Model 600 Diesel Crawler

Service Manual

9-72001

Reprinted

CASE

THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

M171B

If Safety Decals on this machine use the words **Danger, Warning or Caution,** which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates an potentially hazardous situation which if not avoided, will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates an potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

If Safety Decals on this machine are ISO two panel Pictorial, decals are defined as follows:

- The first panel indicates the nature of the hazard.
- The second panel indicates the appropriate avoidance of the hazard.
- Background color is YELLOW.
- Prohibition symbols such as  and 

if used, are RED.

WARNING

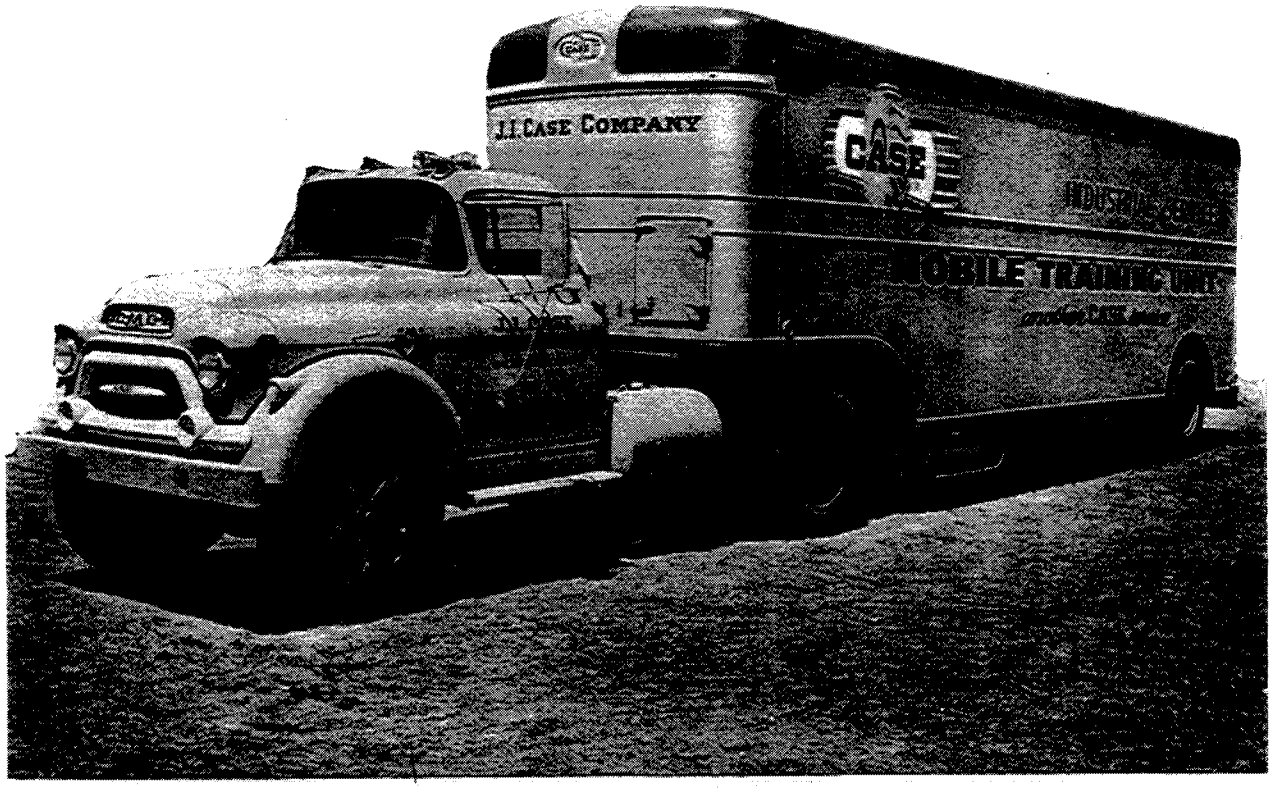
IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

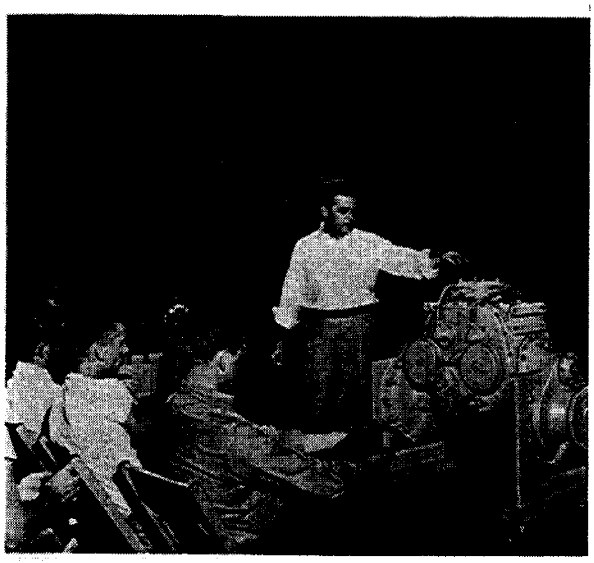
It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

Bur 0-00000
issued November, 1994

CASE CORPORATION



The Mobile Training Units are another service made available to the Case Dealers. Every dealer should be sure to take advantage of the training program offered by these Mobile units. Watch for it when it comes to your territory, and be sure to attend.



Mobile Unit Classes

CASE TERRATRAC
CRAWLER TRACTOR
MODEL 600 DIESEL

Published by

The Service Department
CASE CORPORATION
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January 1958

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PRICE $5.00

FOREWORD

It is the policy of the Case Co. to build machines with long and useful life expectency. The reputation of this company and their products are dependent upon the diligent and conscientious maintenance given these products by the field service people.

Thousands of satisfied users have proven the design and quality of the Case products. In the final analysis it will be the field service personnel that will write the final chapter to the success story.

The Case Co. recognizes the importance of the thoroughly trained technician. No longer is the mechanic considered as a "grease monkey" or the "necessary evil". To elevate the service man to his rightful place in the Professional field the company has inaugurated a "Mobile Training Program". This program has been highly successful and very fruitful. The Case Co. now is planning even greater and far more reaching programs to further this endeavor.

Service Representatives for the Case Co. and its Dealers Servicemen are located all over the world and they represent the finest in Service Personnel. This Service Manual has been written as a reference guide, and is dedicated to those that service, maintain, and teach the Case Industrial Equipment.

TABLE OF CONTENTS

GENERAL SPECIFICATIONS I

ENGINE II

TORQUE CONVERTER III

TRANSMISSION IV

FINAL DRIVE V

TRACK SYSTEM VI

ELECTRICAL SYSTEM VII

ROOSA MASTER PUMP VII

DIESEL INJECTORS IX

HYDRAULIC SYSTEM X

TABLE OF CONTENTS

GENERAL SPECIFICATIONS . . . . . .GROUP I

ENGINE . . . . . .GROUP II

TORQUE CONVERTER . . . . . .GROUP III

TRANSMISSION . . . . . .GROUP IV

FINAL DRIVE . . . . . .GROUP V

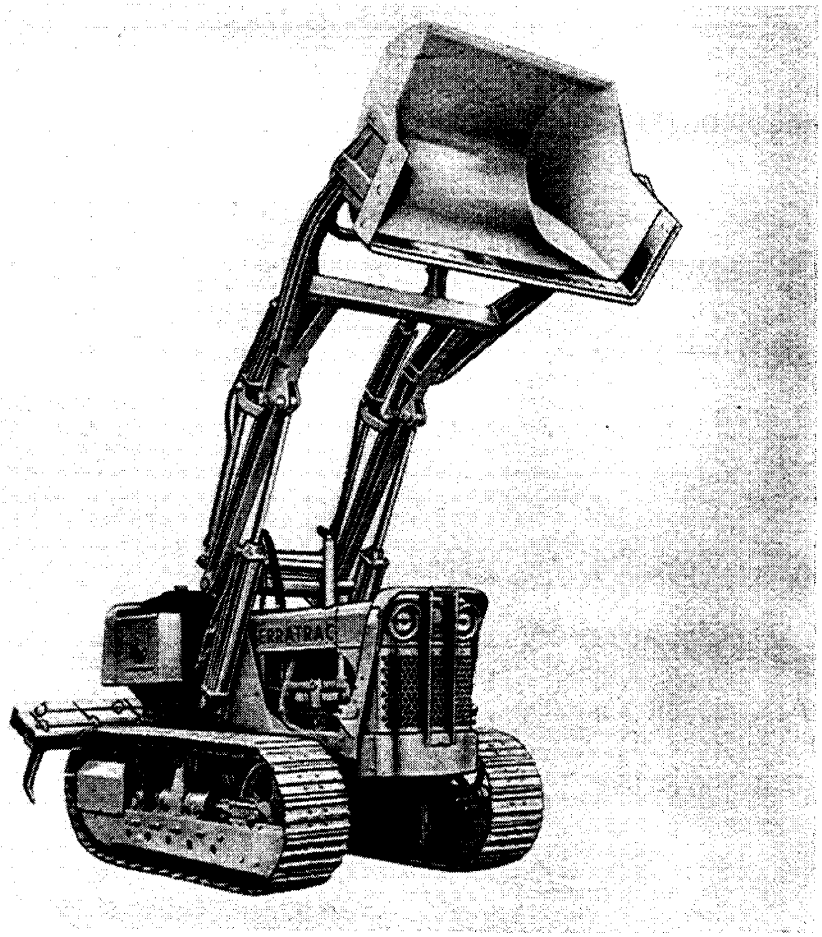
TRACK SYSTEM . . . . . .GROUP VI

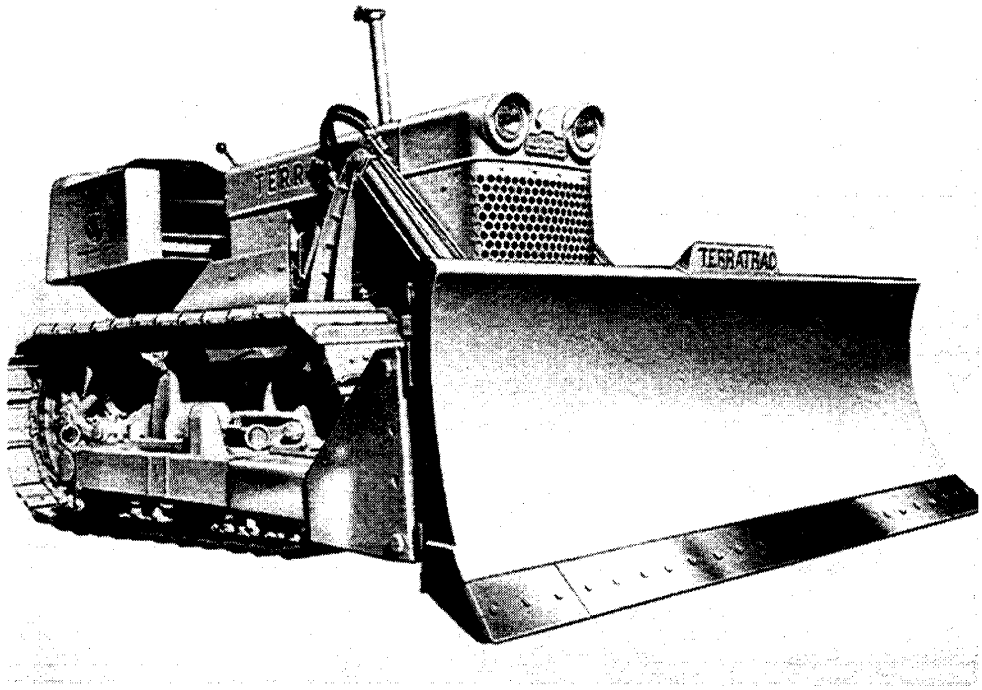
ELECTRICAL SYSTEM . . . . . .GROUP VII

ROOSA MASTER PUMP . . . . . .GROUP VIII

DIESEL INJECTORS . . . . . .GROUP IX

HYDRAULIC SYSTEM . . . . . .GROUP X

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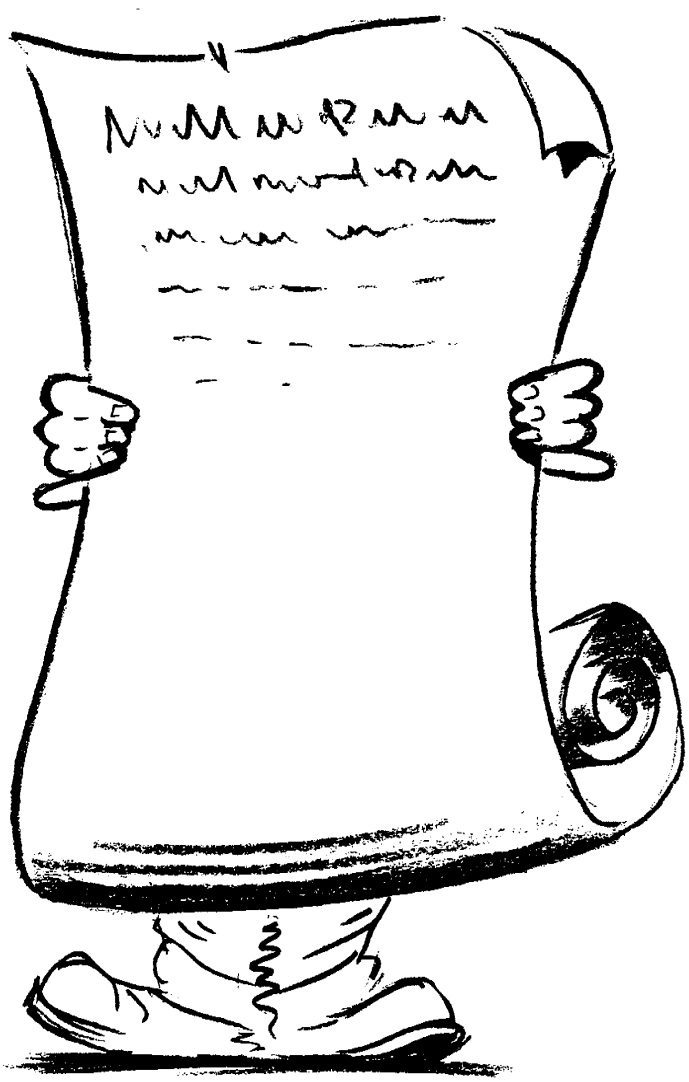
GENERAL SPECIFICATIONS

I



MODEL 600 SPECIFICATIONS (DIESEL)

CAPACITIES (U.S.)

Fuel Tank	25 Gal.
Cooling	4-1/2 Gal.
Transmission and Torque Converter	7 Gal.*
Final Drive (Ea.)	6 Pts.
Crankcase	12 Qt.
Air Cleaner	1 Qts.
Hydraulic Brake System	1-1/2 Pt.
Hydraulic System-Terraloader	36 Qts.**
Hydraulic System-Terradozer	36 Qts.

* (5-1/2 Quart Converter included)
** (These figures quoted on the basis of the oil level being 4-1/2" from top of the tank.)

TRANSMISSION

	Forward	Reverse
First	0 to 1.66 MPH	0 to 1.82 MPH
Second	0 to 3.22 MPH	0 to 3.42 MPH
Third	0 to 3.40 MPH	0 to 3.73 MPH
Fourth	0 to 6.56 MPH	0 to 7.20 MPH

ENGINE

Continental Model ED-208 Diesel

Number of Cylinders	4
Bore	3-11/16"
Stroke	4-7/8"
Governed RPM (Full Load)	2250
Injection System	Roosa Master
Firing Order	1, 3, 4, 2
Valve Tappet Clearance	.014 Int. (Hot) .014 Exh. (Hot)

TRACK

Tread Gauge	49"
Length on Grade	62-5/8"
Standard Shoe Width	14"

DIMENSIONS

Width	63"
Height Over Cowl	65"
Weight (approximately)	7380 lbs.
Height Above Ground	16"

ROLL BACK:

At Ground Line	40°
At Maximum Lift	50°

REACH: (BUCKET DUMPED)

At 7 Foot	43-1/4"
At Maximum Lift	36-1/4"

4" Diameter Tilt Cylinder
5" Diameter Lift Cylinder

DRAWBAR PULL

Maximum with Converter Stalled

Forward:	1st.	20,700
	2nd.	11,750
	3rd.	10,000
	4th.	5,660

TRACTOR: LOADER - REAR WEIGHT

Overall Length at Carry	201"
Overall Height - Bucket Raised	138"
Overall Width	71"
Weight	16,550
Center of Gravity - Behind Front Idler	38"
Hydraulic System Capacity - Tank	20 Gal.
(per Lift Cylinder)	2 Gal.

TRACTOR: LOADER - SCARIFIER

Overall Length	219"
Overall Height - Bucket Raised	138"
Overall Width	71"
Weight	18,950
Hydraulic System Capacity	20 Gal.
(per Lift Cylinder)	2 Gal.

TRACTOR: - BULLDOZER

Overall Length	154-1/2"
Overall Height - Exhaust Stack	74"
Overall Width	96"
Weight	12,150
Hydraulic System Capacity	20 Gal.
(per Lift Cylinder	2 Gal.

TRACTOR: - BULLDOZER - HYDRAULIC ADJUSTMENT

Overall Length	154-1/2"
Overall Height - Exhaust Stack	74"
Overall Width	96"
Weight	12,150
Hydraulic System Capacity	20 Gal.
(per Lift Cylinder	2 Gal.

TRACTOR: - ANGLEDOZER

Overall Length	158"
Overall Height - Exhaust Stack	74"
Overall Width	112"
Weight	12,150
Hydraulic System Capacity	20 Gal.
(same as Hydraulic Dozer) (per Lift Cylinder)	2 Gal.

TRACTOR: - ANGLEDOZER - HYDRAULIC ADJUSTMENT

Overall Length	158"
Overall Height - Exhaust Stack	74"
Overall Width	112"
Weight	12,150
Hydraulic System Capacity	20 Gal.
(per Lift Cylinder)	2 Gal.

LOADER - DIMENSIONS AND PERFORMANCE

BUCKET CAPACITY:

Rated, Yards (Heaped)	1-1/2 yds.
Bucket Width	71"
Digging Depth	11"
Dumping Clearance, Maximum (Bucket Dumped)	109-3/8"
Lift Capacities (Bucket Raised)	
Net	6500 lbs.
Gross	8850 lbs.

BUCKET CAPACITY: (continued)

Lift Capacities (Ground Level)

Gross	16,600 lbs.
Breakout Ground Level	8750 lbs.

DUMPING ANGLE:

At Ground Level	90°
At 7 Foot	63°
At Maximum Lift	50°

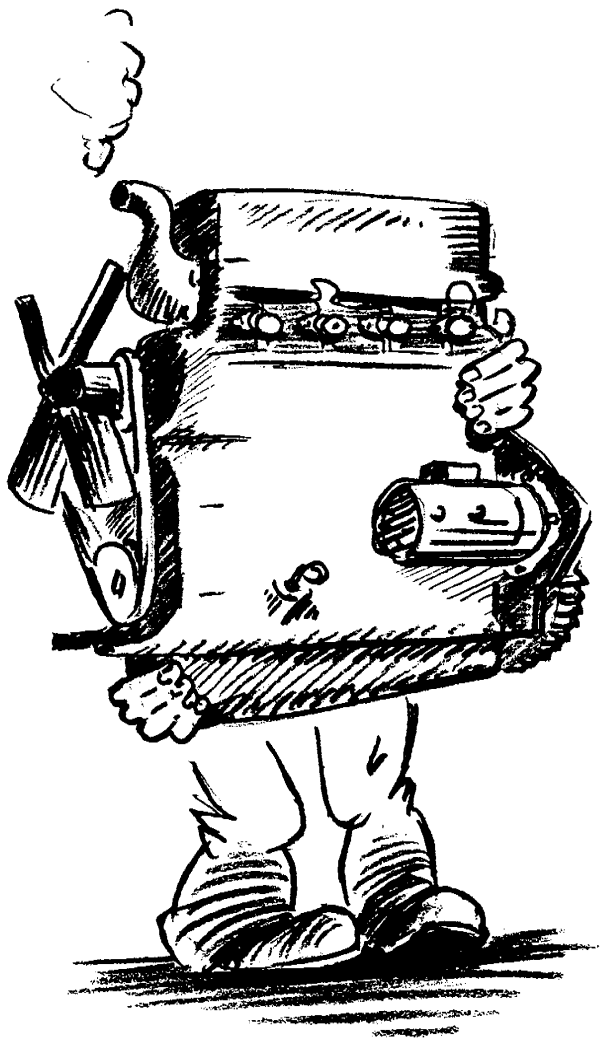
BULLDOZER - DIMENSIONS AND PERFORMANCE

Blade Length	96"
Blade Height	31-1/2"
Digging Depth	13-1/2"
Lift Above Ground Maximum	34"
Crown - Total	12"

ANGLEDOZER - DIMENSIONS AND PERFORMANCE

Blade Length	112"
Blade Height	31-1/2"
Digging Depth	13-1/2"
Lift Above Ground Maximum	34"
Crown - Total	12"

ENGINE



GROUP II

ENGINE

	Page
Section A - General Information and Specification	1
Section B - Fuel and Lubrication	4
Section C - Engine Cooling	10
Section D - Cold Weather Starting and Maintenance	12
Section E - Injection Pump and Nozzles	16
Section F - Governor and Linkage Setting	20
Section G - Engine Repair and Overhaul	23

ENGINE DIESEL
GROUP II
SECTION A - GENERAL INFORMATION AND SPECIFICATIONS

Engine

Continental Model ED-208 Diesel

Number of Cylinders	4
Bore	3-11/16
Stroke	4-7/8
Governed R. P. M. (Under full load)	2250
Injection System	Roosa Master
Firing Order	1,3,4,2,
Valve Tappet Cl.	.014 Int. (Hot)
	.014 Exh. (Hot)

Elementary Principles of Diesel Engines

In order to dispel any mystery there may be, with regard to the diesel engine and how it operates, let us take a moment to compare Diesel Engine with its gasoline counterpart.

Mechanically, the two are alike. Both have pistons moving up and down in cylinders with connecting rods attached to a crankshaft converting the reciprocating motion of the pistons into a rotary motion; valves in the cylinder heads operated by a camshaft and push rods; the intake valve to admit air into the cylinder and the exhaust valve to permit the disposition of the burned gases. The camshaft is driven through a train of timing gears so that the opening and closing of the exhaust and intake valves are properly timed with the stroke of the piston and crankshaft.

The engines are so much alike in exterior appearance that the only way most people are able to distinguish between them is to look for the carburetor and distributor on the gasoline engine or injection pump on the diesel.

Both operate on mixtures of liquid fuel and air inside the combustion chambers. The ignition of these mixtures under pressure and the subsequent expansion furnishes the power to drive the piston downward on its power stroke. The one big difference between the two types of engines lies in the way the fuel is handled and combustion brought about.

In a gasoline engine desired proportions of fuel and air are mixed in the carburetor before entering the cylinder through the intake valve. In a diesel engine, air is drawn into the cylinder through the intake valve and is compressed. At the proper time a measured quantity of fuel is injected into this air thus forming a combustible mixture which is self-ignited due to the temperature of the compressed air.

In a gasoline engine the suction or downward stroke of the piston draws in a combustible mixture of air and gasoline which is compressed in the upward

stroke, then ignited by an electric spark whereupon the expansion of this compressed mixture begins, forcing the piston down on the power stroke.

In the diesel engine, the piston on the down stroke draws in clean, pure air which is compressed on the upward stroke. At the proper instant, fuel is injected into this compressed air which then ignites from the heat of compression, causing the expansion of the mixture, which forces the piston down on the power stroke. The compression ratio of diesel engines is twice that of gasoline engines, and it is the heat generated by the comparatively rapid compression of the air, which ignites the fuel as it is sprayed in under high pressure.

It is a well known fact that the tendency in gasoline engine design is to increase compression ratios in order to obtain more power and greater efficiency out of the engine without increasing the bore and stroke. Compression ratios are however limited by the octane number of fuels available and the desire to keep combustion chamber temperatures down to prevent pre-ignition. A diesel engine is not controlled by these conditions, consequently, compression ratios in the neighborhood of 15 to 1 can be used with entire satisfaction since there is no possibility of the air in this engine igniting until injection of the fuel provides a combustible mixture. This high compression in a diesel causes the temperature of the air to rise under compression to approximately 900° Fahrenheit, which is far above the ignition point of the fuel, thus igniting the mixture.

To summarize, both engines are heat engines of the internal combustion type, the power in each case being developed from the expansion of the mixture of air and fuel after ignition occurs. Since the expansion is directly related to the compression, the diesel is able to deliver a greater amount of work using a given quantity of fuel. This is basically the reason for its superior efficiency, which results in its saving in fuel cost.

Cylinder Diesel

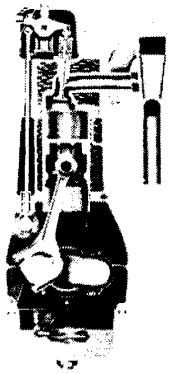


Figure 1

Intake

Air only is drawn into the cylinder through the open intake valve by the suction created by the Downward moving piston. Figure 1

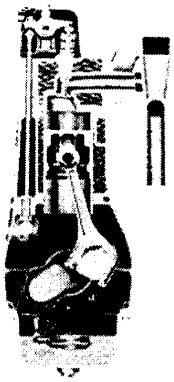


Figure 2

Compression

The intake valve is now closed and the air in the cylinder is highly compressed by the Upward Moving piston. This high compression of the air raises the temperature to between 900° and 1000° F. Figure 2

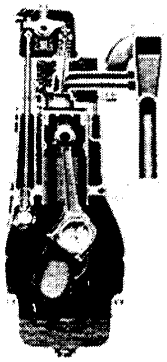


Figure 3

Injection and Combustion

At a definite point, shortly before the piston reaches the top of its stroke, fuel is injected into the cylinder by the spray nozzle. The fuel is ignited by the heat of the highly compressed air. Figure 3

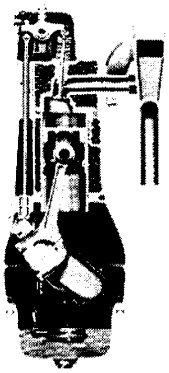


Figure 4

Power

The expansion of the gases resulting from the burning of the fuel exerts pressure on top of the piston, driving it Downward. Figure 4

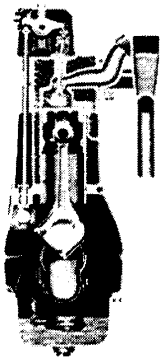


Figure 5

Exhaust

As the piston passes the bottom of its stroke the exhaust valve opens and the burnt gases are expelled by the now Upward moving piston. The intake valve opens about the time the piston reaches the top of its stroke, and a similar sequence of events, often referred to as the cycle, repeats itself. Figure 5