedal.
ON	ON	Two pedals	Work clamp is kept lifted while the pedal is pressed.

13-2. Setting pneumatic work clamp mode

- | | |
|---------------|---|
| Basic setting | <ol style="list-style-type: none"> 1. Set DIP switch DIPA-2 to ON. 2. Set memory switch memo 7■ to ON. 3. Clear the memory. (Refer to page 44.) 4. Set memory switch memo 8■ to OFF. 5. Set the work clamp operating mode. |
|---------------|---|

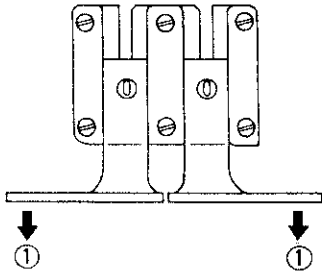
Setting the work clamp operating mode

Select the desired work clamp operating mode from the table below.

Simultaneous left and right work clamp mode	The left and right work clamps rise and lower simultaneously. 4 different types of operation are possible by operating the foot switch in different ways.
Two-step left and right work clamp LR mode	The work clamps lower in the order left work clamp → right work clamp. Lighter clamping pressure can be obtained by switching the air tubes. 5 different types of operation are possible when using the light work clamp mode
Two-step left and right work clamp RL mode	The work clamps lower in the order right work clamp → left work clamp.
Alternate two-step left and right work clamp mode	The mode switches between two-step left and right work clamp LR mode and two-step left and right work clamp RL mode for each workpiece.
Independent work clamp mode	The 3-pedal foot switch (available as an option) is necessary in order to use this mode. The left and right work clamps can be operated independently.

Simultaneous left and right work clamp mode

Simultaneous left and right work clamp A mode



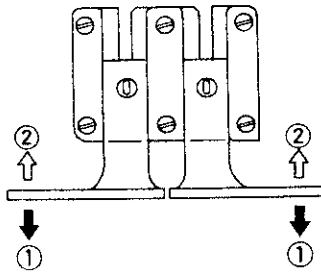
- ① When the work clamp switch is depressed to step 1, both work clamps are lowered.
- ② When the work clamp switch is depressed to step 2, sewing starts.

memo-0■	memo-1■	memo-2■
—	ON	ON

*The solenoid-type two-step foot switch can be used in this mode. In this case, the settings should be as given below.

DIPA-2	memo-0■	memo-1■	memo-2■
—	—	—	—

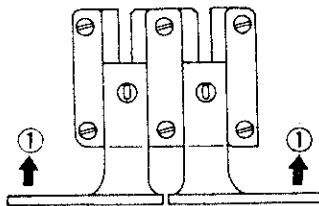
Simultaneous left and right work clamp B mode



- ① When the work clamp switch is depressed to step 1, both work clamps are lowered.
- ② When the work clamp switch is released and then depressed once more to step 1, both work clamps are raised.

memo-0■	memo-1■	memo-2■
—	—	—

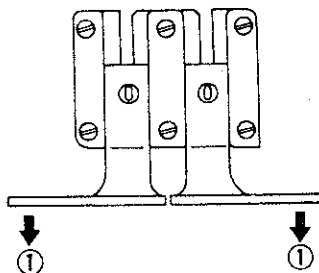
Simultaneous left and right work clamp C mode



- ① The work clamps are normally lowered, and when the work clamp switch is depressed to step 1, both work clamps are raised.

DIPA-1	memo-0■	memo-1■	memo-2■
ON	ON	ON	ON

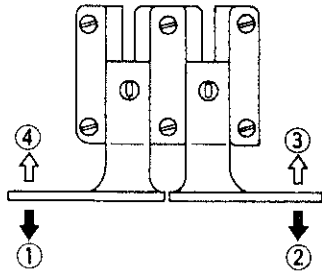
Simultaneous left and right work clamp D mode



- ① When the start switch is depressed, both work clamps are lowered, and sewing starts at the same time. (The work clamps can be raised and lowered by the work clamp switch.)

memo-0■	memo-1■	memo-2■
ON	—	ON

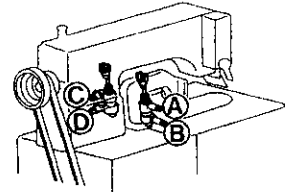
Two-step left and right work clamp LR mode



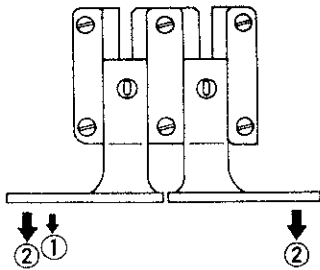
- ① When the work clamp switch is depressed to step 1, the left work clamp is lowered.
- ② When the work clamp switch is depressed to step 2, the right work clamp is lowered.
- ③ When the work clamp switch is released and then depressed once more to step 1, the right work clamp is raised.
- ④ When the work clamp switch is depressed to step 2, the left work clamp is also raised.

memo-0■	memo-1■	memo-2■
—	ON	—

When this setting is made, light work clamp mode (*) can be used by changing over the air tubes. Use the accessory branch ① and plug ② for connecting tubes.
 *Light work clamp mode: The material is pressed lightly, so that position adjustment can be carried out easily.



Light A mode

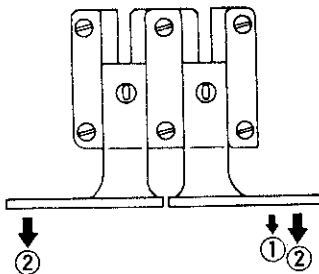


- ① When the work clamp switch is depressed to step 1, the left work clamp is lowered lightly.
- ② When the work clamp switch is depressed to step 2, both work clamps are lowered.

Cylinder	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Valve	1-A	2-B	1-A	1-B

Branch 1-A
 Plug 2-A

Light B mode (cannot be used with inner clamping device)

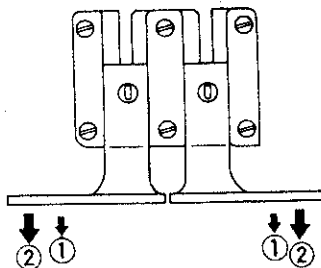


- ① When the work clamp switch is depressed to step 1, the right work clamp is lowered lightly.
- ② When the work clamp switch is depressed to step 2, both work clamps are lowered.

Cylinder	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Valve	1-A	1-B	1-A	2-B

Branch 1-A
 Plug 2-A

Light C mode

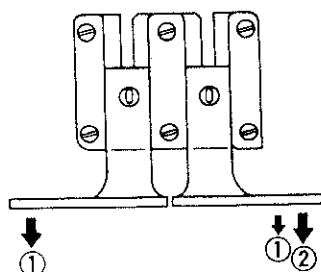


- ① When the work clamp switch is depressed to step 1, both work clamps are lowered lightly.
- ② When the work clamp switch is depressed to step 2, both work clamps are lowered.

Cylinder	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Valve	1-A	2-B	1-A	2-B

Branch 1-A, 2-B
 Plug 1-B, 2-A

Light D mode

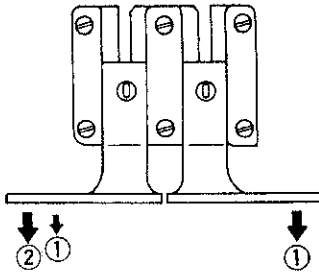


- ① When the work clamp switch is depressed to step 1, both work clamps are lowered. However, the right work clamp is lowered lightly.
- ② When the work clamp switch is depressed to step 2, the right work clamp is lowered.

Cylinder	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Valve	2-A	2-B	1-A	2-B

Branch 2-B
 Plug 1-B

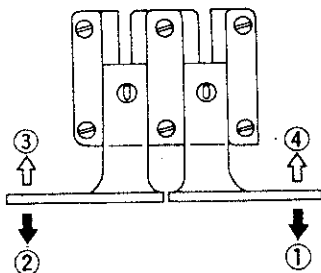
Light E mode



- ① When the work clamp switch is depressed to step 1, both work clamps are lowered. However, the left work clamp is lowered lightly.
- ② When the work clamp switch is depressed to step 2, the left work clamp is lowered.

Cylinder	Ⓐ	Ⓑ	Ⓒ	Ⓓ
Valve	1-A	2-B	2-A	2-B
Branch	2-B			
Plug	1-B			

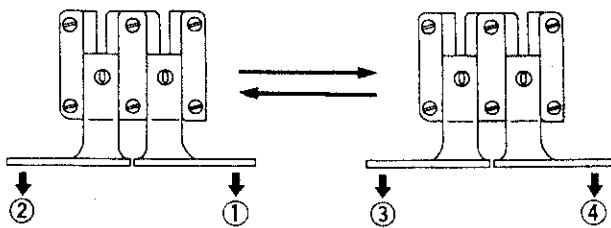
Two-step left and right work clamp RL mode (cannot be used with inner clamping device)



- ① When the work clamp switch is depressed to step 1, the right work clamp is lowered.
- ② When the work clamp switch is depressed to step 2, the left work clamp is lowered.
- ③ When the work clamp switch is released and then depressed once more to step 1, the left work clamp is raised.
- ④ When the work clamp switch is released and then depressed once more to step 2, the right work clamp is raised.

memo-0■	memo-1■	memo-2■
ON	—	—

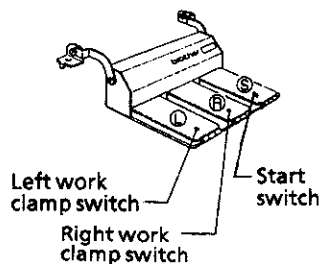
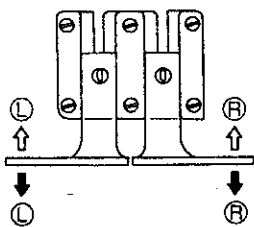
Alternate two-step left and right work clamp mode (cannot be used with inner clamping device)



- ① When the work clamp switch is depressed to step 1, the right work clamp is lowered.
- ② When the work clamp switch is depressed to step 2, the left work clamp is lowered.
- ③ For the next sewing operation, when the work clamp switch is depressed to step 1, the left work clamp is lowered (alternates for each sewing operation).
- ④ When the work clamp switch is depressed to step 2, the right work clamp is lowered.

memo-0■	memo-1■	memo-2■
—	—	ON

Independent work clamp mode (This mode can only be used when using the 3-pedal foot switch [option].)



- ① When the left presser switch is depressed, the left work clamp is lowered, and when it is depressed once more, the left work clamp is raised.
- ② When the right presser switch is depressed, the right work clamp is lowered, and when it is depressed once more, the right work clamp is raised.
- ③ When both work clamp switches are depressed and the start switch is depressed, sewing starts.

*When using the reverse work clamps, the work clamps are lowered in the order left right. The right work clamp cannot be lowered if the left work clamp is still raised. (When the work clamps are raised, they rise in the order right left.)

memo-0■	memo-1■	memo-2■
ON	ON	—

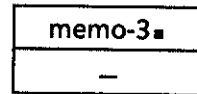
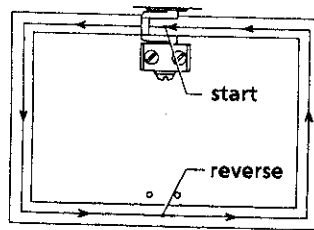
13-3. Setting reverse work clamp mode

- Basic setting**
1. Carry out steps 1 - 5 in "13-2. Setting pneumatic work clamp mode".
(Note that some work clamp operating modes cannot be used.)
 2. Set memory switch memo 6 to ON.
 3. Make the following settings if necessary.

1. 1/2 reverse mode

The inner clamping device operates at the 1/2-way mark for the pattern being sewn.

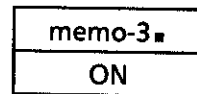
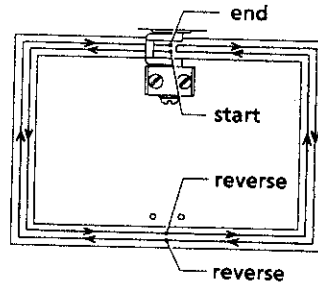
Example



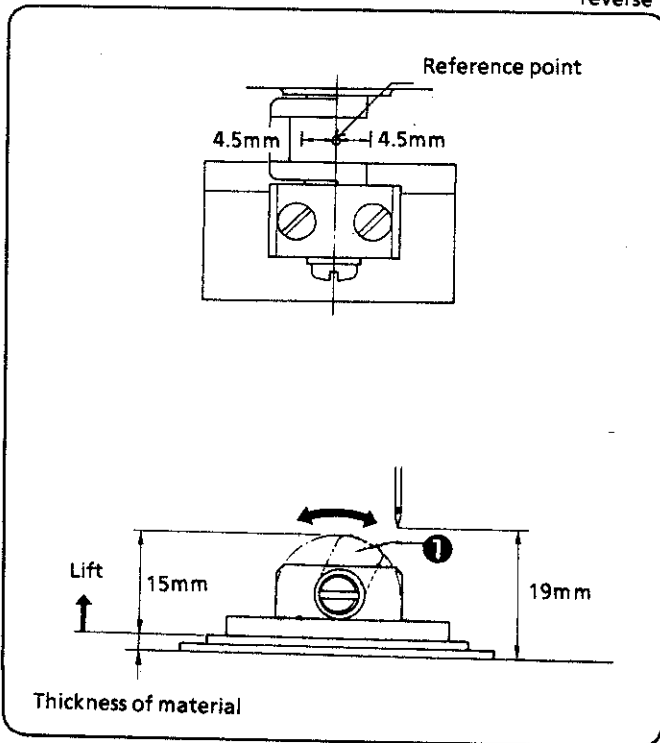
2. 1/4 reverse mode

The inner clamping device operates at the 1/4-way and 3/4-way marks for the pattern being sewn.

Example



[Notes to sewing]



1. Reverse stitching is possible within 4.5 mm left and right from the reference point.
(However, note that if a non-standard work clamp is being used, the reverse stitching area will become smaller.)

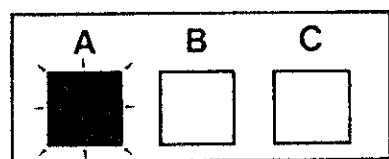
2. When the work clamp ① reverses after sewing is completed, the work clamps are retracted so that they do not touch the needle. However, sometimes it is not necessary to retract the work clamps if the material is thin.
In such cases, if memory switch memo-5 is set to on, the work clamps will not be retracted so that the cycle time can be shortened. However, if making this change to the setting, move the work clamp to the sewing end position (release the air and move the work clamp by hand) to check that the work clamps do not touch the needle.

13-4. Setting stepping work clamp mode

- Basic setting**
1. Carry out steps 1 - 3 in "13-2. Setting pneumatic work clamp mode".

14. CHANGING THE MODE OF THE HANDY SWITCH (OPTION)

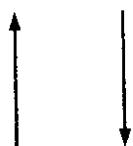
The handy switch is equipped with two operation modes: in one mode, the switch changes over user programs, and in the other mode, is an option panel mode in which the switch operates in the same way as some of the switches on the operating panel.



User program mode

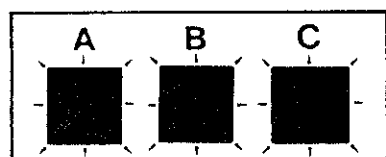
The switches illuminate in accordance with the modes from A - H.

(However, H cannot be used when DIPA-4 is set to ON.)



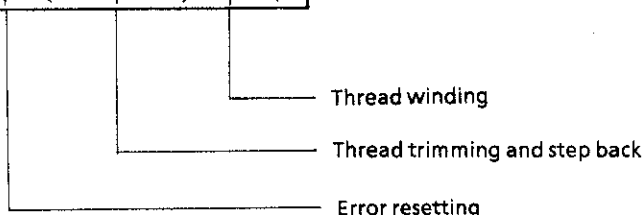
[Changing the mode]

1. Set DIP switch DIPA-4 to ON.
2. The mode is switched by pressing switches A, B and C simultaneously.



Option panel mode

All three switches illuminate.



A. Error resetting

The handy switch operates in the same way as the error reset switch on the operating panel.

B. Thread trimming and step back

When the emergency stop switch is pressed in the middle of sewing a pattern, you can continue sewing that pattern from the point where the emergency stop switch was pressed. The method of operation is as follows.

1. Press the emergency stop switch during sewing of a pattern.
2. Turn the emergency stop switch clockwise to unlock it, and then press the error reset switch (switch A).
3. Press the thread trimming/step back switch (switch B) once to trim the thread.
(If the external solenoid wiper is installed, the wiper will also operate.)
4. After this, the sewing position will move back one stitch at a time each time the switch is pressed. Once you reach the desired position, depress the start switch to sew the remaining part of the pattern.

*This function is also available by using the DISPLAY SET/B. WIND switch on the operating panel.

C. Thread winding

When winding the lower thread, operation is the same as the DISPLAY SET/B. WIND switch on the operating panel.

15. LIST OF ERROR CODES





If a malfunction should occur with the sewing machine, a buzzer will sound and an error code will appear in the display window. Press the RESET switch and then eliminate the cause of the error.

Error code	Cause	Remedy
E-1	The emergency stop switch was pressed.	Turn the emergency stop switch clockwise to unlock it, and then press the error reset switch.
E-2	The motor has stopped, the motor will not run, or there is a malfunction of the synchronizer.	Turn off the power, turn the machine pulley and check if the machine is locked. Check the synchronizer connections. Check whether connector P8, P9, P10 or P11 is disconnected.
E-3	Sewing data extends outside sewing area.	Press the RESET switch, and then set the enlargement ratio again.
E-4	The length of a stitch exceeds 10 mm, or there is some other abnormality in the sewing data.	Press the RESET switch, and then set the enlargement ratio again. If programming a new PROM, repeat the procedure from the beginning.
E-5	The needle bar does not stop when the needle is raised.	Turn the machine pulley to align the index mark with the needle up stop position. Adjust the needle up stop position to the standard position, or adjust the V-belt tension. Check whether connector [P2] of the synchronizer cord is disconnected.
E-60	Work clamps are not lowered.	Refer to "17. Troubleshooting".
E-61	Work clamps cannot be raised.	
E-62	Work clamps are not raised.	
E-63	No slit can be detected when the work clamps are lowered.	
E-7	The cooling fan does not operate.	Turn off the power, and then check if the cooling fan is blocked with scraps of thread. *
E-8	Abnormality in motor PROM or malfunction of main P.C. board.	Turn off the power, and then contact an authorized service center.
E-9	Abnormal voltages occur.	Turn off the power and then, check the input voltage. (Refer to "10-11. Checking the input voltage".)
E-A	The home position cannot be detected (malfunction of home position sensor), or malfunction of power supply P.C. board. You turned on the power switch immediately after turning it off.	Turn off the power, and then contact an authorized service center. Wait at least 3 seconds after turning off the power switch before turning it on.
E-b	You tried to change the program number when DIP switch A-8 was set to ON.	Press the RESET switch. Set DIP switch A-8 to OFF before trying to change the program number.
E-d	The heat sink of the main P.C. board is abnormally hot.	Turn off the power, and then clean the air inlet port of the control box.
E-E	Malfunction of EEPROM (malfunction of main P.C board).	Turn off the power, and then wait a while before turning it back on. If the error keeps reappearing, contact an authorized service center.
E-F	The power supply relay does not operate (malfunction of power supply P.C. board).	Turn off the power, and then contact an authorized service center.

*Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box. Touching areas where high voltages are present can result in severe injury.

16. GAUGE PARTS LIST ACCORDING TO SUBCLASSES

★ The following are standard gauge parts for B434E.

Parts name		Uses	General clothings	Denims	Safety belts
Needle hole plate			Needle hole plate F S10213-001	Needle hole plate E S10212-101	Needle hole plate L S25127-001
Inner rotary hook assembly	Standard		Inner rotary hook A assembly 152685-903	Inner rotary hook B assembly 152687-902	
	Large		Inner rotary hook LA assembly S15662-991	Inner rotary hook LB assembly S15663-991	
Large shuttle hook			Large shuttle hook A 152682-101	Large shuttle hook B 152686-101	
Spring			Spring 145519-001	Spring B 144588-001	
Tension spring			Tension spring 104525-001	Tension spring 107606-001	Tension spring C S06548-001
Bobbin case assembly	Standard		Bobbin case assembly A 159610-201	Bobbin case assembly B 152690-301	
	Large		Bobbin case assembly LA S15902-401		Bobbin case assembly LB S15903-401
Bobbin	Standard		Bobbin 159613-051		Bobbin B 154663-001
	Large		Bobbin LAN S44633-001		Bobbin LB S15666-001
Needle bar thread guide			Needle bar thread guide B S41222-101	Needle bar thread guide A 152890-001 (S02438-001 for stepping work clamp)	Needle bar thread guide B S02439-001
Needle			DP × 5#16 107415-016	DP × 17#19 S37928-019	DP × 17#25 145646-025
Movable knife			Movable knife assembly L S40934-001	Movable knife assembly S10205-001	

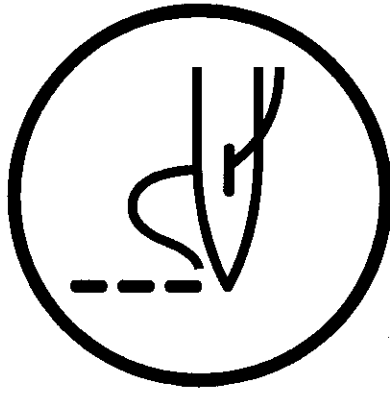
17. TROUBLESHOOTING

Problem	Cause	Check	Remedy	Page
Presser does not rise.	Presser foot operation is sluggish.	Sliding part of the presser foot lubrication	Grease the sliding part of the presser foot.	33
	Presser lifter amount is too great.	Distance between work clamp and top of needle plate	Adjust the height of the work clamp to within 17 mm.	33
	Too much friction between presser plate and presser arm lever support.	Presser plate and presser arm lever support lubrication	Grease the presser plate and presser arm lever support.	33
	Presser is contacting thread wiper.	Thread wiper standby position	Adjust the position of the thread wiper.	34
Presser does not drop.	Presser lifter link is not moving back.	Link return spring is unhooked.	Hook the link return spring properly.	
Presser lift amount is incorrect.	Incorrect position of presser arm lever plate.	Distance between work clamp and top of needle plate	Adjust the work clamp lift amount.	33
Thread wiper does not operate correctly.	The thread wiper is obstructing the needle.	Clearance between thread wiper and needle tip	Adjust the height of the thread wiper.	34
	Thread wiper position is incorrect.	Thread wiper position	Adjust the operating distance of the thread wiper.	34
Lower thread winds to one side.	Bobbin winder thread tension stud height is incorrect.	Bobbin winder thread tension stud height	Adjust the height of the thread tension stud.	26
Lower thread winding amount is incorrect.	Bobbin presser position is incorrect.	Thread winding amount	Adjust the position of the bobbin presser.	24
Threads comes unthreaded.	Stitches being skipped at the sewing start.	Refer to "Skipped stitches occur".	Refer to "Skipped stitches occur".	
	Uneven upper thread length.	Upper thread length	Adjust the sub-tension.	26

Problem	Cause	Check	Remedy	Page
Upper thread breaks.	Upper thread tension is too strong.	Upper thread tension	Adjust the upper thread tension.	26
	Needle is installed incorrectly.	Needle direction	Install the needle so that the groove is facing forward.	23
	Thread is too thick for the needle.	Thread and needle	Use the correct thread for the needle.	23
	Thread takeup spring tension and height are incorrect.	Thread takeup spring tension and height	Adjust the tension and height of the thread takeup spring.	26
	Damaged or burred rotary hook, needle hole plate or needle.	Damage or burring	File smooth or replace the affected part.	
	Thread melting (synthetic thread)	Thread edge	Use a thread cooling device.	4
Lower thread breaks.	Lower thread tension is too strong.	Lower thread tension	Adjust the lower thread tension.	26
	Corners of needle hole plate or bobbin case are damaged.	Damage	File smooth or replace the affected part.	
Skipped stitches occur.	Clearance between needle and rotary hook tip is too great.	Needle clearance	Adjust the needle clearance.	31
	Incorrect needle and rotary hook timing.	Needle bar lift amount	Adjust the needle bar lift amount.	30
	Driver is contacting needle more than is necessary.	Clearance between driver and needle	Adjust the driver needle guard.	31
	Needle is bent.	Bent needle	Replace the needle.	
	Needle is installed incorrectly.	Needle direction	Install the needle so that the groove is facing forward.	23
Needle breaks.	Needle is touching the rotary hook.	Needle clearance	Adjust the needle clearance.	31
		Needle bar lift amount.	Adjust the needle bar lift amount.	30
	Needle is bent.	Bent needle	Replace the needle.	
	Wayward stitches.	Needle and feed timing	Adjust the needle down detection position.	35
	Needle is too thin.	Needle and thread	Use the correct needle for the material.	

Problem	Cause	Check	Remedy	Page
Upper thread is not trimmed.	Fixed knife is blunt.	Fixed knife blade	Sharpen or replace the fixed knife.	/
	Movable knife does not pick up the thread.	Shuttle race thread guide position	Adjust the position of the shuttle race thread guide.	31
		Needle bar lift amount	Adjust the needle bar lift amount.	30
	The movable knife does not pick up the thread because of skipped stitches at the sewing end.	Skipped stitches at sewing end	Refer to "Skipped stitches occur".	/
	Movable knife position is incorrect.	Movable knife position	Adjust the position of the movable knife.	32
Sub-tension is too weak.	Sub-tension	Turn the sub-tension nut to adjust the tension.	26	
Thread jamming.	Thread takeup spring tension and height are incorrect.	Thread takeup spring tension and height	Adjust the tension and height of the thread takeup spring.	26
	Incorrect needle and rotary hook timing.	Needle bar lift amount	Adjust the needle bar lift amount.	30
	Shuttle race thread guide is not separating the threads.	Shuttle race thread guide position.	Adjust the position of the shuttle race thread guide.	31
Poor seam finish on reverse side of material.	Shuttle race thread guide is not separating the threads.	Shuttle race thread guide position.	Adjust the position of the shuttle race thread guide.	31
	Upper thread is not properly tight.	Upper thread tension	Adjust the upper thread tension.	26
	Uneven upper thread length.	Upper thread length	Adjust the sub-tension.	26
Incorrect thread tightness.	Upper thread tension is too weak.	Upper thread tension	Adjust the upper thread tension.	26
	Lower thread tension is too weak.	Lower thread tension	Adjust the lower thread tension.	26
	Thread takeup spring tension and height are incorrect.	Thread takeup spring tension and height	Adjust the tension and height of the thread takeup spring.	26
Inner clamping device does not operate.	Work clamp pressure is too strong.	Work clamp pressure	Adjust the work clamp pressure so that the inner clamping device operates.	36

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