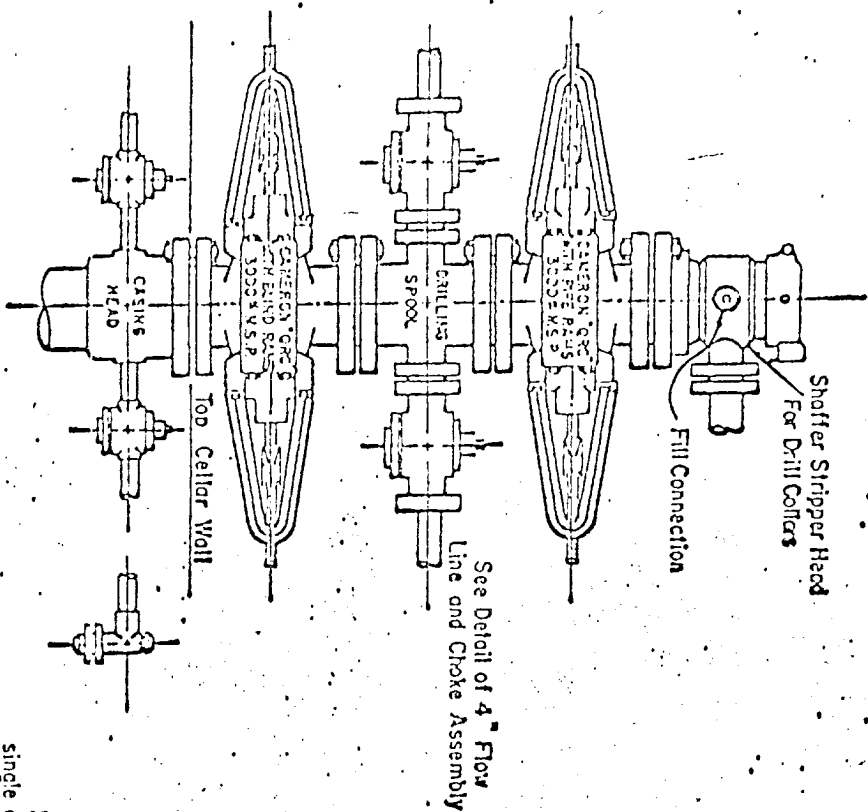
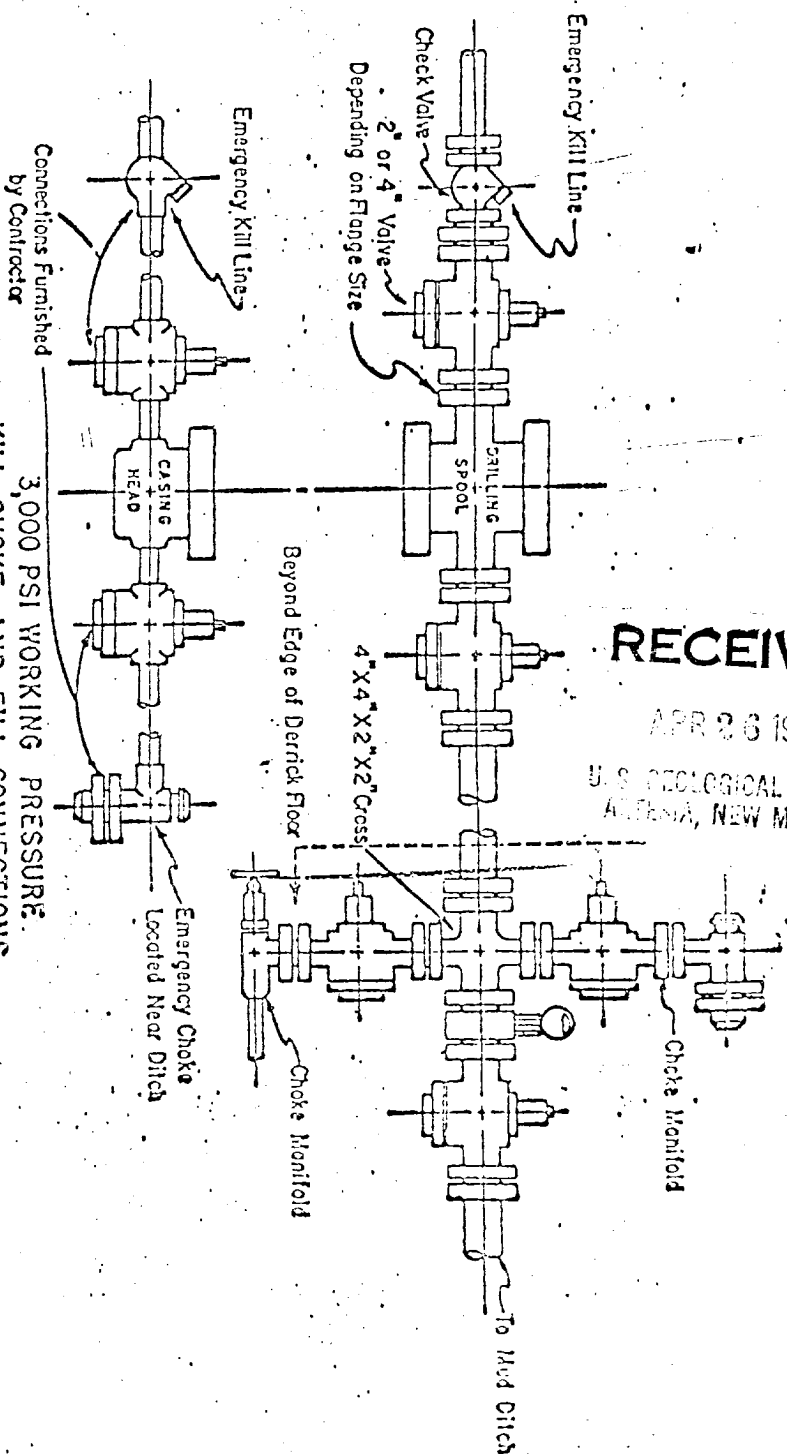




3000 PSI WORKING PRESSURE BLOWOUT PREVENTER HOOK-UP

Series 900 Flanges, or Better



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U. S. GEOLOGICAL SURVEY
ALBUQUERQUE, NEW MEXICO

Minimum assembly for 3000 PSI working pressure will consist of two preventers which may be Cameron QRC, Cameron Type F, single or double, Cameron Space-Sever or Shafter Hydraulic, single or double. If double preventers are provided, the drilling spool shall be placed below the preventers and the blind rams placed in the upper preventer. With this arrangement it will not be necessary to provide a kill and choke line to Gulf's casinghead housing. In lieu of the drilling spool, the flanged outlets of the double Shafter, the Space-Sever or double F, if they are the correct size, and provided the preventers can be installed to meet Gulf's requirements, may be used for the four-inch flow line and the two-inch kill line.

Size 12-inch preventers may be used for work down through 8-5/8-inch casing. Size 10-inch preventers may be used for work down through 7-5/8-inch casing. Size six-inch preventers are to be used for work through 7-inch and 5-1/2-inch casings.

Minimum operating equipment for the preventers will be: (1) An air operated pump and (2) An accumulator (s) with some means of obtaining a fluid charge. A closed fluid system is recommended. The closing manifold and remote closing manifold will have a separate four-way valve for each pressure operated device. Sufficient fluid capacity in the accumulator (s) shall be available to close off the pressure operated devices at the same time with 25 per cent reserve. Gulf No. 551 hydraulic oil shall be used as the operating fluid.

The four-inch flow line from the preventers shall be supported by a metal stand or reinforced concrete. All valves throughout the assembly shall be selected for operation in both gas and fluids. Sufficient substructure height is to be provided in the event Gulf should request installation of a rotating type blowout preventer. The preventers will be provided with stem extensions, universal joints, if needed, and operating wheels.