

OPERATION

Fresh unreduced catalyst is charged to the reactor and standpipe in the desired quantity and fluidized by circulating natural gas through the system. The pressure is then raised to 200 psig and the preheaters lit and the system brought up to a temperature of 750 F. The outlet valve is then closed, the natural gas shut off, and the system maintained under pressure by adding hydrogen. Reduction is continued for about 12 hours at a temperature as near 750 F. as possible. Reduction is ordinarily terminated by the exhaustion of the hydrogen supply. Natural gas circulation is then resumed and reactor temperatures lowered to 650 F. The generator is then started by introducing a few glowing wood embers, flanging up the burner, starting the flow of oxygen and immediately thereafter starting the flow of

natural gas. The rates of gas and oxygen flow are adjusted to give a mixture containing about 55 to 60 % oxygen during the initial operating period and as the generator comes up to temperature, the mixture is reduced to about 40 to 45 % oxygen content. Simultaneously, the pressure is brought up to 200 psig and the mixture adjusted to give a product gas containing 3 to 4 % methane by explosion orsat.

When the generator is in full operation, fresh feed is introduced into the reactor, decreasing the flow of recycle gas to hold the desired reactor velocity. As the fresh feed is cut in, reaction starts, and the isolating valve between the water leg and the steam tubes in the cooling system is gradually opened and the boiler pressure is brought up to the operating level to hold the desired reactor temperature.