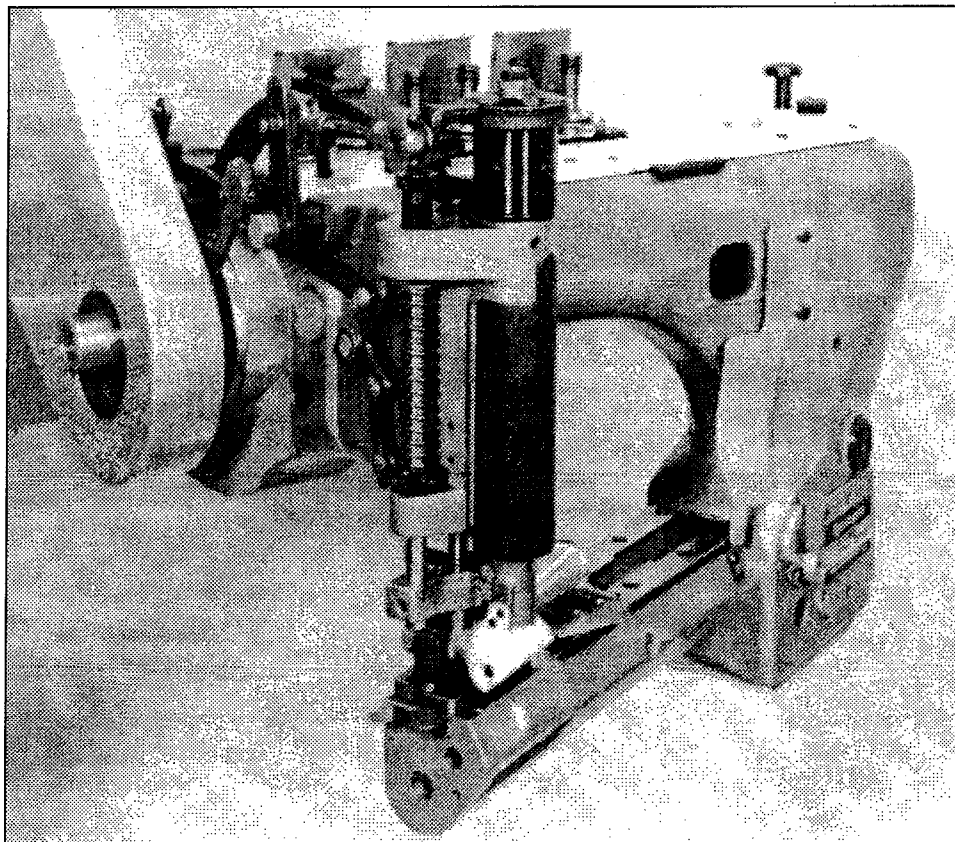
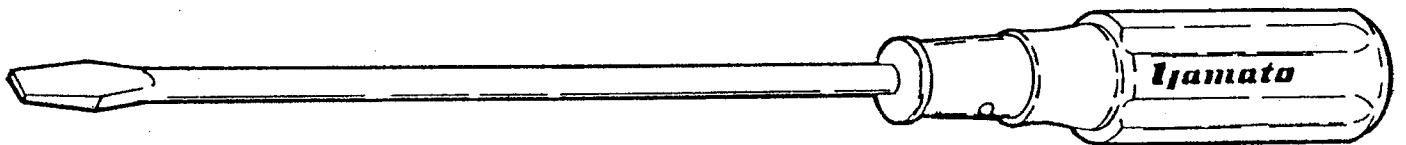


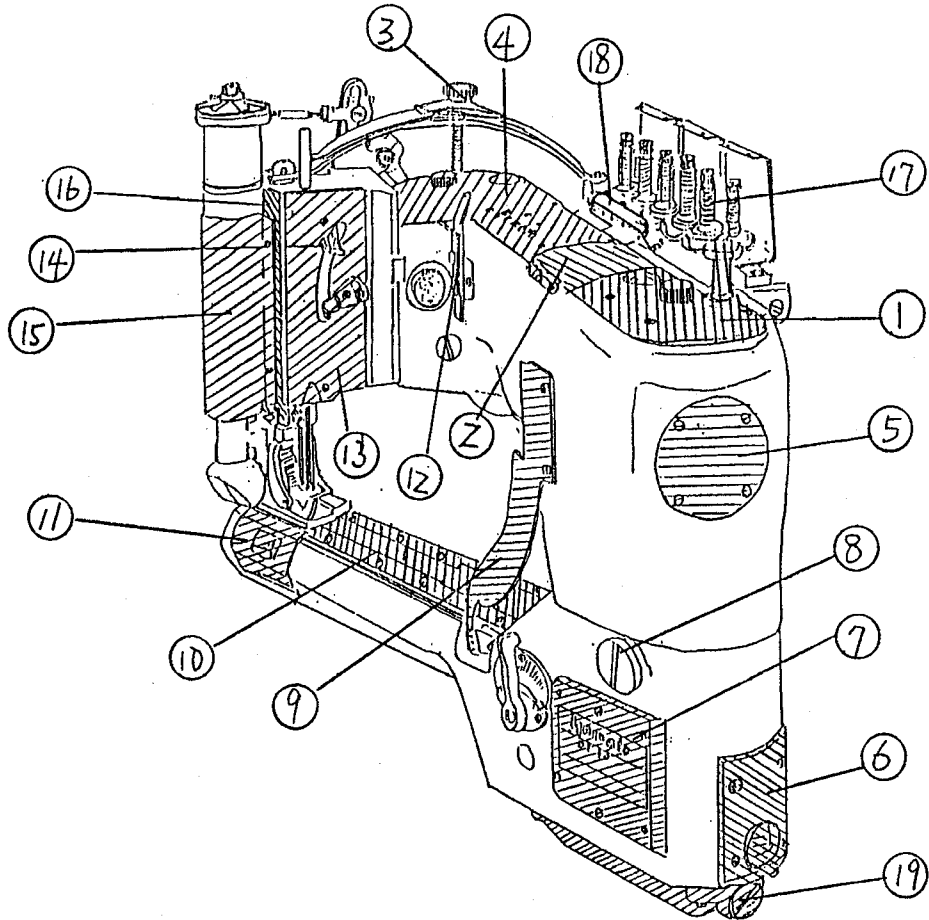
**Jamato**

DT-30 CLASS

3 NEEDLE, DOUBLE CHAINSTITCH SEWING MACHINE

## TECHNICAL INSTRUCTIONS (ASSEMBLING/DISASSEMBLING)



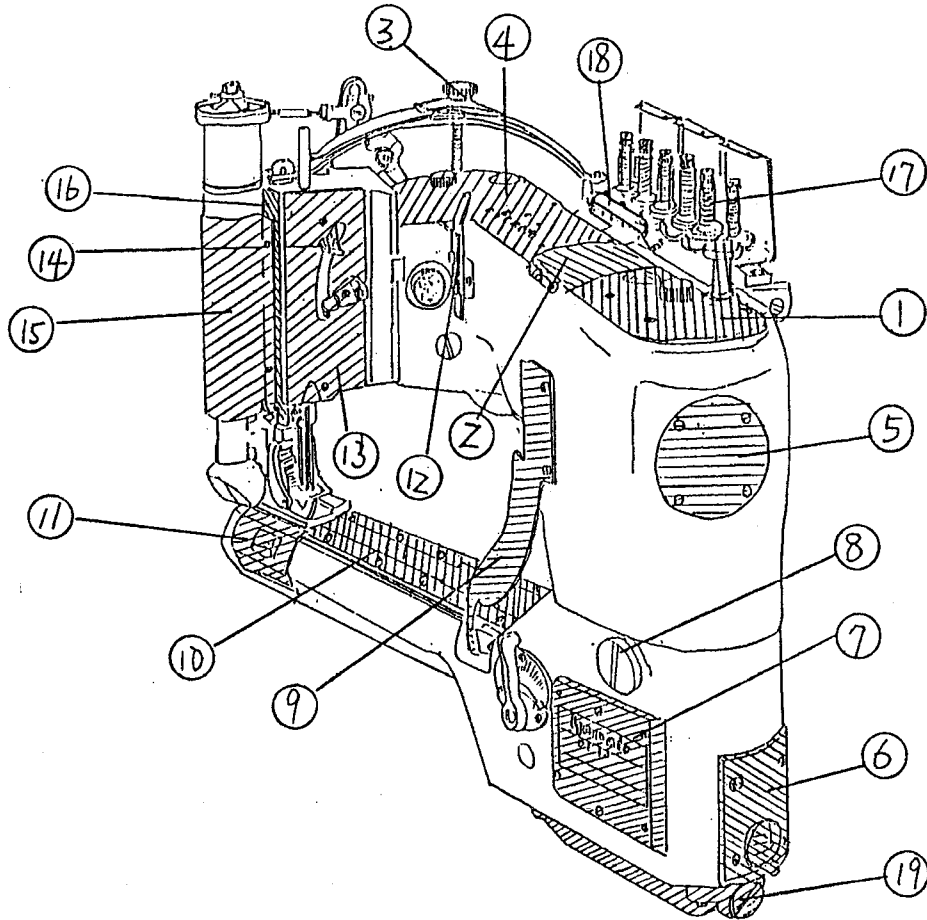


## Disassembly Procedure

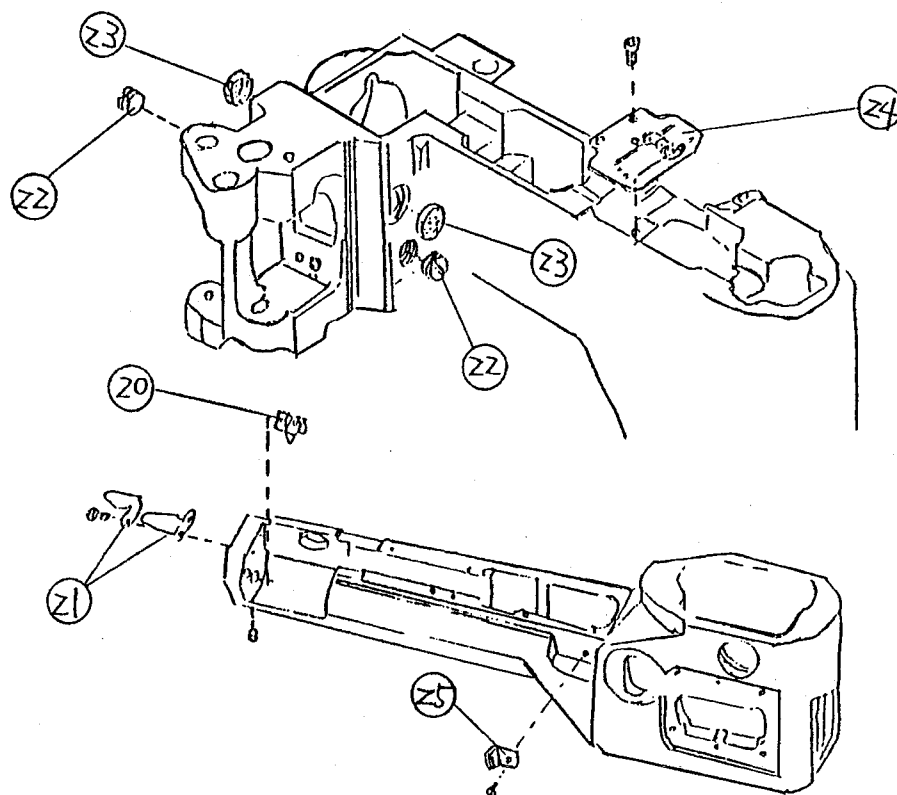
### 1. Miscellaneous Covers and Eyelets (1)

Note: ( ) indicate pcs. of set Screws, etc.  
N : Nut, W : Washer, P : Gasket

1. Remove Top Cover(Front). (5)
  - a. With Looper Throw-out Mechanism kept assembled.
2. Remove Top Cover(Middle). (3)
3. Remove Adjusting Nut for Presser Foot Spring Plate and Lock Nut.  
Also remove Presser Foot Spring(Upper), (Middle) and (Lower) and Presser Spring Plate Holder. (N 2)
4. Remove Crank Chamber Cover. (9)
  - a. With Presser Spring Regulating Screw kept assembled.
5. Remove Machine Frame End Cover. (4)
6. Remove Sewing Cylinder Cover(Front). (4)
7. Remove Sewing Cylinder Cover(Left). (6)
8. Remove Plug Screw for Sewing Cylinder. (1)
9. Remove Looper Thread Guard. (2)
10. Remove Folder Slide Guide(Right), (Left) and Sewing Cylinder Cover(Upper).
11. Remove Looper Cover. (1)

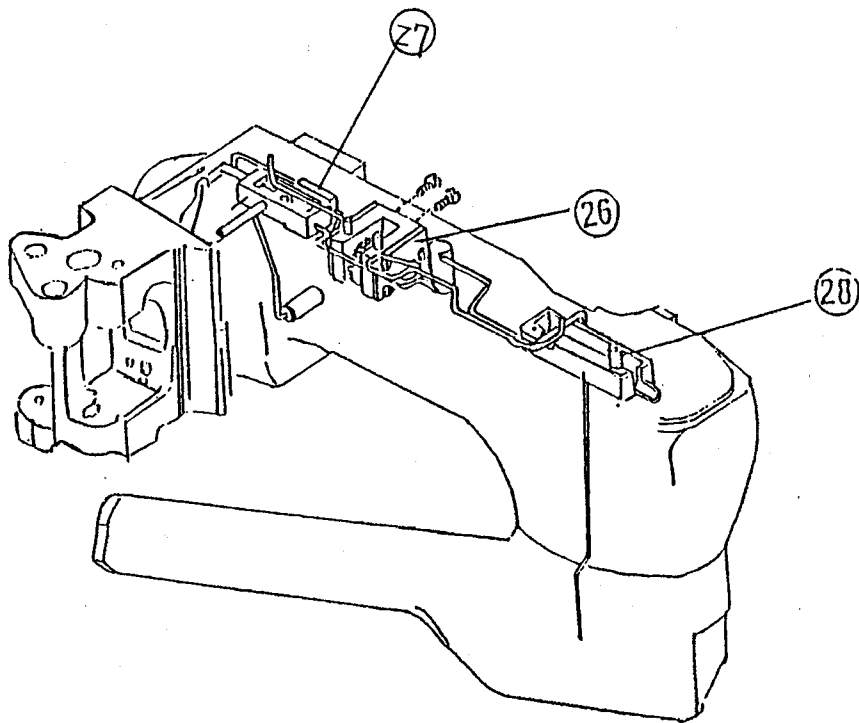


12. Remove Needle Thread Eyelet(Right) with Needle Thread Eyelet kept assembled.
13. Remove Sewing Head Cover(Front). (2)
  - a. With Needle Thread Take-up kept assembled.
14. Remove Needle Bar Lever Thread Eyelet. (2)
15. Remove Clutch Shaft Connection Cover. (2)
16. Remove Sewing Head Cover(Left). (2)
17. Remove a set of Thread Tension Unit, Presser Bar Lifter Lever(Large) and Presser Foot Lifer Lever Link(Long). (4)
18. Remove SP Device and Supplementary Thread Eyelet. (2)
19. Remove Oil Reservoir and Oil Filter Screen. (4)



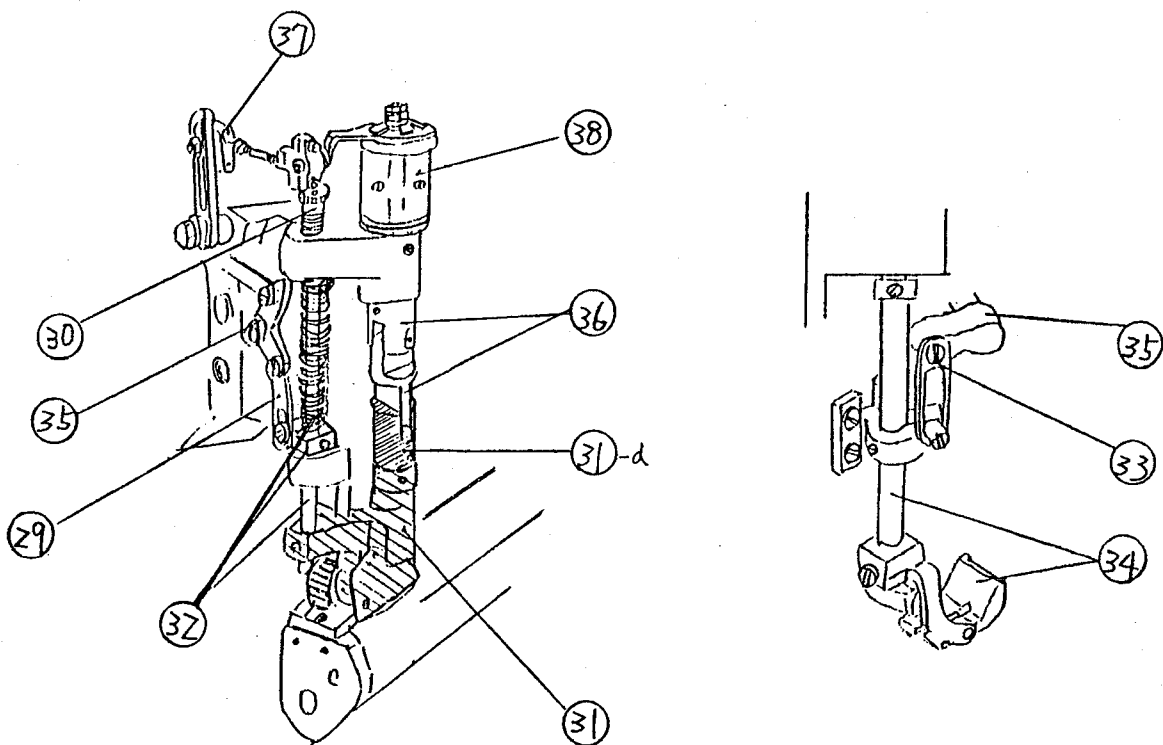
## 1 . Miscellaneous Covers and Eyelets (2)

20. Remove Looper Cover Spring Support. (1)
  - a. With Looper Cover Spring as a set.
21. Remove Chain-off Cutting Knife(Upper) and (Lower). (2)
22. Remove Plug Screw for Machine Frame. (2)
23. Remove Bushing Cap(Right) and (Left).
24. Remove Eyelet Supporting Plate. (2)
  - a. Remove Looper Thread Take-up Eyelet(Front) and (Rear) as a set.
25. Remove Looper Thread Eyelet. (1)



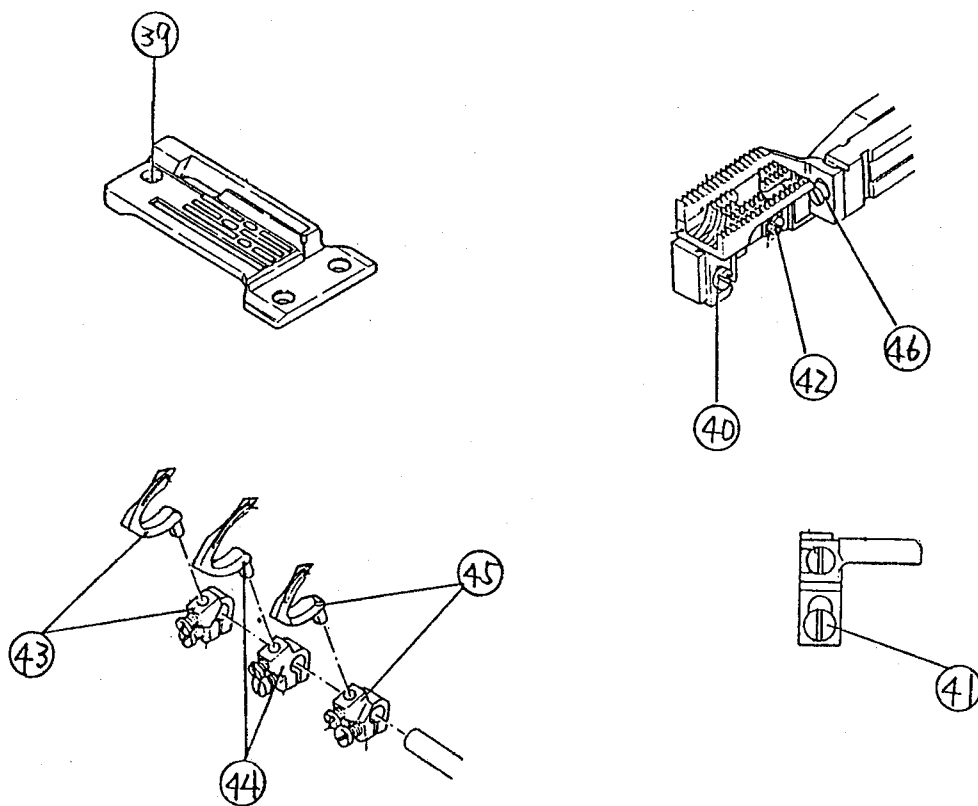
## 2. Lubricating Mechanism

26. Remove Pump, Complete Set. (In-take Filter 1) (2)
  - a. Remove Pump Housing Cover Unit(Rear) with Pump Housing Cover Unit(Front) kept assembled.
27. Remove Oil Reservoir(Rear).
  - a. Also remove Oil Seal for Oil Reservoir at this time.
28. Remove Oil Reservoir(Front). (1)



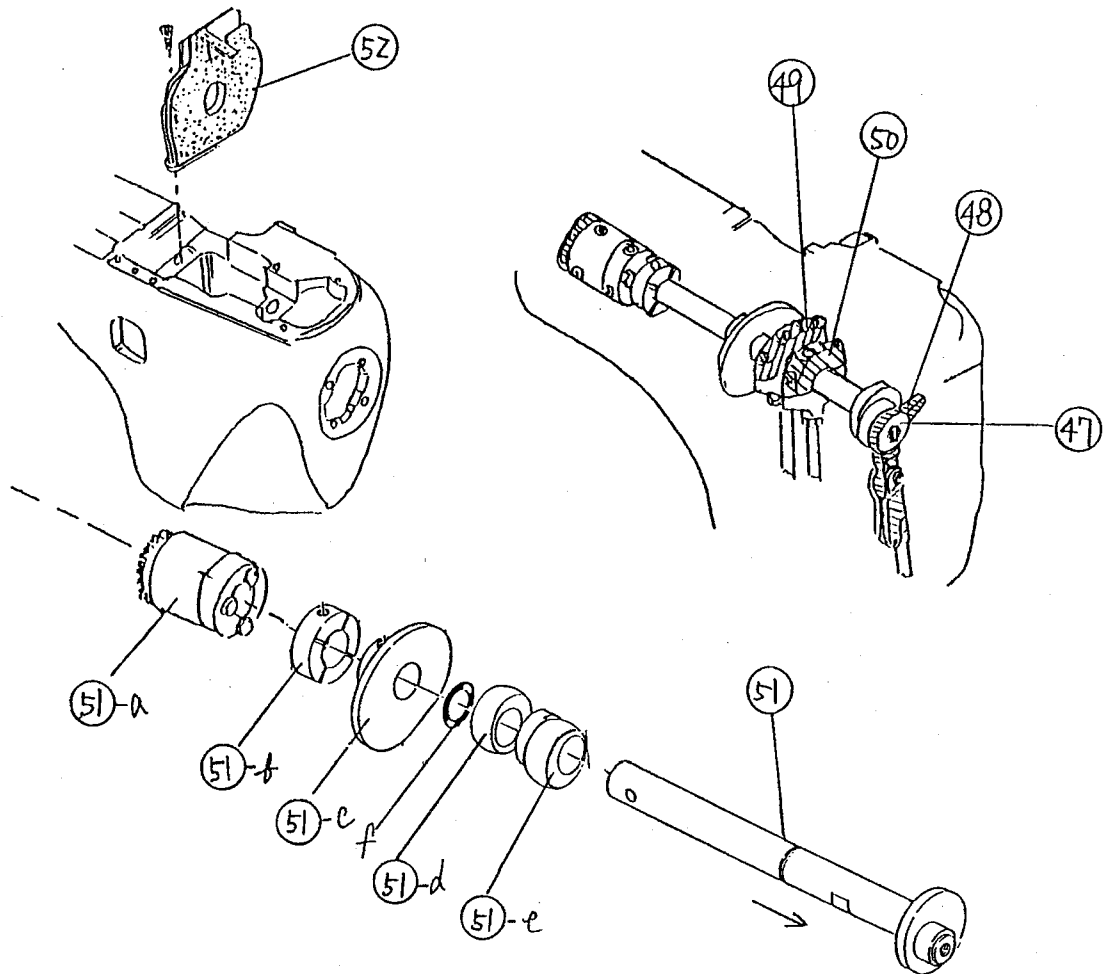
### 3. Presser Foot, Feed Roller Mechanism

29. Remove Feed Roller Connecting Link. (2)
30. Remove Adjusting Screw for Feed Roller Pressing Spring. (1)
31. Remove Feed Roller Bracket, Complete Set, (Feed Roller, Feed Roller Drive Gear, Feed Roller Driven Gear, Gear Cover(Rear), (Front) and Feed Roller Driving Gear Collar.) (5)
  - a. Loosen Screw for Feed Roller Pressing Bar Connection. (2)
  - b. Loosen Screw for Feed Roller Bracket. (1)
  - c. Loosen Screw for Feed Roller Connection(Lower). (2)
  - d. Remove Feed Roller Connection(Lower).
32. Remove Feed Roller Pressing Bar, Feed Roller Pressing Bar Connection, Feed Roller Pressing Spring and Washer.
33. Remove Presser Bar Connecting Link. (1)
34. Remove Presser Foot, Complete Set and Presser Bar. (3)
  - a. Loosen Screw for Presser Bar Connecting Bracket and Presser Bar Collar.
  - b. Remove Presser Bar Connecting Bracket and Presser Bar Collar at the same time.
35. Remove Presser Bar Lifter Lever(Left), Complete Set and Presser Bar Lifter Lever. (1)
36. Remove Feed Roller Connection(Upper) and (Middle). (2)
37. Remove Clutch Connecting Rod, Complete Set from Clutch Driving Segment Lever. (N 1, W 1)
38. Remove a set of Clutch, Complete Set and Clutch Connecting Rod, Complete Set. (1)



#### 4. Feed Driving and Looper Driving Mechanism

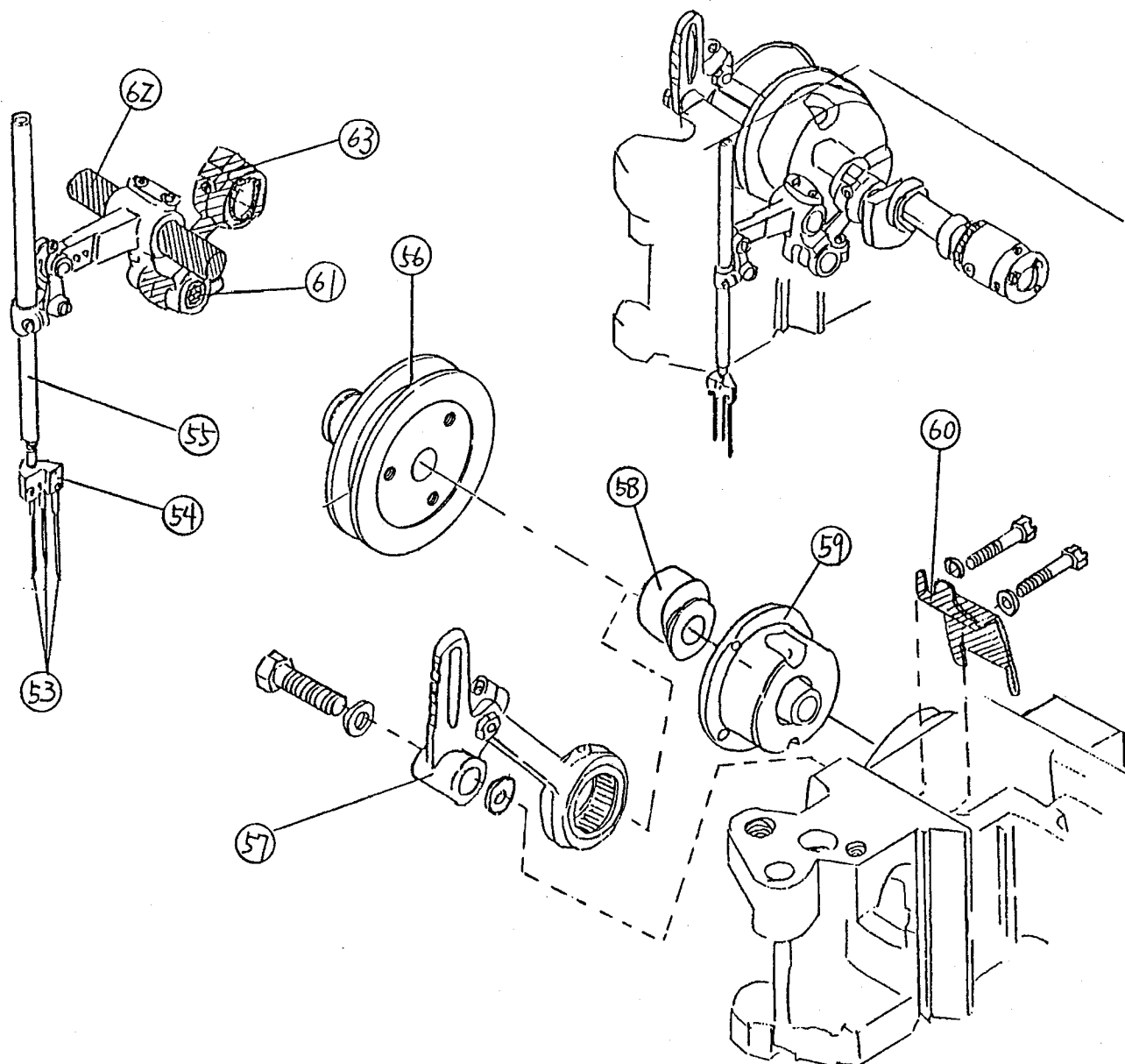
- 39. Remove Stitch Plate. (3)
- 40. Remove Main Feed Dog. (1)
- 41. Remove Needle Guard Holder as a set with Needle Guard. (1)
- 42. Remove Main Fed Dog Stay. (1)
- 43. Remove Looper(Rear) and Looper Holder(Rear). (2)
- 44. Remove Looper(Middle) and Looper Holder(Middle). (2)
- 45. Remove Looper(Front) and Looper Holder(Front). (2)
- 46. Remove Differential Feed Dog. (1)



## 5. Main Shaft Driving Mechanism

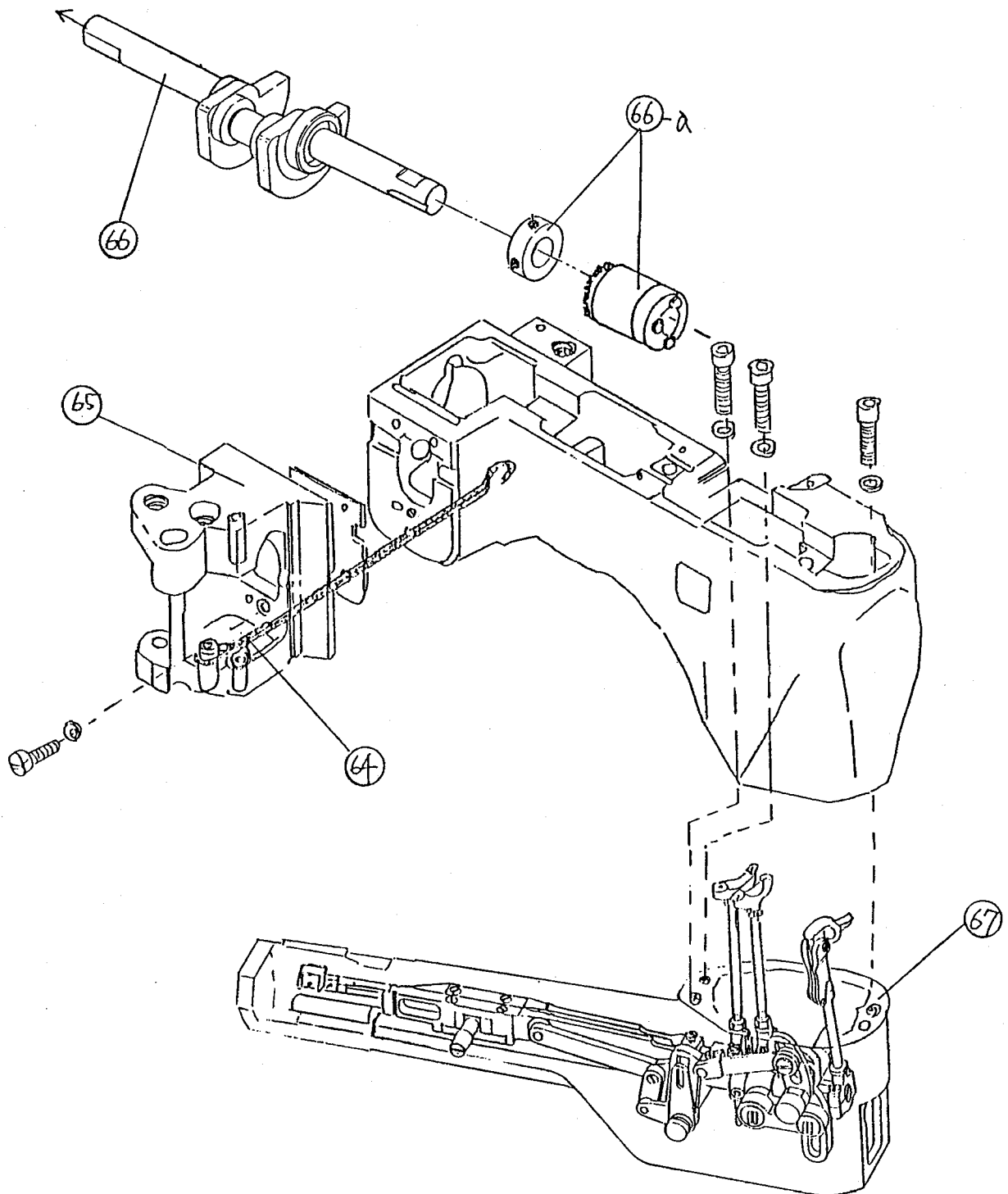
47. Remove Loper Driving Rod(Upper) and Holding Plate. (1)
48. Remove Loper Driving Rod, Complete Set from Main Shaft.
  - a. Bring down the lever on Loper Rod(Upper).
49. Remove Feed Lift Connection(Upper). (2)
50. Remove Feed Drive Connection(Upper). (2)
51. Remove Main Shaft. (O-ring 1)
  - a. Loosen Screw for Main Shaft Coupling. (3)
  - b. Loosen Screw for Crankshaft Thrust Collar. (2)
  - c. Loosen Screw for Loper Thread Take-up. (2)
  - d. Loosen Screw for Feed Lift Eccentric Ball. (2)
  - e. Loosen Screw for Feed Drive Eccentric Ball. (2)
  - f. Remove a, b, c, d, e and f at the same time. (1)
52. Remove Thread Take-up Oil Defense Unit. (1)





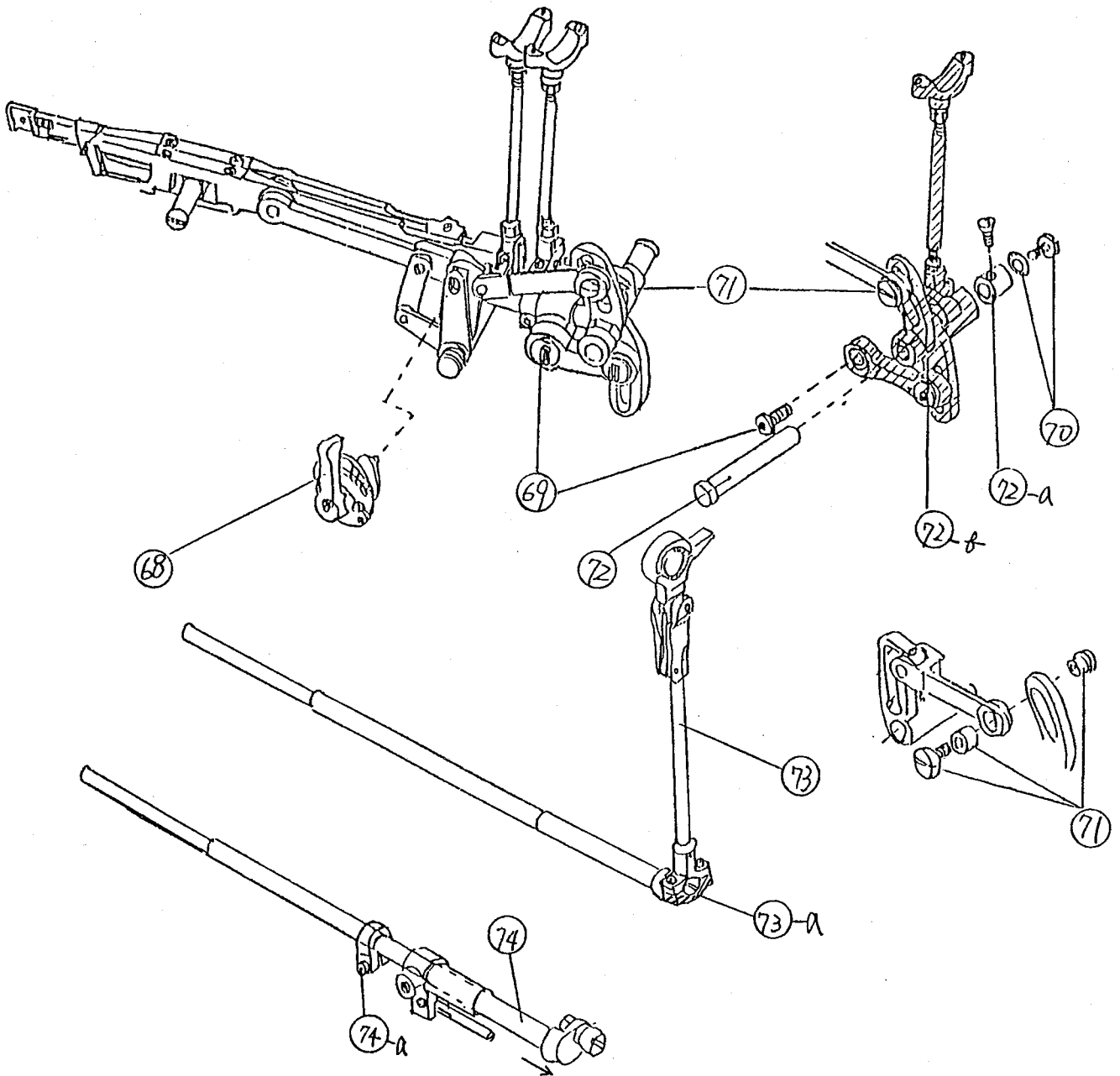
## 6. Crankshaft, Needle Bar Driving and Clutch Drive Segment Lever Mechanism

53. Remove Needles. (3)
54. Remove Needle Clamp.
55. Remove Needle Bar. (1)
56. Remove Pulley. (2)
57. Remove Clutch Driving Segment Lever and Clutch Driving Segment Lever Rod, Complete Set. (1), (W 2)
  - a. Also remove Needle Bearing for Eccentric at that time. (1), (W 2)
58. Remove Eccentric for Clutch Driving Segment Lever Rod. (2)
59. Remove Bushing Housing Unit. (3)
60. Remove Crank Chamber Cover Oil Shield. (2)
61. Remove Needle Bar Lever Connecting Rod Pin. (2)
62. Remove Needle Bar Lever Shaft. (2)
63. Remove Needle Bar Lever Connecting Rod from Crankshaft. (2)
  - a. Also remove Needle Bearing at this time.



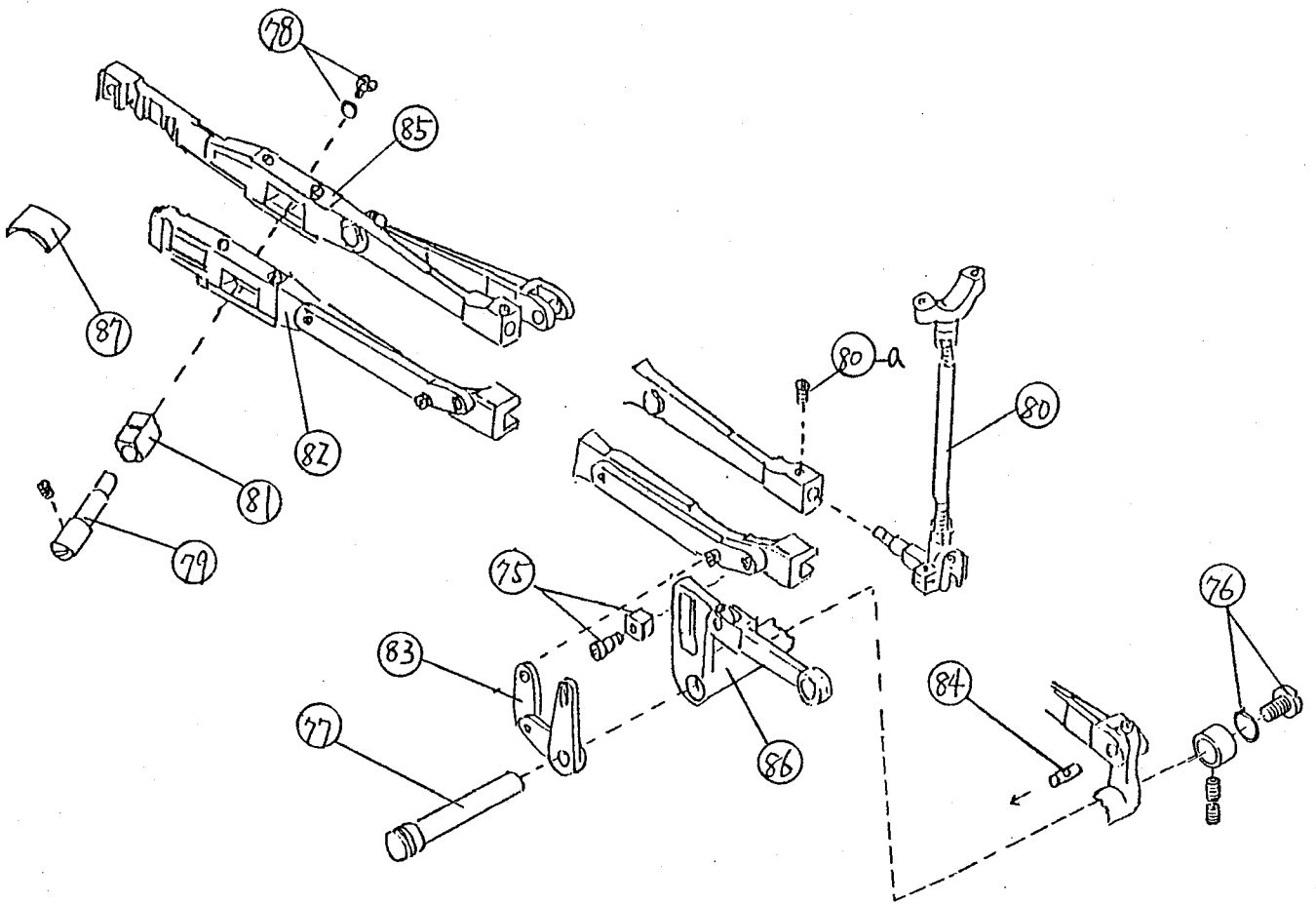
## 7. Crankshaft and Machine Frame

64. Remove Oil Wick from Needle Bar Bushing(Lower) and Presser Bar Bushing (Lower).
65. Remove a set of Sewing Head and Sewing Head Oil Defense. (1)
  - a. Remove a set of Oil Defense, Needle Bar Lever, Needle Bar Connecting Link and Needle Bar Connecting Bracket from Sewing Head.
66. Remove Crankshaft. (5)
  - a. Loosen Screw for Crankshaft Thrust Collar and Screw for Main Shaft Coupling.
67. Remove Sewing Cylinder. (3)
  - a. With Feed Driving Mechanism and Loper Driving Mechanism kept assembled.



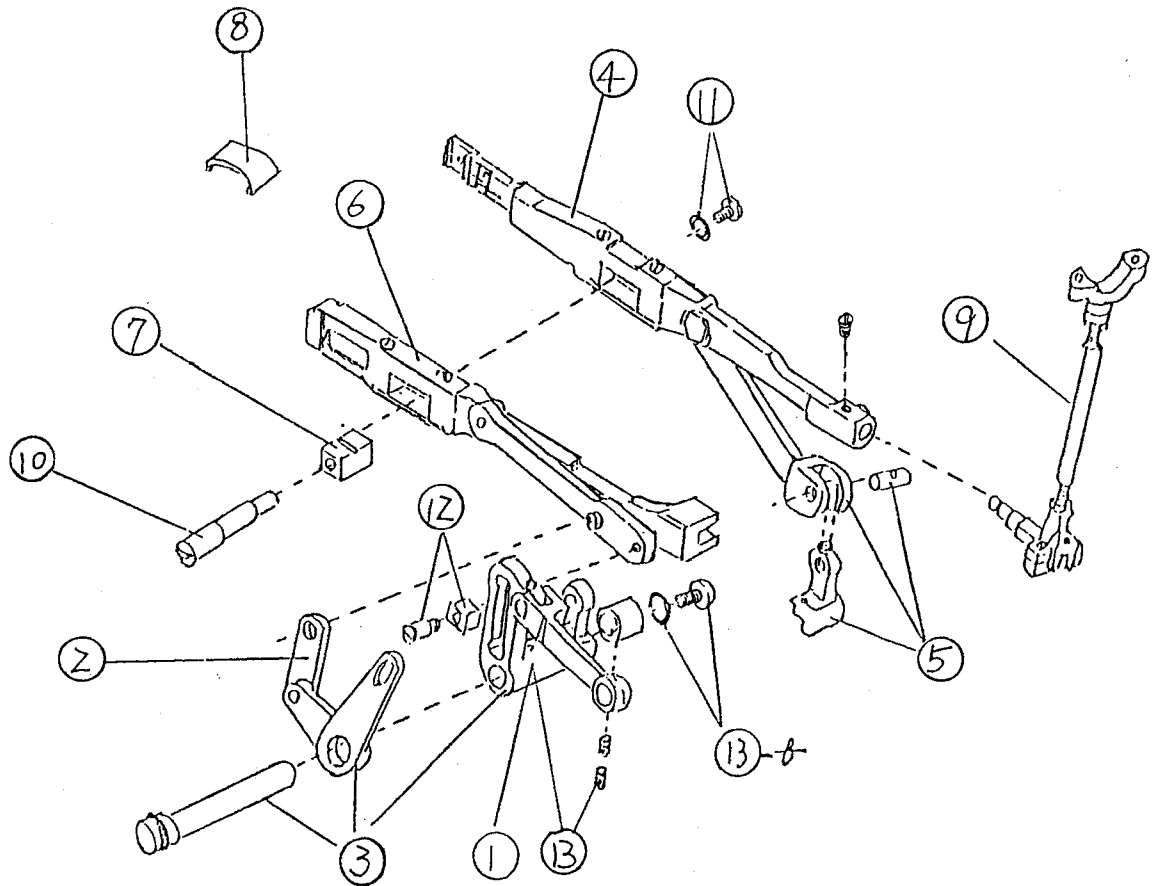
## 8. Sewing Cylinder (1)

68. Take out Differential Feed Operating Lever and Differential Feed Adjusting Dial as a set. (3)
69. Remove Screw for Looper Avoid Connecting Rod Bushing. (1)
  - a. The Screw used for connecting with Looper Rocker Shaft Sleeve.
70. Remove O-ring for Feed Drive Shaft and Screw. (1)
71. Remove Feed Adjusting Nut and Rocker Link Bushing.
72. Remove Feed Drive Shaft. (1)
  - a. Also remove Feed Drive Shaft Bushing at this time.
  - b. Remove Feed Drive Eccentric, Complete Set and Feed Drive and Looper Avoid Lever and Looper Avoid Connecting Rod as a set.
73. Remove Looper Driving Connecting Rod(Upper) and Looper Driving Connecting Rod Unit in the connected condition. (2)
  - a. Remove Looper Driving Connecting Rod from Looper Driving Connecting Rod Ball(Lower).
74. Draw out Looper Rocker Shaft attached with Looper Driving Connecting Rod Ball(Lower). (1)
  - a. Loosen Screw for Looper Rocker Shaft Collar.



## 8. Sewing Cylinder (2)

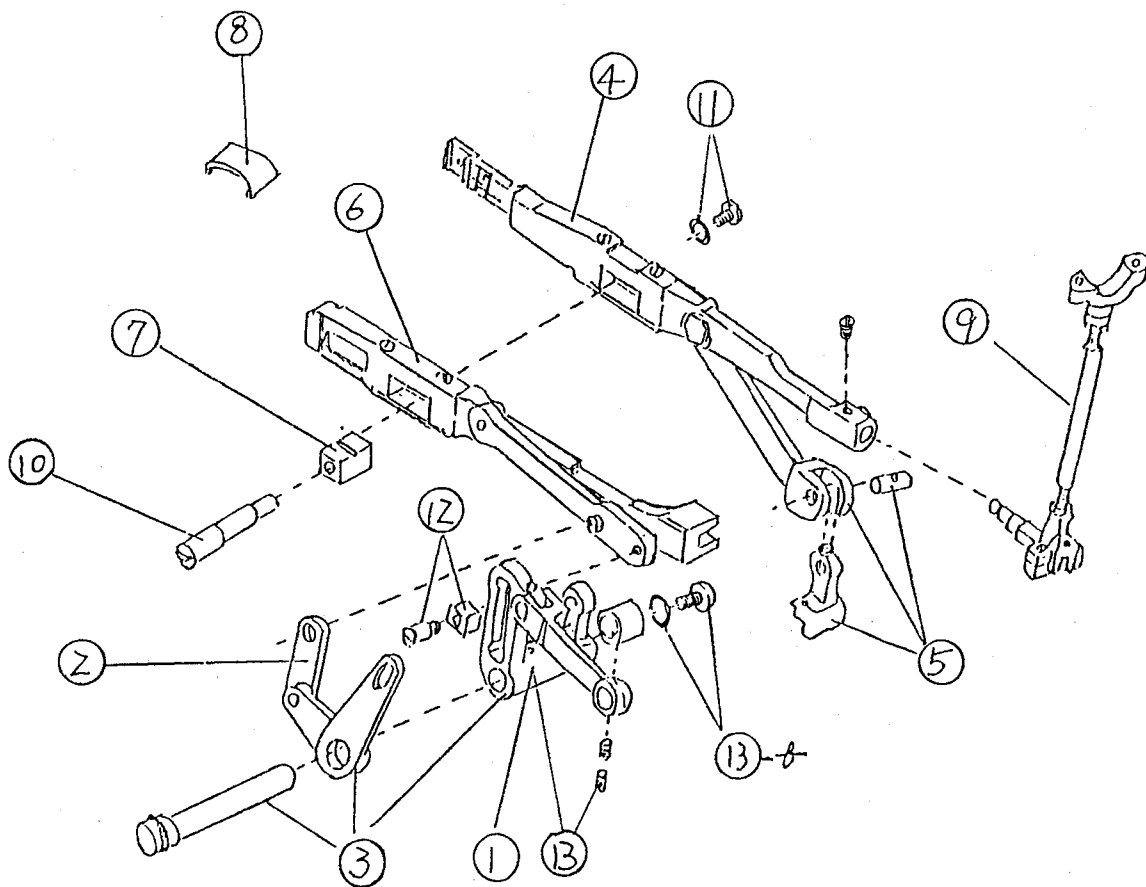
75. Remove Differential Feed Bar Driving Link Slider. (1)
76. Remove Oil Seal for Feed Rocker Shaft and Screw. (1)
77. Remove Feed Rocker Shaft. (2)
78. Remove Oil Seal for Feed Bar Eccentric Pin and Screw.
79. Remove Feed Bar Eccentric Pin. (1)
80. Remove Feed Drive Eccentric, Complete Set. (1)
  - a. Loosen Screw for Feed Drive Connecting Ball.
81. Draw out Feed Bar Slide Block from Feed Bar, Complete Set.
82. Remove Differential Feed Bar. (as a set with Differential Feed Bar Driving Link)
83. Remove Differential Feed Adjusting Lever. (as a set with Differential Feed Adjusting Lever Link)
84. Remove Feed Rocker Link Pin which connects Main Feed Bar Driving Link and Feed Rocker. (1)
85. Remove Main Feed Bar. (as a set with Main Feed Bar Driving Link)
86. Remove Feed Rocker. (as a set with Feed Rocker Link)
87. Remove Dust Defender.



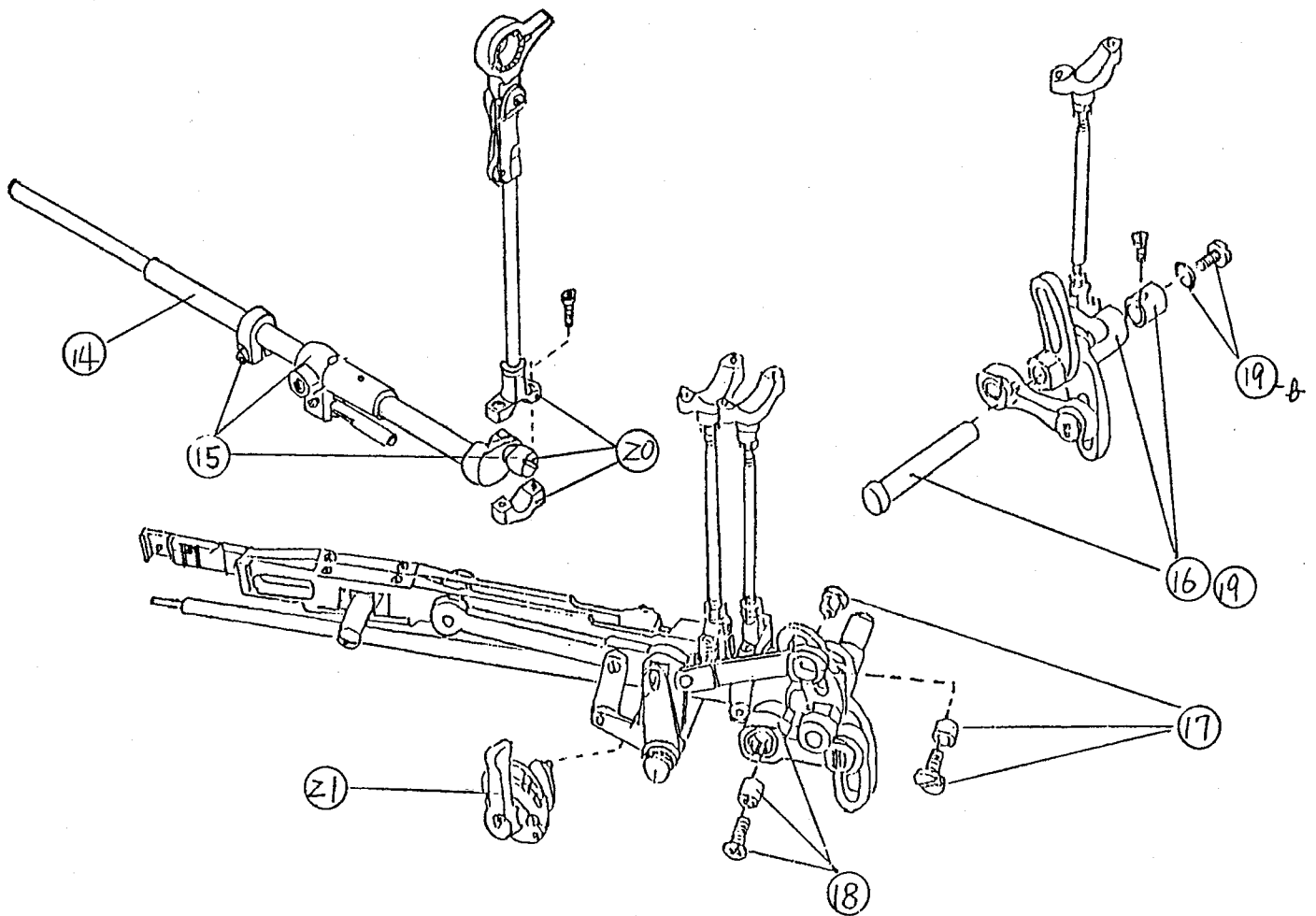
## Assembly Procedure

### 1. Sewing Cylinder (1)

1. Put Feed Rocker (with Feed Rocker Link assembled) into Sewing Cylinder.
2. Put a set of Differential Feed Adjusting Lever and Differential Feed Adjusting Lever Link into Sewing Cylinder.
3. Insert Feed Rocker Shaft.
  - a. Insert Differential Feed Adjusting Lever, Complete Set and Feed Rocker, Complete Set.
4. Put Feed Bar (with Main Feed Bar Driving Link assembled) into Sewing Cylinder.
5. Connect Main Feed Bar Driving Link with Feed Rocker by Feed Rocker Link Pin. (1)
  - a. The screw must be set correctly to the flat spot of Feed Rocker Link Pin.
6. Insert Differential Feed Bar (attached with Differential Feed Bar Driving Link) into Sewing Cylinder.
  - a. Insert Differential Feed Adjusting Lever Link into the part of Screw for the Adjusting Lever Link.
7. Insert Feed Bar Slide Block into Feed Bar, Complete Set.
  - a. Insert the Feed Bar Slide Block with its oil groove facing upper and left side.
8. Install Dust Defender(Lower) of Feed Bar.

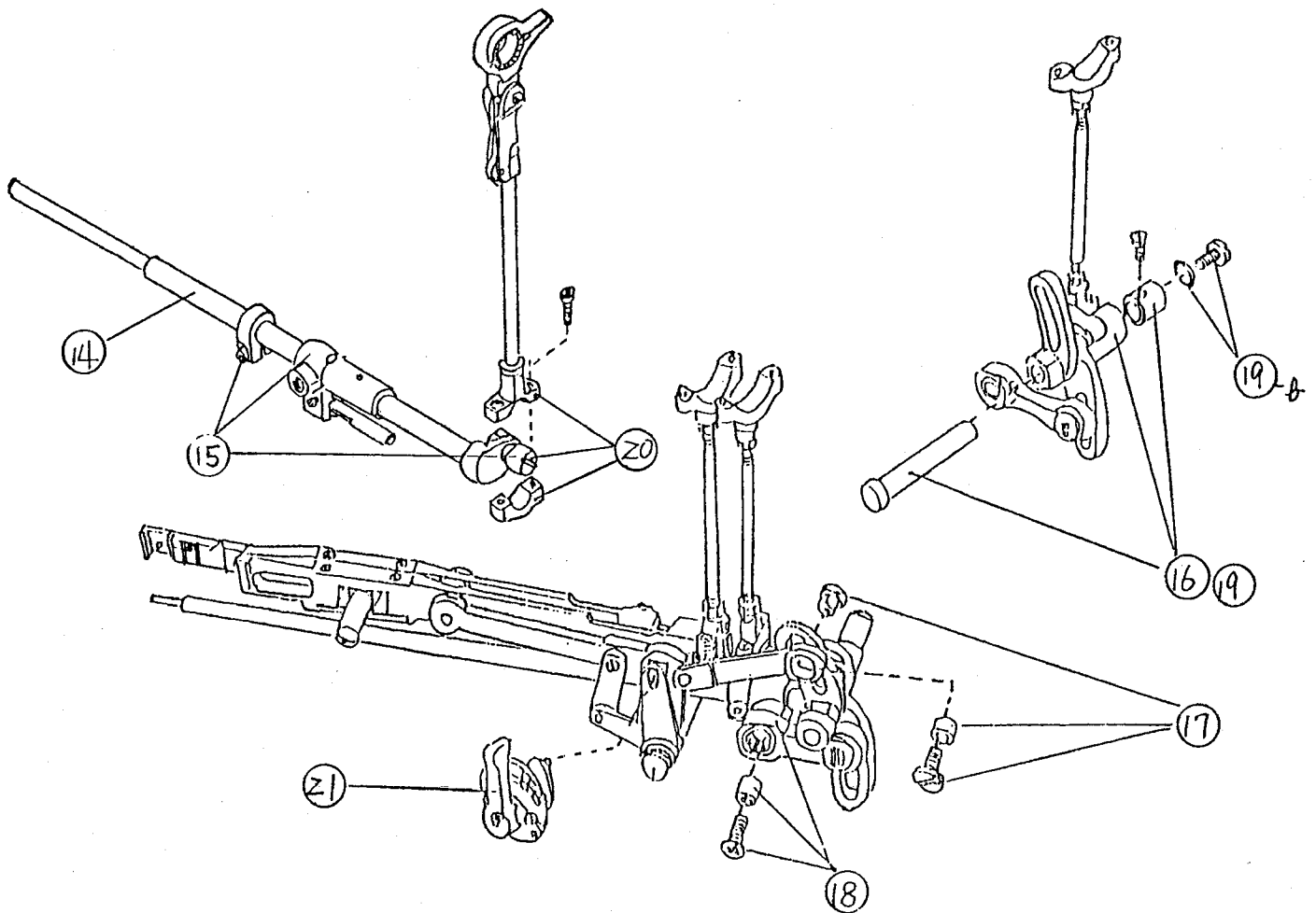


9. Install Feed Lift Eccentric, Complete Set in Feed Bar. (1)
10. Insert Feed Bar Eccentric Pin into Feed Bar Slide Block then assemble them to Sewing Cylinder. (1)
  - a. Raise Feed Bar by turning Feed Bar Eccentric Pin until the slot becomes horizontal, then set it at that point.
11. Install Oil Seal for Feed Bar Eccentric Pin and Screw. (1)
12. Install Differential Feed Bar Driving Link Slider. (1)
  - a. Insert Differential Feed Bar Driving Link Slider into the sliding part of Feed Rocker, then install them to Differential Feed Bar Driving Link.
13. Position Feed Rocker. (2)
  - a. At the position where Feed Bar moves smoothly up and down and right and left, and also Differential Feed Bar Driving Link Slider moves lightly up and down when Feed Rocker is moved right and left, hold it with Shaft and Bushing and fix the Feed Rocker Shaft.
  - b. Fix O-ring and Screw.



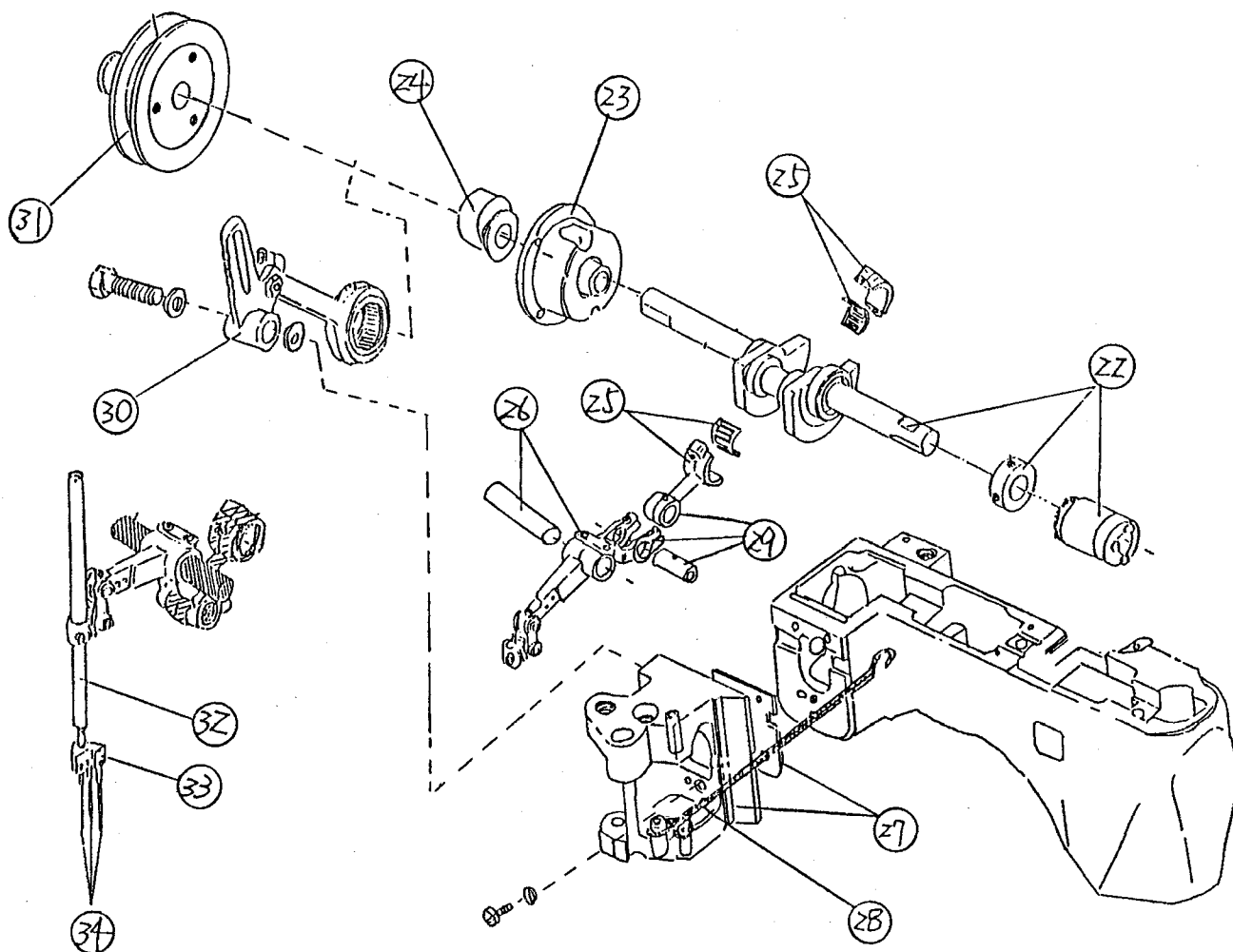
## 1 . Sewing Cylinder (2)

14. Insert Looper Rocker Shaft into Sewing Cylinder.
  - a. Insert Looper Rocker Shaft Sleeve and Looper Rocker Shaft Collar.
15. Fix the position of Looper Rocker Shaft. (1)
  - a. Hold Looper Rocker Shaft Sleeve with Looper Rocker Shaft and Looper Rocker Shaft Collar so that the Sleeve turns smoothly. Position Looper Rocker Shaft with its Looper Driving Connecting Rod (Lower) at the right side and horizontally kept and with the Screw for Looper Rocker Shaft Collar facing front.
16. Insert the assembly of Feed Drive Eccentric, Complete Set, Feed Drive and Looper Avoid Lever; and Looper Avoid Connecting Rod, Complete Set into Sewing Cylinder and set it tentatively with Feed Drive Shaft and Feed Drive Shaft Bushing.
17. Insert Feed Rocker Link Bushing into Feed Rocker Link and connect the Link to Feed Drive and Looper Avoid Lever with Feed Adjusting Nut and Screw. (1)
18. Connect Looper Avoid Connecting Rod, Complete Set with Looper Rocker Shaft Sleeve. (1)



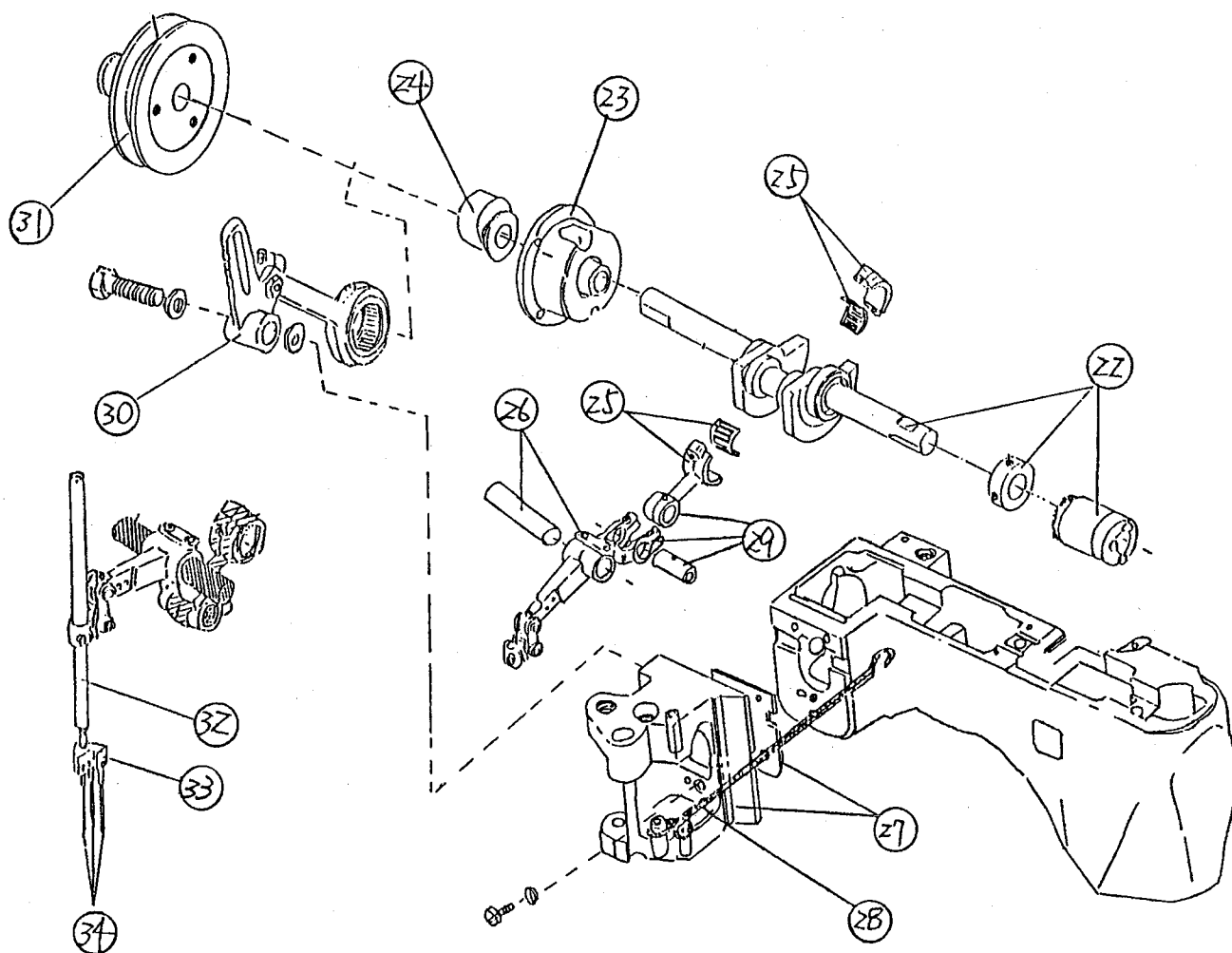
19. Fix the position of Feed Drive and Loper Avoid Lever. (1)
  - a. Provide the same clearance to the left and right between Feed Rocker Link and Feed Rocker Link Pin and position it where Feed Drive Eccentric, Complete Set can be moved smoothly up and down, holding the Lever with the Shaft and the Bushing.
  - b. Install O-ring and Screw.
20. Connect the assembly of Loper Drive Connecting Rod(Upper) and Loper Drive Connecting Rod Unit to Loper Driving Connecting Rod Ball(Lower) which is assembled to Loper Rocker Shaft with Loper Drive Connecting Rod(Lower). (2)
21. Install the assembly of Differential Feed Operating Lever, Differential Feed Adjusting Dial and Differential Feed Adjusting Inner Lever. (3)
  - a. Insert projected part of Differential Feed Adjusting Inner Lever into the slot of Differential Feed Adjusting Lever.



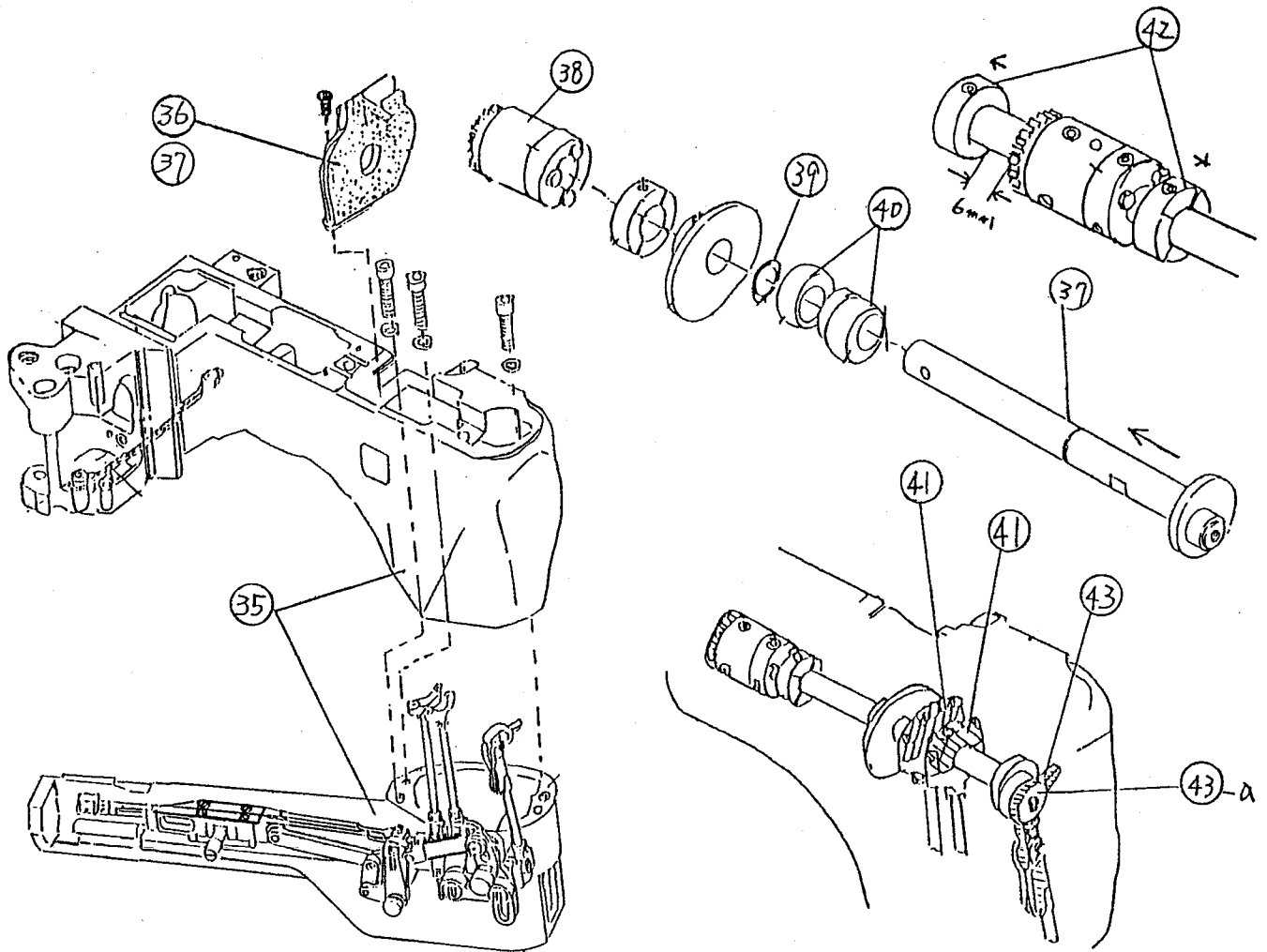


## 2. Needle Bar Mechanism, Clutch Driving Segment Lever and Crankshaft

22. Insert Crankshaft into Machine Frame.
  - a. Insert Clutch Shaft, Crankshaft Thrust Collar and Main Shaft Coupling, Complete Set.
23. Install Bushing Housing Unit. (3)
24. Install Eccentric for Clutch Driving Segment Lever Rod. (2)
25. Install Needle Bar Lever Connecting Rod to Crankshaft together with Needle Bearing. (2)
  - a. With the oil hole on Lever facing upward.
26. Insert Needle Bar Lever Shaft into Needle Bar Lever (with Needle Bar Connecting Link and Needle Bar Connecting Bracket assembled) and fix it. (2)
  - a. Fix the Lever Shaft at the middle of Needle Bar Lever.
27. Install Sewing Head. (1)
  - a. Put Sewing Head Oil Defense between Sewing Head and Machine Frame.
28. Bring Oil Wick to Sewing Head and clamp, then wind it around Presser Bar Bushing(Lower) and Needle Bar Bushing.
29. Connect Needle Bar Connecting Rod and Needle Bar Lever by inserting Needle Bar Lever Connecting Rod Pin. (2)
  - a. With oil hole of Needle Bar Lever Connecting Rod Pin facing upward.

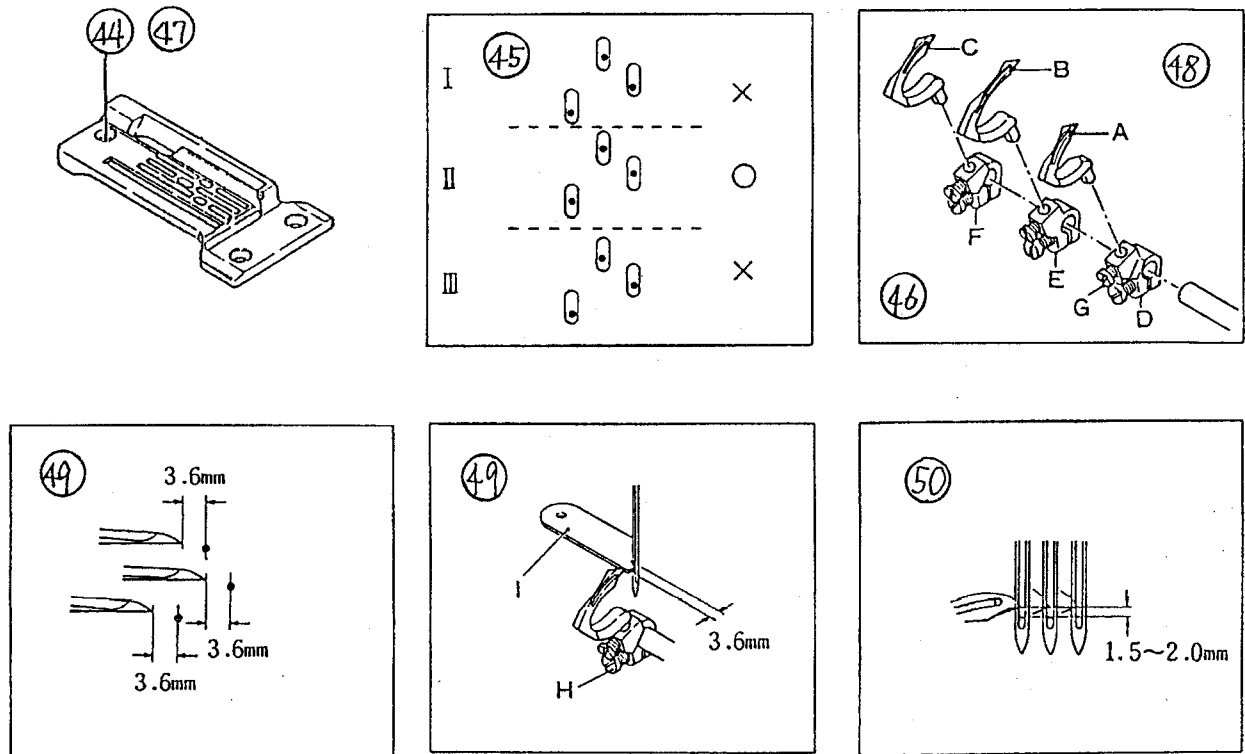


30. Install Clutch Driving Segment Lever and Clutch Driving Segment Lever Rod. (1)
  - a. After inserting Clutch Driving Segment Lever Rod and Needle Bearing into Segment Lever Rod Eccentric, install Clutch Driving Segment Lever to Sewing Head.
31. Install Pulley. (2)
32. Insert Needle Bar. (Set Screw for Needle Bar Connecting Bracket tentatively.) (1)
33. Fix Needle Clamp. (Tightening torque is 20 kgf·cm.)
34. Fix Needles. (3)



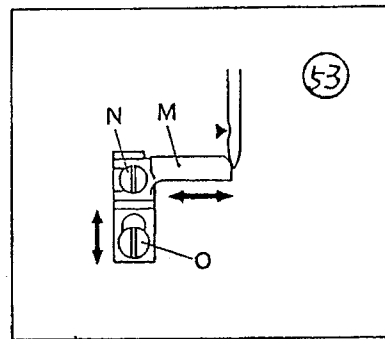
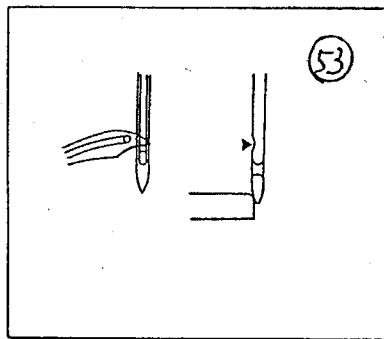
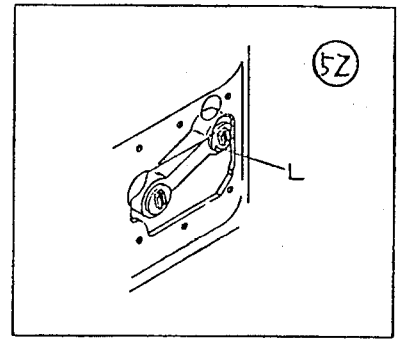
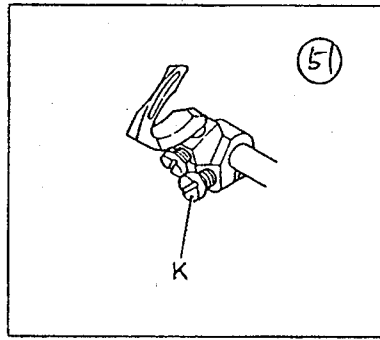
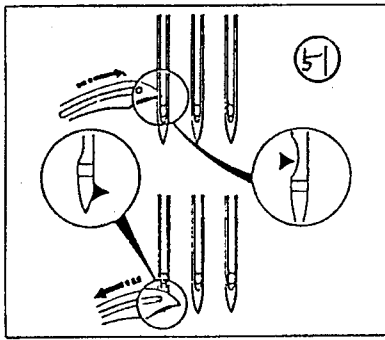
### 3. Connecting Machine Frame and Sewing Cylinder; and Main Shaft Driving Mechanism

35. Combine Machine Frame and Sewing Cylinder. (3)
36. Install Thread Take-up Oil Defense Unit. (1)
37. Insert Main Shaft, Complete Set.
  - a. Insert Feed Drive Eccentric Ball, Feed Lift Eccentric Ball, O-ring, Thread Take-up Oil Defense Unit, Loper Thread Take-up, Crankshaft Thrust Collar and Main Shaft Coupling, Complete Set.
38. Position Main Shaft. (3)
  - a. Set the center Screw of Coupling to conical cavity of Main Shaft.
39. Set O-ring in the groove of Shaft.
40. Fix Feed Lift Eccentric Ball and Feed Drive Eccentric Ball to Main Shaft. (4)
  - a. Set the first Screw to the direction of rotation to flat spot of Shaft.
41. Connect Feed Lift Connection(Upper) and Feed Drive Connection(Upper) to the corresponding Eccentric Ball. (4)
42. Position Crankshaft and Main Shaft Coupling, Complete Set. (7)
  - a. In the condition that Pulley can be turned lightly, fix the position by pushing outside two Crankshaft Thrust Collars. At this time, Crankshaft must not have any gap left and right.
  - b. Provide a clearance of 6 mm between Crankshaft Thrust Collar and Pump Driving Gear and tighten Screw for Coupling.
  - c. Set the Screw to the V-groove of Shaft.
43. Put Loper Driving Connecting Rod Unit on Main Shaft and connect them. (1)
  - a. Install Loper Driving Rod(Upper) Holding Plate.



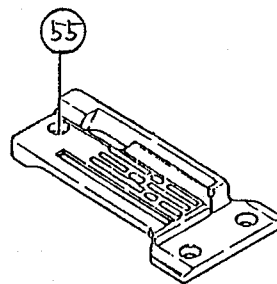
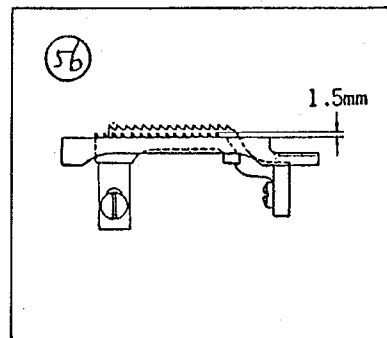
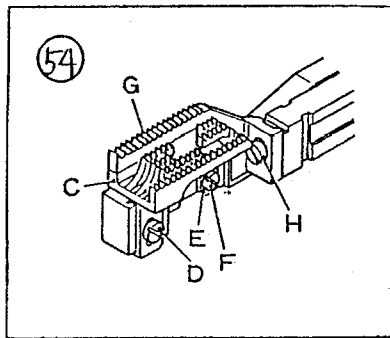
#### 4. Assembly of Each Gauge Parts and Adjustment (1)

44. Install Stitch Plate. (3)
45. Adjust the needle drop point.
  - a. Adjust so that 3 Needles descend into the middle of needle drop portions as illustrated in Fig. II.
  - b. Take care not to descend as illustrated in Fig. I and Fig. III.
46. Put Looper Holders(D), (E), and (F) on Looper Rocker Shaft and set them tentatively. (3)
47. Remove Stitch Plate. (3)
48. Install Loopers (A), (B) and (C). (3)
  - a. Put Loopers all the way into Looper Holder(D), (E) and (F) and tighten Screw(G), then the height and setting angle of  $3^{\circ}$  will be fixed accordingly.
49. Adjust the moving amount of Looper to the left.
  - a. When Looper is at the extreme left position, distance between the center of needle and the tip of Looper is 3.6 mm. The Adjustment is made by loosening Screw(H) for Looper Holder.
  - b. Adjust Looper(A), (B) and (C) one after another.
  - c. By using Looper Gauge(I), adjustment of moving amount of Looper to the left can be made easily.
50. Adjust the height of Needle Bar.
  - a. Adjust the height of Needle Bar so that the distance between the tip of Looper and the upper end of eye is 1.5~2.0 mm when the tip of Looper passes behind Needle and comes to the center of Needle.
  - b. When changing the position of Needle Bar up or down, make sure the needle drop point.



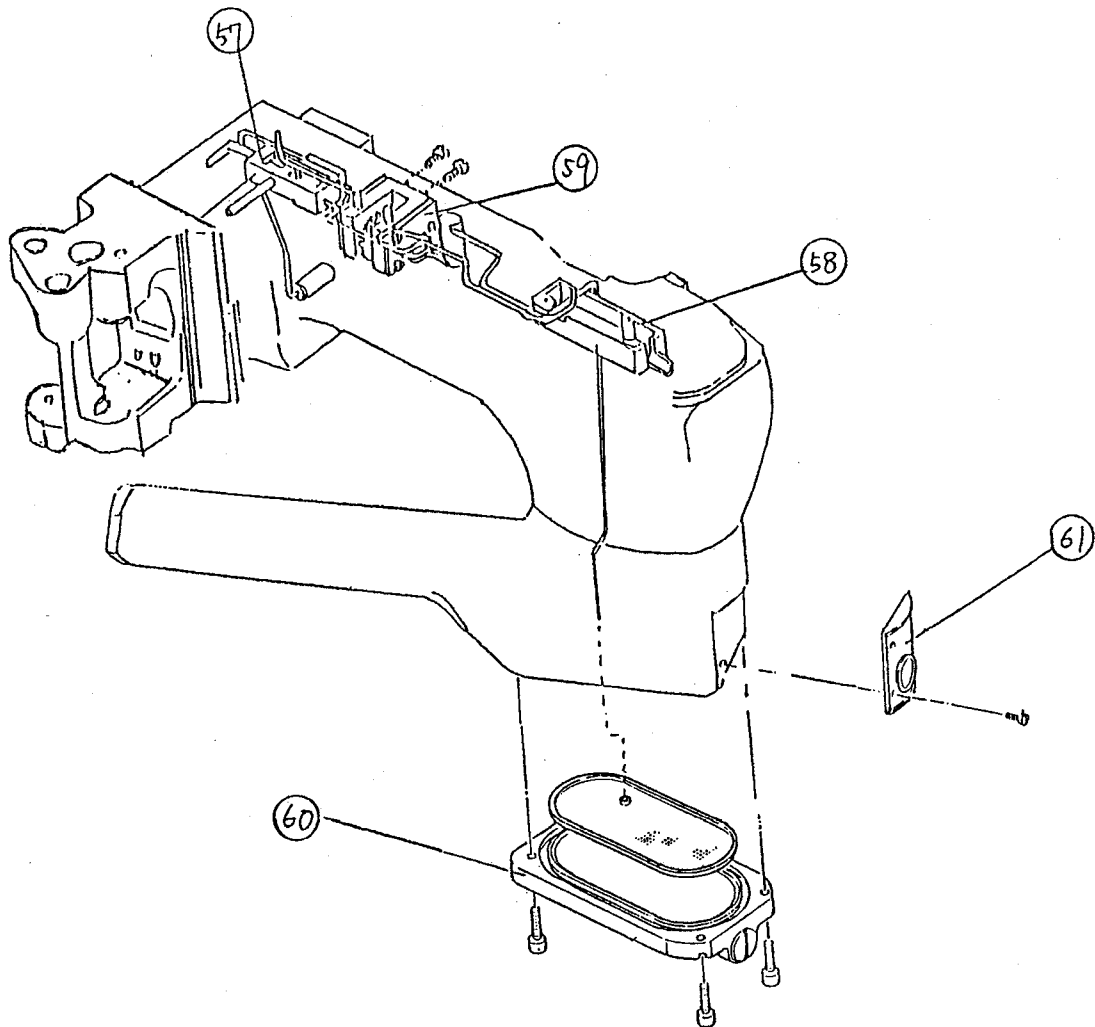
#### 4. Assembly of Each Gauge Parts and Adjustment (2)

51. Adjustment of relative position of Needle and Loooper
- When Loooper moves from left to right, it passes behind the Needle. At the time Loooper comes to the center of Needle, Loooper should be as close to Needle as possible without touching. The adjustment is made by loosening Screw(K) for Loooper Holder.
  - When Loooper moves from right to left (Needle descends at the back of Loooper), check if Needle touches lightly to the back of Loooper. If Loooper interferes too much to be bent or if there is a clearance between Needle and Loooper, re-adjustment of looper avoid motion is necessary.
52. Adjustment of amount of looper avoid motion
- The adjustment is made by loosening Screw(L) at the front of Loooper Avoid Connecting Rod and moving Loooper Avoid Connecting Rod up and down. To decrease the amount, raise the Rod and to increase descend it.
53. Adjustment of Needle Guard (1)
- When Loooper moves from left to right, it passes behind Needle. Adjust so that Needle Guard(M) push Needle by 0~0.5 mm when the tip of Loooper comes to the center of Needle. The adjustment is made by loosening Screw(N).
  - Set the height of Needle Guard as low as possible, and adjust so that the surface of Needle Guard interferes Needle while the tip of Loooper passes behind Needle and reaches the right end of Needle. The adjustment is made by loosening Screw(O).



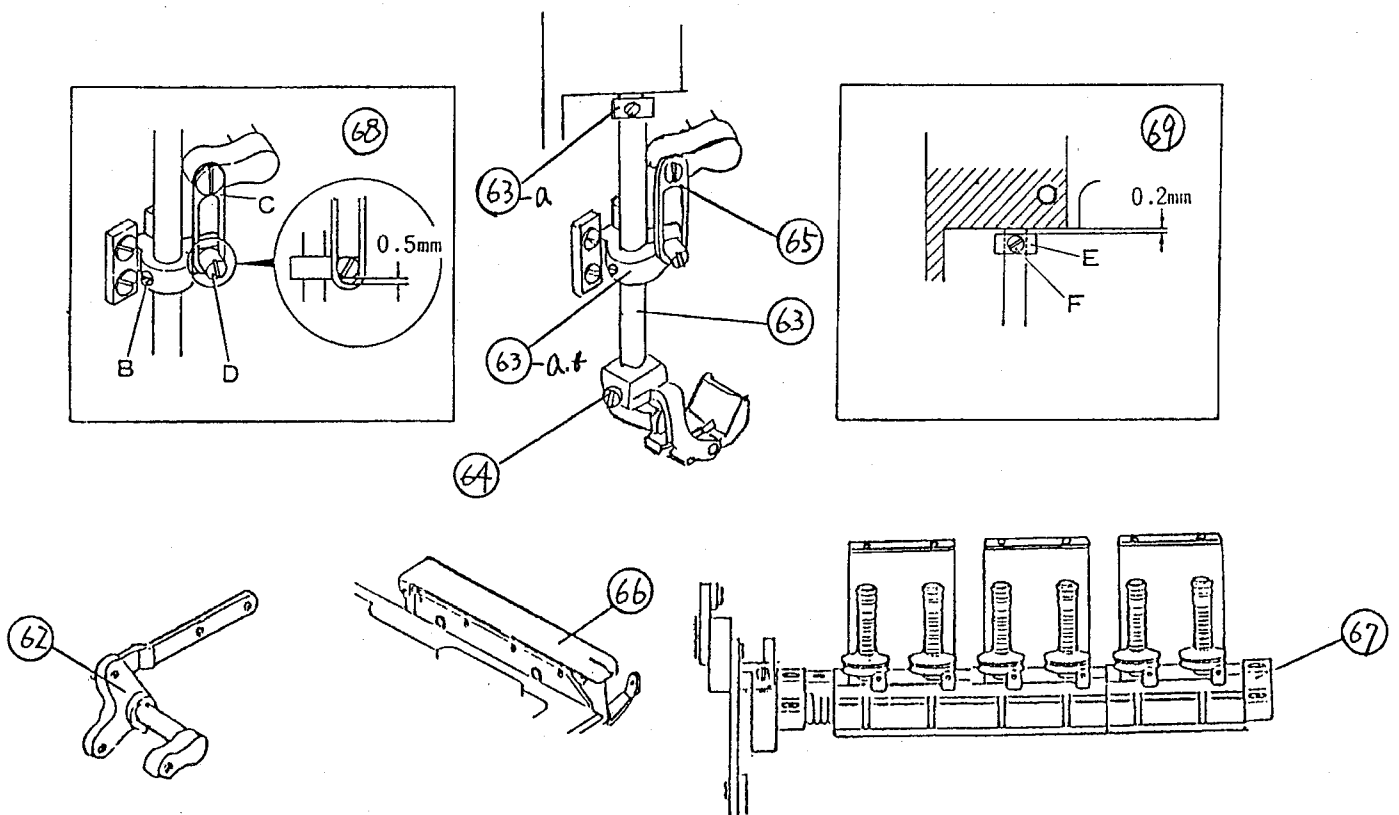
#### 4. Assembly of Each Gauge Parts and Adjustment (3)

54. Installation and adjustment of Main Feed Dog (3)
  - a. Install Main Feed Dog(C) and fix it with Screw(D).
  - a. Applying Main Feed Dog Stay(E) to Main Feed Dog(C) and fix the Stay with Screw(F).
  - c. Applying Differential Feed Dog(G) to Main Feed Dog(C) lightly, fix the Feed Dog with Screw(H).
  - d. By operating differential feed, make sure that the machine rotates lightly.
55. Install Stitch Plate. (3)
56. Fix the height of Main Feed Dog.
  - a. When Main Feed Dog rises uppermost, set the height of first teeth of Feed Dog from the front 1.5 mm above Stitch Plate.  
The adjustment is made by loosening Screws(D), (F), and (H).



## 5. Lubrication Mechanism

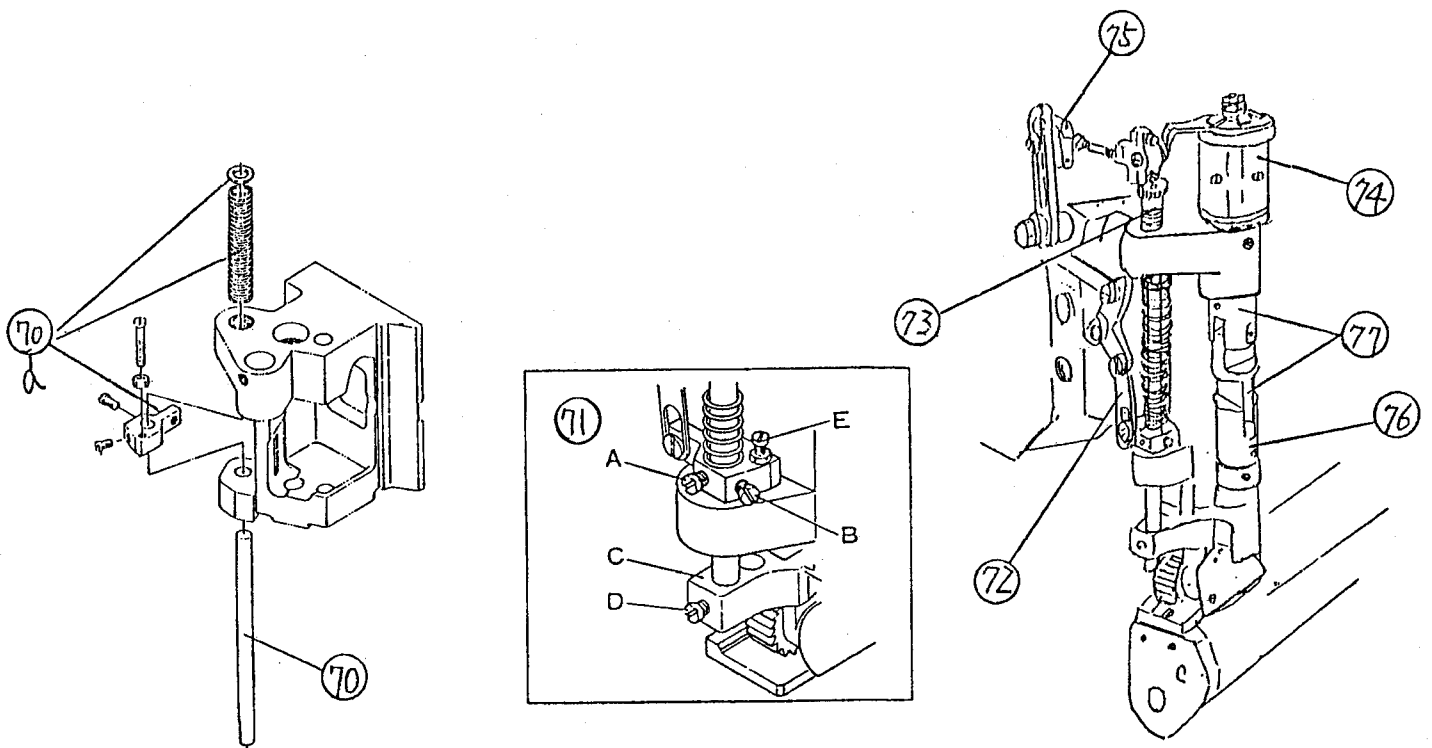
57. Install Oil Receiver(Rear). (Also set O-ring at this time.)
58. Install Oil Receiver(Front).
59. Install Pump, Complete Set. (2)
  - a. The surface of Pump Housing and the surface of right side wall of Machine Frame must be parallel with each other.
60. Install Oil Reservoir. (4)
  - a. Put Oil Filter Screen (with Oil Reservoir Rubber Seal and Rubber Bushing assembled) and Oil Reservoir Rubber Seal into Oil Reservoir.
  - b. Put In-take Pipe of Pump Housing Cover Unit(Front) into Rubber Bushing.
61. Install Sewing Cylinder Cover(Front). (4)



## 6. Presser Foot, Feed Roller Mechanism and Thread Tension Unit (1)

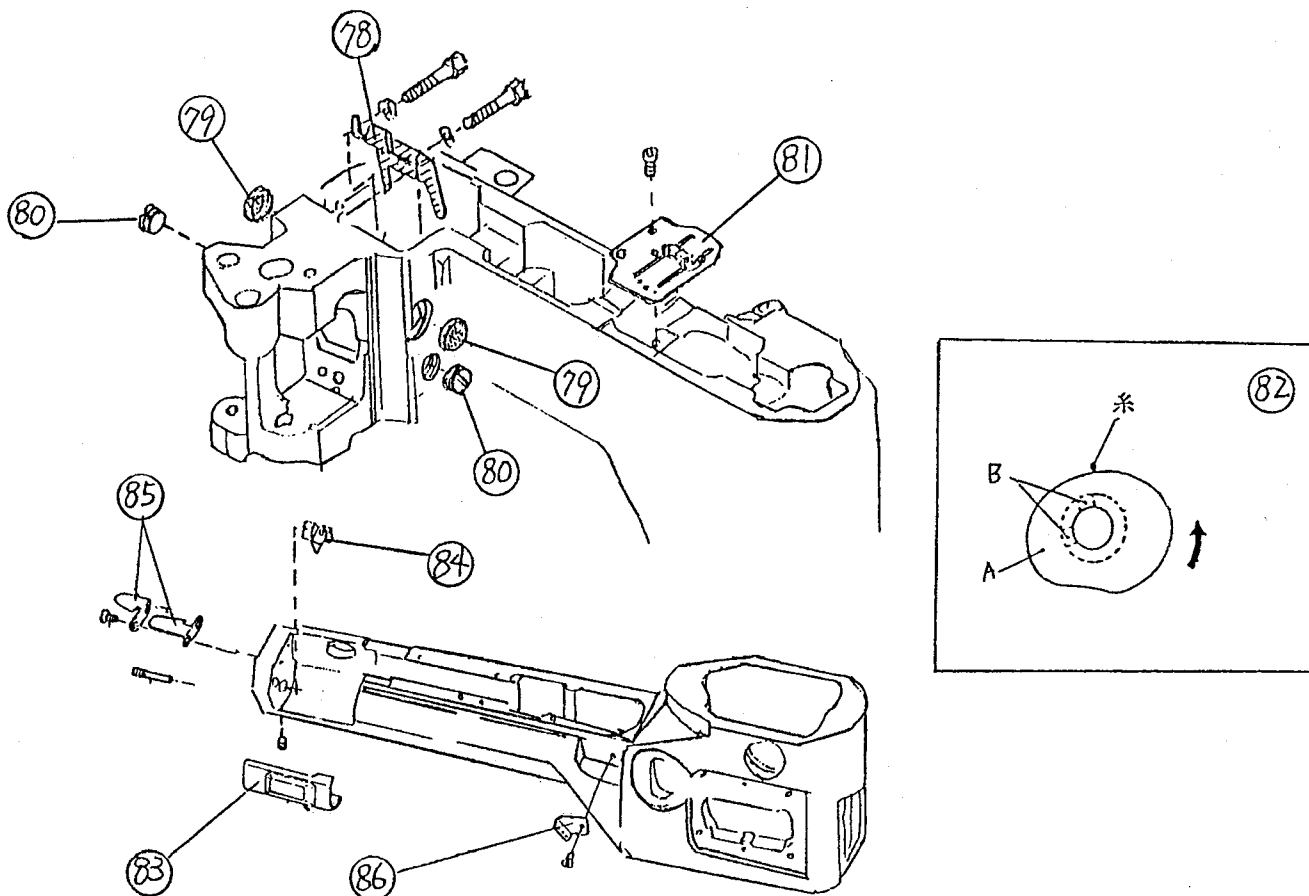
62. Install Presser Bar Lifter Lever and Presser Bar Lifter Lever(Left) (with Presser Foot Lifter Lever Link(Short) assembled). (1)
63. Insert Presser Bar.
  - a. Put Presser Bar Connecting Bracket on Presser Bar Guide Plate.
  - b. Put Presser Bar on Presser Bar Collar and Presser Bar Guide Plate.
64. Install Presser Foot. (1)
65. Connect Presser Bar Connecting Bracket and Presser Bar Lifting Lever with Presser Bar Connecting Link. (1)
66. Install SP Device. (2)
  - a. Also install Supplementary Thread Eyelet at this time.
67. Install Thread Tension Unit. (2)
  - a. Connect Presser Foot Lifter Lever Link(Long) with Presser Foot Lifter Lever Link(Short). (2)
68. Adjust Presser Foot Connecting Bracket.
  - a. In the condition that Presser Foot contacts closely to the surface of Stitch Plate, loosen Screw(B) for Presser Bar Connecting Bracket and adjust the clearance between Guide Screw(D) and Presser Bar Connecting Link(C) to 0.5 mm.
69. Adjust the position of Presser Bar Collar. (1)
  - a. With Presser Foot uppermost (8 mm above Stitch Plate), adjust the clearance between Sewing Head and Collar(E) to 0.2 mm, then tighten Screw (F).





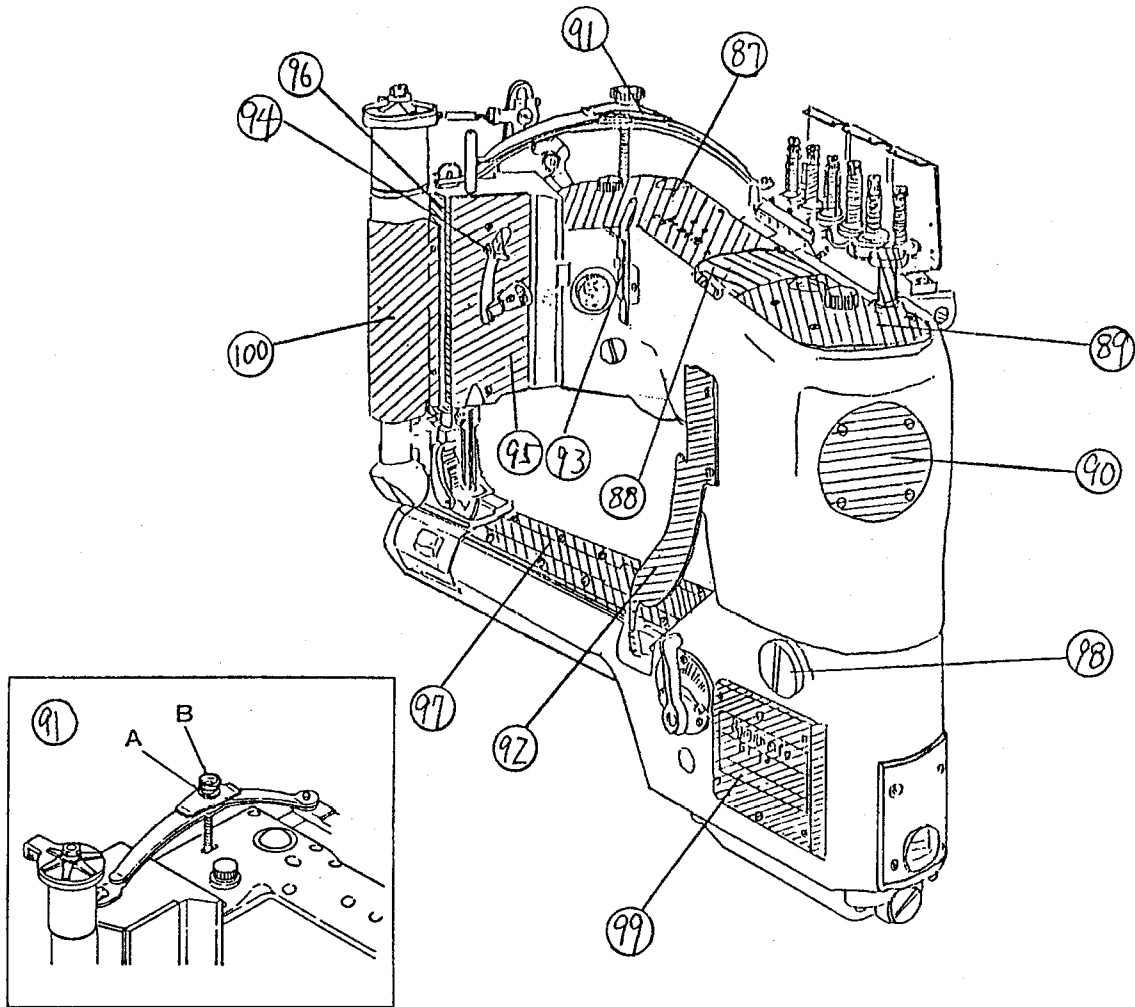
## 6. Presser Foot, Feed Roller Mechanism and Thread Tension Unit (2)

70. Insert Feed Roller Presser Bar.
  - a. Put on Washer, Feed Roller Presser Spring and Feed Roller Pressing Bar Connection.
71. Installation and Adjustment of Feed Roller Bracket, Complete Set (3)
  - a. Put Feed Roller Bracket, Complete Set on Feed Roller Pressing Bar.
  - b. After tightening Screw(A) for Feed Roller Pressing Bar Connection to the flat spot of Feed Roller Pressing Bar, tighten Screw(B).
  - c. In the condition that applying Adjusting Screw(E) for Feed Roller Pressing Bar Connection to the boss of Sewing Head, give a clearance of about 0.1 mm between Feed Roller and Stitch Plate and tighten Screw(D).
72. Connect Presser Bar Lifter Lever(Left) and Feed Roller Pressing Bar Connection with Presser Bar Connecting Link. (2)
73. Screw in Adjusting Screw for Feed Roller Pressing Spring.
74. Insert a set of Clutch, Complete Set and Clutch Connecting Rod, Complete Set into Sewing Head and fix it. (1)
75. Install Clutch Connecting Rod, Complete Set to Clutch Driving Segment Lever. (N 1, W 1)
76. Install Feed Roller Connection(Lower) to Feed Roller Drive Gear. (2)
77. Insert a set of Feed Roller Connection(Middle) and (Upper) into (Lower), and connect (Upper) to Clutch, Complete Set.



## 7. Miscellaneous Covers and Eyelets (1)

78. Install Crank Chamber Cover Oil Shield. (2, W2)
79. Install Bushing Cap(Right) and (Left).
80. Install Plug Screw for Machine Frame. (2)
81. Install Eyelet Supporting Plate. (2)
82. Position Looper Thread Take-up. (2)
  - a. Set Screw(B) at the position where Looper Thread Take-up(A) begins taking up the thread when Looper start moving to left from the extreme right.
83. Install Looper Cover. (1)
84. Install Looper Cover Spring Support. (1)
  - a. Eliminate gap of Looper Cover by the elasticity of Spring.
85. Install Chain-off Cutting Knife. (2)
86. Install Looper Thread Eyelet. (1)



## 7. Miscellaneous Covers and Eyelets (2)

87. Install Crank Chamber Cover. (9)
88. Install Top Cover(Middle). (3)
89. Install Top Cover(Front). (5)
90. Install Machine Frame End Cover. (4)
91. Apply the tension of Presser Spring(Upper), (Middle) and (Lower). (2)
  - a. Put Presser Spring Plate on Presser Bar Bushing(Upper).
  - b. Put Presser Spring(Upper), (Middle) and (Lower) on Presser Spring Regulating Screw and apply pressure by Adjusting Nut(A) and Lock Nut(B).
92. Install Looper Thread Guard. (2)
93. Install a set of Needle Thread Eyelet(Right) and (Left). (1)
94. Install Needle Bar Lever Thread Eyelet. (2)
95. Install Sewing Head Cover(Front). (2)
96. Install Sewing Head Cover(Left). (2)
97. Install Folder Slide Guide(Left) and (Right). (8)
98. Install Plug Screw for Sewing Cylinder. (1)
99. Install Sewing Cylinder Cover(Left). (6)
100. Install Clutch Shaft Connecting Cover. (2)