ИНСТРУКЦИЯ

FSX

Промышленная швейная машина

FSX6604S, LM, MH

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No. 060165



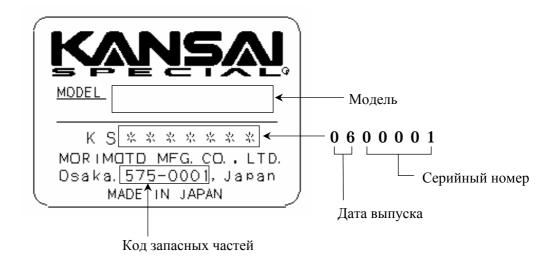
ВВЕДЕНИЕ

Спасибо, что приобрели машину серии FSX6604.

Пожалуйста, прочитайте и изучите внимательно данное рукводство, перед тем как приступать к работе на машине и сохраните данное руководство для дальнейшего использования.

- 1. В данном руководстве описаны настройки и регулировки машины.
- **2.** Перед тем как начать работать, убедитесь что на машине уставновлены ограждение шкива и дргуих механизмов.
- 3. Всегда выключайте машину при регулировках, чистке, заправки ниток и замене игл.
- 4. Никогда не используйте машину без масла.
- **5.** При выполнение профилактических работ смотрите лист запасных частей и данное руководство пользователя.
- **6.** Содержимое данного руководства может быть изменено без предварительного уведомления.

Индикация серийного номера



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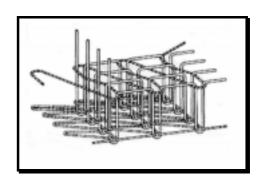
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【1】СПЕЦИФИКАЦИЯ

1-1 Описания

Высокоскоростная машина 4-х игольная "флетлок"

1-2 Тип стежка 607 по стандарту ISO



【2】ИГЛЫ И МЕХНАИЗМ ЗАПРАВКИ НИТИ

2-1 Иглы

Иглы····FL × 118GCS (Organ) Ritana·····F L G - 8 (Organ)

Номер иглы выбирается в зависимости от толщины используемого материала

< Номера игл >

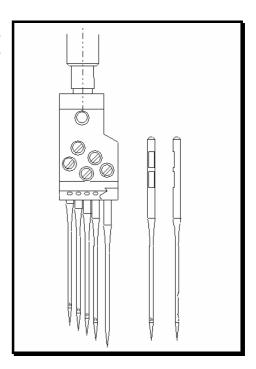
Япония	# 8	# 9	#10	#11	#12	#14
Германия	N º60	N º65	N ∘70	N ∘75	N º80	N 90

2-2 Замена игл

При замене иглы, желобок иглы должен быть повернут вперед, а затем вставлен в игловодитель (См. рисунок)

< Примечание >

При замене игл, убедитесь, что машина выключена. Фрикционный мотор продолжает какое-то время работать после выключения, нажмите педаль и убедитесь, что он перестал работать.



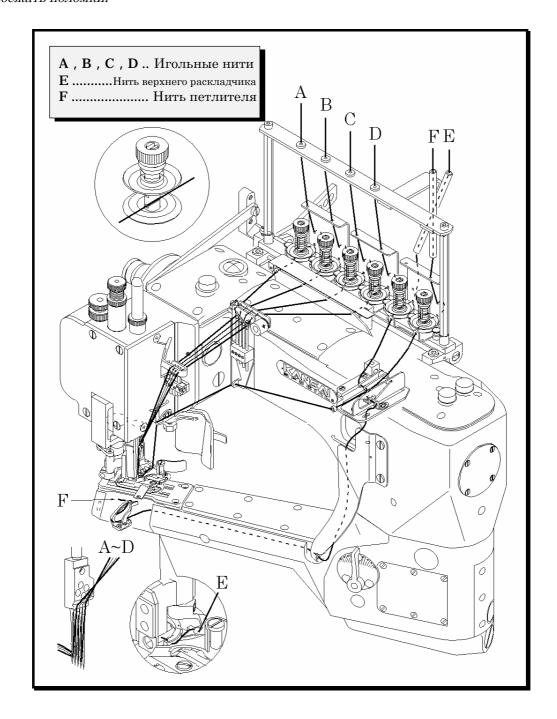
2-3 Заправка нити

Пожалуйста, обратитесь к иллюстрации ниже.

<Примечание >

Заправка нити должна быть выполнена правильно, чтобы

избежать поломки.



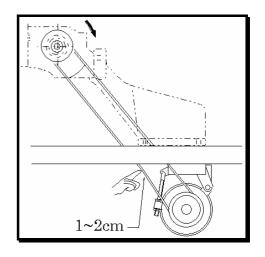
[3] Скорость машины

3-1 Скорость машины и направлене движения маховика

Максимальная скорость данной машины **4200**об/мин. (Обычная скорость работы **3800**рб/мин)

<Примечание >

При запуске новой машины первые 200 часов (1 месяц) работа должна вестись на скорости **3500**об/мин для длительной работы. Направление движения маховика - по часовой стрелке.



3-2 Мотор и ремень

Мотор: 3-х фазный, 2-х полярный, 400W фрикционный мотор

Ремень: тип М приводного ремня

Выберите подходящий шкив в соответствии со скоростью машины (относительно внешнего диаметра шкива в таблице ниже). Разместите мотор, прижмите ремень пальцем внутрь, так чтобы отклонение было 1~2см (см. иллюстрацию).

h	t	
Диаметр шкива	Скорость машины	
	50Hz	60Hz
75 м м		3500 об/мин
85 м м		4000 об/мин
90 м м	3500 об/мин	
95 м м		4500 об/мин
100 м м	4000 об/мин	
110 мм	4500 об/мин	

[4] Масло и смазочный механизм

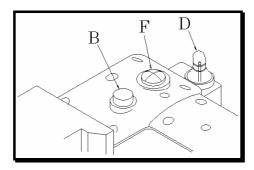
4-1 Масло

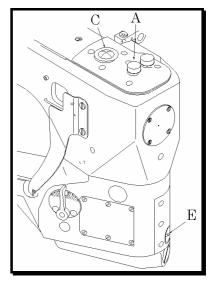
Используйте оригинальное масло Kansai Special. (Номер детали 28-617)

4-2 Как залить масло

Выньте винты А и В из масляного отверстия.

Наполните резервуар маслом до линии уровня E и D. Установите уровень масла между линиями. После этого запустите машину, чтобы проверить подачу масла в смотровом окошке C и F.

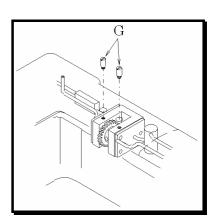




4-3 Проверка уровня масла

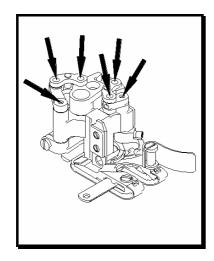
Начиная работу на машине после заполнения масляных резервуаров, или после простоя, может быть необходимо заранее залить насос. Чтобы сделать это удалите запорный винт ${\bf G}$.

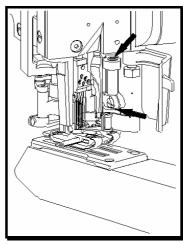
Добавьте масло из масленки в отверстия и работатйте на машине, пока масляные пузырьки не появятся в смотровых окошках.

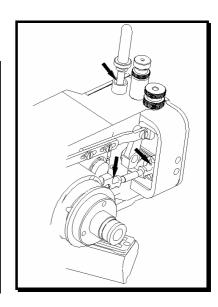


4-4 Смазка

Смажьте маслом точки, обозначенные на рисунке.





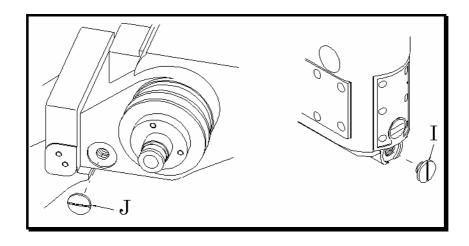


4-5 Замена масла

Чтобы продлить рабочий цикл машины, замените масло после 200 часов работы. Затем меняйте масло каждые 6 месяцев. Чтобы слить масло, удалите винты \mathbf{I} и \mathbf{J} .

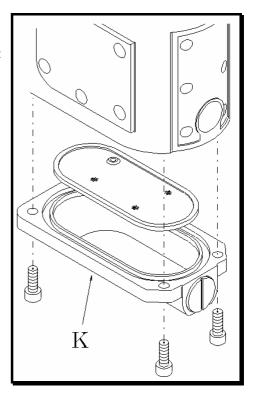
<Примечание >

Загрязненное масло может уменьшить эксплуатационный срок машины. Заменяйте масло регулярно.



4-6 Чистка фильтра

Перед заменой масла выньте резервуар К и прочистите цилиндр внутри резервуара и фильтр.

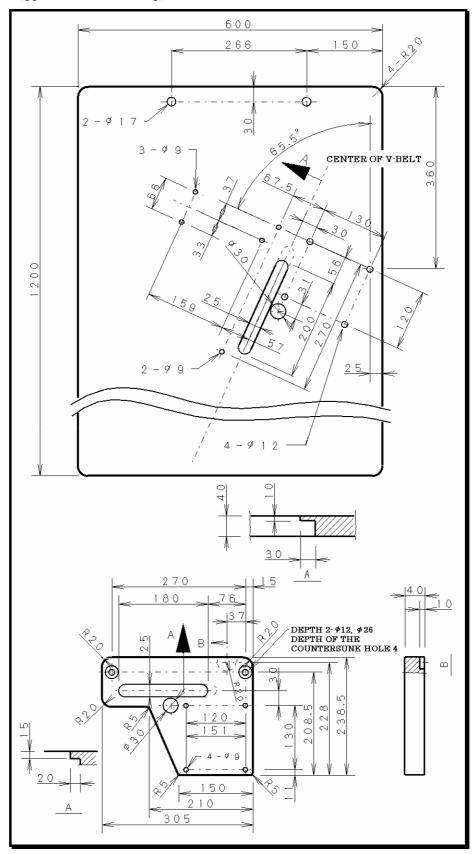


[5] Установка швейной машины

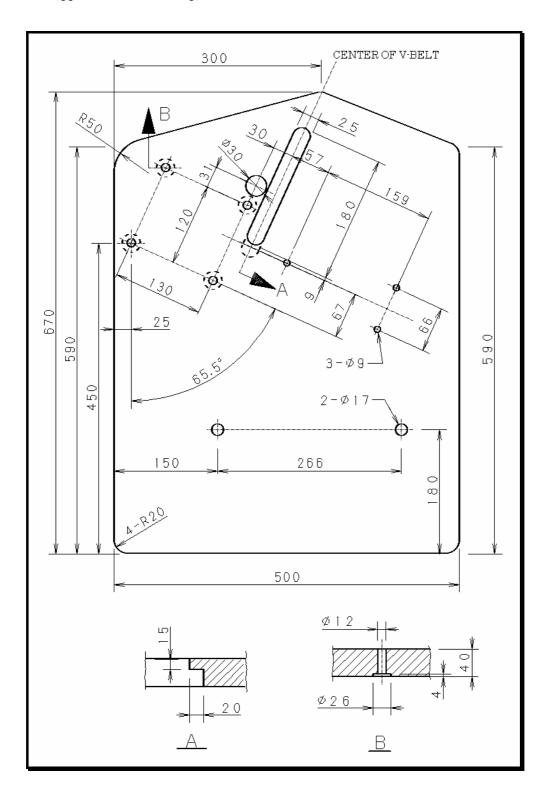
5-1 Сборка стола для швейной машины

См. лист запасных частей на стр. 25~30

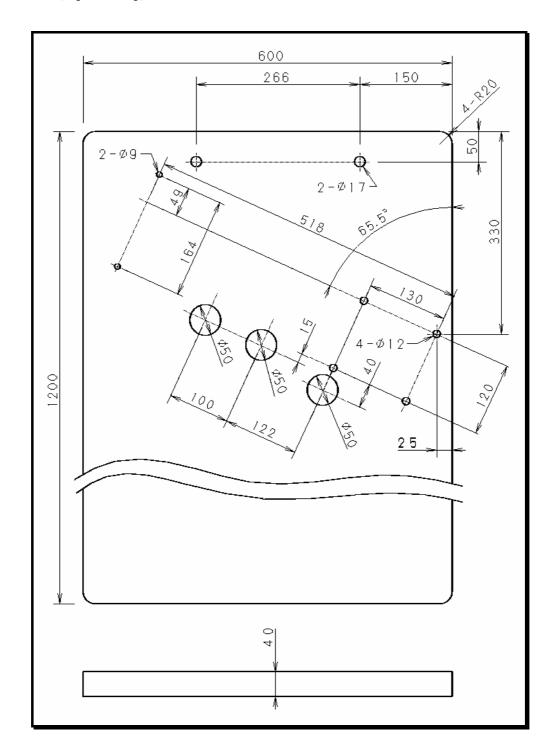
Тип А (фрикционный мотор)

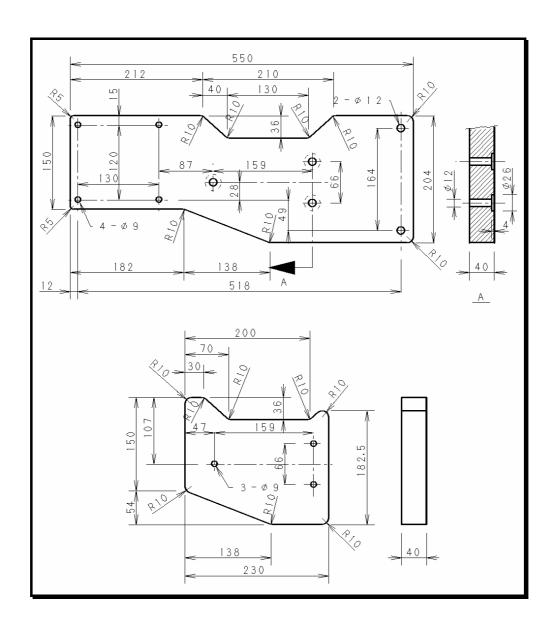


Тип В (фрикционный мотор)



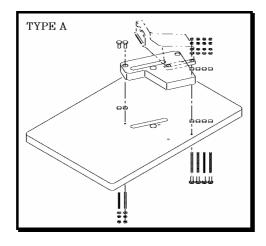
Тип С (серво мотор)

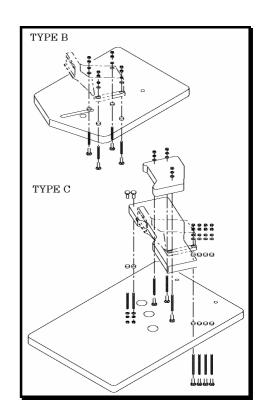




5-2 Установка поддона

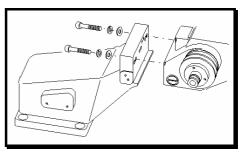
Установите поддон в соответствии со схемой справа.





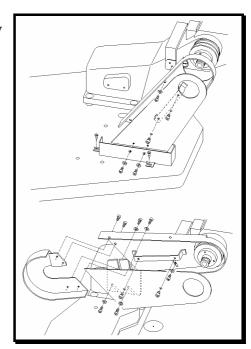
5-3 Установка машины

Установите машину, как показано на рисунке справа



5-4 Installing the Pulley (hand-wheel) cover

Install the pulley (hand-wheel) cover correctly by referring to the illustration right.



[6] TIMING OF THE LOOPERS & NEEDLES

6-1 Installing the needle clamp

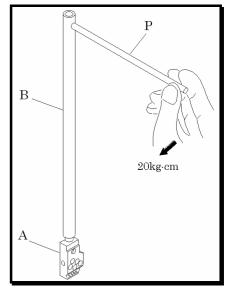
Needle-clamp "A" put in to needle-bar "B". (Less than 20kg cm torque to be tighten)

< Note >

Do not more than 20kg cm torque to tight in case of expand outside diameter of bottom part that disable the needle bar.

Supplementation: If it uses another part "torque bar-P 16-6612 (optional)", it is suitable to tight.

Installation: The torque bar P put in to top of needle bar hole and tight until torque bar beginning to bend.



6-2 Adjusting needle bar high

When needles are at highest position, from needle point (4th from left) to surface of needle plate distance size (H), please adjust it as table showed.

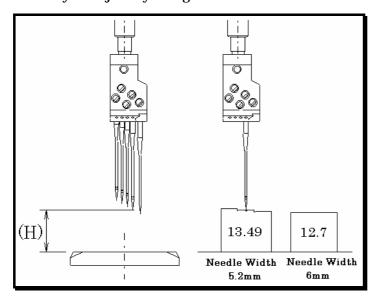
Needle width	Size (H)
R: 5.2mm	13.49mm
S: 6.0mm	12.7mm

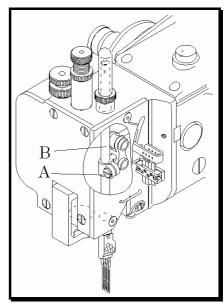
For adjusting the needle bar, loose screw A and needle bar B can be adjustable by moving up & down. Before the adjustment, please check needle drop position should be parallel against needle plate.

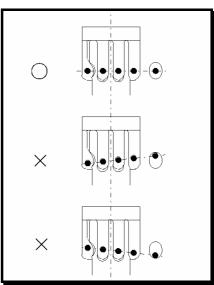
Refer to illustration. (optional gauge height)

Needle width R: 16-6601 Needle width S: 16-6602

It is easy to adjust by using these.







6-3 Adjusting looper back & front stroke

Adjust looper stroke 2.1mm~2.4mm.

Optional to using special gauge (16-6603), easy to adjust it.

If you do not have special gauge, use micrometer or use depth micrometer-scale.

How to adjust

- 1. Set looper axis to the end.
- 2. Insert special gauge into cylinder-bed top hole (see illustration), then plunger A fully extended by axis (bearing) B push to front and tighten with screw C.
- 3. Set the looper axis foremost position with turning the hand-wheel clockwise.
- 4. For checking the back & forth stroke by plunger point.

D and F surface point suited, as 2.4mm.

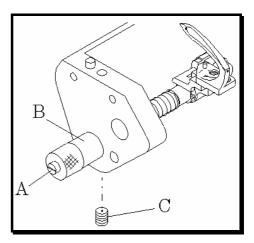
E and F surface point suited, as 2.1mm.

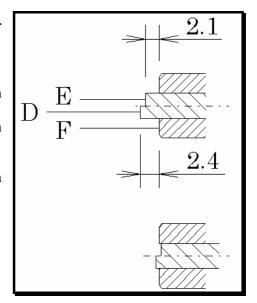
F surface is between D and E surface, then confirmed.

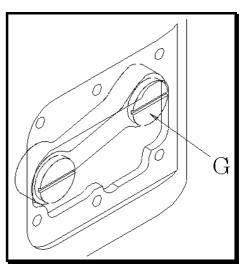
5. For adjustment, take off the cylinder-cover then loose the screw G.

Put up the G decrees the back & forth stroke.

Put down the G increase the back & forth stroke.





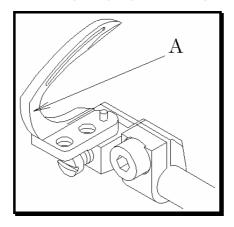


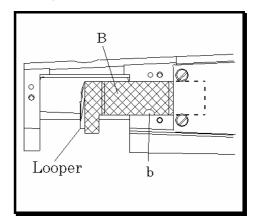
6-4 Degree of installing the looper

As for looper angle, looper's A surface is right-angled face to the looper axis.

(Optional) It is easy to adjust by using the looper angle gauge B (16-6604)

As for using it, as shown in figure: Gauge B put in the entering ditch of cylinder feed rocker, put driver in tapered tool the ditch of screw b at same time apply it to looper. If looper parallel to edge of gauge without gap, get collect angle.





6-5 Adjustment of looper right & left amount of stroke

To be suitable looper right & left amount of stroke is looper axis in $54 \, ^{\circ} \, 40' \sim 56 \, ^{\circ} \, 40'$.

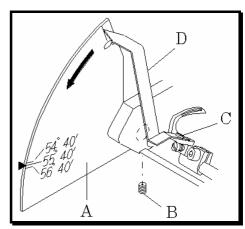
For adjustment, use the (optional) looper right & left gauge set (16-6605) part as shown in figure.

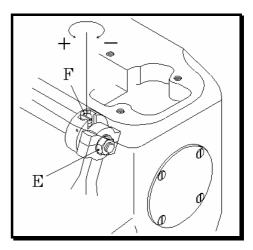
- 1. The dial plate A put into the hole of cylinder-bed edge of point then tighten with screw B as temporary.
- 2. To use the spare lopper's screw C, install the pointer D as shown figure. Put pointer D's edge of point as possible as close to dial plate A.
- 3. When the looper reach to extreme of right position by turning the hand-wheel, dial plate A's 0 $^{\circ}$ position match to the pointer D's edge point then tighten by screw B.
- 4. When the looper reach to extreme of left position by turning the hand-wheel, it is right position if pointer points 54 ° 40'~56 ° 40' on dial plate. If it doesn't point between these degrees, go to next following instruction.
- 5. Both cover of top arm and end arm should be take off, then loose the nut E and adjust by screw F (turning the screw left & right).

 Screw F turn to right, stroke will decrees.

 Screw F turn to left, stroke will increase.

 Please go back to begin with 6-5 1. after tighten the nut E.





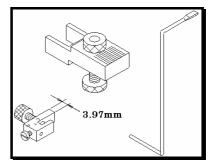
< Note >

After this adjustment, it is important to check the needle and looper timing (6-6).

6-6 Needles & loopers timing (relationship)

When needle bar position is extremely bottom point, looper has already begun towarding to needle, however, in this position, needle bar & looper does not synchronized. When needle bar rose at 3.97mm point from bottom position, at this point needle bar & looper are synchronized.

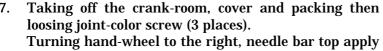
For exactly check the timing, by using the gauge set (16-6611) which is an option.



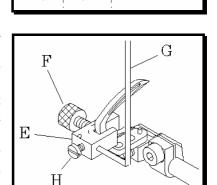
В

Timing gauge and adjustment procedure

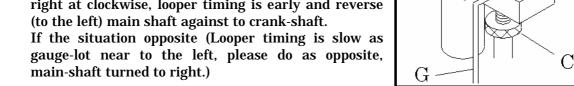
- 1. Needle bar set to extreme bottom position
- 2. Loosing adjustment screw A, then timing-block B insert. As shown on figure screw C comes to right top of needle bar by block B tighten with screw A.
- 3. As shown in figure, turning screw C to make space 3.97mm between needle bar top point by tighten with nut D. Used thickness looper-cramp E's arm position (Long).
- 4. By turning hand-wheel slowly to right, needle bar top apply to screw C.
- 5. Tighten looper-cramp E by looper screw F, gauge-lot G install to looper-cramp by screw H then gauge-lot point fixed close to center of timing-block B dial scale.
- 6. By turning hand-wheel slowly to left, needle bar top apply to screw C, look at gauge G point indicated on dial. If gauge point indicated on dial which same as procedure 5, then it is correct. If it isn't synchronized, go to next following procedure. 7.



to screw C, if gauge-lot top point comes near to the right at clockwise, looper timing is early and reverse (to the left) main shaft against to crank-shaft.

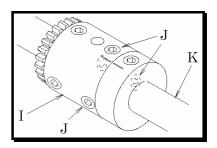


В





For adjusting Joint-color I, repeating procedure 5., 6. However one of screw J tightens as temporary for convenience. After finishing adjustment, tight all 3 screw J then re-check the timing following by 1. ~ 6. procedure.



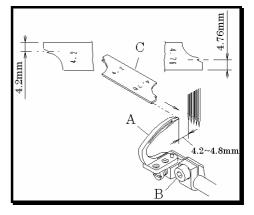
p



6-7 Looper setting distance (amount of pull stroke)

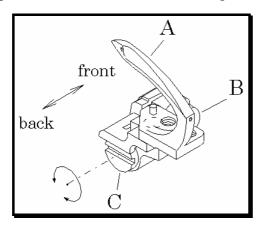
When the looper A is at the extreme left point, from left center of needle to the looper point distance should be 4.2mm~4.8mm as standard. For adjustment, loosing screw B.

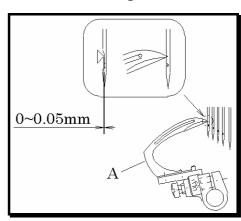
It is easy to check the distance by using looper pull-gauge (another sale) C (16-6609).



6-8 Adjusting looper back & forth position

When the looper A move from extreme left point to the right, the looper A should pass behind the needle, but when looper A point reach to center of left needle(among of needles), looper A and left needle should have distance 0mm~0.05mm without touched. For adjustment, loosing screw B, then turning screw C to move looper holder back & forth. After adjustment, check the amount of looper front-to-back stroke then tight the screw B.





[7] ADJUSTING THE NEEDLE GUARD

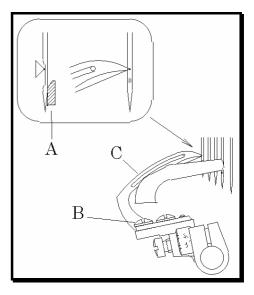
7-1 Auxiliary looper adjustment

When the looper C point reach to center of left needle, to effecting auxiliary looper A to adjust between needle and looper's gap at 0mm.

For adjustment, loosing screw B.

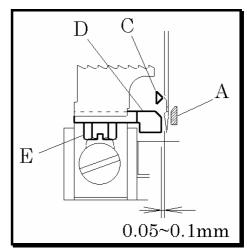
< *Note* >

Turning hand-wheel to the clockwise, when looper C travel from left to right, check the needle does not swing to right due to looper C point touch the back of needles. (Looper C should not be pushing the needle)



7-2 Adjusting needle guard

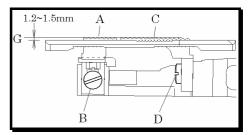
When needle guard D extremely approach to left needle, as loosing screw E to adjust the between left needle and needle guard set the gap at $0.05 \, \text{mm} \sim 0.1 \, \text{mm}$.



[8] ADJUSTMENT OF FEED DOG

8-1 Adjusting feed dog height

When feed dog extremely raise to top, line G set to 1.2mm~1.5mm as shown figure, from main feed dog A and differential feed C's point connect to line G. For adjustment, loosing screw B and D then move feed dog A and C.

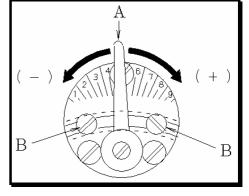


8-2 Adjusting differential feed ratio

To adjusting differential feed, move lever left-to-right. When lever is between dial "4" and "5", differential feed comparison ratio is 1:1, differential is ineffective.

Normal differential feed (for gathering effect) When lever A move to (+) direction, it is positive differential effect. The maximum ratio 1:1.5 is when lever A at dial "9".

Reverse differential feed (for stretching effect)
When lever A move to (-) direction, it is negative



differential effect. The maximum ratio 1:0.7 is when lever A at dial "1".

< Note >

Screw B is for regulate the differential feed ratio or fixed level to be used.

8-3 Adjusting the stitch length

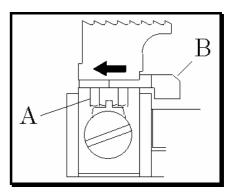
It can be adjustable stitch length 1.6mm~2.5mm with no stage.

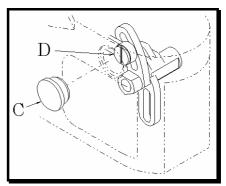
To change the stitching length

- 1. Loosen screw A, needle guard move to extreme rear end then tight temporary.
 - if it is necessary to change short stitch length, this task do not need it.
- 2. Remove rubber plug C
- Loosen screw D to adjust stitch length.
 To move screw D upward then length increase.
 To move screw D downward then length decrease.
- 4. When stitch length has decided, tighten screw D securely and then replace the rubber plug C.
- 5. Adjusting needle guard B and tighten screw A (refer to "7-2" adjusting needle guard).

As shown on figure (sheet): the number of stitches per inch(25.4mm).

Stitch length (mm)	Number of stitches per inch
2.5	10
2.3	11
2.1	12
1.9	13
1.8	14
1.7	15
1.6	16



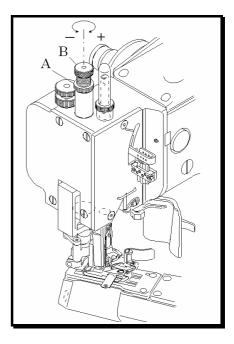


[9] ADJUSTING THE PRESSER FOOT

9-1 Adjusting presser foot

The presser foot pressure can obtain as feed works accurately and it uses as much as possible within the steady stitch length by light pressure.

Loosen nut A, turning screw B to the right, pressure will increase and turning to the left, pressure will decrease.



9-2 Adjusting presser foot up & down position

To presser foot float a little, it will have several effect as below.

Prevention of stitch blocking

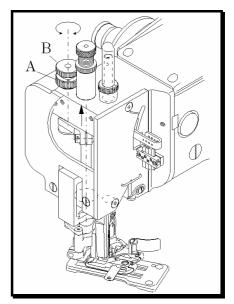
Prevention of feeding scratches

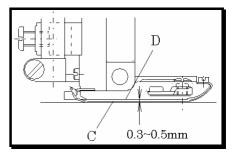
Improvement of presser shoes endurance

Decrease the vibration and noise

Possible to micro-adjustment for piled up fabric

- 1. Set needle to extreme bottom position.
- 2. Loosen nut A and screw B turn to left then put up the presser foot.
- 3. Adjust presser shoes and presser bottom face gap at 0.3mm~0.5mm.
- 4. Tighten the nut A.





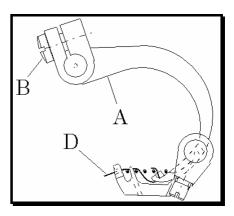
[10] ADJUSTING SPREADER (HOOK) & CARRIER

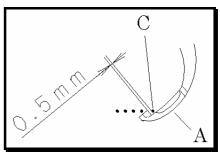
10-1 Adjusting spreader (hook)

Please set the hook A to extreme right position. Loosen screw B to adjust hook A & retainer needle gap at 0.5mm (standard position).

When stitching adjustment, hook toward to left, check the decoration thread D into under the hook.

If it can not into under the hook, then loosen the screw B and adjust hook to left.





10-2 Adjusting the carrier

When carrier E extremely approach to first needle, loosen screw F to adjust that set the distance at 1mm from carrier point G to center of first needle.

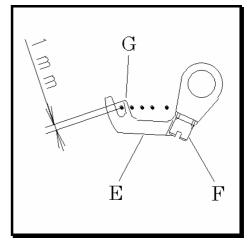
As adjusting stitch, when carrier extremely approaches to first needle, check the decoration thread through behind the 1st and 2nd needles.

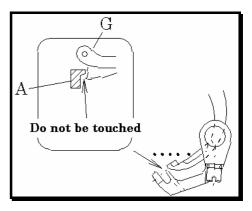
If it can not through behind the needle, carrier E push little bit to the rear direction. (Carrier E and first needle should not be touched)

If decorated thread get through behind the 3rd needle, put back carrier E to front.

< Note >

When hook A and carrier E extremely approached, do not be touched.





[11] ADJUSTING THE STITCH FORMATION

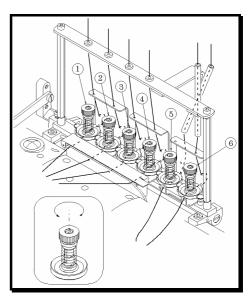
11-1 Adjusting thread tension

Thread tension change according to fabric material, kind of thread, stitch thickness, stitching length, and condition of usage.

Please adjust the thread tension nut condition of usage.

Needle thread
 (Right needle, Left needle)
 Decoration thread
 Looper thread

To turning the tension clockwise, thread is tighten. To turning the tension reverse-clockwise, thread is loosen.



11-2 Adjusting needle tension

Adjustment of upper thread guard

There are 4 upper thread guards per 4 needles thread; each needle thread can be adjustable.

- 1. Set needle bar arm thread road A extremely bottom position.
- 2. Needle bar arm thread road at the center of eyelets F, set the upper thread-guard B upper point.
- 3. Upper-thread-guard C raise 3.2mm against the B.
- 4. Upper-thread-guard D raise 1.6mm against the B
- 5. Upper-thread-guard E same height as B or raise 0.8mm.
- 6. Above all adjustment loosen screw G and after finished adjustment tighten the screw again.



Each upper-thread-guard top should be horizontal.

Above size is standard position. please adjust appropriately as move upper-thread-guard up & down to become needle thread loop size according to actual stitching.

- To move the upper-thread-guard to up, needle thread loop become bigger.
- To move the upper-thread-guard to down, needle thread loop become smaller.

Adjusting the needle-thread-road (As shown figure)

- 1. Needle-thread-road H's height match to eyelet M.
- 2. Needle-thread-road I is lower than H for 5mm.
- 3. Needle-thread-road J is lower than H for 9mm.
- 4. Needle-thread road K is lower than H for 15 mm.

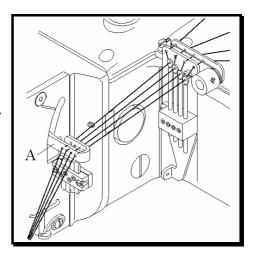
Needle thread's thread tension adjust by loosen each screw N_{\cdot}

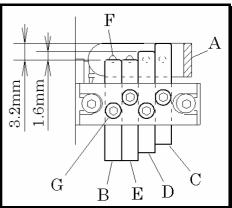
- To move needle-thread-road to upward, needle thread is loosen.
- To move needle-thread-road to downward, needle thread is tighten.

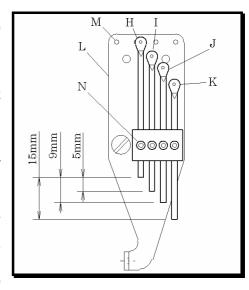
Adjusting needle thread road spring

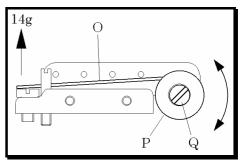
When you remove the fabric from the presser while sewing it, turn the hand-wheel to reverse clockwise. At this time, need thread road spring O should act as not to make the loop forward of the needle.

Needle thread road spring O's pressure is 14g as standard. For adjusting it, loosen screw Q and turn the spring holder P.









11-3 Adjusting looper-thread-tension

The right illustration is looper-thread take-up-cam as seen from the front.

Lower-thread-control thread guide positioning Lower-thread-control thread guide A's right edge match to lower-thread-control plate B's right edge to install.

Timing of lower-thread tension

When needle bar come 2.8mm down from extreme high position, lower-thread tension D "a" match that looper-thread should be able to through (as shown figure) as standard.

For adjusting this, loosen screw E.

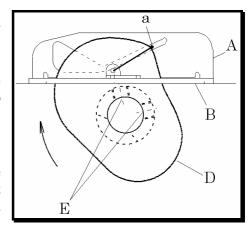
- If timing is faster, increase amount of looper-thread filature.
- If timing is slower, decrease amount of looper-thread filature.

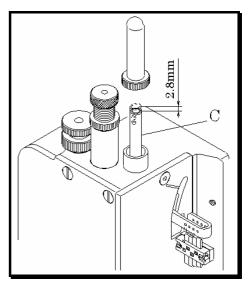
< Note >

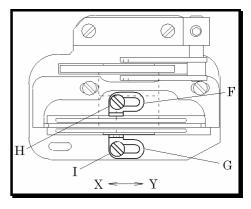
For adjusting lower-thread-tension D, not to change the positioning as boss edge side apply to decoration boss edge side.

Adjusting lower-thread-control, plate-thread-road Plate-thread-road F, G is positioning the extremely right edge as standard. For adjustment, loosen screw H, I to move right-to-left.

- To move X direction, lower-thread amount increase
- To move Y direction, lower-thread amount decrease







11-4 Adjusting decoration-thread tension

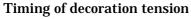
The right illustration is decoration-thread tension as seen from front.

Position of lower-thread-control guide

Center of lower-thread-control guide A hole and plate B gap at 4.4mm are standard.

For adjusting, loosen screw C and guide A move up & down.

- Move guide A to downward, decoration-thread filature increase
- Move guide A to upward, decoration-thread filature decrease

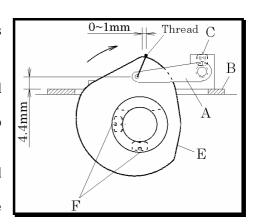


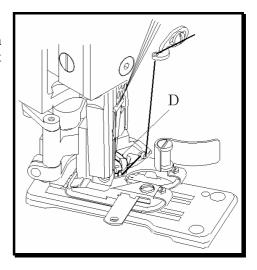
Decoration-thread hold distance $0\sim1mm$ from decoration thread tension E's extreme height point when thread synchronized hangs hook D.

For adjustment, loosen screw F.

< *Note* >

To adjusting the decoration-thread tension, not to change the positioning as boss edge side apply to decoration boss edge side.

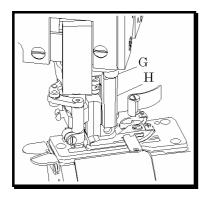


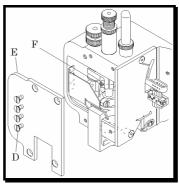


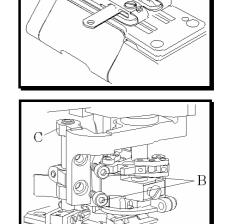
[12] REPLACING THE PRESSER FOOT

Removing presser foot

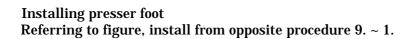
- 1. Loosen screw A
- 2. Loosen screw B, then remove the upper-knife-holder including knife.
- 3. Loosen screw D then remove the cover E
- 4. Loosen screw F
- 5. Loosen screw G then remove guide H



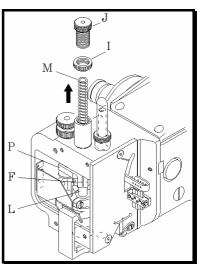


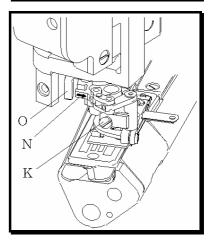


- 6. Loosen nut I then remove screw J
- 7. Loosen screw K
- 8. Turning hand-wheel, set the needle extreme top and remove from presser foot as far as presser bar L and spring M lift up together.
- 9. Presser-carrier segment N remove from decoration drive sleeve O then presser-set remove to back



- When presser-foot install, decoration drive sleeve's lever O set to carrier hook N and paralleled.
- When guide H install, presser foot should not be shaken horizontally and for moving upward & downward as lightly.
- When upper-knife holder (including knife) install, refer (13"replacing the knife").
- When needle is extremely bottom position and it stick needle plate, lightly push the presser foot bar-guide P at same time tighten the screw F.





[13] ADJUSTING & REMOVING THE KNIFE

To removing the knife

Upper knife: Loosen screw C and D then remove upper-knife A

Under knife: Loosen screw E and remove the under knife B

To installing the knife

Under knife: Under knife B is installed tighten by

Upper knife: Upper knife A is installed tighten by screw \boldsymbol{D}

To adjusting knife

Under-knife standard position is; When under knife B's head point "a" set to center of 2nd needle.

For adjustment, please do so according to fabric material.

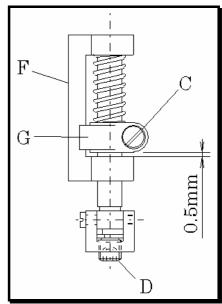
Upper knife position is; When upper knife A is at extremely left side position, set the position.

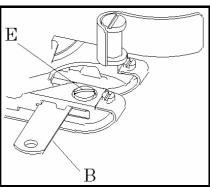
Under knife B and upper knife A engagement gap at 0.5mm.

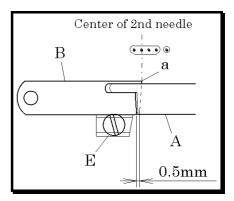
Upper knife pressure is; needle position is at extremely bottom and presser foot stick with needle plate, moreover, upper knife stick to under knife then upper knife holder F axis guard and upper knife guide G gap at 0.5mm as a standard. (As shown figure)

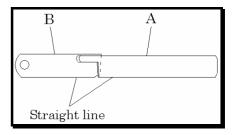
< Note >

When fixed the upper knife guide G, upper knife should not be touch to presser foot and upper knife A and under knife B's front side should be matched.









[14] TO USING THE FABRIC GUIDE

Standard left-right position should be fabric guide A positioned center of needles.

Standard front-back position should be fabric guide plate B touched needle plate C.

Please adjust left-right position depending on feeding condition and left & right fabric swamped condition. For adjustment, loosen screw D.

And according to fabric thickness, adjust the front-back position toward to front lightly.

