



Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency

H LaFontaine, F P Zimmerman

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This report is one in a series of emergency technology assessments sponsored by the Federal Emergency Management Agency (FEMA). The purpose of this report is to develop detailed, illustrated instructions for the fabrication, installation, and operation of a biomass gasifier unit (i.e., a producer gas generator, also called a wood gas generator) that is capable of providing emergency fuel for vehicles, such as tractors and trucks, in the event that normal petroleum sources were severely disrupted for an extended period of time. These instructions have been prepared as a manual for use by any mechanic who is reasonably proficient in metal fabrication or engine repair. This report attempts to preserve the knowledge about wood gasification that was put into practical use during World War II. Detailed, step-by-step fabrication procedures are presented for a simplified version of the World War II, Embowered wood gas generator. This simple, stratified, downdraft gasifier unit can be constructed from materials that would be widely available in the United States in a prolonged petroleum crisis. For example, the body of the unit consists of a galvanized metal garbage can atop a small metal drum; common plumbing fittings throughout; and a large, stainless steel mixing bowl for the grate. The entire compact unit was mounted onto the front of a farm tractor and successfully field tested, using wood chips as the only fuel. Photographic documentation of the actual assembly of the unit as well as its operation is included.

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There are plenty of resources for further review as well. The plans in this reference material are for shorter term use and emergency use. The material provides an excellent foundation so that one can gain an understanding of how wood gas generators operate and how to build one. This is a must read for anyone who likes to be prepared in case of emergencies and for anyone looking to increase their knowledge regarding alternative energy resources. An excellent reference resource. This report is available for free elsewhere online.

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