

Instruction Manual

BS Series



NOTE: Owner/Operator must read and understand this instruction manual before using the lift table.

RevB: 02/2009

Operation and Service Manual

BEFORE OPERATING THE LIFT TABLE, READ THIS MANUAL CAREFULLY AND UNDERSTAND COMPLETELY. KEEP THIS MANUAL ON FILE FOR FUTURE REFERENCE. IF THIS IS LOST, PLEASE CONTACT YOUR LOCAL SUPPLIER FOR A NEW COPY. ALSO, IF THE WARNING/CAUTION DECAL ON THE UNIT IS LOST, PLEASE CONTACT YOUR LOCAL SUPPLIER FOR A NEW DECAL.

NOTE: On this manual, WARNING means the danger which can lead to death or serious injury. CAUTION means the danger which can lead to slight injury or property damage.

1. WARNING

- 1.DO NOT put foot or hand in scissors mechanism.
- 2.DO NOT allow other person to stand in front of or behind lift table when it is moving.
- 3.DO NOT move lift table when table is in raised position. Load could fall down.
- 4.DO NOT enter under table.
- 5.DO NOT overload lift table.
- 6.DO NOT put foot in front of rolling wheels. Injury could result.
- 7.WATCH difference and hardness of floor level when moving lift table. Load could fall down.
- 8.DO NOT use lift table on slope or inclined surface, lift table may become uncontrollable and create danger.
- 9.DO NOT lift people. People could fall down and suffer severe injury.

2. CAUTION

- 1.Read this operation manual carefully and understand completely operating lift table. Improper operation could create danger.
- 2.This lift table is a movable lifter designed to lift or lower rated load on table. NO NOT use lift table for other purpose than its intended use.
- 3.DO NOT allow person to operate lift table who does not understand its operation.
- 4.DO NOT lower table too fast. Load could fall down and create danger.
- 5.KEEP watching the condition of load. Stop operating lift table if load becomes unstable.
- 6.Byake lift table when sliding load on of off table.
- 7.DO NOT side or end load. Load must be distributed on at least 80%of table area.
- 8.DO NOT use lift table with unstable, unbalanced loosely stacked load.
- 9.Practice maintenance work according to service instructions.
10. DO NOT modify lift table without manufacturer's written consent.
11. REMOVE load from table and use safety stopper to prevent table from lowering when servicing lift table.
12. This lift table is not designed to be water resistant. Use lift table under dry condition.

3. DAILY INSPECTION

Daily inspection is effective to find the malfunction or fault on lift table. Check lift table on the following points before operation.

CAUTION

DO NOT use lift table if any malfunction or fault is found.

- (1) Check for scratch, bending or cracking on the lift table.
- (2) Check if there is any oil leakage from the cylinder.
- (3) Check the vertical creep of the table.
- (4) Check the smooth movement of the wheel.
- (5) Check the function of brake.
- (6) Check if all the bolt and nuts are tightened firmly.

4. OPERATING LIFTTABLE

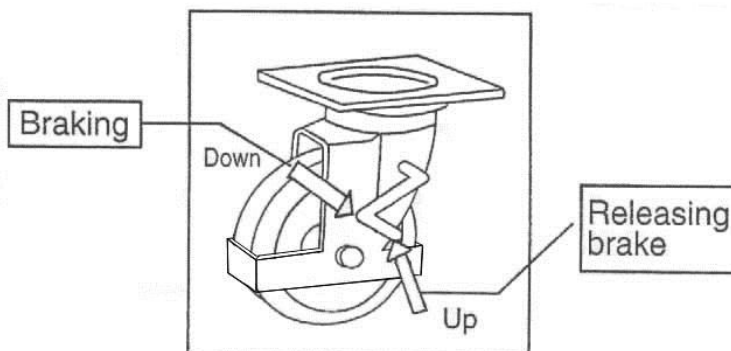
4-1. How to use the brake.

CAUTION

Brake lift table when not moving it in order to prevent sudden movement.

The brake is equipped with the swivel caster on the right side.

- (1) Braking the wheel, press the brake pedal.
- (2) Releasing the brake, lift up the brake pedal.



4-2 Lifting the table

WARNING

1. DO NOT overload lift table, stay within its rated capacity.
2. DO NOT side end load must be distributed on at least 80% of table area.

Press the lifting pedal several times until the table reaches the desired position.

The table does not elevate after reaching the highest position even if the lifting pedal is pressed.

The table lowers slightly after reaching the highest position.

MAXIMUM CAPACITY OF TABLE

| BS15 | BS25 | BS50 | BS75 | BS100 | BS30D | BS50D | BS80D |
|-------|-------|-------|-------|--------|-------|-------|-------|
| 150KG | 250KG | 500KG | 750KG | 1000KG | 300KG | 500KG | 800KG |

NOTE:

The hydraulic cylinder is designed to hold table. As is the nature of the hydraulic system, table lowers very slowly over an extended period of time, Please note the table does not stay at the same position indefinitely.

4-3. Lowering table

WARNING

DO NOT put foot or hand in scissors mechanism.

Pull the lowering down and table lowers.

5. Specifications

| Model | Capacity (kg) | Table (mm) | Table Height(mm) | Stroke | LxWxH (mm) | Pedal to top. (approx. times) | Wheel (mm) ϕ | Weight (kg) |
|-------|---------------|------------|------------------|--------|---------------|-------------------------------|-------------------|-------------|
| BS15 | 150 | 700x450 | 225-760 | 535 | 1000x450x950 | 16 | 100 | 41 |
| BS25 | 250 | 830x500 | 335-915 | 580 | 1100x500x1010 | 25 | 125 | 78 |
| BS50 | 500 | 1010x520 | 430-1000 | 570 | 1130x520x1185 | 44 | 150 | 118 |
| BS75 | 750 | 1010x520 | 432-1000 | 568 | 1130x520x1260 | 55 | 150 | 120 |
| BS100 | 1000 | 1010x520 | 440-960 | 520 | 1130x520x1260 | 68 | 150 | 137 |
| BS30D | 300 | 1010x520 | 435-1585 | 1150 | 1130x520x1260 | 53 | 150 | 150 |
| BS50D | 500 | 1010x520 | 435-1585 | 1150 | 1130x520x1260 | 68 | 150 | 168 |
| BS80D | 800 | 1010x520 | 490-1400 | 910 | 1130x520x1275 | 95 | 150 | 165 |

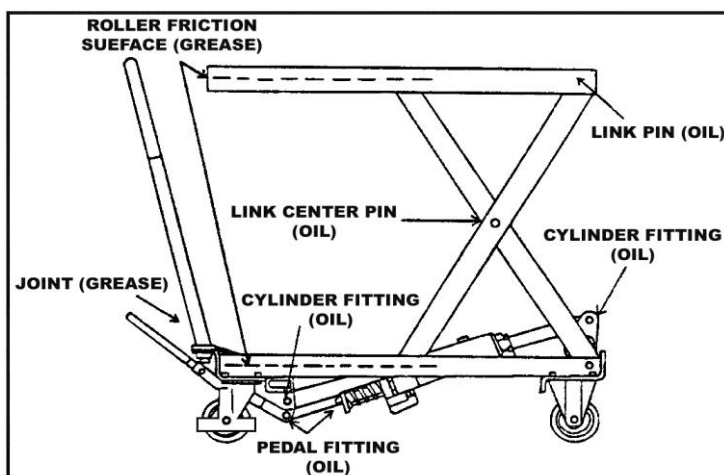
6. Service instruction

6.1-1. Lubricate each point described below every month:

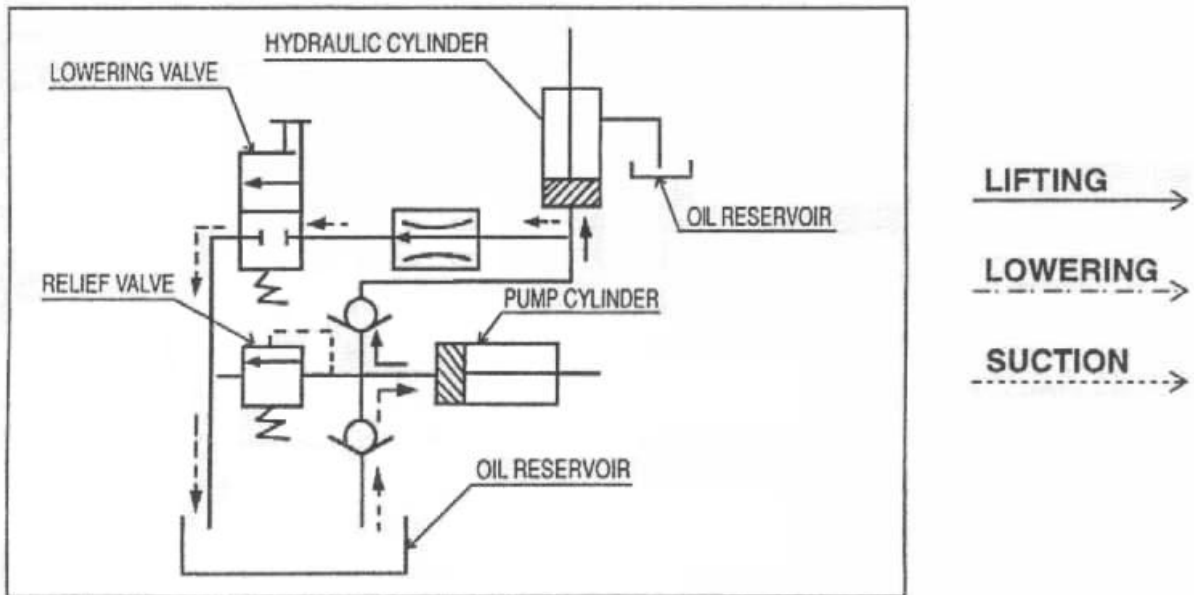
6.2. Change hydraulic oil every 12 months.

Lubricating Points

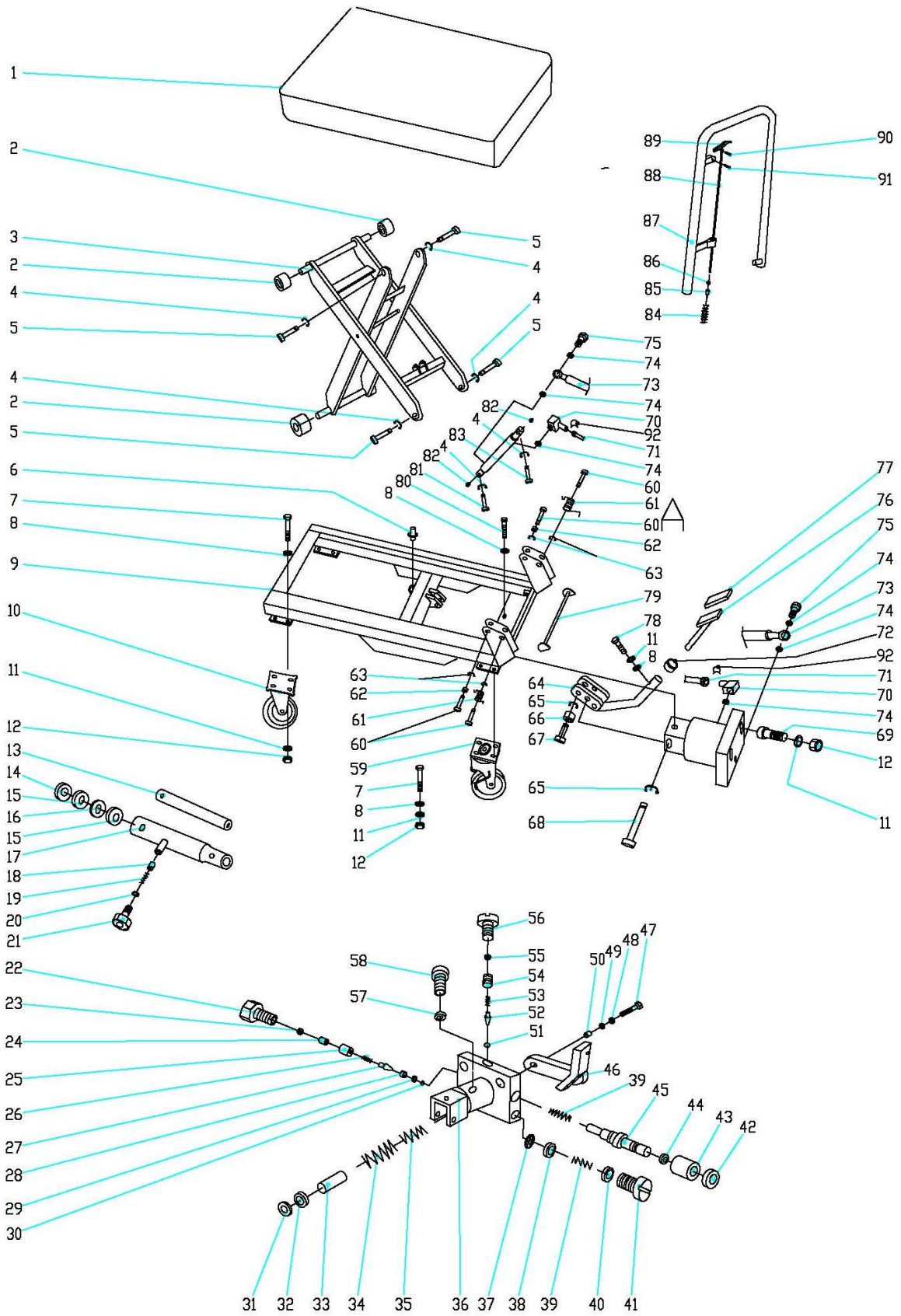
- (1) Fitting of cylinder.....Oil
- (2) Roller friction surface.....Grease
- (3) Link PinOil
- (4) Pedal fitting point.....Oil
- (5) Link center pin.....Oil
- (6) Joint.....Grease
- (7) Grease nipple.....Grease
- (8) Hydraulic circuit



7. Hydraulic Circuit



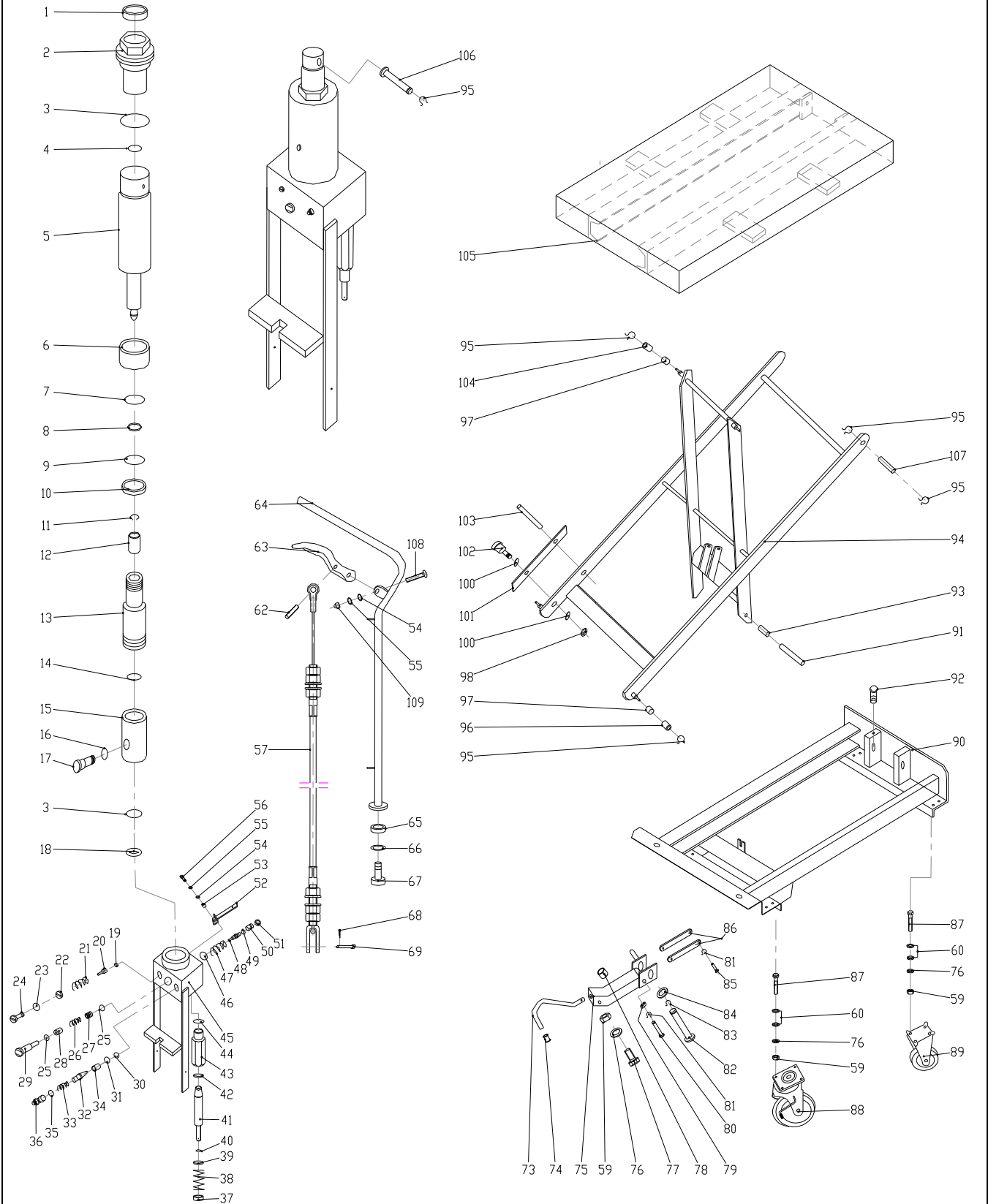
BS15



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|---------------------|-----|-----|--------------------------|-----|
| 1 | Table pair | 1 | 48 | Spring washer | 1 |
| 2 | Guide roller | 4 | 49 | Washer | 1 |
| 3 | Scissors | 1 | 50 | Bushing | 1 |
| 4 | Snap ring | 6 | 51 | Steel ball | 1 |
| 5 | Link pin | 4 | 52 | Steel ball holder | 1 |
| 6 | Safety pin | 1 | 53 | Relief spring | 1 |
| 7 | Hex bolt | 16 | 54 | Regulating pressure plug | 1 |
| 8 | Washer | 18 | 55 | O ring | 1 |
| 9 | Frame pair | 1 | 56 | Relief plug | 1 |
| 10 | Front wheel | 2 | 57 | O ring | 1 |
| 11 | Spring washer | 19 | 58 | Plug | 1 |
| 12 | Hex. nut | 18 | 59 | Rear wheel | 2 |
| 13 | Piston rod | 1 | 60 | Handle pin | 4 |
| 14 | Dust seal | 1 | 61 | Handle lock spring L | 1 |
| 15 | O ring | 2 | 61A | Handle lock spring R | 1 |
| 16 | Back up ring | 1 | 62 | Bushing | 2 |
| 17 | Cylinder pair | 1 | 63 | Snap ring | 4 |
| 18 | Spring seat | 1 | 64 | Pedal holder | 1 |
| 19 | Spring | 1 | 65 | Snap ring | 2 |
| 20 | Seal ring | 1 | 66 | Pressure roller | 1 |
| 21 | Joint | 1 | 67 | Pressure roller pin | 1 |
| 22 | Flow control joint | 1 | 68 | Pedal Pivot Pin | 1 |
| 23 | O ring | 1 | 69 | Hex. bolt | 2 |
| 24 | Adjust casing | 1 | 70 | Elbow | 2 |
| 25 | Spring seat | 1 | 71 | Oil return hose | 1 |
| 26 | Valve spring | 1 | 72 | Rubber bushing | 1 |
| 27 | Conical valve | 1 | 73 | High pressure hose | 1 |
| 28 | Valve seat | 1 | 74 | Seal ring | 6 |
| 29 | O ring | 1 | 75 | Adaptor | 2 |
| 30 | Steel ball ϕ 7 | 1 | 76 | Pedal Pair | 1 |
| 31 | Dust seal | 1 | 77 | Pedal rubber | 1 |
| 32 | Y ring | 1 | 78 | Hex bolt | 1 |
| 33 | Plunger | 1 | 79 | Lock bar | 1 |
| 34 | Pump spring B | 1 | 80 | Hex. bolt | 1 |
| 35 | Pump spring A | 1 | 81 | Cylinder pivot pin | 1 |
| 36 | Pump bass | 1 | 82 | Grease fitting | 2 |
| 37 | Net | 1 | 83 | Piston head pin | 1 |
| 38 | Washer | 1 | 84 | Roller chain | 1 |
| 39 | Back valve spring | 2 | 85 | Valve rod II | 1 |
| 40 | O-ring | 1 | 86 | Nut M6 | 1 |
| 41 | Plug | 1 | 87 | Handle pair | 1 |

| | | | | | |
|----|------------------------|--|----|--------------|---|
| 42 | O ring | 1 | 88 | Valve rod I | 1 |
| 43 | Steering bush | 1 | 89 | Control link | 1 |
| 44 | O ring | 1 | 90 | Roll pin | 1 |
| 45 | Discharge lever | 1 | 91 | Roll pin | 1 |
| 46 | Valve arm | 1 | 92 | Check ring | 2 |
| 47 | Socket head screw | 1 | | | |
| | | | | | |
| A | Cylinder Assembly | 13-21 | | | |
| B | Pump Unit Assembly | 64-78 | | | |
| C | Pump Unit Sub Assembly | 22-58 | | | |
| D | Handle Assembly | 84-91 | | | |
| E | Pedal Assembly | 76-77 | | | |
| F | Seal kit ass'y | 14,15,20,23,29,31,32,40,42,44,55,57,74 | | | |

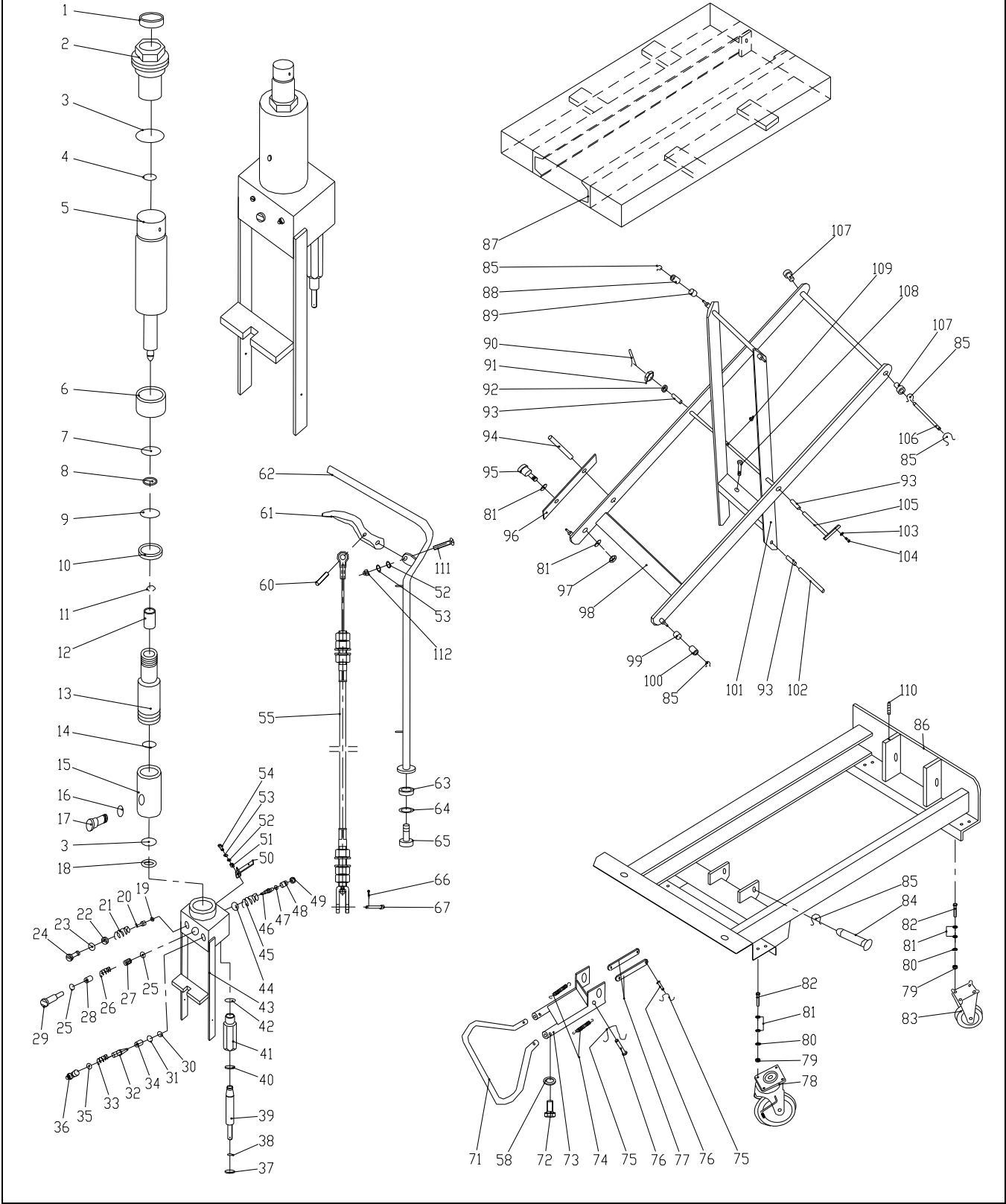
BS25



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|--------------------------------|-----|-----|----------------------------|-----|
| 1. | Seal cover d30xD42x7 | 1 | 53. | Lever bushing | 1 |
| 2. | Cylinder cover | 1 | 54. | Washer 6 | 2 |
| 3. | O-ring d63x2.65 | 2 | 55. | Spring washer 6 | 1 |
| 4. | O-ring d30x3.55 | 1 | 56. | Hex soch screw M6x16 | 1 |
| 5. | Piston rod | 1 | 57. | Put pressure assembly line | 1 |
| 6. | Spacing casing | 1 | 59. | Nut M8 | 17 |
| 7. | Guide ringδ1.5x15 | 1 | 60. | Washer 8 | 30 |
| 8. | O-ring D20x2.4 | 1 | 62. | Spring pin | 1 |
| 9. | Seal ring d34xD40x4.5 | 1 | 63. | Control link | 1 |
| 10. | Piston rod retainer | 1 | 64. | Handle | 1 |
| 11. | Retaining ring 18 | 1 | 65. | Spacing casing | 2 |
| 12. | Piston | 1 | 66. | Spring washer 12 | 2 |
| 13. | Cylinder | 1 | 67. | Hexagon head stud M12x30 | 2 |
| 14. | Cylinder washer | 1 | 68. | Split pin | 1 |
| 15. | Reservior | 1 | 69. | Pin | 1 |
| 16. | O-ring d10x2.65 | 1 | 73. | Pedal bent pipe | 1 |
| 17. | Filler screw | 1 | 74. | Pedal rubber | 1 |
| 18. | Washer for reservior | 1 | 75. | Shake link | 1 |
| 19. | Steel ball 5 | 1 | 76. | Spring washer 8 | 17 |
| 20. | Spring base | 1 | 77. | Hex soch screw | 1 |
| 21. | Regulating pressure spring | 1 | 78. | Buffer mat | 1 |
| 22. | Regulating pressure screw | 1 | 79. | Partition set | 1 |
| 23. | O-ring d7.1x1.8 | 1 | 80. | Pin axle | 1 |
| 24. | End cover | 1 | 81. | Retainer 10 | 2 |
| 25. | O-ring d15x2.65 | 2 | 82. | Pin axle | 1 |
| 26. | Regulating speed spring | 1 | 83. | Retainer 20 | 1 |
| 27. | Regulating speed slide valve | 1 | 84. | Washer | 1 |
| 28. | Regulating speed spring casing | 1 | 85. | Pin axle | 1 |
| 29. | Regulating speed valve casing | 1 | 86. | Link | 2 |
| 30. | Steel ball 7 | 1 | 87. | Hex soch screw M8x25 | 16 |
| 31. | O-ring d6.9x1.8 | 1 | 88. | Wheel | 2 |
| 32. | Conical valve | 1 | 89. | Wheel | 2 |
| 33. | Check valve spring | 1 | 90. | Chassis | 1 |
| 34. | Check valve casing | 1 | 91. | Pin axle | 1 |
| 35. | O-ring d10x1.8 | 1 | 92. | Bolt M6x8 | 1 |
| 36. | Check valve screw | 1 | 93. | Bushing | 2 |
| 37. | Spring base | 1 | 94. | Scissors lever | 1 |
| 38. | Spring | 1 | 95. | Retainer 16 | 9 |
| 39. | Seal cover d18xD25x4.5 | 1 | 96. | Roller for chassis | 2 |
| 40. | O-ring d18x2.65 | 1 | 97. | Bushing | 2 |
| 41. | Pump plunger | 1 | 98. | Nut M10 | 2 |

| | | | | | |
|-----|-----------------------|--|------|-------------------|---|
| 42. | Y-ring | 1 | 100. | Washer 10 | 4 |
| 43. | Pump body for plunger | 1 | 101. | Safety rod | 2 |
| 44. | O-ring d28x3.1 | 1 | 102. | Screw bolt M10x40 | 2 |
| 45. | Pump body | 1 | 103. | Spring pin 8x30 | 2 |
| 46. | O-ring d10.6x2.65 | 1 | 104. | Roller for table | 2 |
| 47. | Spring | 1 | 105. | Table | 1 |
| 48. | Reflux rod | 1 | 106. | Pin axle | 1 |
| 49. | O-ring d4x1.8 | 1 | 107. | Pin axle | 2 |
| 50. | Guide casing | 1 | 108. | Screw M6x30 | 1 |
| 51. | Protect casing | 1 | 109. | Cover-type nut M6 | 1 |
| 52. | Lever | 1 | | | |
| A | Pump ass'y | 1~51 | | | |
| B | Swivel wheel ass'y | 88 | | | |
| C | Front wheel ass'y | 89 | | | |
| D | Seal kit ass'y | 1,3,4,7,8,9,16,23,25,31,35,39,40,42,44,46,49 | | | |
| E | Handle ass'y | 54,55,57,62,63,64,68,69,108,109 | | | |

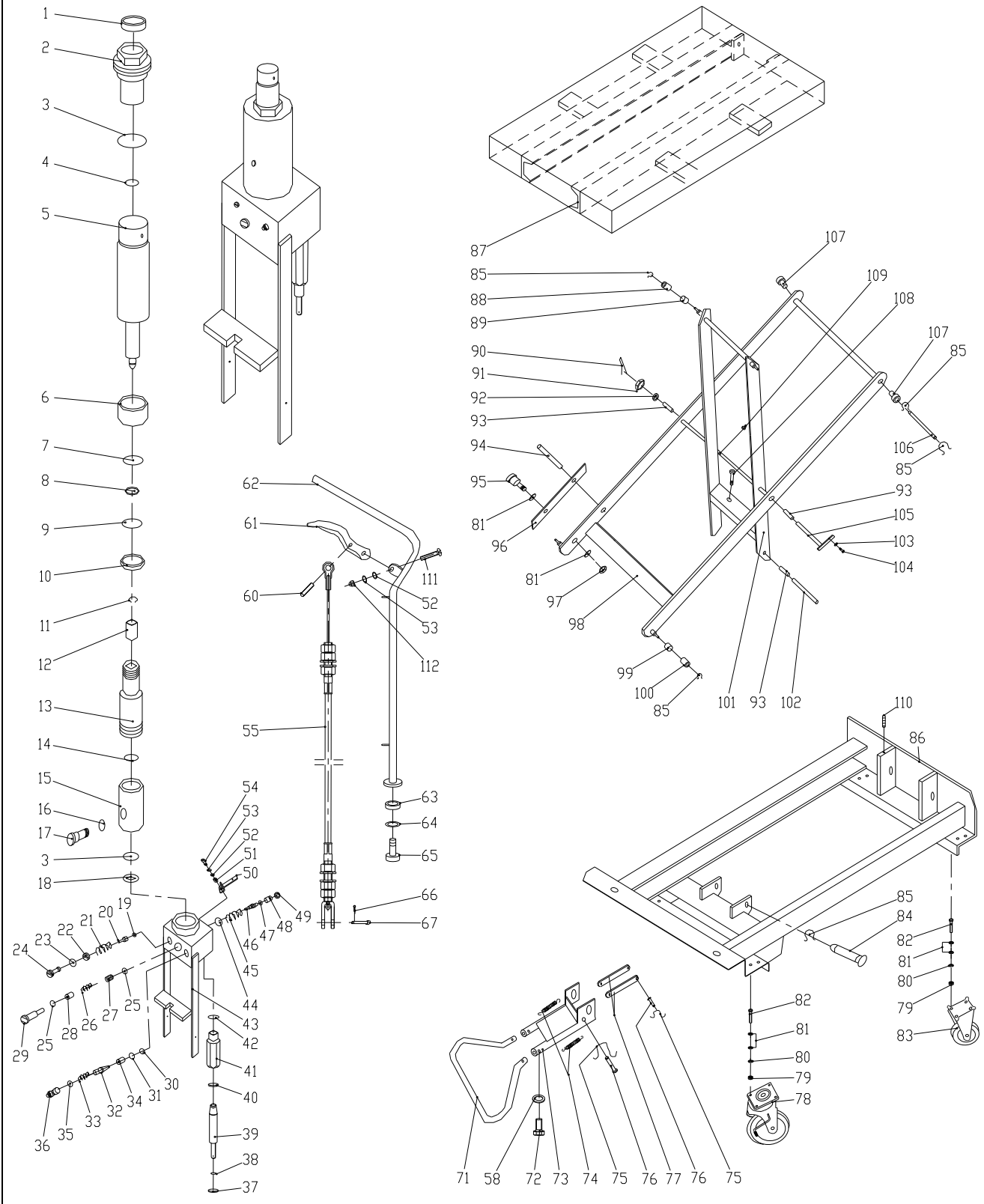
BS50



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|----------------------------------|-----|------|----------------------------|-----|
| 1. | Seal cover d30xD42x7 | 1 | 54. | Hex soch screw M6x16 | 1 |
| 2. | Cylinder cover | 1 | 55. | Put pressure assembly line | 1 |
| 3. | O-ring d63x2.65 | 2 | 58. | Washer 8 | 2 |
| 4. | O-ring d30x3.55 | 1 | 60. | Spring pin 5x14 | 1 |
| 5. | Piston Rod | 1 | 61. | Control link | 1 |
| 6. | Spacing casing | 1 | 62. | Handle | 1 |
| 7. | Guidering $\delta 1.5 \times 15$ | 1 | 63. | Spacing casing | 2 |
| 8. | O-ring D20x2.4 | 1 | 64. | Spring washer 12 | 2 |
| 9. | Seal ring d34xD40x4.5 | 1 | 65. | Hex screw M12x30 | 2 |
| 10. | Retainer for piston rod | 1 | 66. | Split pin 2x15 | 1 |
| 11. | Spacing retainer 18 | 1 | 67. | Pin | 1 |
| 12. | Piston | 1 | 71. | Pedal bent pipe | 1 |
| 13. | Cylinder | 1 | 72. | Hex soch screw M8x20 | 2 |
| 14. | Washer for cylinder | 1 | 73. | Shake link | 1 |
| 15. | Reservior | 1 | 74. | Spring | 2 |
| 16. | O-ring d10x2.65 | 1 | 75. | Retainer 10 | 2 |
| 17. | Filler screw | 1 | 76. | Pin axle | 2 |
| 18. | Washer for reservior | 1 | 77. | Link | 2 |
| 19. | Steel ball 5 | 1 | 78. | Wheel | 2 |
| 20. | Spring base | 1 | 79. | Nut M10 | 16 |
| 21. | Regulating pressure spring | 1 | 80. | Spring washer 10 | 16 |
| 22. | Regulating pressure screw | 1 | 81. | Washer 10 | 36 |
| 23. | O-ring d7.1x1.8 | 1 | 82. | Hex soch screw M10x25 | 16 |
| 24. | End cover | 1 | 83. | Wheel | 2 |
| 25. | O-ring d15x2.65 | 2 | 84. | axle | 1 |
| 26. | Regulating speed spring | 1 | 85. | Retainer 20 | 7 |
| 27. | Regulating slide-valve | 1 | 86. | Chassis | 1 |
| 28. | Regulating speed spring casing | 1 | 87. | Table | 1 |
| 29. | Regulating speed slide-casing | 1 | 88. | Roller for table | 2 |
| 30. | Steel ball 7 | 1 | 89. | Bushing | 2 |
| 31. | O-ring d6.9x1.8 | 1 | 90. | Split pin 3.2x26 | 1 |
| 32. | Conical valve | 1 | 91. | Nut M16 | 1 |
| 33. | Spring | 1 | 92. | Washing | 1 |
| 34. | Check valve casing | 1 | 93. | Bushing | 4 |
| 35. | O-ring d10x1.8 | 1 | 94. | Spring pin 8x30 | 2 |
| 36. | Check valve screw | 1 | 95. | Screw bolt M10x40 | 2 |
| 37. | Seal cover d18xD25x4.5 | 1 | 96. | Safety rod | 2 |
| 38. | O-ring d18x2.65 | 1 | 97. | Nut M10 | 2 |
| 39. | Pump plunger | 1 | 98. | External scissors lever | 1 |
| 40. | Y-ring | 1 | 99. | Bushing | 2 |
| 41. | Pump body for plunger | 1 | 100. | Roller for chassis | 2 |

| | | | | | |
|-----|--------------------|--|------|-------------------------|---|
| 42. | O-ring D28x3.1 | 1 | 101. | Internal scissors lever | 1 |
| 43. | Pump body | 1 | 102. | Pin axle for chassis | 1 |
| 44. | O-ring d10.6x2.65 | 1 | 103. | Spring washer 8 | 1 |
| 45. | Spring | 1 | 104. | Hex screw M8x16 | 1 |
| 46. | Reflux rod | 1 | 105. | Pin axle for scissors | 1 |
| 47. | O-ring d4x1.8 | 1 | 106. | Pin axle for table | 1 |
| 48. | Guide casing | 1 | 107. | Bushing | 2 |
| 49. | Protect casing | 1 | 108. | Bolt M8x12 | 1 |
| 50. | Lever | 1 | 109. | Oil cup | 2 |
| 51. | Lever bushing | 1 | 110. | Bolt M6x8 | 1 |
| 52. | Washer 6 | 2 | 111. | Screw M6x30 | 1 |
| 53. | Spring washer 6 | 2 | 112. | Cover-type nut M6 | 1 |
| | | | | | |
| A | Pump ass'y | 1~49 | | | |
| B | Swivel wheel ass'y | 78 | | | |
| C | Front wheel ass'y | 83 | | | |
| D | Sealkit ass'y | 1,3,4,7,8,9,16,23,25,31,35,37,38,40,42,44,47 | | | |
| E | Handle ass'y | 52,53,55,60,61,62,66,67,111,112 | | | |

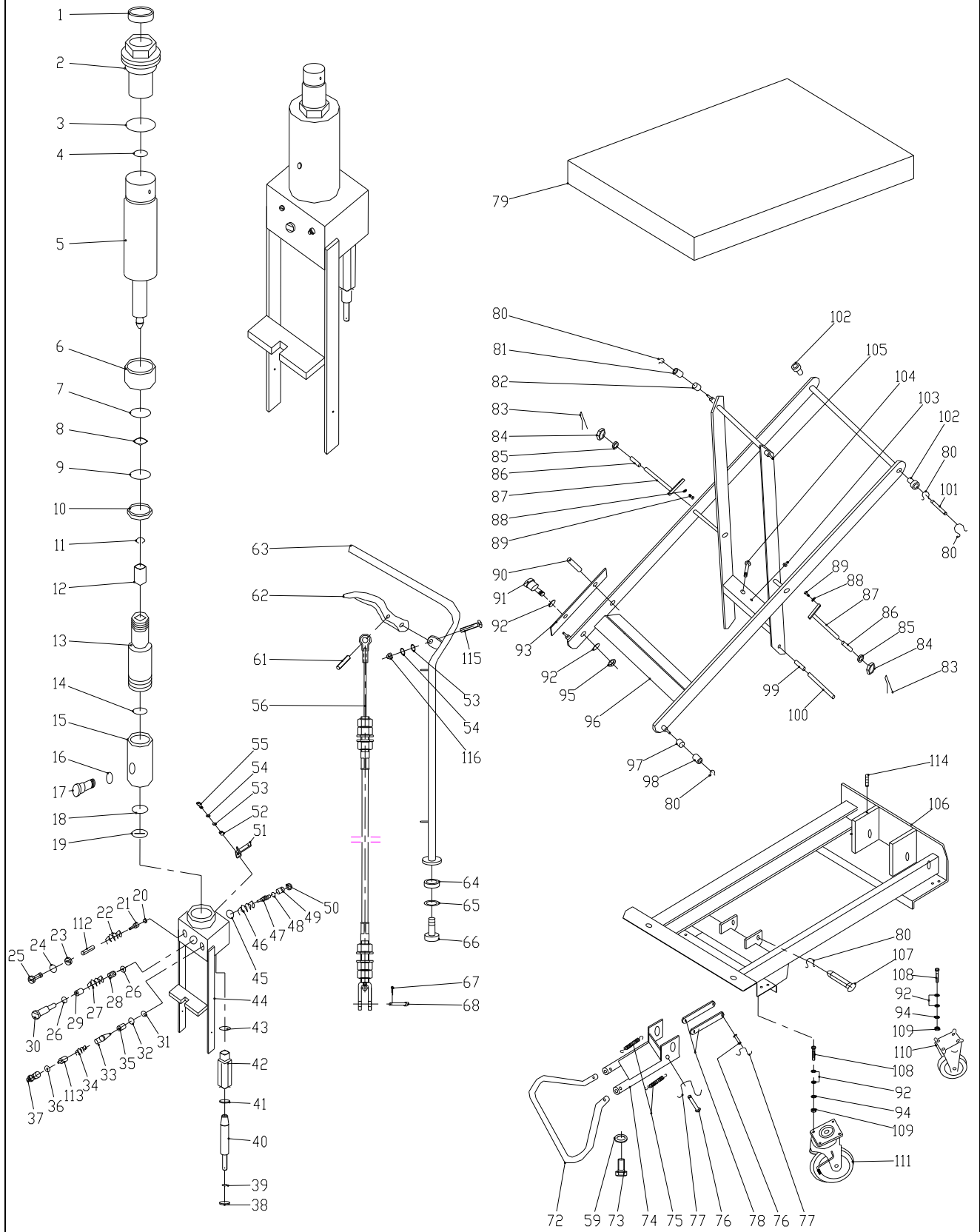
BS75



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|--------------------------------|-----|------|----------------------------|-----|
| 1. | Seal cover d35xD43.5x5 | 1 | 56. | Put pressure assembly line | 1 |
| 2. | Cylinder cover | 1 | 59. | Washer 8 | 2 |
| 3. | O-ring d75x3.55 | 1 | 61. | Spring pin | 1 |
| 4. | O-ring d35.5x3.55 | 1 | 62. | Control link | 1 |
| 5. | Piston Rod | 1 | 63. | Handle | 1 |
| 6. | Spacing casing | 1 | 64. | Spacing casing | 2 |
| 7. | Guideing $\delta 2 \times 15$ | 1 | 65. | Spring washer 12 | 2 |
| 8. | O-ring D20x2.4 | 1 | 66. | Hex screw M12x30 | 2 |
| 9. | Seal ring d39xD45x4.5 | 1 | 67. | Split pin 2x15 | 1 |
| 10. | Retainer for piston rod | 1 | 68. | Pin | 1 |
| 11. | Spacing retainer 18 | 1 | 72. | Pedal bent pipe | 1 |
| 12. | Piston | 1 | 73. | Hex screw M8x20 | 2 |
| 13. | Cylinder | 1 | 74. | Shake link | 1 |
| 14. | Washer for cylinder | 1 | 75. | Spring | 2 |
| 15. | Reservior | 1 | 76. | Pin axle | 2 |
| 16. | O-ring d10x2.65 | 1 | 77. | Retainer 10 | 2 |
| 17. | Filler screw | 1 | 78. | Link | 2 |
| 18. | O-ring d75x2.65 | 1 | 79. | Table | 1 |
| 19. | Washer for reservior | 1 | 80. | Retainer 20 | 7 |
| 20. | Steel ball 5 | 1 | 81. | Roller for table | 2 |
| 21. | Spring base | 1 | 82. | Bushing | 2 |
| 22. | Regulating pressure spring | 1 | 83. | Split pin 3.2x26 | 2 |
| 23. | Regulating pressure screw | 1 | 84. | Nut M16 | 2 |
| 24. | O-ring d7.1x1.8 | 1 | 85. | Washing | 2 |
| 25. | End cover | 1 | 86. | Bushing | 2 |
| 26. | O-ring d15x2.65 | 2 | 87. | Pin axle for scissors | 2 |
| 27. | Regulating speed spring | 1 | 88. | Spring washer 8 | 2 |
| 28. | Regulating slide-valve | 1 | 89. | Hex screw M8x16 | 2 |
| 29. | Regulating speed spring casing | 1 | 90. | Spring pin 8x30 | 2 |
| 30. | Regulating speed slide-casing | 1 | 91. | Screw bolt M10x40 | 2 |
| 31. | Steel ball 7 | 1 | 92. | Washer 10 | 36 |
| 32. | O-ring d6.9x1.8 | 1 | 93. | Safety rod | 2 |
| 33. | Conical valve | 1 | 94. | Spring washer 10 | 16 |
| 34. | Spring | 1 | 95. | Nut M10 | 2 |
| 35. | Check valve casing | 1 | 96. | External scissors lever | 1 |
| 36. | O-ring d10x1.8 | 1 | 97. | Bushing | 2 |
| 37. | Check valve screw | 1 | 98. | Roller for chassis | 2 |
| 38. | Seal cover d18xD25x4.5 | 1 | 99. | Bushing | 2 |
| 39. | O-ring d18x2.65 | 1 | 100. | Pin axle for chassis | 1 |
| 40. | Pump plunger | 1 | 101. | Pin axle for table | 1 |
| 41. | Y-ring d10xD18x6 | 1 | 102. | Bushing | 2 |

| | | | | | |
|-----|-----------------------|--|------|-------------------------|----|
| 42. | Pump body for plunger | 1 | 103. | Oil cup | 1 |
| 43. | O-ring D28x3.1 | 1 | 104. | Bolt M8x12 | 1 |
| 44. | Pump body | 1 | 105. | Internal scissors lever | 1 |
| 45. | O-ring d10.6x2.65 | 1 | 106. | Chassis | 1 |
| 46. | Spring | 1 | 107. | axle | 1 |
| 47. | Reflux rod | 1 | 108. | Hex soch screw M10x25 | 16 |
| 48. | O-ring d4x1.8 | 1 | 109. | Nut M10 | 16 |
| 49. | Guide casing | 1 | 110. | Wheel | 2 |
| 50. | Protect casing | 1 | 111. | Wheel | 2 |
| 51. | Lever | 1 | 112. | Rod | 1 |
| 52. | Lever bushing | 1 | 113. | Rod | 1 |
| 53. | Washer 6 | 2 | 114. | Bolt M6x8 | 1 |
| 54. | Spring washer 6 | 2 | 115. | Screw M6x30 | 1 |
| 55. | Hex soch screw M6x16 | 1 | 116. | Cover-type nut M6 | 1 |
| | | | | | |
| A | Pump ass'y | 1~50,112,113 | | | |
| B | Swivel wheel ass'y | 111 | | | |
| C | Front wheel ass'y | 110 | | | |
| D | Sealkit ass'y | 1,3,4,7,8,9,16,18,24,26,32,36,39,41,43,45,48 | | | |
| E | Handle ass'y | 53,54,56,61,62,63,67,68,115,116 | | | |

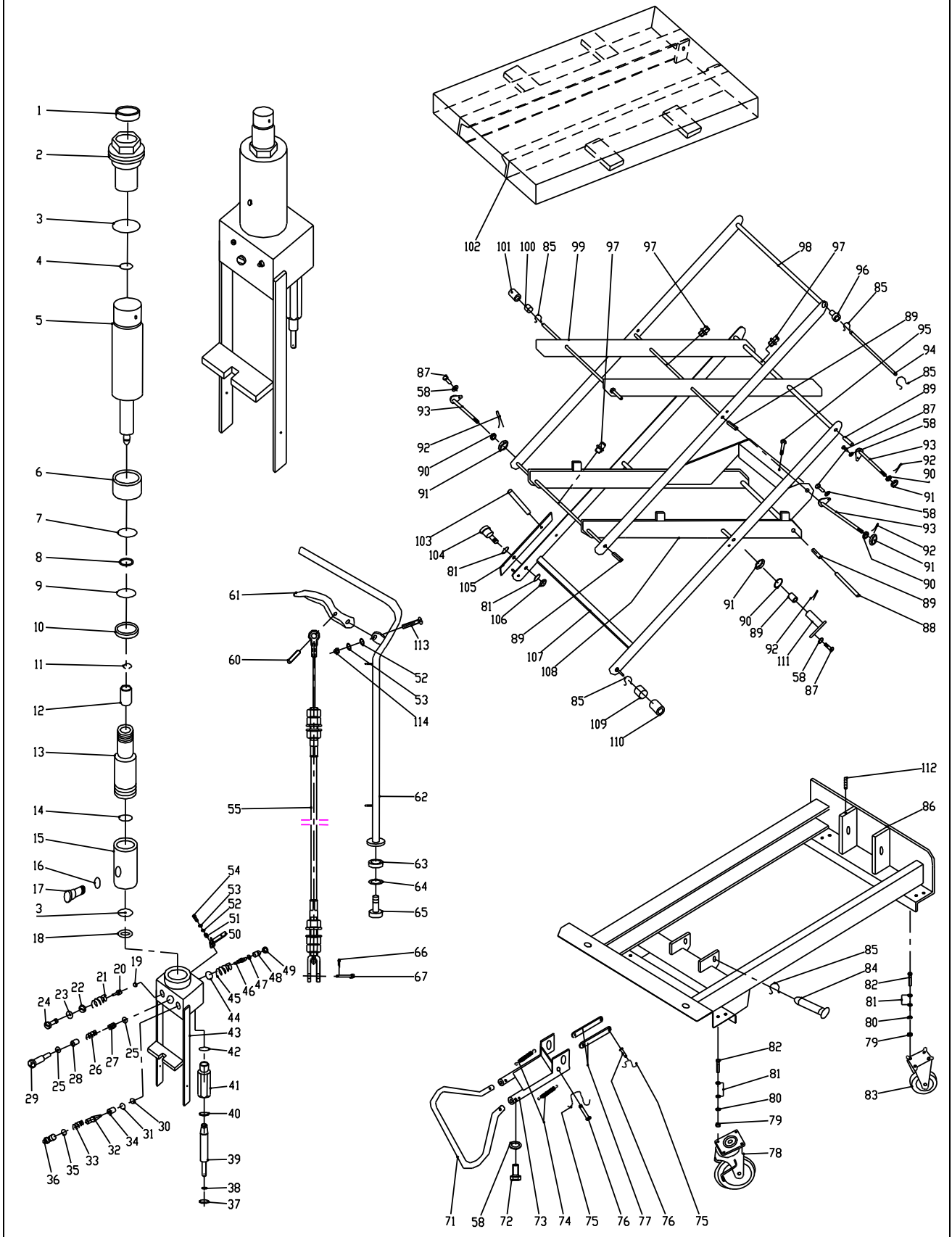
BS100



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|--------------------------------|-----|------|----------------------------|-----|
| 1. | Seal cover d35xD43.5x5 | 1 | 56. | Put pressure assembly line | 1 |
| 2. | Cylinder cover | 1 | 59. | Washer 8 | 2 |
| 3. | O-ring d75x3.55 | 1 | 61. | Spring pin | 1 |
| 4. | O-ring d35.5x3.55 | 1 | 62. | Control link | 1 |
| 5. | Piston Rod | 1 | 63. | Handle | 1 |
| 6. | Spacing casing | 1 | 64. | Spacing casing | 2 |
| 7. | Guideing δ2×15 | 1 | 65. | Spring washer 12 | 2 |
| 8. | O-ring D20x2.4 | 1 | 66. | Hex screw M12x30 | 2 |
| 9. | Seal ring d39xD45x4.5 | 1 | 67. | Split pin 2x15 | 1 |
| 10. | Retainer for piston rod | 1 | 68. | Pin | 1 |
| 11. | Spacing retainer 18 | 1 | 72. | Pedal bent pipe | 1 |
| 12. | Piston | 1 | 73. | Hex screw M8x20 | 2 |
| 13. | Cylinder | 1 | 74. | Shake link | 1 |
| 14. | Washer for cylinder | 1 | 75. | Spring | 2 |
| 15. | Reservior | 1 | 76. | Pin axle | 2 |
| 16. | O-ring d10x2.65 | 1 | 77. | Retainer 10 | 2 |
| 17. | Filler screw | 1 | 78. | Link | 2 |
| 18. | O-ring d75x2.65 | 1 | 79. | Table | 1 |
| 19. | Washer for reservior | 1 | 80. | Retainer 20 | 7 |
| 20. | Steel ball 5 | 1 | 81. | Roller for table | 2 |
| 21. | Spring base | 1 | 82. | Bushing | 2 |
| 22. | Regulating pressure spring | 1 | 83. | Split pin 3.2x26 | 2 |
| 23. | Regulating pressure screw | 1 | 84. | Nut M16 | 2 |
| 24. | O-ring d7.1x1.8 | 1 | 85. | Washing | 2 |
| 25. | End cover | 1 | 86. | Bushing | 2 |
| 26. | O-ring d15x2.65 | 2 | 87. | Pin axle for scissors | 2 |
| 27. | Regulating speed spring | 1 | 88. | Spring washer 8 | 2 |
| 28. | Regulating slide-valve | 1 | 89. | Hex screw M8x16 | 2 |
| 29. | Regulating speed spring casing | 1 | 90. | Spring pin 8x30 | 2 |
| 30. | Regulating speed slide-casing | 1 | 91. | Screw bolt M10x40 | 2 |
| 31. | Steel ball 7 | 1 | 92. | Washer 10 | 36 |
| 32. | O-ring d6.9x1.8 | 1 | 93. | Safety rod | 2 |
| 33. | Conical valve | 1 | 94. | Spring washer 10 | 16 |
| 34. | Spring | 1 | 95. | Nut M10 | 2 |
| 35. | Check valve casing | 1 | 96. | External scissors lever | 1 |
| 36. | O-ring d10x1.8 | 1 | 97. | Bushing | 2 |
| 37. | Check valve screw | 1 | 98. | Roller for chassis | 2 |
| 38. | Seal cover d18xD25x4.5 | 1 | 99. | Bushing | 2 |
| 39. | O-ring d18x2.65 | 1 | 100. | Pin axle for chassis | 1 |
| 40. | Pump plunger | 1 | 101. | Pin axle for table | 1 |

| | | | | | |
|-----|-----------------------|--|------|-------------------------|----|
| 41. | Y-ring d10×D18×6 | 1 | 102. | Bushing | 2 |
| 42. | Pump body for plunger | 1 | 103. | Oil cup | 1 |
| 43. | O-ring D28×3.1 | 1 | 104. | Bolt M8×12 | 1 |
| 44. | Pump body | 1 | 105. | Internal scissors lever | 1 |
| 45. | O-ring d10.6×2.65 | 1 | 106. | Chassis | 1 |
| 46. | Spring | 1 | 107. | axle | 1 |
| 47. | Reflux rod | 1 | 108. | Hex soch screw M10×25 | 16 |
| 48. | O-ring d4×1.8 | 1 | 109. | Nut M10 | 16 |
| 49. | Guide casing | 1 | 110. | Wheel | 2 |
| 50. | Protect casing | 1 | 111. | Wheel | 2 |
| 51. | Lever | 1 | 112. | Rod | 1 |
| 52. | Lever bushing | 1 | 113. | Rod | 1 |
| 53. | Washer 6 | 2 | 114. | Bolt M6×8 | 1 |
| 54. | Spring washer 6 | 2 | 115. | Screw M6×30 | 1 |
| 55. | Hex soch screw M6×16 | 1 | 116. | Cover-type nut M6 | 1 |
| | | | | | |
| A | Pump ass'y | 1~50,112,113 | | | |
| B | Swivel wheel ass'y | 111 | | | |
| C | Front wheel ass'y | 110 | | | |
| D | Sealkit ass'y | 1,3,4,7,8,9,16,18,24,26,32,36,39,41,43,45,48 | | | |
| E | Handle ass'y | 53,54,56,61,62,63,67,68,115,116 | | | |

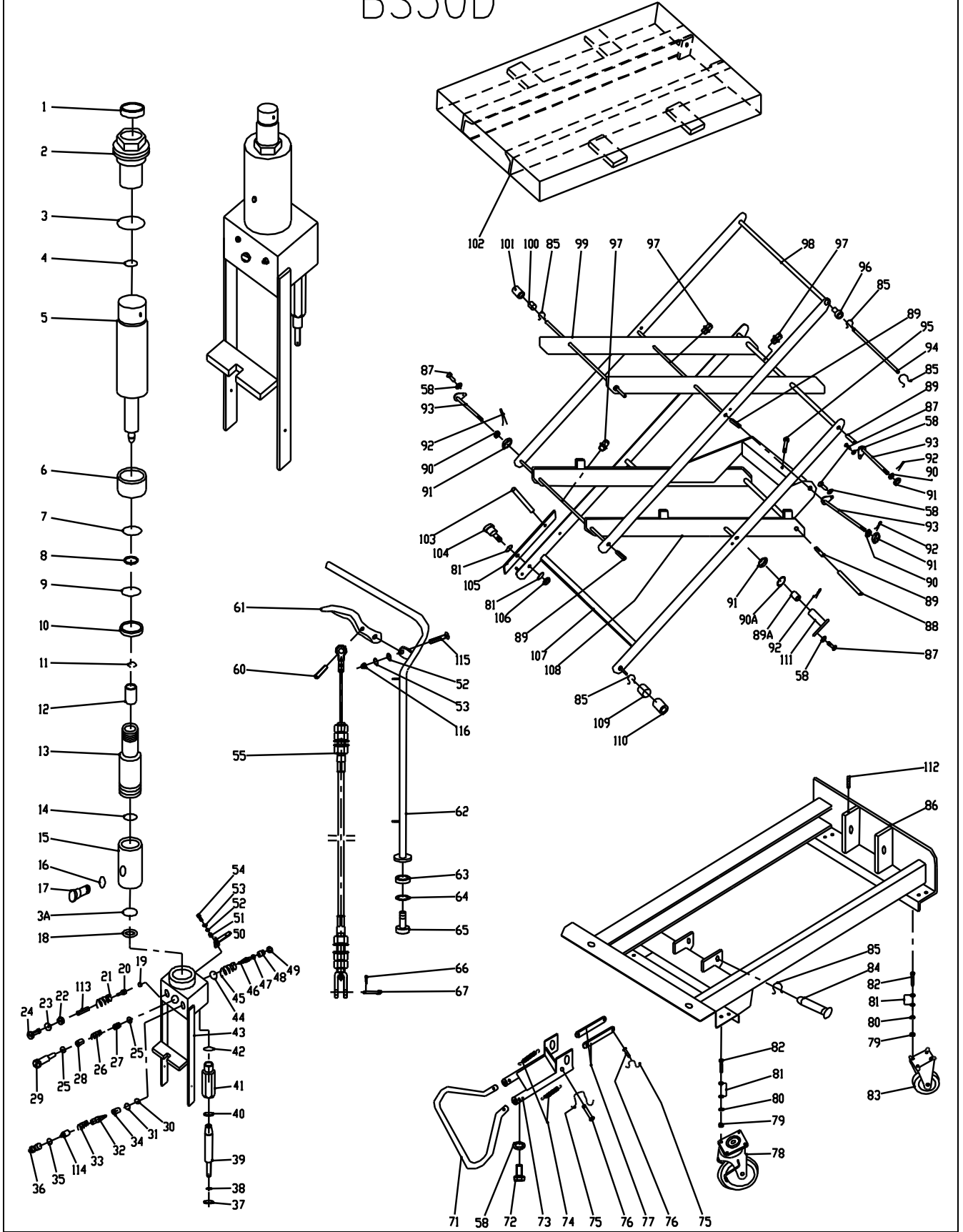
BS30D



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|---------------------------------|-----|------|-----------------------------------|-----|
| 1. | Seal cover d30xD42x7 | 1 | 55. | Put pressure assembly line | 1 |
| 2. | Cylinder cover | 1 | 58. | Washer 8 | 2 |
| 3. | O-ring d63x2.65 | 2 | 60. | Spring pin | 1 |
| 4. | O-ring d30x3.55 | 1 | 61. | Control link | 1 |
| 5. | Piston Rod | 1 | 62. | Handle | 1 |
| 6. | Spacing casing | 1 | 63. | Spacing casing | 2 |
| 7. | Guideing $\delta 1.5 \times 15$ | 1 | 64. | Spring washer 12 | 2 |
| 8. | O-ring D20x2.4 | 1 | 65. | Hex screw M12x30 | 2 |
| 9. | Seal ring d34xD40x4.5 | 1 | 66. | Split pin 2x15 | 1 |
| 10. | Retainer for piston rod | 1 | 67. | Pin | 1 |
| 11. | Spacing retainer 18 | 1 | 71. | Pedal bent pipe | 1 |
| 12. | Piston | 1 | 72. | Hex soch screw M8x20 | 2 |
| 13. | Cylinder | 1 | 73. | Shake link | 1 |
| 14. | Washer for cylinder | 1 | 74. | Spring | 2 |
| 15. | Reservior | 1 | 75. | Retainer 10 | 2 |
| 16. | O-ring d10x2.65 | 1 | 76. | Pin axle | 2 |
| 17. | Filler screw | 1 | 77. | Link | 2 |
| 18. | Washer for reservior | 1 | 78. | Wheel | 2 |
| 19. | Steel ball 5 | 1 | 79. | Nut M10 | 16 |
| 20. | Spring base | 1 | 80. | Spring washer 10 | 16 |
| 21. | Regulating pressure spring | 1 | 81. | Washer 10 | 36 |
| 22. | Regulating pressure screw | 1 | 82. | Hex soch screw M10x25 | 16 |
| 23. | O-ring d7.1x1.8 | 1 | 83. | Wheel | 2 |
| 24. | End cover | 1 | 84. | axle | 1 |
| 25. | O-ring d15x2.65 | 2 | 85. | Retainer 20 | 7 |
| 26. | Regulating speed spring | 1 | 86. | Chassis | 1 |
| 27. | Regulating slide-valve | 1 | 87. | Hex screw M8x16 | 5 |
| 28. | Regulating speed spring casing | 1 | 88. | Pin axle for chassis | 1 |
| 29. | Regulating speed slide-casing | 1 | 89. | Bushing | 10 |
| 30. | Steel ball 7 | 1 | 90. | Washing | 5 |
| 31. | O-ring d6.9x1.8 | 1 | 91. | Slotting nut M16x1.5 | 5 |
| 32. | Conical valve | 1 | 92. | Split pin 3.2x26 | 5 |
| 33. | Spring | 1 | 93. | Pin axle | 3 |
| 34. | Check valve casing | 1 | 94. | Pin axle for table | 1 |
| 35. | O-ring d10x1.8 | 1 | 95. | Hex socket set screw M8x12 | 1 |
| 36. | Check valve screw | 1 | 96. | Bushing | 2 |
| 37. | Seal cover d18xD25x4.5 | 1 | 97. | Oil cup | 4 |
| 38. | O-ring d18x2.65 | 1 | 98. | External scissors lever for table | 1 |
| 39. | Pump plunger | 1 | 99. | Internal scissors lever for table | 1 |
| 40. | Y-ring | 1 | 100. | Bushing | 2 |
| 41. | Pump body for plunger | 1 | 101. | Roller for table | 2 |

| | | | | | |
|-----|----------------------|---|------|-------------------------------------|---|
| 42. | O-ring D28x3.1 | 1 | 102. | Table | 1 |
| 43. | Pump body | 1 | 103. | Spring pin 8x30 | 2 |
| 44. | O-ring d10.6x2.65 | 1 | 104. | Screw bolt M10x40 | 2 |
| 45. | Spring | 1 | 105. | Safety rod | 2 |
| 46. | Reflux rod | 1 | 106. | Nut M10 | 2 |
| 47. | O-ring d4x1.8 | 1 | 107. | External scissors lever for chassis | 1 |
| 48. | Guide casing | 1 | 108. | Internal scissors lever for chassis | 1 |
| 49. | Protect casing | 1 | 109. | Bushing | 2 |
| 50. | Lever | 1 | 110. | Roller for chassis | 2 |
| 51. | Lever bushing | 1 | 111. | Pin axle | 2 |
| 52. | Washer 6 | 2 | 112. | Bolt M6x8 | 1 |
| 53. | Spring washer 6 | 2 | 113. | Screw M6x30 | 1 |
| 54. | Hex soch screw M6x16 | 1 | 114. | Cover-type nut M6 | 1 |
| | | | | | |
| A | Pump ass'y | 1~49,113,114 | | | |
| B | Swivel wheel ass'y | 78 | | | |
| C | Front wheel ass'y | 83 | | | |
| D | Sealkit ass'y | 1,3,3A,4,7,8,9,16,23,25,31,35,37,38,40,42,44,47 | | | |
| E | Handle ass'y | 52,53,55,60,61,62,66,67,115,116 | | | |

BS50D



| NO. | DESCRIPTION | Qty | NO. | DESCRIPTION | Qty |
|-----|--------------------------------|-----|------|-----------------------------------|-----|
| 1. | Seal cover d35xD43.5x5 | 1 | 60. | Spring pin | 1 |
| 2. | Cylinder cover | 1 | 61. | Control link | 1 |
| 3. | O-ring d75x3.55 | 1 | 62. | Handle | 1 |
| 3A | O-ring d75x2.65 | 1 | 63. | Spacing casing | 2 |
| 4. | O-ring d35.5x3.55 | 1 | 64. | Spring washer 12 | 2 |
| 5. | Piston Rod | 1 | 65. | Hex screw M12x30 | 2 |
| 6. | Spacing casing | 1 | 66. | Split pin 2x15 | 1 |
| 7. | Guideing $\delta 2 \times 15$ | 1 | 67. | Pin | 1 |
| 8. | O-ring D20x2.4 | 1 | 71. | Pedal bent pipe | 1 |
| 9. | Seal ring d39xD45x4.5 | 1 | 72. | Hex soch screw M8x20 | 2 |
| 10. | Retainer for piston rod | 1 | 73. | Shake link | 1 |
| 11. | Spacing retainer 18 | 1 | 74. | Spring | 2 |
| 12. | Piston | 1 | 75. | Retainer 10 | 2 |
| 13. | Cylinder | 1 | 76. | Pin axle | 2 |
| 14. | Washer for cylinder | 1 | 77. | Link | 2 |
| 15. | Reservior | 1 | 78. | Wheel | 2 |
| 16. | O-ring d10x2.65 | 1 | 79. | Nut M10 | 16 |
| 17. | Filler screw | 1 | 80. | Spring washer 10 | 16 |
| 18. | Washer for reservior | 1 | 81. | Washer 10 | 36 |
| 19. | Steel ball 5 | 1 | 82. | Hex soch screw M10x25 | 16 |
| 20. | Spring base | 1 | 83. | Wheel | 2 |
| 21. | Regulating pressure spring | 1 | 84. | axle | 1 |
| 22. | Regulating pressure screw | 1 | 85. | Retainer 20 | 7 |
| 23. | O-ring d7.1x1.8 | 1 | 86. | Chassis | 1 |
| 24. | End cover | 1 | 87. | Hex screw M8x16 | 5 |
| 25. | O-ring d15x2.65 | 2 | 88. | Pin axle for chassis | 1 |
| 26. | Regulating speed spring | 1 | 89. | Bushing | 8 |
| 27. | Regulating slide-valve | 1 | 89A | Bushing | 2 |
| 28. | Regulating speed spring casing | 1 | 90. | Washing | 3 |
| 29. | Regulating speed slide casing | 1 | 90A. | Washing | 2 |
| 30. | Steel ball 7 | 1 | 91. | Slotting nut M16x1.5 | 5 |
| 31. | O-ring d6.9x1.8 | 1 | 92. | Split pin 3.2x26 | 5 |
| 32. | Conical valve | 1 | 93. | Pin axle | 3 |
| 33. | Spring | 1 | 94. | Pin axle for table | 1 |
| 34. | Check valve casing | 1 | 95. | Hex socket set screw M8x12 | 1 |
| 35. | O-ring d10x1.8 | 1 | 96. | Bushing | 2 |
| 36. | Check valve screw | 1 | 97. | Oil cup | 4 |
| 37. | Seal cover d18xD25x4.5 | 1 | 98. | External scissors lever for table | 1 |
| 38. | O-ring d18x2.65 | 1 | 99. | Internal scissors lever for table | 1 |
| 39. | Pump plunger | 1 | 100. | Bushing | 2 |
| 40. | Y-ring d10xD18x6 | 1 | 101. | Roller for table | 2 |

| | | | | | |
|-----|----------------------------|---|---|-------------------------------------|---|
| 41. | Pump body for plunger | 1 | 102. | Table | 1 |
| 42. | O-ring D28×3.1 | 1 | 103. | Spring pin 8×30 | 2 |
| 43. | Pump body | 1 | 104. | Screw bolt M10×40 | 2 |
| 44. | O-ring d10.6×2.65 | 1 | 105. | Safety rod | 2 |
| 45. | Spring | 1 | 106. | Nut M10 | 2 |
| 46. | Reflux rod | 1 | 107. | External scissors lever for chassis | 1 |
| 47. | O-ring d4×1.8 | 1 | 108. | Internal scissors lever for chassis | 1 |
| 48. | Guide casing | 1 | 109. | Bushing | 2 |
| 49. | Protect casing | 1 | 110. | Roller for chassis | 2 |
| 50. | Lever | 1 | 111. | Pin axle | 2 |
| 51. | Lever bushing | 1 | 112. | Bolt M6×8 | 1 |
| 52. | Washer 6 | 2 | 113. | Rod | 1 |
| 53. | Spring washer 6 | 2 | 114. | Rod | 1 |
| 55. | Put pressure assembly line | 1 | 115. | Screw M6×30 | 1 |
| 58. | Washer 8 | 2 | 116. | Cover-type nut M6 | 1 |
| | | | | | |
| A | Pump ass'y 1~49,113,114 | | 1~49,113,114 | | |
| B | Swivel wheel ass'y | | 78 | | |
| C | Front wheel ass'y | | 83 | | |
| D | Sealkit ass'y | | 1,3,3A,4,7,8,9,16,23,25,31,35,37,38,40,42,44,47 | | |
| E | Handle ass'y | | 52,53,55,60,61,62,66,67,115,116 | | |