

# M30F

# Air Curtain

# Destructor

Owner's/  
Operators  
Manual

<b>Caution !!!!</b>
Read Owner's Manual before operating machine
<b>Do Not Start the machine unless you understand these instructions !!</b>

*McPherson Systems, Inc.*

*Tifton, Georgia*

*(229) 386-2367*

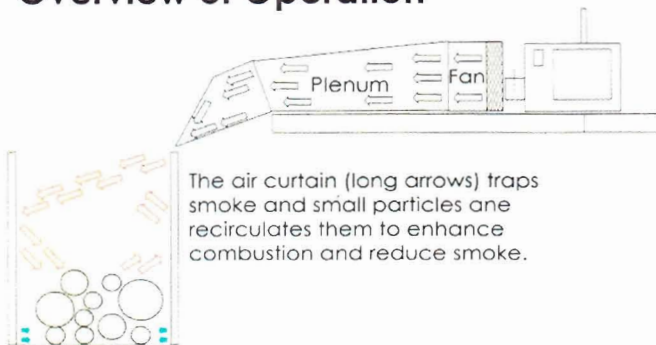
# McPherson Systems, Inc.

Tifton, GA  
229-386-2367

**SINCE 1985**



## Overview of Operation



## AIR CURTAIN DESTRUCTOR

for  
Controlled Pit Burning

### POLLUTION CONTROL

The McPherson Systems AIR CURTAIN DESTRUCTOR (trench burner) is an alternative to open burning as a method of waste disposal. The trench burner is effective in reducing smoke and other pollutants especially where open burning is prohibited by law.

### PORTABILITY

The trench burner is completely portable to the job site by way of its own rubber tired axles. It is easily assembled for operation as the plenum section and nozzle section fasten with a quick hitch in seconds.

### OPERATION

The trench burner creates and maintains a uniform curtain of air across the top of a pit in which the burning is done. The air curtain provided by the trench burner prohibits smoke and ash from leaving the pit. It also increases the burning efficiency in the pit by increasing the available oxygen. The increased burning efficiency allows for faster and more complete burning of trees, stumps and debris.

McPherson Systems has these portable units available. All units are equipped with emergency shutdown switches (low oil or overheat) and engine lockup kits for vandalism protection.

# INTRODUCTION

Read this manual carefully to learn how to operate your new McPherson Systems, Inc. Trench Burner. This manual will also show you how to properly maintain your machine. Failure to read this manual could result in personal injury and equipment and property damage.

This manual is a permanent part of your machine and must remain with the machine should you decide to sell it.

If you do not find the information you are looking for in this manual or need further information, call 1-229-386-2367 from 8:00 A.M. to 5:00 P.M. EST - Monday through Friday.

## NOTICE

**NEVER** leave the machine unattended when it contains burning fuel. The machine reduces but does not eliminate sparks.

## **I. SETTING UP THE MACHINE**

Never locate the machine closer than 75' to flammable materials or structures. Make sure that there is clear access all around the machine to load fuel and remove ashes.

## **II. STARTING THE MACHINE**

A. ALWAYS check weather for "no burn" orders and high wind. Rain or low clouds will hinder the machine's performance and should be avoided.

B. Load the pit no more than 1/3 full of wood. NEVER put cardboard in the pit.

NOTE: Only wood waste consisting of trees, logs, large brush, and stumps relatively free of soil may be burned.

C. If there are hot coals in the pit from prior operation, start the blower using the attached **Engine Start Up Procedure**. If not, pour one pint of diesel fuel or fuel oil (NOT gasoline, thinner, mineral spirits) on the wood in the front center of the pit and light the fire. Once the fire is well lit, start the blower using the attached **Engine Start Up Procedure**. Never pour anything on the fire without checking with your local EPA/EPD office to see if accelerates are permitted.

D. Always make sure a fire extinguisher is on hand.

**CAUTION!** AN OPERATOR MUST STAY WITH MACHINE AT ALL TIMES WHILE BURNING!

## **III. LOADING PROCEDURES AND CONTINUOUS OPERATION OF THE MACHINE**

Once the fire reaches full intensity intermittent loading may begin. The intervals between loading may be determined by observing the burning rate. The charges should be alternated between light and heavy material. Also, the material should be loaded toward the rear of the pit under the ACD manifold.

The pit should not be overloaded, that is, the material should not be piled up so high that it will protrude above the air curtain. Loading several smaller loads instead of one large load when charging will enhance burner performance.

### **ENGINE START-UP PROCEDURE**

- 1) Disengage the clutch lever as shown in FIGURE 1.
- 2) Push in murphy switch and hold.
- 3) Using the ignition switch, start the engine.
- 4) Release murphy switch after the oil pressure level has risen to proper operating level.
- 5) Engage clutch as shown in FIGURE 1.
- 6) Using the throttle adjustment knob increase engine speed to 2000 RPM.

### **ENGINE SHUT-DOWN PROCEDURE**

- 1) Disengage clutch lever.
- 2) Reduce engine speed to 800 PRM.
- 3) Maintain 800 RPM for several minutes to allow engine to cool.
- 4) Switch ignition key to OFF position.

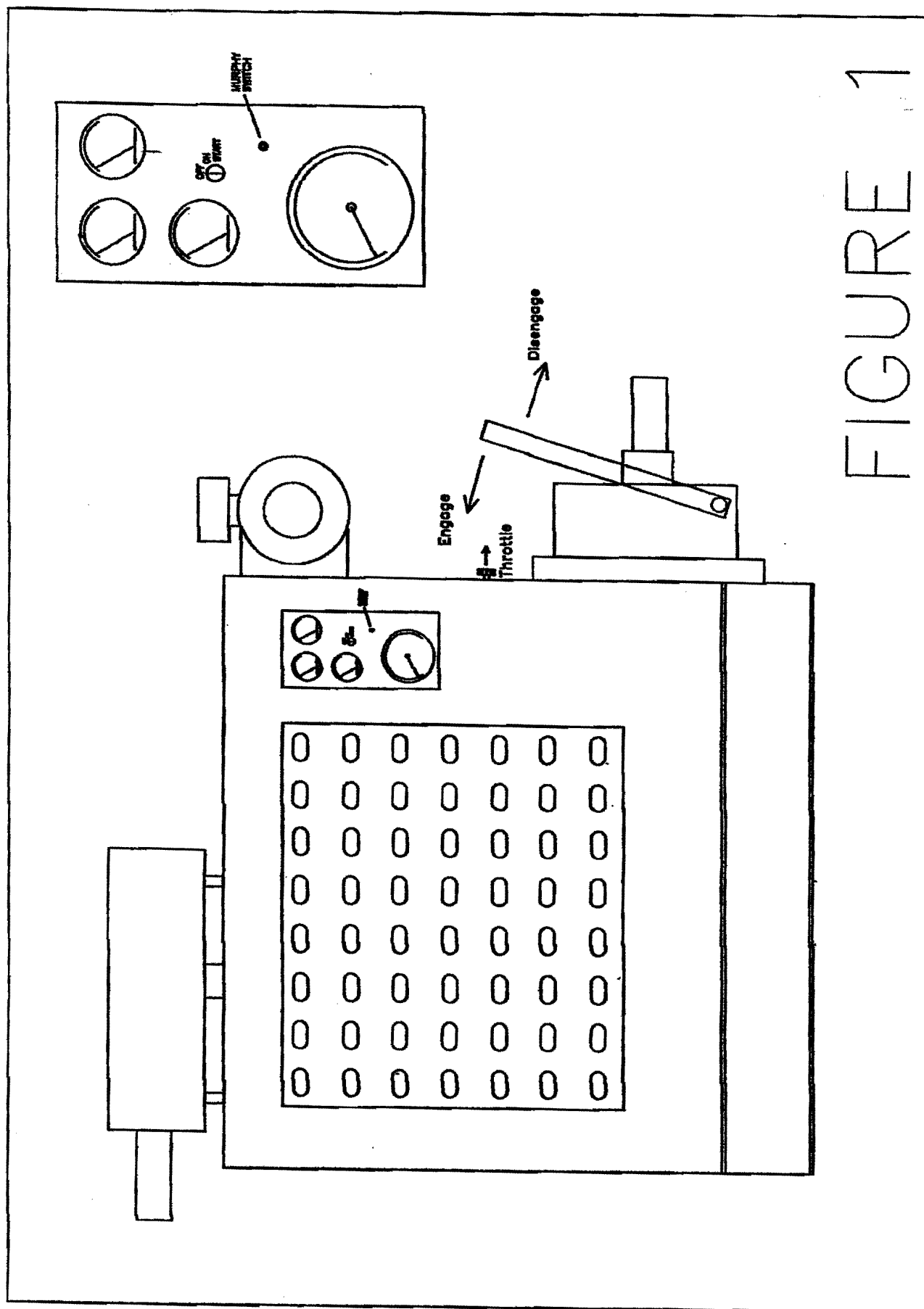


FIGURE 1

### **III. LOADING PROCEDURES AND CONTINUOUS OPERATION OF THE MACHINE (CONT)**

Burning times shall be regulated by state air quality rules as explained in the permit requirements.

When starting up the fire in the morning, you need only to turn on the blower at low speed and begin lightly loading dry wood. Enough hot coals will remain to start the fire each morning if the pit was not covered the day before.

- Never put cardboard in the machine. It will break up into embers and fly long distances.
- Ready fuel may be stored near the machine for brief periods only and only in quantities that can be moved quickly in the event of a fire.
- Continue to watch the weather as you burn. Circumstances change. Gusting winds are a signal to shut down the machine.

### **IV. SHUTTING DOWN THE PIT**

Discontinue loading material into the burner approximately 1 hour prior to engine shutdown. This will allow whatever material has been loaded into burner time to burn down. Burn time may vary depending on what type of material has been loaded.

### **V. EMPTYING THE PIT**

A. Most of what remains in the pit will be dirt, and ash. They do stay hot, however, and are capable of starting a fire if removed from the pit and placed near flammable material. Always saturate ashes with water before removing from pit. Once removed, spread them out inches deep on a fireproof surface and let them cool.

B. Never let ashes build up to more than 1/3 of the pit depth.

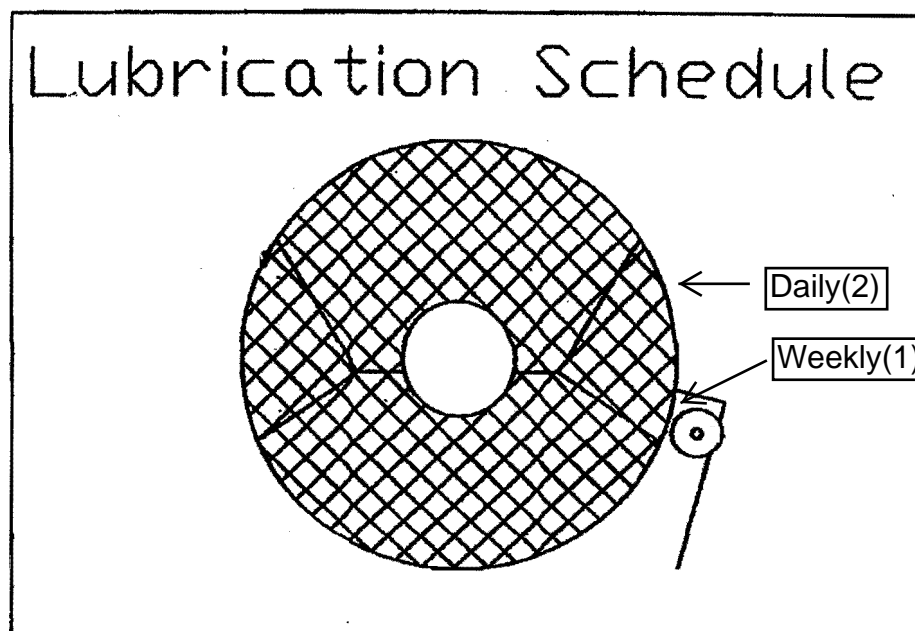
### **VI. MAINTENANCE**

Machine should be greased according to the attached Service Instructions.

## Air Curtain Service Instructions

Note: Always allow engine to cool before performing any service operations

1. Check engine motor oil level.
2. Check radiator water level. **WARNING: NEVER CHECK HOT !**
3. Examine all belts for wear and tension.
4. Inspect fan for cracks or abnormal wear. This can be carried out with a flashlight.
5. Grease engine clutch, belt tensioner, and fan as shown in the following drawings.





# **WARRANTY STATEMENT**

## **I. OUR WARRANTY**

Our warranty applies to new units purchased. If the McPherson Systems Trench Burner fails in normal service because of defect in material or workmanship during the warranty period, McPherson Systems, Inc. will, at its election, repair or replace the failed product.

## **II. WARRANTY DISCLAIMER**

A. The warranty set out above is our only warranty. We do not offer a warranty of fitness, a warranty of merchantability, a warranty against consequential damages or any other warranty in connection with McPherson Systems Trench Burners. If you have any questions about the extent of our warranty, give us your question in writing and we will respond in writing. None of our employees are authorized to verbally change, modify or extend our warranty.

B. Our warranty does not cover consumable items, such as belts, oil, filters or paint. You should expect to have to replace or repair these items at intervals during the life of the machine.

## **III. THE WARRANTY PERIOD**

Our warranty begins on the in-service date for the unit. The in-service date is recorded on the parts listing sheet included in this manual. The warranty expires one year thereafter. If we replace a particular part under warranty, the warranty on that part extends for one year after we replace the part.

## **IV. YOUR RESPONSIBILITIES**

A. You must notify us promptly by letter email or facsimile of any failure which you believe to be covered by warranty. If you delay reporting a failure for thirty days or more, the failure will not be covered by our warranty.

B. You are responsible for operating and maintaining the machine in accordance with the instructions contained in this manual.

C. You are responsible for normal maintenance of your machine, including maintenance of the engine, which runs the blower. The engine itself is covered by a separate warranty (see below). You are expected to perform manufacturer's recommended maintenance on the engine. If damage occurs which is a consequence of failure to perform normal maintenance, that damage will not be covered by the warranty.

## **WARRANTY STATEMENT (cont)**

D. McPherson Systems Trench Burners are designed to exact specifications. Modifying the machine in such a way as to alter its operating characteristics voids the warranty in its entirety. If you believe that modifications are necessary in order to suit the machine to your particular situation, please so advise us in writing and we will promptly respond, in writing, as to whether your proposed modification is permissible.

### **V. REPAIRS UNDER WARRANTY**

Some repairs may require McPherson Systems personnel to travel to the machine to make repairs. In other cases, we may hire someone locally to act for us. In certain cases, it may be mutually agreeable to send you the appropriate parts or repair materials to install yourself. In any case, we will try to have your machine back in operation as soon as possible but cannot guarantee that this can be accomplished within any specified period of time. We do undertake an obligation of good faith to return your burner to operation as soon as practical. We will not be responsible for damages occasioned by loss of use of your machine while awaiting repairs.

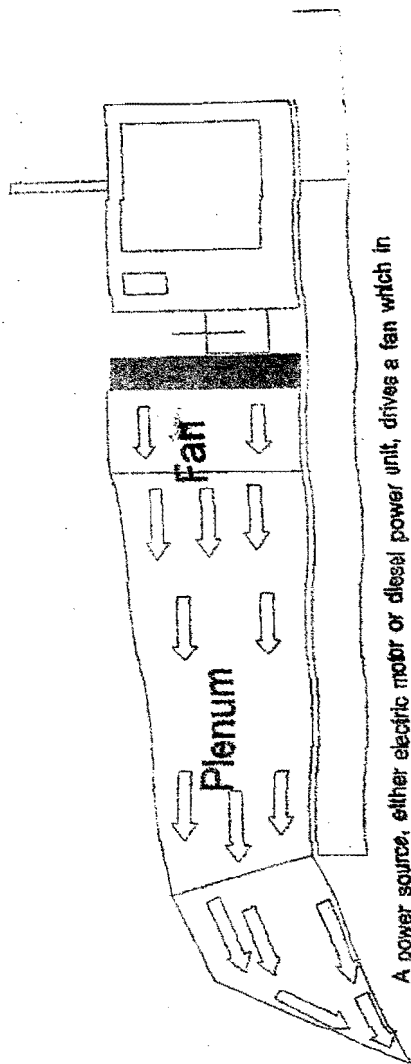
### **VI. ENGINE WARRANTY**

Engines supplied with McPherson Systems machines come with their own warranty, which is usually for 2 years or 2000 hours, whichever comes first. Some engines are offered with an optional extended warranty of up to sixty months, which you, as the customer, may purchase if you desire. Please carefully read the terms and conditions of the warranty which comes with the engine which powers your machine. McPherson Systems does not offer a separate warranty on the engine.

### **VII. MISCELLANEOUS**

Certain components and sub-assemblies in the machine are purchased by McPherson Systems and carry their own warranty. Any benefits of the manufacturer warranty as to such components and sub-assemblies available to McPherson Systems will be available to you the customer.

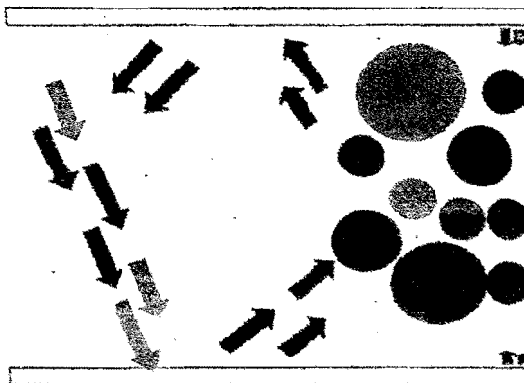
# Overview of Air Curtain Destructor Operation

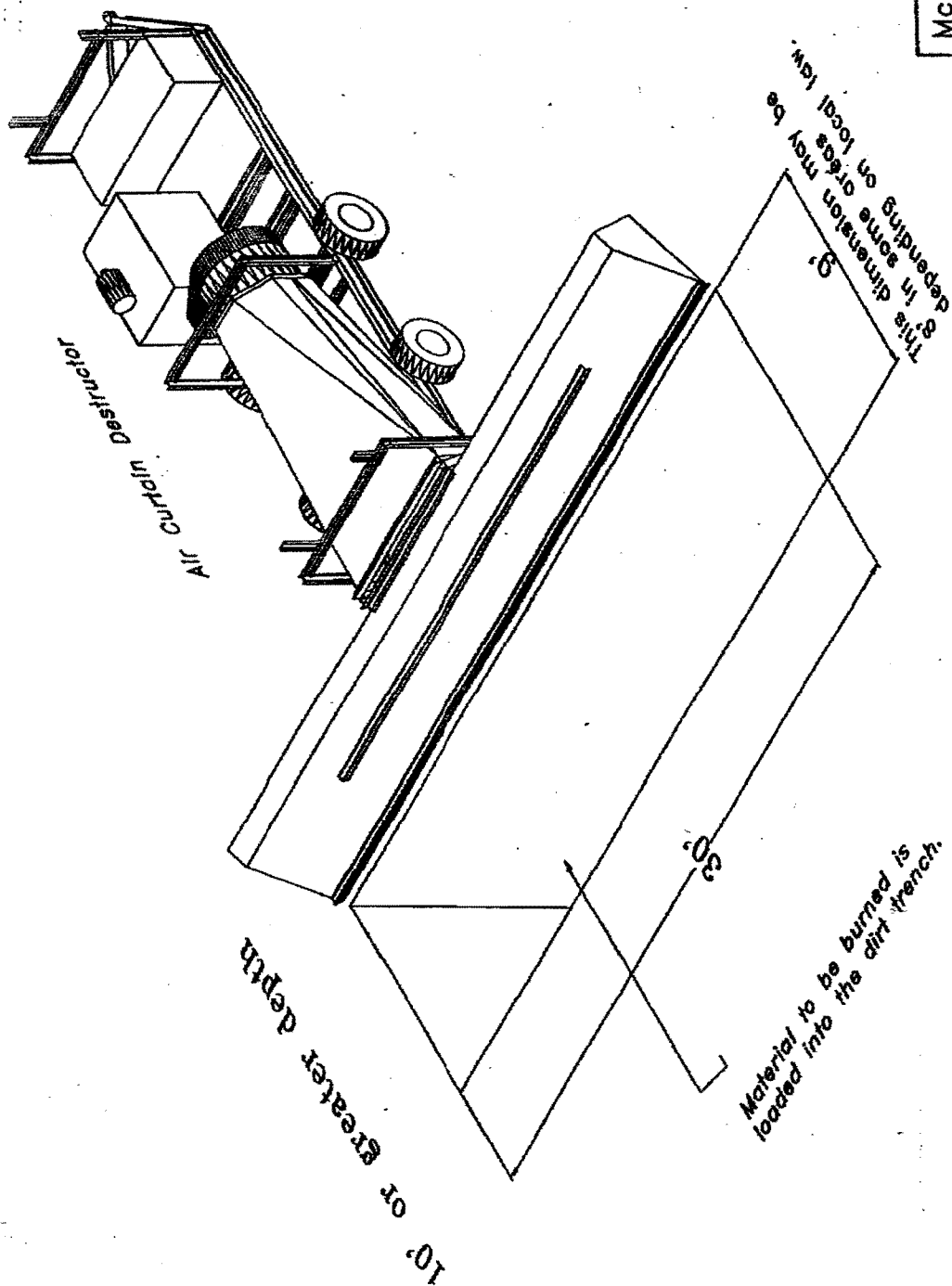


A power source, either electric motor or diesel power unit, drives a fan which in turn creates an air curtain by forcing air through a plenum and nozzle. This high velocity air travels across the top of the pit in which a fire has been started.

The air curtain (long arrows) traps smoke and small particles and recirculates them to enhance combustion and reduce smoke. The very large volume of air accelerates combustion and provides for high pit temperatures between 1800F and 2200F. Underfire air (short arrows at bottom of pit - available only on refractory-lined pits) introduces air underneath air curtain to ensure complete combustion and to minimize opacity at start-up.

The refractory pit provides a safe combustion chamber. Specially designed refractory panels prevent excess heat from escaping. Refractory pits are ideal for use in areas with high water tables and sandy soil conditions or where opacity must be kept to a minimum.





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M30F Set-up diagram