

3.19 DRAWWORKS AND DRIVE ASSEMBLY (Figure 3-25)

I. DRAWWORKS WITH AIR CLUTCHES:

A. Disassembly:

Uncoil wire line from both drums and coil carefully behind the drilling rig, preferably on cardboard or wood deck. Loosen set screws which are located behind the flanges adjacent to the bevel gear case and pull the anchor end of the wire line out of the hole.

Probably the best way to do this is to remove the bolts attaching the drawworks frame to the drilling rig and remove complete drawworks assembly from the rig. A large bench or fixture will be necessary to support this unit while being disassembled. Remove pins and adjusting bolts which support the brake bands and remove from drawworks assembly. Next, remove Items 22 (nuts) and Item 24 (mounting studs) from bottom of bevel gear case. Remove Items 18 (capscrews) from Item 19 (end plate). Next remove Items 1 through 6 (rotorseal assembly) from opposite end of shaft. Save bayonet shims for reuse in assembly. Using a sprocket puller and protecting the end of the shaft from the jacking bolt, remove Item 8 (sprocket) from the shaft. Unscrew Item 11 (capscrew) from Item 12 (bearing retainer) and remove retainer and Item 14 (bearing) from the shaft. Remove Item 19 (end plate) from opposite end of shaft which also will permit the removal of Item 21 (bearing) and Item 20 (spacer). The bevel gear box assembly can now be removed from the drawworks frame complete with drums and clutches. This assembly should be positioned on a bench or fixture and the air liners from the shaft to the air clutch should be removed (both ends). Remove capscrews holding front cover plates to the air clutches (both

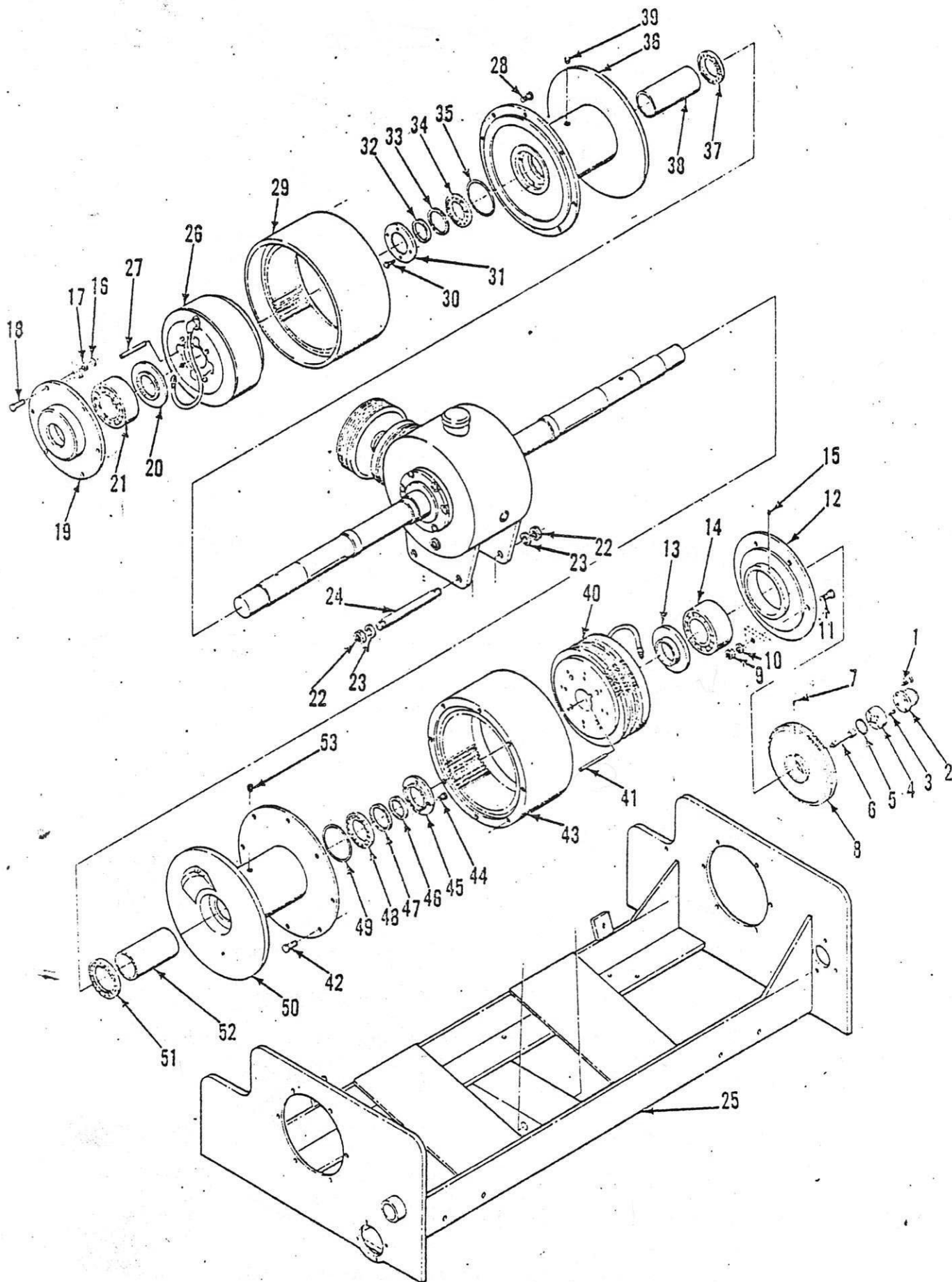


Figure 3-25. Drawworks and Drive Assembly (View 1 of 2)
(with air clutches)

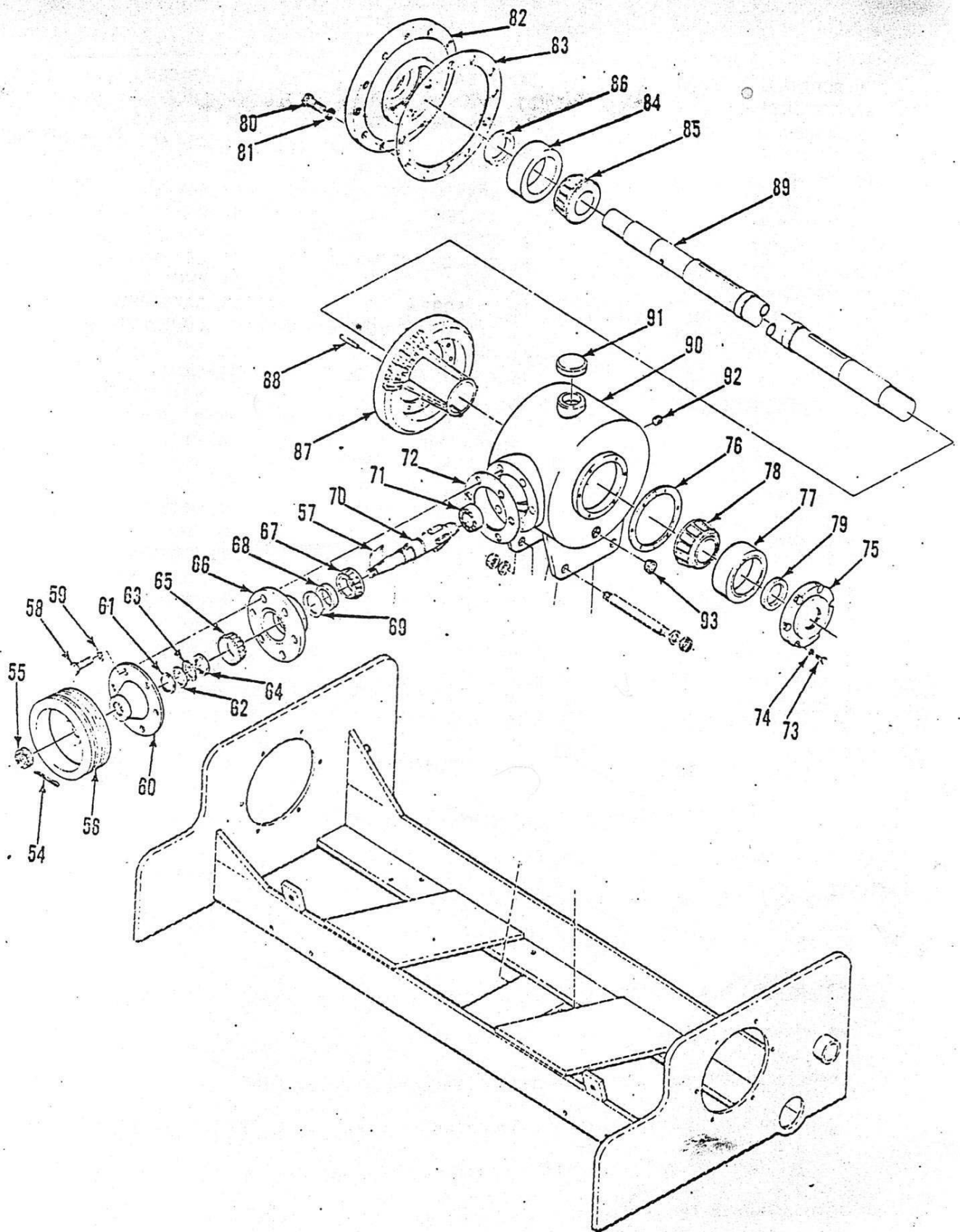


Figure 3-25. Drawworks and Drive Assembly (View 2 of 2)

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| 1. SCREW | 32. GREASE SEAL | 63. SPACER |
| 2. ROTORSEAL | 33. SPACER | 64. LOCKNUT |
| 3. SCREW | 34. BEARING | 65. BEARING |
| 4. ADAPTER | 35. O-RING | 66. CUP AND CAGE ASSEMBLY |
| 5. O-RING | 36. HOISTING DRUM | 67. BEARING |
| 6. BAYONET | 37. BEARING | 68. SPACER |
| 7. SETSCREW | 38. SPACER | 69. SHIM |
| 8. SPROCKET | 39. PIPE PLUG | 70. PINION |
| 9. NUT | 40. CLUTCH ASSEMBLY | 71. BEARING |
| 10. LOCKWASHER | 41. KEY | 72. SHIM |
| 11. CAPSCREW | 42. CAPSCREW | 73. CAPSCREW |
| 12. BEARING RETAINER | 43. CLUTCH DRIVE RING | 74. LOCKWASHER |
| 13. SPACER | 44. CAPSCREW | 75. RETAINER PLATE |
| 14. BEARING | 45. RETAINER PLATE | 76. SHIM |
| 15. GREASE FITTING | 46. GREASE SEAL | 77. BEARING CUP |
| 16. NUT | 47. SPACER | 78. BEARING |
| 17. LOCKWASHER | 48. BEARING | 79. GREASE SEAL |
| 18. CAPSCREW | 49. O-RING | 80. CAPSCREW |
| 19. END PLATE | 50. AUXILIARY DRUM | 81. LOCKWASHER |
| 20. SPACER | 51. BEARING | 82. RETAINER PLATE |
| 21. BEARING | 52. SPACER | 83. SHIM |
| 22. NUT | 53. PIPE PLUG | 84. BEARING CUP |
| 23. LOCKWASHER | 54. COTTER PIN | 85. BEARING |
| 24. MOUNTING STUD | 55. NUT | 86. GREASE SEAL |
| 25. FRAME | 56. SHEAVE | 87. BEVEL GEAR |
| 26. CLUTCH ASSEMBLY | 57. KEY | 88. KEY |
| 27. KEY | 58. CAPSCREW | 89. DRUM SHAFT |
| 28. CAPSCREW | 59. LOCKWASHER | 90. BEVEL GEAR CASE |
| 29. CLUTCH DRIVE RING | 60. SEAL ASSEMBLY | 91. FILL CAP |
| 30. CAPSCREW | 61. LOCKNUT | 92. LEVEL PLUG |
| 31. RETAINER PLATE | 62. LOCKWASHER | 93. DRAIN PLUG |

Legend for 3-25. Drawworks and Drive Assembly