

# Types of Carburetors

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## □ How they work

This presentation is from Virginia Tech and has not been edited by the Georgia Curriculum Office.



# Performance Objectives

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- Students will be able to list and describe the common types of small engine carburetors and their applications.
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# Enabling Objectives

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- Given the instruction in class the student will correctly identify and describe the principles of operation of the three common types of small engine carburetors.
  - Natural or side draft
  - Updraft
  - Downdraft
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# Interest Approach

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- How many of you know where the carburetor is located on your lawn mower?
  - Is it above or below the gas tank?
  - Does it really matter where it is located in relation to how it works?
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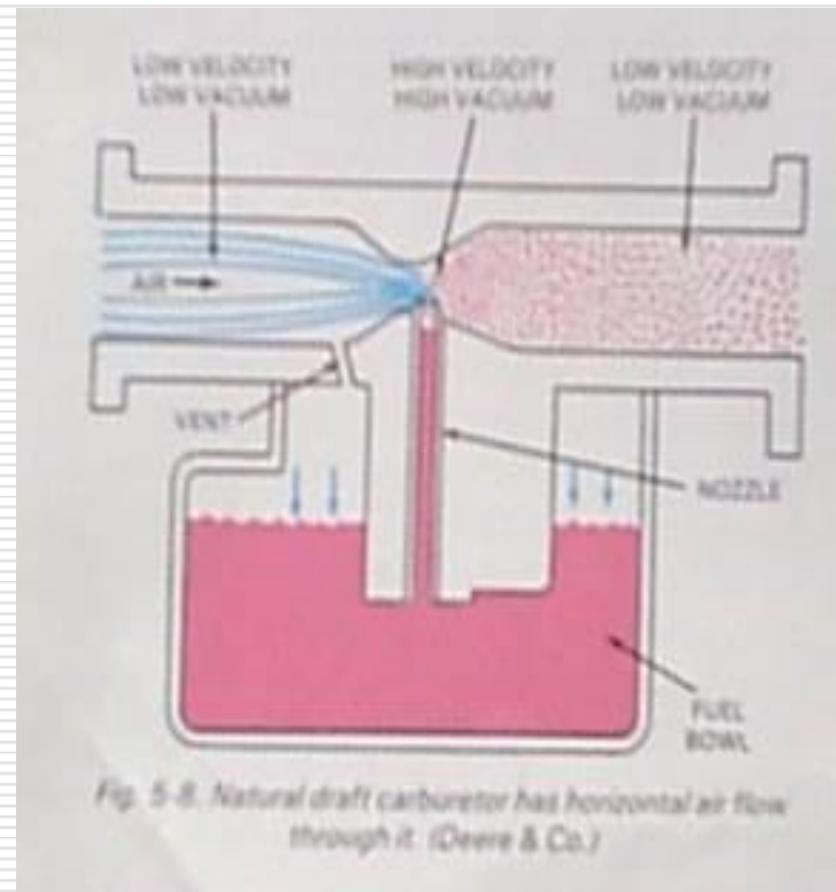
# Types of Carburetors

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- In this unit we will discuss three common types of carburetors. They are the:
    - Natural or side draft
    - Updraft
    - Downdraft
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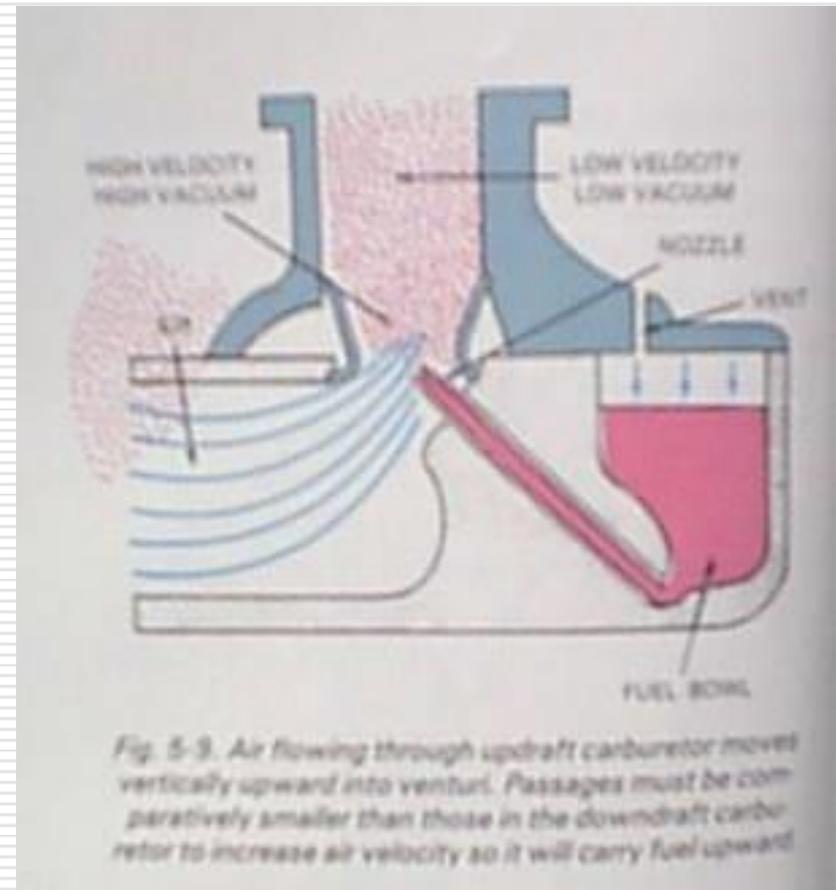
# Natural Draft Carburetor

- This carburetor is used where there is little space on top of the engine. The air horizontally into the manifold.



# Updraft Carburetors

- This type is placed low on the engine and use a gravity fed-fuel supply. In other words, the tank is above the carburetor and the fuel falls to it.



# Updraft Carburetors

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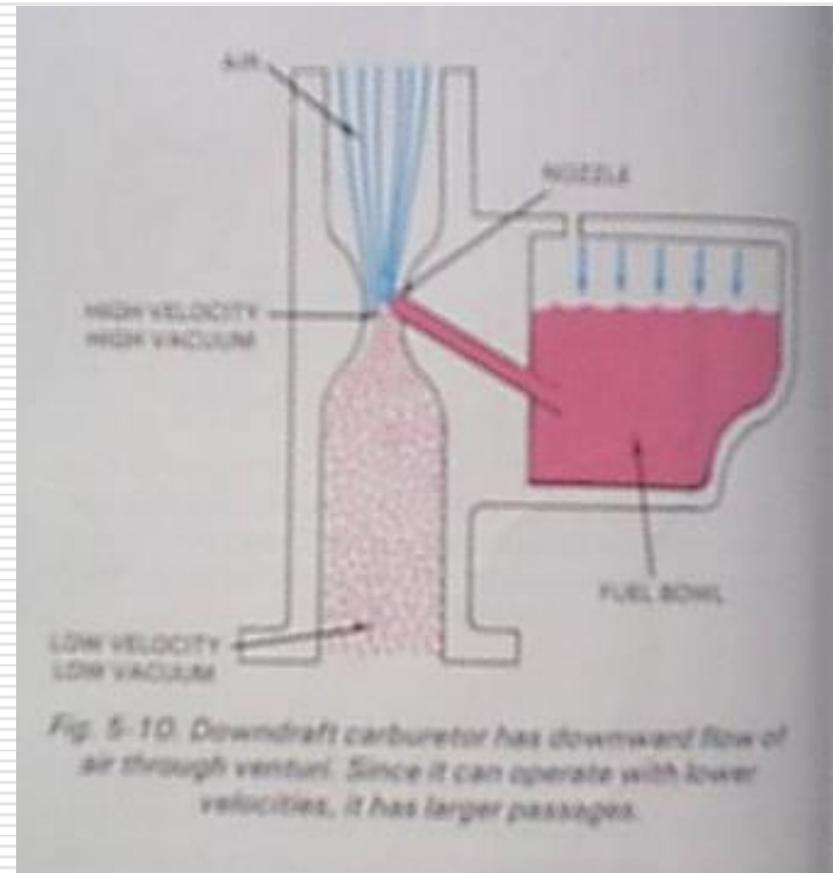
- ❑ Even this carburetor uses gravity to receive the fuel from the tank, the air-fuel mixture must be forced upward into the engine.



# Downdraft Carburetors

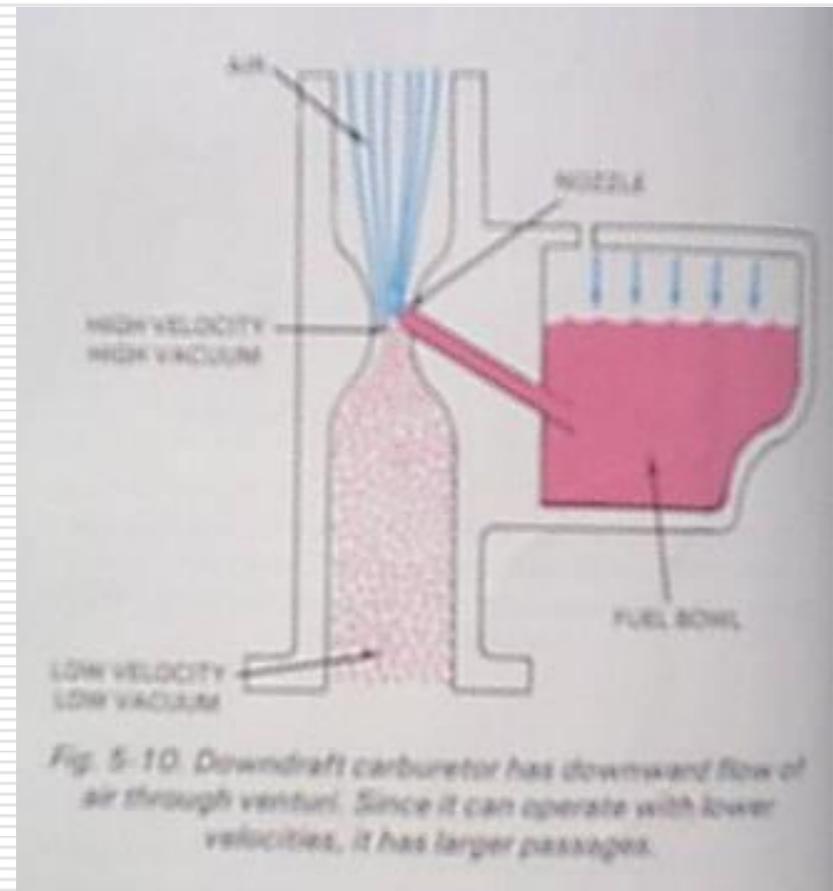
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- This carburetor operates with lower air velocities and larger passages. This is because gravity assists the air-fuel mixture flow to the cylinder.



# Down-draft Carburetors

- The downdraft carburetor can provide large volumes of fuel when needed for high speed and high power output.



# Float-Type Carburetor

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- A Float is a small sealed vessel made of brass or plastic. It maintains a constant level of fuel in the float bowl.



# Float-Type Carburetors

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- The float works much like one in a watering system, opening and closing a needle valve as the float lowers or raises.



# The Choke

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- The choke is a round disc mounted on a shaft located at the intake end of the carburetor.
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# The Choke

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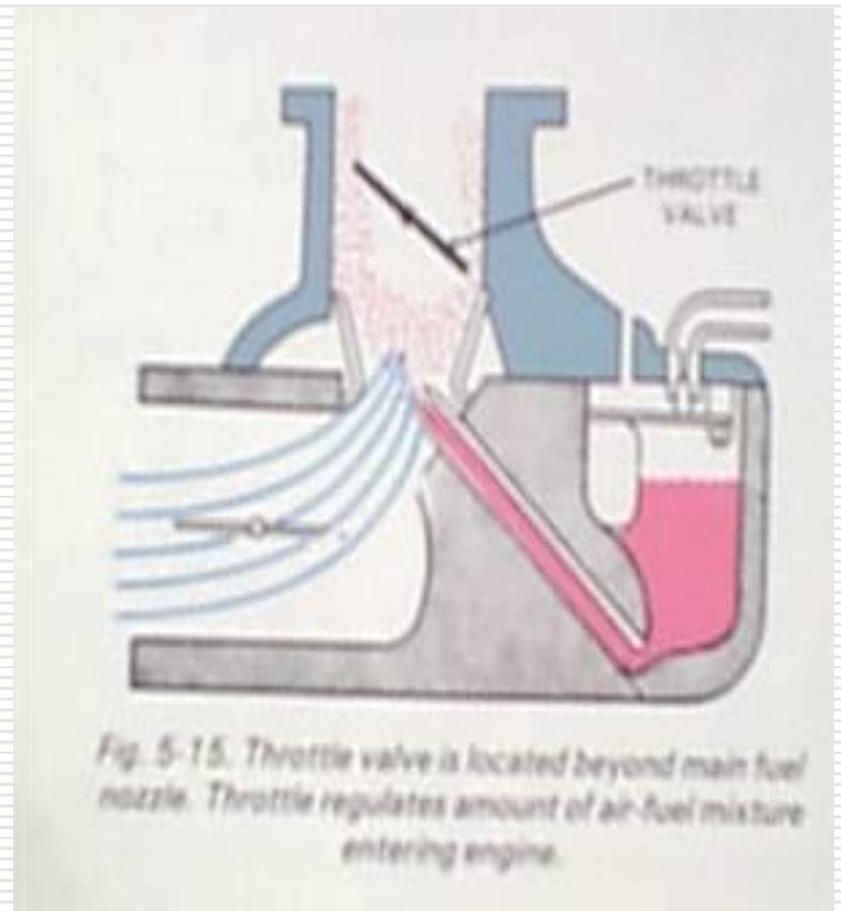
- Since cold fuel is hard to vaporize, the choke is used during cold engine starts to provide a rich mixture to the carburetor in order to get the engine started.



# The Throttle

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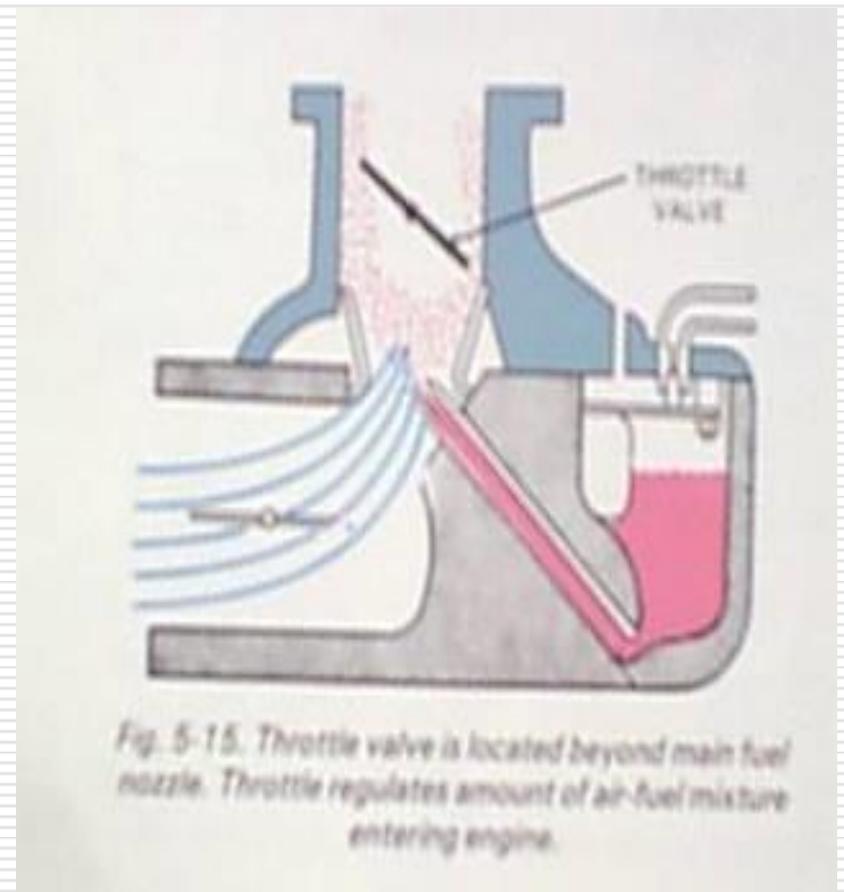
- The throttle is a round disc mounted on a shaft beyond the main fuel nozzle in the carburetor.



# The Throttle

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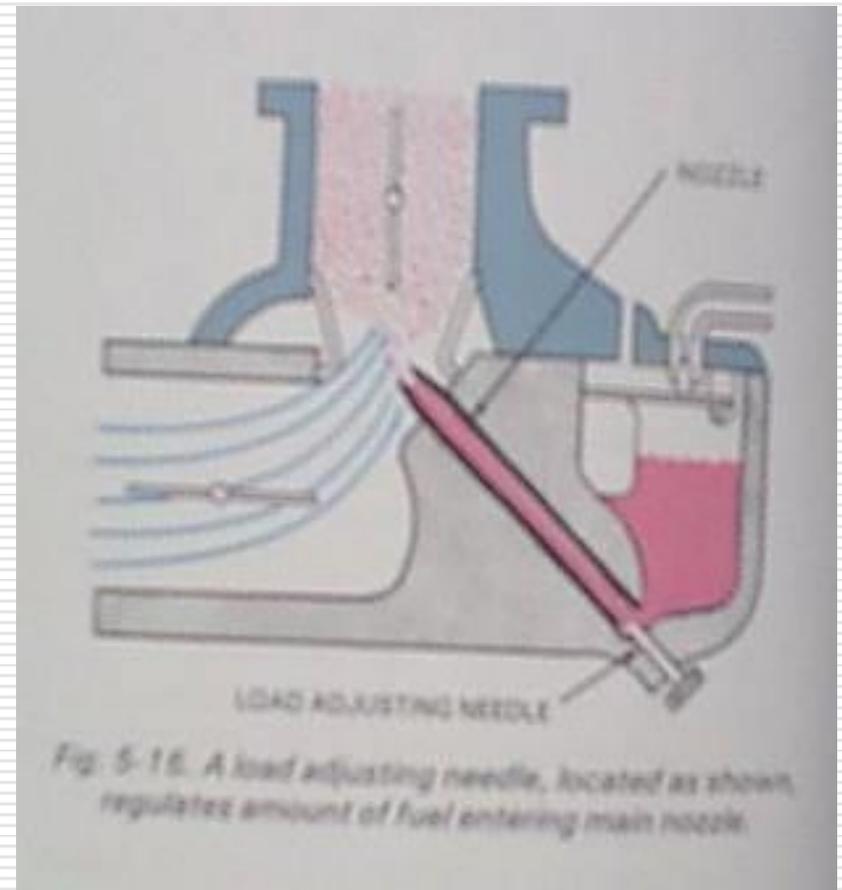
- It regulates the amount of air-fuel mixture entering the cylinder.



# Load Adjustment

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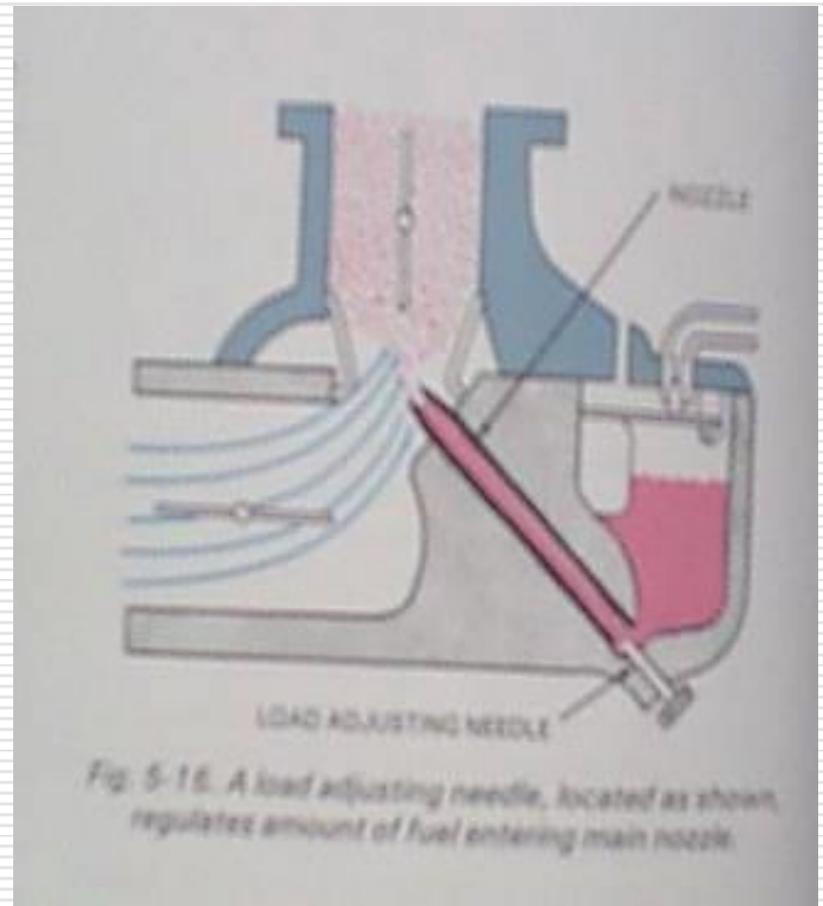
- The amount of fuel entering the main discharge nozzle is sometimes regulated by a load adjusting needle.



# Load Adjustment

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- ❑ Many carburetors today have a fixed jet or orifice which is preset to allow the proper amount of flow. These carburetors are non-adjustable.



# The Primer

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- Many small engines have hand operated plunger called a primer. When depressed it forces additional fuel through the main nozzle prior to starting a cold engine.



# Diaphragm Carburetors

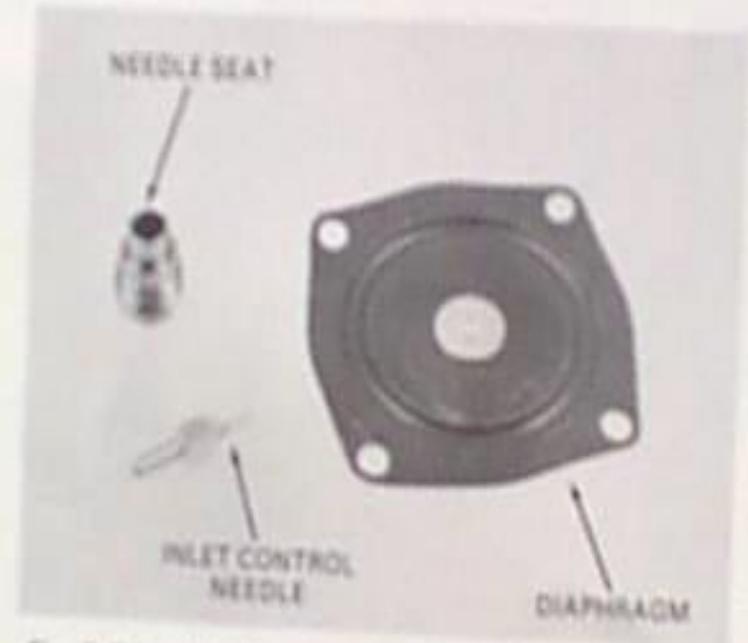
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- This type does not have a float, rather the difference between atmospheric pressure and the vacuum created in the engine pulsates a flexible diaphragm.
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# Diaphragm Carburetors

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- The pulsation of the diaphragm takes place on every intake and compression stroke.



*Fig. 5-26. A diaphragm, control needle, and needle seat used in a diaphragm carburetor system. (Deere & Co.)*

# Throttle Controls

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- A basic manual throttle control consists of either mechanical linkage or flexible cable.



# Throttle Controls

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- This linkage manually opens and closes the throttle valve to obtain the desired engine speed.



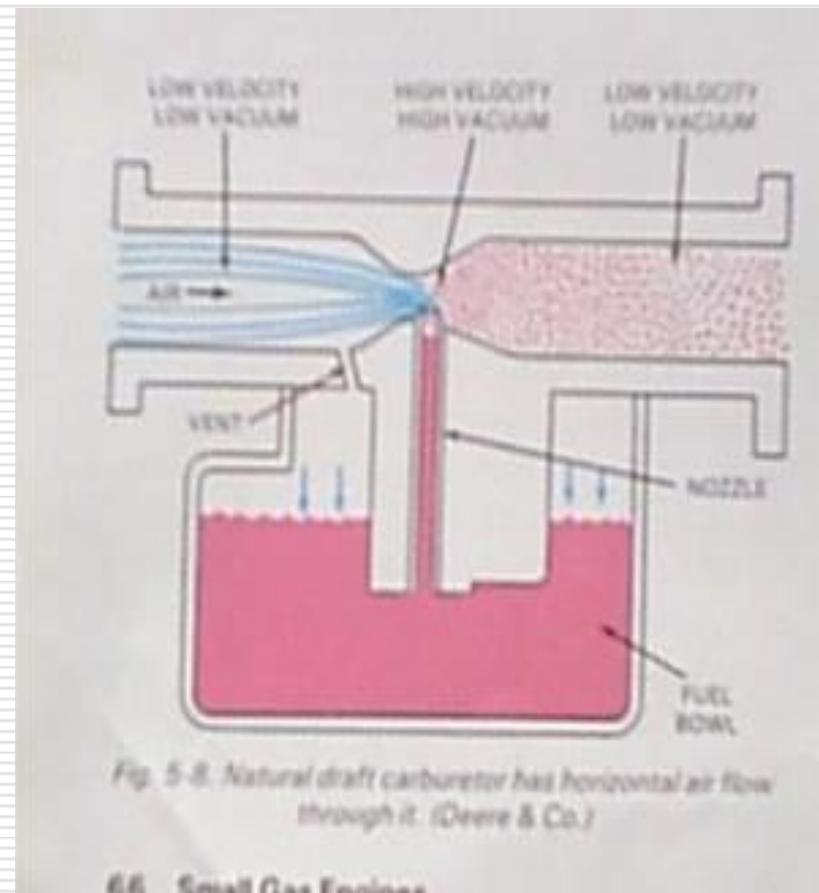
# Summary

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- ❑ Small engines have one of the following types of carburetors:
  - ❑ Natural or side draft
  - ❑ Updraft
  - ❑ Downdraft
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# Summary

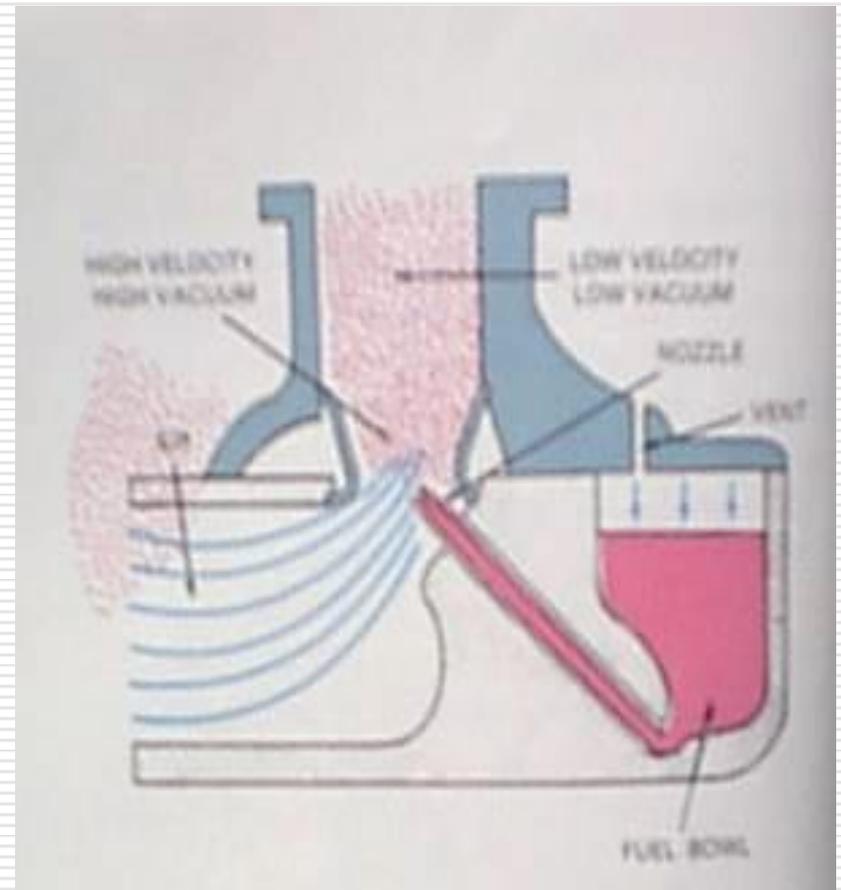
- The natural or side draft carburetor is used when there is little space on top of the engine. The air flows horizontally into the manifold.



# Summary

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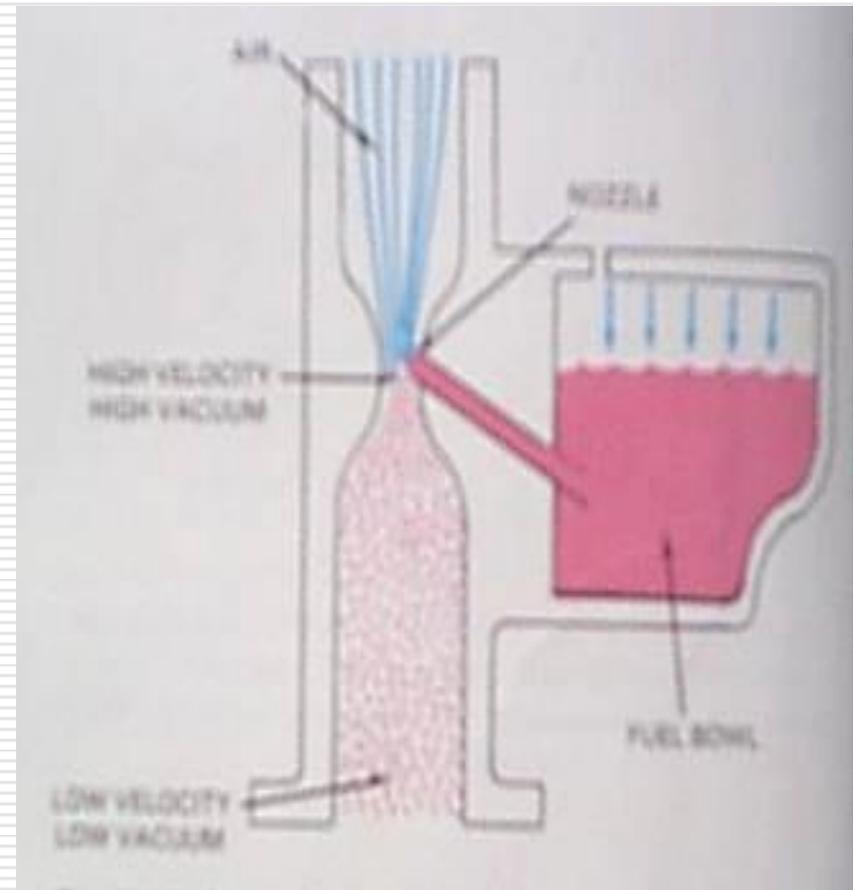
- The updraft carburetor is placed low on the engine and uses a gravity-fed fuel supply.
- The air-fuel mixture is forced upward into the engine.



# Summary

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- The downdraft carburetor operates with lower air velocities and larger passages.
- It provides larger volumes of fuel when needed.



# Summary

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- ❑ Some carburetors are either float type or diaphragm carburetors.
  - ❑ The float type uses a float to maintain a constant level of fuel in the fuel bowl
  - ❑ The diaphragm carburetor uses differences in atmospheric pressure and vacuum pressure to pulsate a diaphragm to pump fuel.
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