



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

By *H LaFontaine, F P Zimmerman*

[Download now](#)

[Read Online](#) 

## **Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency** By H LaFontaine, F P Zimmerman

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.

**CONTENTS**

**ABSTRACT**

**EXECUTIVE SUMMARY**

**S.1. PRINCIPLES OF SOLID FUEL GASIFICATION**

**S.2. THE STRATIFIED, DOWNDRAFT GASIFIER**

**1. WHAT IS A WOOD GAS GENERATOR AND HOW DOES IT WORK?**

**1.1. INTRODUCTION**

**1.2. PRINCIPLES OF SOLID FUEL GASIFICATION**

**1.3. BACKGROUND INFORMATION**

**1.3.1. The World War II, Embowered Gasifier**

**1.3.2. The Stratified, Downdraft Gasifier**

**2. BUILDING YOUR OWN WOOD GAS GENERATOR**

**2.1. BUILDING THE GAS GENERATOR UNIT AND THE FUEL HOPPER**

**2.2. BUILDING THE PRIMARY FILTER UNIT**

**2.3. BUILDING THE CARBURETING UNIT WITH THE AIR AND THROTTLE CONTROLS**

**3. OPERATING AND MAINTAINING YOUR WOOD GAS GENERATOR**

**3.1. USING WOOD AS A FUEL**

**3.2. SPECIAL CONSIDERATIONS AND ENGINE**

MODIFICATIONS 3.3. INITIAL START-UP PROCEDURE 3.4. ROUTINE START-UP PROCEDURE 3.5. DRIVING AND NORMAL OPERATION 3.6. SHUTTING DOWN THE GASIFIER UNIT 3.7. ROUTINE MAINTENANCE 3.7.1 Daily Maintenance 3.7.2 Weekly Maintenance (or every 15 hours of operation) 3.7.3 Biweekly Maintenance (or every 30 hours of operation) 3.8. OPERATING PROBLEMS AND TROUBLE SHOOTING CONTENTS 3.9. HAZARDS ASSOCIATED WITH GASIFIER OPERATION 3.9.1. Toxic Hazards 3.9.2. Technical Aspects of Generator Gas, Poisoning 3.9.3. Fire Hazard APPENDICES APPENDIX I. CONVERSION FACTORS FOR SI UNITS APPENDIX II. LIST OF FIGURES APPENDIX III. LIST OF TABLES APPENDIX IV. BIBLIOGRAPHY 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.

 [Download Construction of a Simplified Wood Gas Generator: F ...pdf](#)

 [Read Online Construction of a Simplified Wood Gas Generator: ...pdf](#)

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

*By H LaFontaine, F P Zimmerman*

## **Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency** By H LaFontaine, F P Zimmerman

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.

**CONTENTS**

**ABSTRACT**

**EXECUTIVE SUMMARY**

**S.1. PRINCIPLES OF SOLID FUEL GASIFICATION**

**S.2. THE STRATIFIED, DOWNDRAFT GASIFIER**

**1. WHAT IS A WOOD GAS GENERATOR AND HOW DOES IT WORK?**

**1.1. INTRODUCTION**

**1.2. PRINCIPLES OF SOLID FUEL GASIFICATION**

**1.3. BACKGROUND INFORMATION**

**1.3.1. The World War II, Embowered Gasifier**

**1.3.2. The Stratified, Downdraft Gasifier**

**2. BUILDING YOUR OWN WOOD GAS GENERATOR**

**2.1. BUILDING THE GAS GENERATOR UNIT AND THE FUEL HOPPER**

**2.2. BUILDING THE PRIMARY FILTER UNIT**

**2.3. BUILDING THE CARBURETING UNIT WITH THE AIR AND THROTTLE CONTROLS**

**3. OPERATING AND MAINTAINING YOUR WOOD GAS GENERATOR**

**3.1. USING WOOD AS A FUEL**

**3.2. SPECIAL CONSIDERATIONS AND ENGINE MODIFICATIONS**

**3.3. INITIAL START-UP PROCEDURE**

**3.4. ROUTINE START-UP PROCEDURE**

**3.5. DRIVING AND NORMAL OPERATION**

**3.6. SHUTTING DOWN THE GASIFIER UNIT**

**3.7. ROUTINE MAINTENANCE**

**3.7.1 Daily Maintenance**

**3.7.2 Weekly Maintenance (or every 15 hours of operation)**

**3.7.3 Biweekly Maintenance (or every 30 hours of operation)**

**3.8. OPERATING PROBLEMS AND TROUBLE SHOOTING**

**3.9. HAZARDS ASSOCIATED WITH GASIFIER OPERATION**

**3.9.1. Toxic Hazards**

**3.9.2. Technical Aspects of Generator Gas, Poisoning**

**3.9.3. Fire Hazard**

**APPENDICES**

**APPENDIX I. CONVERSION FACTORS FOR SI UNITS**

**APPENDIX II. LIST OF FIGURES**

**APPENDIX III. LIST OF TABLES**

**APPENDIX IV. BIBLIOGRAPHY**

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.

## **Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman Bibliography**

- Rank: #374489 in Books
- Published on: 2014-02-26
- Original language: English
- Dimensions: 11.00" h x .15" w x 8.50" l,
- Binding: Paperback
- 66 pages



[\*\*Download Construction of a Simplified Wood Gas Generator: F ...pdf\*\*](#)



[\*\*Read Online Construction of a Simplified Wood Gas Generator: ...pdf\*\*](#)

## **Download and Read Free Online Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman**

---

### **Editorial Review**

### **Users Review**

#### **From reader reviews:**

##### **Ruth Haakenson:**

Do you have favorite book? Should you have, what is your favorite's book? Reserve is very important thing for us to be aware of everything in the world. Each reserve has different aim or perhaps goal; it means that reserve has different type. Some people sense enjoy to spend their time for you to read a book. They can be reading whatever they have because their hobby is actually reading a book. What about the person who don't like studying a book? Sometime, man or woman feel need book if they found difficult problem or exercise. Well, probably you will require this Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency.

##### **Edna Garza:**

Information is provisions for those to get better life, information these days can get by anyone in everywhere. The information can be a knowledge or any news even restricted. What people must be consider any time those information which is in the former life are challenging be find than now's taking seriously which one is acceptable to believe or which one typically the resource are convinced. If you find the unstable resource then you buy it as your main information it will have huge disadvantage for you. All those possibilities will not happen throughout you if you take Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency as your daily resource information.

##### **Andrew Fox:**

The book with title Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency has lot of information that you can learn it. You can get a lot of gain after read this book. This specific book exist new expertise the information that exist in this reserve represented the condition of the world right now. That is important to you to find out how the improvement of the world. This particular book will bring you within new era of the global growth. You can read the e-book on your own smart phone, so you can read the idea anywhere you want.

##### **Wilda Alexander:**

On this era which is the greater person or who has ability to do something more are more important than other. Do you want to become one of it? It is just simple solution to have that. What you are related is just spending your time little but quite enough to enjoy a look at some books. On the list of books in the top record in your reading list is usually Construction of a Simplified Wood Gas Generator: For Fueling Internal

Combustion Engines in a Petroleum Emergency. This book that is qualified as The Hungry Mountains can get you closer in growing to be precious person. By looking way up and review this publication you can get many advantages.

**Download and Read Online Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman  
#I0KPE4Z0MGW**

# **Read Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman for online ebook**

Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman books to read online.

## **Online Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman ebook PDF download**

### **Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman Doc**

**Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman MobiPocket**

**Construction of a Simplified Wood Gas Generator: For Fueling Internal Combustion Engines in a Petroleum Emergency By H LaFontaine, F P Zimmerman EPub**