

TM 9-4910-641-14&P

TECHNICAL MANUAL

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS LIST**

FOR

**GRINDING MACHINE, VALVE FACE
MODEL K403C and K500C
(K.O. LEE CO.)
(NSN 4910-00-540-4679)**

HEADQUARTERS, DEPARTMENT OF THE ARMY

15 MAY 1980

Technical Manual }
 No. 9-4910-641-14&P }

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 DEPARTMENT OF THE ARMY
 Washington, DC, 15 May 1980

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 For
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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished directly to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this grinder is issued.

Manufactured by: K.O. LEE COMPANY
 P. O. Box 970
 Aberdeen, SD 57401

Procured under Contract No: DAAA09-77-C-6224

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

- 1- Manufacturer's Federal Supply Code Number - 35472
- 2- Manufacturer's Part Number exactly as listed herein.
- 3- Nomenclature exactly as listed herein, including dimensions, if necessary.
- 4- Manufacturer's Model Number - Model K403C and K500C
- 5- Manufacturer's Serial Number (End Item)
- 6- Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.
- 7- If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

- (a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number — 35472 followed by a colon and manufacturer's Part Number for the repair part.

- (b) Complete Remarks field as follows:
Noun: (nomenclature of repair part)
For: NSN: 4910-00-540-4679
Manufacturer: K. O. Lee Co.

Model: K403C and K500C
Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

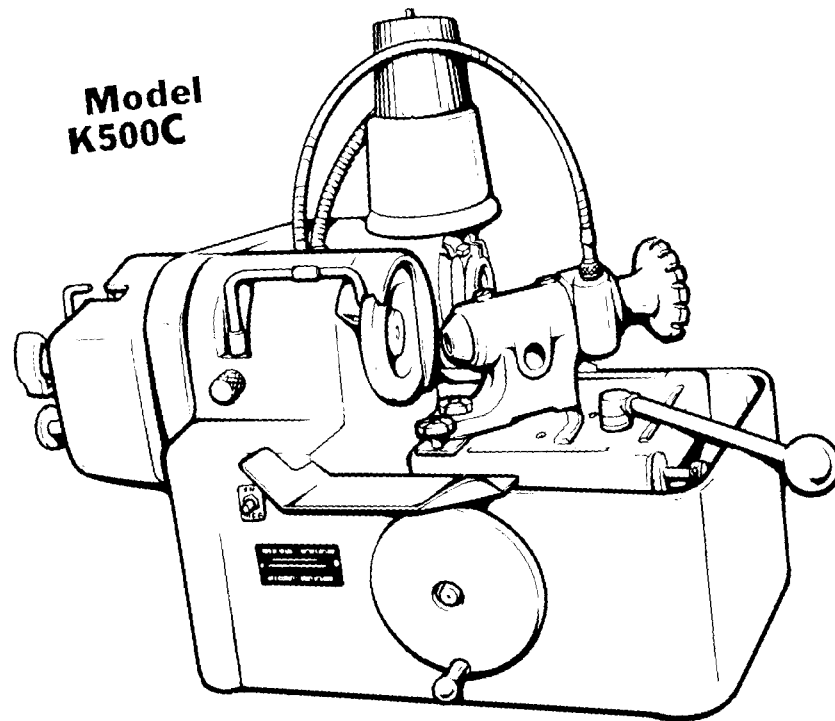
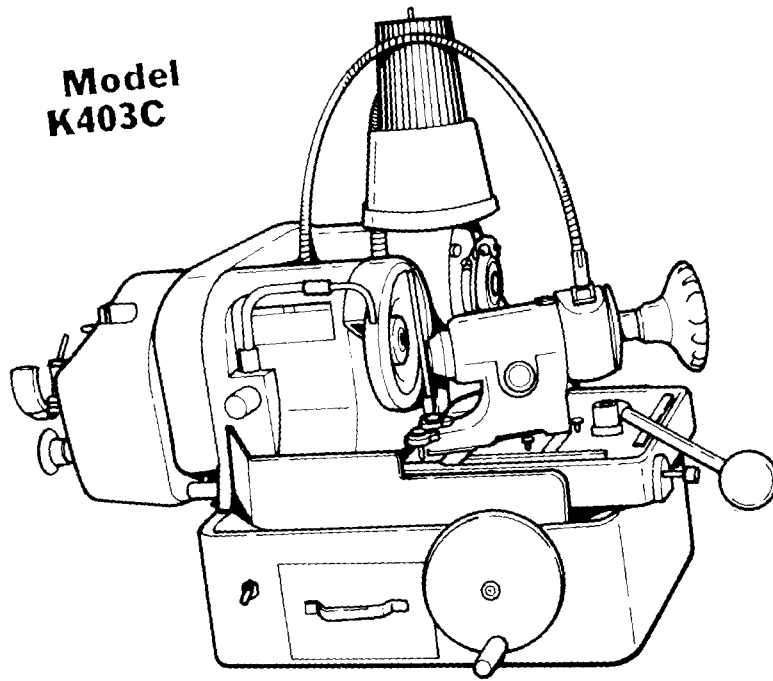
HOW TO USE MANUAL

This manual consists of three sections. The three sections, in the order in which they appear, are as follows:

Instructions	pages 1 - 7
Data book	pages 1 - 27
Repair parts list	pages 1 - 4

TM 9-4610-641-14&P

GRINDING MACHINE, VALVE FACE



INSTRUCTIONS
FOR
SETTING UP -
OPERATING -
MAINTAINING -
GRINDING MACHINE, VALVE FACE
MODELS
K403C AND K500G

I N D E X

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Placing Machine page 1

Assembling Machine page 1

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Setting Angle page 5

Dressing Wheel (Refacing) page 5

Chucking Valve page 6

Grinding Valve page 6

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Rocker Arm Grinding page 7

INTRODUCTION

You are naturally anxious to start operating this machine but before actually grinding your first valve we urge you to follow carefully these instructions for setting-up and preparing the machine, then when you grind the first valve follow the operating instructions step by step and you will be more than pleased with the results.

MACHINE PLACEMENT

The valve refacer is a precision machine representing a considerable investment and good judgment in the placement of it will pay dividends. A valve wagon is the ideal place to set up the machine but if you do not have one, select a spot where it will not be exposed to dust, grit, the danger of heavy objects being placed or dropped on it and where it will not be affected by the vibration of other machines. If placed on a bench, level the machine using metal or hardwood shims under the feet.. If on a valve wagon bolt machine to top with holes provided.

ASSEMBLING MACHINE

Assembly of the valve refacer is a simple operation, because all parts except a few specially packed to assure safe transportation are factory assembled.

The separate packing carton included contains the following parts for assembly:

1. Shaft Driven Work Head (lubricate before using) - mount on rear stud on table, secure with slotted nut. Remove stop pin from rear of work head hand nut - you will find milled end to use as wrench in slotted nut.
2. Flexible Shaft - affix to coolant pump and work head and screw tightly by hand.
3. Splash Shield - mount on base in front of machine base.
4. Table Stop Screw - screw into R H Side of table base, adjusts movement of table for controlled travel to left.
5. Soluble Oil Concentrate (1 pt. can). See page 4 - Coolant Solution for proper mixture,.

6. Work Head Stop Pin - place in reamed holes for desired degree setting on table back of work head base. Round side against work head for accurate angle, i.e. 45°; flat side against work head for minus 1°, i.e. 44°.

Balance of equipment represents accessory parts for use or for mounting as required.

1. Rocker Arm Attachment (Universal Cone-type) - mounts on forward stud on top table when operation is required.
2. Diamond Screw and Holder - mounts on rocker arm and diamond dresser attachment to dress wheel. Remove top cone assembly only.
3. "V" Rest - mounts on forward table stud and positioned for grinding butts of valves using side of grinding wheel. (On models without butt grinder.)
4. $\frac{1}{8}$ " Hex Wrench.

Now that assembly has been completed, wipe the protective oil coating from machine and prepare for lubrication.

LUBRICATION

WORK HEAD: This unit is shipped with oil ready for operation. If for any reason oil is not in unit, remove large screw plug on top of work head to oil worm drive and spindle bearings, fill and maintain to visible oil level line (see oil window) with Universal Gear Lubricant No. EP80, EP90, No. 70 or No. 50 motor oil or equivalent. **DO NOT** put soluble oil, provided with machine, in work head.

TABLE WAYS: Position table for oiling ways by moving table to the left as far as possible and fill center CUPS and R H cups. Move table to right as far as possible and fill center CUPS and L H cups. There are four spring cap type oil cups on top of table which should be filled and maintained with (S A E No. 10) oil weekly. These cups oil bottom and top table ways and rear bearing feed screw assembly.

FEED SCREW ASSEMBLY K403 AND K403C SERIES: The ball type oil cup on front top of base cares for the front bearing of this unit. Oil rear feed screw bearing by moving table to the front of machine exposing oil hole in base. Fill with S A E No. 10 or equivalent. Also apply oil directly on screw for easy operation.

FEED SCREW ASSEMBLY K500 AND K500C SERIES: Two alemite fittings, 1—Top front for greasing bearings. 1 - feed nut accessible after tank is removed from left side.

WATER PUMP: There is one alemite fitting located on side of pump for lubricating entire pump. The pump unit is packed with AA1 grease.

TABLE TRAVERSE: Move table to extreme right and apply SAE No. 10 oil to arm and pivot exposed underneath.

ELECTRIC MOTOR: The bearings on the motor driving wheel spindle and water pump have oil cups (2). Oil motor bearings with SAE No. 10 motor oil. This should be done every 6 months.

GRINDING WHEEL SPINDLE: Bearings of this unit are packed and sealed requiring no lubrication.

ADJUSTMENTS

The valve refacer has been accurately adjusted and tested for precision operation at the factory before shipment, therefore adjustments should not be necessary.

MOTOR V BELT: The belt tension can be adjusted simply by positioning the motor assembly forward or back after loosening motor mount bolts, securing belt after adjustment. This adjustment is necessary to compensate for stretch in belt on this valve refacer—all other adjustments automatically compensate for wear.

TABLE WAYS: Have automatic compensation for wear - need no adjustment. V type construction ways wear in—not out.

WORK HEAD SPINDLE BEARINGS: The work head on the valve refacer has plain bearings with automatic take-up for wear.

MODEL K500 AND K500C SERIES: Feed screw nut and feed bar have spring load and no adjustment is ever necessary.

REPLACEMENT OF PARTS

INSTALLATION OF BELT: Worn belt can be replaced by removing the belt guard, using socket wrench inserted through removable cap openings in bolt guard castings. Loosen motor mount nuts and slide motor forward. Replace bolt and adjust tension by positioning motor back and secure.

REMOVING AND INSTALLING MAIN SPINDLE BEARINGS: Worn main spindle bearings may be conveniently replaced when required. The only tools necessary are a large screw driver, $\frac{5}{16}$ " wrench, and a pair of needle-nose pliers.

First remove R H grinding wheel by removing nut and flange washer. Next remove wheel flange from shaft, prying loose with screwdriver pro-

tecting base finish with soft wood block or rubber pad. Now remove lock spring by pinching open section together with needle nose pliers, remove the lock spring then washer, and spacing collar.

Now remove the belt (see installation of belt) on the L H side spindle housing. Spindle pulley removes from shaft by loosening set screw with $\frac{5}{16}$ " wrench. Remove lock spring, thin washer (s), thrust springs, and spacing collar like the procedure followed to free R H side bearing. To correct for slight variations in casting dimensions, thin washers are employed, so the number of washers used for spacing purposes vary. Care should therefore be taken to replace those parts removed as found in the original assembly of your particular unit. The spindle and bearings may now be pushed out R H side of housing. Bearings or complete spindle and bearing unit may now be replaced in the machine.

To replace spindle and bearings, assemble by inserting from R H side of housing, and push into place. Reversing disassembling process, start on L H side replacing spacing collar, thrust springs, thin washer (s) and lock with lock spring. Make certain that lock spring is properly seated in the housing groove. Next place spacing collar, thin washer and lock spring over shaft on R H side. Then using screw driver or flat bar, place end against rear inside, of wheel guard exerting pressure against the projecting shaft end (use soft wood block or rubber pad to protect shaft end), forcing shaft as far to the left as possible against thrust springs. While applying pressure position the spacing collar, thin washer, and lock spindle in place with lock spring which seats in housing groove. Slip wheel range over shaft and twist to tight position.

Replace belt pulley on shaft (L H side), place belt over pulley to line up with motor pulley and lock pulley in place by tightening set screw. Replace grinding wheel and belt guard to their respective positions, level machine, and it is ready to operate.

REMOVING COOLANT TANK: Tank is mounted on slides and removes from side of the machine.

COOLANT SOLUTION: This Soluble oil is made for use in any type water. Coolant tank must be clean. Soluble oil should be at room temperature. Shake well before using. Mix one ounce of soluble oil to each quart of water. Always add oil to water. Never water to oil. After emulsion is formed water may be added. Oil should be added slowly with agitation. It is important that mixture is thoroughly mixed. Maintain coolant level with additional water until solution fails to prevent rust. At this point it is advisable to thoroughly clean coolant tank, and prepare new filling of coolant. Soluble oil can be obtained in 1 Qt. can No. 2659.

If the machine is exposed to freezing temperatures, white kerosene may be used instead of soluble oil and water.

OPERATION

WORK HEAD COLLET: One collet, size $\frac{3}{32}$ " to $\frac{1}{16}$ " capacity is provided with machine as standard equipment. To change collets remove hand screw at back of work head, pull out sleeve and collet. Insert collet, replace sleeve and hand screw.

Keep collets, cone sleeve and inside of work head clean and dry. A light film of oil should be applied to cone whenever unit is removed from spindle. These collets are accurate to 0.001 inch and any dirt or grit will reduce their accuracy. They grip at each end on actual working surface of valve stem—assuring accuracy between stem and new angle grind.

A special small collet and cone sleeve (K43C) with $\frac{1}{4}$ " to $\frac{3}{8}$ " capacity and a large collet (K43E) with $\frac{1}{2}$ " to $\frac{3}{4}$ " capacity are available extras adaptable to work head,

Caution: When small collet ($\frac{1}{4}$ " to $\frac{3}{8}$ ") is used cone must be against collet. Small spacer furnished with collet is positioned between cone and hand screw.

SETTING GRINDING ANGLE: To set machine for desired grinding angle, place stop pin in correct hole on table top to the rear of work head. With the round side of the pin next to work head, hold work head against the stop pin and tighten nut using milled end of valve stop pin for wrench. For 44° angle valves, place stop pin in 45° angle hole with flat side of pin next to work head. This gives -1° reading when flat side of pin flushes to work head base.

DRESSING WHEEL FACE: Position rocker arm and wheel dresser attachment on front table stud and lock in position. The diamond holder is placed on attachment stud over lower cone. Turn on machine and feed diamond up to wheel slowly. It is best to dress wheel dry because use of coolant is apt to crack diamond. If wet dressing is desired be sure to open coolant valve and have coolant flowing before applying diamond to wheel. Rough dress the wheel by passing the diamond rapidly back and forth across the wheel using light feed until wheel is true. Finish dress by passing diamond slowly across wheel several time, without feed the last few times. Back off diamond from wheel when completed. Strict adherence to the foregoing procedure will result in a smooth wheel capable of producing the finest possible valve face finish. Remove attachment from machine and prepare to chuck valve.

If excessive carbon on valves to be ground is cleaned off with wire brush, wheel will not become filled with the soft carbon, eliminating too frequent wheel dressing.

DRESSING WHEEL SIDE: To dress side of wheel, position dresser and move table toward wheel until diamond ALMOST touches side of wheel. It may be necessary to turn diamond holder over so that large counterbore

on underside is up. This positions diamond nib on opposite side of stud and gives necessary travel to dress side of wheel. Set table stop screw, start machine and feed diamond up to wheel by backing off table stop screw. Dress wheel by passing diamond across it using hand wheel and hold table firmly against stop with table traverse handle.

CHUCKING THE VALVE: First clean stem thoroughly with wire brush to remove carbon and dirt that may cause inaccurate chucking. Insert valve into work head so that one end of double end collet grabs stem as close to head as possible still remaining on ground surface of stem. This is important to insure stem and valve face being concentric to make valve seat perfectly. With valve in position set the stop pin, in the center of the hand nut, by pushing it against the end of the tightened valve. This serves as a guide for the rest of the valves in this series and saves time.

GRINDING VALVE FACE: With the workhead secured at proper grinding degree, wheel properly dressed, and the valve having been thoroughly chucked, you are ready to grind the valve face.

Start the machine and proceed with grinding the valve face. Feed valve up to the wheel slowly, making sure coolant is directed onto valve, and grind in same manner as when dressing wheel but do not let the valve pass off the wheel. Set traverse handle to most convenient position. Twist to left to loosen, move to position, twist to right to tighten. Use light feed, traversing valve across wheel and back again each time before more feed is applied. If only part of the valve face touches the grinding wheel check the stem for straightness. If bent discard valve. If straight be sure it is clean and clean the collet and inside of work head because any foreign matter will affect the accuracy of the collet. When face is cleaned up, allow valve to spark-out, i.e. traverse the valve back and forth slowly across the wheel without feed until no sparks are visible. Back the valve off the wheel and stop motor. Remove valve from work head, and you will now be able to observe a quality finish on the ground valve face. Repeat operation for successive valves. The grinding wheel furnished with machine gives excellent results on general valve grinding. However, a special grinding wheel (OV5FH60W) is available for grinding soft steel valves, and OV5GH80S wheel is for Stellite valves.

If removal of the valve with motor running is necessary, valve may be removed from workhead in this manner. Back the valve off the wheel and move table to extreme right, hit hand screw a glancing blow with hand in direction of rotation. If this is faster than RPM of spindle, collet will open. New valve is positioned in head against stop and nut is gripped lightly with right hand to lock.

BUTT GRINDING MACHINES NOT EQUIPPED WITH MICROMETER BUTT GRINDING ATTACHMENT: Position V-rest on front table stud and lock in position. Move table to rear lining up V-rest with side of grinding wheel using valve butt as guide.

BUTT GRINDING USING MICROMETER BUTT GRINDING ATTACHMENT: To grind valve butt, hold valve firmly on V-rest against grinding wheel and rotate valve. **FORD VALVE LIFTERS:** Can be ground as are the valve butts employing the V-rest.

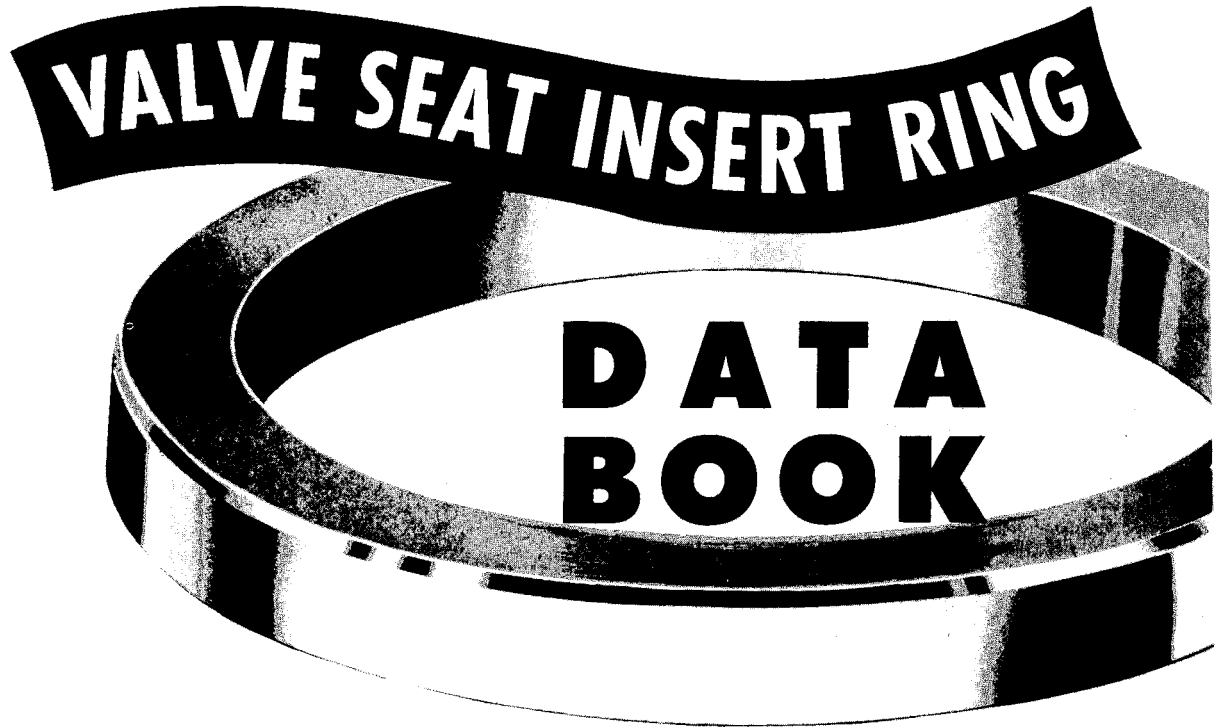
DRESSING BUTT GRINDING WHEEL: Diamond dresser is positioned on stud located on side of V-block. Diamond point must not be above centerline between stud and face of wheel so that if diamond catches, point swings away from wheel, not into wheel. Diamond is fed into wheel with micrometer feed nut. Dressing is accomplished by oscillating diamond across face of wheel. Wheel should be dressed dry.

BUTT GRINDING V-8 VALVES: The depth gauge which is a part of the micrometer butt grinding attachment is designed in a single unit to serve both Model 60 and larger V-8 engines. It is comprised of a steel shaft, an adjusting valve seat head, and two steel bushings sized to fit 60 and V-8 engine valve guides.

Use depth gauge to check length of valve, by inserting gauge using end holding bushing that fits into valve guide hole to serve as valve guide. With cam shaft and valve lifter in lowest position, and valve seat ground, lower steel shaft on gauge to touch valve lifter. Set adjustable head against valve seat obtaining valve length, and screw adjustable head screw tight. Remove depth gauge, and place in butt grinder attachment as if valve to be ground. Set the butt end of the gauge so that it just touches highest point on wheel, and bring valve head fork into support position for the adjustable head on the depth gauge and tighten in place. Mark micrometer setting back off, removing depth gauge. Place valve to be ground in butt grinder, supporting valve head against valve head fork. Start wheel and feed valve into wheel by taking up on micrometer nut to marked position plus number of thousandths required for clearance. Repeat procedure for each valve to be ground.

ROCKER ARM GRINDING: The universal (cone-type) rocker arm grinding attachment through its popularity has been made standard equipment with the valve refacer. With two cones - the rocker arm is held firmly between the two angle surfaces.

To use, mount the rocker arm attachment on forward stud on the table. Slip the top cone from attachment pin, and place rocker arm to be ground on pin, seating lower cone, replace top cone and tighten lock screw. Adjust the rocker arm to be ground to the wheel in such a way that the correct radius is obtained when the top table is traversed back and forth a short distance. Start machine and grind by moving table back and forth while holding rocker arm lightly against wheel. **DO NOT REMOVE** more than enough stock to clean up any pits or flat spots to avoid grinding off too much of the hard case.



**ENGINE SPECIFICATIONS
FOR VALVE RECONDITIONING**

RECOMMENDATIONS ARE BASED ON
ENGINE MANUFACTURERS' SPECIFICATIONS

INTRODUCTION

This data book, in addition to giving specifications on valve seat insert rings, is intended to supply helpful information for use with reseater, seat grinder and valve refacer tools.

Engine manufacturers are listed alphabetically and engines are identified by: Year of Manufacture; Model (chassis or engine) Number; number of cylinders and bore and stroke. Other engine identification, such as engine model number, make, type of fuel, or horsepower, frequently appears just to the left of the cylinder column.

Whenever recommendations are identical, models are grouped together to avoid duplication.

Engines for trucks not listed in the Data Book can be found under the engine manufacturer's name. For example, most Federal truck engines are found under Hercules and Continental; Diamond T under Hercules; others under Waukesha and Cummins engines. Truck manufacturers who make their own engines are listed under their own name.

Footnotes are listed at the bottom of each page. If an asterisk (*) follows a ring number, that ring is a replacement for factory installed insert. A ring number without the asterisk is an oversize ring for factory installed insert or the recommended ring if no insert has been installed at the factory. Special footnotes pertaining only to certain manufacturers are listed with the manufacturer's listing. If exhaust pilot size is different than the intake, the exhaust size will be listed after the model listing.

The valve guide reaming tools are designed to service late model engines which have valve guides cast as part of the cylinder head. These tools can be used to install oversize stem valves or replaceable valve guides. Guide application data is listed on pages 25 and 26.

Allis-Chalmers 2, 3	Edsel 7	Lincoln ----- 12	Studebaker ----- 16
Auto Car --- 3	Fairbanks-Morse - 7	Lycoming ----- 12	Volkswagen ----- 16
Buda ----- 3	Ferguson ----- 7	Mack ----- 12	Waukesha ----- 16
Buick ----- 3	Ford ----- 8	Massey-Ferguson 13	White ----- 16
Cadillac ----- 3	GMC ----- 9	Mercury ----- 10	
Case ----- 4	Hall-Scott ----- 9	Mpls.-Moline ----- 13	SMALL ENGINES
Caterpillar ----- 4	Hercules ----- 9,10	Nash ----- 14	Briggs & Stratton 17
Chevrolet ----- 4,5	Hudson ----- 10	Oldsmobile ----- 14	Clinton ----- 17
Chrysler ----- 5	International -10,11	Oliver ----- 14, 15	Continental ----- 17
Cockshutt & Co-op 5	John Deere ----- 11	Packard ----- 10	Cushman ----- 17
Continental 6	Kaiser-Frazer --- 11	Plymouth ----- 15	Kohler ----- 17
Cummins ----- 6	Kaiser-Jeep ----- 12	Pontiac ----- 15	Lauson ----- 17
De bate ----- 6	LeRoi ----- 12	Reo ----- 15	Wisconsin ----- 17
Dodge ----- 7			

ALLIS CHALMERS TRACTORS AND POWER UNITS

Year	Model	Make	Eng Cyl	B&S	Pilot Size	Cyl Int	Iron Exh	VALVE SEATS				SEAT C/PINDER						
								Lee Alloy Int	Chromalloy Exh	Lee Life Exh	K O Cutter Int	Scat Int	Angle Int	Grnd Int	WH Int	Ex Pilot Int	Ex Pilot No	
1938 60	B 1B B15, B125, C, CA RC, R Power Units & TL B	CR	4	3"x3"	1/8"	BB	L8B	L6BP				R103	R102	45	45	P236	P234	P84
1930 42	25 40 (E1, Monarch 35 (K), 54 Patrol K WK E K	E K	4	5"x6"	1/2"	22	L22	L22				R109	R109	45	45	P251	P251	P87
1921 54	E 60, E563 L 190, L844 Monarch 50 U	E K L	4	5"x6"	1/2"	22	L22	L22				R109	R109	45	45	P251	P251	P87
1936 54	IU M U, UC, WM, 42 Patrol U40PU U318	UM	4	4"x5"	1/8"	13B	L18	L13B				R107	R105	30	30	P245	P241	P85
1934 60	WC, WD, WF, W25 W201 WC Patrol	WD45 W	4	4"x4"	1/2"	9BR	L13CE	L9R10	J9R10	Z9R10		R105	R103	45	45	P240	P239	P85
1946 50	HD5, HD5B, HD5G, Diesel Tractors	GMC 2 71	2	4"x5"	1/2"		LBATH	JBATH	JBATH	ZBATH		R103		45		P237	P84	
1946 50	BD3 HD7, HD7W, Diesel Tractors	GMC 3 71	3	4"x5"	1/2"		LBATH*	JBATH	JBATH	ZBATH		R103		45		P237	P84	
1951 55	HD5, HD7, HD10, HD19H HD15 HD19 4	GMC 71	6	4"x5"	1/2"		L9BSH	J9BSH	Z9BSH					30		P239	P84	
1946 50	HD9 HD10 HD10W, Diesel Tractors	GMC 4 71	4	4"x5"	1/2"		LBATH	JBATH	JBATH	ZBATH		R103		45		P237	P84	
1946 50	HD14, HD15, HD19 HD19 4 Diesel Tractors	GMC 6 71	6	4"x5"	1/2"		LBATH	JBATH	JBATH	ZBATH		R103		45		P237	P84	
1952 55	HD20	GMC6110	6	5"x6"	1/2"			L16DJ15		Z16DJ15				30		P245	P85	
1956 75	HD 6, HD 11 (6 cyl) 11000		4	4"x5 1/2"	1/2"	18D 12E	L18D	L12E			Z12E	R107	R104	45	45	P245	P239	P85
1956 71	HD 16A HD 16AC HD 21AC		6	5"x6 1/2"	1/2"	22 20U	L22	L20U			Z20U	R109	R107	45	45	P247	P245	P86
1959 73	D10 D12 D14 (3 1/2, 3 3/4), D15, H3, G149, G138, 160 Ind		4	3"x3 1/2"	1/2"	R	L8	L6BP				R102	R102	45	45	P235	P234	P84
1957 75	D17 D17LPG G226 Ind		4	4"x4 1/2"	1/2"	13C 9BR	L13C	L9 R10	J9R10	Z9R10		R104	R103	30	45	P240	P239	P85
1957 64	D17D Diesel DA262		6	3"x4 1/2"	1/2"	B	L8			J7RH93		R102	R102	45	45	P235	P233	P85
1962 75	D19 G262		6	3"x4 1/2"	1/2"	B	L8					R103	R102	45	45	P237	P235	P84
1958 69	HD6B HD11B		4	4"x5 1/2"	1/2"	14C 11R	L14C	L11R	J11R			R105	R104	45	45	P240	P238	P85
1958 69	HD16, HD21 (1 1/2, Exhaust, P86 Pilot)		6	5"x6 1/2"	1/2"	16D 11R	L16D	L11R	J11R			R107	R104	45	45	P243	P238	P85
1957 67	G139 (3 1/2, 3 3/4), G149		4	3"x3 1/2"	1/2"	8	L8	L6BP				R102	R102	45	45	P235	P234	P84
1960 75	G153 G230 (6 cyl)		4	3"x4 1/2"	1/2"	7BR 7BR	L7BR	L7BR				R102	R102	45	45	P235	P235	P84
1965 75	190C (G2500 3 1/2, x 4) 190D (D2800) 190XT Diesel (D2900)		6	3"x4 1/2"	3/32"	Int 1 1/2" x 1.611" x 1/2", Exh 1 1/2" x 1.486" x 287								30	45	P237	P235	P85F
1965 75	190XT Gas and LP		6	3"x4 1/2"	3/32"	Int 1 1/2" x 1.745" x 1/2", Exh 1 1/2" x 1.617" x 1/2"								30	45	P239	P237	P85F
1965 75	D21 and D21 Series II	3400 3500	6	4"x5"	3/32"	Int 1 1/2" x 1 1/2" x 1/2", Exh 1 1/2" x 1.668" x 1/2"						R105		30	45	P240	P238	P85F
1967 75	180D Tractor 2800 Engine		6	3"x4 1/2"	1/2"	10AR	L10AR	Exh 1 1/2" x 1.486" x 290				R104		30	45	P239	P238	P97
1967 75	170C Tractor 170 Engine		4	3"x4 1/2"	1/2"	13	L13	Exh 1 1/2" x 1.578" x 1/2"				R105		30	45	P240	P236	P85
1962 75	16000H; 21 000H		6	5"x6 1/2"	3/32"	Int 1 1/2" x 1.646" x 1/2", Exh 1 1/2" x 1.611" x 1/2"								30	45	P237	P236	P85F
1959 64	15,000, 16,000, 21,000 (1 1/2, Exhaust P86 Pilot)		6	5"x6 1/2"	3/32"	Int 1 1/2" x 1.650" x 1/2", Exh 1 1/2" x 2.050" x 373								45	45	P237	P243	P85F
1965 75	Late 15,000; 16,000, 21,000 (1 1/2, Exhaust P86 Pilot)		6	5"x6 1/2"	3/32"	Int 1 1/2" x 1.650" x 1/2", Exh 1 1/2" x 1.950" x 448								45	45	P237	P242	P85F
1960 66	Early 6000; 7000; 10,000, 11,000		4	4"x5 1/2"	1/2"	14T 11T	L14T	L11T	J11T			R105	R104	45	45	P241	P238	P85
1966 75	Late 6000; 7000 10 000 11 000		4	4"x5 1/2"	3/32"	Int 1 1/2" x 1.866" x 400							R103	45	45	P240	P237	P85F
1967 75	Mark II, 19,000, 21,000, 25,000		6	5"x6 1/2"	3/32"	Int 1 1/2" x 1.645" x 1/2"							R103	30	30	P237	P237	P85F

Special production oversize seats are available for all models shown

*Replacement Ring for Factory Installed Insert

Engines using Propane, Butane or Natural Gas must use Chromalloy or Lee-Life Rings.

ALLIS-CHALMERS (FORMERLY BUDA ENGINES)

Year	Model	Make	Eng. Cyl.	B/GS	Pilot Size	Cast Int.	Iron Exh.	VALVE SEATS				SEAT GRINDER								
								Lee-Alloy Int.	Lee-Alloy Exh	Chromalloy Exh	Lee- Lite Exh	K O Int	Cutter Exh	Seat Int	Angle Exh	Grind Int	Wh Ex	Pilot No.		
1930-58	H326, HM326, HM326R, HP326, HPG326	Own	6	3 1/4 x 4 3/4	3/8	13	10A	L13	L10A					R105	R104	45	45	P241	P239	P85
1930-58	HP351	Own	6	3 1/2 x 5 1/4	3/8	13	10A	L13	L10A					R105	R104	45	45	P241	P239	P85
1931-40	K325 + K369, KM369-4 1/4 x 4 1/4	Own	6	3 1/2 x 4 3/4	3/8	18	16	L18	L16		J16	Z16		R107	R106	45	45	P245	P243	P85
1931-58	K393, KM393 (K428, KG428-4 1/4 x 4 1/4)	Own	6	4 1/4 x 4 3/4	3/8	18	16	L18	L16		J16	Z16		R107	R106	45	45	P245	P243	P85
1931-58	LS25, LG525, LM525, LMS25A	Own	6	4 1/4 x 5 1/4	3/8	18	16	L18	L16		J16	Z16		R107	R106	45	45	P245	P243	P85
1932-56	H217, HM217, HM217R, HP217	Own	4	3 1/2 x 4 3/4	3/8	13	10A	L13	L10A					R105	R104	45	45	P241	P239	P85
1937-44	4DT196, 4DTM196, 6DT294	Own	4,6	3 1/4 x 4 3/4	3/8	10	7	L10	L7		J7			R103	R102	45	45	P237	P235	P83
1937-48	JL-877 (JL1335 6 Cyl 6 1/2 x 7 1/2)	Own	4	6 1/2 x 7 1/2	3/8	10	7	L10	L7		J7			R115	R115	45	45	P261	P261	P85
1938-56	4D T212, 4DTM212, 6DT317, 6DTM3 17, 6DTMR317	Own	4,6	3 1/2 x 5 1/4	3/8	10	7	L10	L7		J7			R103	R102	45	45	P237	P235	P83
1939-44	6DT909, 6DTM909	Own	6	5 1/4 x 7	3/8	20	18	L20	L18					R108	R107	45	45	P247	P245	P86
1939-44	6DT278	Own	6	3 1/4 x 4 3/4	3/8	10	7	L10	L7		J7			R103	R102	45	45	P237	P235	P83
1939-56	6DT468, 6DTM468, 6DTMR468	Own	6	4 1/4 x 5 1/4	3/8	15	11	L15	L11					R106	R104	45	45	P243	P239	P85
1939-48	6D T415, 6DTM415	Own	6	4 x 5 1/4	3/8	12	11	L12	L11					R104	R109	45	45	P239	P239	P85
1939-50	6DC1611	Own	6	6 1/4 x 8 3/4	3/8	27	22U	L27	L22U					R112	R104	45	45	P255	P251	P86
1939-58	P1 879, PCG1879, PCS1879, PC2505, 8PC-2505, 8PCS-2505	Own	6,8	6 1/2 x 8 3/4	3/8	31	28	L31B	L28					R115	R112	45	45	P259	P255	P88
1940-63	6DC1879, 6DCB-1879, 6DCM R1879, 6DCS1879, 6DCSG1879, 6DCSMR1879, 6DH1879, 6DHMR1879, 8DC2505, 8DCS2505	Own	6,8	6 1/2 x 8 3/4	3/8	31	25	L31B	L25	J25		Z25*		R115	R111	45	45	P259	P255	P88
1944-50	6DC844, 6DCG844, 6DCMR844, 6DCSMR844	Own	6	5 1/2 x 6 1/4	3/8	22	20	L22	L20					R109	R108	45	45	P251	P247	P86
1944-50	8DC1125, 8DCM1125, 8DCMR1125, 8DCS1125, 8DCSMR1125	Own	8	5 1/2 x 6 1/4	3/8	22	20	L22	L20					R109	R108	45	45	P251	P247	P86
1945-62	18D38, 28D77, 28DMG77, 48D153, 48DMG153, 48DMR153	Own	1, 2, 4	3 1/4 x 4 3/4	3/8	10	6	L10	L6		J6			R103	R101	45	45	P237	P233	P83
1945-62	68D230, 68D230, 68DMR230, 68C230	Own	6	3 1/4 x 4 3/4	3/8	10	6	L10	L6		J6			R103	R101	45	45	P237	P233	P83
1945-61	48B182, 48D, 182, 48DMR182, 6B273, 68D273, 68DMR273	Own	4,6	3 1/4 x 4 3/4	3/8	10	6	L10	L6		J6			R103	R101	45	45	P237	P233	P83
1947-58	LOS25	Own	6	4 1/4 x 5 1/4	3/8	18	18BU	L18	L13BU			Z13BU		R107	R105	45	45	P245	P241	P85
1947-58	6MO893	Own	6	5 1/2 x 6	3/8	26	18U	L26	L18U		J18U	Z18U*		R111	R107	45	45	P255	P245	P86
1947-58	4MOG645, 4MOG645, 6MO970, 6MOG970, 8MO1290	Own	4,6,8	5 1/2 x 6 1/4	3/8	22	18U	L22	L18U		J18U	Z18U*		R109	R107	45	45	P251	P245	P86
1948-56	4DC645	Own	4	5 1/2 x 6 1/4	3/8	22	18U	L22	L18U		J18U	Z18U*		R109	R107	45	45	P251	P245	P86
1953-58	8MOS-1290	Own	8	5 1/2 x 6 1/4	3/8	26	18U	L26	L18U		J18U	Z18U*		R111	R107	45	45	P255	P245	P86
1954-56	6MO 672	Own	6	5 1/2 x 6 1/4	3/8	26	18U	L26	L18U		J18U	Z18U*		R111	R107	30	30	P255	P245	P86
1951-58	6DA-779	Own	6	5 1/2 x 6	3/8	22	18U	L22	L18U		J18U	Z18U*		R109	R107	45	45	P251	P245	P86
1951-58	6DAS844, 6DA844, 6DAM844, 6DASM844	Own	6	5 1/2 x 6 1/4	3/8	22	L22							R108	R108	45	45	P247	P247	P86
1951-58	8DA-1125, 8DAM-1125, 8DAS1125, 8DASM1125	Own	8	5 1/2 x 6 1/4	3/8	22	L22							R108	R108	45	45	P247	P247	P86
1953-60	6DA273, 6DAM R-273, D273	Own	6	3 1/4 x 4 3/4	3/8	14C	8R	L14C	L8R	J8R		Z8R		R105	R102	45	45	P239	P235	P83
1953-56	6DAS 516	Own	6	4 1/4 x 5 1/4	3/8	18D	12T	L18D	L12T					R107	R104	45	45	P245	P239	P85
195	8-60 D344, D516 (6 cyl)	Own	4	4 1/4 x 5 1/4	3/8	17A	12C	L17C				Z12C		R108	R104	45	45	P247	P238	P85

*Requires ring 2 1/2 x 3 1/2, special production †Requires ring 1 1/2 x 2 1/2

AUTO CAR TRUCKS

ENGINE 315, 331, 358		3/8	17B	15A	L17B	L15A						R107	R107			P245	P243	P86
ENGINE 377 (AFTER SERIAL 25-5644 1/2" EXH)		3/8	17B		L17B	L15T						R107	R106			P245	P242	P86
ENGINE 404, 408, 447, 453, 501 (1 1/2" Exh For SODIUM COOLED VALVES)		3/8	20	18U	L20	L18U	J18U	Z18U		R108	R107					P247	P245	P86

Late Model Auto Car Use Cummins or GMC Engine Refer to These Engine Listings

BUICK AUTOMOBILES

1935-53 Series 40 Special	Own	8	3 1/4 x 4 3/4	3/8	10	7	L10	L7	J7				R103	R102	45	45	P237	P235	P85
1935-52 Series 50 Super	Own	8	3 1/4 x 4 3/4	3/8	10	7	L10	L7	J7				R103	R102	45	45	P237	P235	P85
1936-52 Series 60, 70, 80, 90 ROADMASTER	Own	8	3 1/2 x 4 3/4	3/8	16B	8	L16B	L8	J8	Z8			R105	R102	45	45	P241	P235	P85
1953-54 Series V8 50, V8-70, V8-60, 40 Special (3 1/2 x 3 3/4)	Own	8	4 x 3 3/4	3/8	6		L14CE	L6	J6				R105	R101	45	45	P241	P233	P85
1955-56 All Cars	Own	8	4 x 3 3/4	3/8	8		L16E	L8E	J8E				R105	R102	45	45	P241	P235	P85
1957-58 All Models	Own	8	4 1/2 x 3 3/4	3/8	9		L18E	L9	J9	Z9			R106	R103	46	46	P242	P235	P85
1959-66 All Models (Invicta, Electra 4 1/2 x 3 3/4)		8	4 1/2 x 3 3/4	3/8	10		L18E	L10	J10	Z10			R106	R103	46	46	P243	P237	P85
1961-66 Special 4000, 4100, 4300 V8		8	3 1/2 x 2 1/2	3/8	7B		L9BH20	L7B					R103	R102	45	45	P237	P234	P84
1963-67 Special V6, Skylark V6, 225		6	3 1/2 x 3 3/4	3/8	10	7	L10	L7	J7				R103	R102	45	45	P237	P234	P84
1964-66 Engine 400, 401, 425		8	4 1/2 x 3 3/4	3/8	9		L18E	L9	J9	Z9			R106	R103	45	45	P243	P235	P85
1964-67 Engine 300, 340		8	3 1/2 x 3 3/4	3/8	7		L16BE	L7	J7	Z7			R105	R102	45	45	P241	P234	P85
1967-75 Engine 400 and 430 (4 1/2 x 3 3/4), 455 (4 1/2 x 3 9)		8	4 1/2 x 3 3/4	3/8	20B		L13CE		J13CE				R107	R104	45	45	P245	P239	P85
1968-75 250 Engine (L6)		6	3 1/2 x 3 3/4	3/8	9		L14CE	L9ATH	J9ATH	Z9ATH			R105	R103	45	45	P240	P236	P84
1968-75 350 Engine		8	3 8 x 3 85 3/4		10		L18E	L10	J10	Z10			R106	R103	45	45	P243	P237	P85
1971 73 Stage I 455, Riviera G.S 455		8	4 1/2 x 3 3/4	3/8	22E		L22E	L16E	J16E				R108	R105	45	45	P247	P240	P85
1975 231 V-6		6	3.8 x 3.4	3/8	8		L13CE	L8	J8	Z8			R104	R102	45	45	P239	P235	P84
1975 260 V-8		8	3 5/8 x 3.39	3/8	12CE		L12CE	L6BP	J6BP				R104	R102	45	45	P238	P234	P84

Special production Lee-Lite rings are available for Buick Special aluminum heads

CADILLAC AUTOMOBILES

1935-49 60, 605, 61, 62, 63, 65, 67, 70, 72, 75		8	3 1/4 x 4 3/4	3/8	17D	12C	L17D	L12C					R106	R104	45	45	P243	P239	P84
1950-51 605, 6 1 62 75		8	3 1/2 x 3 3/4	3/8	8		L14CE	L8	J8	Z8			R105	R102	45	45	P241	P235	P84
1952-55 60 62, 75		8	3 1/2 x 3 3/4	3/8	10		L14CE	L10	J10	Z10			R105	R103	45	45	P241	P237	P84
1956 60, 62, 75		8	4 x 3 3/4	3/8			L16E	L12CE	J12CE	Z12CE			R105	R104	45	45	P240	P238	P84
1957 All Models		8	4 x 3 3/4	3/8	9		L18E	L9	J9	Z9			R106	R103	45	45	P243	P236	P84
1958-67 All Models (1958 B/GS 4 x 3 3/4) (1964-66 B/GS 4 1/2 x 4)		8	4 x 3 3/4	3/8	10		L18E	L10	J10	Z10			R106						

CASE TRACTORS

Year	Model	Make	Eng Cyl	B&S	Pilot Size	Cast Int	Iron Exh	VALVE SEATS				SEAT GRINDER					
								Lee Int	Alloy Exh	Chromalloy Exh	Lee-Lite Exh	K O Int	Cutter Exh	Seat Int	Angle Exh	Grind Int	Wh Exh
1929-56	C, CC, CE, CI, CO, D DC, DE DH DI, DO DV	Own	4	3 1/2 x 5 1/2	3/8	13	13	L13	L13	J13		R105	R105	45	45	P241	P86
1929-56	L LA, LA1, LAE LE, LH, LI, LIH 26-40	Own	4	4 1/2 x 6 1/2	3/8	18	18	L18	L18			R107	R107	45	45	P245	P86
1935-47	R, RC, RO, FC16	Wauk FC	4	3 1/2 x 4	3/8	7	7	L7	L7	J7		R102	R102	45	45	P235	P83
1940-41	V, VC, VO, VI	Own	4	3 1/2 x 4 1/2	3/8	10	5B	L10	L5B			R103	R103	30	45	P237	P84
1940-56	S, SC, S1, SO, SE	Own	4	3 1/2 x 4 1/2	3/8	8	6P	L8	L6P			R102	R101	45	45	P235	P83
1941-59	VA, VAC, VAI, VAO, VAS VAH, VAC 14	Own	4	3 1/2 x 3 1/2	3/8	7		L7	L5CPH	J5CPH		R102	R101	30	45	P235	P84
1954-59	400, 500, 600, 900 Series Diesel	Own	6	4 1/2 x 5 1/2	3/8	10	8R	L10	L8R	J8R	Z8R	R103	R102	45	45	P237	P97
1956-60	400 Series, Gas, Dist LP, 301, 120 Combine	Own	4	4 1/2 x 5 1/2	3/8		10R	L14CE	L10R	J10R		R105	R103	45	45	P241	P97
1956-60	300 Series Gas	Own	4	3 1/2 x 3 1/2	3/8	7		L7	L5CPH	J5CPH		R102	R101	30	45	P235	P84
1956-60	300 Series Diesel	Cont GD157	4	3 1/2 x 4 1/2	3/8	7		L7	L5			R102	R101	30	45	P235	P84
1958-60	310 Crawler Tractor, 310, 410 Series	Own G148	4	3 1/2 x 4 1/2	3/8	7		L7	L5CPH	J5CPH		R102	R101	30	45	P235	P84
1958-60	G610 Crawler Tractor	Cont F209	6	3 1/2 x 4 1/2	3/8	10		L10	L5CPH	J5CPH		R103	R101	30	45	P237	P84
1958-60	C810 Crawler Tractor	Cont H227	4	4 1/2 x 5 1/2	3/8	9		L13CE	L9	J9	Z9	R104	R103	30	45	P239	P86
1958-60	1010 Crawler Tractor	Cont JD382	4	4 1/2 x 6 1/2	3/8	14C	10	L14C	L10	J10	Z10	R105	R103	30	45	P241	P86
1958-60	200B, 210B 211B	G126	4	3 1/2 x 4 1/2	3/8	7		L7	L5CPH	J5CPH		R102	R101	30	45	P234	P237
1959-60	500B, 510B, 511B, 600B, 610B, 611B	G164	4	3 1/2 x 4 1/2	3/8	8B		L8B	L5CPH	J5CPH		R103	R101	30	45	P236	P237
1958-71	Diesel 700, 800 730, 730C, 770 970 930 Diesel 16 cyl	A267D A401D	4	4 1/2 x 5 1/2	3/8			L14CE	L9BTH10	J9 BTH10	Z9BTH10	R105	R103	45	45	P240	P97
1960-71	830 Series Diesel	A301D	4	4 1/2 x 5 1/2	3/8	17E	12T	L12T	L12T	J12T		R105	R104	45	45	P241	P97
1960-69	840 Series Gas and LPG	A2845	4	4 1/2 x 5 1/2	3/8			L14	L13	J13	Z13	R105	R105	45	45	P241	P97
1960-71	430, 470, 530, 630, 431, 531, 570, 631, 640 641 Diesel	G188D	4	3 1/2 x 4 1/2	3/8	12CE	8R	L12CE	L8R	J8R	Z8ER8	R104	R102	45	45	P238	P84
1960-69	430, 440, 441 Gas; 530, 530C, 540, 541 LP	G159	4	3 1/2 x 4 1/2	3/8	7		L7	L5CPH	J5CPH		R102	R101	30	45	P234	P84
1960-71	530, 530C, 540 541 570 Gas	G159	4	3 1/2 x 4 1/2	3/8	9	6P	L9	L6P			R103	R101	30	45	P236	P84
1960-71	630, 630C, 640, 641 Gas and LP, A201G	G1888	4	3 1/2 x 4 1/2	3/8	10	8R	L10	L8R	J8R	Z8ER8	R103	R102	30	45	P237	P84
1960-71	730 730C, 740, 400, 600, 700 800 900 Series 930, 940 16 cyl 970 Gas and LP	A2515 A3775	4	4 1/2 x 5 1/2	3/8			L12E	L10R	J10R	Z10R10	R 104 R	R103 45	45	P239	P237 P97	
1966-71	1200 Traction King	Diesel A451	6	4 1/2 x 5 1/2	3/8	17C	10AT	L17C	L10AT	J10AT	Z10AT	R106	R104	45	45	P242	P97
1964-71	1000 Series	Cont ID382	4	4 1/2 x 6 1/2	3/8	14C	10	L14C	L10	J10	Z10	R105	R103	30	45	P241	P86
1970-75	251BC, 377BC Gas		4	4 1/2 x 5 1/2	3/8	10R	14C	L14CE	L10R	J10R	Z10R10	R 105 R	R103 45	45	P240	P237 P97	
1970-75	301BC Gas		4	4 1/2 x 5 1/2	3/8	17C	13	L17C	L13	J13	Z13	R 106 R	R105 45	45	P242	P240 P97	
1970-75	401BD, 267BD Diesel		4	4 1/2 x 5 1/2	3/8	14		L14	Exh 1 1/2 x 1 1/2	1 1/2 x 1 1/2	Z14	R105		45	45	P241	P237
1970-75	336BD, 336BDT, 504BD 504BDT Diesel		4	4 1/2 x 5 1/2	3/8	12	2099	L12	Exh 1 1/2 x 1 1/2	1 1/2 x 1 1/2	Z12			45	45	P245	P242 P97
1970-75	301BD, 451BD, 451BDT Diesel		6	4 1/2 x 5 1/2	3/8	12T		L15T	L12T	J12T		R106	R104	45	45	P242	P239 P97
1971-75	148G, 159G (3 1/2 x 4 1/2)		4	3 1/2 x 4 1/2	3/8	8		L8	Exh 1 1/2 x 1 1/2	1 1/2 x 1 1/2		R102	R101	30	45	P235	P84
1971-75	188G, 201G (3 1/2 x 4 1/2)		4	3 1/2 x 4 1/2	3/8	10	8R	L10	L8R	J8R	Z8R	R103	R102	30	45	P237	P235 P84
1971-75	188D Diesel		4	3 1/2 x 4 1/2	3/8	12CE	8R	L12CE	L8R	J8R	Z8R	R104	R102	45	45	P238	P235 P84

CATERPILLAR TRACTORS

1932-41	Z8, 10 Auto Patrol (22 4 x 5)	Gas 4200G	4	4 1/2 x 5 1/2	3/8	16	12	L16	L12			R106	R104	45	45	P243	P239 P86
1932-41	30 35, PU, RS, 40, 65 00CG (5 1/2 x 6 1/2)	Gas 6000G	4	4 1/2 x 6 1/2	3/8	18A*	18A	L18A	L18A			R108	R108	45	45	P245	P245 P87L
1932-41	50 RS, 11 Auto Patrol	Gas 7500G	4	5 1/2 x 6 1/2	3/8	26*	24A*	L26	L24A			R111	R111	45	45	P255	P251 P88
1932-41	65, 70, 9000G	Gas 9500G	4	7 1/2 x 8 1/2	3/8	30D*	30D*	L30	L30D*			R115	R115	45	45	P259	P259 P89
1934-41	R2, 22, 212 MG, Grader 77-66-44, 800G 3 1/2 x 4 1/2	Gas 3400G	4	3 1/2 x 5 1/2	3/8	16	12A	L16	L12A			R106	R105	45	45	P243	P241 P85
1934-41	R4, RD4, 10 Patrol, 30, 42 (4600G 6 cyl)	Gas 4400G	4	4 1/2 x 5 1/2	3/8	20	16	L20	L16	J16	Z16	R108	R106	45	45	P247	P243 P86
1933-50	D35, 50, D7700, 4 cyl 75, D11000-6 cyl	Diesel	3, 4, 6	5 1/2 x 8 1/2	3/8	24R	24R	L24R	L24R			R110	R110	45	45	P251	P251 P87
1934-47	D2 Tractor, 212 Motor Grader	Diesel D3400	4	3 1/2 x 5 1/2	3/8	9B	8A	L9B	L8A			R103	R103	45	45	P237	P235 P85M
1947-58	D2 Tractor, 212 Motor Grader	Diesel D311	4	4 1/2 x 5 1/2	3/8	12	12	L12	L12			R104	R104	45	45	P239	P239 P86
1936-47	D4 Tractor, RD4, 42 Grader, 112MG, D321 Auto Eng D4600	Diesel D4400	4	4 1/2 x 5 1/2	3/8	14A	13B	L14A	L13B	J16		R105	R105	45	45	P241	P241 P86M
1947-60	D4 Tractor 112 Motor Grader	Diesel D315	4	4 1/2 x 5 1/2	3/8	19B	16	L16	L16		Z16	R108	R106	45	45	P247	P243 P86M
1933-47	D6 Tractor, DW10, 12 Motor Grader, 48 Grader, D468 Auto Eng D4400	Diesel D4600	6	4 1/2 x 5 1/2	3/8	14A	13B	L14A	L13B			R105	R105	45	45	P243	P241 P86M
1947-60	D6 Tractor, DW10, 12 Motor Grader	Diesel D318	6	4 1/2 x 5 1/2	3/8	19B	16	L16	L16	J16	Z16	R108	R106	45	45	P247	P243 P86M
1933-60	D7 Tractor, D6 Tractor, D6600 (3 cyl)	Diesel D8800	4	5 1/2 x 8 1/2	3/8	24R	24R	L24R	L24R			R110	R110	45	45	P251	P251 P87L
1933-60	D8 Tractor, D1700 18 cyl Engine	Diesel D13000	6	5 1/2 x 8 1/2	3/8	24R	24R	L24R	L24AY		Z22AY	R110	R110	45	45	P251	P251 P87M
1947-75	D364, D375 8 Cyl D8 Pusher, D386, D397 D339, D342	6, 8, 12	5 1/2 x 8 1/2	3/8				L24Y	L22AY	J22AY		R 109 R	R 107 30	30	P245	P245 P87L	
1956-63	D326, D337 (Head 2H3349)		6	5 1/2 x 8 1/2	3/8			L20CX	L17BX								
1956-63	D326, D337 (Head 5H8418, 5H8505, 5H4232)		6	5 1/2 x 8 1/2	3/8			L17BX									
1951-60	D9 (Head 4H9950) 594	D353	6	6 1/2 x 8 1/2	3/8			L27EY6	L25EY37			Spec	Spec	30	30	P237	P235 P87L
1960-75	D4, D6	D330, D333	4, 6	4 1/2 x 5 1/2	3/8			L18CX	L16BX			R106	R105	30	30	P243	P241 P85L
1961-75	D9, D9C, D353D, D379A, D398A, G353, G379, G398, D399		6	6 1/2 x 8 1/2	3/8	Int 2 1/2 to 2 1/2	2 1/2 x 2 5/8	2 1/2 x 2 1/2	2 1/2 x 2 1/2	2 1/2 x 2 1/2	2 1/2 x 2 1/2	R110		30	30	P251	P251 P87L
1960-71	D311H, D320 and 922		4	4 1/2 x 5 1/2	3/8	Int 1 1/2 to 1 1/2	1 1/2 x 1 7/8	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2			30	30	P240	P238 P85L
1960-69	D345		6	5 1/2 x 8 1/2	3/8	Int 1 1/2 to 1 1/2	1 1/2 x 2 042	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2			30	30	P243	P240 P85L
1960-75	D343		6	5 1/2 x 8 1/2	3/8	Int 1 1/2 to 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	R105	R104	30	30	P240	P238 P85L
1957-63	D337F (Head 7M8150), D337 (Head 5H8511)		6	5 1/2 x 8 1/2	3/8	Int 1 1/2 to 1 1/2	1 1/2 x 2 1675	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2			30	30	P245	P243 P87L
1972-75	3406 Series		6	5 4/8 x 6 1/2	3/8	Int 1 1/2 x 1 1/2	1 1/2 x 3 65	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	1 1/2 x 1 1/2	R105	R104	30	45	P240	P238 P85L

*R216M2 Reseater Pilot must be used. Special production tapered rings available.

CHEVROLET AUTOMOBILES, TRUCKS AND BUSES

1937-49	All Cars and 1 1/2-ton Trucks, Thrift Master	Own	6	3 1/2 x 3 3/4	3/8	12C	8	L12CE	L8	J8	Z8	R104	R102	30	30	P239	P235 P84
1941-49	Thrift Master, 1 1/2 ton (optional engine)	92 H.P.	6	3 1/2 x													

CHEVROLET AUTOMOBILES, TRUCKS AND BUSES (Cont.)

Year	Model	Make	Eng. Cyl	B&S	Pilot Size	Cast Int	Iron Exh.	VALVE SEATS				SEAT GRINDER									
								Lee-Alloy Int.	Lee-Lite Exh.	Chromalloy Exh.	Lee-Lite Exh.	K-O Int.	Cutter Exh.	Seat Int.	Angle Exh.	Grind Int.	Wh. Ex. Pilot No.				
1955-67	All Cars, Trucks, V-8 Engines 265, 283 (3 ¹ / ₂ x 3 ¹ / ₂)	Own	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8			L16E	L9ATH	J9ATH					R105	R103	45	45	P241	P237	P84
1962-67	High Torque H D Truck 348 (4 ¹ / ₂ x 3 ¹ / ₂), 409 (3 ¹ / ₂ x 4 ¹ / ₂)—1963	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	19C		L19C	L13E						R109	R105	45	45	P245	P240	P85
1960-69	Corvaire/R211M2 Reseater Pilot/ 95HP, 110HP, 1969 180HP	Own	6	3 ¹ / ₂ x 2 ¹ / ₂	5/8		Intake L7RH50 ⁰ or Z7RH50 ⁰				Z5H30 ⁰				R107	R100	45	45	P234	P232	P845
1965-69	Corvaire 140 H.P. Engine Int. 1 ³ / ₂ x 1 ¹ / ₂ x 1 ³ / ₂	Own	6	3 ¹ / ₂ x 2 ¹ / ₂	5/8		7R	L7R							R105	R102	45	45	P240	P234	P84
1962-71	153, 194, 230, 250, 292 (292 takes L16E Intake)	Own	4, 6	3 ¹ / ₂ x 3 ¹ / ₂	5/8		9	L14CE L9	J9	Z9					R105	R103	45	45	P240	P236	P84
1962-71	283, 327 (300 H.P. requires 19E intake)	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8		9	L16E L9	J9	Z9					R105	R103	45	45	P240	P236	P84
1962-67	Turbo-Fire 409 Passenger	Own	8	3 ¹ / ₂ x 4 ¹ / ₂	5/8	21		L21 L14E							R109	R105	45	45	P247	P241	P85
1963-72	307, 327	Own	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8		9	L14CE L9	J9	Z9					R105	R103	45	45	P240	P236	P84
1973	307 Passenger & L.D. Truck (C, K, P Truck, [14H Int. Ring]	Own	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8	19E	98R	L98R	I98R	Z98R					R106	R103	45	45	P243	P237	P84
1966-70	396, 402, 427, 454 (Passenger)	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	21DR		L14CE							R108	R105	45	45	P247	P236	P85
1969-75	350 Engine 255 H.P. and 300 H.P.	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	19E	9B	L9B							R106	R103	45	45	P243	P237	P84
1969-75	350 Engine 350 H.P.	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	20B	12CE	L12CE	J12CE	Z12CE					R107	R104	45	45	P245	P238	P84
1960-75	53 Series GMC (2 Valves)	2,3,4	3	3 ¹ / ₂ x 4 ¹ / ₂	5/8			L8E	J8E						R102	60	60		P234	P83	
1960-75	53 Series GMC (4 Valves)	6	3	3 ¹ / ₂ x 4 ¹ / ₂	5/8				J2BTH30						Spec.	60	60		P239	P85	
1960-65	GMC 351, 401, 478, 537 (1/2 Exhaust)	Own	6	4 ¹ / ₂ x 3 ¹ / ₂	5/8	21DR		L16H10							R108	R106	30	45	P247	P243	P85
1966-75	GMC 351 E, 351 M, 401M, 478M (5 ¹ / ₂ x 3 ¹ / ₂)	Own	6	4 ¹ / ₂ x 3 ¹ / ₂	5/8	22R			I17H						R109	R106	30	45	P247	P243	P85
1970-75	350 Engine, 350 LP Gas	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	14H	98R	L14H	L98R	J98R	Z98R				R105	R103	45	45	P240	P237	P84
1970-75	400 Eng 265 H.P., 1971-73 (Truck) 400 Eng takes J98R Exh	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	19E	12CE	L12CE	J12CE	Z12CE					R106	R104	45	45	P243	P238	F84
1970-75	454 Engine Gas and LP (Int. Seat Requires R2+30 Shank)	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8		Intake J2ETH								R108	R106	45	45	P247	P242	P85
1971-75	140 L4 Vega	Own	4	3 ¹ / ₂ x 3 ¹ / ₂	5/8			L13CE	J8E						R104	R102	45	45	P239	P234	P84
1971-75	250 292 Engine (3 ¹ / ₂ x 4 ¹ / ₂)	Own	6	3 ¹ / ₂ x 3 ¹ / ₂	5/8		98R	L14H	L98R	J98R	Z98R				R105	R103	45	45	P241	P237	P84
1971-75	250 Engine (L56) Int 1 ³ / ₂ x 1 ³ / ₂ x 1 ³ / ₂	Own	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8		98TH	L98TH	J98TH	Z98TH					R105	R103	45	45	P241	P237	P84
1966-75	366, 427 Truck, Gas (427 takes J19E Int.)	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8			L18E	L13	J13	Z13				R109	R105	45	45	P245	P240	P85
1971-75	366 LP Gas	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8			Intake Z17C		I12BHUI2					R106		45	45	P242	P240	P85

Chevle model uses 194, 230, 283 327 engines. NOTE H. D. truck 348, 409 have factory hardened seats and require carbide tipped reseater cutter to cut recess for replacement ring

CHRYSLER AUTOMOBILES

1942-48	C34, C38	Own	6	3 ¹ / ₂ x 4 ¹ / ₂	5/8	14C		L14C	L10R10		Z10R10 ⁰			R105	R103	45	45	P240	P238	P84	
1939-50	C23, 4-6-7, C30-3, 5-7-9 C40-6-7-9 C50	Own	8	3 ¹ / ₂ x 4 ¹ / ₂	5/8	10	78R	L10	L78R						R103	R102	45	45	P237	P235	P84
1949-54	C45, C48, C51 C60-1, C60-2	Own	6	3 ¹ / ₂ x 4 ¹ / ₂	5/8	12	11R	L12	L10R10		Z10R10 ⁰				R104	R103	45	45	P239	P238	P84
1951-53	C52, C53 C54, C55, C56-1, C56-2, C58 C59	Own V	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8	14	11R	L14	L11R	J11R	Z11R ⁰				R105	R104	45	45	P241	P238	P85
1954-56	C63, C64, C66, C68, C69, C70	Own V	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8			L19D	L16CU						R107	R106	45	45	P245	P242	P85
1955-56	C67, C71, (3 ¹ / ₂ x 3 ¹ / ₂)	Own V	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8	16	10	L16	L10	J10	Z10				R106	R103	45	45	P243	P237	P85
1956-58	C72, C72-300	Own V	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8			L19D	L16CU						R107	R106	45	45	P245	P242	P85
1957-58	C75, LCI, LC2	Own	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8	11R		L19D	L11R	J11R	Z11R				R107	R104	45	45	P243	P238	P85
1957-58	C76, C76-300, LC3, LY1 Imperial	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8			L19D	L16CU						R107	R106	45	45	P245	P242	P85
1959-60	MCI MC2, PC1, PC2	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8			L19D	L13CE	J13CE					R106	R104	45	45	P243	P239	P85
1959-60	MC3 MY1, PC3, PY1	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	21DR		L13CE	J13CE						R108	R104	45	45	P247	P239	P85
1961-67	All Models and Imperial 440 Power Pac (Exh 17E)	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	21DR		L13CE	J13CE						R108	R104	45	45	P247	P239	P85
1968-75	All Models, 383 and 440 Engine	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	21DR		L16BE							R108	R105	45	45	P247	P241	P85
1971-75	360 Engine	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	16	12CE	L16	L12CE	J12CE	Z12CE				R106	R104	45	45	P243	P238	P85
1972-75	400 Engine	Own	8	4.34 x 3.38 5/8	3/4	21DR	16B	L16B	L16B	J16B					R108	R105	45	45	P247	P241	P85

CHRYSLER INDUSTRIAL MOTORS

1950-56	14A, 22A (4 ¹ / ₂ x 5 ¹ / ₂)	Own	6	3 ¹ / ₂ x 5	5/8			L14CY57	J14CY57	Z14CY57					Spec.	45	45		P243	P241	P85
1950-60	15A M49 MAJESTIC	Own	6	4x5	5/8			L14CY57	J14CY57	Z14CY57					Spec.	45	45		P243	P241	P85
1950-60	18A	Own	6	3 ¹ / ₂ x 3 ¹ / ₂	5/8	14C	L14C	L8RH10	Z8RH10	R105	R102	45	45			P241	P235		P85		
1950-61	19A, 54 (3 ¹ / ₂ x 3 ¹ / ₂)	Own	6	3 ¹ / ₂ x 3 ¹ / ₂	5/8	16B	L19	L8RH10	Z8RH10	R105	R102	45	45			P241	P235		P85		
1954-61	24A, 56A	Own	6	3 ¹ / ₂ x 3 ¹ / ₂	5/8	19E	J19E	L16BY57	J16BY57	Z16BY57	R108	Spec.	45	45		P247	P243		P85		
1955-56	34, 36 (4 ¹ / ₂ x 5 ¹ / ₂)	Own	6	3 ¹ / ₂ x 3 ¹ / ₂	5/8			L16B	L14CY57	J14CY57	Z14CY57				Spec.	45	45		P243	P241	P85
1950-75	5A (M46 ACE, M46 ACE Spec.), 6A (3 ¹ / ₂ x 4 ¹ / ₂) Ind 30	Own	6	3 ¹ / ₂ x 4 ¹ / ₂	5/8	98R	L98R	L8RH10	Z8RH10 ⁰	R103	R102	45	45			P237	P235		P84		
1950-75	8A (M47 Crown, M47 Crown Spec.) 16A, 32	Own	6	3 ¹ / ₂ x 4 ¹ / ₂	5/8	14C	L14C	L10R10	J10R10	Z10R10					R105	R103	45	45	P241	P237	P84
1961-75	H170, H225 (3 ¹ / ₂ x 4 ¹ / ₂)	Own	6	3 ¹ / ₂ x 3 ¹ / ₂	5/8	11	7	L11	L7						R104	R102	45	45	P238	P234	P85
1961-75	H318 HT318	Own	8	3 ¹ / ₂ x 3 ¹ / ₂	5/8	14A		L14A	L12CE	J12CE	Z12CE				R106	R104	45	45	P243	P238	P85
1961-75	H361, H383 (4 ¹ / ₂ x 3 ¹ / ₂), H413 (4 ¹ / ₂ x 3 ¹ / ₂)	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	19		L19	L13CE	J13CE					R107	R104	45	45	P245	P238	P85
1961-75	HT361, HT413 (4 ¹ / ₂ x 3 ¹ / ₂), HC426	% Exhaust	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8			L18E			Z9BU				R106	R103	45	45	P243	P237	P85
1968-75	H440 Engine	Own	8	4 ¹ / ₂ x 3 ¹ / ₂	5/8	21DR		L16BE													

CONTINENTAL MOTORS

Year	Model	Make	Eng Cyl	BGS	Pilot Size	Cast Int	Iron Exh	VALVE SEATS					SEAT GRINDER					
								Lee-Alloy Int	Chromalloy Exh	Lee Lite Exh	K Int	O Cu Int	hter Int	Seat Angle	Grind	WH Exh	Pilot No	
1932-50	22R, 33R, 33R PR501, 35R501	Own	6	4 1/2 x 5 1/4	3/4	19	16	L19	L16	J16	Z16	R108	R106	30	30	P247	P243	P86
1935-48	A244, A6244	Own	6	3 1/2 x 4 1/4	3/4	12	7	L12	L7	J7		R104	R102	30	45	P239	P235	P85
1940-64	B371, B6371	Own	6	4 1/2 x 4 1/4	3/4	18	13BU	L18	L13BU		Z13BU	R107	R105	30	45	P245	P241	P86
1940-45	B405, B6405	Own	6	4 1/2 x 5	3/4	18	13BU	L18	L13BU		Z13BU	R107	R105	30	45	P245	P241	P86
1940-71	B427, B6427	Own	6	4 1/2 x 4 1/4	3/4	18	13BU	L18	L13BU		Z13BU	R107	R105	30	45	P245	P241	P86
1954-64	E201, ED201	Own	6	3 1/2 x 4 1/4	3/4	9	7R	L9	L7R			R103	R102	30	45	P237	P235	P84
1935-64	F124 (1 1/2" head valve)	Own	4	3 x 4 1/4	3/4	10	6CR	L10	L5CPH	J5CPH		R103	R101	30	45	P237	P233	P84
1938-64	F124, F186, F4124, F6186, PF124	Own	4, 6	3 x 4 1/4	3/4	10	7	L10	L7	J7		R103	R102	30	45	P237	P235	P84
1935-64	F140, F209, F4140, F6209 (1 1/2" head valve)	Own	4, 6	3 1/2 x 4 1/4	3/4	10	6CR	L10	L5CPH	J5CPH		R103	R101	30	45	P237	P233	P84
1935-66	F162, F4162, PF162, (1 1/2" head valve)	Own	4	3 1/2 x 4 1/4	3/4	10	6CR	L10	L5CPH	J5CPH		R103	R101	30	45	P237	P233	P84
1938-50	F218, F6218 2nd series	Own	6	3 1/2 x 4 1/4	3/4	10	7	L10	L7	J7		R103	R102	30	45	P237	P235	P84
1945-75	F226, F6226, F227, F6227	Own	6	3 1/2 x 4 1/4	3/4	10	7	L10	L7	J7		R103	R102	30	45	P237	P235	P84
1954-75	F244, F6244, F245, F6245, F135(4) 3 1/2 x 4 1/4	Own	6	3 1/2 x 4 1/4	3/4	10	6P	L10	L6P			R103	R101	30	45	P237	P233	P84
1959-75	FO-6226, FO6245 (3 1/2 x 4 1/4)	Own	6	3 1/2 x 4 1/4	3/4	9	L16BE	L9		J9	Z9	R105	R103	30	45	P241	P236	P84
1940-66	G157, G6157 G134 (3 1/2 x 4 1/4)	Own	4	3 1/2 x 4 1/4	3/4	7	5	L7	L5			R102	R101	30	45	P235	P233	P84
1958-60	G176	Own	4	3 1/2 x 4 1/4	3/4			L7E	L5CPH	J5CPH		R102	R101	30	45	P234	P233	P84
1960-73	G193, G4193	Own	4	3 1/2 x 4 1/4	3/4	13	8	L13	L8	J8	Z8	R105	R102	30	45	P240	P235	P84
1945-64	H227, H243 (3 1/2 x 5 1/4), H260 (3 1/2 x 5 1/4), H277	Own	4	3 1/2 x 5 1/4	3/4	13	9BR	L13	L9BR	J9BR	Z9BR	R105	R103	30	45	P241	P237	P86
1945-64	HD243, HD260, (3 1/2 x 5 1/4) Diesel	Own	4	3 1/2 x 5 1/4	3/4	10	8BR	L10	L8BR			R103	R103	45	45	P237	P237	P86
1940-64	I382	Own	4	4 x 6	3/4	16C	13T	L16C	L13T	J13T	Z13T	R106	R105	30	45	P243	P240	P86
1954-64	JD382	Own	4	4 x 6	3/4	14C	10	L14C	L10	J10	Z10	R105	R103	45	45	P241	P237	P86
1940-64	K6271 (K6290 3 1/2 x 4 1/4), (K6330 4 x 4)	Own	6	3 1/2 x 4 1/4	3/4	16	11T	L16	L11T	J11T		R106	R104	30	45	P243	P239	P97
1940-49	KD330	Own	4	4 x 4 1/4	3/4	14	9BR	L14	L9BR	J9BR	Z9BR	R105	R103	45	45	P241	P239	P97
1960-75	L6478	Own	6	4 1/2 x 4 1/4	3/4	21DR	17D	L17D				R108	R106	45	45	P247	P243	P86
1939-64	M253, M6253 (M271 M6271 3 1/2 x 4 1/4)	Own	6	3 1/2 x 4 1/4	3/4	16	11T	L16	L11T	J11T		R106	R104	30	45	P243	P239	P97
1939-71	M290, M6290 (M330 M6330 4 x 4), M363, M6363	Own	6	3 1/2 x 4 1/4	3/4	16	11T	L16	L11T	J11T		R106	R104	30	45	P243	P239	P97
1948-66	N50, N62	Own	4	2 1/2 x 3 1/4	3/4	1	L1	L1				R732	R732	45	45	P227	P227	P83
1940-64	R513, R6513 (R572 R6572 4 1/2 x 5 1/4)	Own	6	4 1/2 x 5 1/4	3/4	22	18BX	L22	L18BX		Z18BX	R109	R108	30	45	P251	P245	P87
1940-75	R602 R6602, (R584, R6586 4 1/2 x 5 1/4)	Own	6	4 1/2 x 5 1/4	3/4	22	18BX	L22	L18BX		Z18BX	R109	R108	30	45	P251	P245	P87
1946-66	RD572 RD6572 Diesel	Own	6	4 1/2 x 5 1/4	3/4	20	16U	L20	L16U			R108	R106	45	45	P247	P243	P87
1945-75	S749, S6749 (S6820 5 1/2 x 5 1/4)	Own	6	5 1/2 x 5 1/4	3/4	27	22A	L27	L22A			R112	R110	30	45	P255	P251	P87
1954-67	SD802 S06802 Diesel	Own	6	5 1/2 x 5 1/4	3/4	26	21D	L26				R111	R108	45	45	P251	P247	P87
1945-67	T371, T6371, (T6427 4 1/2 x 4 1/4), TD427 TD6427	Own	6	4 1/2 x 4 1/4	3/4	18	13BU	L18	L13BU		Z13BU	R107	R105	30	45	P245	P241	P86
1949-64	U6501, U501	Own	6	4 1/2 x 5 1/4	3/4	19	16	L19	L16	J16	Z16	R108	R106	30	45	P247	P243	P86
1955-64	V603, V8603	Own	8	4 1/2 x 5 1/4	3/4	27C	20	L27C	L20			R111	R108	30	45	P255	P247	P84M
1932-75	Y69, Y4069, Y911 Y4091 2 1/2 x 3 1/4, Y1112, Y4112 3 1/2 x 3	Own	4	2 1/2 x 3 1/4	3/4	5	2	L5	L2			R101	K99	30	45	P233	P229	P83
1948-56	Z120	Own	4	3 1/2 x 3 1/4	3/4	28P	28P	L28P	L28P			R736	R736	45	45	P228	P228	P83
1952-64	Z129	Own	4	3 1/2 x 3 1/4	3/4	8MM6	4P	L6	L4P			R101	R100	30	45	P233	P231	P8315
1953-60	Z134	Own	4	3 1/2 x 3 1/4	3/4	6	4P	L6	L4P			R101	R100	30	45	P241	P235	P85
1956-64	ZD129	Own	4	3 1/2 x 3 1/4	3/4	8MM6P	28H	L6P				R101	R99	45	45	P233	P228	P8315
1966-75	L478, LD478 Diesel	Own	6	4 1/2 x 4 1/4	3/4	22	18BX	L22	L18BX		Z18BX	R109	R108	30	45	P251	P245	P87

CUMMINS DIESEL ENGINES

1939-66	A Series: AA, AA1 A1 A1P AM J Series 12 Valve	Own	6	4 x 5	3/4	11R	11R	L11R	L11R	J11R	Z11R	R104	R104	30	30	P239	P239	P84L
1932-66	H Series: HB, HB1 HB1S, HBS H1 HIP HIS HM, HMS, HP HPS HR HS Series	Own	4, 6	4 x 6	3/4	18	18	L18	L18		Z18R	R107	R107	30	30	P245	P245	P87M
1939-73	HR Series: HRB, HRB1 HR1 HRM HPR HRS	Own	6	5 x 6	3/4	18	18	L18	L18		Z18R	R107	R107	30	30	P245	P245	P87M
1939-73	NH Series: NHB NHB1 NHB1S NHB5 NH I NHIS NHM NHMS NHP, NHP5 NHRB1S, NHRB5 NHR1S, NHRP5 NHR5 NVH NVH5 NHS Ser VT 12 NTO	Own	6, 12	5 x 6 1/2				L14J30	L14J30			R105	R105	30	30	P241	P241	P97L
Some models require our L14CT30 J14CT30 or Z14CT30 Rings which are the same as L14J30 except a depth of																		
1939-64	L Series: LT LM LP K KO, LR 17 x 10	Own	6	7 x 10	3/4	31A	31A	L31B	L31B			R115	R115	30	30	P259	P259	P99
1939-73	JN and JT Series C and J Series 4 Valve Pilot	Own	6	4 1/2 x 5	3/4			L7C	L7C			R102	R102	30	30	P235	P235	P97L
1961-73	NH, NT V12 V15 V16 V18 VIM V8 VINE (1 1/2" Valve Engines Require R214P15 Pilot)	Own	8	5 1/2 x 5	3/4	17D	17D	L17D	L17D			R106	R106	30	30	P243	P243	P86RM
1962-73	V8 265 Engine	Own	8	5 1/2 x 5	3/4			L17D	L17D			R106	R106	30	30	P243	P243	P97L
1961-73	V6 (VAL) V8 (VAL) 5 x 4	Own	6, 8	5 x 5	3/4	12CE	12CE	L12CE	L12CE	J12CE	Z12CE	R104	R104	30	30	P238	P238	P85L
1975	KT, KTA Rescater Pilot R216M2 Required		6, 12	6 x 6				Intake and Exhaust 2 1/2" to 2 1/2" x 2 1/2" x				R109	R109	30	30	P247	P247	P87

DE SOTO AUTOMOBILES

1942-54	S15, S18 S20	Own	6	3 1/2 x 4 1/4	3/4			L14CE	L10R10	J10R10	Z10R10	R104	R103	45	45	P239	P237	P84
1952-54	S16, S17 S19, (3 1/2 x 3 1/2)	Own	8	3 1/2 x 3 1/2	3/4			L14CE	L8RH10		Z8RH10	R105	R102	45	45	P241	P235	P85
1955	S21 S22	Own	8	3 1/2 x 3 1/2	3/4	13A	10R	L13A	L10R	J10R		R106	R103	45	45	P243	P237	P85
1956-57	S23, S24, S25, S26 (3 1/2 x 3 1/2)	Own	8	3 1/2 x 3 1/2	3/4	18D		L18D	L16BE			R107	R105	45	45	P245	P241	P85
1957	S27	Own	8	3 1/2 x 3 1/2	3/4	17C		L17C	L10E			R106	R103	45	45	P245	P236	P85
1958-63	LS1 (4 1/2 x 3 1/4), LS2, LS3 LS35, MS1, PS1 PS3, 361	Own	8	4 1/2 x 3 1/4	3/4	20B		L13CE	J13CE			R107	R104	45	45	P245	P239	P85
1959-61	MS2 MS3, 383 Eng	Own	8	4 1/2 x 3 1/4	3/4	21DR		L13CE	J13CE			R108	R104	45	45	P247	P239	P85

DODGE AUTOMOBILES

Year	Model	Make	Eng. Cyl	B&S	Pilot Size	Cast Int	Iron Exh	VALVE SEATS				SEAT GRINDER						
								Lee-Alloy Int.	Lee-Alloy Exh.	Chromalloy Exh.	Lee-Lite Exh.	K/O Cutter Int.	Sea t Exh.	Angle Int.	Gri nd Wh. Exh.	Pilot No		
1942-59	D22-D34, D41-D47, D51 D56 D62, D72, LD1 MD1		6	3 1/4 x 3 3/4	3/16	10		L10E	L8RH10		Z8RH10	R103	R102	45	45	P237	P237	P84
1953-54	D44, D48, D50 D53		6	3 1/4 x 3 3/4	3/16			I3CE	L8RH10		Z8RH10	R104	R102	45	45	P239	P235	P85
1955-56	D55-1, D55-2, D53, D63 2, D63-3 D63 1 (3 1/4 x 3 3/4)		8	3 1/4 x 3 3/4	3/16	9		I4CE	L9	J9	Z9	R105	R103	45	45	P241	P237	P85
1957-60	D66, D67 D70, D71, LD2 MD2		8	3 1/4 x 3 3/4	3/16			I8E	L9	J9	Z9	R106	R103	45	45	P243	P236	P85
1958-60	LD3, MD3, PD1 350 and 361		8	4 1/4 x 3 3/4	3/16	20B		I13CE	L13CE			R107	R104	45	45	P245	P239	P85
1960-75	DART 6, and all models with 198, 225 engines		6	3 1/4 x 4 1/4	3/16			I3CE	L8E	J8E		R104	R102	45	45	P239	P234	P85
1961-69	LANCER DART, 170 eng.		6	3 1/4 x 3 3/4	3/16			I3CE	L8E	J8E		R104	R102	45	45	P239	P234	P85
1960-69	All Models with 318 and 326 Engine		8	3 1/4 x 3 3/4	3/16	14BTH		L12CE	L12CE	Z12CE		R106	R104	45	45	P243	P238	P85
1968-75	All Models with 318 Engine		8	3 1/4 x 3 3/4	3/16	14BTH 10E		L10E				R106	R103	45	45	P243	P236	P85
1968-73	All Models 340 Engine		8	4 1/4 x 3 3/4	3/16	20B		L13CE	J13CE			R107	R104	45	45	P245	P239	P85
1961-67	All Models with 361 Engine		8	4 1/4 x 3 3/4	3/16	21DR		L13CE				R107	R104	45	45	P245	P239	P85
1959-67	Eng 383, 413 4 1/4 x 3 3/4, 426 thru 1965 4 1/4 x 3 3/4 440		8	4 1/4 x 3 3/4	3/16	21DR		L13CE	J13CE			R107	R104	45	45	P245	P239	P85
1964-67	DART 273 Engine 1967 LA318-7		6	3 1/4 x 3 3/4	3/16	10E		L16BE	L10E			R105	R103	45	45	P241	P236	P85
1966-73	426 Engine		8	4 1/4 x 3 3/4	3/16	19E						R109	R106	45	45	P247	P243	P83
1966-67	440 Power Pac		8	4 1/4 x 3 3/4	3/16	21DR 17E						R108	R105	45	45	P247	P241	P85
1968-75	All Models 383 and 440 Engines 4 1/4 x 3 3/4		8	4 1/4 x 3 3/4	3/16	21DR		L16BE				R108	R105	45	45	P247	P241	P85
1971-75	360 Engine		8	4 3/8 x 3 3/8	3/16	12CE	L16	L12CE	J12CE	Z12CE		R106	R104	45	45	P243	P238	P85
1972-75	400 Engine		8	4 3/8 x 3 3/8	3/16	21DR 16B		L16B	J16B			R108	R105	45	45	P247	P241	P85

DODGE TRUCKS

1942-60	B1B B1C, B2B B2C, B3B B3C B4B B4C, WC & WD15 after T112 42001		6	3 1/4 x 4 1/4	3/16			L10E	L8RH10		Z8RH10	R103	R102	45	45	P236	P235	P84
1942-60	B1D B1DU, B2 D, B2PW, B3D, B4D, WD20 and WD21 after T116 42001 C1B6 C6 D6, F6, G3, B6 C6 D6 F6		6	3 1/4 x 4 1/4	3/16			L10E	L8RH10			R103	R102	45	45	P236	P235	P84
1942-60	B1F B1H, B2F, B2G B2H, B3F, B3G, B3H B4F B4G, B4H, WF after Eng T118 42001 C1G6 H6, C3G6 H6		6	3 1/4 x 4 1/4	3/16	14C		L14C	L10RH10	J10RH10	Z10RH10	R105	R103	45	45	P241	P237	P84
1949-60	B1J B1K, B2 J, B2K B3J B4K, C1J6-K6 C3J6-K6		6	3 1/4 x 4 1/4	3/16	14C		L14C	L10RH10	J10RH10	Z10RH10	R105	R103	45	45	P241	P237	P84
1946-51	B1T B2T B1V B2V, B1R B2R, B2Y Exh		6	3 1/4 x 5	3/16	18D 14T		L18D	L14T			R107	R105	45	45	P245	P241	P85
1951-56	B3R B3T B3V B3Y B4R B4T, B4V B4Y C1Y6 YA6, C3Y6 4 1/4 x 5 1/4 Exh		6	3 1/4 x 4 1/4	3/16			L14CY57	J14CY57	Z14CY57		R107		45	45	P245	P241	P85
1954-56	C1C8 H8		8	3 1/4 x 3 1/2	3/16	12C		L12C	L8RH10		Z8RH10	R104	R102	45	45	P239	P235	P85
1954-56	C1J8 K8, C3J8 K8 Exh		8	3 1/4 x 3 1/2	3/16	14C		L14C	L8RH10		Z8RH10	R105	R102	45	45	P241	P235	P85
1954-58	C1R8-T8-U8, C3R8 T8-U8 K8-D700 K8-D800		8	3 1/4 x 3 1/2	3/16	18E		L16BY57	J16BY57	Z16BY57		R106	R106	45	45	P243	P243	P85
1954-56	K8 C700 K8 S700 331 Eng 1 Exh		8	3 1/4 x 3 1/2	3/16	13	8	L13E	L8	J8	Z8	R105	R102	45	45	P241	P235	P85
1957-58	K6 D100 D200 D300, P300, P400 1230 Eng		6	3 1/4 x 4 1/4	3/16			L10E	L8RH10		Z8RH10	R103	R102	45	45	P236	P235	P84
1957-60	K8 and L8 D100, D200 D300 D400 D500 D600 C500, C600 P300 P400 S400 S500 S600 1315 Eng		8	3 1/4 x 3 3/4	3/16	16		L16				R106	Spec	45	45	P243	P237	P84
1957-69	251 Eng & 265 Eng Exh 3 1/4 x 4 1/4		6	3 1/4 x 4 1/4	3/16	14C		L14C	L10RH10	J10RH10	Z10RH10	R105	R103	45	45	P241	P237	P84
1957-67	354 Engine Exh		8	3 1/4 x 3 1/2	3/16			L19C	L16BY57	J16BY57	Z16BY57	R107	Spec	45	45	P245	P242	P84
1959-63	318 Engine LA318 1 LA318 3		8	3 1/4 x 3 1/2	3/16			L18E	L12CE	J12CE	Z12CE	R106	R104	45	45	P243	P238	P85
1964-75	318 318LA Premium Engine		8	3 1/4 x 3 1/2	3/16			L18E	L9HU57		Z9HU57	R106		45	45	P243	P237	P85
1960-75	360 361 400 413 Eng 2 Exh 413 Eng 805 4 1/4 x 3 1/4		8	4 1/4 x 3 1/2	3/16			L18E	L9HU57			R106		45	45	P243	P237	P85
1961-75	All Models with 170 198 and 225 3 1/4 x 4 1/4 Engines		6	3 1/4 x 3 3/4	3/16			L13CE	L8E	J8E		R104	R102	45	45	P239	P234	P85
1966-75	383 400 440 4 1/4 x 3 1/4		8	4 3/8 x 3 1/2	3/16	21DR		L16BE				R107	R105	45	45	P245	P241	P85
1972	360 E75inc		8	4 3/8 x 3 3/8	3/16	12CE	L16	L12CE	J12CE	Z12CE		R106	R104	45	45	P243	P238	P85

Dodge Diesel Trucks Use Cummins and Detroit Engines LHC 478 and 549 Gas Engines on 1969 H.D Models See These Engine Listings

EDSEL

1958-59	361 Engine (EDD) 1959 4 3/8 x 3 3/8 332 Engine	Own	3	3 1/4 x 3 1/2	3/16	20B		L12CE	J12CE	Z12CE		R107	R104	30	45	P245	P238	P85F
1958-59	410 Engine (EDH)	Own	4	4 1/4 x 3 3/4	3/16	21D		L16BE				R107	R105	45	45	P245	P241	P85

R211P30 Reseater Pilot is used for 2 guide size

FAIRBANKS-MORSE

Z (1), H.P. and 2 H.P.														45	45	P231	P231	P83
Z (3 H.P.)														45	45	P235	P235	P85
Z (5 H.P.)						16	16	L16	L16	J16	Z16			45	45	P243	P243	P86
Z (7 1/2 H.P.)						22A	22A	L22A	L22A			R110	R110	45	45	P251	P251	P86
ZD14 (2 H.P.)						3	3	L3	L3			R100	R100	45	45	P229	P229	P83
ZC52 (3 H.P.)						7	6	L7	L6	J6		R102	R101	45	45	P234	P233	P85
ZC118 (7 H.P.)						16	16	L16	L16	J16	Z16	R106	R106	45	45	P243	P243	P86
ZC208 9 H.P.						22	22	L22	L22			R109	R109	45	45	P251	P251	P86
ZC346 (12 H.P.) 3/4 Exhaust	Late Heads with 2 intake valves require 22 intake ring					27C	27C	L27C	L27C			R111	R111	45	45	P255	P255	P88L
ZC503 (17 H.P.) 3/4 Exhaust	Late Heads with 2 Intake valves require 22 intake ring					Intake and Exhaust		J31AU				R115	R115	45	45	P261	P261	P88L
ZC739 (25 H.P.) 3/4 Exhaust						27C	36	L27C				R111	R120	45	45	P255	P263	P88L

Valve Seats can be made in our 'J Chromalloy' Material for engines using Propane Butane or Natural Gas Fuel

FERGUSON TRACTORS (See Massey-Ferguson)

1948-50	Ferguson TO 20 TE 20	Cont Z120	4	3 1/4 x 3 1/2	3/16	2BP	2BP	L2BP	L2BP			R736	R736	45	45	P227	P227	P83S
1951-54	Ferguson TO 30	Cont Z129	4	3 1/4 x 3 1/2	3/16	6	4P	L6	L4P			R101	R100	30	45	P233	P231	P83S
1955-58	Ferguson TO-35, TO-35 Deluxe F40, AHO 60	Cont Z134	4	3 1/4 x 3 1/2	3/16	6	4P	L6	L4P			R101	R100	30	45	P233	P231	P83S
1958-60	TO35 Diesel 3/4 Exhaust		4	3 1/4 x 4	3/16	8A	6CR	L8A	L6CR			R103	R101	45	45	P237	P233	P83S

Replacement Ring for Factory Installed Insert

Engines using Propane, Butane or Natural Gas must use Chromalloy or Lee-Life Rings.

FORD AUTOMOBILES

Table listing Ford Automobile models from 1928 to 1970, including make, engine type, cylinder count, pilot size, cast iron, iron exhaust, Lee Alloy, Valve, Seats (Chromalloy, Lee-Lite, K-O, Cutter, Seat, Angle, Gnd, Wh Ex, Pilot), and Seat Grinder (Int, Exh, Pilot No).

FORD TRUCKS, BUSES AND INDUSTRIAL ENGINES

Table listing Ford Trucks, Buses, and Industrial Engines from 1939 to 1967, including make, engine type, cylinder count, pilot size, cast iron, iron exhaust, Lee Alloy, Valve, Seats, and Seat Grinder.

FORD TRACTORS

Table listing Ford Tractors from 1939 to 1971, including make, engine type, cylinder count, pilot size, cast iron, iron exhaust, Lee Alloy, Valve, Seats, and Seat Grinder.

Engines using Propane, Butane or Natural Gas must use Chromalloy or Lee-Lite Rings. Replacement Ring for Factory Installed Insert

GMC TRUCKS AND INDUSTRIAL ENGINES

Year	Model	Make	Eng. Cyl	BGS	Pilot Size	Cast Int.	Iron Exh.	VALVE SEATS				SEAT GRINDER							
								Lee-Alloy Int.	Chromalloy Exh.	Lee Life Exh.	K-O Int.	Cutter Int.	Seat Exh.	Angle Int.	Grind Wh Exh.	Pilot Exh.	Pilot No.		
1939-48	27 B, 308 (3 3/4 x 4 3/4)	Own	6	3 3/4 x 4 3/4	3/4	16C	10AU	L16C	L10AU	J10AU*	Z10AU*	R106	R 104	45	45	P243	P239	P85	
1939-48	426, 45 1 (4 1/2 x 5), 477 (4 3/4 x 5)	Own	6	4 1/2 x 5	3/4	17	138X	L17	L138X		R107	R105	45	45	P245	P241	P85	
1939-62	228, 236 (3 3/4 x 3 3/4), 248 (3 3/4 x 3 3/4), 256, 270 (3 3/4 x 3 3/4)	Own	6	3 3/4 x 3 3/4	3/4	12C		L12C	L7ATH		Z7ATH	R104	R 103	30	30	P239	P237	P84	
Specify 45° Ring for 270° Engine and 1950 Model 248																			
1949-60	503 (361-4 1/2 x 4 3/4), 426 (4 3/4 x 5)	Own	6	4 1/2 x 5	3/4	17	138X	L17	L138X			R107	R105	45	45	P245	P241	P85	
1950-56	318, 360 (4 1/2 x 4 3/4)	Own	6	3 3/4 x 4 3/4	3/4	16	10AU	L16	L10AU	J10AU	Z10AU	R106	R104	30	45	P243	P243	P85	
1951-58	302	Own	6	4 x 4	3/4	13A	10AU	L13A	L10AU	J10AU	Z10AU*	R105	R103	30	45	P241	P236	P86	
1955-58	288, 316 (3 3/4 x 3 3/4)	Own	8	3 3/4 x 3 3/4	3/4	13B	8B	L13B	L8B			R105	R103	30	45	P241	P236	P84	
1957-60	347, 336 (3 3/4 x 3 3/4)	Own	8	3 3/4 x 3 3/4	3/4	17C		L17C	L9B5H10		Z9B5H10	R106	R103	30	45	P242	P238	P84	
1957-60	370 (4 1/2 x 15 EXH.)	Own	8	4 1/2 x 15	3/4			L16BE	L12J5			R105	R103	45	45	P240	P237	P84	
1940-50	2-71, 3-71, 4-71, 6-71	Diesel	2,3,4,6	4 1/2 x 5	3/4				L8ATH	J8ATH*	Z8ATH	R103					P237	P84	
1951-62	2-71, 3-71, 4-71, 6-71 (2 valves per cyl)	Diesel	2,3,4,6	4 1/2 x 5	3/4				L9B5H	J9B5H	Z9B5H*	R103					P237	P84L	
1958-73	71 Series (4 valves per cyl)		4,6	4 1/2 x 5	3/4				L4TH8								P232	P83L	
1951-68	6-110 Series (2 valve)	Own	6	5 x 5.6	3/4				L16DJ15		Z16DJ15	R107					P245	P85	
1958-68	6-110 Series (4 valves per cyl)		6	5 x 5.6	3/4				L8BTH			R103					P236	P83	
1960-75	53 Series Diesel (2 valves)		2,3,4	3 3/4 x 4 3/4	3/4				L8E	J8E		R102	60	60			P234	P83	
1960-75	53 Series Diesel (4 valves)		6	3 3/4 x 4 3/4	3/4					J2BTH30		Spec.		60			P239	P95	
1963-75	153, 194, 230, 250, 292		4,6	3 1/2 x 3 1/2	3/4		9	L14CE	L9	J9	Z9	R105	R103	45	45	P240	P236	P84	
1960-75	305A, 305B, 305C, 305D, 305E		V6	4 1/2 x 3 3/4	3/4	18	10R	L18	L10R	J10R		R 107	R103	30	45	P245	P237	P84	
1960-72	351, 351C, 401, 478, 702 (1/2 Exhaust) 401, 4 1/2 x 3 3/4		V6	4 1/2 x 3 3/4	3/4	21DR			L16H10*			Z16H10	R108	R106	30	45	P247	P243	P85
1966-73	351E 351M, 401M, 478M		V6	4 1/2 x 3 3/4	3/4					J17H*		R109	R 106	30	45	P247	P243	P85	
1966-73	D351				3/4	19B			L12E		Z12E	R108	R 104	45	45	P247	P239	P84	
1964-73	D478, DH478, 637 Gas, D & DH637 (1/2 Exhaust)				3/4	25C		L25C		J17K16		R110		45	45	P251	P243	P85	
1968-73	307, 350 Engines (4 x 3 3/4)		8	3 3/4 x 3 3/4	3/4	16C	9	L16C	L9	J9	Z9	R 106	R103	45	45	P242	P236	P84	
1973	74 379 (Int. Ring 21DR) 432 (4 1/2 x 3 3/4), 478M + 5 1/2 x 3 3/4 All 1/2 Exh		6	4 1/2 x 3 3/4	3/4	22R				J17H		R109	R106	30	30	P247	P243	P85	
1972	75 454 Engine		8	4 1/2 x 4	3/4	21DR	13		L13	J13	Z13	R1 08	R 105	45	45	P247	P240	P85	

% Exhaust on Engines 360, 426, 503 Special production oversize rings are available

HALL-SCOTT ENGINES (HERCULES)

1934	50 130 (135-4" x5)	Own	6	4 1/2 x 5	3/4	23B	22U		L22U			R109	R109	30	30	P251	P247	P86
1939-54	131, (136-4" x5)	Own	6	4 1/2 x 5	3/4	21			L21			R109	R108	30	45	P247	P247	P86
1940-54	168 169, 183, 184, 186-1, 187 1/2 Exh.	Own	6	5 1/2 x 7	3/4	32	32					R115	R115	30	30	P261	P261	P87
1930-54	175, 175-1, (176 5 1/2 x 6) (177-5 1/2 x 6)	Own	6	5 x 6	3/4	27C	27B		L27C			R112	R112	30	45	P255	P255	P86
1934	54 180 1 3/5 1/2 Exh	Own	6	5 x 6	3/4	32			L32	L27E		R115	R112	30	30	P261	P255	P87
1939-57	190 1 2 3 5 (1/2) Exh.	Own	6	5 1/2 x 6	3/4	30			L30		Z22AZH	R113	R110	30	45	P259	P251	P87
1940	67 400 440, 401 1/2 Exh	Own	6	5 1/2 x 7	3/4	30			L30		Z22AZH*	R113	R110	30	45	P259	P251	P87
1940-58	450 470, 471 (5 1/2 x 6) 480, 481 (5 1/2 x 6) (1/2) Exh	Own	6	5 x 6	3/4	30			L30		Z22AZH	R113	R110	30	45	P259	P251	P87
1950-58	504	Own	6	4 1/2 x 5	3/4	21			L21			R109	R108	30	45	P247	P247	P86
1945	67 2268 7 8-9, 3368-9, 3386 7 (1/2) Exh	Own	12	5 1/2 x 7	3/4	32						R115	R114	30	30	P261	P259	P87
1953-58	855 935 5 1/2 x 6 1/2 1091 (5 1/2 x 7) (1/2) Exh	Own	6	5 1/2 x 6	3/4	30			L30		Z22AZH	R112	R110	45	45	P255	P251	P87
1954	67 590	Own	6	5 x 5	3/4				L26CU	L26CU		R110	R110	45	45	P251	P251	P87
1956	67 6156 6182 5 1/2 x 7	Own	6	5 1/2 x 6	3/4	30			L30		Z22AZH	R112	R110	30	45	P255	P251	P87

(1/2) Exhaust pilot (P93) Requires Ring 2 1/2 x 2 1/2 Special Production

HERCULES ENGINES

1940	50 WXL2 WXL2 4x4	Own	6	4 1/2 x 4	3/4	19	16	L19	L16	J16	Z16	R108	R106	45	45	P247	P243	P85
1946	50 DIX4B Diesel	Own	4	3 1/2 x 4	3/4	10	6	L10	L6	J6		R103	R101			P237	P233	P85
1930	60 HXA HXB (5x6), HXC (5 1/2 x 6) HXD (5 1/2 x 6) HXE early engine-22C exh	Own	6	4 1/2 x 6	3/4	25	22	L25	L22			R111	R109	30	30	P231	P251	P87
1935	58 BX BX2 2 1/2 x 3	Own	4	2 x 3	3/4	6	2B	L6	L2B			R101	R736	30	30	P253	P231	P95
1933	58 DFX, DFXB, DHX DHXB (5x6) DFXC 5 1/2 x 6	Own	6	4 x 6	3/4	30	16	L30	L16	J16	Z16	R113	R106	45	45	P259	P243	P87
1939	58 DFXD, DHXC (DFXHB DFXXHF-5 x6)	Own	6	5 x 6	3/4	30	16	L30	L16	J16	Z16	R113	R106	45	45	P259	P243	P87
1946	58 DIX4D DIX6 Diesel, DIX-B3 (2 1/2) DIX6 272-3x4	Own	4,6	3 1/2 x 4	3/4	14	6R	L14	L6R	J6R		R105	R101			P241	P233	P85
1946	58 DIXB (DIXC, 4x4) (DIXD 4 x4)	Own	2	3 x 4	3/4	16	6R	L16	L6R	J6R		R106	R101			P243	P233	P85
1936	60 DJX, DJXB, DJXC 3 x4	Own	6	3 x 4	3/4	16	6R	L16	L6R	J6R		R106	R101	45	45	P243	P233	P85
1938	60 DJXH, DJXHF	Own	6	3 1/2 x 4	3/4	18	9	L18	L9	J9	Z9	R107	R103	45	45	P245	P237	P85
1945	58 DN8 V8B DN8 V8C 6x6	Own	8	5 1/2 x 6	3/4	31	20	L20				R114	R108	45	45	P259	P247	P88
1945	58 DN8 V8D DN8 V8S DN8 V8D DN8 V8DTS		8	6 x 6	3/4	34	25	L25		J25	Z25	R117	R111	45	45	P263	P255	P88
1939	60 D00B D00C 4x4 D00D-4 (5x4)	Own	4	3 1/2 x 4	3/4	16	6	L16	L6	J6		R106	R101	45	45	P243	P233	P85
1936	60 DRXB (DRXC 4 1/2 x 5) (DRX 501 4 1/2 x 5)	Own	6	4 x 5 1/2	3/4	22D	10	L22D	L10	J10	Z10	R109	R103	45	45	P251	P239	P86
1946	60 DWXC (DWXD 4 1/2 x 4) (DWXLD DWXLDLF, DWXID DWXIDF-4 x5)	Own	6	4 1/2 x 4	3/4	17	8	L17	L8	J8	Z8	R107	R102			P245	P235	P85
1930	60 IX, IXA, IXA3, IXA5, IXAC 3x4	Own	4	2 x 4	3/4	8A		L8A	L6D			R103	R102	30	30	P237	P235	P83
1931	68 IXK3 IXB IXB3 IXB5, IXBC-3 (4x4) IXLB 3 1/2 x 4	Own	4	3 1/2 x 4	3/4	8A		L8A	L6D			R103	R102	30	30	P237	P235	P83
1931	58 IXA, IXAM IXB IXBM-3 (4 1/2 x 4) (early engines 10A exh)	Own	6	3 1/2 x 4	3/4	13C	10	L13C	L10	J10	Z10	R104	R103	45	45	P239	P237	P85
1931	58 JXC JXCM JXCT, JXC4 JXE JX4E 3 x4	Own	4,6	3 1/2 x 4	3/4	13C	10	L13C	L10	J10	Z10	R104	R103	45	45	P239	P237	P85
1935-71	JXD JXDM JXDT, JXDTR JXD early eng 10A exh	Own	4,6	4 x 4	3/4	13C	10	L13C	L10	J10	Z10	R103	R103	45	45	P239	P237	P85
1946	69 JXLD	Own	6	4 x 4	3/4	16C	13T	L16C	L13T	J13T	Z13T	R106	R105	45	45	P243	P241	P85
1939	60 NXA NXB 3 1/2 x 4	Own	2	3 x 4	3/4	8	6	L8	L6	J6		R102	R101	30	30	P235	P233	P83
1936	60 QXA QXA3 QXA5 QXB QXB3 QXB5 3 x4	Own	6	3 1/2 x 4	3/4	9	6	L9	L6	J6		R103	R101	30	30	P237	P233	P83
1939	60 QXC QXC3 QXC5	Own	6	3 1/2 x 4	3/4	12	8	L12	L8	J8	Z8	R104	R102	30	30	P239	P235	P83
1939	67 QXD, QXD3, QXD5 (QXLD, QXLD 3 1/2 x 4)	Own	6	3 1/2 x 4	3/4	13	8	L13	L8	J8	Z8	R105	R102	30	30	P241	P235	P83
1931	60 RXB RX C-4, 1/2 x 4	Own	6															

HERCULES ENGINES (Cont.)

Year	Model	Make	Eng. Cyl.	BGS	Pilot Size	Cast Int	Iron Exh	VALVE SEATS		Chromalloy Exh	Lee-Lite Exh	K-O Int	Cutter Exh	Seat Int.	Angle Exh	SEAT GRINDER		
								Lee Alloy Int	Exh							Grind Int	Wh Exh	Pilot Int
1934-68	ZXA (ZXB-2 1/2x3)	Own	4	2 1/2x3	3/4	6	28P	L6	L28P			R101	R736	30	30	P233	P231	P95
1939-58	DFXE, DFKETS	Own	6	5 1/2x6	3/4	30	16	L30	L16	J16	Z16	R113	R106	45	45	P259	P243	P87
1956-60	GO-173, GO-260, DD173, DD260	Own	4	3 1/2x4 1/2	3/4	12	8A	L12E	L8A			R104	R103	45	45	P239	P237	P85
1956-63	GO-149, DD-149, GO149H, DD149H	Own	3	3 3/4x4 3/4	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1956-63	GO-169, DD-169, GO169H, DD169H	Own	3	4x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1956-63	GO-198, DD-198, GO-198A, GO-198AH, DD-198H	Own	4	4x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1963-75	G2000, D2000	Own	4	3 1/2x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1956-63	GO-226, DD-226, GO-226A, DD-226H	Own	4	3 1/2x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1963-75	G2300, D2300	Own	4	4x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1956-63	GO-298, DD-298, D-298H, DD298H, D298H	Own	6	3 1/2x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1963-75	D3000, D3000T, G3000, C3400, D3400	Own	6	3 1/2x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1956-63	GO-339, DD-339, DD-339 H, G339, D339, G&D339H	Own	6	3 3/4 x 4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1960-62	D426	Own	6	4 1/2x5	3/4	17B	8A	L17B	L8A			R107	R103	45	45	P245	P237	P85
1963-75	G1500, D1500 (G1700, D1700 4x4 1/2)	Own	3	3 1/2x4 1/2	3/4	12B	8A	L12B	L8A			R105	R103	45	45	P240	P237	P85
1970-75	D4800, D4800T	Own	6	4 1/2x5 1/2	3/4	12B	8A	L12B	L8A			R107	R103	45	45	P243	P237	P85
1970-75	G1400, G1600	Own	4	4x3 3/4	3/4	Intake 1 1/4 x 2 1/4 x 1/8; Exhaust 1 1/4 x 1 1/4 x 1/8						R105	R103	45	45	P241	P238	P83

Rings are available for C2-90 2 cylinder and CV4-180 4 cylinder Lycoming engines now manufacture red by Hercules

HUDSON AUTOMOBILES

1938-52	14, 15, 17, 24, 25, 27, 44, 45, 47, 53, 54, 84, 85, 87, 95, 97, 173, 174, 483, 484, 503, 504, 8A, 8B	Own	8	3x4 1/2	3/4	10	8	L10	L8	J8	Z8	R103	R102	45	45	P237	P235	P84
1948-54	All Six Cylinder Models	Own	6	3 1/2x3 3/4	3/4	17D	10	L17D	L10	J10	Z10	R106	R103	45	45	P243	P237	P84
1953-54	JET 1C, 2C, 1D, 2D, 3D	Own	6	3x4 1/2	3/4	9	7	L9	L7	J7	Z7	R103	R102	45	45	P237	P235	P84
1955-56	WASP	Own	6	3x4 1/2	3/4	12C	9	L12C	L9	J9	Z9	R104	R103	45	45	P239	P237	P84
1955-56	HORNET 35580 (1956-4x3 1/2)	Own	8	3 1/2x3 3/4	3/4	16A	12B	L16A	L12B			R107	R105	45	45	P245	P241	P85
1955-58	RAMBLER	Own	6	3 1/2x4 1/2	3/4	10		L10	L7E			R103	R102	45	45	P237	P234	P84
1957	Hornet 35780	Own	8	4x3 3/4	3/4	16B	8	L14H	L8	J8	Z8	R105	R102	30	45	P241	P235	P84

INTERNATIONAL TRACTORS AND POWER UNITS

1939-45	T14, U14, U14A		4	4 1/2x6 1/2	3/4	21	18	L21	L18			R109	R108	45	45	P251	P245	P86
1939-48	A, AV, B, BN, U2		4	3x4	3/4	7	5	L7	L5			R102	R101	45	45	P235	P233	P84
1939-52	I6, IU6, M, MV, O-6, OS6, T6, U6, W6		4	3 1/2x5 1/2	3/4	15	12B	L15	L12B			R106	R105	45	45	P243	P241	P85
1939-57	ID6, IUD6, MD, MDV, OD6, ODS6, TD6, UDG, WDG Diesel		4	3 1/2x5 1/2	3/4	13	9	L13CE	L9	J9	Z9	R105	R103	45	45	P241	P237	P85
1939-53	H, HV, I4, IU4, O4, OS4, T4, U4, W4,		4	3 1/2x4 1/2	3/4	9	8R	L9	L8R	J8R	Z8R	R103	R102	45	45	P237	P235	P84
1939-56	I9, IU9, T9, U9, W9, WR9, C335		4	4x5	3/4	20D	17	L17	L17	J17	Z17	R108	R107	45	45	P247	P245	P97L
1939-57	ID9, TD9, UDG, UD9A, WDG, WDR9 (UD16 6 cyl.) Diesel		4	4x5 1/2	3/4	17C		L17C	L13CE	J13CE	Z13CE	R106	R104	45	45	P243	P239	P97L
1949-54	Super A, Super AV, C, U2A		4	3x4	3/4	7	3	L7	L3			R102	R100	45	45	P235	P23	P84
1939-47	TD14, UD14A, TD14A, UD14, TD18, UD18	D461	4	4 1/2x6 1/2	3/4	13T		L13T	L13T	J13T	Z13T	R107	R105	45	45	P245	P241	P86
1947-63	TD18A, UD18A	D691	4	4 1/2x6 1/2	3/4	13T		L13T	L13T	J13T	Z13T	R107	R105	45	45	P245	P241	P86
1947-61	TD24, UD24, UD1091	U1091	6	5 1/2x7	3/4	27C		L27C	L20U		Z20U	R111	R108	45	45	P251	P247	P87
1953-59	SUPER M, SUPER MV, SUPER W6, C264, 400, C248, T6		4	4x5 1/2	3/4	15	12B	L15	L12B			R106	R105	45	45	P24	P21	P85
1953-58	SUPER MD, MDV, WDG, D264, 400D, TD6	D281	4	4x5 1/2	3/4	9	8R	L13CE	L9	J9	Z9	R104	R103	45	45	P239	P237	P85
1953-56	SUPER H, SUPER HV, SUPER W4	C164	4	3 1/2x4 1/2	3/4	10	8R	L10	L8R	J8R	Z8R	R103	R102	45	45	P237	P235	P84
1954-73	100, 200 (Eng C113) 130, 130HC, 140, 140HC, 230, 240	C123	4	3 1/2x4	3/4	7	3	L7	L3			R102	R100	45	45	P235	P229	P84
1954-56	300, 300HC	C169	4	3 1/2x4 1/2	3/4	10	8	L10	L8	J8	Z8	R103	R102	45	45	P237	P235	P84
1948-75	FARMALL CUB	C60	4	2 1/2x2 1/2	3/4	28H	1H					R736	R732	45	45	P229	P227	P83S
1954-58	FARMALL 350, 350 UTILITY	C175	4	3 1/2x4 1/2	3/4	9B	8R	L9B	L8R	J8R	Z8R	R103	R102	45	45	P237	P235	P84
1954-58	FARMALL 350 DIESEL, UTILITY DIESEL	D193	4	3 1/2x4 1/2	3/4	9		L9	L5CPH	J5CPH	Z5CPH	R103	R101	45	45	P236	P233	P84L
1954-58	FARMALL 450	C281	4	4 1/2x5 1/2	3/4	12B		L14H	L12B			R105	R105	45	45	P241	P240	P85
1954-58	FARMALL 450 DIESEL	D281	4	4 1/2x5 1/2	3/4	13B	9AR	L13B	L9AR			R105	R104	45	45	P241	P238	P85
	Starting Valve for Above Diesel						2	L2				R734		45	45	P227	P83S	
1956-58	HARVESTER 650	C350	4	4 1/2x5 1/2	3/4	20	17	L20	L17	J17	Z17	R108	R107	45	45	P247	P245	P97
1956-58	SUPER WDG, 600 DIESEL, 650 DIESEL, TD9	D350	4	4 1/2x5 1/2	3/4	17C		L17C	L13CE	J13CE	Z13CE	R106	R105	45	45	P243	P240	P97
	Starting Valve for Above						3	L3				R100		45	45	P229	P83S	
1958-75	330, 340, 340U, 404, T340 CRAWLER	C135	4	3 1/2x4 1/2	3/4	10	7	L10	L7	J7	Z7	R103	R102	45	45	P237	P234	P84
1959-75	460, 460HC, 460U, 460AU, 606	C221	6	3 1/2x3 3/4	3/4	1	9R	L11	L9R			R104	R103	30	30	P238	P236	P85
1959-75	560, 560HC, 660, TD6, 706, 806	C291	6	3 1/2x4 1/2	3/4		9	L13CE	L9	J9	Z9	R104	R101	30	30	P239	P232	P85
1959-62	460D, 460DU, 460DHC, 460DHC, 606D	D236	6	3 1/2x3 3/4	3/4	9A	3A	L9A	L3A			R104	R101	45	45	P238	P232	P85
1959-62	560D, 560DHC, 560DH, 660D, TD6 CRAWLER 706	D282	6	3 1/2x4 1/2	3/4	6P	6P	L12E	L6P			R104	R101	45	45	P239	P233	P85
1963-75	D236, D282 (3 1/2x4 1/2)		6	3 1/2x3 3/4	3/4	6P		L13CE	L6P			R104	R101	45	45	P239	P233	P85
1963-75	504, 504HC, 2504, 424	C146, C153	4	3 1/2x4 1/2	3/4	10	7	L10	L7	J7	Z7	R103	R102	45	45	P237	P234	P84
1963-71	504D, 2504D	D188	4	3 1/2x4 1/2	3/4	4A		L9D	L4A			R104	R101	45	45	P239	P233	P85
1962-75	4300 (1964 Requires Ring 1 1/2x1 1/2x3 1/4)	DT817	6	5 1/2x6	3/4		4A	L13E	L13E			R105	R105	45	45	P240	P240	P86
1960-71	TD340 CRAWLER	D166	4	3 1/2x3 3/4	3/4		4A	L9D	L4A			R104	R101	45	45	P239	P233	P85
1960-73	TD9B	DT282	6	3 1/2x4 1/2	3/4		3A	L9A	L3A			R104	R101	45	45	P238	P232	P85
1960-71	TD15	D554	6	4 1/2x5 1/2	3/4	17D		L17D	L12E			R106	R104	45	45	P243	P239	P87
1960-71	TD20	DT-691	6	4 1/2x6 1/2	3/4	19C	14	L19C	L14			R107	R105	45	45	P245	P241	P86
1960-71	TD25, TD25TC, TD30	TD25TC	6	5 1/2x6	3/4			L13E	L13E			R105	R105			P240	P240	P86
1963-68	806, 1206 DIESEL	DT361	6	4 1/2x4 1/2	3/4			Int J17DTH J98TU27				R107		45	45	P243	P239	P86
1964-75																		

MASSEY-FERGUSON TRACTORS

Table of Massey-Ferguson tractors with columns for Year, Model, Make, Eng. Cyl, BGS, Pilot Size, Cast Int., Iron Exh., Lee-Alloy Int., Valve Seats (Chromalloy, Lee-Lite, Exh.), K-O Cutter, Seat Angle, and SEAT GRINDER (Grind Wh., Ex., Pilot No.).

MERCURY AUTOMOBILES

Table of Mercury automobiles with columns for Year, Model, Make, Eng. Cyl, BGS, Pilot Size, Cast Int., Iron Exh., Lee-Alloy Int., Valve Seats (Chromalloy, Lee-Lite, Exh.), K-O Cutter, Seat Angle, and SEAT GRINDER (Grind Wh., Ex., Pilot No.).

MINNEAPOLIS-MOLINE TRACTORS AND INDUSTRIAL ENGINES

Table of Minneapolis-Moline tractors and industrial engines with columns for Year, Model, Make, Eng. Cyl, BGS, Pilot Size, Cast Int., Iron Exh., Lee-Alloy Int., Valve Seats (Chromalloy, Lee-Lite, Exh.), K-O Cutter, Seat Angle, and SEAT GRINDER (Grind Wh., Ex., Pilot No.).

Replacement Ring for Factory Installed Inert

Engines using Propane, Butane or Natural Gas must use Chromalloy or Lee-Lite Rings.

OLIVER WHEEL TYPE TRACTORS (Cont.)

Table with columns: Year, Model, Make, Eng. Cyl., BGS, Pilot Size, Cast Int., Iron Exh., Lee-Alloy Int., VALVE SEATS (Chromalloy, Lee-Lite, Exh.), SEAT GRINDER (K-O Cutter, Seat Angle, Grind Wh., Ex. Pilot No.), and other specifications.

PACKARD AUTOMOBILES

Table listing Packard automobiles with columns for Year, Model, Make, Engine specifications, and various mechanical parts.

PLYMOUTH AUTOMOBILES

Table listing Plymouth automobiles with columns for Year, Model, Make, Engine specifications, and various mechanical parts.

PONTIAC AUTOMOBILES

Table listing Pontiac automobiles with columns for Year, Model, Make, Engine specifications, and various mechanical parts.

Special product ion Lee-Lite rings are available for Pontiac Tempest aluminum engine.

REO TRUCKS AND AUTOMOBILES

Table listing Reo trucks and automobiles with columns for Year, Model, Make, Engine specifications, and various mechanical parts.

Replacement Ring for Factory Installed Insert

Engines using Propane, Butane or Natural Gas must use Chromalloy or Lee-Lite Rings.

VALVE SEAT INSERT RINGS

All rings are individually cast to insure close grain and uniform material throughout. A complete chemical analysis is made for each heat of castings produced. A random sample of each size casting is taken for x-ray evaluation. Any heat not to specifications is scrapped. Final inspection after machining gives complete quality control. Ring O.D. fractional sizes shown indicate recess diameter ring is designed for. Press fit is on O.D. of ring, Ring O.D. decimal sizes are exact size shown. Press fit must be allowed by cutting recess under this size.

<h2 style="margin: 0;">CAST IRON</h2> <p>Individually cast gray iron. These rings have a closer grain structure than the original block. Recommended for most intake applications and engines not originally equipped with inserts. These rings are not recommended for engines using propane, butane or natural gas. Chromalloy or Lee-Lite Alloy rings must be used.</p> <p style="text-align: center;">PACKAGED IN A BLACK BOX 12 RINGS TO A BOX</p> <p style="text-align: center;">SOLD IN BOX QUANTITIES ONLY</p>
<h2 style="margin: 0;">LEE-ALLOY</h2> <p>This individually cast Lee-Alloy ring is an iron base casting, containing Nickel, Chrome and Molybdenum, Heat treated for toughness and resistance to wear. Recommended for light and medium duty. These rings are not recommended for engines using propane, butane or natural gas. Chromalloy or Lee-Lite Alloy rings must be used.</p> <p style="text-align: center;">PACKAGED IN A RED BOX 6 RINGS TO A BOX</p> <p style="text-align: center;">SOLD IN BOX QUANTITIES ONLY</p>

<h2 style="margin: 0;">CHROMALLOY</h2> <p>This individually cast ring is an iron base casting containing Molybdenum, Tungsten and Chrome. Heat treated for toughness and resistance to wear. Recommended for all applications.</p> <p style="text-align: center;">PACKAGED IN A YELLOW BOX 6 RINGS TO A BOX</p> <p style="text-align: center;">SOLD IN ANY QUANTITY</p>
<h2 style="margin: 0;">LEE-LITE</h2> <p>This individually cast ring is a Nickel base casting containing Nickel, Chrome and Cobalt. This material does not respond to hardening by normal heat treating methods. Parts are stress relieved. Lee-Lite rings are made for the job application where all other rings fail, They may be used on any type engine, but they are designed for extra heavy duty engines. Must be used when these engines use propane, butane or natural gas. They retain their hardness under red heat. Lee-Lite rings are particularly adaptable to aluminum engines.</p> <p style="text-align: center;">PACKAGED IN A BLUE BOX 6 RINGS TO A BOX</p> <p style="text-align: center;">SOLD IN ANY QUANTITY</p>

Special Inserts Made To Customer's Specifications

Sizes or Oversizes Not Shown in Regular Listings

SIZE RANGE	Cast Iron	Lee-Alloy	Chromalloy	Lee-Lite
Up to 1 ¹¹ / ₁₆ O.D. x ³ / ₁₆ thick				
1 ¹ / ₂ to 2 O.D. x ³ / ₁₆ thick				
2 to 2 ¹ / ₄ O.D. x ¹ / ₂ thick				
2 ¹ / ₄ to 2 ¹ / ₂ O.D. x ¹ / ₂ thick				
2 ¹ / ₂ to 2 ³ / ₈ O.D. x ¹ / ₂ thick				
2 ³ / ₈ to 2 ³ / ₁₆ O.D. x ¹ / ₂ thick				
2 ³ / ₁₆ to 2 ³ / ₈ O.D. x ¹ / ₂ thick				
2 ¹⁵ / ₁₆ to 3 ¹ / ₄ O.D. x ³ / ₁₆ thick				

Above seats furnished with 45° angle unless otherwise specified.
Regular prices apply in quantities of 500 or more of a size.

Order For Less Than Six Rings – List Price – No Discount

SPECIAL RINGS ARE NOT RETURNABLE

Cast Iron		Lee-Alloy		Chromalloy		Lee-Lite		Insert Ring Dimensions	Cutter No.	Shank Side
Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each			
1C 1CP 1		L 1C L1CP L1						3/4x31/32x9/64 3/4 x 31/22 x 7/22 3/4 x 1 x 3/16	R731 R731 R732	
SPECIAL RESEATER SHANK NO. R712 MUST BE USED WITH R731, R732, R734 AND R736 CUTTERS										
1H 1BH 1AH		L1DR				Z1DR		1/2 x 1 x 3/8 1/2 x 1 1/4 x 3/8 1/2 x 1 1/2 x 3/8 1/2 x 1 3/4 x 3/8	R732 R734 R736 R100	K-Side
2C 2 2BC 2B 2BP 2A		L2 L2B L2BP						7/8 x 1 1/8 x 3/2 7/8 x 1 1/4 x 3/2 7/8 x 1 1/2 x 3/2 7/8 x 1 3/4 x 3/2 7/8 x 1 1/2 x 3/2	R734 R734 R736 R736 R736 R100	K-Side
				J2BTH30				5/16 to 3/32 taper x 1.160 x 3/2	Spec.	
2BH 2AH		L2BRH						1/2 x 1 1/4 x 3/8 1/2 x 1 1/2 x 3/8 1/2 x 1 3/4 x 3/8	R736 R736 R100	O-Side
3 3P 4 4P		L3 L3P L4 L4P L4P5 L4TH8 L4TH20				Z4		1 x 1 1/8 x 3/8 1 x 1 1/4 x 3/8 1 x 1 1/2 x 3/8 1 x 1 260 x 3/8 1 to 1 3/4 taper x 1.263 x 1/4	R100 R100 R100 R100 R100*	O-Side O-Side K-Side K-Side K-Side
								1 to 1 3/4 taper x 1.275 x 1/4	Spec.	
4R 3A 4A 4DX		L3A L4A L4DU		J4DU		Z3AT Z4DU		1 x 1 1/4 x 1/4 1 x 1 1/8 x 3/8 1 x 1 1/2 x 3/8 1 x 1 3/4 x 3/8 1 x 1 1/2 x 3/8	R100† R100 R101 R101 R101 R103 R104	K-Side K-Side O-Side K-Side O-Side O-Side
5 5P 5B 5A		L5 L5B L5A		J5T45		Z5 Z5T45		1 1/4 x 1 1/2 x 3/8 1 1/4 x 1 3/4 x 3/8 1 1/4 x 1.362 x 3/4 1 1/4 x 1 3/4 x 3/8	R101 R101 Spec. R101 R102	O-Side O-Side K-Side O-Side
						Z5H30 Z5H45		1 1/2 x 1.2875 x 1/4 1 1/2 x 1.300 x 1/4 1 1/2 x 1 1/4 x 3/8 1 1/2 x 1.3487 x 3/4 1 1/2 x 1.3587 x 3/4	R100† R100† R101 R101† Spec.	K-Side K-Side O-Side O-Side
6CR 6 6P 6R 6B 6BR 6A		L6CR L6 L6P L6R L6R5 L6B L6BP L6BR L6A L6D		J6T45 J6 J6P J6R J6BP J6BR		Z6T45 Z6BR Z6D		1 1/4 x 1 1/2 x 1/4 1 1/4 x 1.362 x 3/4 1 1/4 x 1 3/4 x 3/8 1 1/4 x 1 3/4 x 3/2 1 1/4 x 1 3/4 x 3/4 1 1/4 x 1.385 x 1/4 1 1/4 x 1 1/4 x 3/8 1 1/4 x 1 1/4 x 3/2 1 1/4 x 1 1/4 x 1/4 1 1/4 x 1 1/2 x 3/8 1 1/4 x 1 1/2 x 3/4	R101† Spec. R101 R101 R101 R101* R102 R102 R102 R102 R102 R103	O-Side K-Side K-Side K-Side K-Side O-Side O-Side K-Side K-Side O-Side
7 7R 7B 7BR 7A		L7C L7E L7 L7R L7R5 L7B L7BR L7A L7ATH L7ATH10		J7C J7 J7B		Z7ATH Z7ATH10		1 3/4 x 1 1/4 x 3/2 1 3/4 x 1 1/4 x 3/8 1 3/4 x 1 1/4 x 3/2 1 3/4 x 1 1/4 x 1/4 1 3/4 x 1.4475 x 1/4 1 3/4 x 1 1/2 x 3/2 1 3/4 x 1 1/2 x 1/4 1 3/4 x 1 1/4 x 3/2 1 3/4 to 1 1/4 taper x 1 1/4 x 3/8 1 3/4 to 1 1/4 taper x 1.5775 x 3/8	R102 R102 R102 R102 R102* R102 R102 R102 R103 R103 R103†	O-Side O-Side O-Side O-Side O-Side K-Side K-Side K-Side O-Side O-Side

Oversize Reseater Shank must be used. (*) .005 oversize shank. (†) .010 oversize shank. (§) .015 oversize shank. (‡) .020 oversize shank. (¶) .030 oversize shank. (¶) .045 oversize shank. Shanks are available for cutting .005, .010, .015, .020, .030, .045 oversize recess using standard cutters.

TM 9-4910-641-14&P

Cast Iron		Lee-Alloy		Chromalloy		Lee-Lite		Ins	Ret	Ring	Cutter	Shank								
Ring No	Price Each	Ring No	Price Each	Ring No	Price Each	Ring No	Price Each	D	Inst	Inst	No	Sub								
8 8R		L7ATH30		J7DU		Z7RH50 Z7RH60		1 3/16 to 1 1/4 taper x 1.5975 x 3/16	R103+	O-Side	R103	K-Side								
		L7D L7DU																		
		L7RH50 L7RH60	2.20 2.20																	
		L8E			J8E								Z8ER8		1 1/4 x 1 1/16 x 3/32	R102	O-Side			
		L8T45			J8ER8										1 1/4 x 1.450 x 3/4	Spec				
		L8			J8								Z8		1 1/4 x 1.4895 x 3/16	R102	O-Side			
		L8R			J8R								Z8R		1 1/4 x 1 1/2 x 3/4	R102	K-Side			
		L8R10			J8R10										1 1/4 x 1.515 x 3/4	R102†	K-Side			
		L8K			J8K										1 1/4 x 1 1/2 x 3/16	R102	K-Side			
		L8BE													1 1/4 x 1 1/8 x 3/16	R103	O-Side			
8B 8BR		L8B		J8BR				1 1/4 x 1 1/8 x 3/32	R103	O-Side										
		L8BR						1 1/4 x 1 1/8 x 3/4	R103	O-Side										
		L8BTH						1 1/4 to 1 1/4 taper x 1 1/8 x 3/16	R103	O-Side										
		L8BTH10						1 1/4 to 1 1/4 taper x 1.5775 x 3/16	R103†	O-Side										
8BT 8A 8AR 8AT		L8BTH20						1 1/4 to 1 1/4 taper x 1.5875 x 3/16	R103†	O-Side										
		L8BT						1 1/4 x 1 1/8 x 3/16	R103	O-Side										
		L8A						1 1/4 x 1 1/8 x 3/16	R103	K-Side										
		L8AR						1 1/4 x 1 1/8 x 3/4	R103	K-Side										
	L8AT		J8AT		Z8AT		1 1/4 x 1 1/8 x 3/16	R103	K-Side											
9 9+5		L8RH10		J8RH5		Z8RH10 Z8RH15		1 3/16 x 1.510 x 3/4	R102*	K-Side	R102†	K-Side								
		L8RH15													1 3/16 x 1.515 x 3/4	R102†	K-Side			
		L8RH30													1 3/16 x 1.520 x 3/4	R102§	K-Side			
		L8ATH			J8ATH								Z8ATH		1 3/16 to 1 3/16 taper x 1 1/8 x 3/16	R103	K-Side			
		L8ATH10											Z8ATH10		1 3/16 to 1 3/16 taper x 1.610 x 3/16	R103†	K-Side			
		L8ATH30													1 3/16 to 1 3/16 taper x 1.660 x 3/16	R103†	K-Side			
		L9			J9								Z9		1 3/16 x 1 1/8 x 3/16	R103	O-Side			
		L9+5													1 3/16 x 1.5725 x 3/16	R103	O-Side			
		L9+10			J9+10								Z9+10		1 3/16 x 1.5755 x 3/16	R103	O-Side			
		L9+30													1 3/16 x 1.5775 x 3/16	R103†	O-Side			
9R 9B 9BR		L9ATH		J9ATH		Z9ATH		1 3/16 x 1.5975 x 3/16	R103†	O-Side										
		L9ATH10				Z9ATH10		1 3/16 to 1 3/16 taper x 1 1/8 x 3/4	R103	O-Side										
		L9ATH30				Z9ATH30		1 3/16 to 1 3/16 taper x 1.5975 x 3/4	R103+	O-Side										
		L9R						1 3/16 x 1 1/8 x 3/4	R103	O-Side										
		L9R10		J9R10		Z9R10		1 3/16 x 1.578 x 3/4	R103†	O-Side										
		L9B		J9B		Z9B		1 3/16 x 1 1/8 x 3/16	R103	K-Side										
		L9BR		J9BR		Z9BR		1 3/16 x 1 1/8 x 3/4	R103	K-Side										
				J9BTU27		Z9BU		1 3/16 x 1 1/8 x .395	R103	K-Side										
								1 3/16 to 1 1/2 taper x 1.657 x .395	Spec.											
								1 3/16 x 1 1/16 x 3/16	R104	O-Side										
9A 9AR		L9A		J9ATH33		Z9DT		1 3/16 x 1 1/16 x 3/4	R104	O-Side	R104	K-Side								
		L9AR													1 3/16 x 1 1/16 x 3/4	R104	O-Side			
		L9D													1 3/16 to 1 1/2 taper x 1.725 x 3/8	Spec.				
		L9DT			J9DU30								Z9DT		1 3/16 x 1 3/4 x 3/16	R104	K-Side			
															1 3/16 x 1.785 x .395	R104†	K-Side			
		L9HU57											Z9HU57 Z9HU62		1 3/16 x 1.625 x 3/8	Spec.				
															1 3/16 x 1.630 x 3/8	R103	K-Side			
		L9HT20													1 1/32 x 1.588 x 3/16	R103†	O-Side			
		L9H23													1 1/32 x 1.590 x 3/16	Spec.				
		L9H28													1 1/32 x 1.595 x 3/16	Spec.				
	L9BH		J9BH				1 1/32 x 1 1/8 x 3/16	R103	K-Side											
	L9BH5						1 1/32 x 1.635 x 3/16	R103*	K-Side											
	L9BH20						1 1/32 x 1.650 x 3/16	R103†	K-Side											
	L9BSH		J9BSH		Z9BSH		1 1/32 to 1 1/32 taper x 1 1/8 x 3/16	R103	K-Side											
	L9BSH5						1 1/32 to 1 1/32 taper x 1.635 x 3/16	R103*	K-Side											

Oversize Reseater Shank must be used. (*) .005 oversize shank. (†) .010 oversize shank. (§) .015 oversize shank. (‡) .020 oversize shank. (†) .030 oversize shank. (¶) .045 oversize shank. Shanks are available for cutting .005, .010, .015, .020, .030, .045 oversize recess using standard cutters.

Cast Iron		Lee-Alloy		Chromalloy		Lee-Lite		Insert Ring Dimensions	Cutter No.	Shank Side
Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each			
		L9BSH10				Z9BSH10		1 1/2 to 1 1/2 taper x 1.610 x 3/32	R103†	K-Side
		L9BSH30						1 1/2 to 1 1/2 taper x 1.660 x 3/32	R103†	K-Side
9BTH		L9BTH		J9BTH		Z9BTH		1 1/2 x 1 1/2 x 3/16	R103	K-Side
		L9BTH5						1 1/2 x 1.635 x 3/16	R103*	K-Side
9BTH5		L9BTH10		J9BTH10		Z9BTH10		1 1/2 x 1.638 x 3/16	R103*	K-Side
		L9BTH30						1 1/2 x 1.640 x 3/16	R103†	K-Side
								1 1/2 x 1.660 x 3/16	R103†	K-Side
10E		L10E		J10E				1 1/2 x 1 1/2 x 3/32	R103	O-Side
				J10E10				1 1/2 x 1.5775 x 3/32	R103†	O-Side
10C		L10				Z10		1 1/2 x 1 1/2 x 3/32	R103	K-Side
10		L10+5		J10				1 1/2 x 1 1/2 x 3/32	R103	K-Side
10+5		L10+10		J10+10		Z10+10		1 1/2 x 1.638 x 3/32	R103*	K-Side
		L10+20						1 1/2 x 1.638 x 3/32	R103*	K-Side
10+20		L10R		J10R				1 1/2 x 1.640 x 3/32	R103†	K-Side
10R		L10R10		J10R10		Z10R10		1 1/2 x 1.643 x 3/32	R103†	K-Side
		L10R15						1 1/2 x 1.650 x 3/32	R103†	K-Side
		L10R20				Z10R20		1 1/2 x 1.653 x 3/32	R103†	K-Side
10R20		L10R15						1 1/2 x 1.650 x 3/32	R103†	K-Side
		L11						1 1/2 x 1.675 x 3/32	R103†	K-Side
11		L11R		J11R		Z11R		1 1/2 x 1 1/2 x 3/32	R104	O-Side
11R		L11R5						1 1/2 x 1.6975 x 3/32	R104*	O-Side
								1 1/2 x 1.7025 x 3/32	R104†	O-Side
11T		L11T		J11T		Z11T10		1 1/2 x 1 1/2 x 3/16	R104	O-Side
								1 1/2 x 1.7224 x 3/32	R104†	O-Side
10A		L10A				Z10A		1 1/2 x 1 1/2 x 3/32	R104	K-Side
10AR		L10AR		J10AR		Z10AR		1 1/2 x 1 1/2 x 3/32	R104	K-Side
		L10AR5						1 1/2 x 1.760 x 3/32	R104*	K-Side
		L10AR30		J10AR10		Z10AR10		1 1/2 x 1.765 x 3/32	R104†	K-Side
10AT		L10AT		J10AT		Z10AT		1 1/2 x 1.785 x 3/32	R104†	K-Side
				J10AT10		Z10AT10		1 1/2 x 1.765 x 3/32	R104†	K-Side
10AU		L10AU		J10AU		Z10AU		1 1/2 x 1 1/2 x 3/16	R104	K-Side
		L10AU10				Z10AU10		1 1/2 x 1.765 x 3/32	R104†	K-Side
11A		L11A		J10AX				1 1/2 x 1 1/2 x 3/16	R101	K-Side
11AR		L11AR						1 1/2 x 1 1/2 x 3/32	R105	O-Side
11AT		L11AT						1 1/2 x 1 1/2 x 3/16	R105	O-Side
11AU		L11AU						1 1/2 x 1 1/2 x 3/16	R105	O-Side
11D		L11D						1 1/2 x 1 1/2 x 3/8	R105	K-Side
				J11DX				1 1/2 x 1 1/2 x 3/16	R105	K-Side
				J11DY				1 1/2 x 2 x 1/2	R106	K-Side
				J11HTU33				1 1/2 to 1 1/2 taper x 1.725 x .382		
						Z11DTH34		1 1/2 x 1.914 x 3/32	Spec.	
		L12J5						1 1/2 x 1.635 x 3/32	R103*	K-Side
		L12J15						1 1/2 x 1.645 x 3/32	R103§	K-Side
		L12CT45		J12JU15				1 1/2 x 1.645 x .397	R103§	K-Side
12CE		L12CE		J12CE		Z12CE		1 1/2 x 1.6785 x 3/32	R103†	K-Side
				J12CE10				1 1/2 x 1 1/2 x 7/32	R104	O-Side
12C		L12C		J12C		Z12C		1 1/2 x 1.7025 x 3/32	R104†	O-Side
		L12E		J12E		Z12E		1 1/2 x 1 1/2 x 3/32	R104	O-Side
				J12E10		Z12E10		1 1/2 x 1 1/2 x 3/32	R104	K-Side
12		L12						1 1/2 x 1.765 x 3/32	R104†	K-Side
12T		L12T		J12T		Z12T		1 1/2 x 1 1/2 x 3/4	R104	K-Side
12U						Z12U		1 1/2 x 1 1/2 x 3/8	R104	K-Side
						Z12X33		1 1/2 x 1 1/2 x 3/8	R104	K-Side
12B		L12B		J12B				1 1/2 x 1.788 x 3/32	Spec.	
12BT		L12BT						1 1/2 x 1 1/2 x 3/4	R105	O-Side
		L12BU						1 1/2 x 1 1/2 x 3/16	R105	O-Side
12A		L12A		J12A				1 1/2 x 1 1/2 x 3/8	R105	O-Side
		L12AY						1 1/2 x 1 1/2 x 3/4	R105	K-Side
12D		L12D						1 1/2 x 1 1/2 x 1/2	R105	K-Side
		L12DU		J12DU		Z12DU		1 1/2 x 2 x 1/2	R106	K-Side
								1 1/2 x 2 1/2 x 3/8	R107	O-Side
		L12CH20						1 1/2 x 1.7125 x 3/32	R104†	O-Side
		L12CH30						1 1/2 x 1.7225 x 3/32	R104†	O-Side
				J12BHU12				1 1/2 x 1.829 x 3/8	Spec.	

Over-size Reseater Shank must be used. (*) .005 over-size shank. (†) .010 over-size shank. (§) .015 over-size shank. (‡) .020 over-size shank. (†) .030 over-size shank. (†) .045 over-size shank. Shanks are available for cutting .005, .010, .015, .020, .030, .045 over-size recess using standard cutters.

Cast Iron		Lee-Alloy		Chromalloy		Lee-Lite		Insert Ring Dimensions	Cutter No.	Shank Size
Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each			
13C		L13CE		J13CE		Z13		1 1/2 x 1 3/4 x 7/32	R104	K-Side
		L13C		J13CE10		Z13+10		1 1/2 x 1.765 x 7/32	R104†	K-Side
		L13E		J13CR7		Z13T		1 1/2 x 1.762 x 7/32	Spec.	
13		L13		J13		Z13T		1 1/2 x 1 3/4 x 1/4	R104	K-Side
13T		L13T		J13+10		Z13T		1 1/2 x 1 3/8 x 3/32	R105	O-Side
		L13T5		J13T		Z13T		1 1/2 x 1.8275 x 1/4	R105†	O-Side
		L13T10		J13T10		Z13T10		1 1/2 x 1 3/8 x 5/16	R105	O-Side
13B		L13BE		J13BT		Z13BU		1 1/2 x 1.8225 x 3/16	R105*	O-Side
		L13B		J13BT		Z13BU10		1 1/2 x 1.8275 x 3/16	R105†	O-Side
		L13BT		J13BT		Z13BU10		1 1/2 x 1.8375 x 3/16	R105‡	O-Side
13BU		L13BU		J13BT		Z13BU		1 1/2 x 1 7/8 x 1/4	R105	K-Side
13BX		L13BU10		J13BT		Z13BU10		1 1/2 x 1 7/8 x 5/16	R105	K-Side
		L13BU20		J13BT		Z13BU10		1 1/2 x 1.890 x 3/8	R105†	K-Side
		L13BX		J13BT		Z13BU10		1 1/2 x 1.900 x 3/8	R105‡	K-Side
13A		L13A		J13AU		Z13BX34		1 1/2 x 1 7/8 x 1/4	R105	K-Side
13AT		L13AT		J13AU		Z13BX34		1 1/2 x 1.914 x 29/64	Spec.	
13AU		L13AU		J13AU		Z13BX34		1 1/2 x 1 3/4 x 1/4	R106	O-Side
14C		L14CE		J14C		Z14J45		1 5/8 x 1 13/16 x 7/32	R105	O-Side
		L14C		J14C		Z14CT30		1 5/8 x 1 13/16 x 1/4	R105	O-Side
		L14J30		J14C		Z14CT30		1 5/8 x 1.817 x 5/32	R105‡	O-Side
14		L14CT30		J14CT30		Z14CY57		1 5/8 x 1.861 x 5/32	R105†	O-Side
		L14CT40		J14CT40		Z14CY57		1 5/8 x 1.817 x 5/32	R105‡	O-Side
		L14CY57		J14CY57		Z14CY62		1 5/8 x 1.857 x 5/32	R105	Spec.
14T		L14E		J14T		Z14N31		1 5/8 x 1.875 x 1/2	Spec.	
		L14		J14T		Z14N31		1 5/8 x 1.880 x 1/2	R105	K-Side
		L14T		J14T		Z14N31		1 5/8 x 1 7/8 x 1/2	R105	K-Side
15		L15		J15		Z14N31		1 5/8 x 1 7/8 x 1/4	R105	K-Side
14A		L14A		J15		Z14N31		1 5/8 x 1 7/8 x 5/16	R105	K-Side
15A		L15A		J15		Z14N31		1 5/8 x 1.914 x 29/64	Spec.	
14BTH		L14H		J14H		Z14H		1 5/8 x 1 7/8 x 1/4	R105	K-Side
		L14H10		J14H10		Z14H10		1 5/8 x 1.885 x 1/4	R105†	K-Side
		L14H20		J14H10		Z14H10		1 5/8 x 1.890 x 1/4	R105†	K-Side
16B		L16E		J16E		Z16BU57		1 5/8 x 1.900 x 1/4	R105‡	K-Side
		L16BE		J16E		Z16BU57		1 5/8 to 1 1/2 taper x 2 3/4	R106	K-Side
		L16B		J16E		Z16BU57		1 5/8 to 1 1/2 taper x 2.035 x 3/8	R106‡	K-Side
16CE		L16BX		J16E		Z16BY57		1 5/8 x 1 3/4 x 1/2	R105	O-Side
		L16BY57		J16E		Z16BY57		1 5/8 x 1 3/8 x 1/4	R105	K-Side
		L16BY57		J16E		Z16BY57		1 5/8 x 1 3/8 x 5/16	R105	K-Side
16C		L16C		J16E		Z16BY62		1 5/8 x 1.937 x 3/8	Spec.	
		L16CU		J16E		Z16BY62		1 5/8 x 1.925 x 3/8	R106	O-Side
		L16CX		J16E		Z16BY62		1 5/8 x 1.937 x 1/2	Spec.	
16		L16		J16E		Z16BY62		1 5/8 x 1.925 x 1/2	R106	O-Side
		L16J		J16E		Z16BY62		1 5/8 x 1 3/8 x 1/2	R106	O-Side
		L16J		J16E		Z16BY62		1 5/8 to 1 1/2 taper x 1 13/16 x 1/2	R106	O-Side
16U		L16J		J16E		Z16BY62		1 5/8 to 1 1/2 taper x 1.9525 x 1/4	R106	O-Side
		L16J		J16E		Z16BY62		1 5/8 x 1 3/8 x 3/32	R106	O-Side
		L16J		J16E		Z16BY62		1 5/8 x 1 3/8 x 1/8	R106	O-Side
16D		L16J		J16E		Z16BY62		1 5/8 x 1 3/8 x 1/16	R106	O-Side
		L16J		J16E		Z16BY62		1 5/8 x 2 x 3/32	R106	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2.015 x 3/32	R106†	K-Side
16A		L16J		J16E		Z16BY62		1 5/8 x 2 x 1/4	R106	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2.015 x 19/64	R106†	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2 1/32	R106	K-Side
16U		L16J		J16E		Z16BY62		1 5/8 x 2.015 x 17/32	R106†	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2.025 x 17/32	R106‡	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2 1/8	R106	K-Side
16D		L16J		J16E		Z16BY62		1 5/8 x 2 1/8	R106	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2.016 x 29/64	R106†	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2 1/8 x 3/32	R107	O-Side
16A		L16J		J16E		Z16BY62		1 5/8 x 2 1/8 x 5/32	R107	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2 1/8 x 1/2	R108	K-Side
		L16J		J16E		Z16BY62		1 5/8 x 2 1/8 x 1/2	R108	K-Side
16U		L16H10		J16H20		Z16H10		1 7/32 x 1.953 x 11/32	R106†	O-Side
		L16H10		J16H20		Z16H10		1 7/32 x 1.963 x 11/32	R106‡	O-Side
		L16H10		J16H20		Z16H10		1 7/32 x 1.963 x 11/32	R106‡	O-Side
16U		L16DJ15		J16DJ20		Z16DJ15		1 9/16 x 2.083 x 3/32	R107S	O-Side
		L16DJ15		J16DJ20		Z16DJ15		1 9/16 x 2.088 x 3/32	R107‡	O-Side
		L16DJ15		J16DJ20		Z16DJ15		1 9/16 x 2.088 x 3/32	R107‡	O-Side

Oversize Receptor Shank must be used. (*) .005 oversize shank. (†) .010 oversize shank. (S) .015 oversize shank. (‡) .020 oversize shank. (‡) .030 oversize shank. (†) .015 oversize shank. Shanks are available for cutting 005, .010, .015, .020, .030, .045 oversize recess using standard cutters.

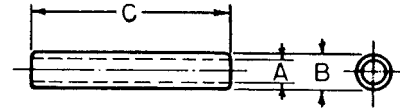
Cast Iron		Lee-Alloy		Chromalloy		Lee-Lite		Insert Ring Dimensions	Cutter No.	Shank Side
Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each	Ring No.	Price Each			
17E								1 1/4 x 1 1/4 x 3/32	R105	K-Side
17C		L17C		J17CR9		Z17C		1 1/4 x 1 1/4 x 3/32	R106	O-Side
17D		L17D		J17T8		Z17T8		1 1/4 x 1.952 x 3/32	Spec.	
17T5		L17T8		J17K20				1 1/4 x 2 x 3/32	R106	K-Side
				J17K16				1 1/4 x 2.013 x 3/32	R106*	K-Side
				J17				1 1/4 x 2.025 x 3/32	R106†	K-Side
17		L17		J17+16		Z17+16		1 1/4 x 2.021 x .34	Spec.	
				J17+30				1 1/4 x 2 1/8 x 3/32	R107	O-Side
				J17DTH				1 1/4 x 2.085 x 3/32	Spec.	
								1 1/4 x 2.099 x 3/32	R107†	O-Side
								1 1/4 (to 1 1/8) taper		
								2 1/4 x .300	R107	O-Side
17B		L17B						1 1/4 x 2 1/4 x 3/32	R107	K-Side
		L17BX				Z17BX33		1 1/4 x 2 1/4 x 3/32	R107	K-Side
17A				J17H				1 1/4 x 2.164 x 3/32	Spec.	
								1 1/4 x 2 3/8 x 3/32	R108	O-Side
				J17E				1 3/8 x 2 x .345	R106	K-Side
18C		L18E		J18E				1 3/4 x 2 x 3/32	R106	K-Side
		L18C		J18CT				1 3/4 x 2 x 3/32	R106	K-Side
				J18CT10				1 3/4 x 2 1/8	R106	K-Side
				J18CX				1 3/4 x 2.015 x 3/32	R106	K-Side
				J18CR19				1 3/4 x 2 x 3/32	R106	K-Side
18D		L18D						1 3/4 x 2.024 x 15/64	Spec.	
18		L18				Z18R		1 3/4 x 2 1/8 x 3/32	R107	O-Side
		L18+10				Z18R10		1 3/4 x 2 1/4 x 3/32	R107	K-Side
18U		L18U		J18U		Z18U		1 3/4 x 2.140 x 3/4	R107†	K-Side
						Z18U10		1 3/4 x 2 1/4 x 3/32	R107	K-Side
18B		L18B				Z18X33		1 3/4 x 2.140 x 3/32	R107	K-Side
18BX		L18BX				Z18X33		1 3/4 x 2.164 x 3/32	Spec.	
18A		L18A				Z18BX10		1 3/4 x 2 3/8 x 3/32	R108	O-Side
						Z18BX10		1 3/4 x 2.2025 x 3/32	R108†	O-Side
						Z18DJ15		1 3/4 x 2 1/4 x 3/32	R108	K-Side
								1 3/8 x 2.081 x 1/4	R107§	O-Side
				J18HT53				1 3/8 x 1.995 x .300	Spec.	
19E				J19E				1 1/2 x 2 x 3/32	R106	K-Side
19C		L19D		J19C				1 1/2 x 2 1/8 x 3/32	R107	O-Side
		L19C						1 1/2 x 2 1/4 x 3/32	R107	K-Side
		L19C+10		J19R				1 1/2 x 2.140 x 1/4	R107†	K-Side
19		L19						1 1/2 x 2 1/8 x 3/32	R108	O-Side
19Y						Z19V		1 1/2 x 2 3/8 x 3/32	R108	O-Side
						Z19Y10		1 1/2 x 2.2025 x 1/2	R108†	O-Side
19B				J19BX		Z19BX		1 1/2 x 2 1/4 x 3/32	R108	K-Side
19A								1 1/2 x 2 1/4 x 3/32	R108	K-Side
19F				J19T28				1 1/2 x 2 3/8 x 3/32	R109	O-Side
				J20B				1 1/2 x 2 3/8 x 3/32	R109	K-Side
20B								1 1/2 x 2.220 x 3/32	Spec.	
20D								1 1/2 x 2 1/8 x 1/4	R107	K-Side
20		L20						1 1/2 x 2 1/8 x 3/32	R108	O-Side
		L20U				Z20U		1 1/2 x 2 1/4 x 3/32	R108	K-Side
						Z20U10		1 1/2 x 2.265 x 3/8	R108†	K-Side
20C								1 1/2 x 2 3/8 x 3/32	R109	O-Side
		L20CX						1 1/2 x 2 3/8 x 3/32	R109	O-Side
20A								1 1/2 x 2 3/8 x 3/32	R109	O-Side
20E				J20FY10		Z20FY10		1 1/2 x 2 1/4 x 3/32	R109	K-Side
								1 1/2 x 2.5785 x 1/2	R110	K-Side
				J21E14				1 1/2 x 2.206 x 3/32	Spec.	
21DR				J21DR				1 1/2 x 2 1/4 x 3/32	R108	K-Side
21D								1 1/2 x 2 1/4 x 3/32	R108	K-Side
21		L21						1 1/2 x 2 1/4 x 3/32	R108	K-Side
21B		L21B						1 1/2 x 2 3/8 x 3/32	R109	O-Side
21A								1 1/2 x 2 3/8 x 3/32	R109	K-Side
21C								1 1/2 x 2 3/8 x 3/32	R110	O-Side
								1 1/2 x 2 1/4 x 3/32	R110	K-Side
22E		L22E		J22ETH				2 x 2 1/4 x 3/32	R108	K-Side
				J22ETH15				2 to 2 1/4 taper		
								x 2 3/8 x 1/4	R108	K-Side
								2 to 2 1/4 taper		
								x 2.301 x 1/4	R108	K-Side
22D		L22D						2 x 2 3/8 x 3/32	R109	O-Side
22R								2 x 2 3/4 x 3/32	R109	K-Side
22		L22						2 x 2 3/4 x 3/32	R109	K-Side
22U		L22U						2 x 2 3/4 x 3/32	R109	K-Side
22B		L22B						2 x 2 3/4 x 3/32	R109	K-Side
22A		L22A						2 x 2 3/4 x 3/32	R110	O-Side
		L22AY		J22AY		Z22AY		2 x 2 1/2 x 3/32	R110	K-Side
		L22AY10				Z22AY10		2 x 2 1/2 x 1/2	R110	K-Side
22C								2 x 2.515 x 1/2	R110†	K-Side
								2 x 2 1/2 x 3/32	R111	O-Side

Overize Resenter Shank must be used. (*) .005 oversize shank. (†) .010 oversize shank. (§) .015 oversize shank. (‡) .020 oversize shank. (†) .030 oversize shank. (¶) .045 oversize shank. Shanks are available for cutting .005, .010, .015, .020, .030, .045 oversize recess using standard cutters.

Cast Iron		Lee-Alloy		Chromalloy		Lee-Lite		Insert Dimensi	Ring ons	Cutter No	Shank Side
Ring No	Price Each	Ring No	Price Each	Ring No	Price Each	Ring No	Price Each				
						Z22AZH		2 1/2 x 2 1/2 x 3 1/4		R110	K-Side
						Z22AZH30		2 1/2 x 2.535 x 3 1/4		R110†	K-Side
23B								2 1/8 x 2 1/8 x 5/16		R109	K-Side
23		L23		J23				2 1/8 x 2 1/8 x 5/16		R110	O-Side
24R		L24R						2 1/8 x 2 1/2 x 1 1/4		R110	K-Side
24		L24						2 1/8 x 2 1/2 x 5/16		R110	K-Side
		L24Y						2 1/8 x 2 1/2 x 1 1/2		R110	K-Side
23A								2 1/8 x 2 1/8 x 5/16		R111	O-Side
24A		L24AU						2 1/8 x 2 1/8 x 5/16		R111	K-Side
				J24XY				2 1/8 x 2 1/8 x 1 1/8		R113	O-Side
								2 1/8 x 2 1/8 x 1 1/2		R113	O-Side
		L25EY37						2 1/8 to 2 1/2 taper x 2.4185 x 3 1/2		Spec.	
25C		L25C		J25CK				2 1/8 x 2 1/2 x 5/16		R110	K-Side
25		L25		J25		Z25		2 1/8 x 2 1/2 x 1 1/2		R110	K-Side
25B		L25B						2 1/8 x 2 1/2 x 5/16		R111	O-Side
25A								2 1/8 x 2 1/2 x 5/16		R111	K-Side
								2 1/8 x 2 1/2 x 5/16		R112	O-Side
		L26CU						2 1/8 x 2 1/2 x 3 1/4		R110	K-Side
26		L26		J26E2				2 1/8 x 2.569 x 1 1/4		Spec.	
26B								2 1/8 x 2 1/8 x 5/16		R111	K-Side
26A								2 1/8 x 2 1/8 x 5/16		R112	O-Side
								2 1/8 x 2 1/8 x 5/16		R112	K-Side
27C		L27C						2 1/4 x 2 1/8 x 5/16		R111	K-Side
27		L27						2 1/4 x 2 1/8 x 5/16		R112	O-Side
27B		L27BY		J27BY		Z27BY		2 1/4 x 2 1/4 x 5/16		R112	K-Side
						Z27BY10		2 1/4 x 2 1/2 x 1 1/2		R112	K-Side
27A								2 1/4 x 2.765 x 1 1/2		R112†	K-Side
27D		L27E						2 1/4 x 2 1/8 x 5/16		R113	O-Side
						Z27E10		2 1/4 x 2 1/8 x 5/16		R113	K-Side
								2 1/4 x 3 x 1 1/2		R114	K-Side
		L27EY6						2 1/2 to 2 1/2 taper x 2.5745 x 3 1/4		R114†	K-Side
28		L28						2 1/8 x 2 1/8 x 5/16		R112	K-Side
29								2 1/8 x 2 1/8 x 5/16		R113	O-Side
28A		L28A						2 1/8 x 2 1/8 x 5/16		R113	K-Side
29A								2 1/8 x 2 1/8 x 5/16		R114	O-Side
30		L30						2 1/8 x 2 7/8 x 1 1/8		R113	K-Side
30A		L30A						2 1/8 x 3 x 1 1/8		R114	K-Side
30D								2 1/8 x 3 1/8 x 1 1/8		R115	K-Side
31C								2 1/2 x 2 1/8 x 1 1/8		R113	K-Side
31								2 1/2 x 3 x 1 1/8		R114	K-Side
31A		L31B				Z31A		2 1/2 x 3 1/8 x 1 1/4		R115	O-Side
		L31A				Z31A10		2 1/2 x 3 1/8 x 1 1/8		R115	K-Side
				J31AU				2 1/2 x 3.140 x 3/8		R115†	K-Side
31AY				J31AY				2 1/2 x 3 1/8 x 1 1/2		R115	K-Side
								2 1/2 x 3 1/2 x 5/16		R118	K-Side
32								2 5/8 x 3 1/8 x 1 1/8		R115	K-Side
32C								2 5/8 x 3 1/8 x 1 1/8		R116	O-Side
		L32CZ						2 5/8 x 3 1/8 x 5/16		R116	O-Side
		L32CZ10						2 5/8 x 3.1025 x 3/16		R116†	O-Side
		L32CZ20						2 5/8 x 3.2125 x 3/16		R116‡	O-Side
32A								2 5/8 x 3 1/4 x 1 1/8		R116	K-Side
33		L33BX				Z33BX		2 3/4 x 3 1/4 x 1 1/8		R116	K-Side
						Z33BX10		2 3/4 x 3 1/8 x 1 1/8		R117	O-Side
33A								2 3/4 x 3.3275 x 1 1/16		R117†	O-Side
								2 3/4 x 3 1/8 x 1 1/8		R117	K-Side
34								2 7/8 x 3 1/8 x 1 1/8		R117	K-Side
34A								2 7/8 x 3 1/2 x 1 1/8		R118	K-Side
35								3 x 3 1/4 x 1 1/2		R118	K-Side
35A				J35AY				3 x 3 3/8 x 1 1/8		R119	K-Side
								3 x 3 1/4 x 1 1/2		R120	K-Side
36								3 1/8 x 3 3/4 x 1 1/2		R120	K-Side

Oversize Reseater Shank must be used. (*) .005 oversize shank. (†) .010 oversize shank. (§) .015 oversize shank. (‡) .020 oversize shank. (¶) .030 oversize shank. (¶) .045 oversize shank. Shanks are available for cutting .005, .010, .015, .020, .030, .045 oversize recess using standard cutters.

REPLACEABLE VALVE GUIDES



Popularity Rating	Part No.	A I.D.	B O.D.	C Lgth.	Popularity Rating	Part No.	A I.D.	B O.D.	C Lgth.	Popularity Rating	Part No.	A I.D.	B O.D.	C Lgth.
26	GL1240	.250	.439	2 1/4	1	GL1345	.3435	.502	2 1/4	6	G1375	.3735	.502	2 1/4
32	GL 1240	.250	.439	2 1/4	1	GL1345	.3435	.502	2 1/4	5	GL1375	.3735	.502	2 1/4
36	GL1275	.275	.498	2 1/4	3	G1340	.3435	.502	2 1/4	16	G1370	.3745	.502	2 1/4
25	GL1276	.2756	.397	1 1/4	2	GL1340	.3435	.502	2 1/4	26	GL1370	.3745	.502	2 1/4
9	G1310	.3115	.439	1 1/4	7	G1342	.3435	.502	2 1/4	14	G1376	.3745	.502	2 1/4
9	GL1310	.3115	.439	1 1/4	6	GL1342	.3435	.502	2 1/4	12	GL1376	.3745	.502	2 1/4
23	GL1313	.3115	.439	2 1/4	4	G1343	.3435	.502	2 1/4	21	G1381	.3745	.502	2 1/4
13	G1311	.3115	.439	2 1/4	8	GLT 343	.3435	.502	2 1/4	17	G1371	.3745	.502	2 1/4
13	GL1311	.3115	.439	2 1/4	2	G1344	.3435	.502	2 1/4	17	GL1371	.3745	.502	2 1/4
22	G1309	.3115	.439	2 1/4	3	GL1344	.3435	.502	2 1/4	12	G1377	.3745	.502	2 1/4
33	GL1312	.315	.439	2 1/4	27	GL1346	.3435	.518	2 1/4	14	GL1377	.3745	.502	2 1/4
10	GL1315	.315	.476	2 1/4	20	GL1348	.345	.502	2 1/4	24	G1372	.3745	.6263	2 1/4
28	G1318	.315	.477	2 1/4	27	G1341	.3436	.6578	2 1/4	30	GL1372	.3745	.6263	2 1/4
28	GL1318	.315	.477	2 1/4	29	GL1341	.3436	.6578	2 1/4	29	G1390	.3973	.6578	2 1/4
35	GL1319	.315	.486	2 1/4	10	G1369	.372	.502	2 1/4	34	GL1390	.3973	.6578	2 1/4
25	G1316	.3115	.502	1 1/2	15	GL1378	.373	.625	2 1/4	20	G1431	.437	.6265	2 1/4
23	G1317	.3125	.502	1 1/4	16	GL1379	.373	.620	2 1/4	22	GL1431	.437	.6265	2 1/4
18	GL1347	.3427	.502	3 1/4	8	G1373	.3735	.502	2 1/4	19	G1430	.437	.6265	2 1/4
11	G1339	.343	.502	2 1/4	7	GL1373	.3735	.502	2 1/4	19	GL1430	.437	.6265	2 1/4
24	GL1349	.343	.565	2 1/4	5	G1374	.3735	.502	2 1/4	11	GL1432	.437	.6265	3 1/4
31	GL1350	.343	.565	3 1/4	4	GL1374	.3735	.502	2 1/4	18	G1433	.437	.6265	3
					15	G1380	.3735	.502	2 1/4	21	GL1435	.4385	.6895	3 1/4

VALVE GUIDE APPLICATION DATA

THE VALVE GUIDES LISTED ARE OUR "GL LEE-ALLOY" SERIES MADE OF A DENSE LONGER WEARING ALLOY METAL. MOST OF THESE SIZES ARE ALSO AVAILABLE IN CAST IRON "G" SERIES.

Year	Model	Valve Guides		Roughing Reamer	Finishing Reamer	Pilot Size	Pilot No.	Valve Guide Driver	Valve Guide Reamer
		Intake	Exhaust						
BUICK									
1954-66	All Models Except Special and 300 Engine	GL1372	GL1372	Not Req.	Not Req.	3/8	Not Req.	G2376	H1375
1965-67	300, 340 Engines	GL1345	GL1342	H8494 1/8	H7500	1/2	P84L	G2343	H1343
1968-75	250 Engine	G1339	GL1345	H8494 1/8	H7500	1/2	P84L	G2343	H1343
1971-75	350 Engine	GL1376	GL1376	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1971-75	455 Engine	GL1376	GL1371	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1974-75	231 Engine	GL1342	GL1342	H8494 1/8	H7500	1/2	P84L	G2343	H1343
1975	260 V-8 Engine	GL1348	GL1348	H8494 1/8	H7500	1/2	P84L	G2343	H 1343
BRIGGS AND STRATTON AND CLINTON									
1954-62	All Models 1/2" Stem No Factory Guide	GL1240	GL1240	H8432 1/4	H7437	1/4	P95L	G2250	H1250
CHEVROLET									
1941-63	216, 235 Six-Cylinder Engines	GL1350	GL1349	Not Req.	Not Req.	1/2	Not Req.	G2343	H1343
1955-70	153, 194, 230, 250, 265, 283, 307, 327 Engines	GL1345	GL1340	H8494 1/8	H7500	1/2	P84L	G2343	H1343
1958-62	All 348, 409 Engines	GL1376	G1380	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1960-63	Corvaire (Replaceable Guides)	GL1346	GL1346	Not Req.	Not Req.	1/2	Not Req.	G2343	H1343
1962-75	Chevy II, 230, 250, 292, 307, 350, 400	G1339	GL1345	H8494 1/8	H7500	1/2	P84L	G2343	H1343
1971-75	307, 350	GL1345	GL1345	H8494 1/8	H7500	1/2	P84L	G2343	H1343
1965-71	396, 427 with Replaceable Guides	GL1378	GL1379	Not Req.	Not Req.	3/8	Not Req.	G2375	H 1373
1966-75	366, 427 without Guides	GL1374	GL1375	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1965-71	396, 427 with Aluminum Head	GL1378	GL1378	Not Req.	Not Req.	3/8	Not Req.	G2375	H1373
1971-75	350 with 1/2" Exhaust	GL1345	GL1370	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1970-75	454 Engine	GL1374	G1380	H8494 1/8	H7500	3/8	P85L	G2375	H1375
CHRYSLER CORPORATION ENGINES									
1954-56	260, 270, 315, 325 Engines	GL1370	GL1370	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1956-67	277, 301, 318, 326 Engines	GL1371	GL1376	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1958-73	331, 350, 354, 361, 383, 413 Engines (D500-354 Takes GL1377), 440	GL1376	GL1376	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1956-58	325 Engine (D500)	GL1371	GL1371	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1960-75	Valiant and Lancer, 170, 225	G1381	G1381	H8494 1/8	H7500	3/8	P85L	G2375	H1375
1964-69	426 Engine	G1309	GL1313	H8432 1/4	H7437	1/4	P83L	G2312	H1312
1961-75	HT413 Industrial with Replaceable Guides		GL1435	Not Req.	Not Req.	1/4	Not Req.	G2437	

NOTE: H310G 1/2 Round Drive and H310B 1/2 Reaming Bushing are used with Roughing and Finishing Reamers. Use a 1/2" drill for power, as a power unit with a bout 400 R.P.M. is required. Roughing Reamer operation is followed with a Finishing Reamer. After Guide has been installed, H1000 Series Solid Reamers as listed in extreme right column above, may be used to ream I.D. of Guide.

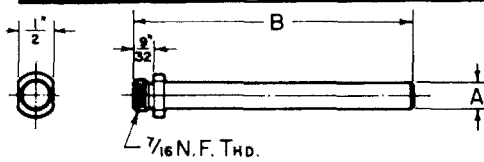
VALVE GUIDE APPLICATION DATA (Cont.)

THE VALVE GUIDES LISTED ARE "GL LEE-ALLOY" SERIES MADE OF A DENSE LONGER WEARING ALLOY METAL. MOST OF THESE SIZES ARE ALSO AVAILABLE IN CAST IRON "C" SERIES.

Year	Model	Valve Guides		Roughing Reamer	Finishing Reamer	Pilot Size	Pilot No	Valve Guide Driver	Valve Guide Reamer	
		Intake	Exhaust							
FORD COMPANY ENGINES										
1954-62	6 Cyl. Pass. and Trucks; 223 Eng.; and 279 V8 Truck	GL1342	GL1342	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1954-55	V8 Passenger and Trucks; 239, 256 Engines	GL1340	GL1343	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1955-59	V8 Passenger and Trucks; 272, 292, 312 Engines	GL1340	GL1342	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1960-62	V8 Passenger and Trucks; 272, 292, 312 Engines	GL1342	GL1343	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1957-73	332, 352, 360, 390, 406, 410, 427, 428 Engines	G1369	GL1374	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1373	
1958-67	383, 430, 462 Engines	GL1375	GL1373	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1373	
1960-75	All Models; 144, 170, 200, 250 Engines	GL1310	GL1310	H8432 ³ / ₈	H7437	³ / ₈	P83L	G2312	H1312	
1965-67	330EFU, 330CID M.D., 330CID H.D.	GL1374	GL1374	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1373	
1956-57	H. D. Truck with Sodium Valves; 272, 292 Engines	GL1345	GL1431	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
	EXHAUST			H8619 ³ / ₈	H7625	³ / ₈	P86	G2437	H1437	
1956-57	H. D. Truck; 302, 332 Engines	GL1340	GL1431	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1958-67	H. D. Truck; 302, EFV330, 332, 361, 391 Engines	GL1374	GL1431	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1373	
	EXHAUST			H8619 ³ / ₈	H7625	³ / ₈	P86	G2437	H1437	
1958-67	H D Truck; 401, 477, 534 Engines	GL1430	GL1433	H8619 ³ / ₈	H7625	³ / ₈	P86	G2437	H1437	
1964-75	Passenger & Truck; 240, 300, 302, 289, 351 Engs.	G1339	GL1345	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1962-64	221, 260	GL1313	GL1313	H8432 ³ / ₈	H7437	³ / ₈	P83L	G2312	H1312	
1969-75	400, 429, 460 CID	GL1340	GL1340	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1970-75	351 Windsor 2V	GL1345	GL1345	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1970-75	351 Cleveland	GL1340	GL1340	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1970-75	351 CID 4V	GL1340	GL1345	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1970-73	429 Boss	GL1374	GL1374	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1373	
GMC TRUCKS										
1955-59	324, 370 Engines	GL1341	GL1390	Not Req.	Not Req.	Int. ¹ / ₂	Not Req.	G2344	H1343	
						Exh. .397	Not Req.	G2397	H 1397	
1955-60	All V8 with 288, 316, 347 Engines	GL1344	GL1342	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
1957-59	All V8 with 336 Engine	GL1340	GL1375	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343		
1960-71	All V6 with 305 Engine	GL1344	GL1347	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1960-71	All V6 with 351, 401, 702 Engines	GL1377	GL1432	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1 375	
	EXHAUST			H8619 ³ / ₈	H7625	³ / ₈	P86	G2437	H1437	
1963-71	153, 194, 230, 250, 292	GL1345	GL1345	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
1973-74	379, 432 and 478M	GL1371	GL1432	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1375	
	EXHAUST			H8619 ³ / ₈	H7625	³ / ₈	P86	G2437	H 1437	
OLDSMOBILE										
1954-63	All Models (with Replaceable Guides)	GL1341	GL1390	Not Req.	Not Req.	Int. ¹ / ₂	Not Req.	G2344	H1343	
						Exh. .397	Not Req.	G2397	H1397	
1964-67	225 Engine	GL1340	GL1340	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
1968-71	250 Engine	G1339	G1339	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
1965-75	260, 330, 350, 440, 425, 455, 455 Irrig.	GL1348	GL1348	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343		
PONTIAC										
1955-60	All V8's	GL1342	GL1344	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1961-63	All V8's and 4 Cylinder Tempest	GL1345	GL1340	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1963-66	421 H. O. Engine, 389	GL1345	GL1345	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H1343	
1966-67	230 Engine	GL1345	GL1340	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
1966-75	326, 400 Engines	GL1345	GL1344	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
1970-75	455 Engine	GL1348	GL1348	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
RAMBLER										
1959-75	Aluminum OHV, 6 Cylinder	GL1345	GL1345	H8494 ¹ / ₂	H7500	¹ / ₂	P84L	G2343	H 1343	
VOLKSWAGEN										
1953-60	All Models, 36 H.P. (Replaceable Guides)	GL1276	GL1276	Not Req.	Not Req.	7M M	Not Req.	G2275	H 1275	
1960-73	All Models, 40 H.P. (Replaceable Guides)	GL1315	GL1315	Not Req.	Not Req.	8MM	Not Req.	G2312	H1315	
	Oversize Guides G1318, GL1318 and GL1319 are available. See sizes in chart on reverse side of this sheet.									
WAUKESHA										
ICK Model		G1317	G1316	H8432 ³ / ₈	H7437	³ / ₈	P83L	G2312	H1312	
WISCONSIN										
ACN, BKN, VH4, VE4, VF4, TE, TF		GL1310	GL1310	H8432 ³ / ₈	H7437	³ / ₈	P83L	G2312	H1312	
AGN, AHH, VG4D		GL1311	GL1311	H8432 ³ / ₈	H7437	³ / ₈	P83L	G2312	H1312	
VR4D, VQ4, VR4		GL1377	GL1377	H8494 ¹ / ₂	H7500	³ / ₈	P85L	G2375	H1375	

NOTE: H310G¹/₂ Round Drive and H310B³/₈ Reaming Bushing are used with Roughing and Finishing Reamers. Use a ¹/₂" drill for power, as a power unit with about 400 R.P. M. is required. Roughing Reamer operation is followed with a Finishing Reamer After Guide has been installed. H1000 Series Solid Reamers as listed in extreme right column above, may be used to ream I.D. of Guide.

RESEATER PILOTS



Part No.	Size "A"	Decimal Equival.	Length "B"	Part No.	Size "A"	Decimal Equival.	Length "B"
R208M34	5.5MM	.2165	4	R213M12	10MM	.3937	4
R208M14	6MM	.2362	4	R213M9	3/32-.009	.3975	4
R208	3/8	.250	4	R213M2	3/32-.002	.40425	4
R208S	1/2	.250	2 1/2	R212P30	3/4+.030	.405	4
P208P6	6.5MM	.2559	3	R213	3/32	.40625	5
R209M5	7MM	.2756	4	R213P10	3/32+.010	.41625	5
R209	3/8	.28125	4	R214M5	11MM	.4325	5
R209S	1/2	.28125	2 1/2	R214M2	3/8-.002	.4355	5
R209P15	7.5MM	.2953	4	R214M1	3/8-.001	.4365	5
R210M2	3/4-.002	.3105	4	R214	3/4	.4375	5
R210M1	3/4-.001	.3115	4	R214P1	3/4+.001	.4385	5
R210	3/4	.3125	4	R214P2	3/4+.002	.4395	5
R210P1	3/4+.001	.3135	4	R214P15	3/4+.015	.4525	6
R210P2	3/4+.002	.3145	4	R215	3/2	.6875	5
R210P3	8MM	.315	4	R215P3	12MM	.4724	5
R210P4	3/4+.004	.3165	4	R216M2	3/2-.002	.498	5
R210P15	3/4+.015	.3275	4	R216M1	3/2-.001	.499	5
R210P30	3/4+.030	.342	4	R216	3/2	.500	5
R211M9	8.5MM	.3317	4	R216P1	3/2+.001	.501	5
R211M3	3/8-.003	.34075	4	R216P2	3/2+.002	.502	5
R211M2	3/8-.002	.34175	4	R217M1	3/8-.001	.53025	5
R211M1	3/8-.001	.34275	4	R217	3/8	.53125	5
R211	3/8	.34375	4	R217P1	3/8+.001	.53225	5
R211P1	3/8+.001	.34475	4	R218	3/8	.5625	5
R211P2	3/8+.002	.34575	4	R218P1	3/8+.001	.5635	5
R211P3	3/8+.003	.3467	4	R218P2	3/8+.002	.5645	5
R211P10	9MM	.3543	4	R219	3/4	.6875	5
R211P15	3/8+.015	.3577	4	R220	5/8	.6250	5
R211P30	3/8+.030	.372	4	R220P1	5/8+.001	.626	5
R212M2	3/4-.002	.373	4	R222	3/4	.6875	5
R212M1	9.5MM	.3740	3	R222P1	3/4+.001	.6885	5
R212	3/4	.3750	4	R222P2	3/4+.002	.6895	5
R212P1	3/4+.001	.376	4	R224	3/4	.7500	5
R212P2	3/4+.002	.377	4	R226	3/4	.8125	5
R212P5	3/4+.005	.380	4	R227P6	3/8+.006	.850	2 1/2
R212P15	3/4+.015	.3900	4	R233	1 1/2	1.03125	2 1/4

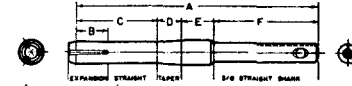
RESEATER CUTTERS

There are no adjustments to be made; simply insert cutter in Reseater Shank, press firmly against shoulder of the cutter and lock with set screw.

Cutter No.	Ring Diameters O-side K-side	Cutter No.	Ring Diameters O-side K-side	Cutter No.	Ring Diameters O-side K-side
*R98	3/8" 1"	R106	1 1/8" 2"	R114	2 1/4" 3"
*R99	1 1/4" 1 1/2"	R107	2 1/8" 2 1/4"	R115	3 3/8" 3 3/4"
R100	1 1/2" 1 3/4"	R108	2 3/8" 2 3/4"	R116	3 3/4" 3 3/4"
R101	1 3/4" 1 3/4"	R109	2 3/8" 2 3/4"	R117	3 3/4" 3 3/4"
R102	1 3/4" 1 3/4"	R110	2 3/8" 2 3/4"	R118	3 3/4" 3 3/4"
R103	1 3/4" 1 3/4"	R111	2 3/8" 2 3/4"	R119	3 3/4" 3 3/4"
R104	1 3/4" 1 3/4"	R112	2 3/8" 2 3/4"	R120	3 3/4" 3 3/4"
		R113	2 3/8" 2 3/4"		

*R98 and R99 cutters are now obsolete. The R712 special reseater shank and special cutters R730, R732, R734, R736 are used to cut the recesses formerly cut with the R98 and R99 cutters.

SELF EXPANDING PILOTS



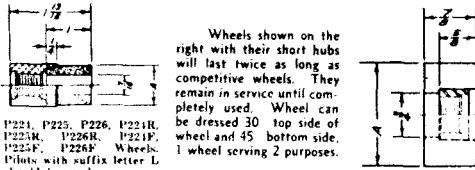
Part No.	Pilot Size	A	C	D	E	F
P85S	3/4	4 1/2	1 3/4	3/4		3
P85	3/4	5 1/8	1 3/8	3/4		3 3/8
P85L	3/4	6 1/8	1 3/8	3/4		4 3/8
P86S	3/8	4 7/8	1 3/8	3/4		3
P86	3/8	5 1/4	1 3/8	3/4		3 3/8
P86L	3/8	6 1/4	1 3/8	3/4		4 3/8
P88S	3/8	4 1/2	1 1/4	3/4		2 3/8
P88	3/8	5 1/4	1 1/4	3/4		2 3/8
P88R	3/8+.015	5 1/4	1 3/4	3/4		2 3/8
P88RL	3/8+.015	6 1/4	1 3/4	3/4	1/2	3 1/4
P88L	3/8	6 1/4	1 3/4	3/4		3 1/4
P84S	3/8	4 1/2	1 1/4	3/4		2 3/8
P84	3/8	5 1/4	1 1/4	3/4		2 3/8
P84M	3/8	4 1/2	1 1/4	3/4		1 3/8
P84L	3/8	6 1/4	1 1/4	3/4		3 3/8
P84R	3/8+.015	5 1/4	1 3/4	3/4		2 3/8
P84RL	3/8+.015	6 1/4	1 3/4	3/4		3 3/8
P85S	3/8	4 1/2	1 1/4	3/4		2 3/8
P85F	.370	5 1/2	2	3/4		3
P85	3/8	5 1/2	2	3/4		3
P85R	3/8+.015	5 1/2	2	3/4		3
P85RL	3/8+.015	7	2	3/4	3/8	3 3/8
P85L	3/8	7	2	3/4		3 3/8
P97R	.397	5 3/4	1 3/4	3/4		3 3/8
P97	3/8	6	2	3/4		3 3/8
P97M	3/8	7 1/4	2 1/4	3/4	1/2	3 3/8
P97RM	3/8+.010	7 1/4	2 1/4	3/4	1/2	3 3/8
P97L	3/8	8 1/4	2 1/4	3/4	1 1/2	3 3/8
P86S	3/8	5 1/4	1 3/4	3/4		3
P86	3/8	6 1/4	2 1/4	3/4		3
P86M	3/8	7 3/4	2 1/4	3/4	3/8	3 3/8
P86RM	3/8+.015	7 3/4	2 1/4	3/4	3/8	3 3/8
P86L	3/8	8 1/4	2 1/4	3/4	1 1/4	3 3/8
P84M	3/8	7 3/4	2 1/4	3/4	3/8	3 3/8
P87S	3/8	6 1/4	2	3/4		3 1/2
P87	3/8	6 1/4	2 1/4	3/4		3 1/2
P87L	3/8	8 1/4	2 1/4	3/4	1 3/8	3 1/2
P87M	3/8	7 1/4	2 1/4	3/4	3/8	3 1/2
P93	3/8	6 1/4	2 1/4	3/4		3 1/2
P88	3/8	6 1/4	2 1/4	3/4		3
P88M	3/8	7 1/4	2 1/4	3/4	3/8	3 3/8
P88L	3/8	8	2 1/4	3/4	1	3 3/8
P92	3/8	5 1/4	1	3/4	3/8	3
P89	3/8	6 1/4	2 1/4	3/4		3
P98	3/8	6 1/4	2 1/4	3/4		3
P98L	3/8	8 1/4	2 1/4	3/4	1 1/4	3 1/2
P99	3/8	6 1/4	2 1/4	3/4		3 1/2
P91L	1 1/8	4 3/4	3/4	3/4		3 1/2
P8216S	5 1/2MM	4 3/8	3/8	3/4		2 3/8
P8216	5 1/2MM	4 3/8	1 1/4	3/4		3
P8236	6MM	4 3/8	3/8	3/4		2 3/8
P8208	6MM	4 3/8	3/8	3/4		2 3/8
P8255	6 1/2MM	4 3/8	1 3/8	3/4		2 3/8
P8275	7MM	4 3/8	1 3/8	3/4		2 3/8
P8285	7 1/2MM	5 3/8	1 3/8	3/4		3
P8315	8MM	5 3/8	1 3/8	3/4		3
P8334	8 1/2MM	5 3/8	1 3/8	3/4		3
P8354	9MM	5 3/8	1 3/8	3/4		3
P8374	9 1/2MM	5 3/8	2	3/4		3
P8393	10MM	5 3/8	2	3/4		3
P8433	11MM	5 3/8	1 1/4	3/4		3
P8472	12MM	6 3/8	2 1/4	3/4		3 1/2
P8820	.820	4 3/4	3/4	3/4		3 1/2

P90 .850" Special Pilot for Ford V-8 60.

P91 1-1/32"x1" Special Pilot for Ford V-8 for use when lifters are removed from engine.

Each pilot ranges from -.003" to +.007" of basic range stamped on pilot. One pilot does the work of several solid type pilots.

VALVE SEAT GRINDING WHEELS



Wheels shown on the right with their short hubs will last twice as long as competitive wheels. They remain in service until completely used. Wheel can be dressed 30 top side of wheel and 45 bottom side. 1 wheel serving 2 purposes. Pilots with suffix letter L should be used.

GENERAL PURPOSE	FINISHING WHEELS	ROUGHING WHEELS	A-DIAM.	GENERAL PURPOSE	FINISHING WHEELS	ROUGHING WHEELS	A-DIAM.
P224	P224F	P224R	1 1/8"	P238	P238F	P238R	1 1/2"
P225	P225F	P225R	1 1/8"	P239	P239F	P239R	1 1/2"
P226	P226F	P226R	1 1/4"	P240	P240F	P240R	1 1/4"
P227	P227F	P227R	1 1/4"	P241	P241F	P241R	1 1/4"
P228	P228F	P228R	1 1/2"	P242	P242F	P242R	1 1/2"
P229	P229F	P229R	1 3/8"	P243	P243F	P243R	2"
P231	P231F	P231R	1 3/8"	P245	P245F	P245R	2 1/4"
P232	P232F	P232R	1 3/4"	P247	P247F	P247R	2 1/4"
P233	P233F	P233R	1 3/4"	P251	P251F	P251R	2 1/2"
P234	P234F	P234R	1 7/8"	P255	P255F	P255R	2 3/4"
P235	P235F	P235R	1 7/8"	P259	P259F	P259R	3"
P236	P236F	P236R	1 7/8"	P261	P261F	P261R	3 1/4"
P237	P237F	P237R	1 7/8"	P263	P263F	P263R	3 1/2"

GRINDING WHEELS FOR STELLITE

No.	A-Diam.	No.	A-Diam.	No.	A-Diam.	No.	A-Diam.
P231S	1 1/8"	P237S	1 3/8"	P243S	2"	P251S	2 1/2"
P233S	1 1/4"	P239S	1 3/4"	P245S	2 1/4"	P255S	2 3/4"
P235S	1 1/2"	P241S	1 1/4"	P247S	2 1/4"	P259S	3"

Wheel shave 1/16"-16thd. All other wheels have 1/16"-16thd. Sioux, Skil, Thor, U. S. Electric Tool also have 1/16"-16thd. Wheels with 1/4" S.A.E. threads can be used on 1/2" threaded end holders and those made by other manufacturers such as Black and Decker, by using a No. P190B Bushing 1/2" to 1/2". This bushing is furnished no charge to purchasers of wheels. Wheels P224, P225, P226, P227, P228, P229 are designed for small engine service.

GENERAL PURPOSE

Grinding Wheels For Kwik-Way

WHEELS HAVE 12/16"-13 TAPER

No.	A-Diam.	No.	A-Diam.	No.	A-Diam.	No.	A-Diam.
P236K	1 1/8"	P241K	1 1/4"	P247K	2 1/4"	P259K	3"
P237K	1 1/8"	P243K	2"	P251K	2 1/2"	P261K	3 1/4"
P239K	1 1/4"	P245K	2 1/4"	P255K	2 3/4"	P263K	3 1/2"

VALVE REFACERS

Specifications

Apply To Standard and Deluxe Heavy Duty Models

VALVE STEM CAPACITY

RANGE AND LENGTH OF COLLET

- $\frac{3}{32}$ " to $\frac{3}{16}$ " x 3" long with K43D collet (standard equipment)
- $\frac{3}{32}$ " to $\frac{1}{8}$ " x 2 $\frac{1}{4}$ " long with K43CL collet (extra equipment)
- K43CL Collet used to service Falcon, Comet, Corvaire and Oldsmobile F85 valves
- $\frac{1}{8}$ " to $\frac{3}{16}$ " x 1 $\frac{3}{4}$ " long with K43CS collet (extra equipment)
- $\frac{1}{4}$ " to $\frac{3}{8}$ " x 1 $\frac{3}{4}$ " long with K43C collet (extra equipment)
- $\frac{1}{2}$ " to $\frac{3}{4}$ " x 3" long with K43E collet (extra equipment)

VALVE HEAD CAPACITY

Valve heads up to 4" (within valve stem range)

VALVE FACE ANGLES

Zero to 90 degrees with minus one degree setting and positive stop

WEIGHT

Standard Model, Net Wt. 128 pounds, Shipping Wt. 152 pounds
 Deluxe Heavy Duty Model, Net Wt. 162 pounds, Shipping Wt. 205 pounds

STANDARD EQUIPMENT

- K43D Double-end collet, ($\frac{3}{32}$ " to $\frac{3}{16}$ " valve stem diameters)
- K832 Coolant Pump
- K434 Diamond Holder P176D Diamond Screw in Holder
- K436V V-Rest (only on machines without Butt Grinder)
- K450 Rocker Arm Grinding Attachment, cone type
- OV5GH80S 5" x $\frac{1}{2}$ " x $\frac{3}{8}$ " offset grinding wheel
- 2679 Pint Can Lee Concentrate

AVAILABLE EXTRA EQUIPMENT

- K436C Micrometer Butt Grinding Attachment (K403C Series)
- K535 Micrometer Butt Grinding Attachment (K500C Series)
- OV5GH80W 5" x $\frac{1}{2}$ " x $\frac{3}{8}$ " offset grinding wheel
- K37 Sharpening Fixture for Reseater Cutters
- K43CL Double-end collet ($\frac{3}{32}$ " to $\frac{1}{8}$ " valve stems) with K43PL spacer sleeve
- K43C Double-end collet ($\frac{1}{4}$ " to $\frac{3}{8}$ " valve stems) with K43P spacer sleeve
- K43CS Double-end collet ($\frac{3}{16}$ " to $\frac{3}{8}$ " valve stems) with K43P spacer sleeve
- K43E Double-end collet ($\frac{1}{2}$ " to $\frac{3}{4}$ " valve stems)
- K541 Air Chuck
- K575P Valve Wagon without castors
- K575WC Valve Wagon with castors
- K443HL Special workhead Range $\frac{3}{8}$ " to $\frac{3}{4}$ " stems, with straight through double-end ball collet
- RV4KH46 Grinding Wheel (for butt grinding attachments)
- 2639 Worm Gear Lubricant, Quart can
- 2699 Honing oil for valve refacers, Gallon can
- KVU1900 Plastic Cover

Models Available - Order By Stock Numbers

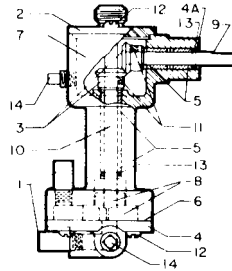
MODELS AVAILABLE	MOTOR 1/3 HP, 115V 1 Ph., 60 Cy. AC	MOTOR 1/3 HP, 230V 1 Ph., 60 Cy. AC	MOTOR 1/2 H.P., 115/230V, 1 Ph., 60 Cy., AC. Please specify voltage. Motors are dual voltage and can be changed in the field. Instructions on Motor.
Standard Series Without Micrometer Butt Grinding Attachment	K403C	K403D	K403H
Standard Series With Micrometer Butt Grinding Attachment	K403CM	K403DM	K403HM
Deluxe Series Without Micrometer Butt Grinding Attachment			K500H
Deluxe Series With Micrometer Butt Grinding Attachment			K500HM

VALVE REFACER REPAIR PARTS LIST

FOR MODELS K403C, K403D, K403CM, K403DM, K403H, K403HM

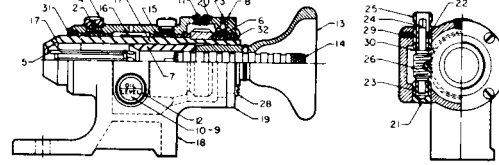
K532A FLUID PUMP ASSEMBLY

**OBSOLETE
USE FOR
PARTS SELECTION
ONLY**



Index No.	Part No.	Description	Quan Req.
1	K32D	Pipe	2
2	K432C	Cover	1
3	K432G	Gear	2
4	K532C	Impeller	1
4A	K532D	Quad. Ring Cage	2
5	K532E	Bushing	4
6	K532G	Gasket	2
7	K532H	Pump Housing	1
8	K532R	Impeller Shaft	1
9	K532S	Pulley	1
10	K532T	Impeller Shaft	1
11	10-32x ³ / ₁₆	Hex Socket Set Screw (Cup Pt.)	2
12	10-32x ¹ / ₂	Fill. Head Machine Screw (H. B.)	6
13	Q401Z	Quad. Ring	2
14	¹ / ₈	Pipe Plug	2

K443 WORKHEAD ASSEMBLY



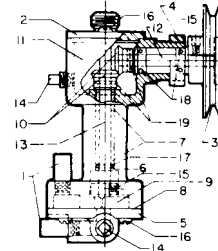
Index No.	Part No.	Description	Quan Req.
2	A260HS	Spring	2
3	A636P	Knurled Pin	1
4	B743H	Spring Plug	2
5	K43D	Collet	1
6	K43M	Comp. Spring	3
7	K43T	Cone Sleeve	1
8	K43Y	Gasket	1
9	K143HF	Reflector Plate (out 4-69)	1
10	K143HL	Oil Level Gauge (out 4-69)	1
11	P460S	Oil Plug	1
12	K143HR	Retainer Ring (out 4-69)	1
13	K143N	Hand Nut Assembly	1
14	K143NS	Stop	1
15	K443B	Spindle Bearing (part of K443HB)	1
16	K443F	Felt Oil Wick	1
17	K443GS	Gear and Spindle Assembly	1
18	K443HB	Housing with Spindle Bearing	1
19	K443J	Thrust Plate	1
20	K443L	Thrust Collar	1
21	K443P	Sleeve	1
22	K443RL	Worm Shaft Bushing	1
23	K443RS	Worm Shaft Bushing	1
24	K443S	Worm Shaft (part of K443WS)	1
25	K443T	Threaded Sleeve	1
26	K443WS	Worm and Shaft Assembly	1
28	10-32x ³ / ₁₆	Fill. Head Machine Screw	4
29	10-24x ³ / ₁₆	Headless Set Screw	2
30	No. 12 NF	Washer	1
31	2x1.600x ³ / ₁₆	W. Seal	1
32	2x1.500x ¹ / ₄	W. Seal	1
	B5095	Oil Window	1

K632 FLUID PUMP ASSEMBLY

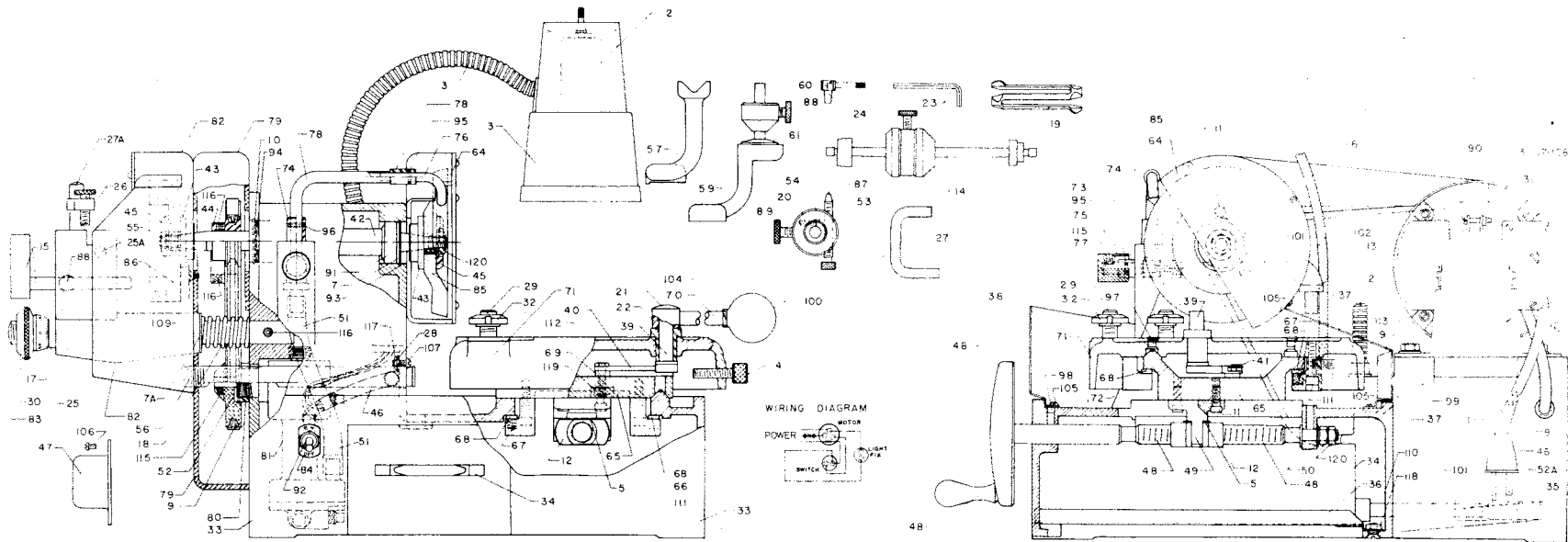
**OBSOLETE — USE FOR
PARTS SELECTION ONLY**

Index No.	Part No.	Description	Quan Req.
1	K32D	Pipe	2
2	K530L	Lock Nut	1
3	K532C	Impeller Cover	1
4	K532D	Quad. Ring Cage	2
5	K532G	Gasket	2
6	K632A	Axle for Bearings	1
7	K632B	Bracket	1
8	K632C	Cap	1
9	K632G	Hold Down Bar for Belt	1
10	K632H	Housing	1
12	K632P2	Pulley—Drive	1
13	K632P3	Pulley—Driven	1
14	K632P4	Pulley—Idler	2
15	K632R	Impeller	1
16	K632SL	Shaft—Drive Pulley	1
17	K632T	Shaft—Impeller	1
18	K632W	Washer	1
20	S840P	Plug	1
21	Q401Z	Quad Ring	1
22	¹ / ₈	Pipe Plug	2
23	10-32x ³ / ₁₆	Round Head Machine Screw (H. B.)	1
24	10-32x ¹ / ₂	Fill. Head Machine Screw (H. B.)	4
25	10-32x ³ / ₁₆	Hex Socket Cap Screw	2
26	10-32x ³ / ₁₆	Hex Socket Set Screw (Cup Pt.)	3
27	¹ / ₄ x ³ / ₈ NF	Flat Head Socket Cap Screw	1
28	S1PP7 or 77R4	Ball Bearing	4
29	39NPP or 39ZZ	Ball Bearing	2
30	9103KD	Ball Bearing	2
31	No. 46	O-Ring Belt	1
32	No. 10 Int.	Lock Washer (N. P.)	1

K832 FLUID PUMP ASSEMBLY



Index No.	Part No.	Description	Quan Req.
1	K32D	Pipe	2
2	K432C	Cover	1
3	K432P	Pulley (not included, identification only)	1
4	K530L	Lock Nut	1
5	K532C	Impeller Cover	1
6	K532D	Quad Ring Cage	1
7	K532E	Bushing	2
8	K532G	Gasket	2
9	K632R	Impeller	1
10	K832G	Miter Gear	2
11	K832H	Housing	1
12	K832S	Pulley Shaft	1
13	K832T	Impeller Shaft	1
14	¹ / ₈ Pipe	Plug	3
15	10-32x ³ / ₁₆	Hex Socket Set Screw (Cup Pt.)	2
16	10-32x ¹ / ₂	Fill. Head Machine Screw	6
17	Q401Z	Quad Ring (Q7)	1
18	F5DD	Ball Bearing—Flange Type	2
19	21-S-094-0625	Self Lock Spring Pin	2



Index No.	Part No.	Description	Quan. Req.
1	A127	Cord—115V	1
	A128	Cord—230V	1
2	A158-2	Socket	1
3	K437	Shade & Arm (late models)	1
4	A290AS	Adjusting Screw	1
5	A630H	Spacer	1
6	A3475Y	Flex Shaft (29")	1
7	B637W	Thrust Ring	2
7A	D368A	Washer	1
8	K5C	Grommet (out)	1
9	K5L	Collar (out)	1
10	K13Y	Adjusting Washer	4
11	K21	Special Screw (out 12-74)	7
12	K30N	Feed Nut	1
13	K32D	Pipe	1
14	K36D	Depth Gauge (out 12-74)	1
15	K36F	Fork Assembly	1
17	K36W	Keyed Washer	1
18	K536Y	Coil Spring	1
19	K43C	Collar $\frac{1}{2}$ to $\frac{3}{8}$ "	1
	K43CL	Collar $\frac{1}{2}$ to $\frac{3}{8}$ "	1
	K43CS	Collar $\frac{1}{2}$ to $\frac{3}{8}$ "	1
	K43D	Collar $\frac{1}{2}$ to $\frac{3}{8}$ " Std.	1
	K43E	Collar $\frac{1}{2}$ to $\frac{3}{8}$ "	1
20	K43M	Comp. Spring	1
21	K112C	Cap	1
22	K112H	Head	1
23	K112W	Hex Wrench	1
24	K115P	Pin Assembly	1
25	K536B	V-Block	1
25A	K536BS	Diamond Stud	1
26	K136C	Clamp Assembly	1
27	K136P	Stop	1
27A	K136BS	Shaft	1
28	EC8	Wire Clamp	1
29	K215T	Stud	2

Index No.	Part No.	Description	Quan. Req.
30	K536N	Micrometer Nut	1
31	K125M	Pulley $\frac{3}{4}$ " Bore x $1\frac{1}{2}$ " Dia. for Std. Mach. Univ. Mtr.	1
	K314P	Pulley $\frac{1}{2}$ " Bore x $\frac{1}{2}$ " Dia. for Standard Machine	1
	K314T	Pulley $\frac{3}{4}$ " Bore x $\frac{1}{2}$ " Dia. for Standard Machine	1
32	K350N	Stud Nut	1
	K350NL	Stud Nut	1
33	K405C	Base	1
34	K407	Fluid Tank	1
35	K407H	Hose $\frac{3}{4}$ -12 $\frac{3}{4}$	1
36	K407S	Slide	1
37	K408G	Splash Guard	1
38	K409G	Splash Guard	1
39	K411	Head and Shaft Assembly	1
40	K411L	Link	1
41	K411P	Knurled Pin	1
42	K413	Spindle	1
43	K413F	Wheel Flange	1
44	K413P	Pulley $\frac{3}{4}$ " Bore x $1\frac{1}{2}$ " Dia. for Standard Machine	1
	K413T	Pulley $\frac{3}{4}$ " Bore x 3" Dia. Used with Univ. Motor	1
45	K413W	Flange Washer	1
46	K414R	Motor Wire	1
47	K419C	Cap	1
48	K430	Feed Screw Assembly	1
49	K430D	Fork	1
50	K430W	Thrust Washer	2
51	K432B	Hose $1\frac{1}{2}$ x6	1
52	K432P	Pulley 3" Diameter	1
52A	K433W	Spring	1
53	K434C	Diamond Holder	1
54	K434P	Plug	1
55	K436N	Special Nut	1

Index No.	Part No.	Description	Quan. Req.
56	K436T	Drain Pipe	1
57	K436V	V-Rest	1
58	K443	Workhead Assembly	1
59	K450A	Swinging Arm	1
60	K450CT	Cone—Upper	1
61	K450CL	Cone—Lower	1
64	K508	Guard—Wheel	1
65	K510	Bottom Table	1
66	K510H	Hold Down	2
67	K510HS	Spring 8—.024, 8—.031	1
68	K510P	Slide Strip Assembly	4
69	K511K	Pivot Bushing	1
70	K512A	Lever Arm	1
71	K515	Top Table	1
72	K515H	Hold Down	2
73	K518B	Valve Body	1
74	K518C	Collar	1
75	K518K	Control Knob	1
76	K518N	Nozzle	1
77	K518S	Valve Shaft	1
78	K518T	Nozzle Tube	1
79	K519	Belt Guard, Std. Machine	1
	K519U	Belt Guard, Univ. Motor	1
80	K530L	Lock Nut	1
81	K832	Fluid Pump	1
82	K536G	Guard	1
83	K536FS	Micrometer Shaft	1
84	KO-19	Plate (Off-On)	1
85	QV5GH805	Grinding Wheel	1
86	RV4KH46	Grinding Wheel	1
87	P176D	Diamond Screw	1
88	S15	Thumb Screw	1
89	S25	Thumb Screw	1
90	Motor	Motor (Specify Voltage)	1

Index No.	Part No.	Description	Quan. Req.
91	202KLL3-F550000	Ball Bearing	2
92	7321K3	Toggle Switch	1
93	137	Truarc Ring—Int.	2
94	7Z	Adjusting Spring	2
95	8011	O-Ring	2
96	8110	O-Ring	1
97	501	$\frac{1}{4}$ Gits Oiler	4
98	521	$\frac{1}{4}$ Gits Oiler (Out)	1
99	1030	V-Belt	1
100	44E	Ball for Handle	1
101	$\frac{1}{2}$ Pipe	4" Long Nipple	2
102	$\frac{1}{2}$ Pipe	90° Elbow	2
103	$\frac{3}{4}$ Std.	Lock Washer	1
104	$\frac{3}{4}$ Std.	Lock Washer	1
105	10-32x $\frac{1}{4}$	Rd. Hd. Mach. Screw H.B.	4
106	10-32x $\frac{3}{8}$	Rd. Hd. Mach. Screw H.B.	3
107	6-32x $\frac{1}{2}$	Rd. Hd. Mach. Screw H.B.	1
108	10-32x $\frac{1}{2}$	Rd. Hd. Mach. Screw Br.	1
109	10-32x $\frac{1}{2}$	Flat Head Screw	1
110	$\frac{1}{2}$ -20x $\frac{1}{2}$	NC Fl. Machine Screw	1
111	$\frac{1}{2}$ x1 NF	Hex Socket Cap Screw	8
112	$\frac{1}{2}$ x1 NF	Hex Cap Screw	1
113	$\frac{3}{4}$ x $\frac{3}{4}$ NC	Hex Cap Screw H.B.	4
115	10-32x $\frac{3}{8}$	Socket Set Screw	1
116	$\frac{1}{4}$ x $\frac{3}{4}$ NC	Hex Socket Set Screw	1
117	10-32	Hex Nut	1
118	$\frac{1}{2}$ NC	Hex Nut	1
119	$\frac{1}{2}$ NF	Hex Nut—Jam	1
120	$\frac{3}{4}$ NF	Hex Nut—Jam H.B.	3
121	$\frac{3}{4}$ NF	Washer (H.B.)	4
	K5005B	Switch Box	1
	6623	Romex Connector $\frac{3}{4}$ "	1
	31881	Terminal—Lamp Cord	1
	31891	Terminal—Motor Cord	2

*NOTE—On Late Models K437 Shade and Arm. Base must be drilled and tapped $\frac{1}{4}$ " straight pipe thread to mount this light fixture on old machine.

TM 9-4910-641-14 & P

VALVE REFACERS

Overseas Service

If the product is intended for overseas service, the following replacement parts would be recommended, in addition to those extra items already specified in the invitation:

Item	Quantity	Part No.	Description
1.	2 Only	P176D	Diamond Nibbed Screw
2.	1 Only	RV4KH46	Valve Butt Grinding Wheel
3.	2 Only	202KLL3 (FS50,000)	Ball Bearings for Spindle
4.	1 Only	1030 (K403 Series)	V-Belt
5.	1 Only	7321K3	Electrical Toggle Switch
6.	1 Only	A3475Y	Flex Shaft Drive Cable (29"
7.	1 Only	K832	Fluid Pump Assembly
8.	2 Only	2679	Pint Lee Soluble Oil Concentrate
9.	2 Only	OV5GH80S	Stellite Grinding Wheel
10.	2 Only	OV5GH80W	Mild Steel Grinding Wheel
11.	1 Only	1320 (K500 Series)	V-Belt

The foregoing parts would be recommended, as stated, for machines intended for overseas service, The only purpose for the extent of the foregoing recommendation, is based on possible procurement difficulties in certain overseas locations. Based on guarantee, however, items of this recommended list would be covered by warranty if at least one year service was not realized, excepting expendable items, where replacement is normally expected.

Domestic Service

If machines are to be intended for domestic service, or for locations where there remains no procurement problem or time loss based on delivery time from States, then recommendations would be as follows:

Item	Quantity	Part No.	Description
1.	1 Only	P176D	Diamond Nibbed Screw
2.	1 Only	RV4KH46	Valve Butt Grinding Wheel
3.	1 Only	2679	Pint Lee Soluble Oil Concentrate
4.	1 Only	1030 (K403 Series)	V-Belt
5.	1 Only	OV5GH80W	Grinding Wheel (Valve Face)
6.	1 Only	OV5GH80S	Grinding Wheel (Valve Face) for Stellite
7.	1 Only	1320 (K500 Series)	V-Belt

By Order of the Secretary of the Army:

Official:

J. C. PENNINGTON
Major General, United States Army
The Adjutant General

E. C. MEYER
General, United States Army
Chief of Staff

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Valve Face Grinding Machine
(Model K403C and K500C)

BE EXACT... PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
5			
7			

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Callouts A and B are switched.

Reference to figure 3 is made, but there is no fig. 3.

SAMPLE

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TEAR ALONG PERFORATED LINE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F Fahrenheit temperature 5/9 (after subtracting 32) Celsius temperature °C

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