



PARTS PRO SALESMAN



CLASSIC EDITION #9



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Professional Parts Salesman

1 2 3 4 5
6 7 8 **Part 9** 10

L-10 Parts
Familiarization



FOREWORD

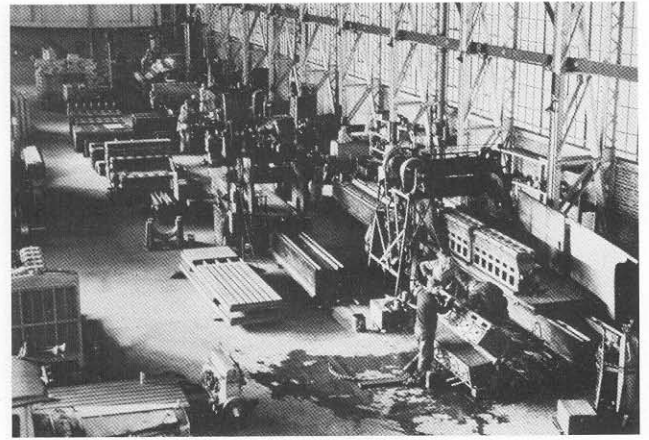
The new L-10 represents a major advance in diesel engine technology. Although there are some similarities between the L-10 and the NT 855, the L-10 incorporates many new design concepts, and it is the first Cummins engine built to metric unit specifications.

This program is designed to familiarize you with the parts for the L-10 and explain some of the concepts involved. By studying this program and reading the available product literature, you will be better able to supply your customers with parts for this revolutionary new engine.

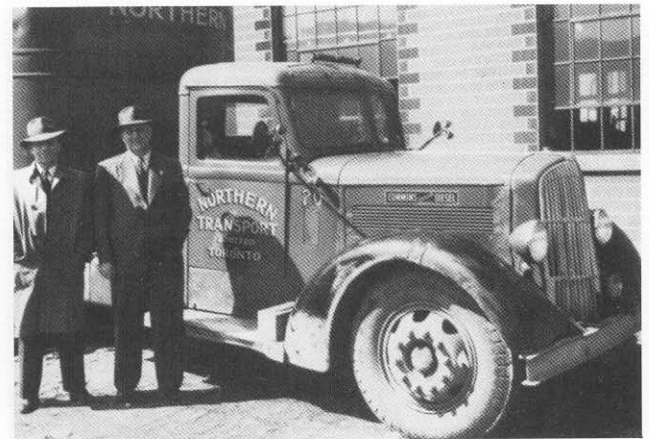
1. ...



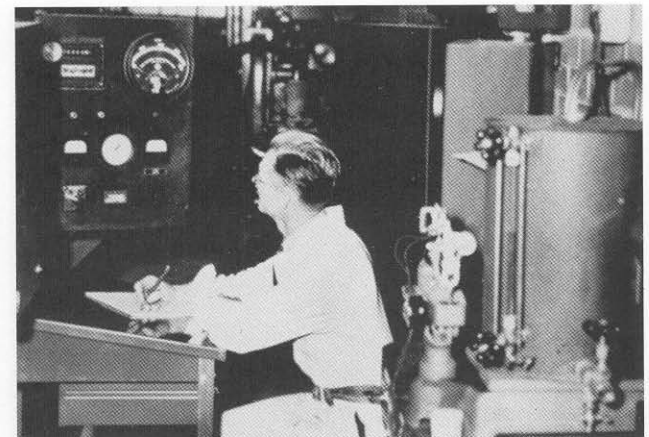
2. **NARRATOR:** For more than 60 years, Cummins has been a leader in high performance heavy-duty engines,

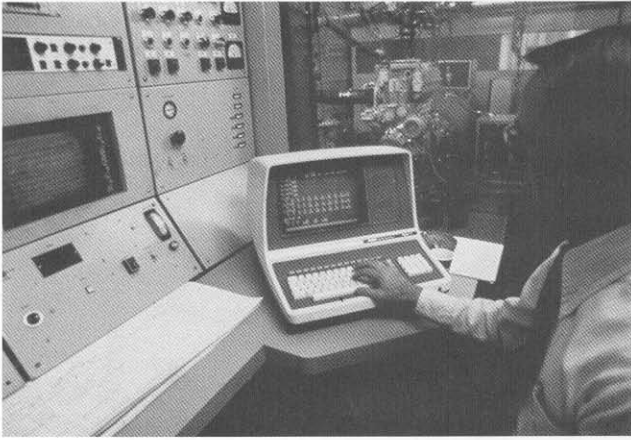


3. during that time, both the diesel engine and the transportation industry have changed dramatically.

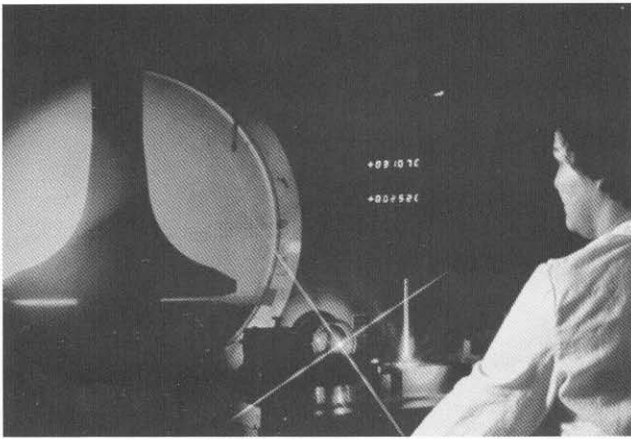


4. Yet, Cummins has consistently been at the forefront,

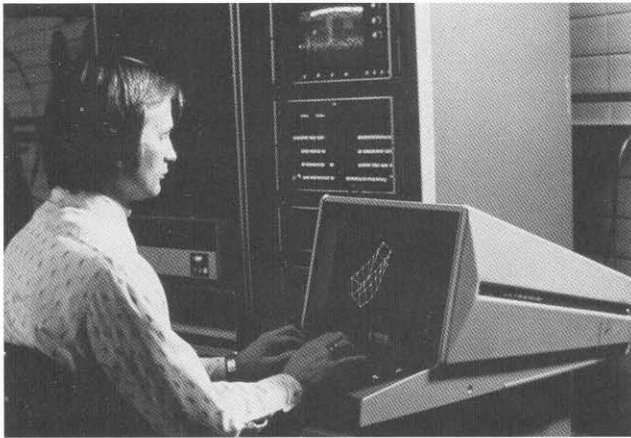




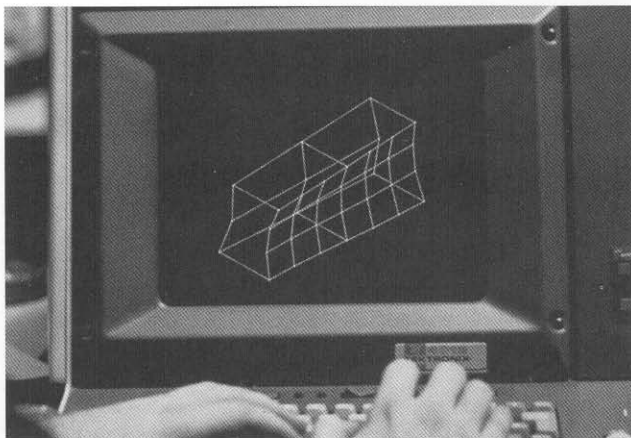
5. ...pioneering new engine technology with the experience, know-how, and ingenuity necessary...



6. ...to assure our customers of the highest possible quality and performance.

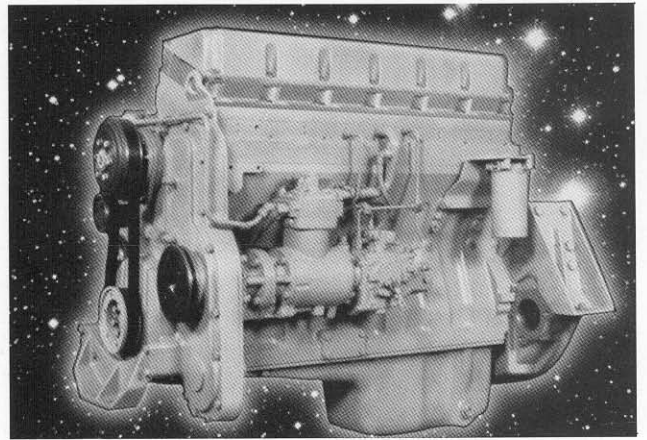


7. Now, after more than ten years of research and testing...

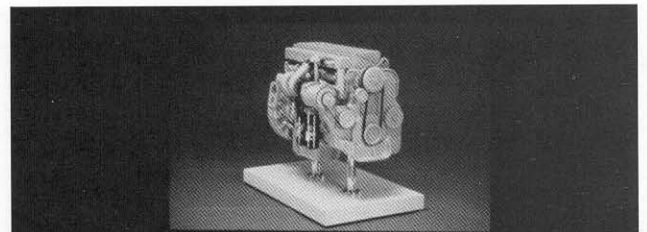


8. ...comes the answer to tomorrow's power needs...

9. ...the New Cummins L-10.



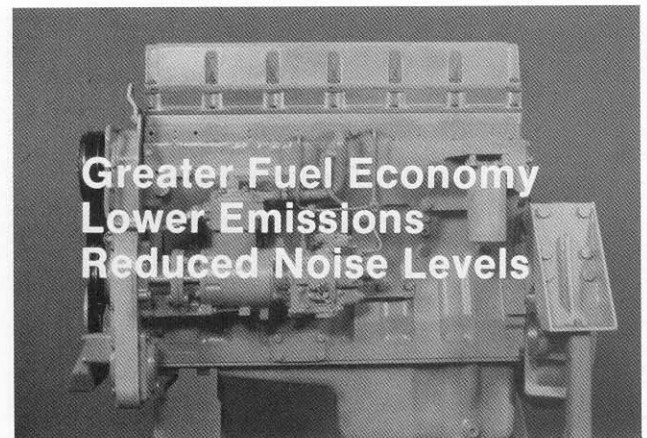
10. Compact...lightweight...and packed with all the heavy-duty performance you expect from Cummins, the New L-10 is the first Cummins Engine designed to metric unit specifications.



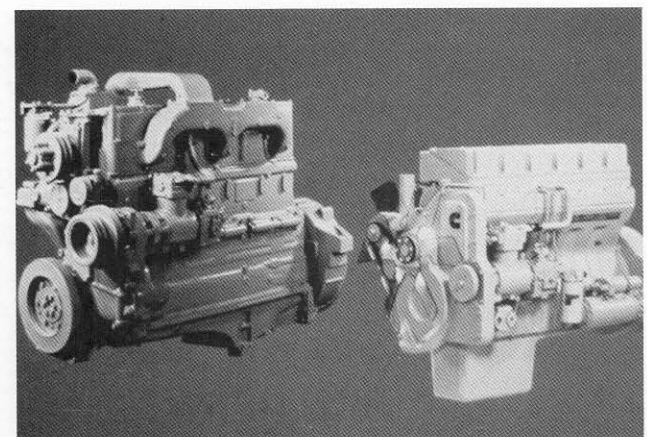
Engine Specifications

Displacement	10L	611 cu. in.
Bore	125mm	4.92 in.
Stroke	136mm	5.35 in.

11. It incorporates state-of-the-art technology and represents major advancements in greater fuel economy, lower emissions, and reduced noise levels.

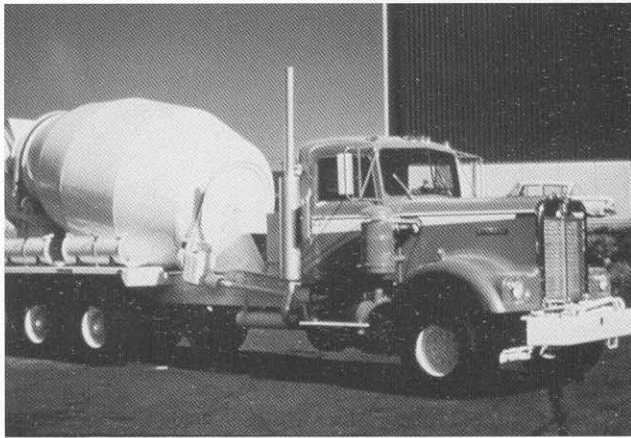


12. Shorter, narrower, and lighter than the NT Engine, the L-10 is designed for over-the-road line haul below 300 HP.





13. The present automotive rating is 240 and 270 horsepower.



14. This engine is ideal for ready-mix concrete trucks,

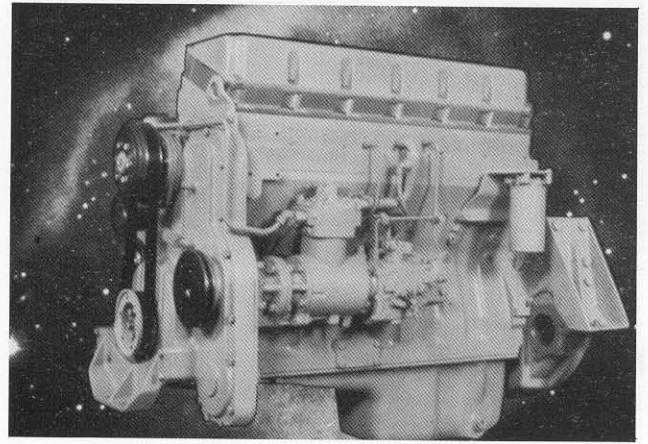


15. ...refuse haulers, and dump trucks.

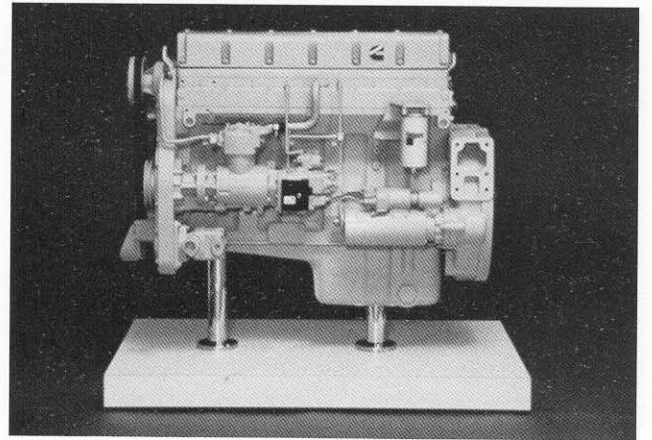


16. The soaring cost of diesel fuel has forced the trucking industry to concentrate heavily on fuel economy. Lower speed limits, air shields, radial tires, thermatic fans, and aerodynamically designed cabs and trailers have all been major factors in reducing horsepower requirements. Together, these changes have created a widespread need for a smaller, extremely efficient, heavy-duty, high performance engine.

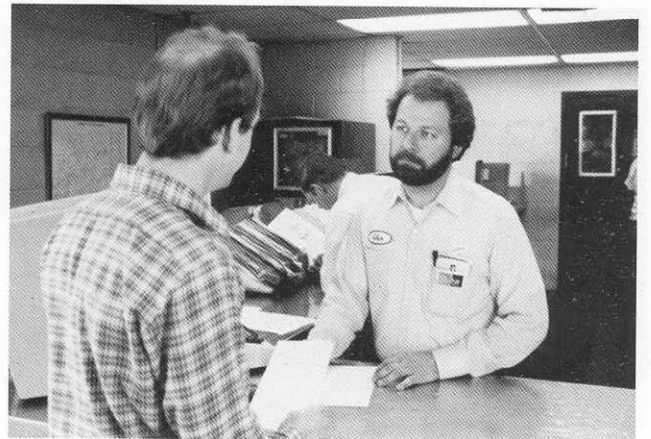
17. The New L-10 is just such an engine.



18. Just as the New L-10 presents an exciting marketing opportunity for Cummins and our distributors,

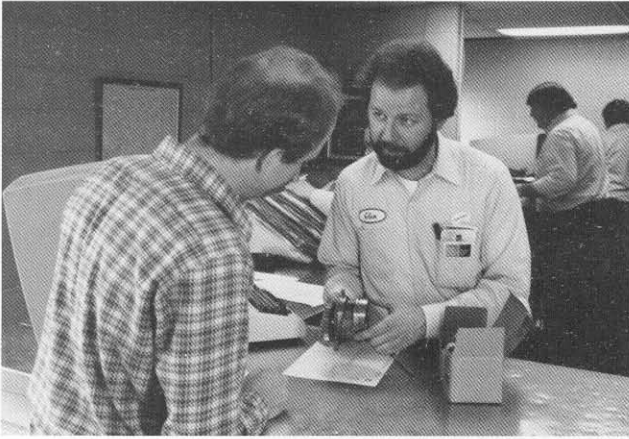


19. it also represents an important challenge to you, the professional Cummins partsperson...

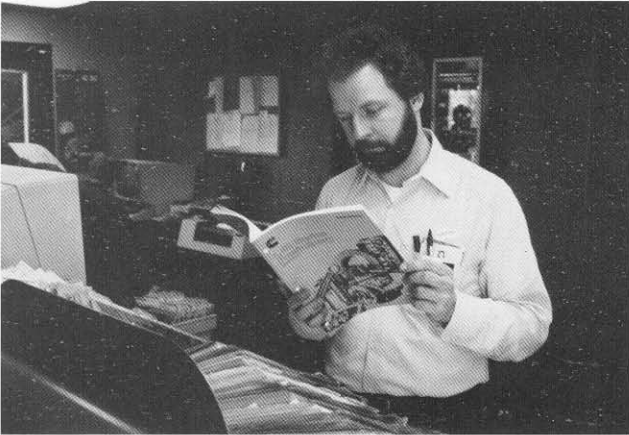


20. ... a challenge to supply parts for the L-10 to an ever increasing number of customers...





21. ... with the same degree of experience and the same comprehensive parts knowledge that you continue to demonstrate daily with the entire Cummins engine line. It is not going to be easy. It's going to require hard work and extra effort on your part.

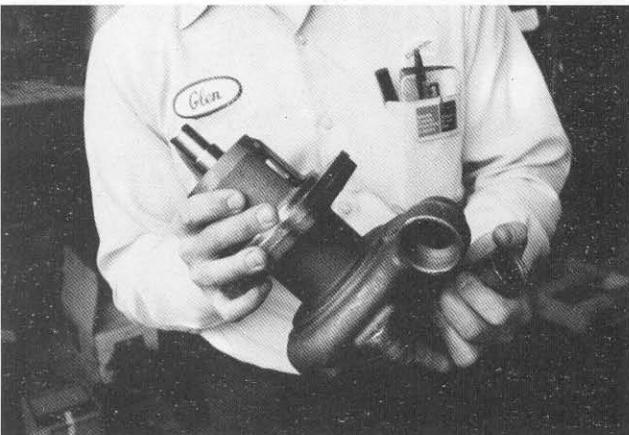


22. The introduction of the L-10 means more than additional inventory. It means more part numbers to keep track of and new parts books to work with.



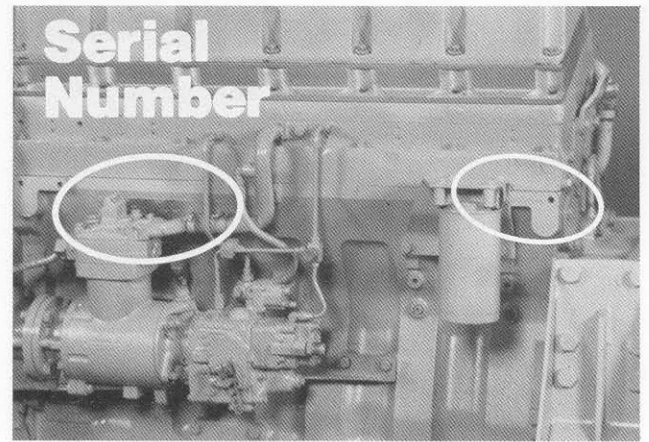
23. But, most importantly, it means increasing your parts knowledge.

There are a few new concepts to learn...

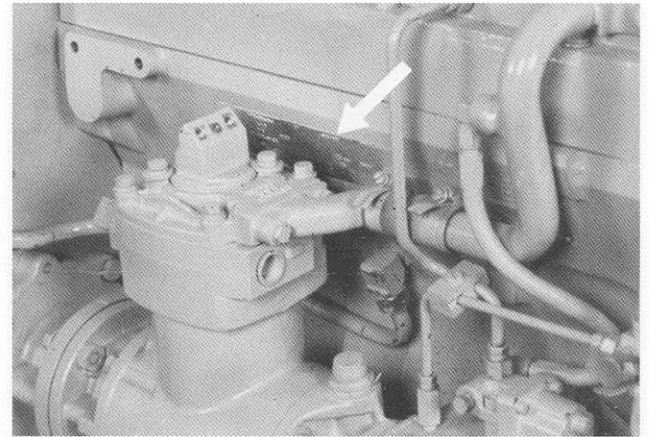


24. and a couple of parts that you haven't seen before.

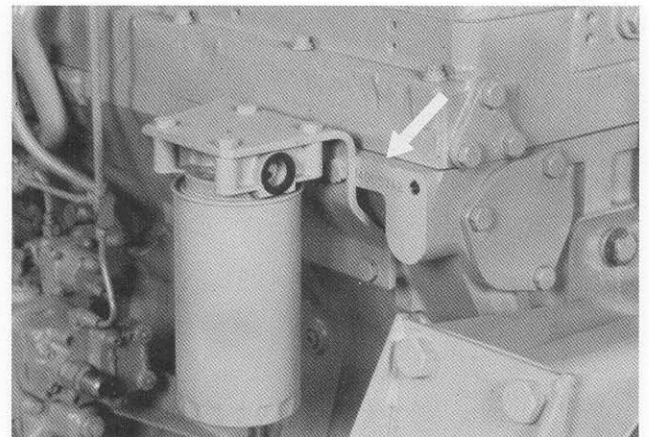
25. The single, most important piece of information that you need about any engine is the serial number.



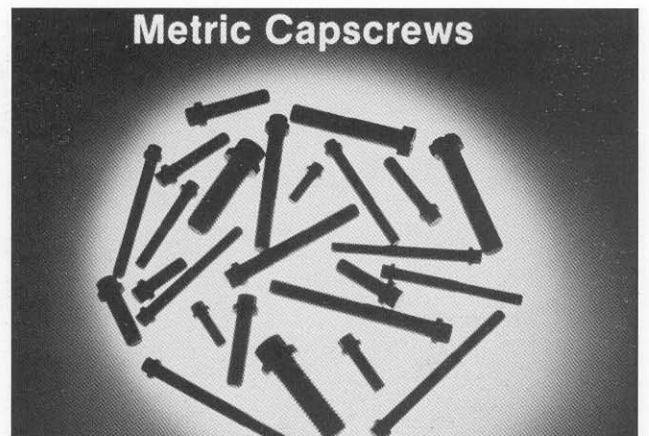
26. It appears on the engine data plate which is attached to the block just above the air compressor,

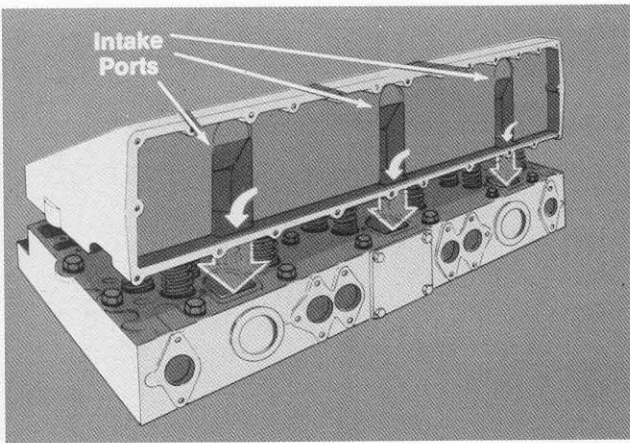


27. and it is also stamped into the block near the top of the number six cylinder.

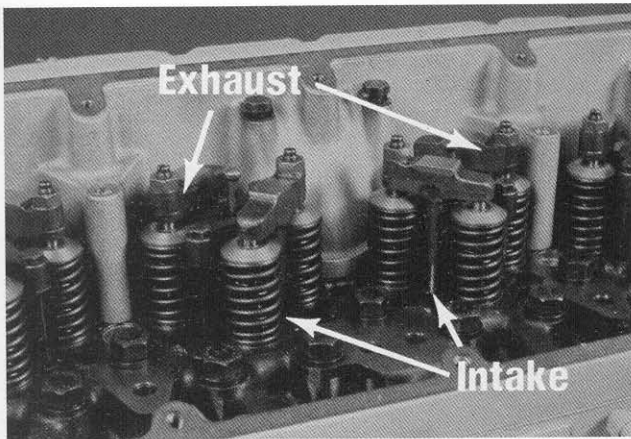


28. Metric capscrews are used throughout the engine except for externally mounted components such as the fuel pump and the air compressor. These components are the same as those used on our other engines, and may be mounted with either SAE or metric capscrews, depending upon the application.

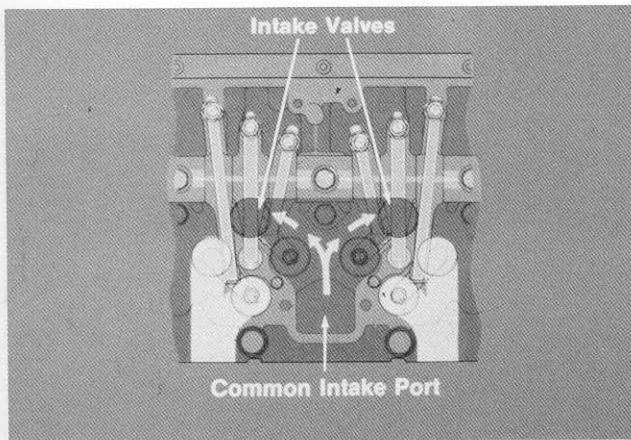




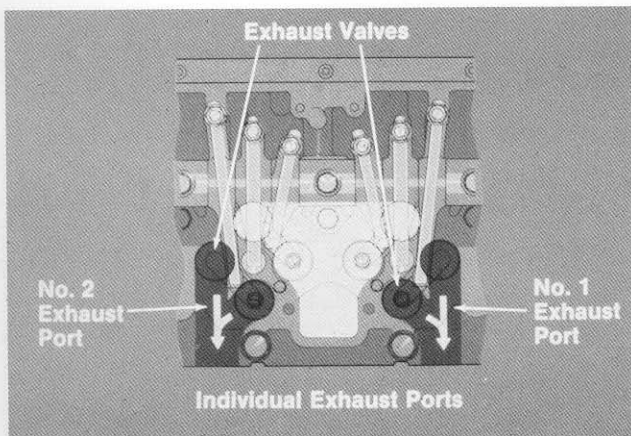
29. One of the first things you'll notice about the L-10 is the single rocker housing and one piece cylinder head. The rocker housing has three air intake ports which channel the air directly into the cylinder head.



30. As you can see, the intake and exhaust valve arrangement is somewhat different.

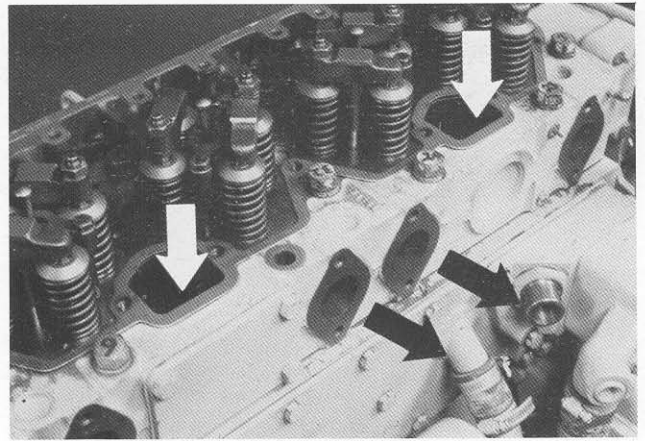


31. Each large volume intake port supplies air for two cylinders,

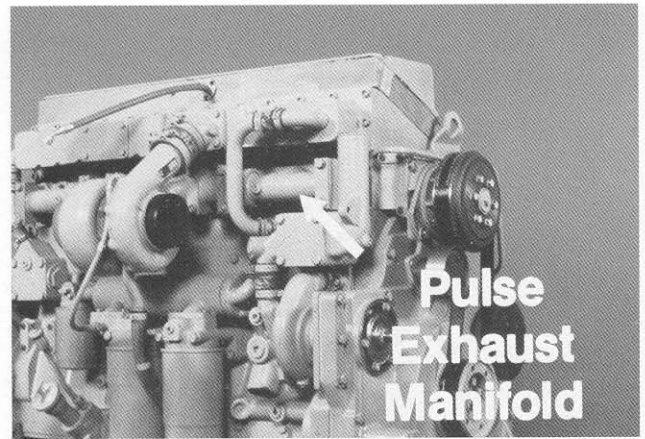


32. ... while individual exhaust ports provide an unrestricted flow of exhaust gases from each cylinder.

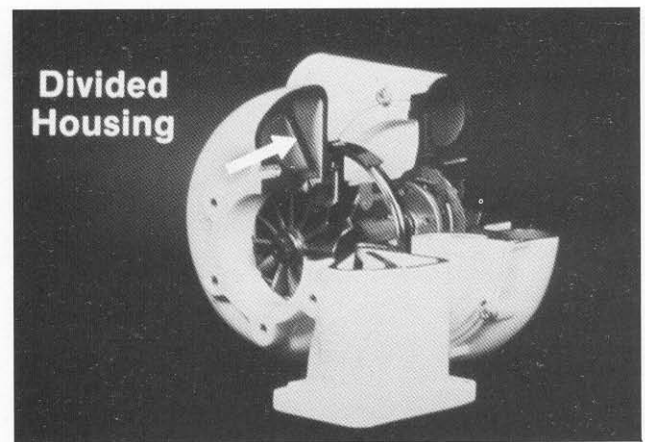
33. Both intake and exhaust flow are accomplished on the same side of the cylinder head, eliminating the need for an intake crossover and further reducing the size of the engine.



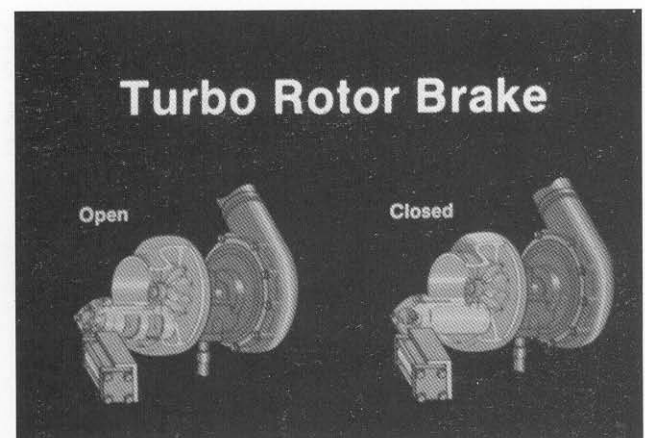
34. Together the L-10's short aerodynamic exhaust ports and "pulse" type exhaust manifold provide the direct, less restricted flow of exhaust gas pulses to the turbocharger for faster turbocharger response.



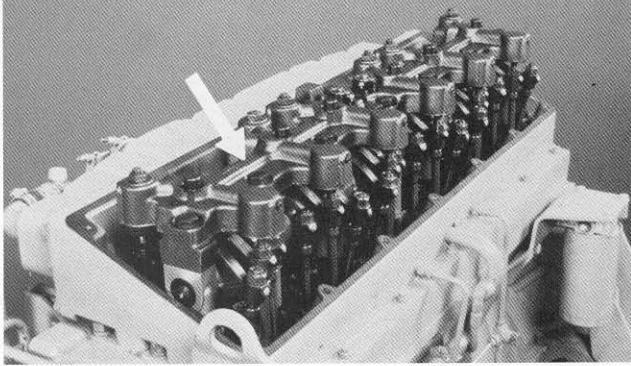
35. The turbocharger is perfectly matched to the engine and features a divided turbine housing that provides increased efficiency and responsiveness for optimum engine performance.



36. The turbocharger housing is machined to accept a rotor-type exhaust brake for engines in use overseas.

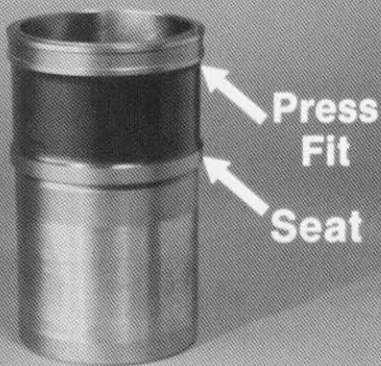


Jake Brake

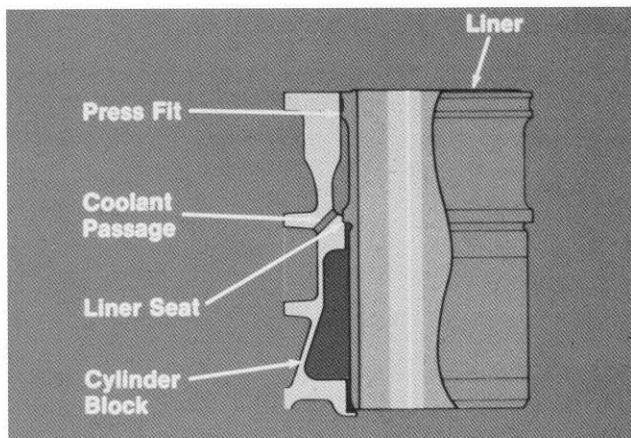


37. In the United States, the L-10 will be available with a Jake Brake because of its proven reliability and widespread customer acceptance.

Mid-stop Cylinder Liner

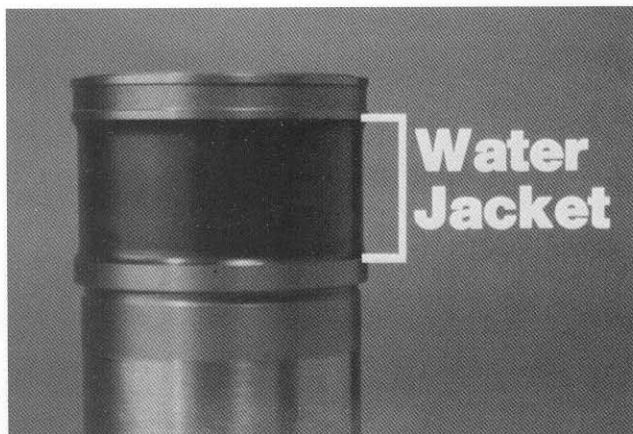


38. A major innovation found in the L-10 is the use of a mid-stop cylinder liner which seats at the bottom of the water jacket with a press fit at the top of the cylinder.



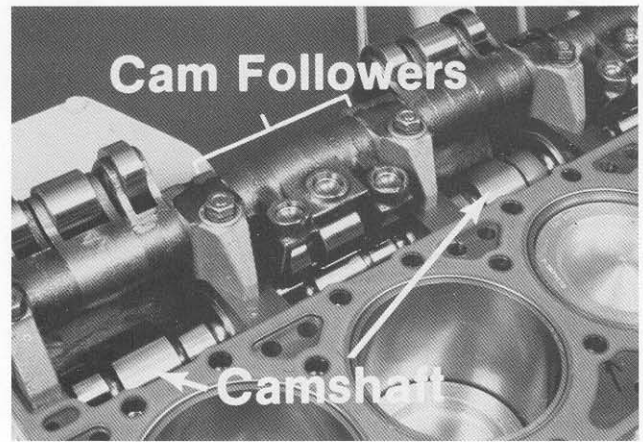
39. Notice how much the water jacket has been shortened. This "mid-stop" design creates a more rigid liner by reducing liner wall movement which can cause cavitation. Plus... as an added safety feature, a small rubber seal has been added under the mid-stop section of the liner.

Water Jacket

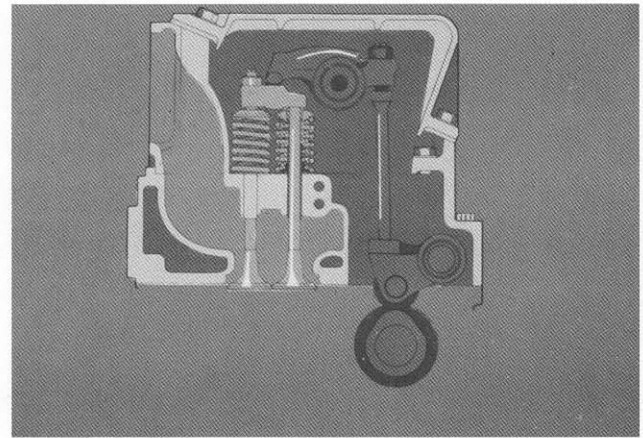


40. Because of the shorter water jacket, a smaller amount of coolant is concentrated in the area with the highest temperature at the top of the liner, allowing a smaller cooling system to be used for a lighter total power package.

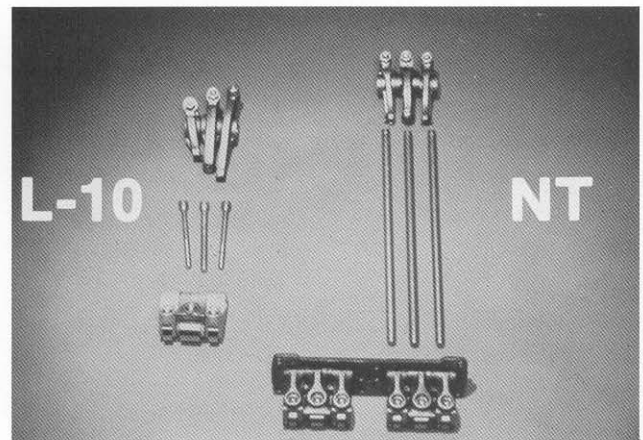
41. One of the most remarkable innovations in the L-10 is the use of a large diameter camshaft located near the top of the block with the cam follower assembly mounted directly on the top surface of the block.



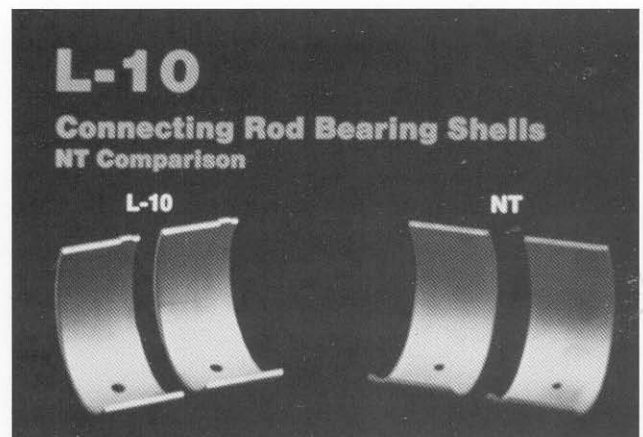
42. The high location of the camshaft allows the use of short push rods resulting in a stiffer overhead valve and injector train for more precise control.

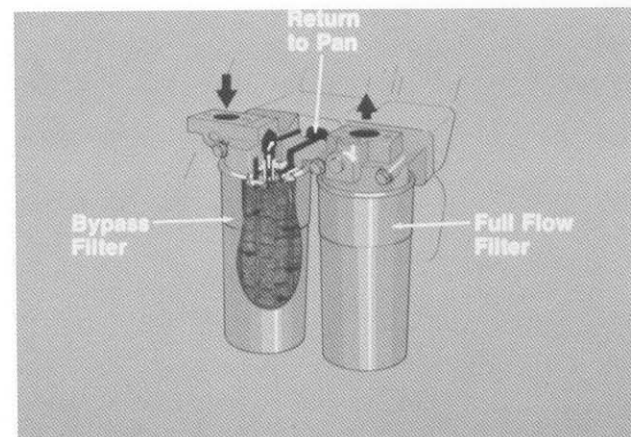
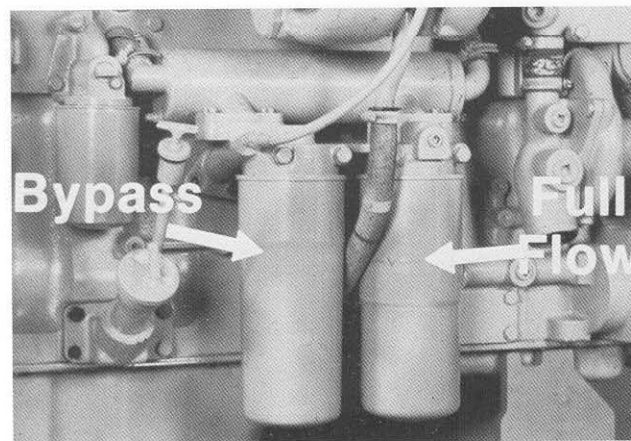
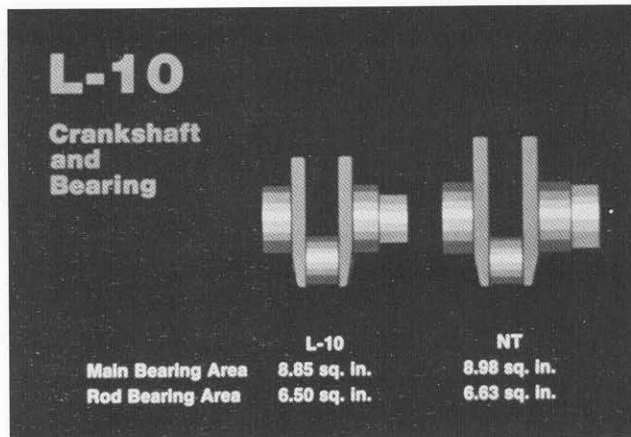
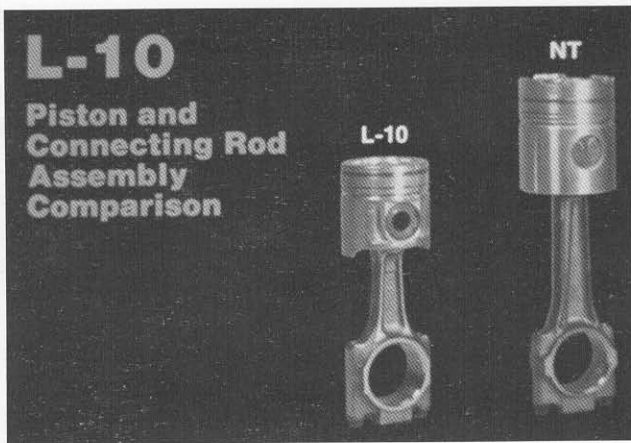


43. Short push rods also permit the L-10 to use higher fuel injection pressures for better fuel atomization resulting in more efficient combustion and increased fuel economy.



44. The L-10 features large, durable rod and crankshaft bearings, comparable in size to those found in the 855.





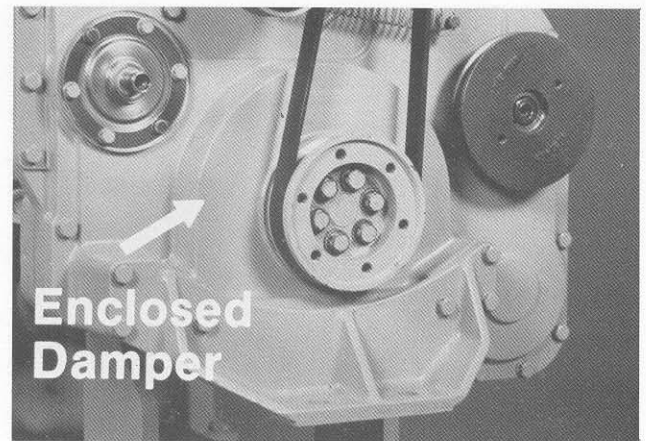
45. However, because the L-10 pistons are smaller, the load placed on the bearings is much less,

46. which, combined with the L-10's large bearing surface area, greatly extends bearing life.

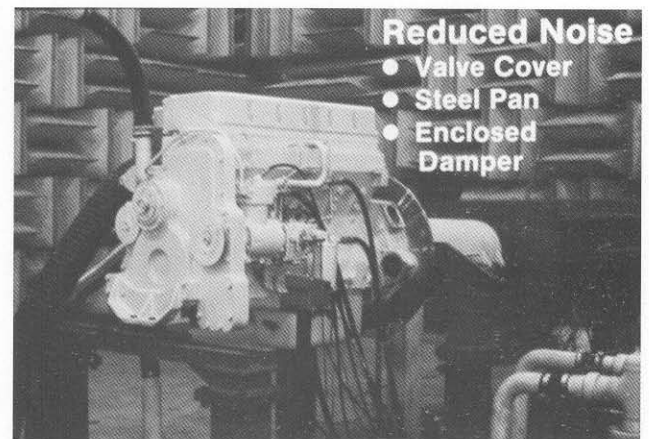
47. To protect the internal engine components from wear, the L-10 utilizes a unique dual filter head which accommodates both a spin-on bypass and full flow filter for easier servicing.

48. During engine operation, all of the lubricating oil passes through the full flow filter, while approximately 20% of the oil is circulated through the bypass filter which removes particles as small as 16 microns. The combination of these two filters provides the best possible engine protection.

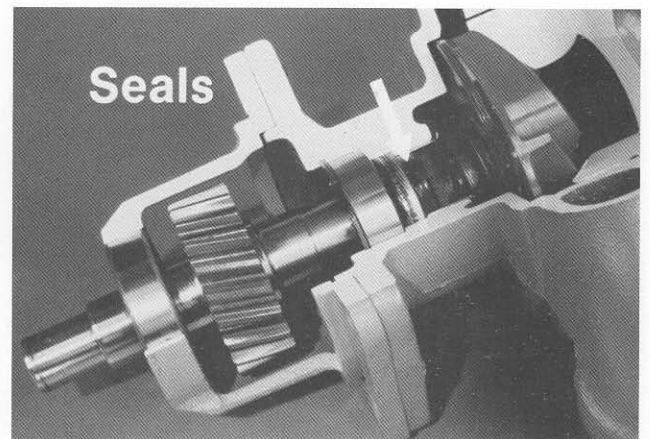
49. The viscous-type vibration damper on the L-10 is mounted inside the front gear cover to protect the damper and reduce engine noise while eliminating the front crankshaft seal.



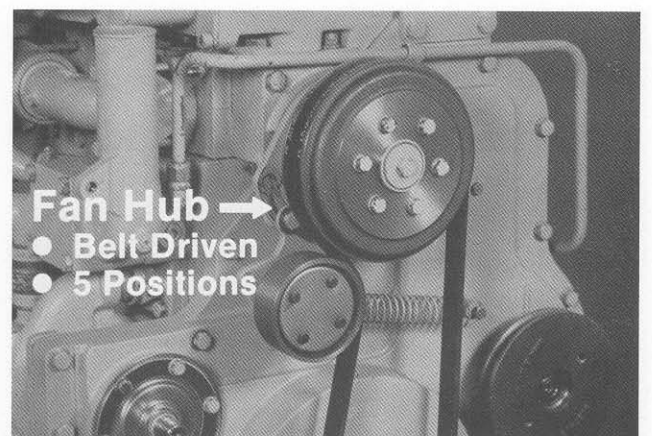
50. In fact, the entire engine has been computer designed to reduce noise levels. The L-10's enclosed damper, non-metallic valve cover, and stamped-steel oil pan are all major factors in achieving lower noise levels.

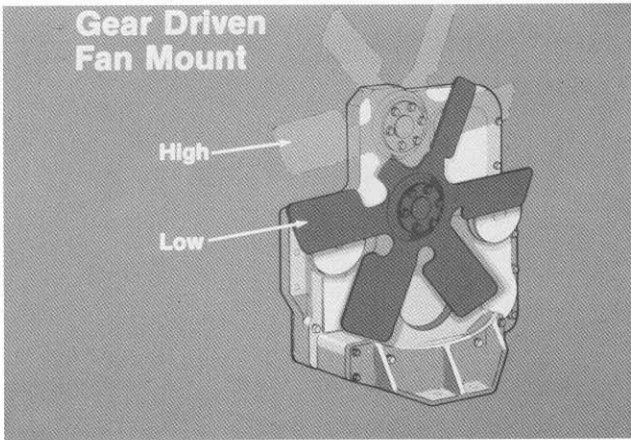


51. The seals in the gear-driven water pump will last longer because there is no belt tension to increase wear and shorten seal life.



52. Although the first L-10's released had gear driven fan hubs, due to the demand for this engine in a wide variety of applications, the standard fan hub is now belt driven with five different mounting positions.





53. The gear driven fan hub is optional with either a high or a low mounting position, and a fuel saving, water temperature activated fan clutch is also available.



54. The introduction of the L-10 engine adds new dimensions to the partsperson's job. To help you meet these challenges, we have made several changes to simplify the task of supplying your customers with the right replacement parts.



55. Most of the replacement parts for the L-10 are structured in complete kits with all of the necessary gaskets and mounting hardware included. For easy recognition, you'll find that the new PDC Structured Service Kits for the L-10 and our other engines are identified with a 3,800,000 series part number.

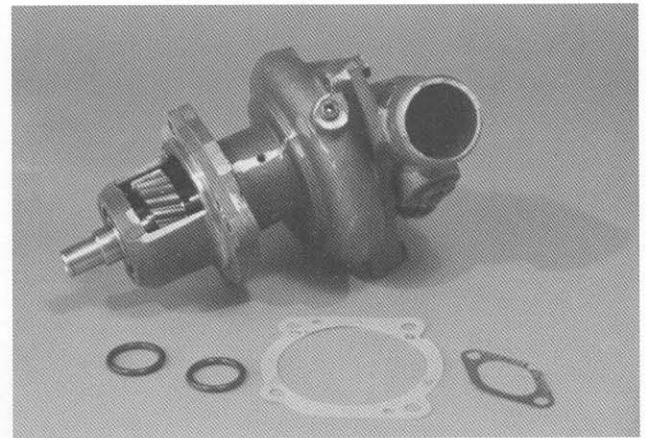


56. The pistons are only available in kits with the piston rings,

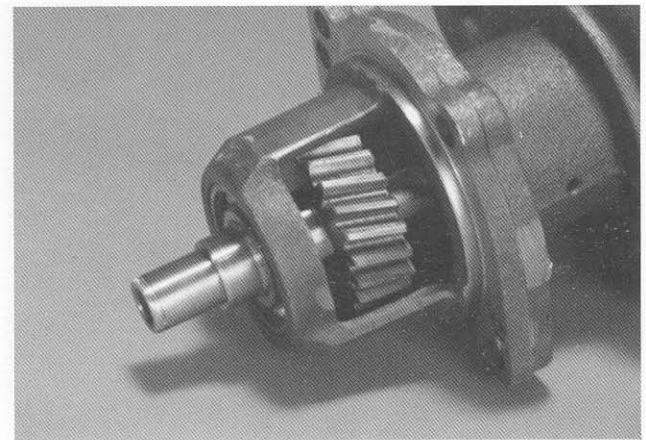
57. ... and a pair of collets is included with each intake and exhaust valve.



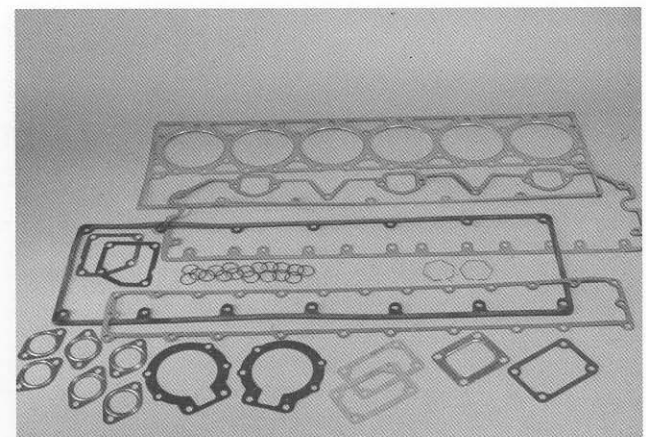
58. All of the L-10's external components such as turbochargers, water pumps, and air compressors are packaged with the mounting gaskets, O-rings, and seals.

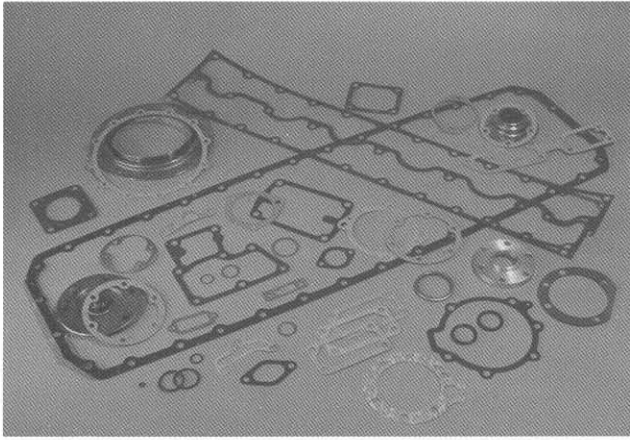


59. ... Most gears are already installed on the shaft except for those which have to be removed for installation or timing. The crankshaft, camshaft, and lube pump gears are sold separately.



60. The engine gaskets are also supplied in sets: one for upper engine repairs

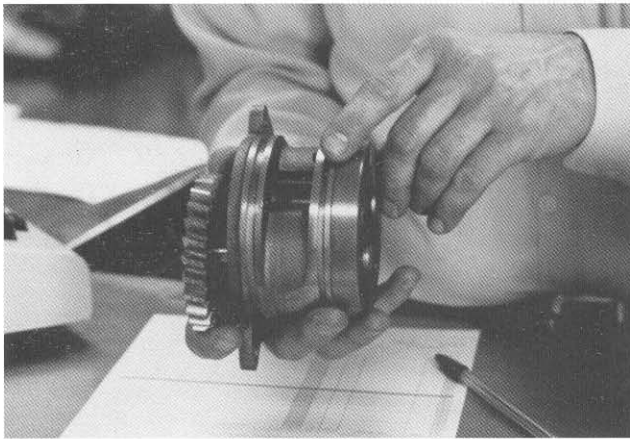




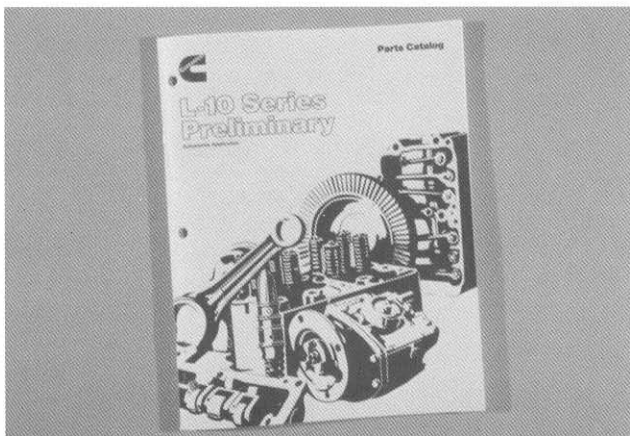
61. and another for lower engine repairs.



62. But, whenever you sell a lube pump kit remember that the front gear cover must be removed for access to the pump. Therefore, the customer not only needs an oil pan gasket but all of the front cover seals and the cover mounting gasket as well.

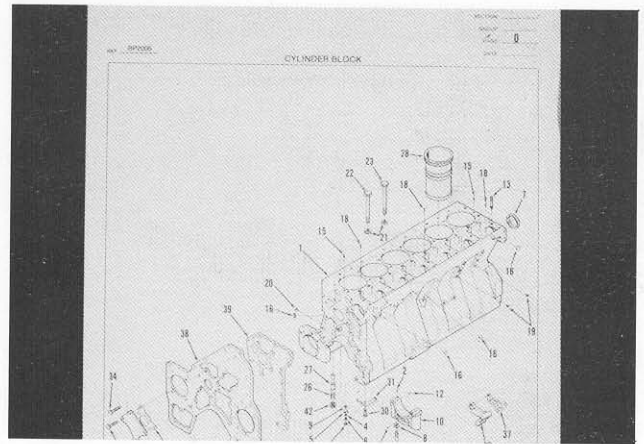


63. Also, there are two different size "O" rings for mounting the lube pump. The larger "O" ring is installed on the front of the lube pump, and the smaller one on the back. Be sure to tell your customers that if the "O" rings are properly installed, the pump will go into place easily, but if they have to use force, the "O" rings are in the wrong position.



64. Not satisfied with introducing a revolutionary new engine, we have also developed a new customer parts catalog.

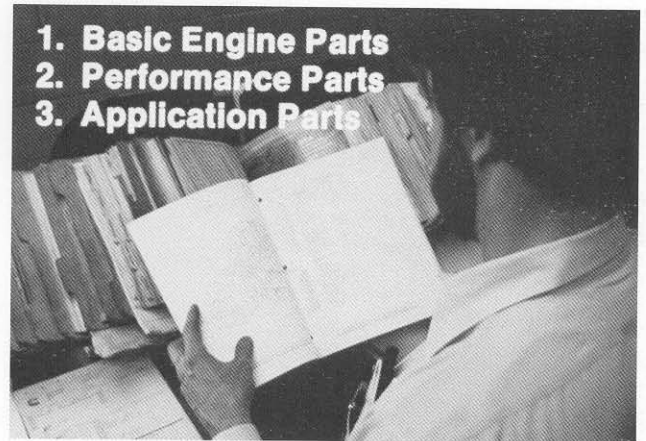
65. All of the illustrations now appear on the left-hand page,



66. and the right-hand page has been expanded to include a set of engine model columns for determining the appropriate engine model and a remarks column for providing additional information.

REF. NO.	PART NUMBER	PART NAME	NO. REQ'D	ENGINE MODEL	REMARKS
CYLINDER BLOCK					
	3601120	Assembly, cylinder block	1	X	
1	3031942	Block, cylinder (3031941)	1	X	
2	148352	Dowel pins (#4 main brg. cap)	2	X	
3	179063	Plug, retainer	1	X	
4	3014754	Washer, plan	1	X	
5	3014755	Disc, valve	1	X	
6	3014756	Spring, bypass valve	1	X	
7	3017325	Bushing, camshaft	7	X	
8	3019631	Washer, plan	14	X	
9	3026756	Seat, pressure regulator valve	1	X	
10	3026960	Cap, main bearing #4	1	X	
10	3026961	Cap, main bearing #1, 2, 3, 5, 6, 7	6	X	
11	3027493	Capscrew, main bearing	14	X	
12	3028252	Pin, roll	2	X	
13	3031921	Stud	1	X	
	70555	Dowel, pin (5-16 x 1-2)	1	X	
15	142207	Dowel, pin (7-16 x 1")	2	X	For Cylinder Head
16	213395	Plug, expansion (1.01 dia.)	6	X	
17	3007932	Plug, expansion (3/8" dia.)	7	X	
18	3008446	Dowel, pin (8.000 x 12.00)	2	X	For Cam Follower
19	3008466	Plug, pipe (1/4 - 18)	2	X	
20	3008468	Plug, pipe (1/2 - 14)	1	X	
21	3019631	Washer, plan	32	X	
22	3019640	Capscrew, cylinder head (14 - 1.50 x 140)	29	X	

67. Unlike our previous catalogs which follow the standard parts grouping system, the New L-10 catalog lists all of the basic engine parts first, the performance parts, and then the application related parts.



68. To avoid problems in locating the parts you need, simply consult the table of contents which lists both the name of the part and the pages on which it appears.

	Page No.	Page No.	
Accessory Drive Gear Train (Front)	35	Lifting Bracket	69
Accessory Drive Pulley	24	Lubricating Oil Cooler and Filter	71
Actuator	39	Lubricating Oil Cooler Water Plumbing	87
Aftercooler	83	Lubricating Oil Pump	73
Aftercooler Water Plumbing	93	Main Bearings	5
Air Compressor	31	Oil Pan	77
Air Exhaust Isolator	39	Piston	13
Air Tank	8, 9	Piston Cooling Nozzle	1
Alternator Location	43	Piston Rings	13
Breather	27	Plate, Gear Cover	1
By-Pass Oil Filter	71	Push Rods	11
Camshaft	15	Rocker Levers and Housing	11
Camshaft Bushings	1	Rocker Lever Cover	91
Cam Followers	9	Starter Mounting	79
Connecting Rod	13	Thermostat	41
Crankshaft	5	Thermostat Housing	85
Crankshaft Pulley	33	Throttle Lever	87
Cylinder Block	1		
Cylinder Block Covers	75		

Customer Service Information

This Parts Catalog contains standard engine configuration parts information for the following Cummins Engine Model:

L-10 Series

Control Parts List (CPL)

Certain basic engine components have been matched to give optimum performance to your engine. The part numbers listed in this catalog for these components are for a standard engine configuration. When ordering any of the Control Parts List (CPL) components listed below, please order by part description and engine serial number. Reference to the CPL number stamped on the engine data (name) plate will also help identify the proper service parts for your engine.

Control Parts List (CPL) Components

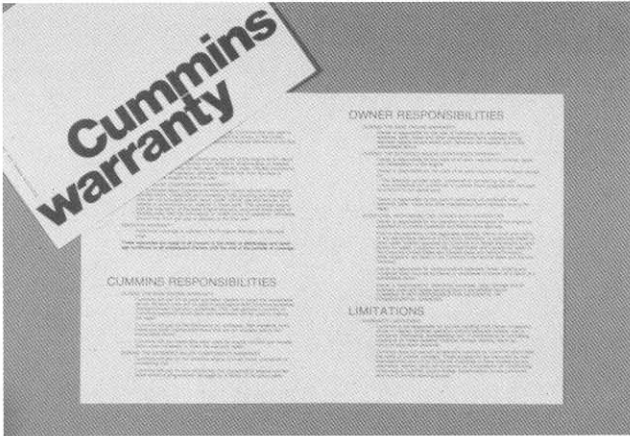
Aftercooler	Page 83, 93	Piston, engine	Page 13
Camshaft	Page 15	Turbocharger	Page 21, 83, 89
Cylinder Head	Page 19	Exhaust Manifold	Page 83
Injector	Page 17	(Dry)	

Part numbers appearing in () are for identification purposes only and should not be used when ordering service replacement parts.

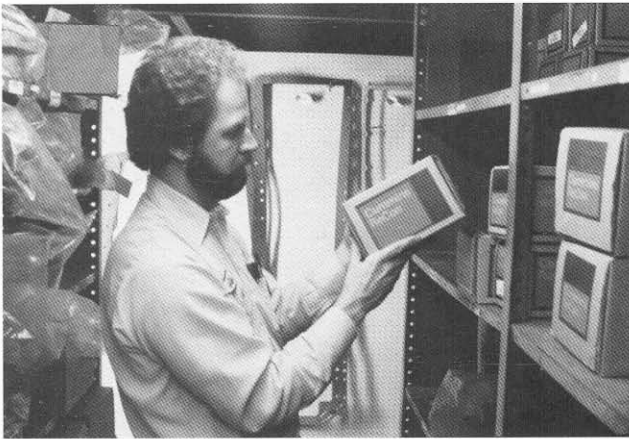
The form below is provided for your convenience and when properly filled out, will allow proper identification of your unit and the normal maintenance items. Parts information errors that could cause extended down time could be avoided if the information on this is referred to when ordering parts from your Cummins Distributor or Dealer.

ALWAYS SPECIFY ENGINE MODEL AND SERIAL NUMBER

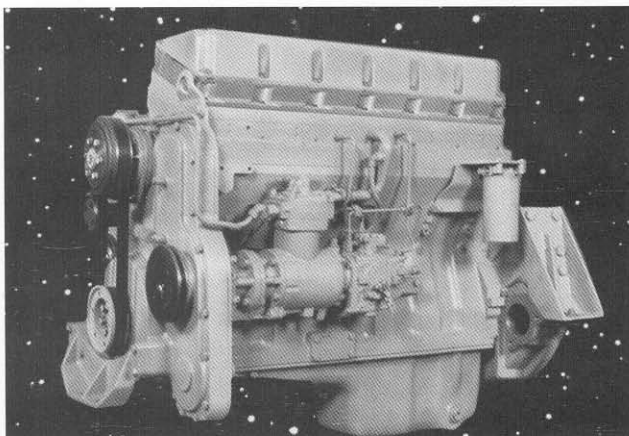
69. A customer service information page has also been added to the front of the catalog to explain the purpose of the control parts list and to provide a page reference for each of the CPL components.



70. Naturally, all of the L-10 engine parts are covered by the same warranty as parts for the entire line of Cummins Engines.



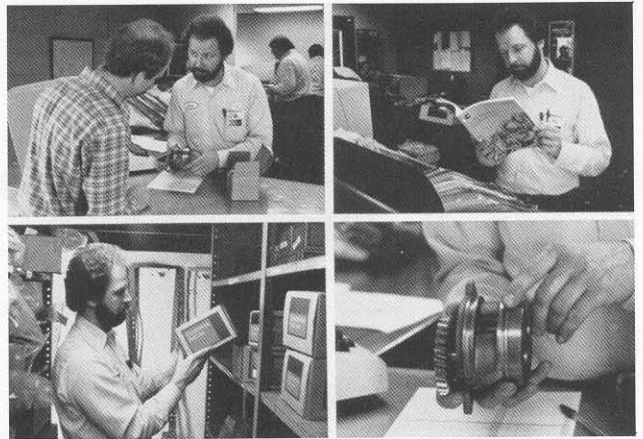
71. And, the same ReCon factory rebuilt parts are available for the L-10. Of course, completely remanufactured engines will not be available for some time.



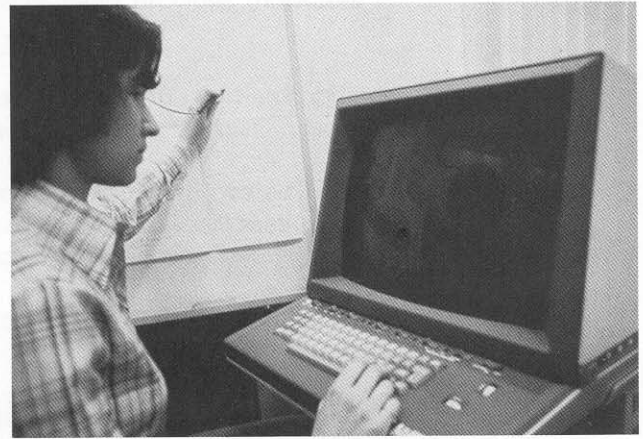
72. Compact and lightweight with heavy-duty reliability, the New Cummins L-10 is without a doubt the engine of the future.

73. Yet, it represents a challenge for you, the professional Cummins partsperson.

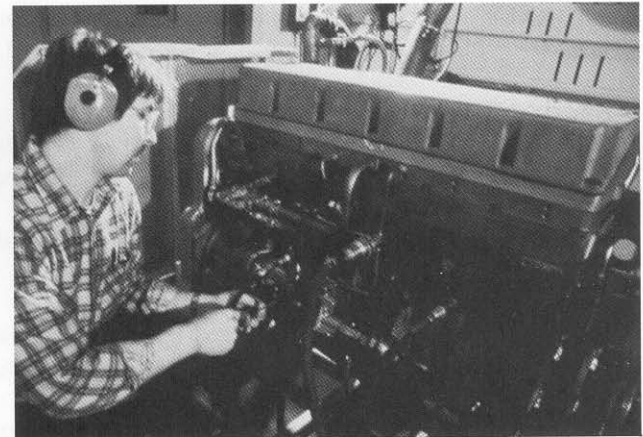
For in the days ahead, not only will you have to learn all about a new engine and stay abreast of further improvements, but you will also have to continue handling the parts needs of all our other engines as well. It is a challenge we know you will accept, and a task we are certain you will master.



74. Because, like the scientists and engineers who designed the L-10...

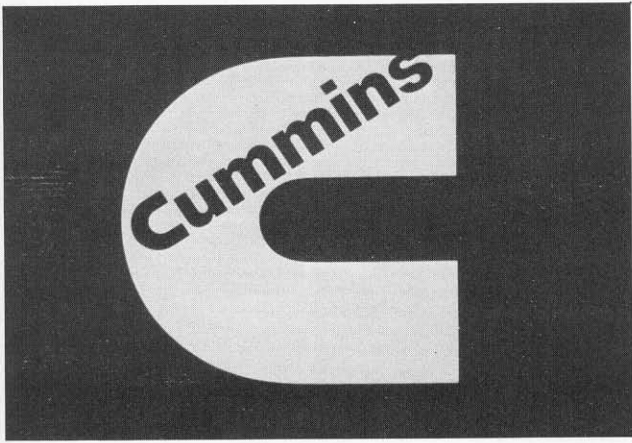


75. ... and the machinists and factory workers who built it,

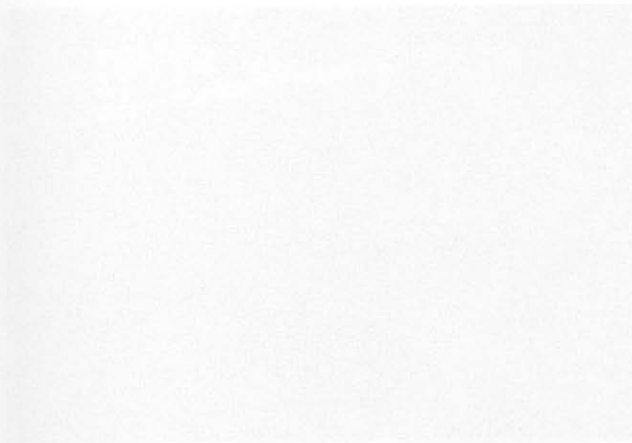


76. ... you are part of a team, the Cummins team.
And, that's something to be proud of!





77. Logo



QUIZ 2

Program: L-10 Parts Introduction

Answer: True T or False F on Left Margin

- | True | False | |
|-------|-------|---|
| _____ | _____ | 1. On the L-10, the engine service plate is mounted just above the fuel pump. |
| _____ | _____ | 2. Metric capscrews are used throughout the engine except for externally mounted components. |
| _____ | _____ | 3. The L-10's one piece cylinder head provides individual intake and exhaust ports for each cylinder. |
| _____ | _____ | 4. Because of its short water jacket, the L-10's mid-stop cylinder liner requires greater coolant flow. |
| _____ | _____ | 5. The L-10 uses a large diameter camshaft located near the top of the block with the cam follower assemblies mounted directly on top of the cylinder head. |
| _____ | _____ | 6. Because of its short push rods, the L-10 is able to use higher fuel injection pressures. |
| _____ | _____ | 7. On the L-10 the vibration damper is mounted inside the front gear cover to protect the damper and reduce engine noise. |
| _____ | _____ | 8. Because the pistons in the L-10 are considerably smaller than those used in the NT 855, much smaller rod and crank bearings are also used. |
| _____ | _____ | 9. The L-10 has a dual oil filter head which mounts both a spin-on full flow and bypass filter directly to the block. |
| _____ | _____ | 10. The L-10's standard gear driven fan hub has both a high and a low mounting position. |
| _____ | _____ | 11. On the L-10, both the oil pan and the front engine cover must be removed in order to replace the lube pump. |
| _____ | _____ | 12. Because of the new PDC structured service kits, valves and collets for the L-10 cannot be purchased separately. |

QUIZ 2

Program: L-10 Parts Introduction

Answer: True T or False F on Left

True False

1. On the L-10, the engine sensor is mounted just above the fuel pump.
2. Metric cap screws are used to secure the externally mounted components.
3. The L-10's nine piece cylinder head provides individual in take and exhaust ports for each cylinder.
4. Because of its short water jacket, the L-10's mid-stroke cylinder liner requires greater coolant flow.
5. The L-10 uses a large diameter crankshaft located near the top of the block with the main bearing assemblies mounted directly on top of the cylinder head.
6. The L-10 uses a large diameter crankshaft located near the top of the block with the main bearing assemblies mounted directly on top of the cylinder head.

PARTS QUIZ ANSWERS

	T	F		T	F
1.		X	7.	X	
2.	X		8.		X
3.		X	9.	X	
4.		X	10.		X
5.		X	11.	X	
6.	X		12.		X

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