

Figure 7-1 Fuel Handling System

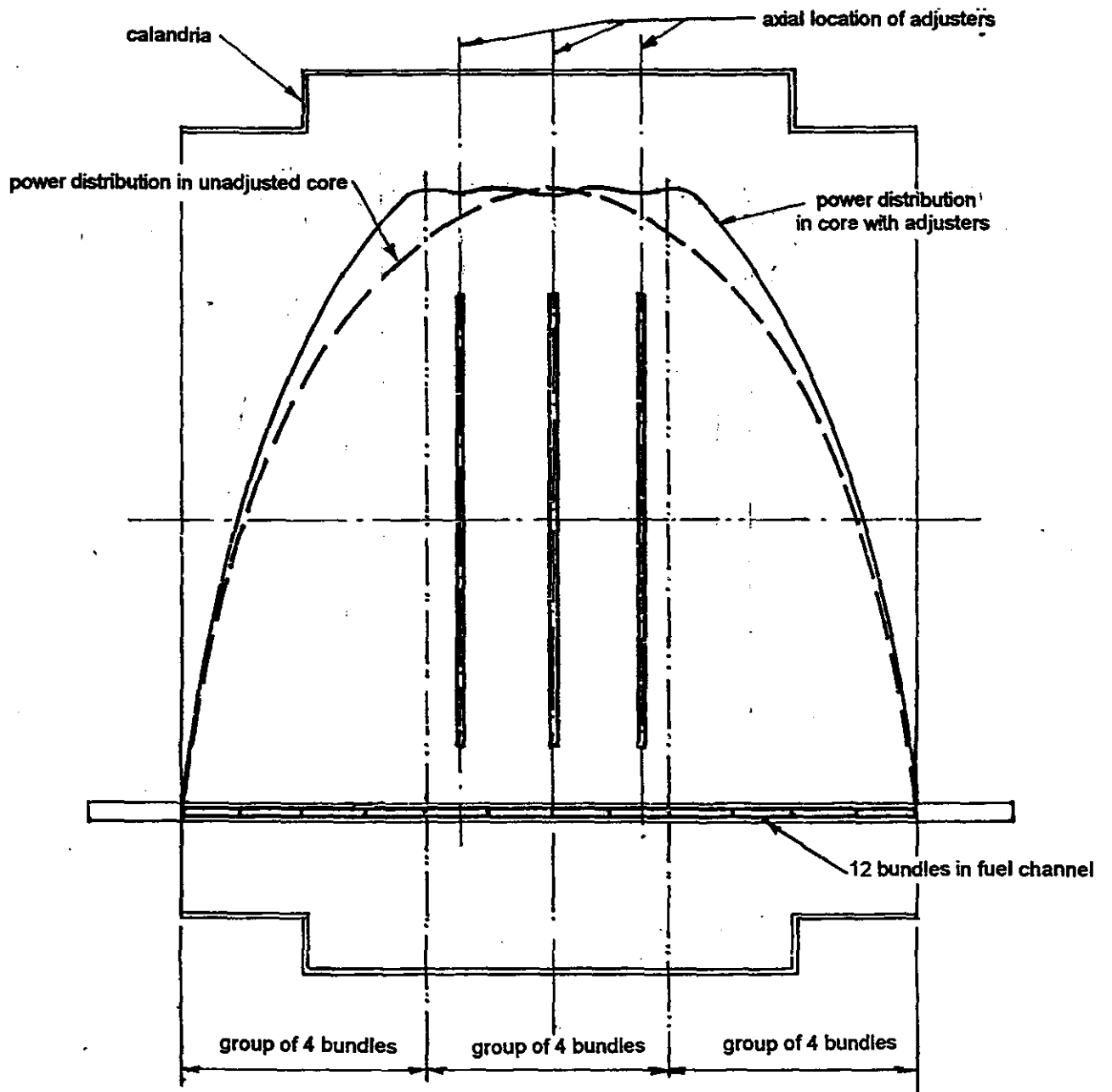


Figure 7-2 Axial Power Distribution in a Fuel Channel

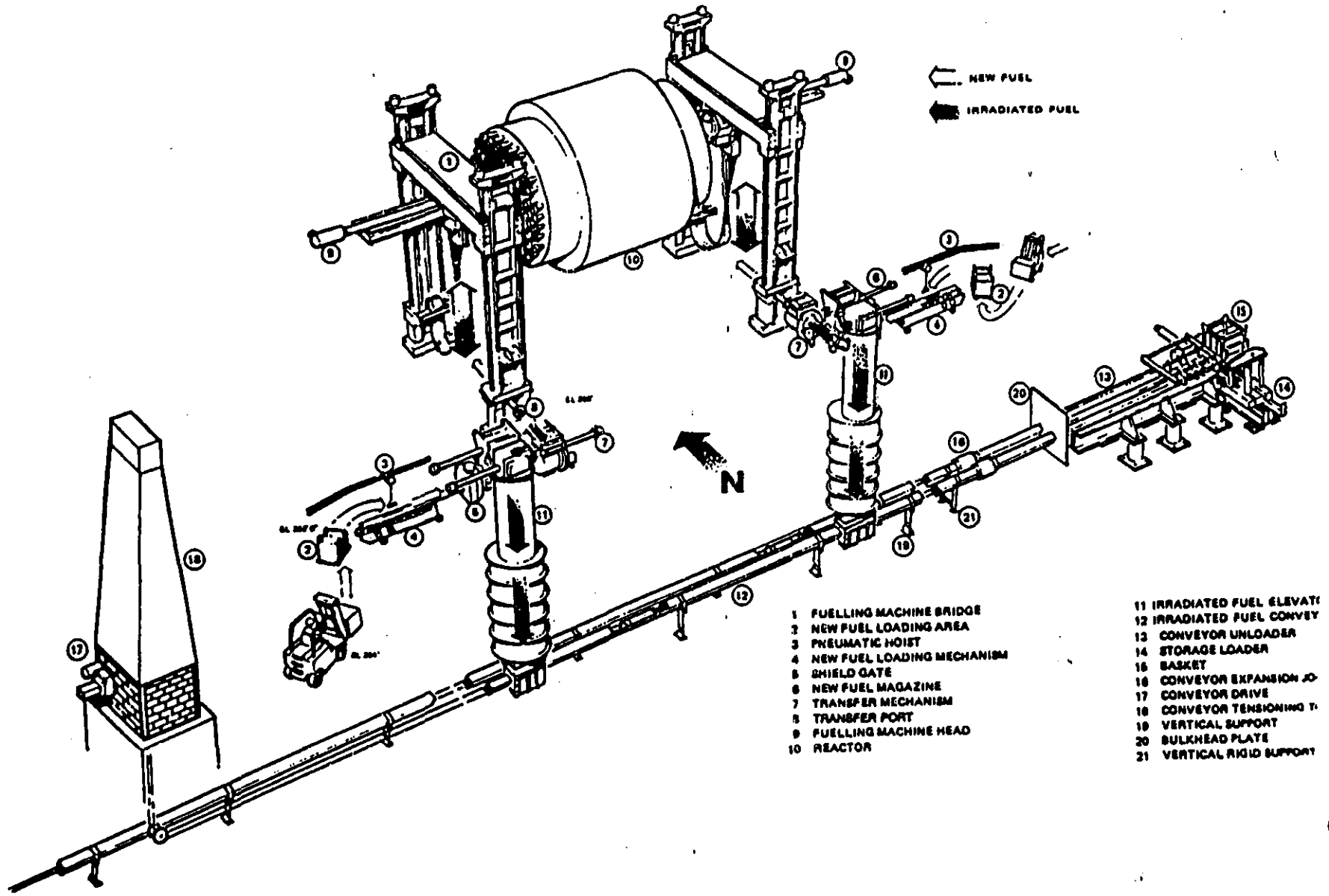


Figure 7-3 Pickering GS 4-Unit Plant and Fuel Handling Lay-out

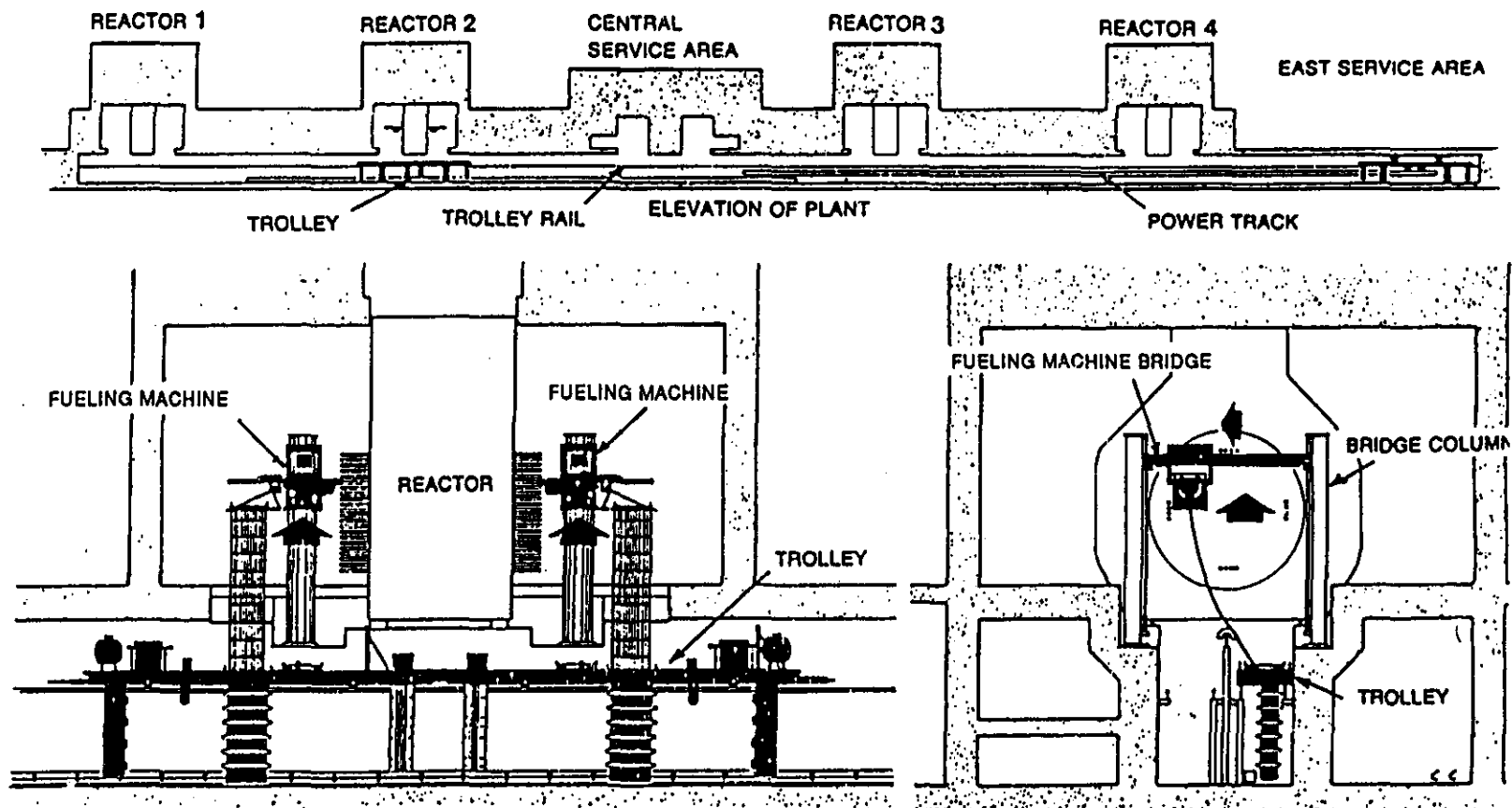


Figure 7-4a Bruce GS 4-Unit Plant and Fuel Handling Lay-out

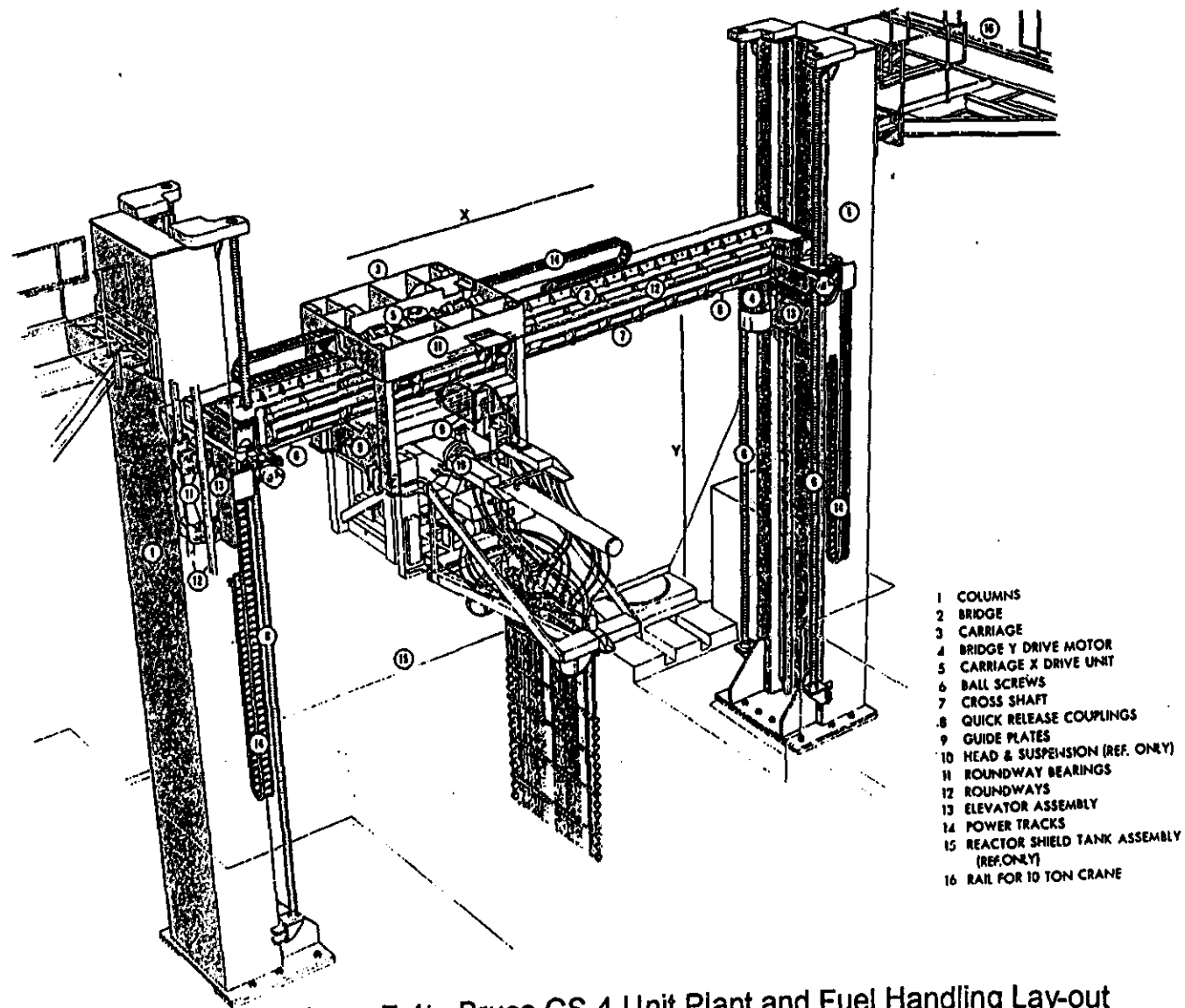


Figure 7-4b Bruce GS 4-Unit Plant and Fuel Handling Lay-out

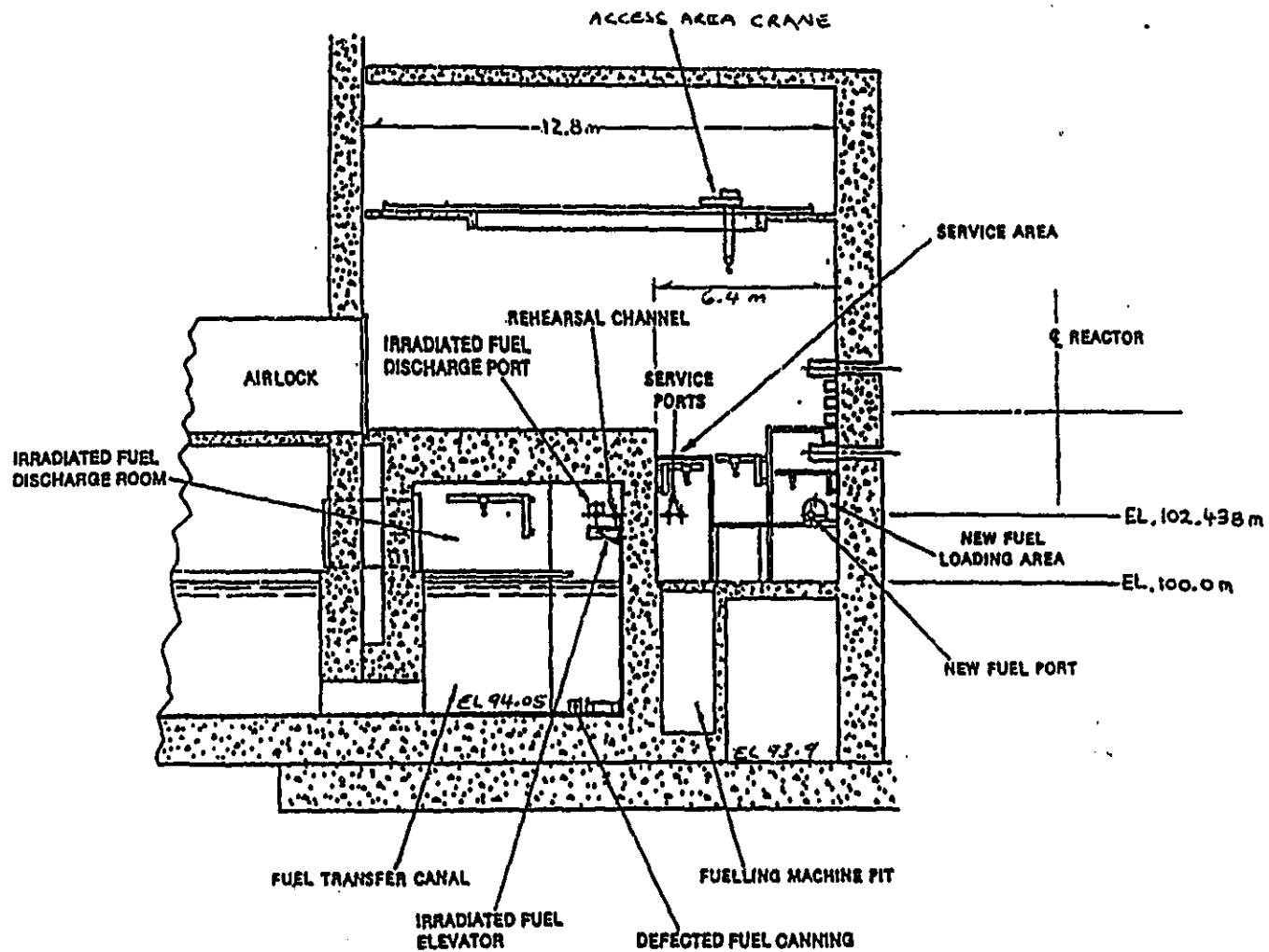


Figure 7-5 Fuel Handling System - Section S1

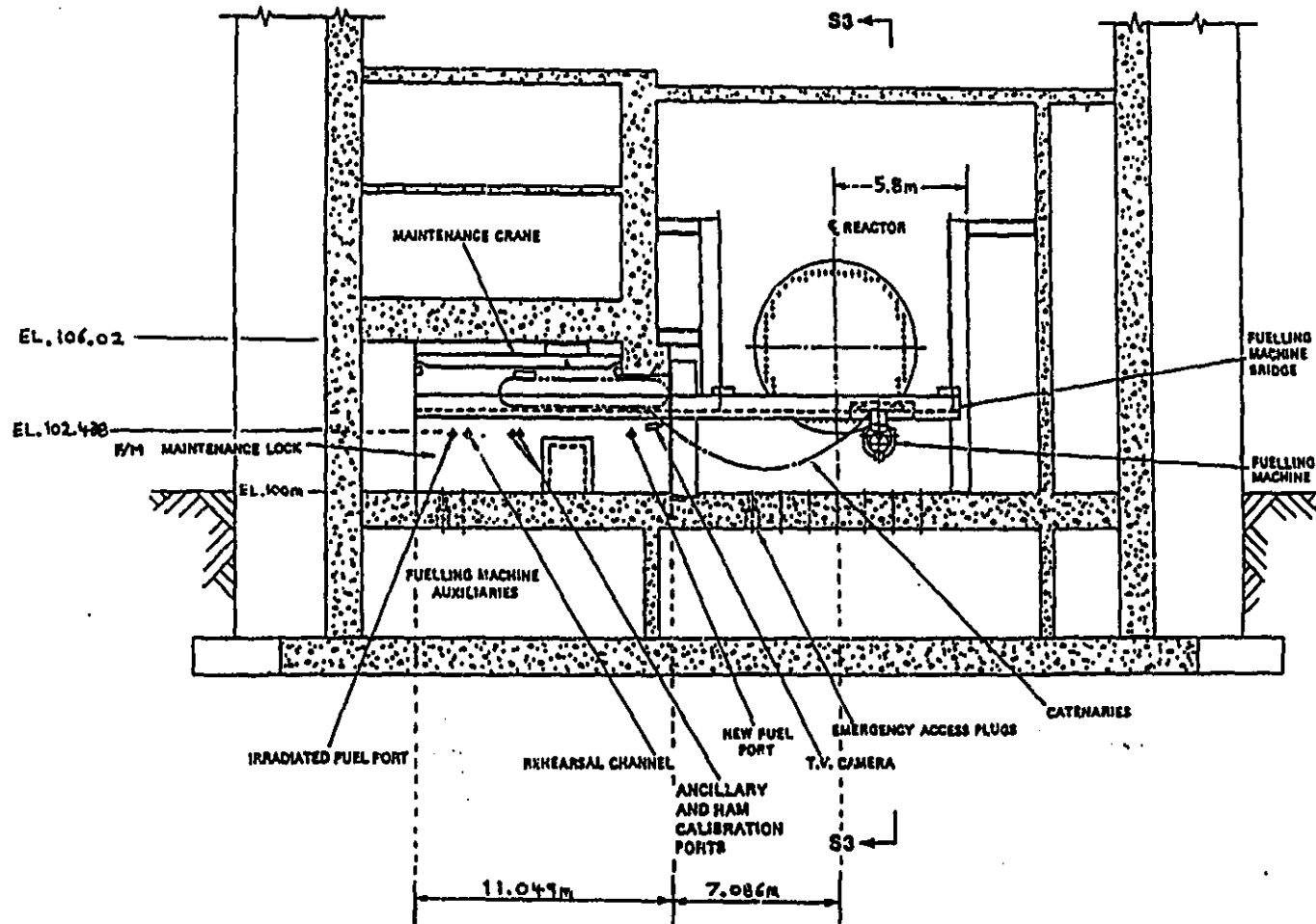


Figure 7-6 Fuel Handling System - Section S2

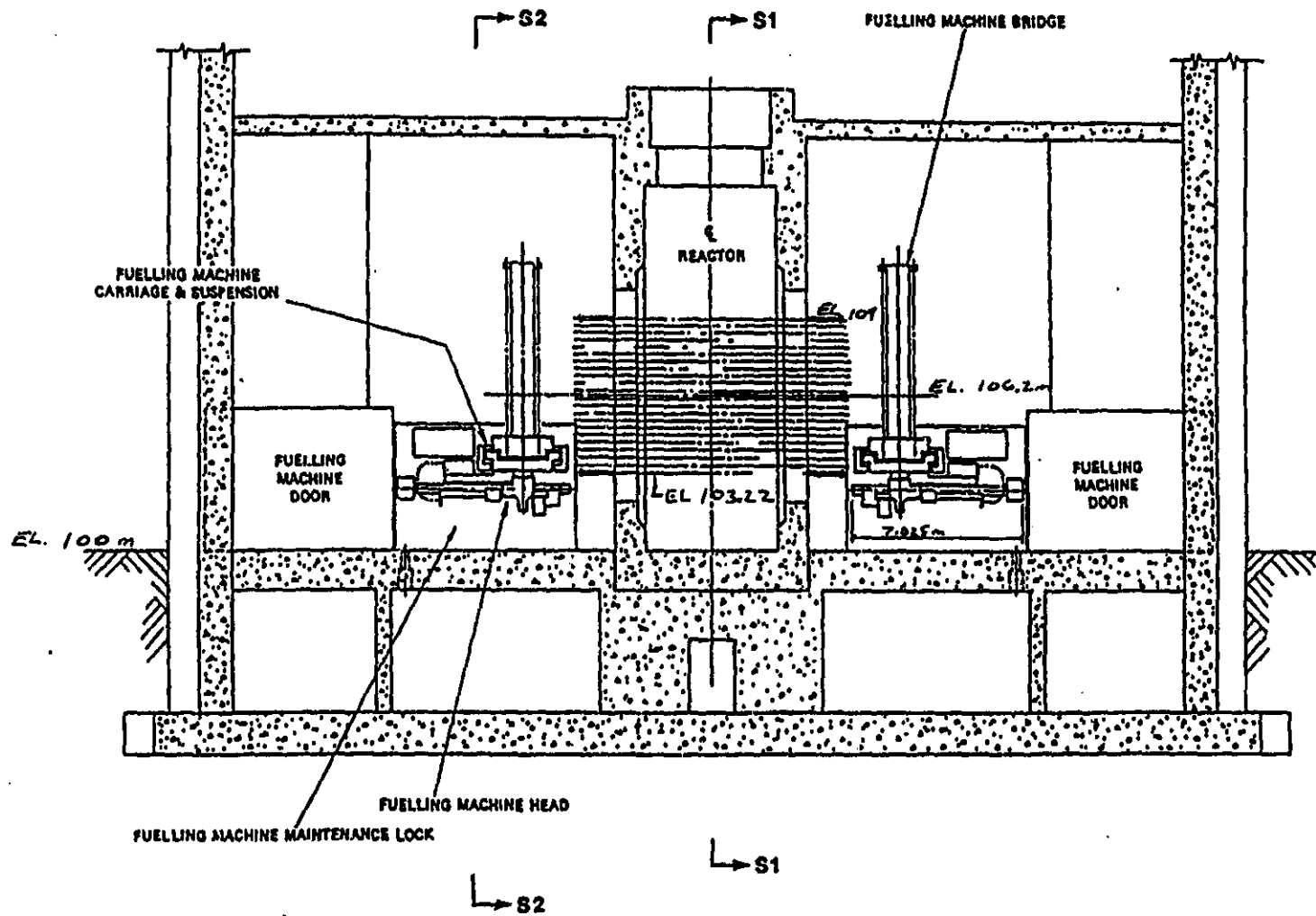


Figure 7-7 Fuel Handling System - Section S3



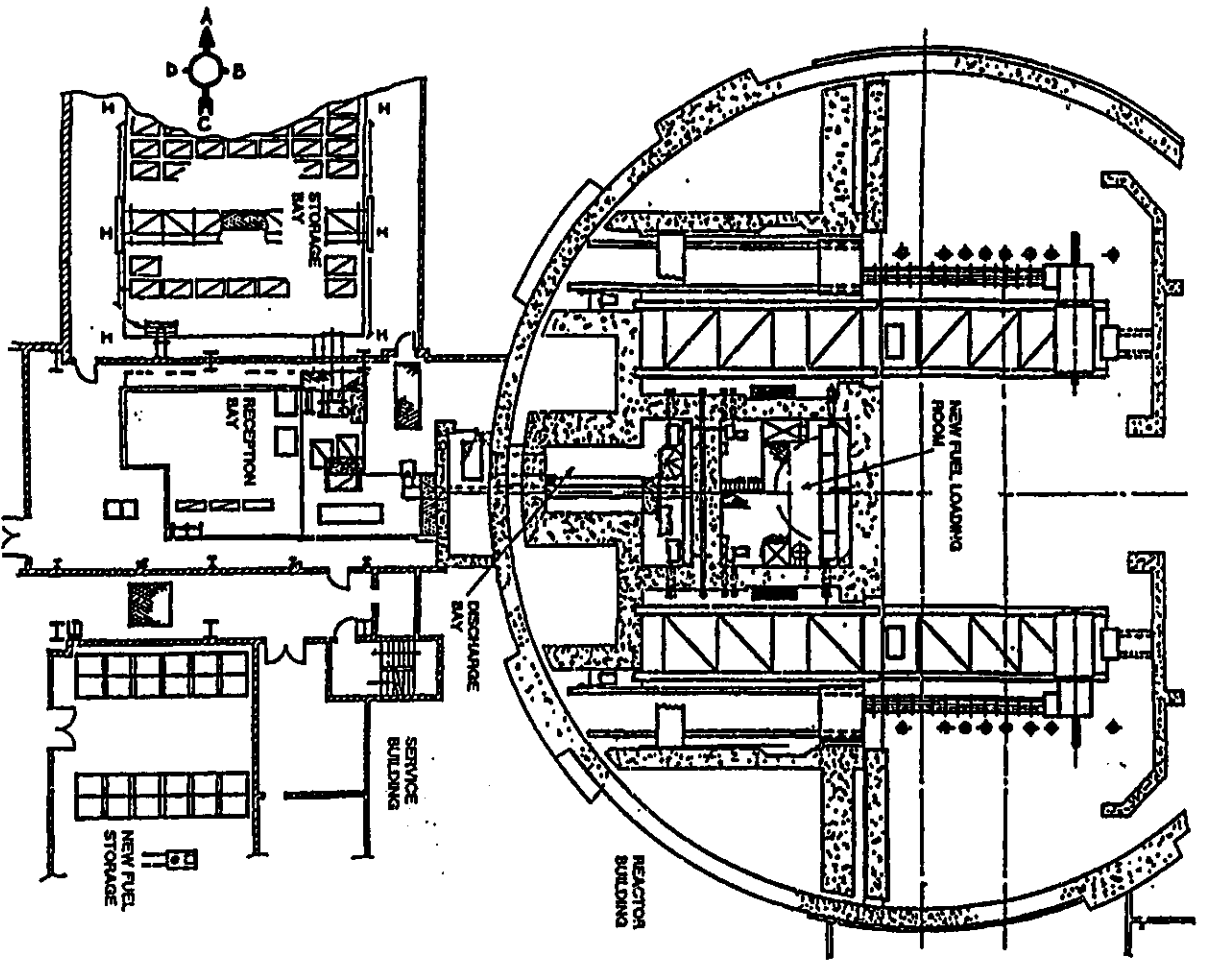


Figure 7-8 New Fuel and Irradiated Fuel Layout

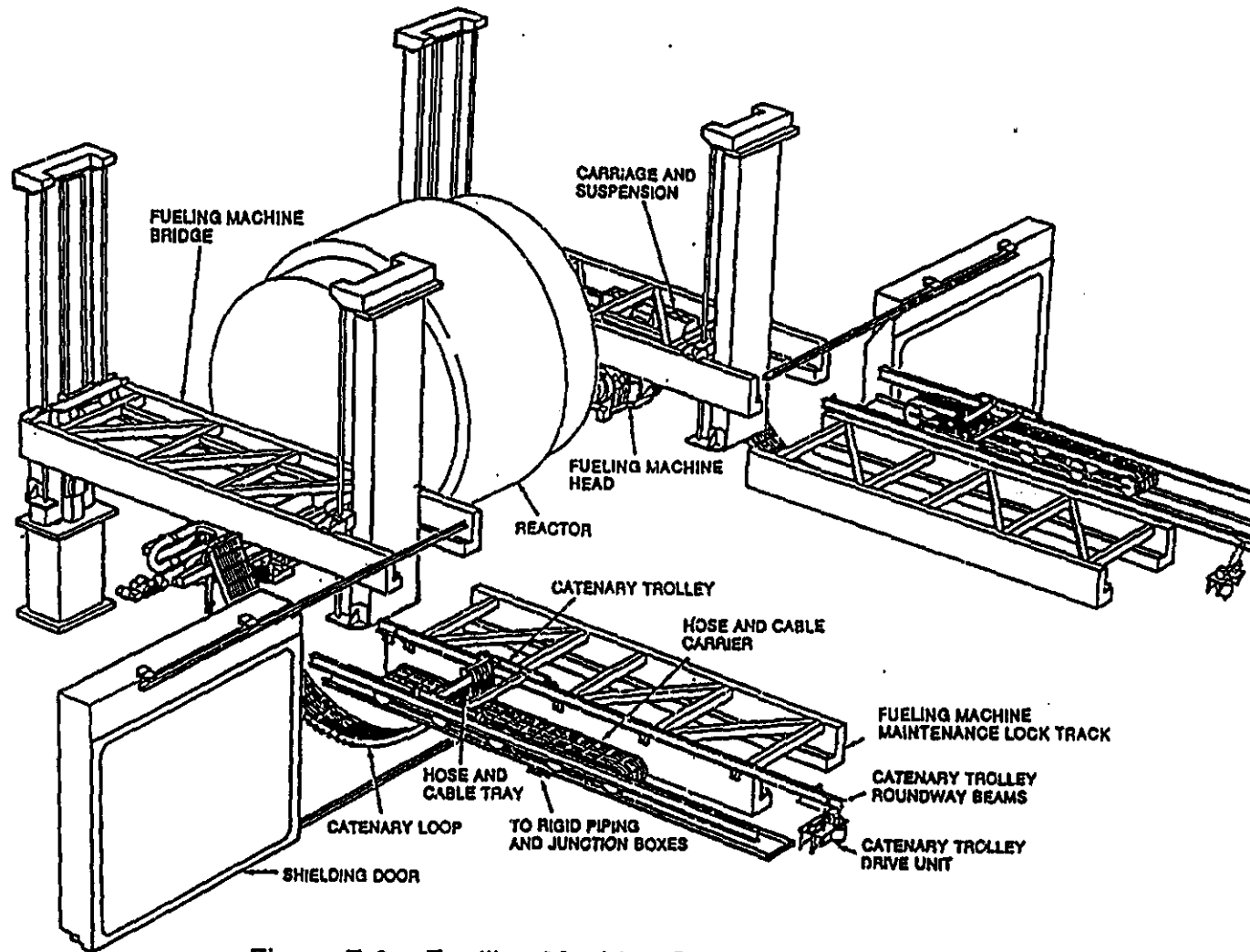


Figure 7-9 Fuelling Machine Support Systems

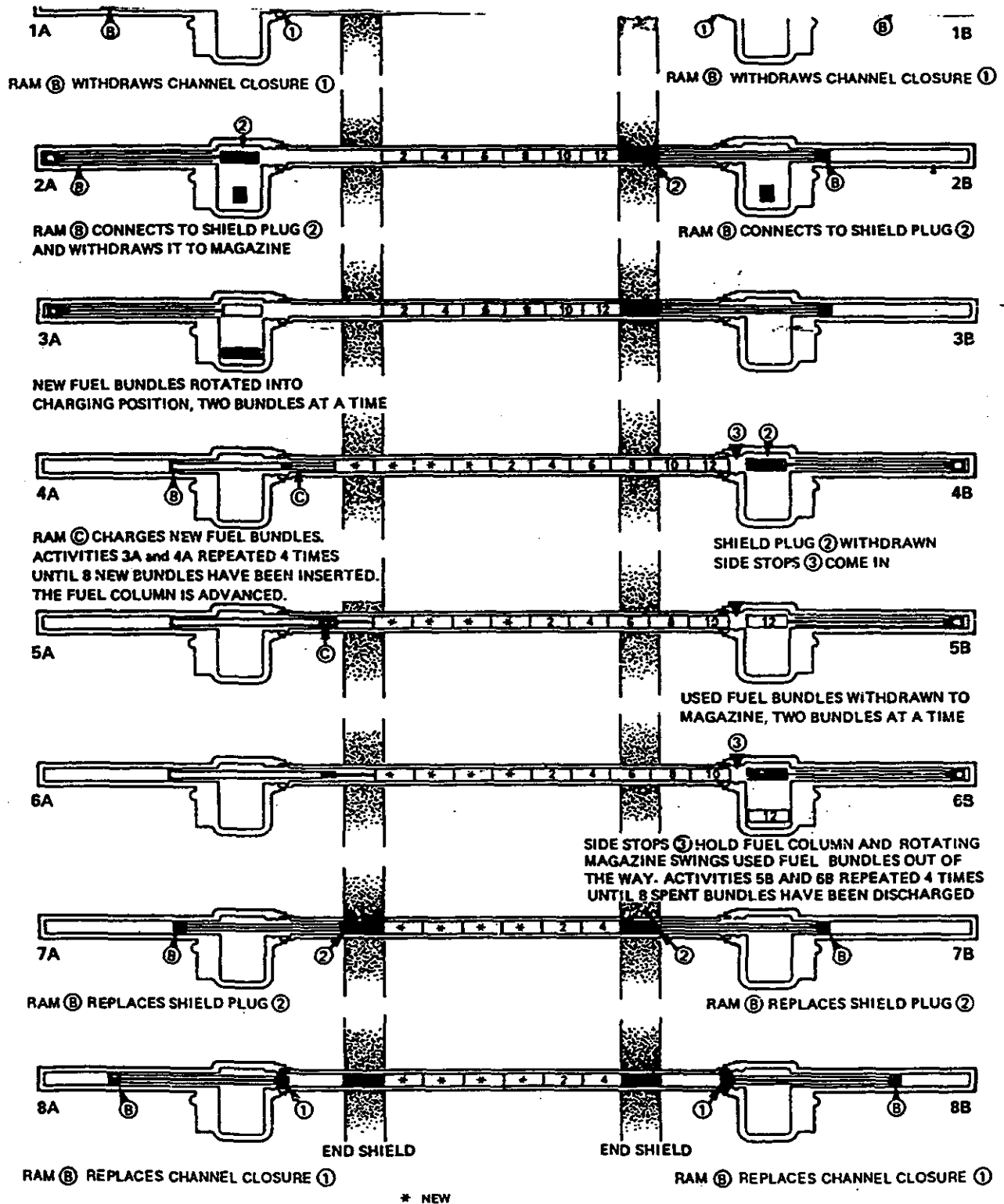


Figure 7-10 CANDU Fueling Sequence for 8-Bundle Replacement

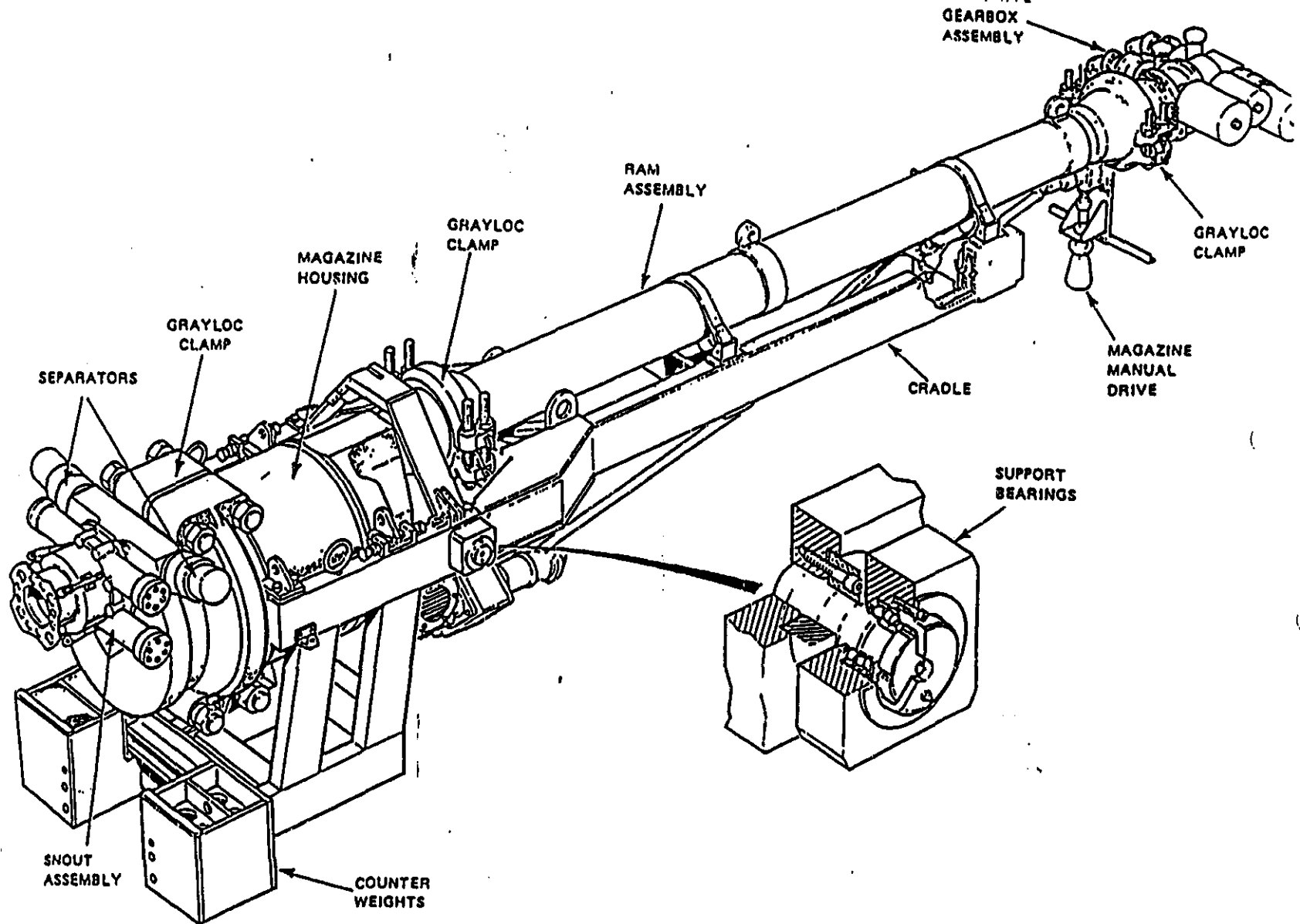


Figure 7-11 CANDU Fuelling Machine Head & Carriage

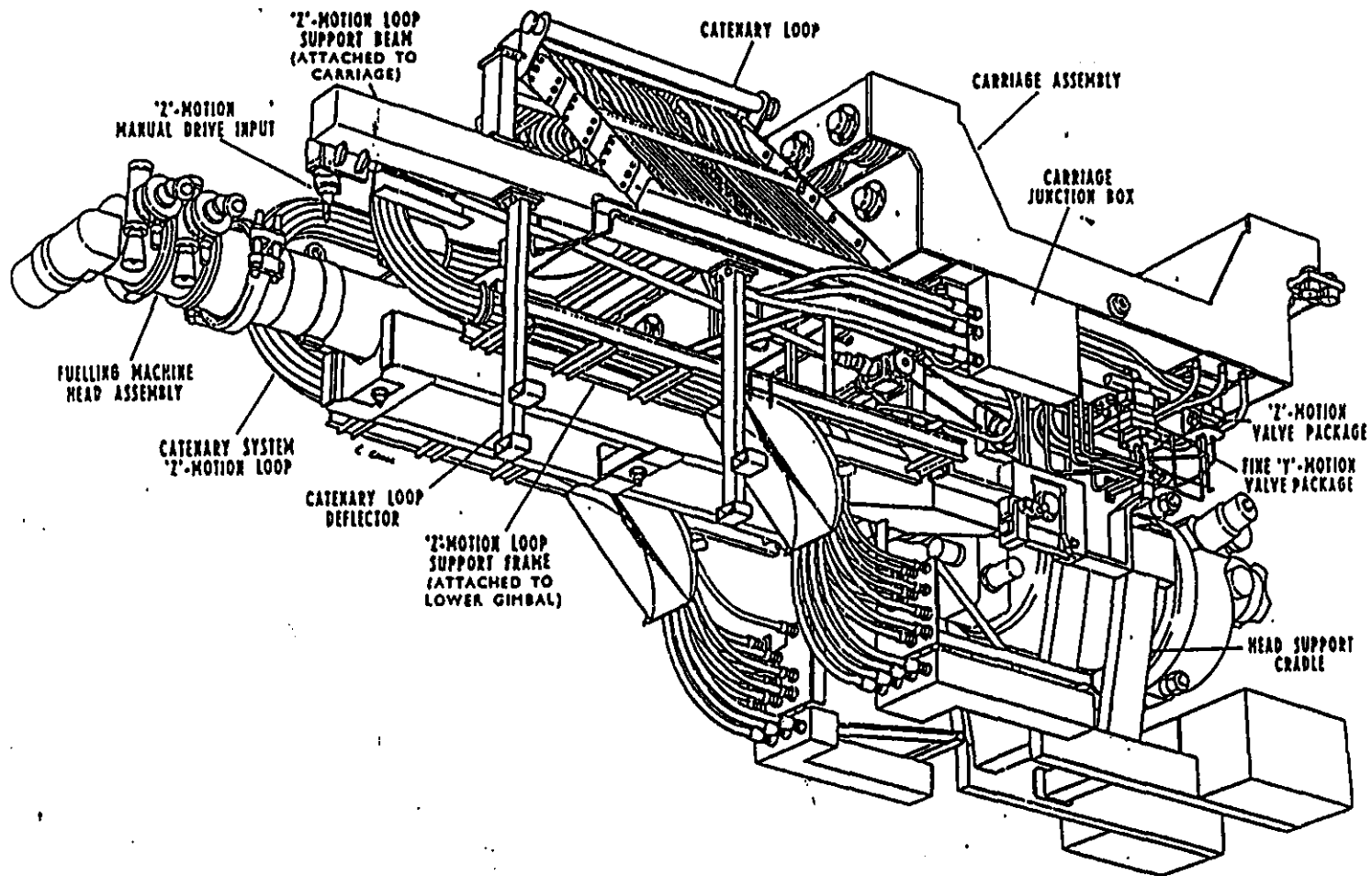


Figure 7-12 Carriage/Fuelling Machine Assembly

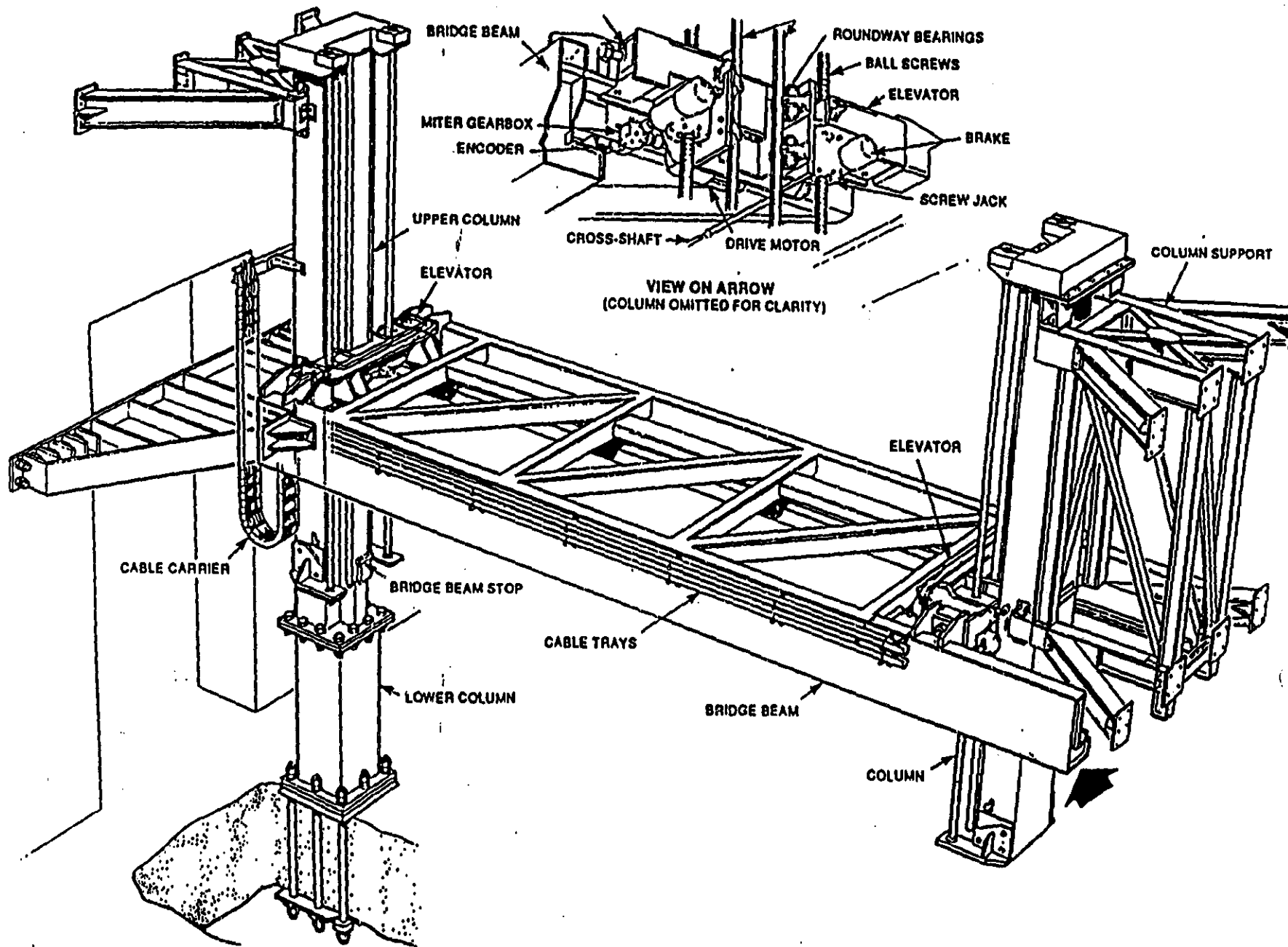


Figure 7-13 Fuelling Machine Bridge Assembly

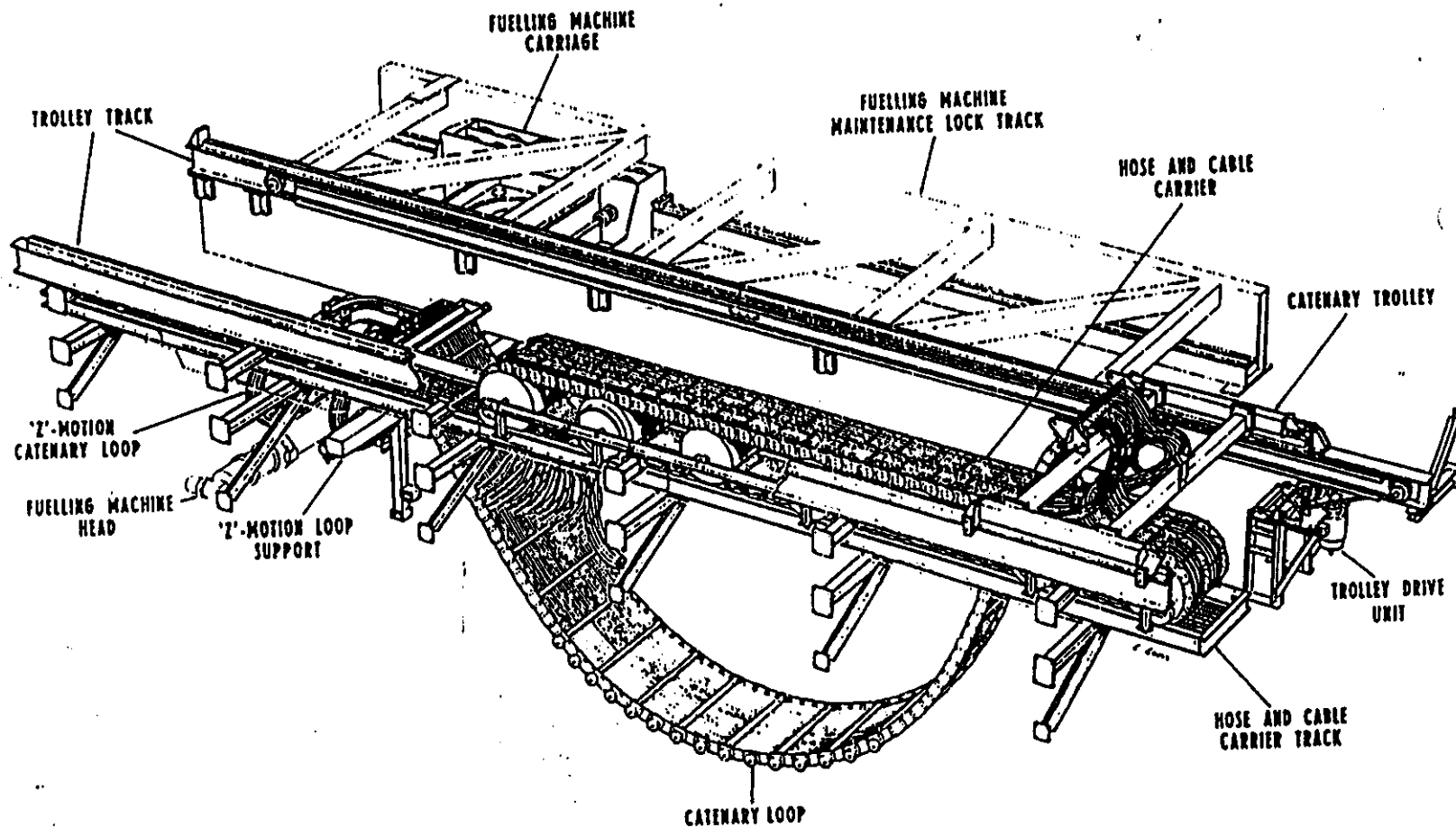


Figure 7-14 Fuelling Machine Catenary System

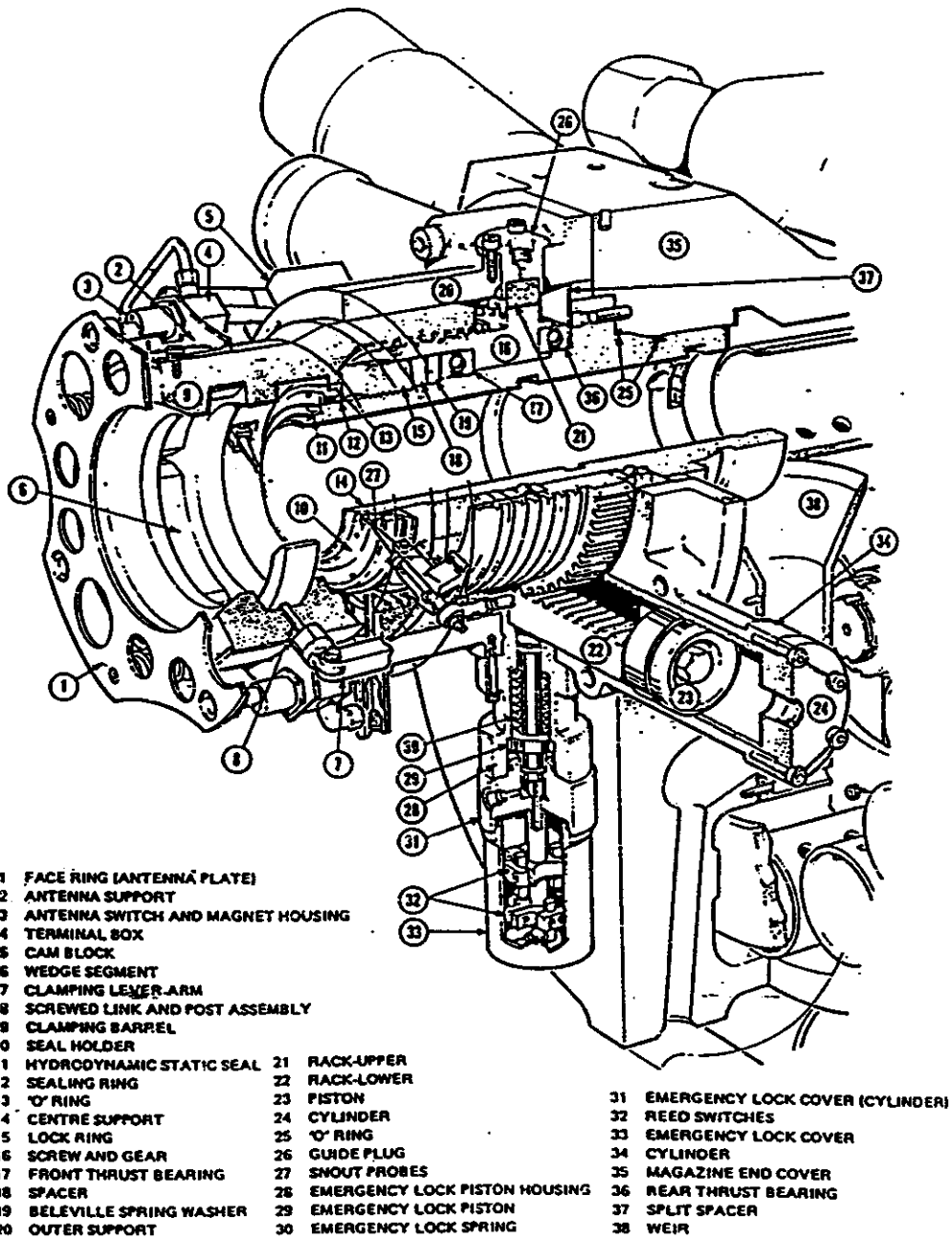


Figure 7-15 Snout Assembly



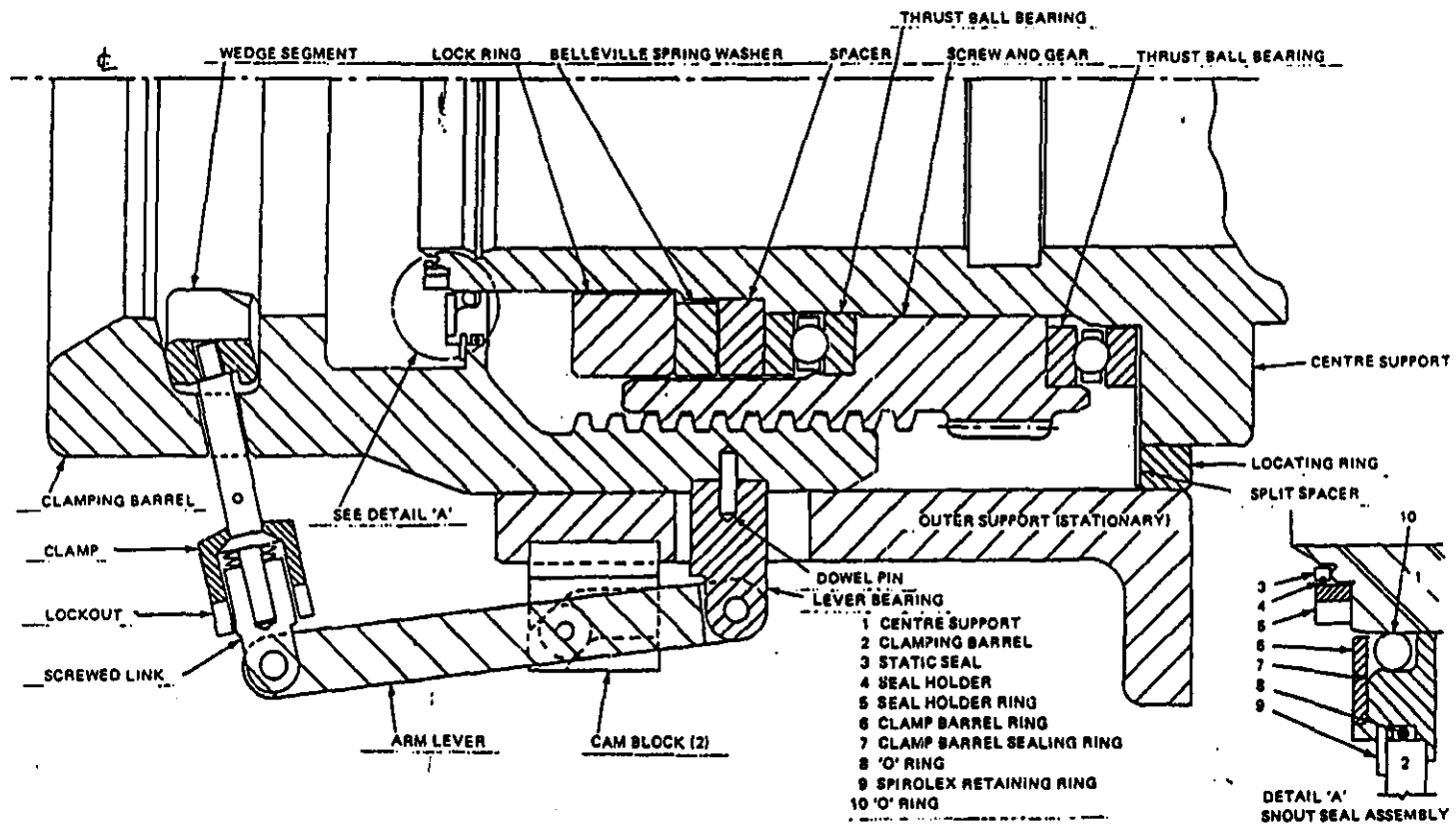
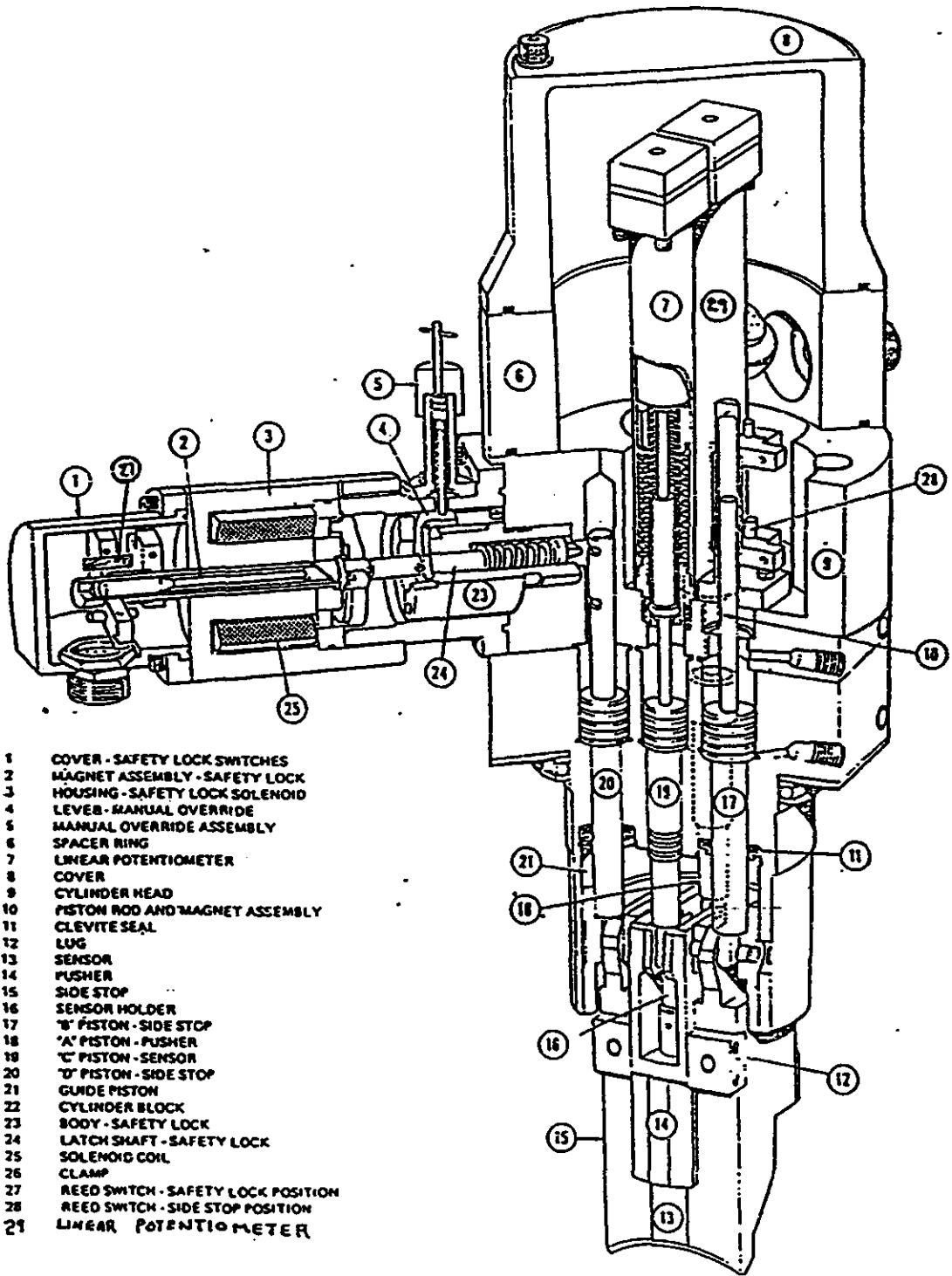


Figure 7-16 Snout Assembly (Sectional View)



- 1 COVER - SAFETY LOCK SWITCHES
- 2 MAGNET ASSEMBLY - SAFETY LOCK
- 3 HOUSING - SAFETY LOCK SOLENOID
- 4 LEVER - MANUAL OVERRIDE
- 5 MANUAL OVERRIDE ASSEMBLY
- 6 SPACER RING
- 7 LINEAR POTENTIOMETER
- 8 COVER
- 9 CYLINDER HEAD
- 10 PISTON ROD AND MAGNET ASSEMBLY
- 11 CLEVITE SEAL
- 12 LUG
- 13 SENSOR
- 14 PUSHER
- 15 SIDE STOP
- 16 SENSOR HOLDER
- 17 'B' PISTON - SIDE STOP
- 18 'A' PISTON - PUSHER
- 19 'C' PISTON - SENSOR
- 20 'D' PISTON - SIDE STOP
- 21 GUIDE PISTON
- 22 CYLINDER BLOCK
- 23 BODY - SAFETY LOCK
- 24 LATCH SHAFT - SAFETY LOCK
- 25 SOLENOID COIL
- 26 CLAMP
- 27 REED SWITCH - SAFETY LOCK POSITION
- 28 REED SWITCH - SIDE STOP POSITION
- 29 LINEAR POTENTIOMETER

Figure 7-17 Fuelling Machine Separator

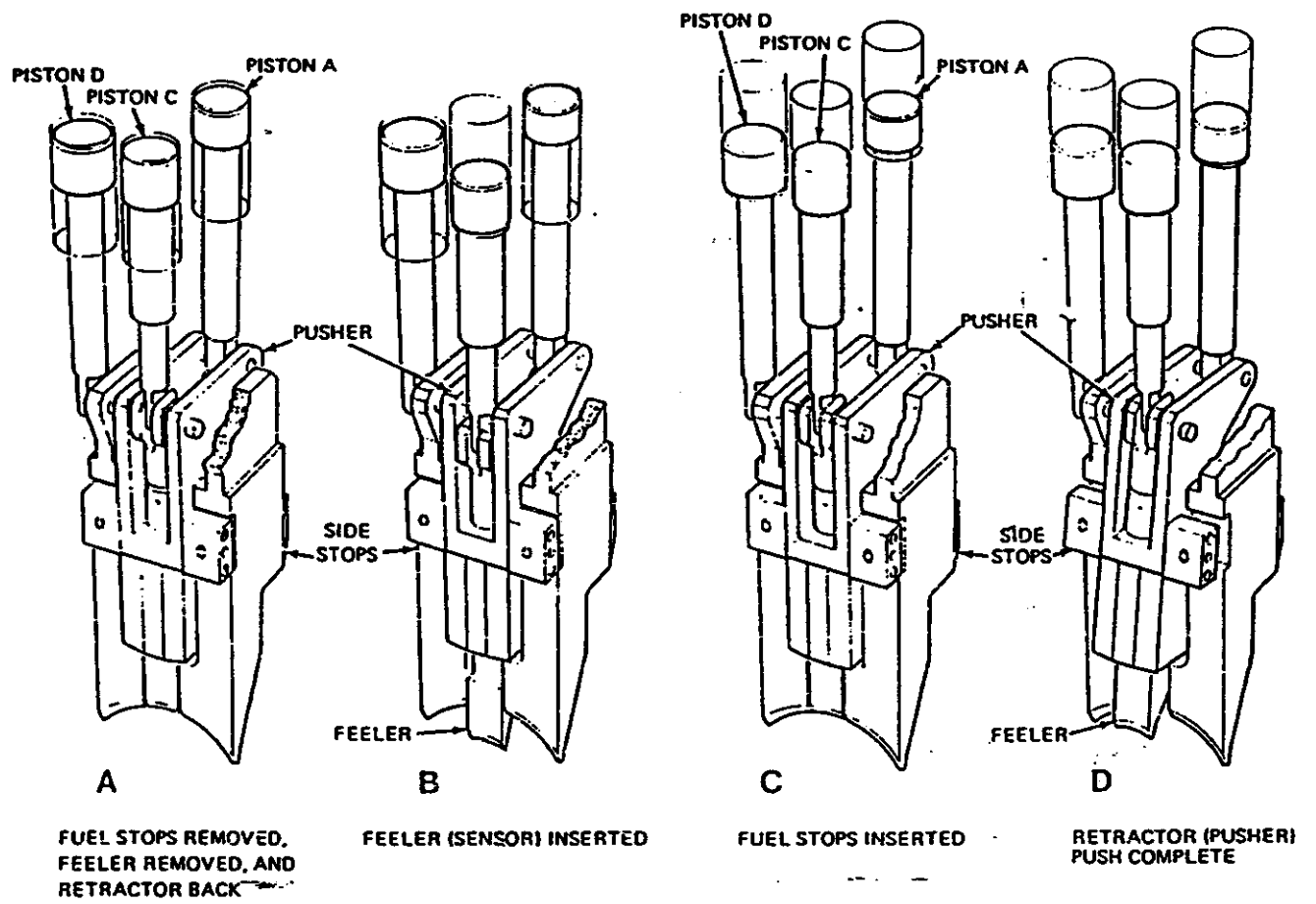


Figure 7-18 Operation of Side Stops, Sensors and Pushers

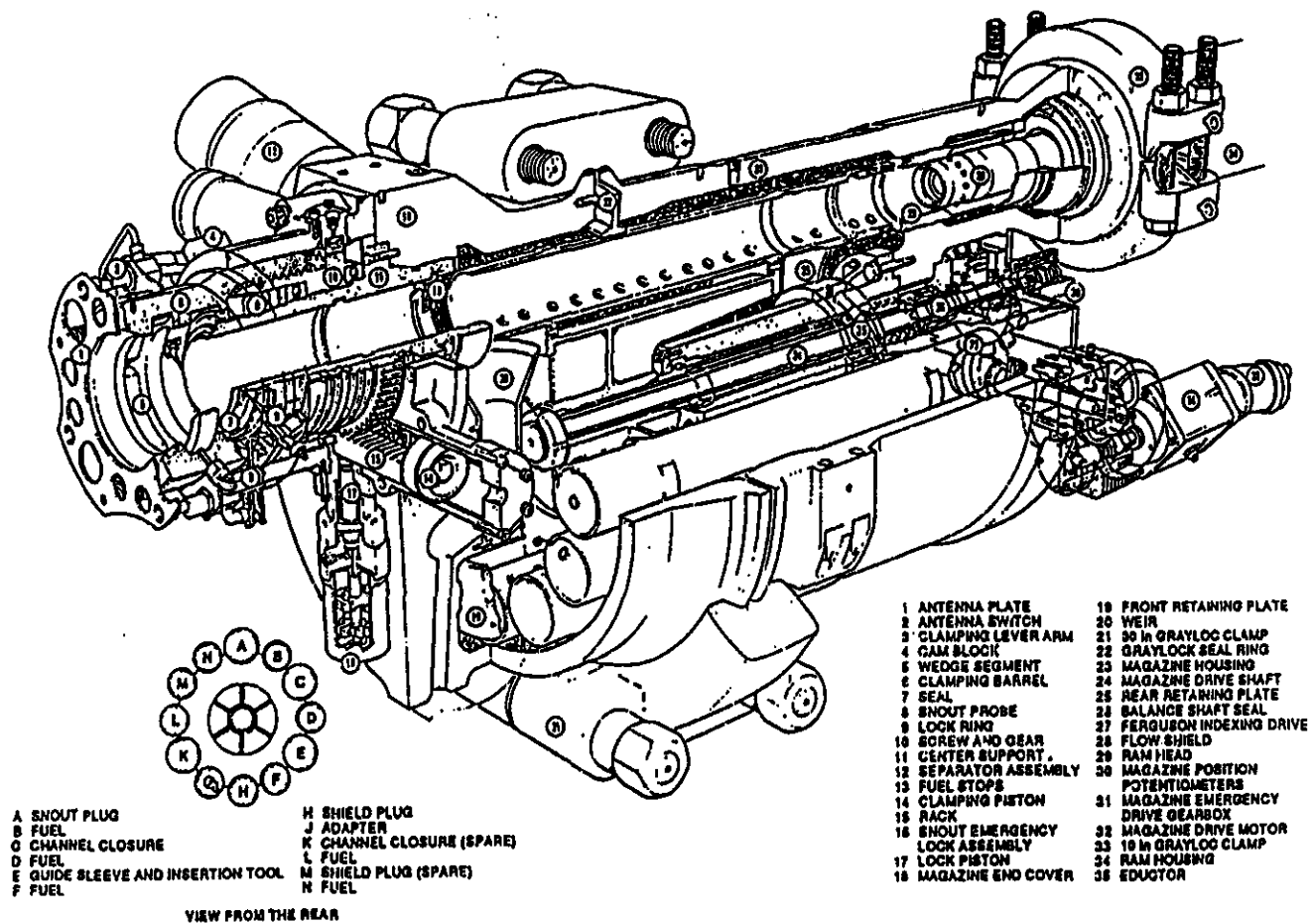


Figure 7-19 Fuelling Machine Head - Magazine Assembly

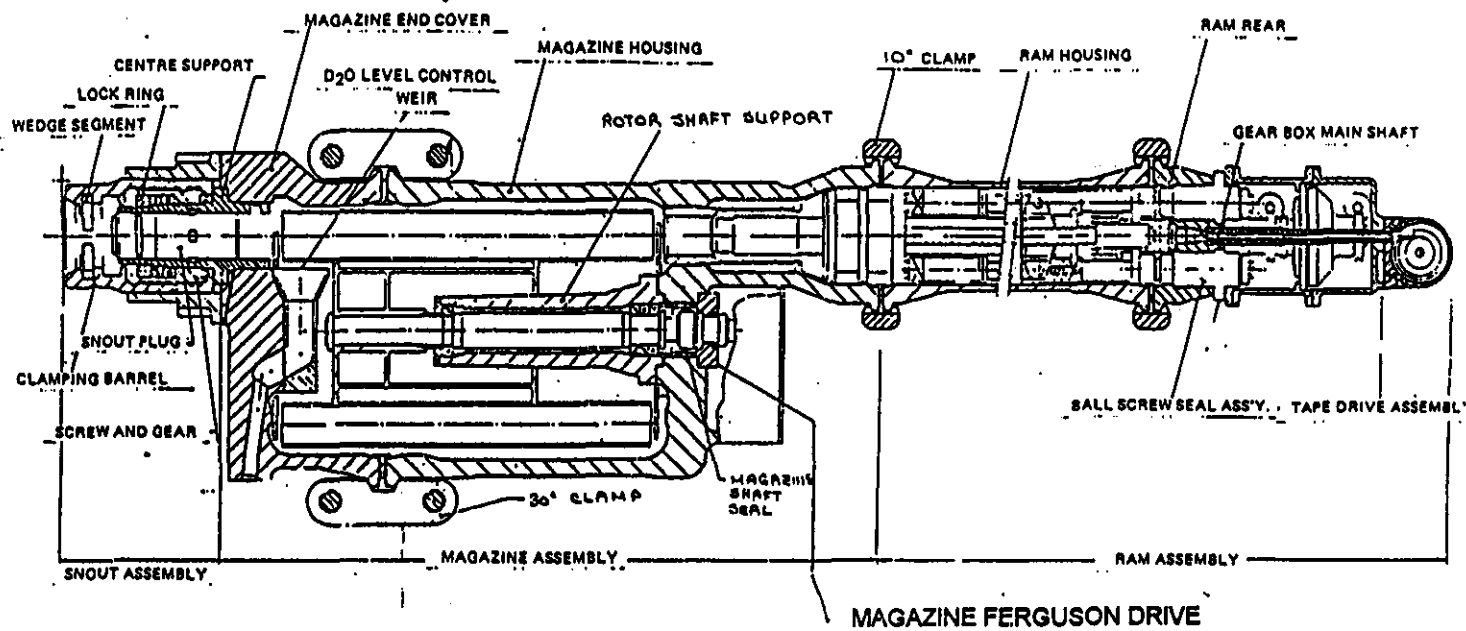


Figure 7-20 F/M Head (Sectional View)

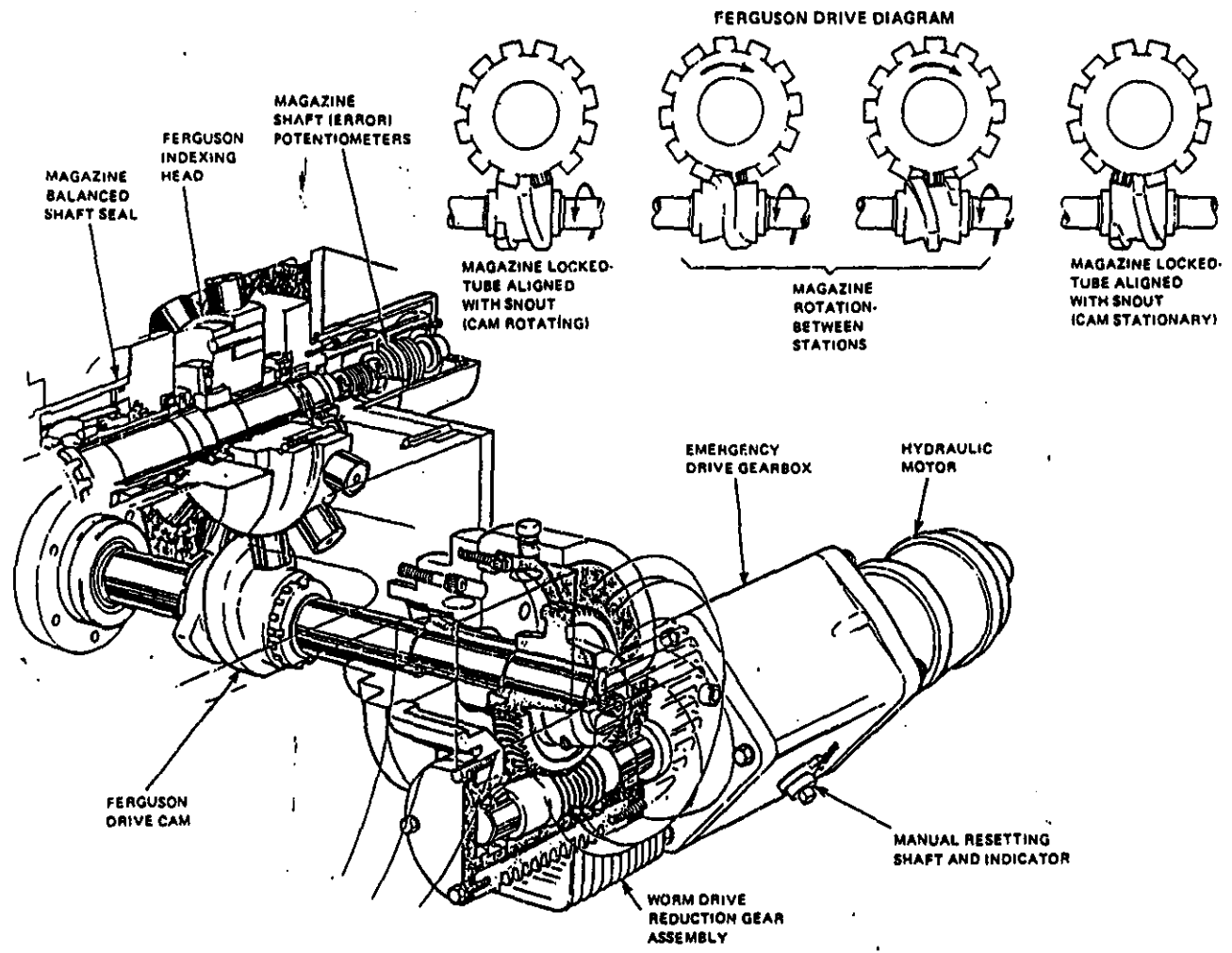


Figure 7-21 Magazine Drive System

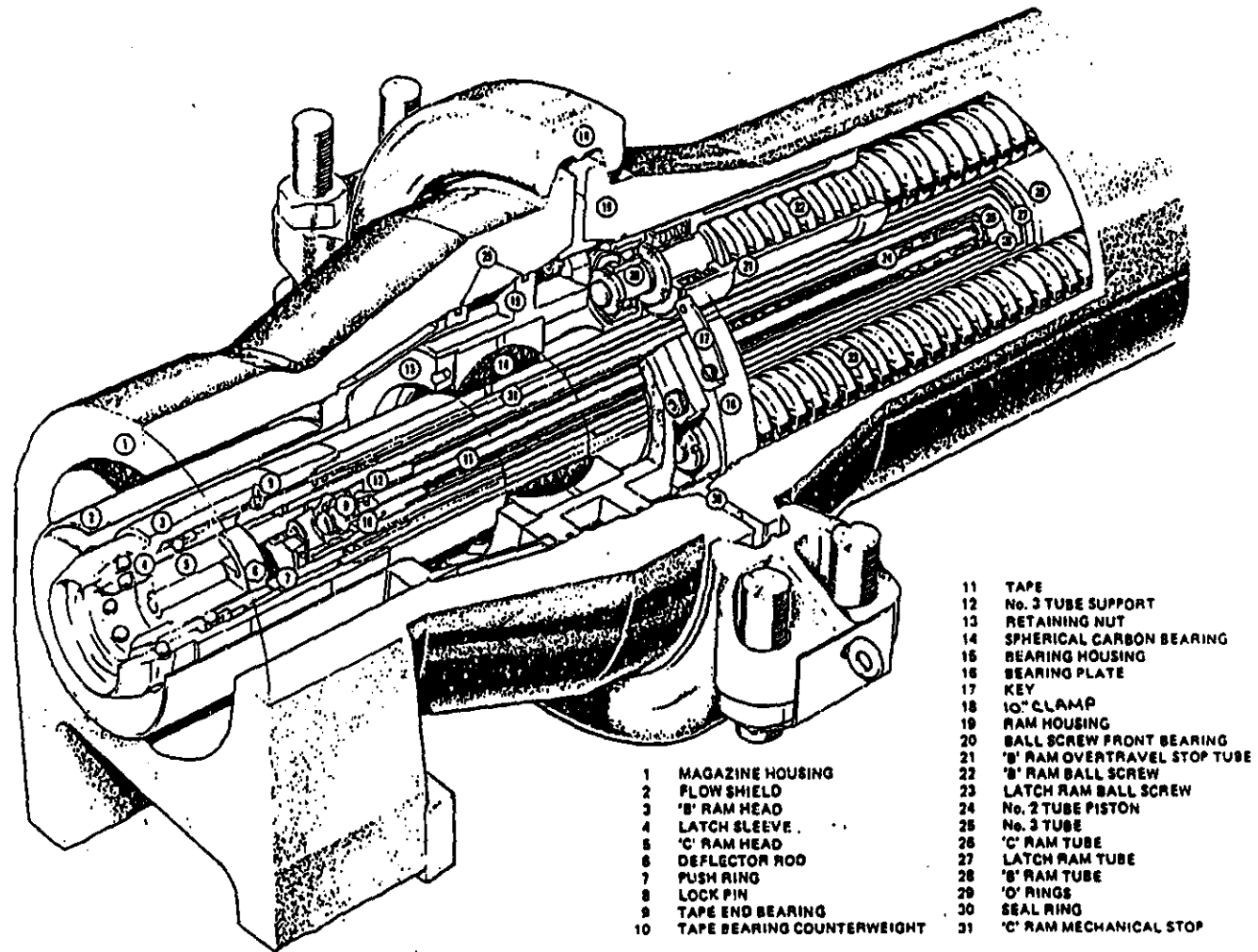


Figure 7-22 Ram Assembly (Front End)

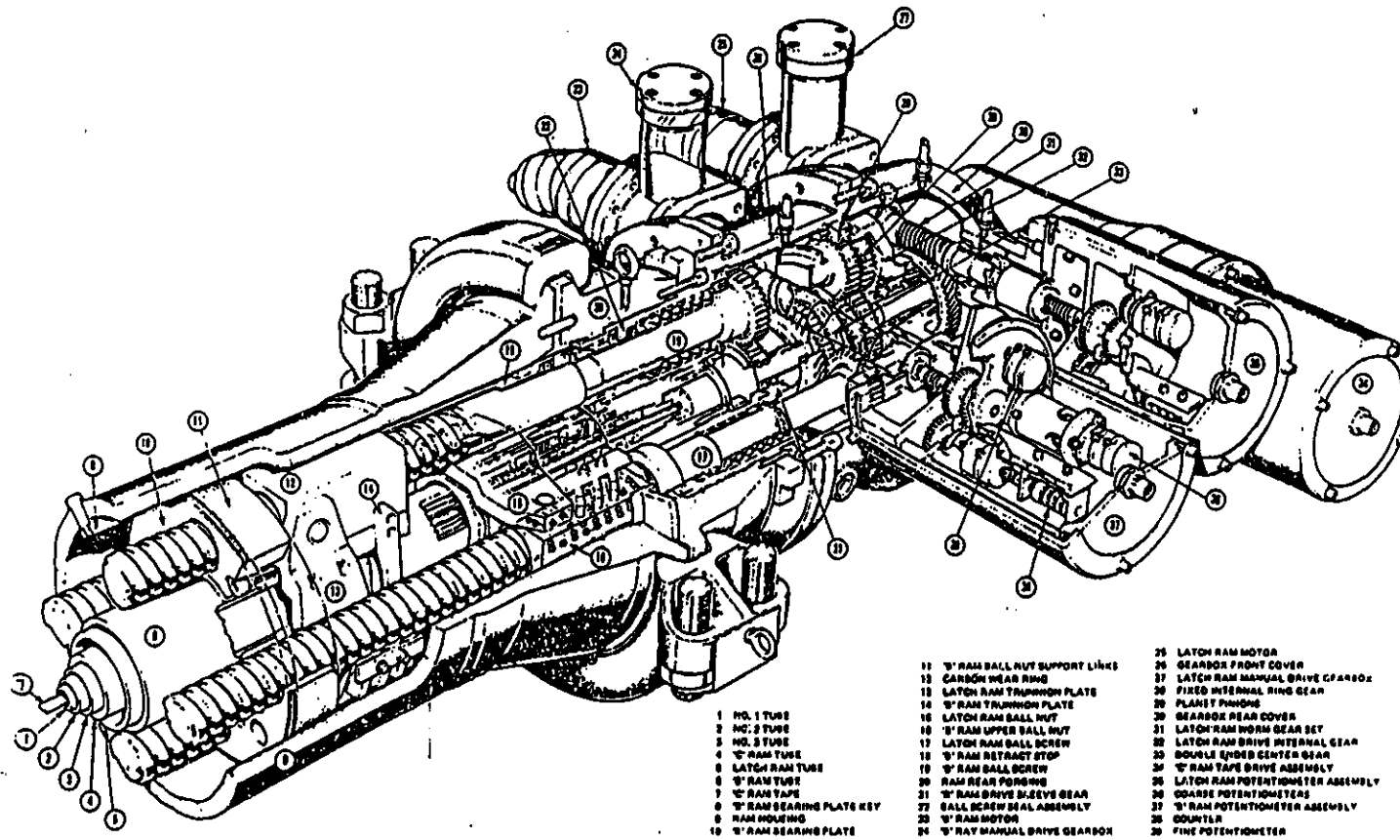


Figure 7-23 Ram Assembly (Rear End)



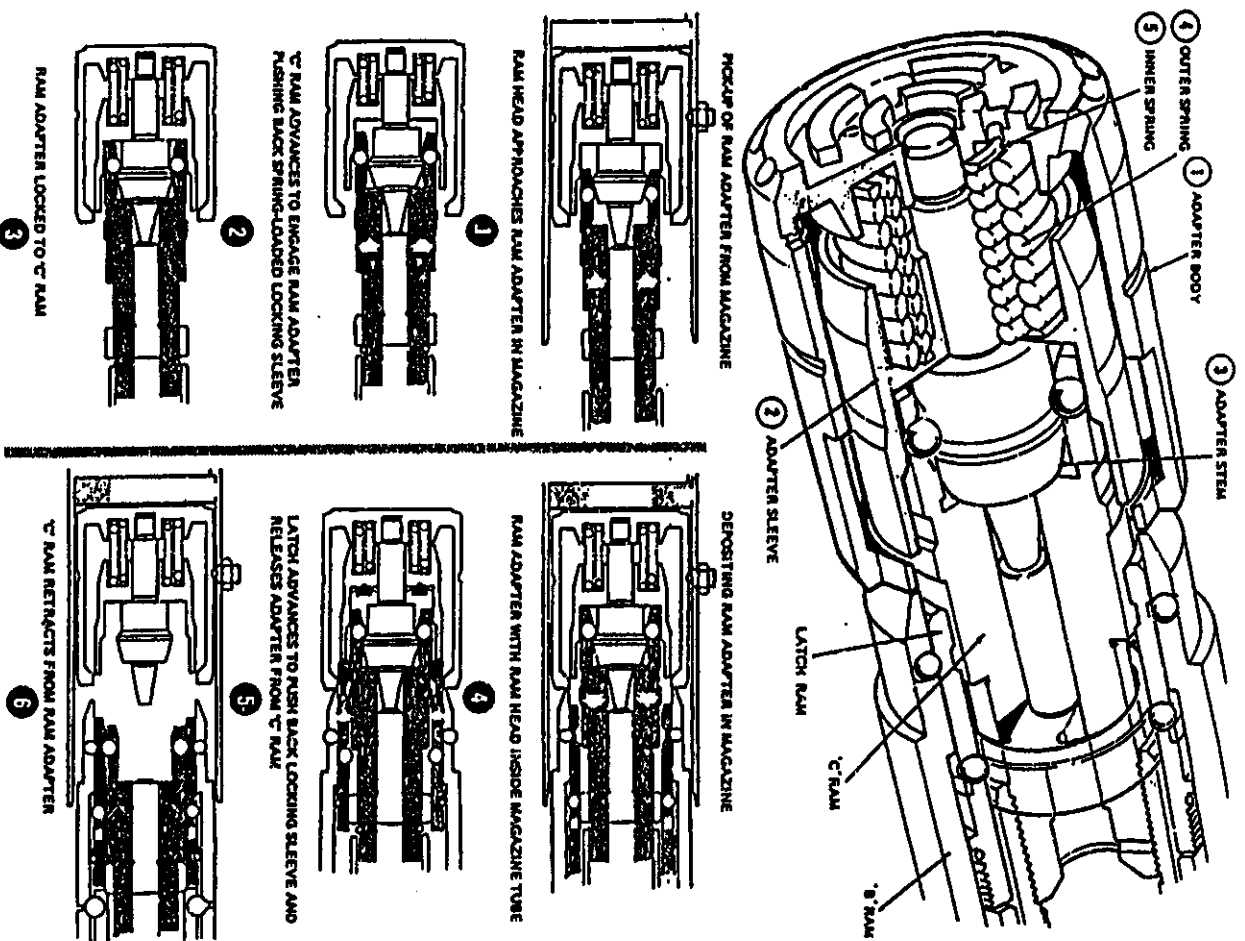


Figure 7-24 Ram Adapter and Operation

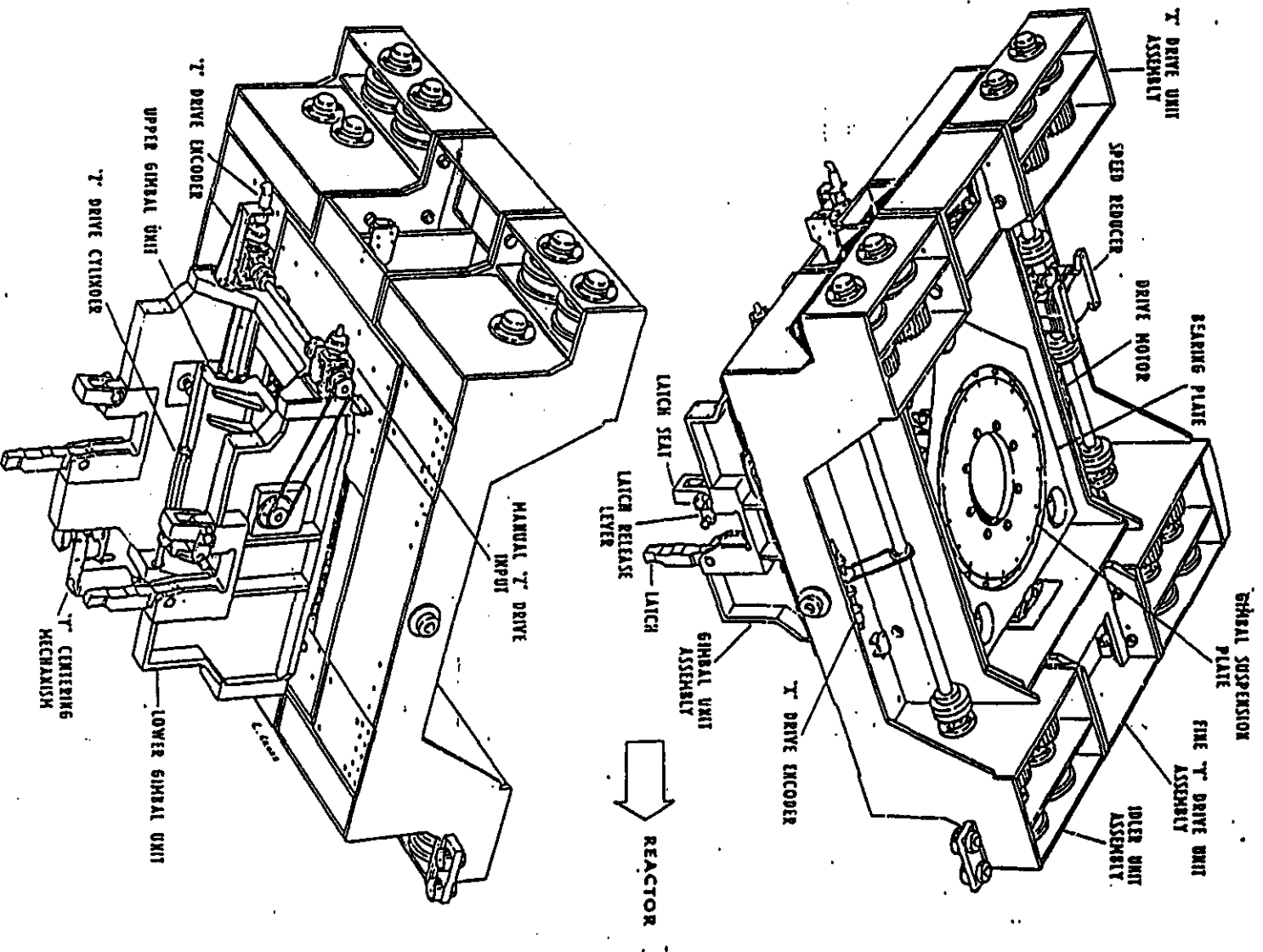


Figure 7-25 Fuelling Machine Carriage Assembly

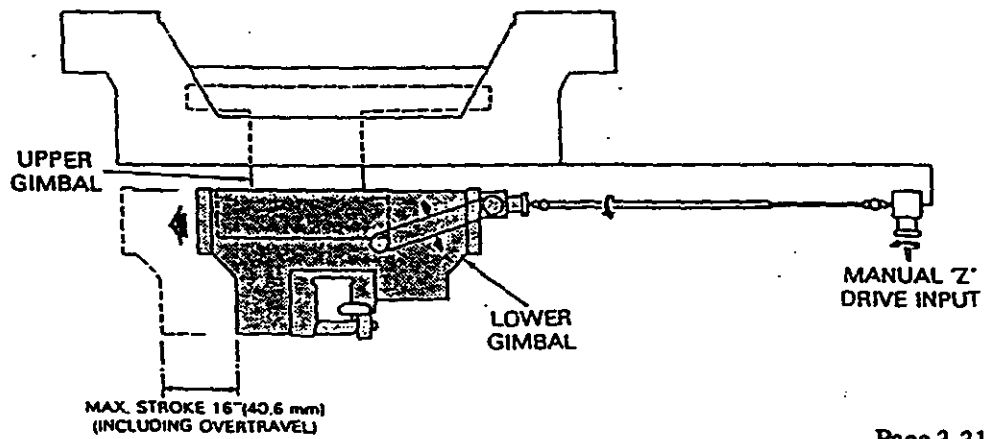
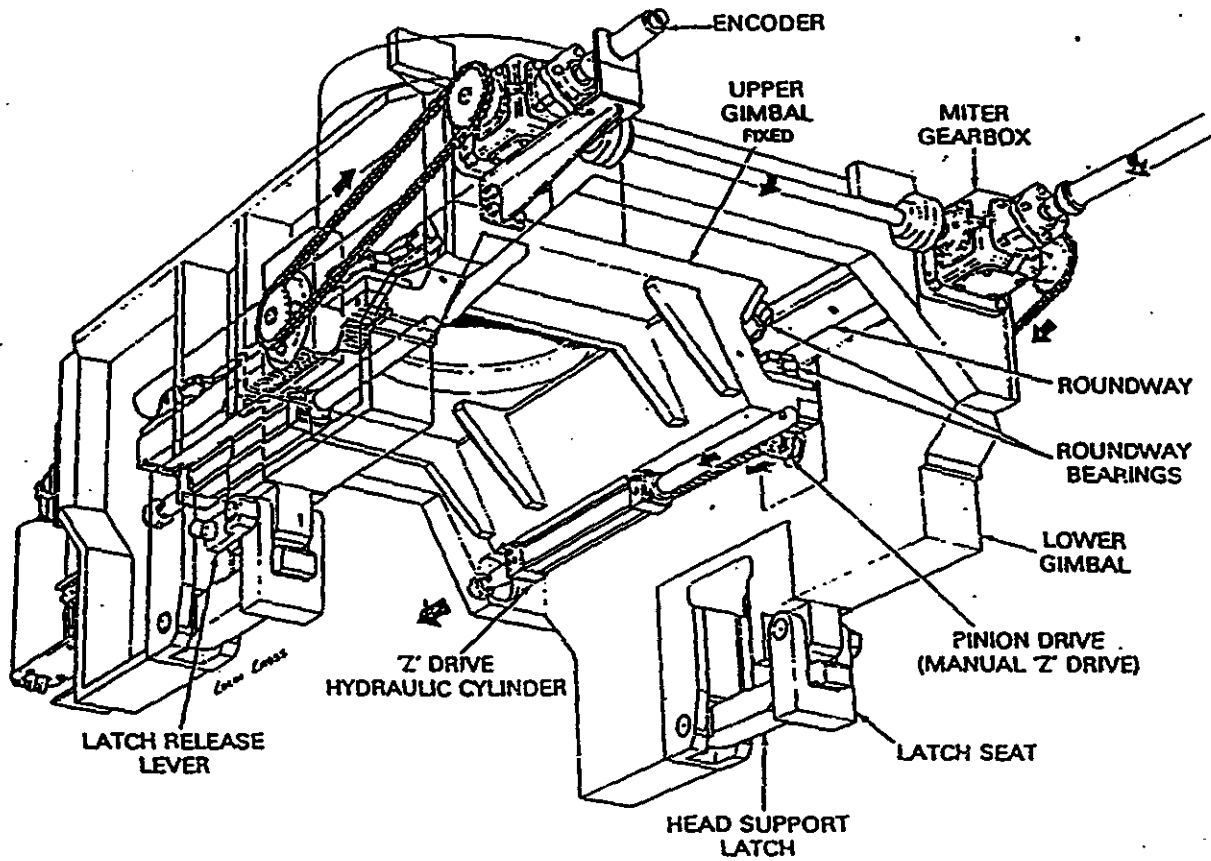


Figure 7-26 'Z' Drive on Carriage Assembly

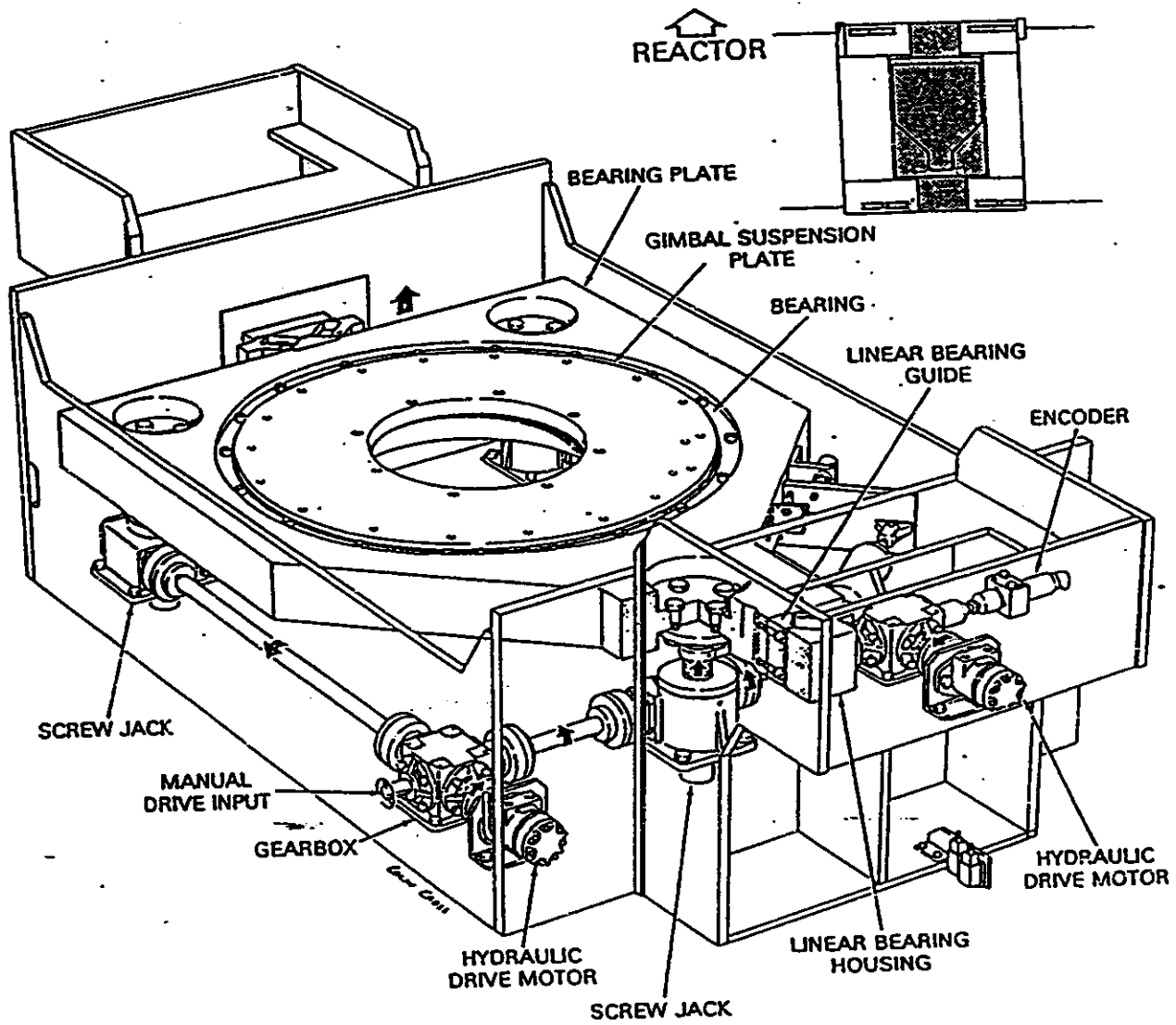


Figure 7-27 Fine Y Drive

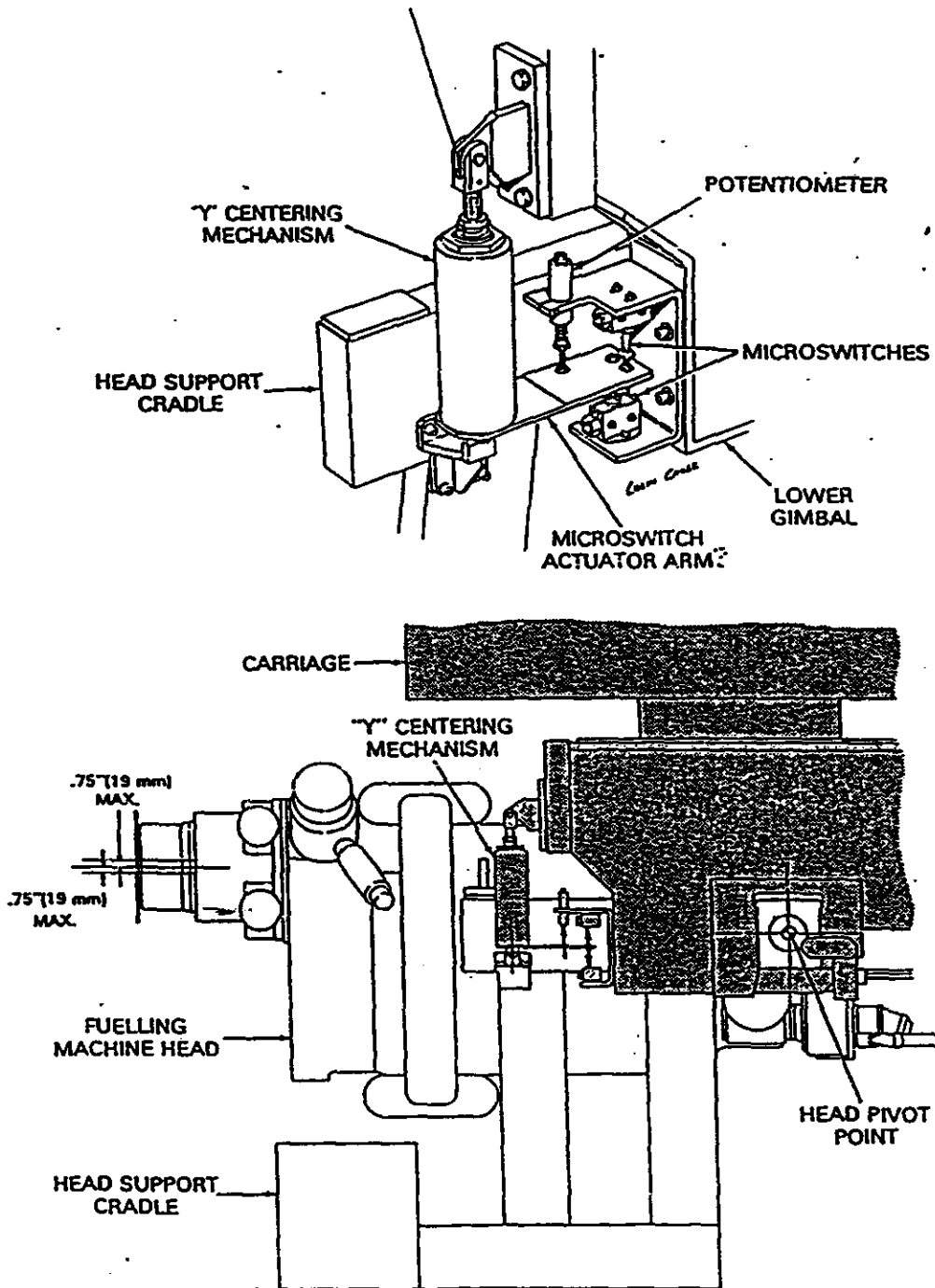


Figure 7-28 Pitch Error Sensing

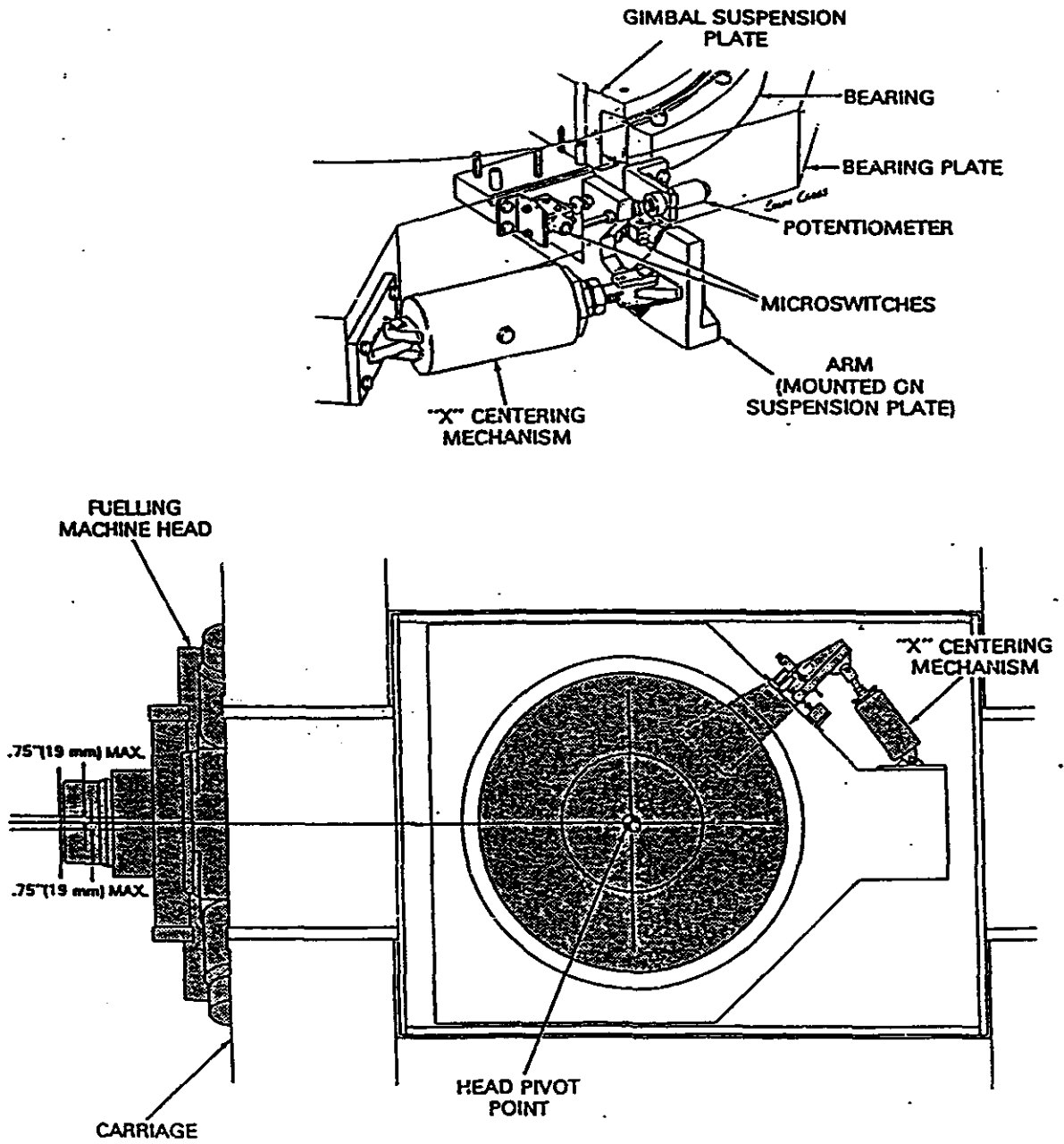


Figure 7-29 Yaw Error Sensing

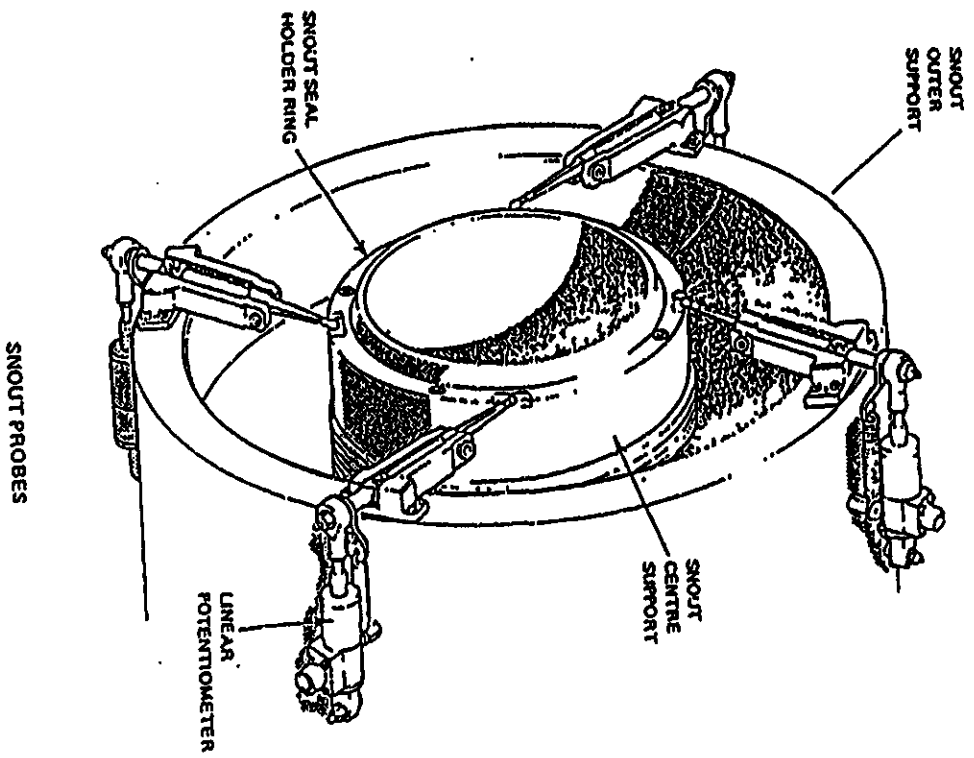
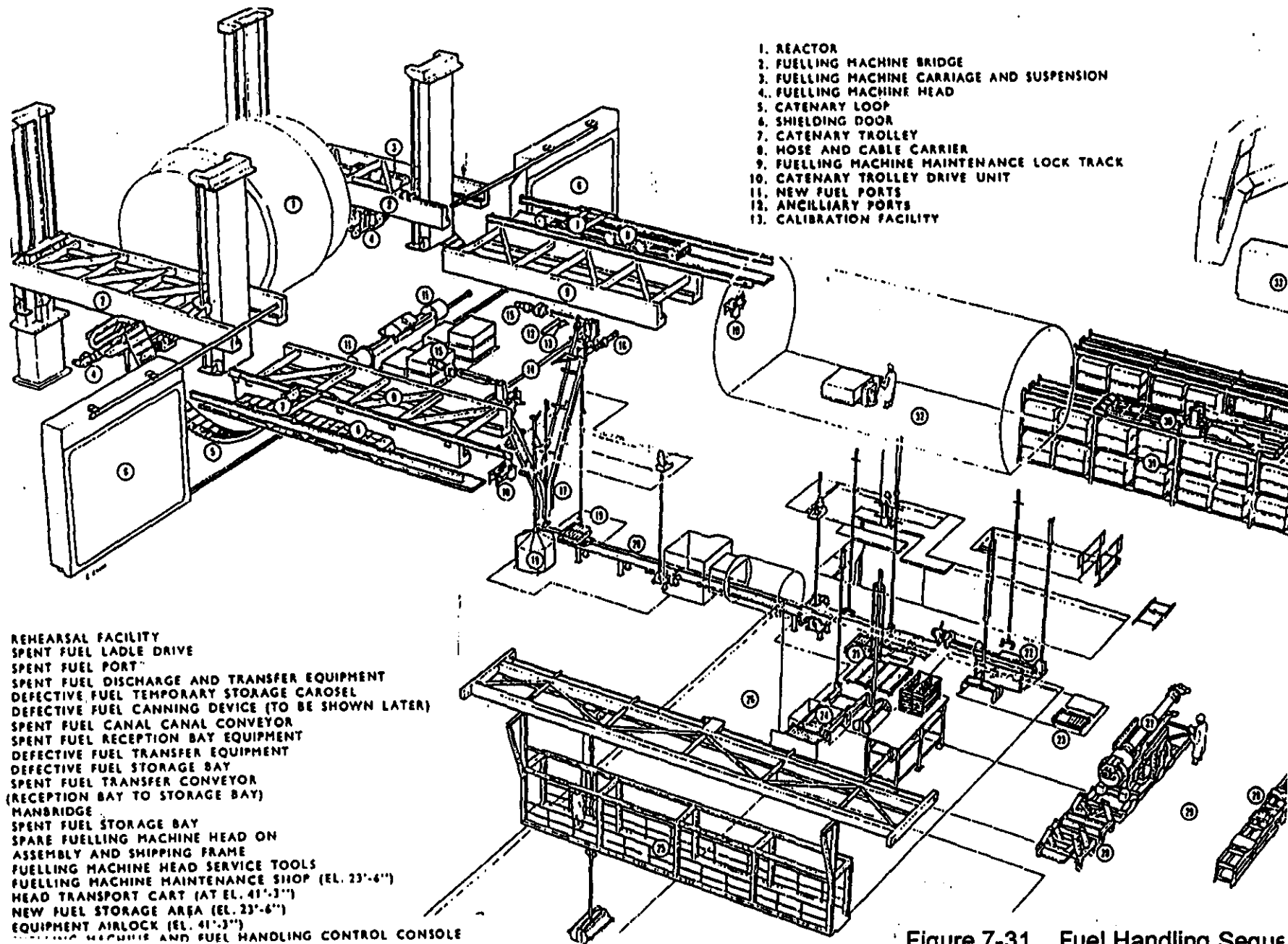


Figure 7-30 Snout Probe Sensors

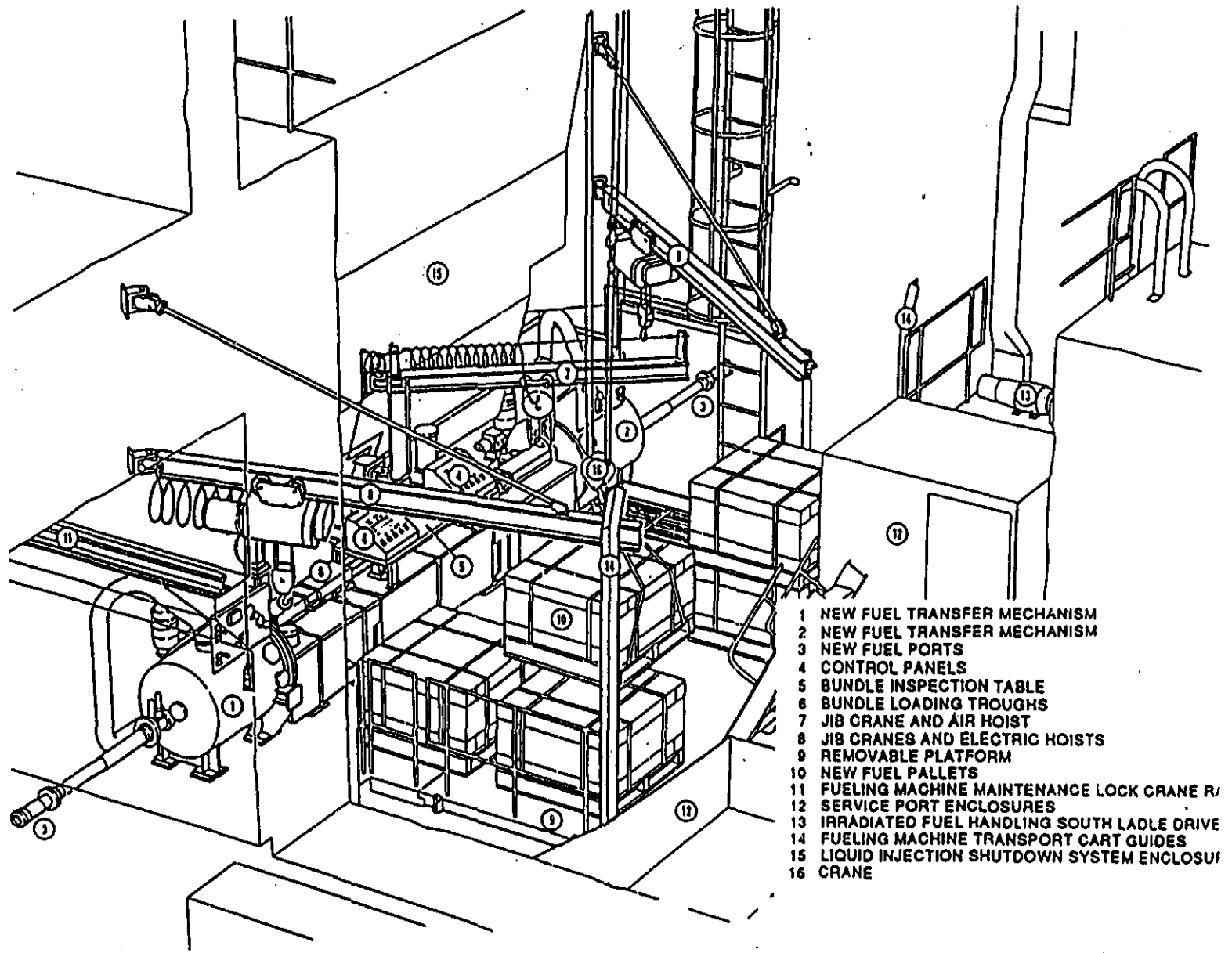


1. REACTOR
2. FUELLING MACHINE BRIDGE
3. FUELLING MACHINE CARRIAGE AND SUSPENSION
4. FUELLING MACHINE HEAD
5. CATENARY LOOP
6. SHIELDING DOOR
7. CATENARY TROLLEY
8. HOSE AND CABLE CARRIER
9. FUELLING MACHINE MAINTENANCE LOCK TRACK
10. CATENARY TROLLEY DRIVE UNIT
11. NEW FUEL PORTS
12. ANCILLIARY PORTS
13. CALIBRATION FACILITY

- REHEARSAL FACILITY
- SPENT FUEL LADLE DRIVE
- SPENT FUEL PORT
- SPENT FUEL DISCHARGE AND TRANSFER EQUIPMENT
- DEFECTIVE FUEL TEMPORARY STORAGE CAROSEL
- DEFECTIVE FUEL CANNING DEVICE (TO BE SHOWN LATER)
- SPENT FUEL CANAL CONVEYOR
- SPENT FUEL RECEPTION BAY EQUIPMENT
- DEFECTIVE FUEL TRANSFER EQUIPMENT
- DEFECTIVE FUEL STORAGE BAY
- SPENT FUEL TRANSFER CONVEYOR (RECEPTION BAY TO STORAGE BAY)
- MANBRIDGE
- SPENT FUEL STORAGE BAY
- SPARE FUELLING MACHINE HEAD ON ASSEMBLY AND SHIPPING FRAME
- FUELLING MACHINE HEAD SERVICE TOOLS
- FUELLING MACHINE MAINTENANCE SHOP (EL. 23'-6")
- HEAD TRANSPORT CART (AT EL. 41'-3")
- NEW FUEL STORAGE AREA (EL. 23'-6")
- EQUIPMENT AIRLOCK (EL. 41'-3")
- FUELLING MACHINE AND FUEL HANDLING CONTROL CONSOLE

Figure 7-31 Fuel Handling Sequence





- 1 NEW FUEL TRANSFER MECHANISM
- 2 NEW FUEL TRANSFER MECHANISM
- 3 NEW FUEL PORTS
- 4 CONTROL PANELS
- 5 BUNDLE INSPECTION TABLE
- 6 BUNDLE LOADING TROUGHS
- 7 JIB CRANE AND AIR HOIST
- 8 JIB CRANES AND ELECTRIC HOISTS
- 9 REMOVABLE PLATFORM
- 10 NEW FUEL PALLETS
- 11 FUELING MACHINE MAINTENANCE LOCK CRANE R/
- 12 SERVICE PORT ENCLOSURES
- 13 IRRADIATED FUEL HANDLING SOUTH LADLE DRIVE
- 14 FUELING MACHINE TRANSPORT CART GUIDES
- 15 LIQUID INJECTION SHUTDOWN SYSTEM ENCLOSURE
- 16 CRANE

Figure 7-32 CANDU 6 New Fuel Room Equipment Inside Reactor Containment

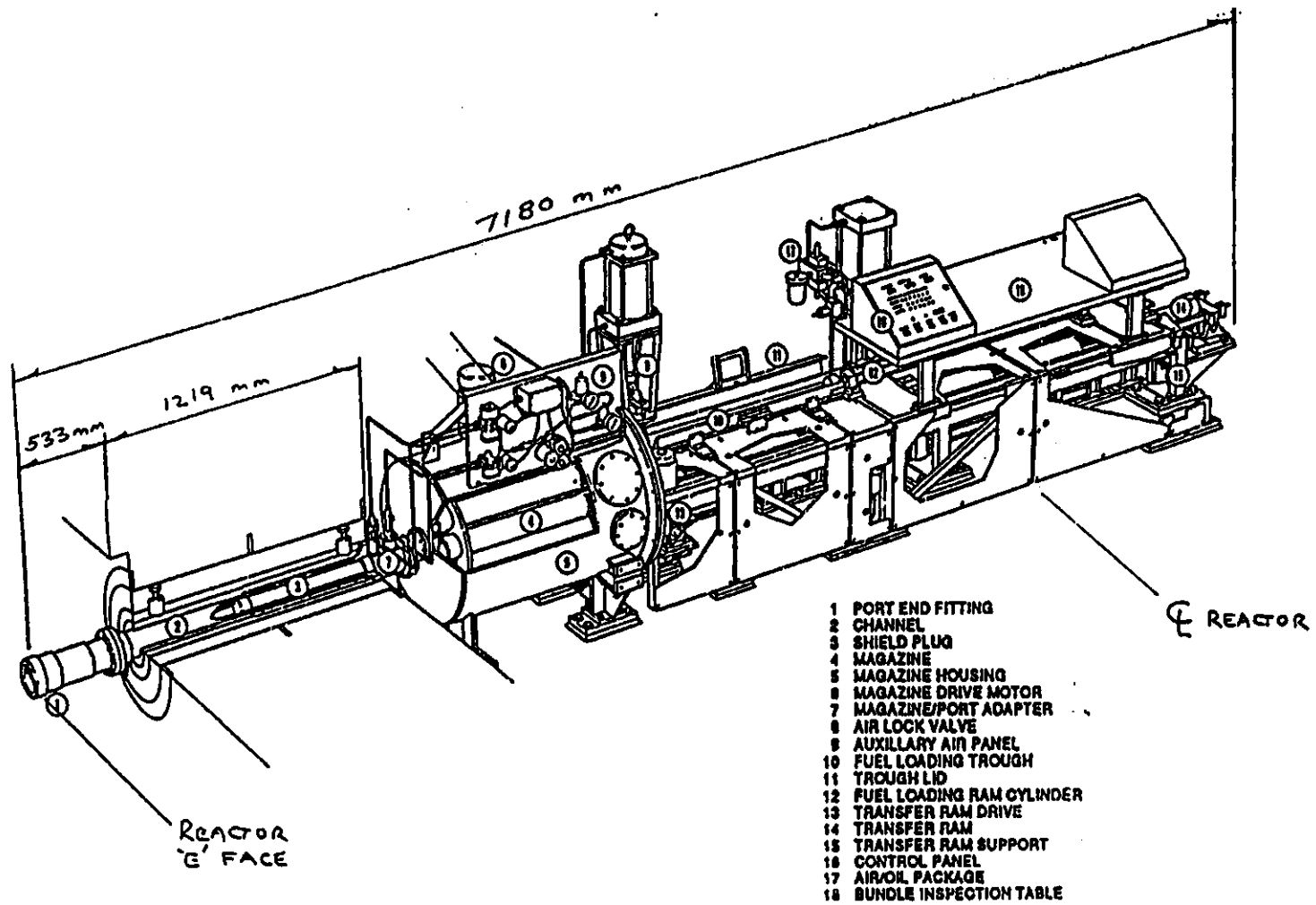
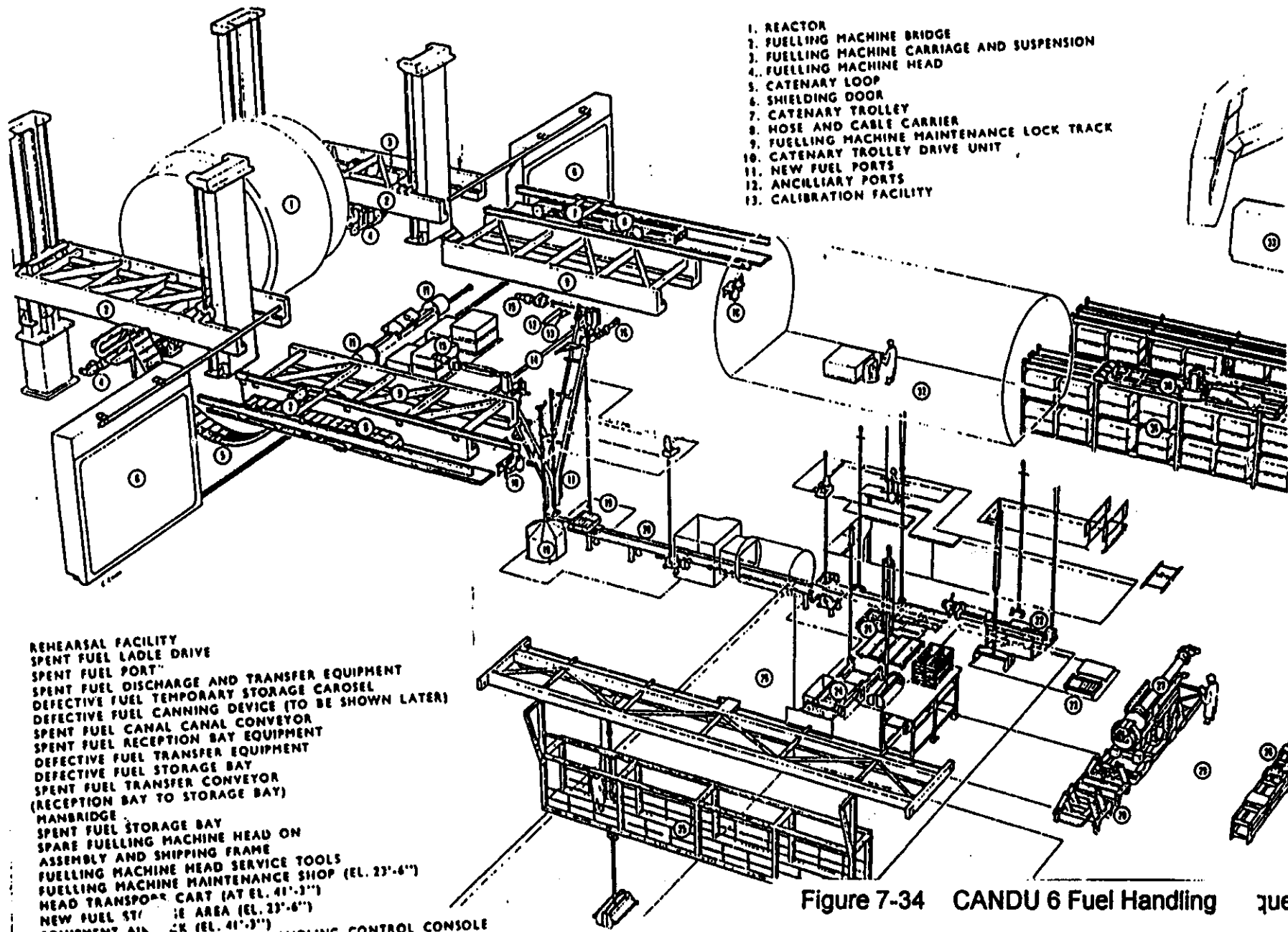


Figure 7-33 New Fuel Transfer Mechanism



1. REACTOR
2. FUELLING MACHINE BRIDGE
3. FUELLING MACHINE CARRIAGE AND SUSPENSION
4. FUELLING MACHINE HEAD
5. CATENARY LOOP
6. SHIELDING DOOR
7. CATENARY TROLLEY
8. HOSE AND CABLE CARRIER
9. FUELLING MACHINE MAINTENANCE LOCK TRACK
10. CATENARY TROLLEY DRIVE UNIT
11. NEW FUEL PORTS
12. ANCILLIARY PORTS
13. CALIBRATION FACILITY

14. REHEARSAL FACILITY
15. SPENT FUEL LADLE DRIVE
16. SPENT FUEL PORT
17. SPENT FUEL DISCHARGE AND TRANSFER EQUIPMENT
18. DEFECTIVE FUEL TEMPORARY STORAGE CAROUSEL
19. DEFECTIVE FUEL CANNING DEVICE (TO BE SHOWN LATER)
20. SPENT FUEL CANAL CANAL CONVEYOR
21. SPENT FUEL RECEPTION BAY EQUIPMENT
22. DEFECTIVE FUEL TRANSFER EQUIPMENT
23. DEFECTIVE FUEL STORAGE BAY
24. SPENT FUEL TRANSFER CONVEYOR (RECEPTION BAY TO STORAGE BAY)
25. MANBRIDGE
26. SPENT FUEL STORAGE BAY
27. SPARE FUELLING MACHINE HEAD ON ASSEMBLY AND SHIPPING FRAME
28. FUELLING MACHINE HEAD SERVICE TOOLS
29. FUELLING MACHINE MAINTENANCE SHOP (EL. 23'-6")
30. HEAD TRANSPORT CART (AT EL. 41'-3")
31. NEW FUEL STORAGE AREA (EL. 23'-6")
32. EQUIPMENT AIR LOCK (EL. 41'-3")
33. FUELLING CONTROL CONSOLE

Figure 7-34 CANDU 6 Fuel Handling que

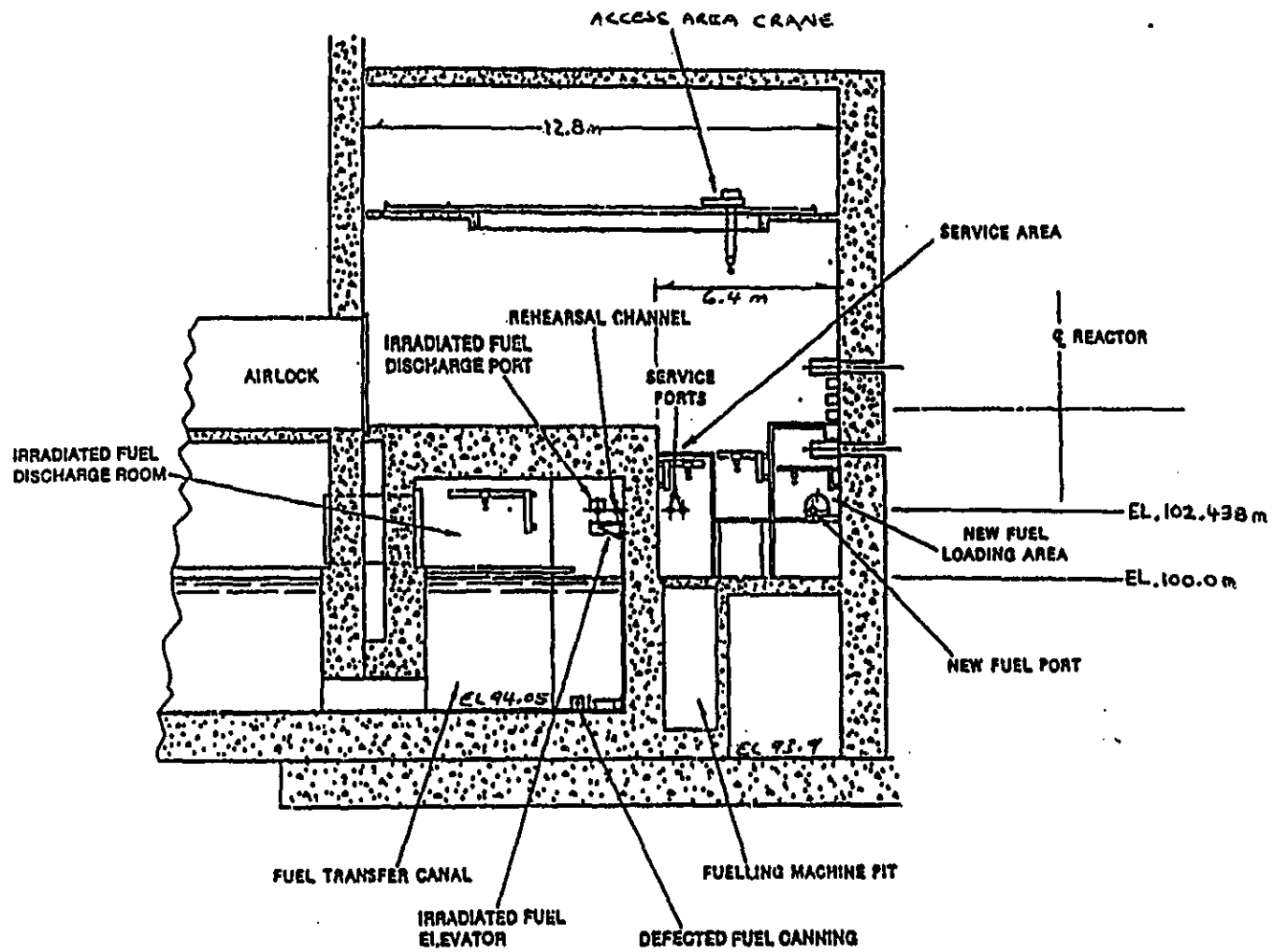


Figure 7-35 Fuel Handling System - Section S1

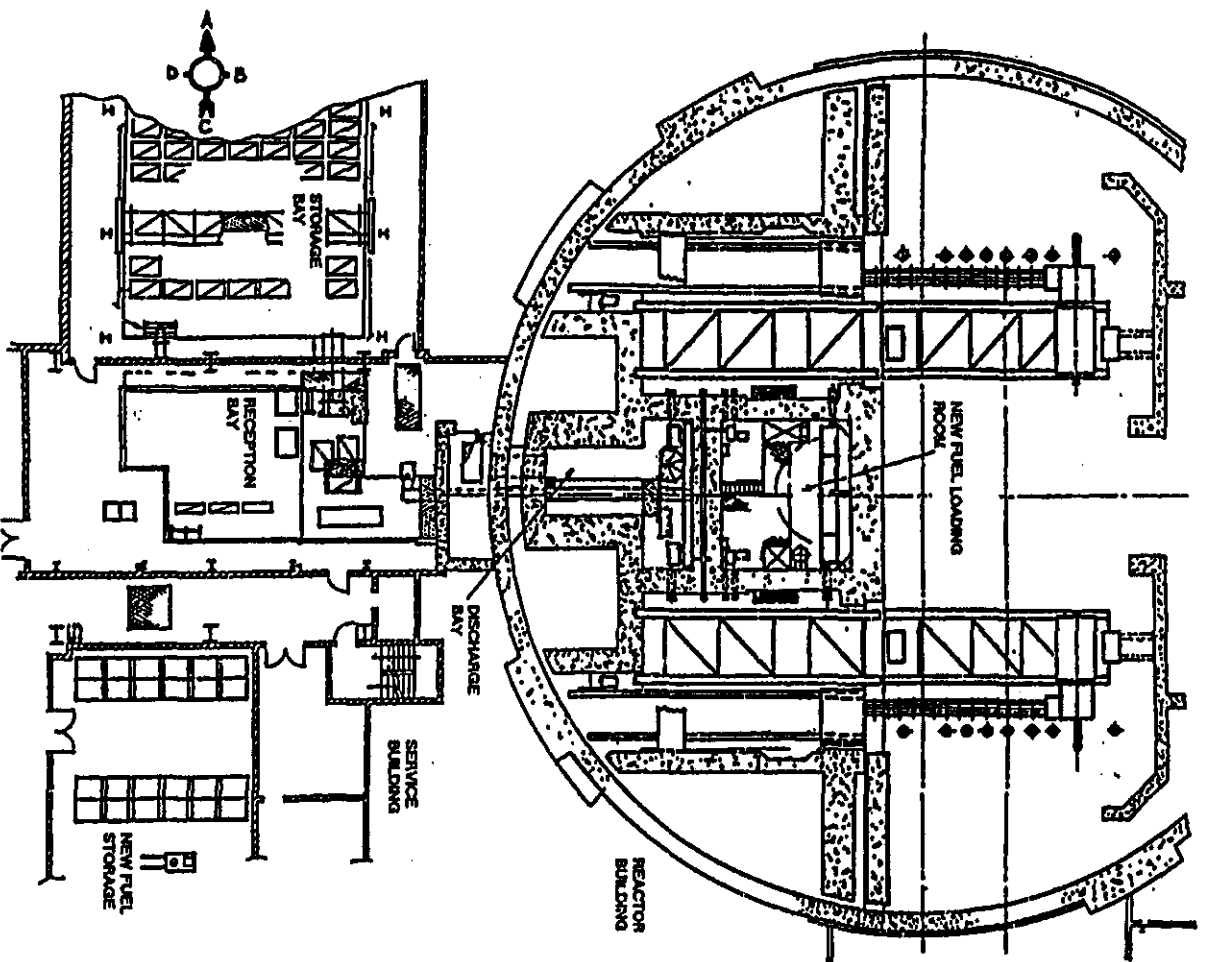
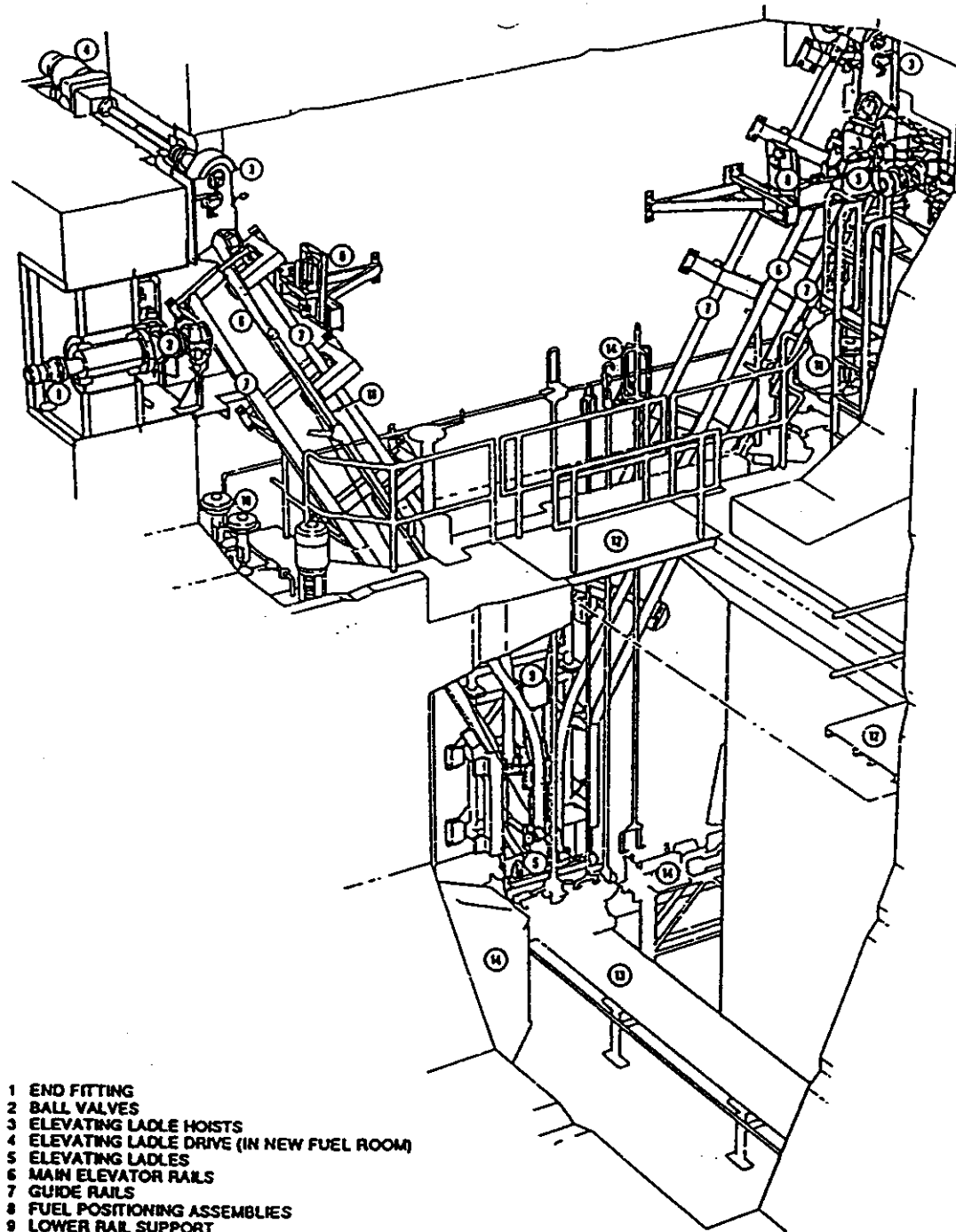


Figure 7-36 New Fuel and Irradiated Fuel Layout



- 1 END FITTING
- 2 BALL VALVES
- 3 ELEVATING LADLE HOISTS
- 4 ELEVATING LADLE DRIVE (IN NEW FUEL ROOM)
- 5 ELEVATING LADLES
- 6 MAIN ELEVATOR RAILS
- 7 GUIDE RAILS
- 8 FUEL POSITIONING ASSEMBLIES
- 9 LOWER RAIL SUPPORT
- 10 AUXILIARIES
- 11 SPRAY HEADERS
- 12 REMOVABLE PLATFORMS
- 13 FUEL TRANSFER EQUIPMENT
- 14 DEFECTED FUEL CANNING EQUIPMENT

Figure 7-37 CANDU 6 Irradiated Fuel Discharge Equipment

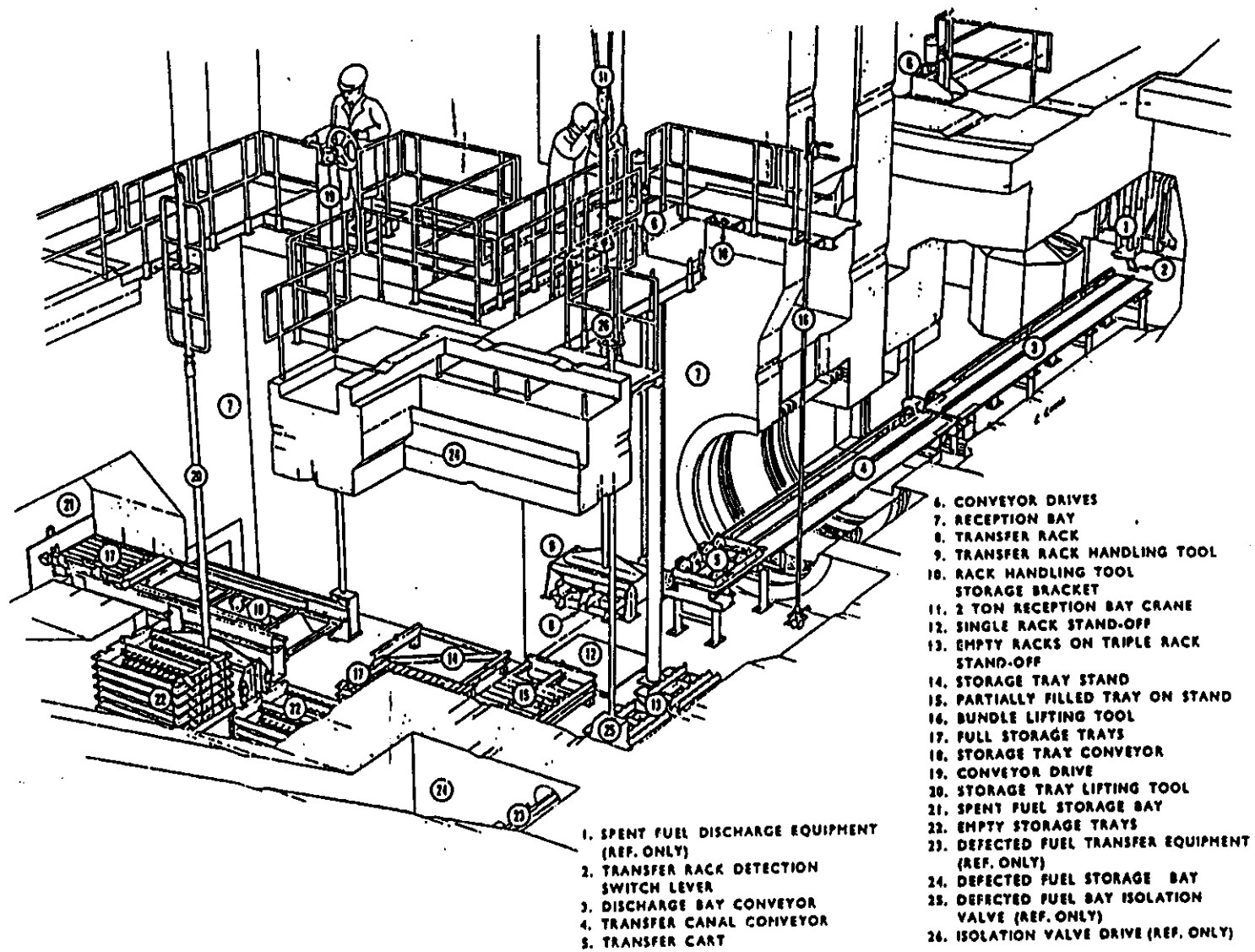


Figure 7-38 Irradiated Fuel Transfer Equipment

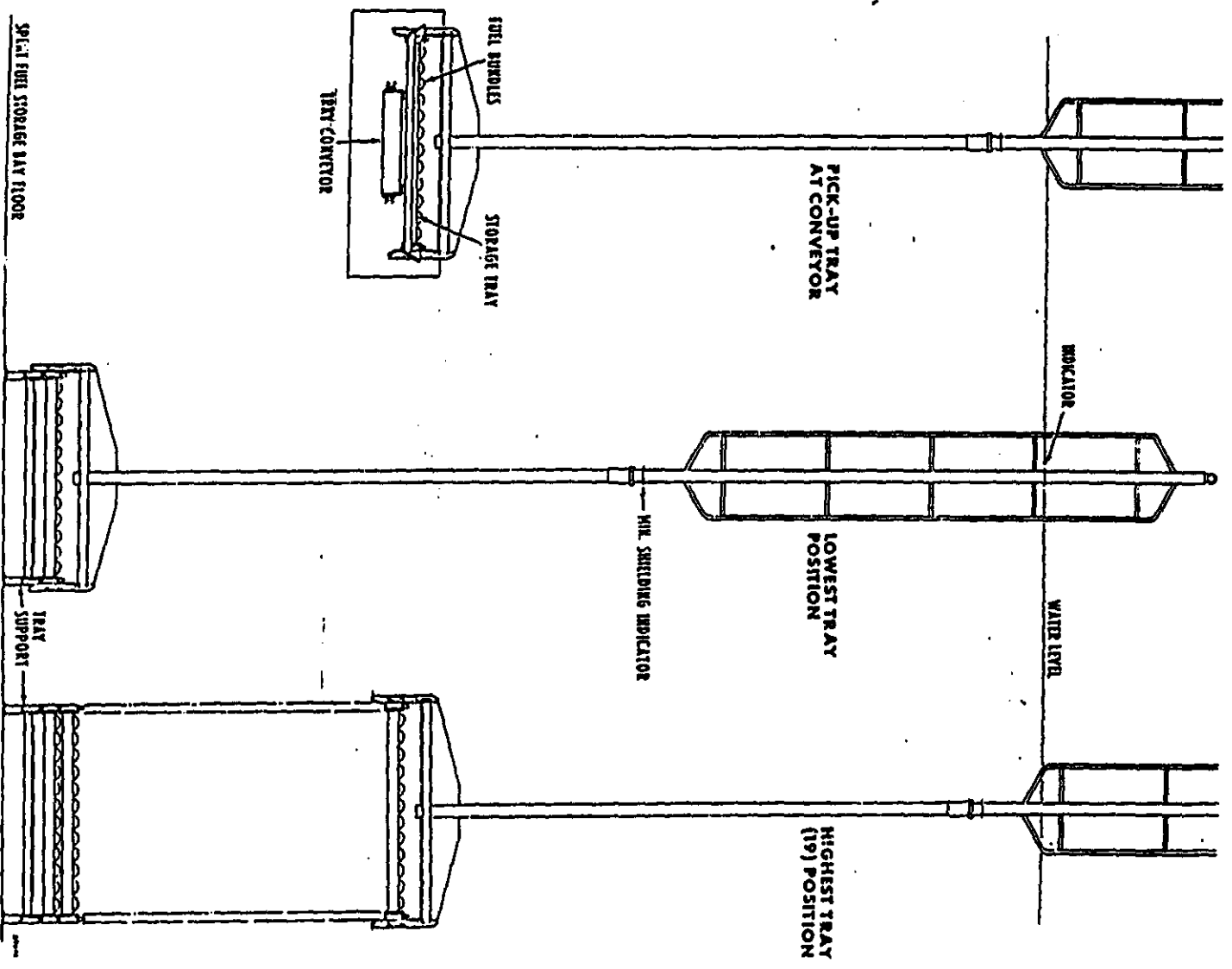


Figure 7-39 Irradiated Fuel Storage Bay Storage Tray Lifting Tool Operation