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(856) 722-0944

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Oklahoma City, OK 73108
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#SS-2003 Shop Supply Catalog

Catalog #SS-2003
Supersedes SS-96

PIONEER Inc

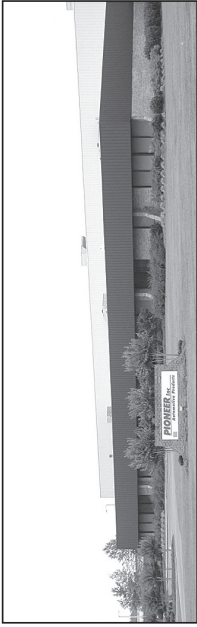
Automotive Products

SS-2003 SHOP SUPPLY

SHOP SUPPLY

PIONEER Inc
Automotive Products

5184 Pioneer Road • G.V. (Sonny) Montgomery Industrial Park • Meridian, MS 39301
www.pioneerautoinc.com • E-Mail Address: pinc@aol.com



*"Proud of the past...committed to the future"
is a slogan which accurately reflects Pioneer's heritage and its future.*

Pioneer, Inc. was founded in 1946 by the late Herman A. Shields, who owned a successful automotive parts manufacturer's representative firm in his hometown of Meridian, Mississippi. He formed the company to service the needs of his clutch remanufacturer customers. His goal was simple: Supply the needed, hard-to-find parts for these businesses.

Little did he know that the company he founded would become a leading supplier of high quality components to the automotive parts aftermarket. For over 30 years under the guidance of the Shields family, Pioneer growth was based upon the twin cornerstones of customer service and reputation of the "Source for hard-to-find parts."

In 1979, Pioneer was purchased by The Barnes Group (Bristol, Connecticut) and the company became known as Pioneer/Barnes. During the Barnes Group's ownership, Pioneer purchased a 10-acre parcel in the G.V. (Sonny) Montgomery Industrial Park and built an 86,000 sq. ft. corporate head-quarters and distribution center on the site.

The product line expanded dramatically during the Barnes years, adding operating cables, flywheels, ring gears, shop supplies and performance parts to the company's mix, while further expanding the clutch, engine parts and water pump lines. Additionally, Pioneer added regional warehouses in Mt. Laurel, New Jersey and Cerritos, California to provide improved delivery service to its East and West Coast customers.

Additionally, Pioneer has made major commitments to its total quality assurance programs. These quality performance processes have been adapted to order taking and filling, distribution and inventory controls, further improving fill rates and on-time delivery.

The distribution facilities have also undergone modernization. In 1995, the Meridian facility's distribution center was expanded, bringing the warehousing space to over 200,000 sq. ft.

In May, 2000, Pioneer bought the new clutch business of L&S and through this acquisition have added New Clutch Kits to form a "5 Star" line-up which includes Powertrain, Transmission Parts, Engine and Transmission Mounts, and Harmonic Balancers...giving Pioneer a strong and competitive package of Driveline related products.

In August 1, 2010 Industrias Automotrices Lodi S.A. de C.V. purchased the company from Doron Arad. Pioneer continues its focus on product line expansion and making major investments in product tooling.

For over 60 years, the Pioneer story has been unique. Pioneer's growth has been based upon the philosophy of Herman Shields that success must be based upon customer service and satisfaction. Pioneer's Mission Statement reflects that philosophy

"We are committed to the success of our customers. Our mission will be to provide customers with quality product and superior service. We believe the dedication of our employees and business partners is our most valued resource."

While the philosophy may seem passé in today's business environment, it has served Pioneer well through over six decades.

GUARANTEE

All parts are guaranteed against defects in material and workmanship for a period of one year from the date of the original consumer purchase.

"Our obligation under this guarantee is limited to replacement of the defective part or, at our option, repayment of the purchase price, conditioned in either case upon the return of the part to us with an explanation of the circumstances and conditions under which failure occurred. We neither assume nor authorize any other person to assume for us any other liability. IN NO EVENT WILL PIONEER BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES, including claims for labor charges, transportation, or loss of revenue."

The information listed herein is correct to the best of our knowledge and belief, having been compiled from reliable and official sources of information. However, WE CANNOT ASSUME ANY RESPONSIBILITY FOR POSSIBLE ERROR.

*Thank you,
Pioneer, Inc. Automotive Products*

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SS-2003

SHOP SUPPLY PRODUCTS

CATALOG DESIGN:

QUICK REFERENCE INDEX is located on page 1.

1. Products are listed by **SECTIONS**:
New Items – Abrasives – Brushes – Chemicals - Cutters
Fasteners – Thread Repair – Tools and Accessories.
2. A complete **CATALOG INDEX** is located in the **back**.
3. Products listed in the **Index** are **arranged alphabetically by product** description, type and /or original equipment manufacturer.
4. Illustrations are used where further descriptions are necessary.
5. **Technical Assistance** can be obtained by calling **TOLL FREE 1-800-647-6272**.

PIONEER PRODUCT LINES

CLUTCH PRODUCTS • ENGINE PRODUCTS
PERFORMANCE PRODUCTS • SHOP SUPPLY PRODUCTS
POWERTRAIN PRODUCTS • TRANSMISSION PRODUCTS
ENGINE & TRANSMISSION MOUNTS

• • • • •

*FOR COMPLETE SELECTION OF QUALITY AUTOMOTIVE PRODUCTS,
CALL OR WRITE TODAY FOR INFORMATION ON ALL PIONEER PRODUCTS.*

CALL TOLL-FREE – 1-800-821-2302
(24 HR.) FAX: 1-800-821-2303

OR MAIL TO P.O. BOX 191, MERIDIAN, MS 39302

CYLINDER BORE PLATEAU BRUSHES

Plateau brushes are designed to produce the bore finish recommended by OEM's for cast iron. Silicone Carbide impregnated nylon brush material provides a finer finish and greater consistency than round abrasive materials. Provides a much larger contact area on cylinder walls but does not enlarge bores. Removes high points and any scuffs left after honing. Use after honing gives a fine plateau finish so rings seat immediately, reduces break in, better oil control and lower emissions.



Part Number	Brush Size	For Hole Diameter	Abrasive Length	Overall Length
TUF-125	1-1/4	7/8"-1"	2"	10"
TUF-150	1-1/2"	1"-1-1/4"	2"	10"
TUF-200	2"	1-1/4"-1-3/4"	2"	10"
TUF-250	2-1/2"	1-3/4"-2-1/4"	3-1/2"	14"
TUF-300	3"	2-1/4"-2-3/4"	4"	14"
TUF-350	3-1/2"	2-3/4"-3-1/4"	4"	14"
TUF-400	4"	3"-3-1/2"	4"	14"
TUF-450	4"	3-1/2"-4"	4"	14"
TUF-500	5"	4"-4-1/2"	5"	14"

(Continued on next page)

New Tool

CYLINDER HEAD HOLDER UNIVERSAL

Pioneer Number
T-114

Designed for use with foreign & domestic heads. Slip resistant neoprene coated rails hold head in position and provides protection. Head can be rotated 360 degrees. Made of lightweight polished aluminum for easy placement or can be mounted for increased durability.



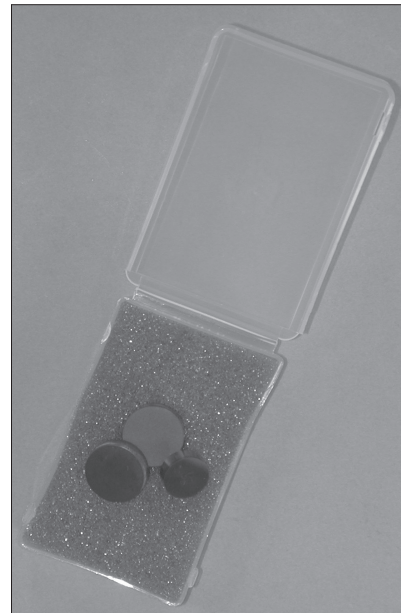
RESURFACING INSERTS FOR CAST IRON AND ALUMINUM

CBN (Cubic Boron Nitride) Inserts with two-sided honed edges for resurfacing cast iron.

TC-375-CBN	3/8" X 1/8" THICK
TC-500-CBN	1/2" X 1/8" THICK
TC-500-CBNS	1/2" X 3/16" THICK

PCD (Polycrystalline Diamond) Inserts with single sided edge for resurfacing aluminum.

TC-375-PCD	3/8" X 1/8" THICK
TC-500-PCD	1/2" X 1/8" THICK



New Chemicals

SUMP DEODORIZING TABLETS (SDT™)

Coolant Control sump deodorizing tablets are formulated to work with the biocides in water-base metalworking coolants to control odors and extend their working life. They help eliminate excessive and unnecessary dumping of coolants due to offensive odors. Safe to handle, and easy to use, they're an effective way to condition and control odors in water-based coolants. Designed for small sumps (200 gallons of less). Use one tablet for every 25 gallons of fluid. Repeat treatment once per week to prevent the recurrence of odors.



Pioneer
Number
T-SDT

Description
15 TABLETS PER TUBE

TABLETIZED DEFOAMER (MST™)

Defoamer MST defoaming tablets are designed for use in coolant and washer sumps ranging in size from 10 gallons to 500 gallons. The slow release feature of the tablet means that a constant level of defoamer is always present in the fluid and that carry-out is minimized. One tablet for every 25-50 gallons of fluid in sump. Each treatment will last between one and two weeks.



Pioneer
Number
T-MST

Description
1 TABLET PER PACKAGE

(Continued on next page)

New Chemical

Dr. Tranny™

Assemblee Goo™

Pioneer Number
T-4004
T-4004-12



Dr. Tranny Assemblee Goo™ is formulated for use as an assembly aid and lubricant for automatic and manual transmissions. To provide lubrication and facilitate the assembly process, apply to: “O” rings, seals, bearings, gaskets, sealing rings, bushings and thrust washers.

Assemblee Goo™ will not melt at shop temperatures (up to 130°F) and provides “tackiness” required during the assembly process. Yet it dissolves and solubilizes in transmission fluids at operating temperatures so as not to clog filters.

The green color eliminates misdiagnosing leaks. And it is not harmful with prolonged skin contact.

Dr. Tranny™ Assemblee Goo™ Benefits:

- Provides “tackiness” required during assembly process
- Facilitates and provides lubrication during transmission assembly process
- Dyed green to prevent misdiagnosing leaks
- Will not melt at shop temperatures
- Not harmful with prolonged skin contact
- Will not clog filters

New Chemicals



Dr. Tranny™ **Assemble Luub™**

Pioneer Number

T-4007

T-4007-12

Dr. Tranny™ Assemble Luub™ is the same premium quality lubricant fluid as LUBEGARD® Valve and Assembly Lubricant in a convenient aerosol spray.

Dr. Tranny™ **Instant Shudder Fixx™**



Pioneer Number

T-4006

T-4006-24

Dr. Tranny™ instant Shudder Fixx™ is a concentrated friction modifier formulated specifically for eliminating torque converter shudder problems instantly.

Available in a uniquely engineered two-ounce application tube, the Dr. Tranny™ Instant Shudder Fixx™ is compatible with conventional or synthetic automatic transmission fluids.

(Continued on next page)

New Chemical

LUBEGARD® Highly Friction Modified Transmission Fluid Supplement

Pioneer Number

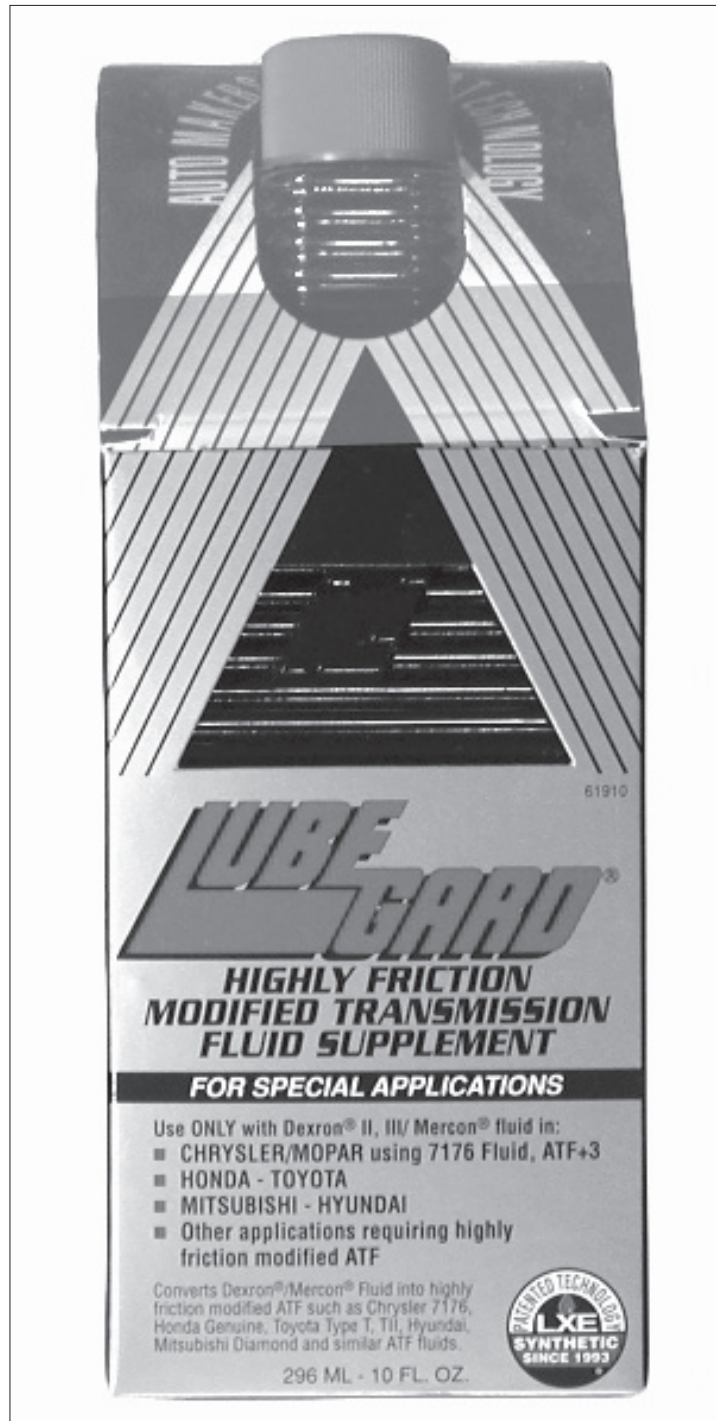
T-4003

T-4003-12

LUBEGARD® Highly Friction Modified Automatic Transmission Supplement enhances DEXRON® II/III fluid with additional friction modifiers. The enhanced fluids such as Honda Genuine, Toyota Genuine, Chrysler 7176 and similar other applications requiring highly friction modified ATF.

LUBEGARD® ATF-HFM is designed only for use with Dexron® II/III fluid in transmissions found in Hondas, Toyotas, Chryslers using 7176 Fluid, and other applications requiring highly friction ATF.

LUBEGARD® ATF-HFM formulation is based on the same patented technology found in LUBEGARD® ATF Protectant that has gained worldwide acceptance in the professional after-market transmission repair industry and Original Equipment Manufacturer (OEM) endorsement.



New Chemical

Dr. Tranny's™

KOOLER KLEEN

Pioneer Number
T-4002
T-4002-12

DR. TRANNY'S KOOLER KLEEN is a uniquely blended formula designed to prevent transmission contamination by eliminating contaminants such as sludge, grime and metal shavings in transmission cooling systems and lines without leaving any water/soapy residue (or harmful chemicals) in the system. It is packaged in easy to use convenient aerosol cans - simply attach to radiator inlet (or outlet) lines and actuate to flush system to avoid transmission cross contamination. Flush out cleaning liquid by inverting can and actuating or use compressed air from your facility compressor.



Benefits:

- No water/soapy residue to contaminate new ATF
- Prevents contamination of new or rebuilt unit
- Prevents costly combacks
- Contains no ozone depleting chemicals or CFC's
- Contains no chlorinated solvents
- Formulated to not harm seals or degrade new ATF

(Continued on next page)

New Chemical

Lubegard® LIMITED SLIP SUPPLEMENT

FOR USE IN ALL FINAL DRIVES AND LIMITED
SLIP POSI-TRACTION UNITS

PATENT 5,282,989



Pioneer Number

T-4011

T-4011 LIMITED SLIP SUPPLEMENT is specifically formulated for the clutches in limited slip differentials. Limited slip differentials depend on the operation of pre-loaded clutch packs on each axle shaft. Gear oils made for standard differentials DO NOT contain the additives that make these clutches work. LUBEGARD® Limited Slip Supplement contains LXE (liquid wax esters), a unique advanced friction modifier to eliminate chatter. It contains rust and corrosion inhibitors to protect bearing and gear surfaces. The LXE also acts as an enhanced heat transfer component to pull heat out of the gear box and clutches more quickly for cooler running units. LUBEGARD® Limited Slip Supplement benefits all makes of vehicles with limited slip differentials including GM, Ford and Chrysler.

DIRECTIONS FOR USE:

Put entire contents of the bottle (4 fl. oz.) into the differential. If necessary, remove enough gear oil to maintain proper level with supplement. Allow 20 miles of road operation for complete mixing.

New Chemical

Lubegard® M-V Automatic Transmission Fluid Supplement

FOR MERCON V® APPLICATIONS ONLY

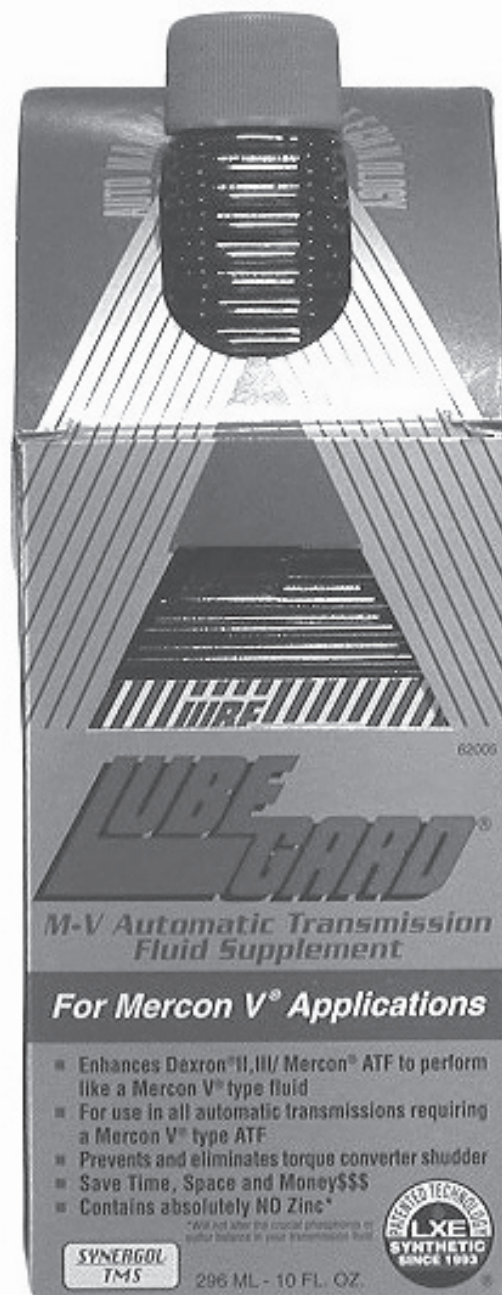
U.S. Patent: 5,282,989
Synergol Patent Pending

Pioneer Number
T-4009

LUBEGARD® M-V Automatic Transmission
Fluid Supplement benefits:

- For use in all automatic transmissions requiring a Mercon® type ATF.
- Prevents & Eliminates Torque Converter Lock-Up Shudder.
- Prevents overheating and fluid oxidation.
- Saves time, money and space by eliminating the need to stock Mercon V® ATF.
- Keeps valves free - also frees stuck valves.
- Dramatically reduces friction & wear on metal parts and internal components.
- Improves low temperature shifting.
- Stabilizes the life of the fluid, thus extending service intervals.
- Softens harsh shifts.
- Extends fluid & component life.
- Will not harm yellow metals.
- Will not alter the crucial phosphorus or sulfur balance in your transmission fluid.
- Contains absolutely NO Zinc.

DIRECTIONS: For normal applications, add 1 oz per quart of Dexron® /Mercon® Automatic Transmission Fluid. Replace with motor idling and in park. *Always check owners manual or dip stick for proper fluid type. Do no overfill.



NEW
PRODUCTS

(Continued on next page)

Lubegard® VALVE and ASSEMBLY LUBRICANT

LUBEGARD® Valve and Assembly Lubricant is specially designed for the assembly of transmissions, engines, gear boxes, pumps or any other general automotive use. It also can be used as a general purpose lubricant. This unique product contains LXETM (Liquid Wax Esters), and their derivatives, that strongly attach to metal surfaces giving superior lubrication of valves and governors, thus enhancing valve performance. It protects the equipment and is non-harmful to the user. The active ingredients of LUBEGARD® Valve and Assembly Lubricant do not contain solid particles or cheap petroleum solvents that provide no lubrication properties. This product is based on the same technology found in LUBEGARD® Automatic Transmission fluid Porectant, that is approved and used by OEM's (Original Equipment Manufacturers). LUBEGARD® Valve and Assembly Lubricant, although compatible with all automatic transmission fluids, is not formulated to be added straight to an automatic transmission fluid as a supplement.

LUBEGARD® Valve and Assembly Lubricant benefits:

- Specially designed for automotive equipment rebuilders, but great for general lubrication needs.
- Keeps valves and governors free during assembly
- Easy to use, simplifies and expedites the transmission assembly process
- New Biosynthetic formula with superior cold flow properties
- Environmentally responsible (Biodegradable), user friendly
- Specially formulated and blended using LXETM (liquid wax esters) and their derivatives to enhance valve performance and help facilitate the assembly process, the LXETM strongly attaches to the metal surfaces giving superior lubrication
- Excellent penetrant and protects against rust
- Not harmful to seals or O-rings
- Optimum to use with LUBEGARD® Fluid products after the rebuild

Pioneer Number
T-4008
T-4008-6



New Abrasives

VALVE SEAT WHEELS

Pioneer RUBY wheels removes stock fast and leaves a micro finish. Ruby abrasive last longer. For general purpose grinding on all valve seat material.



SX - K.O. LEE, SKIL, SIOUX, THOR, US, WINONA (11/16" - 16 THREAD)

SIZE	45 DEGREE	90 DEGREE
1-1/8"	SX-145-R	SX-190-R
1-1/4"	SX-245-R	SX-190-R
1-5/16"	SX-345-R	SX-390-R
1-3/8"	SX-445-R	SX-490-R
1-1/2"	SX-545-R	SX-590-R
1-9/16"	SX-645-R	SX-690-R
1-5/8"	SX-745-R	SX-790-R
1-11/16"	SX-845-R	SX-890-R
1-3/4"	SX-945-R	SX-990-R
1-7/8"	SX-1045-R	SX-1090-R
2"	SX1145-R	SX-1190-R
2-1/8"	SX-1245-R	SX-1290-R
2-1/4"	SX-1345-R	SX-1390-R
2-3/8"	SX-1445-R	SX-1490-R
2-1/2"	SX-1545-R	SX-1290-R

KW - KWIK-WAY (13/16" - 13 THREAD)

SIZE	90 DEGREE
1-1/8"	KW-190-R
1-1/4"	KW-290-R
1-5/16"	KW-390-R
1-3/8"	KW-490-R
1-1/2"	KW-590-R
1-9/16"	KW-690-R
1-5/8"	KW-790-R
1-11/16"	KW-890-R
1-3/4"	KW-990-R
1-7/8"	KW-1090-R
2"	KW-1190-R
2-1/8"	KW-1290-R
2-1/4"	KW-1390-R
2-3/8"	KW-1490-R
2-1/2"	KW-1590-R

(Continued on next page)

New Tool

VALVE SEAT WHEEL HOLDERS



SX-1	FOR SIOUX	11/16"	16 THREAD USE WITH 3/8" + .010 PILOTS
KW-1	FOR KWIK-WAY	13/16"	13 THREAD USE WITH 7/16" PILOTS

VALVE SPRING COMPRESSOR ADAPTORS

Adaptors for deep recessed springs. For use with "C" clamp valve spring compressors and small compressor jaw (TCF-21-B). Open top design for easy keeper removal.

PART#	SIZE	APPLICATION
TCF-26-A	26MM	4 valve & heads with small recessed valve springs
TCF-27-A	27MM	4 valve & heads with small recessed valve springs
TCF-32-A	32MM	2 valve heads



CRANKSHAFT FINISHING BELTS

SCALLOP BELTS AVAILABLE: Order in 1" - 320 Grit ONLY - Add -S to end of Part Number (Example: TPB-60-320BS)
Standard Packaging is 10 to a pack except for Scotch Brite Type and 400 Grit

SIZE	PIONEER NUMBER	PIONEER NUMBER	PIONEER NUMBER	SIZE LENGTH X WIDTH
BERCO MODEL FN, SFN, GOODSON PCP-1000				
60"	TPB-60-320A-10	TPB-60-240A-10	TPB-60-400A-CK	60" x 3/4"
	TPB-60-320B-10	TPB-60-240B-10	TPB-60-400B-CK	60" x 1"
	TPB-60-320C-10	TPB-60-240C-10		60" x 1-1/4"
CAM SHOP, GOODSON, PCP-1000, KWICK WAY-LMF, LEMPCO, PETERSON "SFN", REGIS CP-64, STORM-VULCAN 750, VAN NORMAN 450				
64"	TPB-64-320A-10	TPB-64-240A-10	TPB-64-400A-CK	64" x 3/4"
	TPB-64-320B-10	TPB-64-240B-10	TPB-64-400B-CK	64" x 1"
	TPB-64-320C-10	TPB-64-240C-10	TPB-64-400C-CK	64" x 1-1/4"
	—	TPB-64-240E-10		64" x 1-3/4"
	TPB-64-1-SBT			64" X 1" Scotch Brite Type
STORM-VULCAN MODEL 70				
70"	TPB-70-320A-10	TPB-70-240A-10	TPB-70-400A-CK	70" x 3/4"
	TPB-70-320B-10	TPB-70-240B-10	TPB-70-400B-CK	70" x 1"
	TPB-70-320C-10	TPB-70-240C-10		70" x 1-1/4"
TILLIS				
72"	TPB-72-320A-10	TPB-72-240A-10	TPB-72-400B-CK	72" x 3/4"
	TPB-72-320B-10	TPB-72-240B-10		72" x 1"
	TPB-72-320C-10	TPB-72-240C-10		72" x 1-1/4"
	TPB-72-320D-10	TPB-72-240D-10		72" x 1-1/2"
STORM-VULCAN KOTAFIN MODELS 135, 135A, 135G, 135L, PORTABLE 77				
77"	TPB-77-320A-10	TPB-77-240A-10	TPB-77-400A-CK	77" x 3/4"
	TPB-77-320B-10	TPB-77-240B-10	TPB-77-400B-CK	77" x 1"
	TPB-77-320C-10	TPB-77-240C-10		77" x 1-1/4"
	TPB-77-320D-10	TPB-77-240D-10		77" x 1-1/2"
	TPB-77-320E-10	TPB-77-240E-10		77" x 1-3/4"
	TPB-77-320F-10	—		77" x 2"
STORM-VULCAN 1356A - 135J, VAN NORMAN, VAN-O-LITE				
91"	TPB-91-320A-10	TPB-91-240A-10	TPB-91-400A-CK	91" x 3/4"
	TPB-91-320B-10	TPB-91-240B-10	TPB-91-400B-CK	91" x 1"
	TPB-91-320C-10	TPB-91-240C-10		91" x 1-1/4"
	TPB-91-320D-10	TPB-91-240D-10		91" x 1-1/2"
	TPB-91-320E-10	TPB-91-240E-10		91" x 1-3/4"
	TPB-91-320F-10	—		91" x 2"

ABRASIVE BELTS FOR STOCK REMOVAL

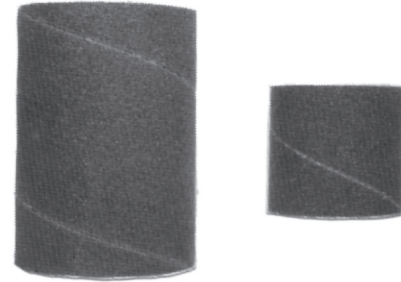
SIZE	PIONEER NUMBER	SIZE LENGTH X WIDTH	GRIT	STD. PKG.
STORM-VULCAN MODEL 135-J KOTAFIN				
91"	TPB-91-60A-10	91" x 3/4"	60	10
	TPB-91-60B-10	91" x 1"	60	10
	TPB-91-60C-10	91" x 1-1/4"	60	10

(Continued on next page)

GRINDING SLEEVES

FOR AMMCO, BARRETT, CHICAGO, STAR, SHEPARD-THOMASON, ETC .

PIONEER NUMBER	SIZE DIA. x LENGTH	TYPE OF MACHINE	GRIT	STD. PKG.
TSB-10	2-7/8" x 4-1/2"	Ammco Shoe Burnisher 2007	50	25
TSB-11	3" x 3"	All Models	50	25
TSB-12	3" x 4-1/2"	All Models	50	25
TSB-13	3" x 5-1/2"	All Models	50	24
TSB-14	3" x 6"	All Models	50	25
TSB-15	3" x 6-5/8"	All Models	50	25
TSB-16	4" x 4"	All Models	50	25
TSB-17	4" x 6"	Shepard-Thomason	50	25
TSB-18	4" x 8-1/4"	Shepard-Thomason	50	25

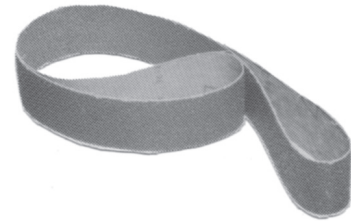


BACKSTAND BELT

CLOTH BACKED - For sanding and roughing brake shoes

(Belts are supplied / 10 Belts in a nest / 50 Belts in Package)

PIONEER NUMBER	SIZE DIA. x LENGTH	GRIT	STD. PKG.
TBB-10-10	2-1/2" x 60"	36	10

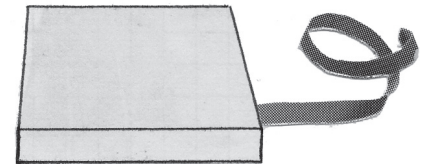


HANDY ROLLS

ABRASIVE CLOTH

In Handy 50 Yard Dispenser Packed Rolls

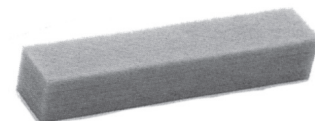
PIONEER NUMBER (240 GRIT)	PIONEER NUMBER (180 GRIT)	PIONEER NUMBER (120 GRIT)	SIZE LENGTH x WIDTH
THR-1-240	THR-1-180	THR-1-120	50 Yds. x 1"
THR-2-240	THR-2-180	THR-2-120	50 Yds. x 1-1/2"
THR-3-240	THR-3-180	THR-3-120	50 Yds. x 2"



BELT CLEANER

TBC-1 PIONEER NUMBER

Pioneer's Belt Cleaner TBC -1 is a dry way to remove dirt build up, restore surface and prolong belt lift. Cleaner stick is held at a 45° angle and moved back and forth over a moving belt.



RESURFACING BELTS

The right belt for the job...

NORZON - Superior quality blue belts recommended for use in production work with heavy down pressure.

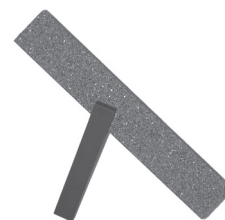
SILICON CARBIDE - Premium quality black belts for use with medium to light down pressure. 80 Grit Designed for Aluminum heads.

CERAMIC - This heavy duty belt will outlast other belts. Designed to be used on cast iron heads. Medium to heavy down pressure.

PIONEER NUMBER (NORZON)	GRIT	PIONEER NUMBER (SILICON CARBIDE)	GRIT	PIONEER NUMBER CERAMIC	GRIT	STD. PKG.	SIZE	MANUFACTURER	MFG. NO.
TSB-50 TSB-50-5	40 40	TSB-50-SC TSB-50-SC-F TSB-50-SC-5	40 80 40	TSB-50-C	40	1 1 5	15" x 127-1/2"	Storm-Vulcan/Anderson Peterson / K-1 / A & A Winona Van-Norman	AB-1540A PB-1500 BR-1500 IDL/Pickett
TSB-51 TSB-51-5	40 40	TSB-51-SC TSB-51-SC-5 TSB-51-SC-F	40 40 80	TSB-51-C	40	1 5 1	14" x 113-1/4"	Storm-Vulcan Peterson / K-1 / A & A	AB-1000A PG-1400
TSB-52 TSB-52-5	40	TSB-52-SC TSB-52-SC-5	40 40			1 5	18" x 161-5/8"	Storm-Vulcan / Anderson Peterson / K-1 / A & A	AB-1800A PG-1800
TSB-53 TSB-53-5	40 40	TSB-53-SC TSB-53-SC-5 TSB-53-SC-F	40 40 80	TSB-53-C	40	1 5 1	14" x 107-1/2"	Kwik-Way	870
TSB-54 TSB-54-5 TSB-55 TSB-55-5	40 40 40 40	TSB-54-SC TSB-54-SC-5 TSB-55-SC TSB-55-SC-5	80 80 80 80			1 5 1 5	11-7/8" X 76" 14" x 86"	Winona Automotive Craftsman Inc.	BG600 1486

DRESSING STICK

PIONEER NUMBER	DESCRIPTION
TDS-1	For Dressing General Purpose Wheels 6 x 1 x 1
400025	Special Nordide®



PIONEER TECH TIPS...BELT SAFETY

- ✓ Always observe safety recommendations supplied by the equipment manufacturer.
- ✓ Never remove safety guard from machines.
- ✓ The machine should be disconnected from the power source before making any abrasive or machine adjustments.
- ✓ Sparks should be directed downward and away from face and body. Do not grind near flammable material.
- ✓ Electric portable machines are not intended for use in or near water. This includes standing on wet floors.
- ✓ Machines should be operated in well ventilated areas, preferably with an exhaust hood. Dusts masks are recommended as a practical means to minimize dust inhalation.

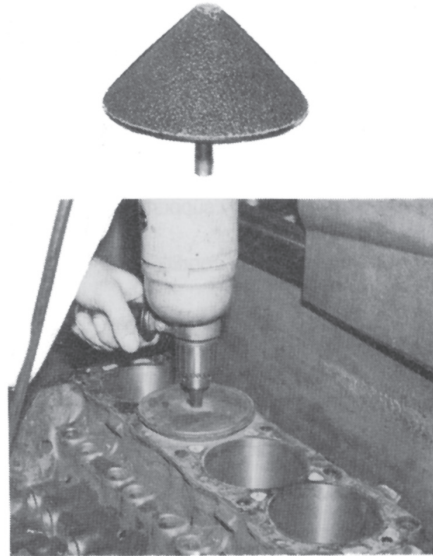
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CHAMFERING TOOL

The Pioneer Chamfering Tool effectively eliminates piston ring breakage caused by sharp or straight beveled cylinder well edges. It has been tested and approved by top Production Engine Rebuilders and is now available to all.

Just chuck it into any 1/2" electric drill or equivalent and when given an oscillating motion will produce quickly and easily, a radiused bevel not otherwise obtainable. The replacement abrasive cones will do approximately 25 eight cylinder blocks of any size bore up to 5 inches. Use feathering disc cement to retain cone on mandrel.

PIONEER NUMBER	DESCRIPTION
T-101	MANDREL & DISC KIT TOOL (Contains: 1 Mandrel, 4 Disc)
T-100	Mandrel Only
TD-101-5	Abrasive Disc (36 Grit)



CHAMFERING CONE AND MANDREL

Chamfering Cone Mandrel

For use with Pioneer, Rottler, or Sunnen Cones 1/4" Shank.

T-470 PIONEER NUMBER



Chamfering Cone

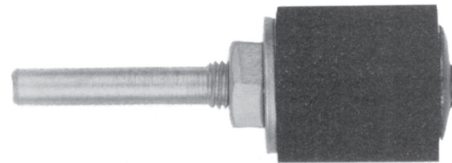
Slant Height - 3-1/2"
Base Dia. - 3"
Top Dia. - 2"

T-471-5 PIONEER NUMBER



GRINDING MANDREL AND SLEEVES

1" Mandrel



PIONEER NUMBER	DESCRIPTION
T-570	1" Mandrel
T-571	40 Grit Sleeve
T-572	60 Grit Sleeve

POWER GASKET REMOVER

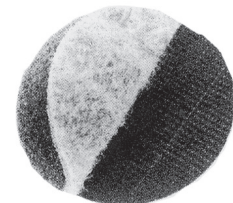
Fast and economical gasket removal and surface preparation.

PIONEER NUMBER	DESCRIPTION
459354	Back-up Pad - 20,000 Max. RPM
459024-10	10 Pak Abrasive Pads - Coarse
459032-10	10 Pak Abrasive Pads - Medium

Rubber molded back-up pad features 1/4" shank for portable drills and handy "Hook & Loop" interlock system which eliminates sticky adhesive.

Discs are available in coarse and medium grit.

3" Diameter



GRINDING WHEELS

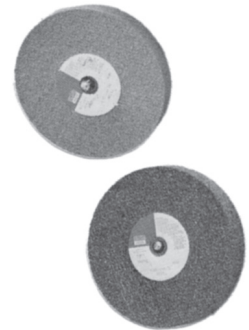
FOR CARBIDE TOOLS

PIONEER NUMBER	GRIT	SIZE DIA. X WIDTH X ARBOR	NESTED BUSHING INCLUDED TO REDUCE ARBOR SIZE TO
TGC-10	100	6 x 1/2 x 1	3/4 - 5/8 - 1/2
TGC-11	100	6 x 3/4 x 1	3/4 - 5/8 - 1/2
TGC-12	100	6 x 1 x 1	3/4 - 5/8 - 1/2

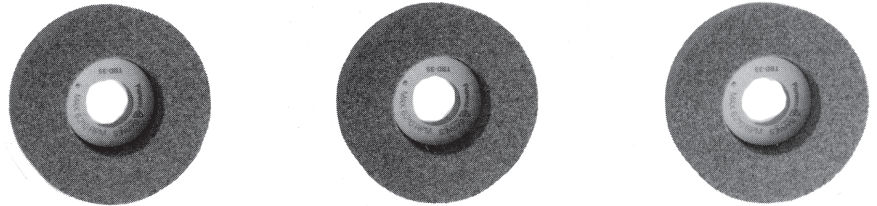


GENERAL PURPOSE BENCH

PIONEER NUMBER	GRIT	GRADE	SIZE DIA. X WIDTH X ARBOR	NESTED BUSHING INCLUDED TO REDUCE ARBOR SIZE TO
TGP-10	36/46	Coarse	6 x 1/2 x 1	3/4 - 5/8 - 1/2
TGP-11	60/80	Medium	6 x 1/2 x 1	3/4 - 5/8 - 1/2
TGP-12	36/46	Coarse	6 x 3/4 x 1	3/4 - 5/8 - 1/2
TGP-13	60/80	Medium	6 x 3/4 x 1	3/4 - 5/8 - 1/2
TGP-14	36/46	Coarse	6 x 1 x 1	3/4 - 5/8 - 1/2
TGP-15	60/80	Medium	6 x 1 x 1	3/4 - 5/8 - 1/2
TGP-16	100/120	Fine	6 x 1 x 1	3/4 - 5/8 - 1/2
TGP-17	60 / 80	Medium	8 x 1 x 1	7/8 - 3/4 - 5/8
TGP-18	60/80	Medium	10 x 1 x 1-1/4	1 - 3/4



BRAKE DRUM



PIONEER NUMBER	MFG. NO.	SIZE	SHAPE	TYPE OF MACHINE
AMMCO				
TBD-10	3333	2-1/2 x 3/8 x 3/8	Recessed	3050, 5000
LEMPCO				
TBD-20	Y234, Y235	3 x 1/2 x 5/8	Recessed	B, C, G, JJ, KH, NJ, NJJ, 505, 530, 802
VAN NORMAN				
TBD-30	24594	3 x 1/2 x 3/4	Recessed	204, 304, 305, 404
TBD-31	8522	3 x 1/2 x 1	Recessed	204, 300, 302, 303, 304, 304H, 333, 404
TBD-32	—	3 x 1 x 1	Recessed	305, 404
TBD-33	8931	3-1/2 x 1/2 x 1	Recessed	204, 300, 302, 303, 304, 304H, 333, 404
TBD-34	8523	4 x 1/2 x 1	Recessed	204, 300, 302, 303, 304, 304H, 333, 404
TBD-35	16831	4 x 1 x 1	Recessed	310 (Big Brute)
TBD-36	8524	5 x 1/2 x 1	Recessed	204, 300, 302, 303, 304, 304H, 333, 404
TBD-37	16832	5 x 1 x 1	Recessed	310 (Big Brute)

(Continued on next page)

SEGMENTS FOR SURFACE GRINDING WHEELS

PIONEER NUMBER	WHEEL SIZE	NO. OF SEGMENTS REQUIRED	SEGMENT SIZE	MODEL
PETERSON-BERCO				
TSG-10	12"	8	65 x 25 x 100mm	RSC-950
TSG-10	14"	10	65 x 25 x 100mm	RSC-1200, RSC-1500, RSC-1550
TSG-10	16"	12	65 x 25 x 100mm	RSC-1200, RPYS-1500, RSC-1500, RSC-1550
TSG-12		6	90 x 16 x 50mm	
STORM-VULCAN				
TSG-11	12-5/8"	8	3-1/8 x 13/16 x 3-1/2	RT-17-Y
TSG-11	14-1/2"	10	3-1/8 x 13/16 x 3-1/2	RT-7-Y, RT-17-Y
TSG-10	16"	10	65 x 25 x 100mm	RT-7-Y, RT-17-Y
WINONA, PICKETT				
TSG-10	14"	10	65 x 25 x 100mm	SM-4000
TSG-10	13-7/8"	8	65 x 25 x 100mm	SM-2000
TSG-10	17-3/4"	14	65 x 25 x 100mm	SM-6000

FLYWHEEL & PRESSURE PLATE GRINDING

PIONEER NUMBER	MFG. NO.	SIZE	SHAPE	MODEL
KWIK-WAY – DCM TECH.				
TCG-20	–	4 / 3 x 1-1/2 x 1-1/4	Flared Cup	SG 3000, 5000
TCG-22	–	6 x 2 x 1-1/4	Straight	
TCG-23	–	6 / 4-1/2 x 2-5/8 x 1-1/4	Flared Cup	SG 7000 (Cast Iron)
TCG-24	–	6 / 4-1/2 x 2 x 1-1/4	Flared Cup	KW 796 (Steel)
* TCG-25	–	6 / 4-1/2 X 2-5/8 X 1-1/4	Flared Cup	SG7000 (Cast Iron)
KWIK-WAY – LEMPCO				
TCG-10	AC-2109	3 / 2-1/4 x 1-1/4 x 5/8	Flared Cup	AC
TCG-11	AC-2108	4 x 1-1/4 x 5/8	Recessed	AC
TCG-12	NAC-102-A	8 x 3/4 x 7/8	Straight	NAC
TOBIN-ARP – OLCOTT				
TCG-20	–	4 / 3 x 1-1/2 x 1-1/4	Flared Cup	All Models
TCG-22	–	6 x 2 x 1-1/4	Straight	All Models
TCG-23	–	6 / 4-1/2 x 2-5/8 x 1-1/4	Flared Cup	All Models
TCG-24	–	6 / 4-1/2 x 2 x 1-1/4	Flared Cup	All Models
* TCG-25	–	6 / 4-1/2 X 2-5/8 X 1-1/4	Flared Cup	All Models
VAN NORMAN				
TCG-21	–	5 / 4 x 3 x 7/8	Flared Cup	444 (Flywheel)
TCG-12	–	8 x 3/4 x 7/8	Straight	444 (Pressure Plate)
WINONA, PICKETT				
TCG-20	FG-1056	4 / 3 x 1-1/2 x 1-1/4	Flared Cup	All Models
TCG-22	–	6 x 2 x 1-1/4	Straight	All Models
TCG-23	FG-1049	6 / 4-1/2 x 2-5/8 x 1-1/4	Flared Cup	All Models
TCG-24	FG-1058	6 / 4-1/2 x 2 x 1-1/4	Flared Cup	All Models
* TCG-25	–	6 / 4-1/2 X 2-5/8 X 1-1/4	Flared Cup	All Models
PETERSON – KANSAS INST.				
TCG-20	–	4 / 3 x 1-1/2 x 1-1/4	Flared Cup	FG-24
TCG-22	–	6 x 2 x 1-1/4	Straight	
TCG-23	–	6 / 4-1/2 x 2-5/8 x 1-1/4	Flared Cup	All Models
TCG-24	–	6 / 4-1/2 x 2 x 1-1/4	Flared Cup	
* TCG-25	–	6 / 4-1/2 X 2-5/8 X 1-1/4	Flared Cup	All Models

NOTE: * Ruby Wheel

TAPPET GRINDING WHEELS

PIONEER NUMBER	MFG. NO.	SIZE - DIA. X WIDTH X ARBOR	SHAPE
STORM-VULCAN			
41020	901-12-9B	6 x 1-1/2 x 1-1/4	Gray Cup
41021	901-12-9A	6 x 1-1/2 x 1-1/4	White Cup

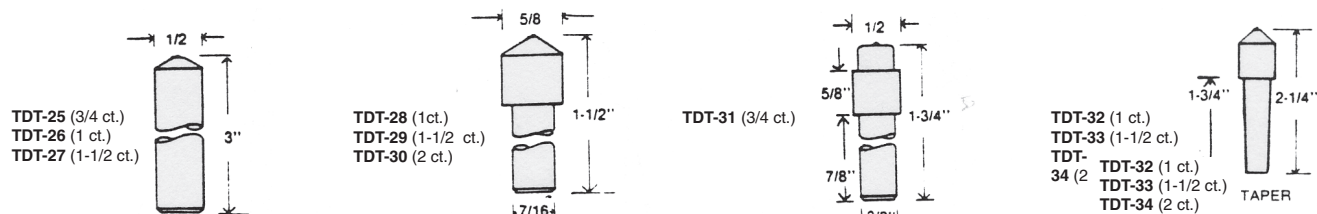
ROD AND CAP GRINDING WHEELS

PIONEER NUMBER	MFG. NO.	SIZE - DIA. X WIDTH X ARBOR	SHAPE
SUNNEN			
41030	CRG-305	4 x 1-1/2 x 1	Recessed
41031	CRG-805	6 x 2 x 1-1/4	Recessed
TOBIN-ARP			
41032	CG-8400	7 x 1-1/8 x 1-3/4	Plate Mounted

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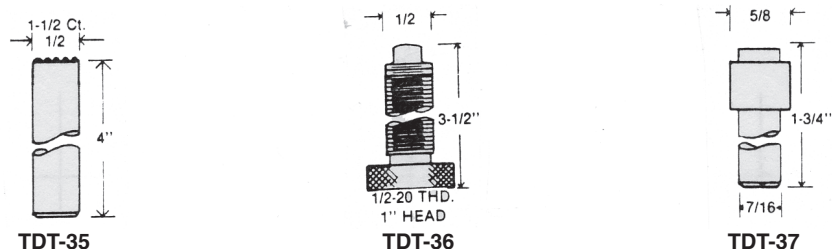
DIAMOND TOOLS

CRANKSHAFT & CAMSHAFT GRINDERS



PIONEER NUMBER	MFG. NO.	TYPE OF MACHINE	SIZE
TDT-25	—	Storm Vulcan 14, 15, 15A, 15C, 75, 75A	1/2" x 3" Shank, 3/4 Carat
TDT-26	—	Storm Vulcan 14, 15, 15A, 15C, 75, 75A	1/2" x 3" Shank, 1 Carat
TDT-27	—	Storm Vulcan 14, 15, 15A, 15C, 75, 75A	1/2" x 3" Shank, 1-1/2 Carat
TDT-28	—	Van Norman, Lempco, Landis	7/16" x 1-1/4" Shank, 5/8" Head, 1 Carat
TDT-29	—	Van Norman, Lempco, Landis	7/16" x 1-1/4" Shank, 5/8" Head, 1-1/2 Carat
TDT-30	—	Van Norman, Lempco, Landis	7/16" x 1-1/4" Shank, 5/8" Head, 2 Carat
TDT-31	—	Van Norman 253, 254	3/8" x 1-1/4" Shank, 3/4 Carat
TDT-32	—	Berco	Tapered Shank, Step Type, 1 Carat
TDT-33	—	Berco	Tapered Shank, Step Type, 1-1/2 Carat
TDT-34	—	Berco	Tapered Shank, Step Type, 2 Carat

SIDE DRESSING – CLUSTERS

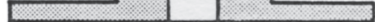
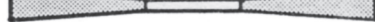


TDT-35	—	Storm Vulcan	1/2" x 4" Shank
TDT-36	—	Storm Vulcan	1/2" x 3-1/2", 20 NF Thread
TDT-37	—	Van Norman, Lempco, Landis	7/16" x 1-1/4", 5/8" Head

CAMSHAFT GRINDING WHEELS

	MACHINE	SIZE IN INCHES	DESCRIPTION	GRINDING FACE	PIONEER NUMBER
18"	Storm-Vulcan 75, 75A	18 x 7/8 x 3	Straight	7/8	401016
		18 x 1 x 3	Straight	1	401026
		18 x 1-1/8 x 3	Recess	1-1/8	401027
		18 x 1-1/4 x 3	Recess	1-1/4	401029
	Van Norman 253, 254 Berco RAC-1500, RAC-2130	18 x 7/8 x 6	Straight	7/8	401012
		18 x 1 x 6	Straight	1	401018
		18 x 1-1/8 x 6	Recess	1-1/8	401019
		18 x 1-1/4 x 6	Recess	1-1/4	401021
20"	Storm-Vulcan 75, 75A	20 x 7/8 x 3	Straight	7/8	401116
		20 x 1 x 3	Straight	1	401117
		20 x 1-1/8 x 3	Recess	1-1/8	401118
		20 x 1-1/4 x 3	Recess	1-1/4	401119

CRANKSHAFT GRINDING WHEELS

	SIZE IN INCHES	DESC.	PIONEER NUMBER		SIZE IN INCHES	DESC.	PIONEER NUMBER	
3" ARBOR Storm-Vulcan 14, 15 15 Special (Early)	18"			8" ARBOR AMC-Aarhus Motor Co. K1400, K1500, K1800 Peterson, Berco 180 RT 225 Storm-Vulcan 200, RG230, SV200, SV230 (Std. & Prod.) Van Norman 438, 448, 460, 465, 475, 476	26"			
	18 X 3/4 X 3	Straight	401011		26 x 3/4 x 8	Straight	401310	
	18 x 7/8 x 3	Straight	401015		26 x 7/8 x 8	Straight	401315	
	18 x 15/16 x 3	Straight	401020		26 x 15/16 x 8	Straight	401320	
	18 x 1 x 3	Straight	401025		26 x 1 x 8	Rec. 2-S	401325	
	18 x 1-1/16 x 3	Rec. 1-S	401030		26 x 1-1/8 x 8	Rec. 2-S	401330	
	18 x 1-1/8 x 3	Rec. 1-S	401035		26 x 1-1/4 x 8	Rec. 2-S	401335	
	18 x 1-1/4 x 3	Rec. 1-S	401040		26 x 1-7/16 x 8	Rec. 2-S	401340	
	18 x 1-7/16 x 3	Rec. 1-S	401045		26 x 1-1/2 x 8	Rec. 2-S	401345	
	18 x 1-1/2 x 3	Rec. 1-S	401050		26 x 1-5/8 x 8	Rec. 2-S	401350	
	18 x 1-5/8 x 3	Rec. 1-S	401055		26 x 1-11/16 x 8	Rec. 2-S	401355	
	18 x 1-11/16 x 3	Rec. 1-S	401060		26 x 1-3/4 x 8	Rec. 2-S	401360	
	18 x 1-3/4 x 3	Rec. 1-S	401065		26 x 1-7/8 x 8	Rec. 2-S	401365	
	18 x 1-7/8 x 3	Rec. 1-S	401070		26 x 2 x 8	Rec. 2-S	401370	
	18 x 2 x 3	Rec. 1-S	401075					
3-3/4" ARBOR Lempco Prod. TKG, 518	20"			8" ARBOR Landis C (18"), 18 x 66 Peterson, Berco 260, 2608 Van Norman 400, 438, 439, 666, 475, 476 Scledum RG-270V, 280 Berco 270A	28"			
	20 x 15/16 x 3-3/4	Straight	401087		28 x 3/4 x 8	Straight	401410	
					28 x 7/8 x 8	Straight	401415	
	20 x 3/4 x 3	Straight	401110		28 x 15/16 x 8	Straight	401420	
	20 x 7/8 x 3	Straight	401115		28 x 1 x 8	Straight	401425	
	20 x 15/16 x 3	Straight	401120		28 x 1-1/16 x 8	Rec. 2-S	401430	
	20 x 1 x 3	Straight	401125		28 x 1-1/8 x 8	Rec. 2-S	401435	
	20 x 1-1/8 x 3	Rec. 1-S	401130		28 x 1-1/4 x 8	Rec. 2-S	401440	
	20 x 1-1/4 x 3	Rec. 1-S	401135		28 x 1-1/2 x 8	Rec. 2-S	401445	
	20 x 1-7/16 x 3	Rec. 1-S	401140		28 x 1-5/8 x 8	Rec. 2-S	401450	
	20 x 1-1/2 x 3	Rec. 1-S	401145		28 x 1-3/4 x 8	Rec. 2-S	401455	
	20 x 1-5/8 x 3	Rec. 1-S	401150		28 x 1-7/8 x 8	Rec. 2-S	401460	
	20 x 1-11/16 x 3	Rec. 1-S	401155		28 x 2 x 8	Rec. 2-S	401465	
	20 x 1-3/4 x 3	Rec. 1-S	401160					
	20 x 1-7/8 x 3	Rec. 1-S	401165					
20 x 2 x 3	Rec. 1-S	401170						
3-3/4" ARBOR Lempco Prod. TKG, 519	22"			8" ARBOR Van Norman 467, 477	32"			
	22 x 3/4 x 3-3/4	Straight	401177		32 x 3/4 x 8	Straight	401510	
	22 x 1 x 3-3/4	Straight	401178		32 x 7/8 x 8	Straight	401515	
	22 x 2 x 3-3/4	Rec. 1-S	401179		32 x 15/16 x 8	Straight	401520	
					32 x 1 x 8	Straight	401525	
					32 x 1-1/8 x 8	Straight	401530	
					32 x 1-1/4 x 8	Straight	401535	
					32 x 1-1/2 x 8	Straight	401540	
					32 x 1-3/4 x 8	Straight	401545	
					32 x 2 x 8	Straight	401550	
	5" ARBOR Storm-Vulcan 15A (Early)					12" ARBOR Peterson, Berco 300 Van Norman 111, 111W, 111EL, 111ELW Scledum RG 350A RG 350B	36"	
22 x 7/8 x 5		Straight	401181	36 x 7/8 x 12	Straight		401610	
22 x 15/16 x 5		Straight	401183	36 x 1 x 12	Straight		401615	
22 x 1 x 5		Straight	401185	36 x 1-1/8 x 12	Straight		401620	
22 x 1-1/8 x 5		Rec. 1-S	401187	36 x 1-1/4 x 12	Straight		401625	
22 x 1-1/4 x 5		Rec. 1-S	401189	36 x 1-1/2 x 12	Rec. 1-S		401640	
22 x 1-1/2 x 5		Rec. 1-S	401191	36 x 1-1/2 x 12	Rec. 1-S		401640	
				36 x 1-3/4 x 12	Rec. 1-S		401645	
				36 x 2 x 12	Rec. 1-S		401650	
5" ARBOR Storm-Vulcan 15A, 15A Special, 15C, 1860		24"			SHAPES			
	24 x 3/4 x 5	Straight	401200				Recessed	
	24 x 7/8 x 5	Straight	401210				Recessed 2-Sides	
	24 x 15/16 x 5	Straight	401215				Hub	
	24 x 1 x 5	Straight	401220				Hub 2-Sides	
	24 x 1-1/8 x 5	Rec. 1-S	401230				Relieved 1-Side	
	24 x 1-3/16 x 5	Rec. 1-S	401235				Relieved 2-Sides	
	24 x 1-1/4 x 5	Rec. 1-S	401240				Relieved and Recessed 1-Side	
	24 x 1-3/8 x 5	Rec. 1-S	401245				Relieved and Recessed 2-Sides	
	24 x 1-7/16 x 5	Rec. 1-S	401250				Relieved and Hub 2-Sides	
	24 x 1-1/2 x 5	Rec. 1-S	401255					
	24 x 1-5/8 x 5	Rec. 1-S	401260					
	24 x 1-3/4 x 5	Rec. 1-S	401265					
	24 x 1-7/8 x 5	Rec. 1-S	401270					
	24 x 2 x 5	Rec. 1-S	401275					
8" ARBOR Van Norman 448, 460, 465								
	24 x 15/16 x 8	Straight	401285					

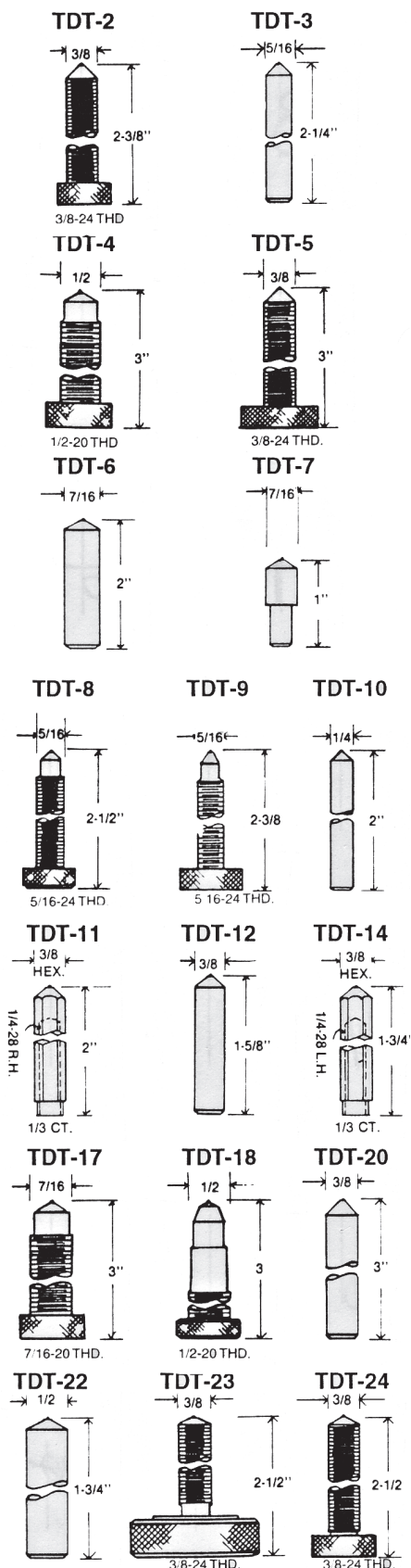
— CUSTOM SIZES AVAILABLE.

— SHAPES LISTED ARE STANDARD SPECIFIED BY MANUFACTURER

— SPECIAL ORDERS ARE AVAILABLE WITH RAPID TURNAROUND TIME BY CALLING TOLL FREE ORDER DESK 1-800-821-2302 / FAX 1-800-821-2303.

— CUSTOM SIZES AVAILABLE.
— SHAPES LISTED ARE STANDARD SPECIFIED BY MANUFACTURER
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TOLL FREE ORDER DESK 1-800-821-2302 / FAX 1-800-821-2303.

DIAMOND TOOLS



VALVE REFACER MACHINES

PIONEER NUMBER	MFG. NO.	TYPE OF MACHINE	SIZE
TDT-1	5574 112 74448	Black & Decker, Skilsaw Sioux, Tobin ARP-S & D Thor, Van Dorn, Van Norman	3/8" x 1-5/8" Round
TDT-3	—	Kwik-Way, Tobin ARP-S & D	5/16" x 2-1/4" Round
TDT-4	—	Kwik-Way Valve Master	1/2" x 3" 20NF Thread
TDT-5	1715	Sioux, 655, 657	3/8" x 2-3/4" 24NF Thread
TDT-6	—	U.S.	7/16" x 2" Round
TDT-7	13-11977 A173	Hall, Kwik-Way K.O. Lee, Van Norman K.R. Wilson	1/4" x 1" Step Type
TDT-9	—	Skil (Talent)	5/16" x 2-3/8" 18NC Thread
TDT-12	8252	Van Norman 500	3/8" x 1-5/8" Round
TDT-17	—	Kwik-Way CV, SV, VS	7/16" x 3" 20NF Thread
TDT-23	679	Sioux 685L	3/8" x 2-1/2" 24NF Thread
TDT-24	681	Sioux 680, 682, 956	3/8" x 2-1/2" 24NF Thread

VALVE RESEATERS

TDT-2	20157 74327 —	Black & Decker Thorn, Tobin ARP-S & D Van Dorn	3/8" x 2-1/4" 24NF Thread
TDT-4	—	Kwik-Way	1/2" x 3" 20NF Thread
TDT-5	— 1715	Kwik-Way (NSG) Sioux, Thor	3/8" x 2-3/4" 24NF Thread
TDT-8	13-1938	Hall Skilsaw, Snap-On, US	5/16" x 2-1/2" 24NF Thread
TDT-9	P176D	K.O. Lee, Skil	5/16" x 2-3/8" 18NC Thread
TDT-10	—	Winona	1/4" x 2" Round
TDT-11	1715B	Sioux - Heavy Duty	3/8" Hex Right Hand Thread
TDT-14	31662	Black & Decker	3/8" Hex Left Hand Thread
TDT-18	031-196-10	Kwik-Way (NSG)	1/2" x 2-3/4" (Holder Thread Half Length)

MISCELLANEOUS DIAMONDS

TDT-1	CRG-500	Sunnen Rod Cap Grinder	3/8" x 1-5/8" Round
TDT-4	—	Storm Vulcan #65 Rod Grinder	1/2" x 3" 20NF Thread
TDT-10	—	Winona (In-The-Block)	1/4" x 2" Round

CLUTCH GRINDER

TDT-6	—	Lempco, A-C, NAC, VAC, Do-All	7/16" x 2" Round
TDT-12	—	Van Norman 444	3/8" x 1-5/8" Round

BRAKE DRUM LATHE

TDT-1	—	All Van Norman (Exc. 302 & 302H)	3/8" x 1-5/8" Round
TDT-6	—	Lempco	7/16" x 2" Round
TDT-20	—	Barret, Van Norman 302, 302H	3/8" x 3" Round
TDT-22	329F	Ammco	1/2" x 2-1/2" Round

PISTON GRINDER

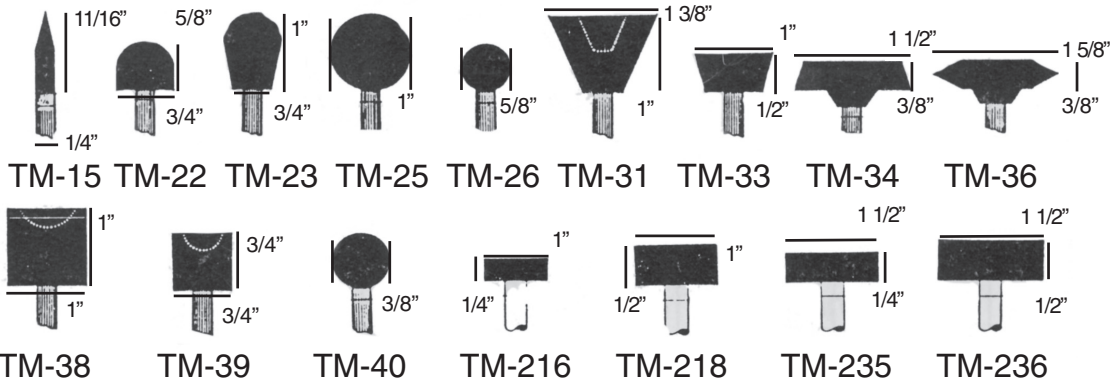
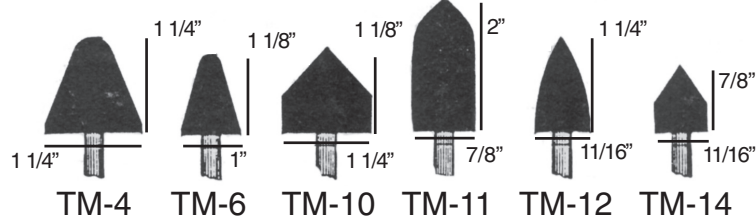
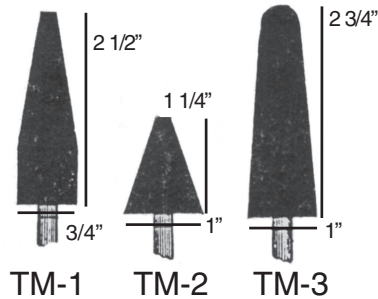
TDT-6	—	Storm Vulcan D-3	7/16" x 2" Round
TDT-12	—	Van Norman 101	3/8" x 1-5/8" Round
TDT-20	—	All Van Norman (Exc. 302 & 302H)	3/8" x 3" Round
TDT-20	—	Van Norman 75, 76 & Rello	3/8" x 3" Round

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MOUNTED 1/4" SHAFT GRINDING STONES

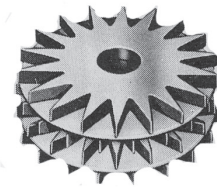
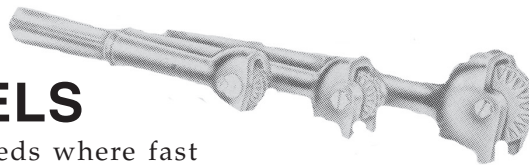
PIONEER NUMBER	DESCRIPTION
TMP-1	Dresser

MOUNTED POINTS can be stored to their original shape or changed in seconds while removing the grinding load with the TMP-1 Dresser.



DRESSERS FOR GRINDING WHEELS

Fulfill most general dressing needs where fast dressing is the primary requirement.



PIONEER NUMBER	FOR USE ON WHEELS		WEIGHT LBS.	PIONEER NUMBER	DIA.	HOLE	FACE WIDTH	WT. LBS.
	DIAMETER	FACE						
THD-0	Up to 10"	2"	2	THD-0-C	1-1/4"	1/4"	.425"	1
THD-1	10" to 16"	3"	2-1/2	THD-1-C	1-1/2"	1/2"	.432"	1-1/4
THD-2	16" to 36"	3-1/2"	5-1/2	THD-2-C	2-3/8"	19/32"	.830"	6-1/2

DRESSERS FOR SURFACE GRINDERS

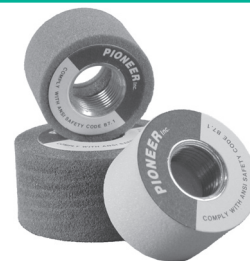
PIONEER NUMBER	MACHINE MODEL	DESCRIPTION
THD-3 THD-3-C	Storm RT-7Y, RT-17Y, 360A Van Norman, Peterson	Complete Assembly - Precision Set of 14 loose cutters - Precision
THD-4 THD-4-C	Peterson (Dry Grinder) Berco Late Model 1200 & 1550	Complete Assembly - Sharp Thick Tooth Set of 8 cutters & 5 spacers - Sharp Thick Tooth

VALVE SEAT WHEELS

Pioneer GENERAL PURPOSE is recommended for roughing or finishing automotive valve seats. Fast cutting and produces highly satisfactory finish on most seat materials including stellite. (120 GRIT)

Pioneer STELLITE is a special compound for stellite and other hardened Valve Seat Inserts. (Available for KW and SX Numbers ONLY)
(Add an "S" to the part number. Example: KW-230-S) (120 GRIT)

Pioneer RUBY specially suited for a fine finish on most seats and inserts. (Available for SX Numbers 45° & 90° + KW Numbers 90° Only)
(Add an "R" to the part number. Example: SX-245-R)(Approx. 80 Grit)



BD - BLACK & DECKER, VAN DORN (9/16" - 16 Thread)

SIZE (mm)	30°	45°	90°	SIZE (mm)	30°	45°	90°
1-1/4" (31)	BD-230	BD-245	BD-290	1-3/4" (44)	BD-930	BD-945	BD-990
1-5/16" (33.3)	BD-330	BD-345	BD-390	1-7/8"	BD-1030	BD-1045	BD-1090
1-3/8" (34.9)	BD-430	BD-445	BD-490	2" (50)	BD-1130	BD-1145	BD-1190
1-1/2" (38)	BD-530	BD-545	BD-590	2-1/8" (54)	BD-1230	BD-1245	BD-1290
1-9/16" (39.7)	BD-630	BD-645	BD-690	2-1/4" (57)	BD-1330	BD-1345	BD-1390
1-5/8" (41)	BD-730	BD-745	BD-790	2-3/8" (60)	BD-1430	BD-1445	BD-1490
1-11/16" (42.8)	BD-830	BD-845	BD-890	2-1/2" (63)	BD-1530	BD-1545	BD-1590

KW - KWI-KWAY (13/16" - 13 Thread)

1-1/4" (31)	KW-230	KW-245	KW-290	1-3/4" (44)	KW-930	KW-945	KW-990
1-5/16" (33.3)	KW-330	KW-345	KW-390	1-7/8"	KW-1030	KW-1045	KW-1090
1-3/8" (34.9)	KW-430	KW-445	KW-490	2" (50)	KW-1130	KW-1145	KW-1190
1-1/2" (38)	KW-530	KW-545	KW-590	2-1/8" (54)	KW-1230	KW-1245	KW-1290
1-9/16" (39.7)	KW-630	KW-645	KW-690	2-1/4" (57)	KW-1330	KW-1345	KW-1390
1-5/8" (41)	KW-730	KW-745	KW-790	2-3/8" (60)	KW-1430	KW-1445	KW-1490
1-11/16" (42.8)	KW-830	KW-845	KW-890	2-1/2" (63)	KW-1530	KW-1545	KW-1590

KWX - KWI-KWAY (21/32" - 18 Thread)

1-1/4" (31)	KWX-230	KWX-245	KWX-290	1-3/4" (44)	KWX-930	KWX-945	KWX-990
1-5/16" (33.3)	KWX-330	KWX-345	KWX-390	1-7/8"	KWX-1030	KWX-1045	KWX-1090
1-3/8" (34.9)	KWX-430	KWX-445	KWX-490	2" (50)	KWX-1130	KWX-1145	KWX-1190
1-1/2" (38)	KWX-530	KWX-545	KWX-590	2-1/8" (54)	KWX-1230	KWX-1245	KWX-1290
1-9/16" (39.7)	KWX-630	KWX-645	KWX-690	2-1/4" (57)	KWX-1330	KWX-1345	KWX-1390
1-5/8" (41)	KWX-730	KWX-745	KWX-790	2-3/8" (60)	KWX-1430	KWX-1445	KWX-1490
1-11/16" (42.8)	KWX-830	KWX-845	KWX-890	2-1/2" (63)	KWX-1530	KWX-1545	KWX-1590

SX - K.O. LEE, SKIL, SIOUX, THOR, US, WINONA (11/16" - 16 Thread)

1-1/4" (31)	SX-230	SX-245	SX-290	1-3/4" (44)	SX-930	SX-945	SX-990
1-5/16" (33.3)	SX-330	SX-345	SX-390	1-7/8"	SX-1030	SX-1045	SX-1090
1-3/8" (34.9)	SX-430	SX-445	SX-490	2" (50)	SX-1130	SX-1145	SX-1190
1-1/2" (38)	SX-530	SX-545	SX-590	2-1/8" (54)	SX-1230	SX-1245	SX-1290
1-9/16" (39.7)	SX-630	SX-645	SX-690	2-1/4" (57)	SX-1330	SX-1345	SX-1390
1-5/8" (41)	SX-730	SX-745	SX-790	2-3/8" (60)	SX-1430	SX-1445	SX-1490
1-11/16" (42.8)	SX-830	SX-845	SX-890	2-1/2" (63)	SX-1530	SX-1545	SX-1590

SN - SNAP-ON (5/8" - 18 Thread)

1-1/4" (31)	—	SN-245	SN-290	1-7/8"	—	SN-1045	SN-1090
1-5/16" (33.3)	—	SN-345	SN-390	2" (50)	—	SN-1145	SN-1190
1-3/8" (34.9)	—	SN-445	SN-490	2-1/8" (54)	—	SN-1245	SN-1290
1-1/2" (38)	—	SN-545	SN-590	2-1/4" (57)	—	SN-1345	SN-1390
1-5/8" (41)	—	SN-745	SN-790	2-3/8" (60)	—	SN-1445	SN-1490
1-3/4" (44)	—	SN-945	SN-990	2-1/2" (63)	—	SN-1545	SN-1590

VALVE SEAT WHEELS HOLDERS

SX-1 For Sioux 11/16" 16 Thread Use with 3/8" + .010 Pilots
KW-1 For KWI-KWAY 13/16" 13 Thread Use with 7/16" Pilots

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VALVE REFACING WHEELS

SHAPES



Straight



Straight Cup



Offset



Recessed



Plate Mtd.



Flared Cup



Dish

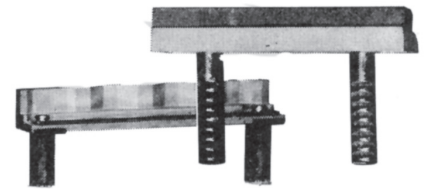
PIONEER NUMBER	SIZE	TYPE	SHAPE	USE	MFG. NUMBER	MODEL NUMBER
BLACK AND DECKER						
410105	4 x 1 x 5/8	GP	Offset	Valve	33056	All Models
410106	4 x 1 x 5/8	S	Offset	Valve	16371	#A to EF (5/8") A,B,BU, C,Deluxe 90, 106, 281
410116	5 x 1 x 5/8 (20° Face)	GP	Offset	Valve	34131	P,PC,PCB,T,TO,TG
410117	6 x 3/4 x 2	GP	Recessed	Valve	32944	#6 Universal
410130	4 x 1 x 5/8	GP	Cup	Stem	20939	All Models
KWIK-WAY						
410108	4 x 3/4 x 7/8	GP	Offset	Valve	010-0400-19	4001,P
410109	4-1/2 x 7/8 x 7/8	GP	Offset	Valve	010-0450-10	CV, SK, KK, VC, SV, XC
410118	3 x 1-1/4 x 5/8	GP	Recessed	Stem	010-0300-05	All Except VL
410119	4-1/2 x 7/8 x 7/8	S	Offset	Valve	—	CV, SK, KK, VC, SV, XC
410120	7 x 1 x 7/8	GP	Offset	Valve	010-0709-10	SVS
410121	5 x 7/8 x 7/8	GP	Offset	Valve	010-0509-01	VS, EVS
410124	8 x 1-3/8 x 7/8	GP	Offset	Valve	010-0810-09	VL
410125	6 x 1-1/4 x 3/4	GP	Recessed	Stem	91900610-08	VL
SIoux						
410105	4 x 1 x 5/8	GP	Offset	Valve	83	All Except Below
410106	4 x 1 x 5/8	S	Offset	Valve	Ruby - 78A	All Except Below
410126	4 x 1 x 5/8	GP	Offset	Valve	—	All Except Below
410127	4 x 1 x 5/8	GP	Offset	Valve	78E	All Except Below
410128	7 x 11 / 16 x 1-3/4 (15° Face)	GP	Straight	Valve	176	680, 956,2001
410129	7 x 11 / 16 x 1-3/4 (15° Face)	S	Straight	Valve	177	680, 956,2001
410130	4 x 1 x 5/8	GP	Recessed	Stem	81	All Except Below
410131	8 x 1-1/4 x 1-3/4	GP	Offset	Valve	178	682
410132	7 x 1-1/4 x 1-3/4	GP	Recessed	Stem	181	682
410133	6 x 1-1/8 x 3/4	GP	Offset	Valve	184 or 186	685L
WINONA, VAN NORMAN, PICKETT						
410107	5 x 3/4 x 5/8	GP	Dish	Valve	75399	E, Y, YW, X, XA
410130	4 x 1 x 5/8	GP	Recessed	Stem	40352	E, Y, YW, X, XA
410135	10 x 1-3/4 x 3	GP	Recessed	Stem	14384	500
410136	10 x 1-1/4 x 3	GP	Offset	Valve	14533	500
410137	12 x 5/8 x 3 (15° Face)	GP	Straight	Valve	24078	CRW, VR-100
410138	10 x 1-1/4 x 3	GP	Recessed	Stem	24079	CRW
IDL						
410141	8 / 7-1/4 x 1-1/4 x 1-1/2	GP	Flare Cup	Valve	8230 White	All Models
410141	8 / 7-1/4 x 1-1/4 x 1-1/2	GP	Flare Cup	Stem	—	All Models
410143	8 / 7-1/4 x 1-1/4 x 1-1/2	GP	Flare Cup	Valve	Gray	All Models
THOR						
410105	4 x 1 x 5/8	GP	Offset	Valve	73534	99 & 100
410106	4 x 1 x 5/8	S	Offset	Valve	73535 (Ruby)	99 & 100
410116	5 x 1 x 5/8 (20° Face)	GP	Offset	Valve	85767	299 & 300
410126	4 x 1 x 5/8	GP	Offset	Valve	—	99 & 100
410130	4 x 1 x 5/8	GP	Recessed	Stem	73533	All
SNAP ON & SKIL						
410107	5 x 3/4 x 5/8	GP	Dish	Valve	7556 / VW80	All
410130	4 x 1 x 5/8	GP	Recessed	Stem	75571VR2M89	All Except SKIL-491
TOBIN ARP, S & D						
410147	6 / 5-1/2 x 1-3/8 x 3/4	GP	Flare Cup	Valve	ST-BEV-1	VR-6500
410148	5 x 1-3/8 x 3/4	GP	Recessed	Stem	S-F-2	VR-6500
410149	6 / 5-1/2 x 1-3/8 x 3/4	S	Flare Cup	Valve	Red	VR-6500
K. O. LEE						
410105	4 x 1 x 5/8	GP	Offset	Valve	OU51H60	Models A1, A5
410107	5 x 3/4 x 5/8	GP	Dish	Valve	OV5GH60	All Models
410150	4 x 5/8 x 5/8	GP	Recessed	Stem	RV4KH60	K500C & K-403C
HALL						
410151	4-1/2 x 1 x 5/8	GP	Offset	Valve	13-15247	806

NOTE: GP- General Purpose S - Stellite

CYLINDER HONING

PREMIUM REPLACEMENT STONE SETS

- Fits Sunnen and other popular automotive hones.
- Sold outright, NO EXCHANGE necessary.
- Holders with integral stones



PIONEER NO. FOR POWER MACHINES	PIONEER NO. FOR PORTABLE UNITS	PIONEER NO. FOR BLIND HOLES	SIZE RANGE	GRIT	MFG. NO.	GRADE
TSN-100	TSN-100	TSN-102	2.7" – 4.1"	70	AN-100	Roughing
TSN-101	TSN-101	TSN-104	3.5" – 5.5"	70	AN-101	Roughing
TSN-200	TSN-200-S	TSN-202	2.7" – 4.1"	150	AN-200	Medium
TSN-201	TSN-201-S	TSN-204	3.5" – 5.5"	150	AN-201	Medium
TSN-300	TSN-300-S	TSN-302	2.7" – 4.1"	220	AN-300	Fine
TSN-301	TSN-301-S	TSN-304	3.5" – 5.5"	220	AN-301	Fine
TSN-500	TSN-500	–	2.7" – 4.1"	280	AN-500	Extra Fine
TSN-501	TSN-501	–	3.5" – 5.5"	280	AN-501	Extra Fine

S - SUFFIX INDICATES SILICON CARBIDE - Use wet or dry - 30% longer wear with a smoother finish when used in portable unit.
Works in power machine but has shorter life

HOLDERS WITH REPLACEABLE STONES

- For use in replacement of above.
- Each set included two stones and two felt wipers which may be used without honing oil.

STONE SETS			HOLDERS	
PIONEER NUMBER	GRIT	GRADE	PIONEER NUMBER	GRIT
4101	80	Roughing	410100	2.7" – 4.1"
4102	150	Medium		
4103	220	Fine		
4104	280	Extra Fine	410101	3.5" – 5.5"

HONES AND GLAZE BREAKERS

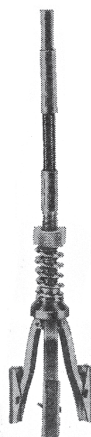
SMALL CYLINDER HONE

Ideal for small engines and brake cylinders. Knurled adjusting nut with a range of 3/4" to 2-1/2" Diameter. Comes with medium stone.

4110 PIONEER NUMBER

REPLACEMENT STONE SETS

PIONEER NUMBER	SIZE	GRIT
4111	1-1/8"	Medium
4112	1-1/8"	Fine



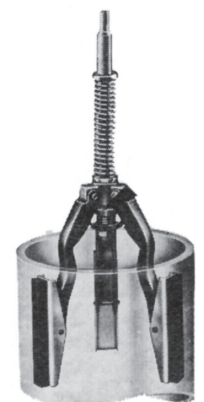
GLAZE BREAKER

Designed for fast and accurate honing of 2" to 7" Diameter. Comes with Medium Stone.

4120 PIONEER NUMBER

REPLACEMENT STONE SETS

PIONEER NUMBER	SIZE	GRIT
4121	4"	Medium
4122	4"	Fine



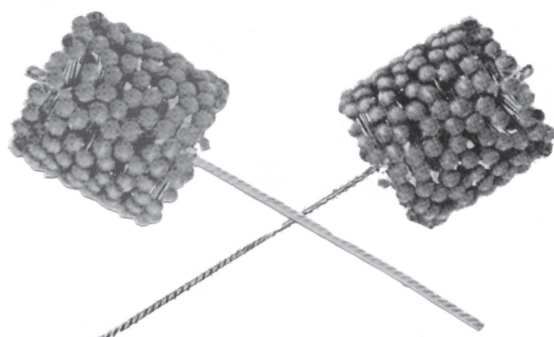
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FLEXHONES®

A flexible, self-centering, self-aligning, self-compensating, for wear, unbreakable honing device with long life and consistent finish.

Globules of silicon carbide laminated to the ends of hi-density nylon creates a flexible hone which is unbreakable, requires no set-up, does not get out of shape and most important, imparts a consistent perfect cross hatch for oil retention and instant ring seating.

320 GRIT AVAILABLE for Brake Cylinder Flexhones. To order add F to the end of the Part Number (EXAMPLE TBC-055-F).



FOR ENGINE CYLINDERS

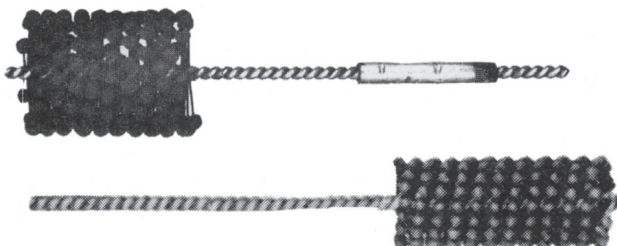
PIONEER NUMBER (Standard Duty)	PIONEER NUMBER (Heavy Duty)	SIZE	GRIT
—	TGB-300-D	3" (76mm)	120
—	TGB-325-D	3-1/4" (82mm)	120
TGB-350	TGB-350-D	3-1/2" (89mm)	120
TGB-375	—	3-3/4" (95mm)	120
—	TGB-400-D	4" (101mm)	120
TGB-413	—	4-1/8" (105mm)	120
—	TGB-414-D	4-1/4" (108mm)	120
—	TGB-450-D	4-1/2" (114mm)	120
TGB-462	—	4-5/8" (118mm)	120
—	TGB-500-D	5" (127mm)	120
—	TGB-550-D	5-1/2" (140mm)	120

FOR BRAKE CYLINDERS

PIONEER NUMBER	SIZE	GRIT
TBC-055	14mm (.552")	180
TBC-063	16mm (.630")	180
TBC-071	18mm (.709")	180
TBC-079	20mm (.787")	180
TBC-088	22mm (7/8")	180
TBC-100	25.4mm (1")	180
TBC-113	29mm (1-1/8")	180
TBC-138	35mm (1-3/8")	180
TBC-162	41mm (1-5/8")	180
TBC-200	51mm (2")	180

CAM BEARING FLEXHONES

PIONEER NUMBER	DESCRIPTION
TCB-EX	Comes with 1/8" threaded end for extensions. Order 18" threaded extensions.



FOR CAM BEARING (10" Length)

PIONEER NUMBER	SIZE	GRIT
TCB-201	2" (51mm)	120
TCB-202	2-1/4" (57mm)	120
TCB-203	2-1/2" (64mm)	120
TCB-204	2-3/4" (70mm)	120

FOR VALVE GUIDES (10" Length)

PIONEER NUMBER	SIZE	GRIT
TVB-600	1/4" (6.4mm)	240
TVB-601	9/32" (7mm)	240
TVB-602	5/16" (8mm)	240
TVB-603	11/32" (9mm)	240
TVB-604	3/8" (10mm)	240
TVB-605	7/16" (11mm)	240

(Continued on next page)

PLATEAU BRUSH

CYLINDER BORE PLATEAU BRUSHES

Plateau brushes are designed to produce the bore finish recommended by OEM's for cast iron. Silicone Carbide impregnated nylon brush material provides a finer finish and greater consistency than round abrasive materials. Provides a much larger contact area on cylinder walls but does not enlarge bores. Removes high points and any scuffs left after honing. Use after honing gives a fine plateau finish so rings seat immediately, reduces break in, better oil control and lower emissions.



Part Number	Brush Size	For Hole Diameter	Abrasive Length	Overall Length
TUF-125	1-1/4	7/8"-1"	2"	10"
TUF-150	1-1/2"	1"-1-1/4"	2"	10"
TUF-200	2"	1-1/4"-1-3/4"	2"	10"
TUF-250	2-1/2"	1-3/4"-2-1/4"	3-1/2"	14"
TUF-300	3"	2-1/4"-2-3/4"	4"	14"
TUF-350	3-1/2"	2-3/4"-3-1/4"	4"	14"
TUF-400	4"	3"-3-1/2"	4"	14"
TUF-450	4"	3-1/2"-4"	4"	14"
TUF-500	5"	4"-4-1/2"	5"	14"

(Continued on next page)

HONING STONES & GUIDE SHOES

PIONEER
NUMBER

MFG.
NO.

GRADE

Pioneer Cylinder hones for Sunnen Mandrels offer superior quality, easy replacement with NO EXCHANGE necessary.

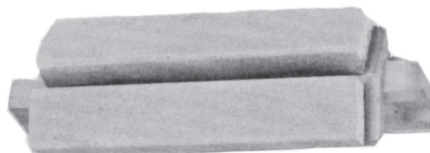
* TSN-123	EHU-123	Coarse
TSN-133	EHU-133	Coarse
* TSN-518	EHU-518	General Purpose
TSN-525	EHU-525	Medium
TSN-625	JHU-625	Fine

(* For High Performance and Hard Blocks)

CK-10 Cylinder Hone

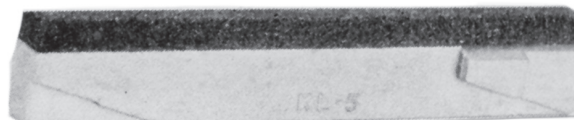


Mandrel CR



TCR-10	CR-10	Coarse
TCR-12	CR-12	Fine
TCR-14	CR-14	Finish

Mandrel KL



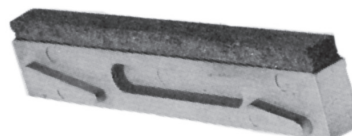
TK-5	KL-5	Roughing
TK-7	KL-7	General Purpose
TK-13	KL-13	Finish

Mandrel ML



TM-5	ML-5	Roughing
TM-7	ML-7	General Purpose
TM-13	ML-13	Finish

Mandrel PL



TP-5	PL-5	Roughing
TP-7	PL-7	General Purpose
TP-13	PL-13	Finish

Mandrel SL



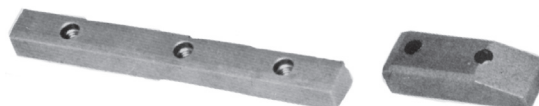
TSL-5	SL-5	Roughing
TSL-7	SL-7	General Purpose
TSL-13	SL-13	Finish

Mandrel CR Guide Shoe



TC-50-D	CR-50-D
TC-50-B	CR-50-B

CK-10 Guide & Alignment Shoe

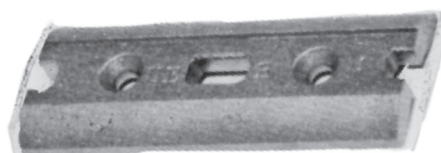


TC-3070	CK-3070
TC-3120	CK-3120

TC-3070

TC-3120

Guide Shoe



TA-B	VA-B
TB-B	VB-B
TC-B	UC-B
TD-B	UD-B
TE-B	UE-B
TU-A	UA-B
TU-B	UB-B

(Continued on next page)

OIL LINE, GALLERY BRUSHES

Nylon brushes for cleaning all types of oil passageways.

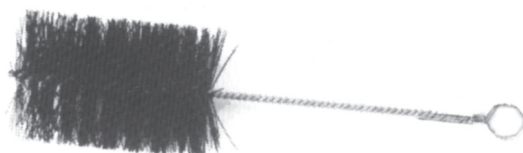
PIONEER NUMBER	SIZE	DESCRIPTION
4500	*Indicates brushes in Kit	Brush Kit for Chevy - Ford
4501	1/4" x 2" x 10"	Feed Line Holes, Stiff
*4502	1/4" x 2" x 10"	Feed Line Holes, Flexible
*4503	5/16" x 2-1/2" x 12"	Crankshaft Holes, Stiff
4504	5/16" x 2-1/2" x 12"	Crankshaft Holes, Flexible
4505	3/8" x 2-1/2" x 12"	Crankshaft Holes
4506	3/8" x 3" x 34"	Oil Gallery Brush
4507	1/2" x 2-1/2" x 12"	Valve Guides
4508	1/2" x 2-1/2" x 34"	Main Oil Galleries
4509	5/8" x 3" x 12"	Feed Line and Main Bearing
*4510	5/8" x 3" x 34"	Same as Above, Extra Long
*4511	3/4" x 3" x 12"	Lifter Holes
*4512	3/4" x 3" x 34"	Main Oil Galleries
4513	3/4" x 3" x 40"	Main Oil Galleries
4514	1-1/8" x 3" x 14"	Lifter Holes
4515	1-1/4" x 4" x 12"	Tapered Pin Fitter



All brushes are of the finest quality high-density nylon and have looped-end for ease of use.

CYLINDER WASH BRUSHES

These nylon brushes are designed to effectively clean cylinders after boring and honing. Use with soap and water to displace metal fragments and abrasive residue.



PIONEER NUMBER	DESCRIPTION
413075	3-1/2"
413076	4"
413077	4-1/2"
413078	5"
413079	5-1/2"

VALVE GUIDE BRUSHES

Rugged small diameter brushing tools for cleaning valve guides and other small holes.

To be used with portable tools and drill presses.



PIONEER NO. (WIRE)	PIONEER NO. (NYLON)	DIAMETER	BRUSH LENGTH	OVERALL LENGTH
TVP-10	TVP-10-Y	5/16"	2-1/2"	9-1/2"
TVP-11	TVP-11-Y	11/32"	2-1/2"	9-1/2"
TVP-12	TVP-12-Y	3/8"	2-1/2"	9-1/2"
TVP-13	TVP-13-Y	13/32"	2-1/2"	9-1/2"
TVP-14	TVP-14-Y	7/16"	2-1/2"	9-1/2"
TVP-16	TVP-16-Y	1/2"	2-1/2"	9-1/2"
TVP-18	TVP-18-Y	9/16"	2-1/2"	9-1/2"
TVP-20	TVP-20-Y	5/8"	2-1/2"	9-1/2"
TVP-24	—	3/4"	2-1/2"	9-1/2"
TVP-33	TVP-33-Y	1-1/32"	2-1/2"	9-1/2"

(Continued on next page)

WASH BRUSHES

FASTEST CLEANING / LONGEST LASTING

24" tube fits 1/4" & 3/8" bore parts washer nozzles. Cleaning fluid flows through the brush, washing away grease and grime.

Both Brushes Features listed below:

- All brushes totally non-metallic.
- Safe in the presence of electricity.
- Thumb rest
- Non-Slip Grip
- Indestructible Construction
- Protective Overlap
- Genuine Hy-Flex Nylon
- Guaranteed Not to mushroom
- Hand formed penetrating tip



PIONEER NUMBER	DESCRIPTION
TB-457	Wash Brush/24" TUBE

PIONEER NUMBER	DESCRIPTION
TB-458	Wash Brush

FOR COMPLETE SELECTION OF QUALITY AUTOMOTIVE PRODUCTS,
ASK FOR INFORMATION ON PIONEER PRODUCTS LISTED BELOW:

- CLUTCH BEARINGS/BUSHINGS • CLUTCH COMPONENTS
- ENGINE COMPONENTS • VALVE TRAIN COMPONENTS
- HIGH PERFORMANCE PRODUCTS • POWERTRAIN PRODUCTS
- TRANSMISSION PRODUCTS



CALL TOLL-FREE – 1-800-647-6272
OR MAIL TO P.O. BOX 191, MERIDIAN, MS 39301

PARTS CLEANING BRUSHES

PIONEER NUMBER	DIA.	BRISTLE LENGTH	MATERIAL
TB-348	1"	2-1/2"	Crimp Nylon
TB-456	15/16"	3"	Tampico

TB-348



TB-456

ACID BRUSHES

PIONEER NUMBER	DESCRIPTION
TAB-6	TIN HANDLE - Width - 9/16", Overall Length - 5-3/4"
TABW-1	WOOD HANDLE - Width - 3/4", Overall Length - 7"

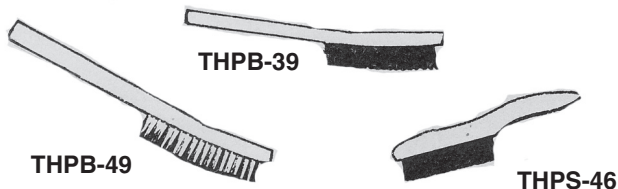
TAB-6

TABW-1



SCRATCH BRUSHES - (Large & Small)

- LARGE -				- SMALL -		
PIONEER NUMBER	NO. OF ROWS	BRUSH LENGTH	OVERALL LENGTH	PIONEER NUMBER	HANDLE	MATERIAL
THPB-39	3 x 19	6"	14"	421597	Poly	Stainless
THPB-49	4 x 19	6"	14"	421598	Poly	Brass
THPS-46	4 x 16	5-1/2"	10"	421600	Poly	Nylon
				421601	Wood	Stainless
				421602	Wood	Brass
				421603	Wood	Nylon



INDUSTRIAL SHOP BROOM

PIONEER NUMBER	SIZE
421606	18"
419077	24"

- Made of palmyra fibre
- Clear lacquered seasoned hardwood
- 5' Clear lacquered hardwood handle



FILE CARD & BRUSH

Combination file card and brush with hardwood block. High density steel card cloth on one side with dense yellow polypropylene brush on the other.



421744 PIONEER NUMBER

WHISK BROOM

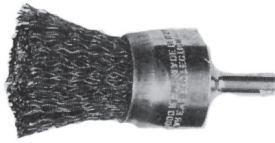


421584 PIONEER NUMBER

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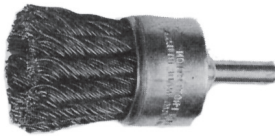
END BRUSHES (Special Analysis High Tensile Wire)

SOLID END



PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNS-4	1/2"	1/4"	.020	20,000
TNS-6	3/4"	1/4"	.020	20,000
TNS-8	3/4"	1/4"	.014	20,000
TNS-10	1"	1/4"	.020	20,000

HOLLOW END KNOT TYPE



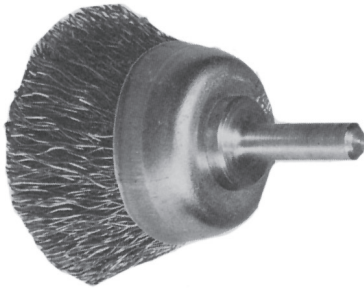
PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNH-6	3/4"	1/4"	.020	20,000
TNH-8	3/4"	1/4"	.014	20,000
TNH-10	1-1/8"	1/4"	.014	20,000
TNH-12	1-1/8"	1/4"	.020	20,000

CIRCULAR FLARED



PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNF-14	1-1/2"	1/4"	.020	20,000
TNF-26	2-3/4"	1/4"	.020	8,000
TNF-30	3"	1/4"	.020	8,000

CRIMPED CUT HOLLOW END (Small Cup)



PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNH-16	1-3/4"	1/4"	.0118	10,000
TNH-26	2-3/4"	1/4"	.0118	4,500

CUP BRUSHES

KNOT TYPE



PIONEER NUMBER	DIA.	THREAD ARBOR	WIRE GAUGE	MAX. RPM
TUS-4	4"	5/8" - 11NC	.0118	8,500
TUS-5	5"	5/8" - 11NC	.014	7,000
TUS-6	6"	5/8" - 11NC	.020	6,000

WIRE WHEEL BRUSHES

STANDARD DUTY MEDIUM FACE

High quality oil tempered crimped wire - long life.
Adapter Bushing included.



PIONEER NUMBER	DIA.	FACE WIDTH	ARBOR HOLE	WIRE SIZE
TDA-4	4-1/4"	3/4"	5/8" - 1/2"	.014
TDA-6	6"	3/4"	5/8" - 1/2"	.014
TDA-7	7"	3/4"	5/8" - 1/2"	.014
TDA-8	8"	7/8"	5/8" - 1/2"	.014
TDA-10	10"	1"	3/4"	.014

HEAVY DUTY WIDE FACE

High quality oil tempered crimped wire - long life.
Adapter Bushing included.



PIONEER NUMBER	DIA.	FACE WIDTH	ARBOR HOLE	WIRE SIZE
TDH-4	4-1/4"	1-1/8"	5/8" - 1/2"	.014
TDH-6	6"	1-1/8"	5/8" - 1.2"	.014
TDH-7	7"	1-1/8"	5/8" - 1/2"	.014
TDH-8	8"	1-1/4"	5/8" - 1/2"	.014
TDH-10	10"	1-1/2"	3/4"	.014
TDH-12	12"	1-5/8"	3/4"	.014

SINGLE TWIST

High quality oil tempered twist wire - long life.



PIONEER NUMBER	DIA.	ARBOR HOLE	WIRE SIZE
TTS-6	6"	5/8" - 1/2"	.016
TTS-8	8"	5/8" - 1/2"	.016

DOUBLE TWIST

High brushing face - long life. Adapter Bushing included.



PIONEER NUMBER	DIA.	ARBOR HOLE	WIRE SIZE
TTW-6	6"	5/8" - 1/2"	.016
TTW-8	8"	5/8" - 1/2"	.016

PIONEER TECH TIPS... Brush Safety

EYE PROTECTION - Safety goggles or full face shields worn over safety glasses with side shields must be worn by all operators and others in power brush area. Comply with requirements ANS Z87. 1-1979.

GUARDS - Keep all machine guards in place.

SPEEDS - Observe all speed restrictions indicated on brushes, labels or printed material.
DO NOT EXCEED MAXIMUM SAFE SPEED.

PROTECTIVE EQUIPMENT - Appropriate protective clothing and equipment must be used where injury can be prevented.
Avoid loose fitting cloths or loose articles which may become entangled.

(Continued on next page)

PIONEER PRODUCT LINES

CLUTCH PRODUCTS • ENGINE PRODUCTS
PERFORMANCE PRODUCTS • SHOP SUPPLY PRODUCTS
POWERTRAIN PRODUCTS • TRANSMISSION PRODUCTS
ENGINE & TRANSMISSION MOUNTS

• • • • •

*FOR COMPLETE SELECTION OF QUALITY AUTOMOTIVE PRODUCTS,
CALL OR WRITE TODAY FOR INFORMATION ON ALL PIONEER PRODUCTS.*

CALL TOLL-FREE – 1-800-821-2302

(24 HR.) FAX: 1-800-821-2303

OR MAIL TO P.O. BOX 191, MERIDIAN, MS 39302

ORDER DESK: 1-800-821-2302

(24 HR.) ORDER FAX NUMBER: 1-800-821-2303

TECHNICAL ASSISTANCE - 1-800-647-6272



PIONEER SPRAY ENAMEL

Fast Drying • Heat Resistant

Exact Factory Match – OEM Colors preferred by all Remanufacturers of engines, generators, starters, clutches, transmissions, water pumps, etc.

Pioneer Heat Resistant Enamel Colors perform where others fail. Engines, radiators, motors and surfaces subject to heat, grease, oil and gasoline can be protected against corrosion and restored to that factory-new appearance.

Convenient 6 – 11 Oz. Cans/Case • Weight 7 Lbs./Case

PIONEER NUMBER	COLOR	PIONEER NUMBER	COLOR
T-10	Chevrolet Orange	T-29	John Deer Green
T-11	Ford Blue	T-37	Gloss Gray (Ford Industrial)
T-12	Ford Red	T-50	Light Gray
T-14	Chrysler Red	T-52	Red Oxide Primer
T-15	Corporate Blue	*T-53	Rebuilders Gray
T-16	Ford Green	*T-53-5	Rebuilders Gray (5 Gallon)
T-17	Dark Ford Blue	T-54	Flat Black
T-18	Antique Ford Green	T-55	Gloss White
T-19	Chevrolet Blue	T-56	High Heat Black
T-20	General Motors (V-6) Blue	T-57	Sicon Silver (Detroit Diesel)
T-21	Cummins Beige	T-58	Cast Iron Gray
T-23	Alpine Green (Detroit Diesel)	T-58-5	Cast Iron Gray (5 Gallon)
T-24	Caterpillar Yellow	T-59	Clear
T-25	IHC Red	T-60	Universal Gray
T-26	Universal Black	T-61	Lo Gloss Black (GM)
T-27	Aluminum	T-62	Hi-Temp Aluminum 1200°
T-28	Gold		

* Gives Cylinder Heads, Blocks, Clutch Parts and most other metal parts a new, natural appearance.

AEROSOL SPRAY TRIGGER

PIONEER NUMBER

419025

Serves as a spray gun which attaches to spray can. Made of durable plastic. Conforms to all mounting cups on aerosol can.



TRANSMISSION FLUID SUPPLEMENT

LUBEGARD®

FOR USE IN ALL AUTOMATIC TRANSMISSIONS

(U.S. PATENT 4,873,008)

PIONEER NUMBER

T-4001

LUBEGARD® Automatic Transmission Fluid Supplement is for use in all automatic transmissions including heavy duty transmissions, such as Allison. Lubegard is for use with Dexron II and type F automatic transmission fluids. Lubegard controls heat and is especially effective in today's hotter running front wheel drive vehicles. It contains Liquid Wax Esters and their derivatives, Base oils and conventional additives.



LUBEGARD® is designed to raise the thermal and oxidative stability level of automatic transmission fluid, so when it operates at elevated temperatures, it does not thin out and pyrolize/burn or react with oxygen and form deposits.

LUBEGARD® ATF SUPPLEMENT benefits are:

- ☐ Transmissions perform more efficiently at lower operating temperatures.
- ☐ Anti-chatter in clutch packs (allow overnight penetration for maximum benefit).
- ☐ Anti-shudder with converter clutches (allow overnight penetration for maximum benefit).
- ☐ Prevents overheating.
- ☐ Assists in freeing hung up governors.
- ☐ Keeps valves free. Frees stuck valves in valve bodies.
- ☐ Provides for smoother shifting and reduced drive train power losses.
- ☐ Helps modify harsh shifts and makes them quicker in duration.
- ☐ Prevents costly comebacks.
- ☐ Maintains proper ATF viscosity in the torque converter.
- ☐ Inhibits transmission fluid foaming and oxidation, thereby extending fluid life.
- ☐ Reduces transmission wear.

The use of LUBEGARD® ATF Supplement will not cause clutch friction upset or slippage.

(Continued on next page)

ASSEMBLEE GOO

Dr. Tranny™

Assemblee Goo™

Pioneer Number
T-4004
T-4004-12



Dr. Tranny Assemblee Goo™ is formulated for use as an assembly aid and lubricant for automatic and manual transmissions. To provide lubrication and facilitate the assembly process, apply to: “O” rings, seals, bearings, gaskets, sealing rings, bushings and thrust washers.

Assemblee Goo™ will not melt at shop temperatures (up to 130°F) and provides “tackiness” required during the assembly process. Yet it dissolves and solubilizes in transmission fluids at operating temperatures so as not to clog filters.

The green color eliminates misdiagnosing leaks. And it is not harmful with prolonged skin contact.

Dr. Tranny™ Assemblee Goo™ Benefits:

- Provides “tackiness” required during assembly process
- Facilitates and provides lubrication during transmission assembly process
- Dyed green to prevent misdiagnosing leaks
- Will not melt at shop temperatures
- Not harmful with prolonged skin contact
- Will not clog filters

ASSEMBLE LUUB



Dr. Tranny™ **Assemble Luub™**

Pioneer Number
T-4007
T-4007-12

Dr. Tranny™ Assemble Luub™ is the same premium quality lubricant fluid as LUBEGARD® Valve and Assembly Lubricant in a convenient aerosol spray.



Dr. Tranny™ **Instant Shudder Fixx™**

Pioneer Number
T-4006
T-4006-24

Dr. Tranny™ instant Shudder Fixx™ is a concentrated friction modifier formulated specifically for eliminating torque converter shudder problems instantly.

Available in a uniquely engineered two-ounce application tube, the Dr. Tranny™ Instant Shudder Fixx™ is compatible with conventional or synthetic automatic transmission fluids.

(Continued on next page)

Highly Friction Modified Transmission Fluid Supplement

LUBEGARD® Highly Friction Modified Transmission Fluid Supplement

Pioneer Number

T-4003

T-4003-12

LUBEGARD® Highly Friction Modified Automatic Transmission Supplement enhances DEXRON® II/III fluid with additional friction modifiers. The enhanced fluids such as Honda Genuine, Toyota Genuine, Chrysler 7176 and similar other applications requiring highly friction modified ATF.

LUBEGARD® ATF-HFM is designed only for use with Dexron® II/III fluid in transmissions found in Hondas, Toyotas, Chryslers using 7176 Fluid, and other applications requiring highly friction ATF.

LUBEGARD® ATF-HFM formulation is based on the same patented technology found in LUBEGARD® ATF Protectant that has gained worldwide acceptance in the professional after-market transmission repair industry and Original Equipment Manufacturer (OEM) endorsement.



KOOLER KLEEN

Dr. Tranny's™

KOOLER KLEEN

Pioneer Number
T-4002
T-4002-12

DR. TRANNY'S KOOLER KLEEN is a uniquely blended formula designed to prevent transmission contamination by eliminating contaminants such as sludge, grime and metal shavings in transmission colling systems and lines without leaving any water/soapy residue (or harmful chemicals) in the system. it is packaged in easy to use convenient aerosol cans - simply attach to radiator inlet (or outlet) lines and actuate to flush system to avoid transmission cross contamination. Flush out cleaning liquid by inverting can and actuating or use compressed air from your facility compressor.



Benefits:

- No water/soapy residue to contaminate new ATF
- Prevents contamination of new or rebuilt unit
- Prevents costly combacks
- Contains no ozone depleting chemicals or CFC's
- Contains no chlorinated solvents
- Formulated to not harm seals or degrade new ATF

(Continued on next page)

LIMITED SLIP SUPPLEMENT

Lubegard®

LIMITED SLIP SUPPLEMENT

FOR USE IN ALL FINAL DRIVES AND LIMITED
SLIP POSI-TRACTION UNITS

PATENT 5,282,989



Pioneer Number

T-4011

T-4011 LIMITED SLIP SUPPLEMENT is specifically formulated for the clutches in limited slip differentials. Limited slip differentials depend on the operation of pre-loaded clutch packs on each axle shaft. Gear oils made for standard differentials DO NOT contain the additives that make these clutches work. LUBEGARD® Limited Slip Supplement contains LXE (liquid wax esters), a unique advanced friction modifier to eliminate chatter. It contains rust and corrosion inhibitors to protect bearing and gear surfaces. The LXE also acts as an enhanced heat transfer component to pull heat out of the gear box and clutches more quickly for cooler running units. LUBEGARD® Limited Slip Supplement benefits all makes of vehicles with limited slip differentials including GM, Ford and Chrysler.

DIRECTIONS FOR USE:

Put entire contents of the bottle (4 fl. oz.) into the differential. If necessary, remove enough gear oil to maintain proper level with supplement. Allow 20 miles of road operation for complete mixing.

M-V Automatic Transmission Fluid Supplement

Lubegard®

M-V Automatic Transmission Fluid Supplement

FOR MERCON V® APPLICATIONS ONLY

U.S. Patent: 5,282,989
Synergol Patent Pending

Pioneer Number
T-4009

LUBEGARD® M-V Automatic Transmission Fluid Supplement benefits:

- For use in all automatic transmissions requiring a Mercon® type ATF.
- Prevents & Eliminates Torque Converter Lock-Up Shudder.
- Prevents overheating and fluid oxidation.
- Saves time, money and space by eliminating the need to stock Mercon V® ATF.
- Keeps valves free - also frees stuck valves.
- Dramatically reduces friction & wear on metal parts and internal components.
- Improves low temperature shifting.
- Stabilizes the life of the fluid, thus extending service intervals.
- Softens harsh shifts.
- Extends fluid & component life.
- Will no harm yellow metals.
- Will not alter the crucial phosphorus or sulfur balance in your transmission fluid.
- Contains absolutely NO Zinc.

DIRECTIONS: For normal applications, add 1 oz per quart of Dexron® /Mercon® Automatic Transmission Fluid. Replace with motor idling and in park. *Always check owners manual or dip stick for proper fluid type. Do no overfill.



VALVE and ASSEMBLY LUBRICANT

Lubegard®

VALVE and ASSEMBLY LUBRICANT

LUBEGARD® Valve and Assembly Lubricant is specially designed for the assembly of transmissions, engines, gear boxes, pumps or any other general automotive use. It also can be used as a general purpose lubricant. This unique product contains LXETM (Liquid Wax Esters), and their derivatives, that strongly attach to metal surfaces giving superior lubrication of valves and governors, thus enhancing valve performance. It protects the equipment and is non-harmful to the user. The active ingredients of LUBEGARD® Valve and Assembly Lubricant do not contain solid particles or cheap petroleum solvents that provide no lubrication properties. This product is based on the same technology found in LUBEGARD® Automatic Transmission fluid Porectant, that is approved and used by OEM's (Original Equipment Manufacturers). LUBEGARD® Valve and Assembly Lubricant, although compatible with all automatic transmission fluids, is not formulated to be added straight to an automatic transmission fluid as a supplement.

LUBEGARD® Valve and Assembly Lubricant benefits:

- Specially designed for automotive equipment rebuilders, but great for general lubrication needs.
- Keeps valves and governors free during assembly
- Easy to use, simplifies and expedites the transmission assembly process
- New Biosynthetic formula with superior cold flow properties
- Environmentally responsible (Biodegradable), user friendly
- Specially formulated and blended using LXETM (liquid wax esters) and their derivatives to enhance valve performance and help facilitate the assembly process, the LXETM strongly attaches to the metal surfaces giving superior lubrication
- Excellent penetrant and protects against rust
- Not harmful to seals or O-rings
- Optimum to use with LUBEGARD® Fluid products after the rebuild

Pioneer Number

T-4008

T-4008-6



SUMP DEODORIZING TABLETS (SDT™)

Coolant Control sump deodorizing tablets are formulated to work with the biocides in water-base metalworking coolants to control odors and extend their working life. They help eliminate excessive and unnecessary dumping of coolants due to offensive odors. Safe to handle, and easy to use, they're an effective way to condition and control odors in water-based coolants. Designed for small sumps (200 gallons of less). Use one tablet for every 25 gallons of fluid. Repeat treatment once per week to prevent the recurrence of odors.



Pioneer
Number
T-SDT

Description
15 TABLETS PER TUBE

TABLETIZED DEFOAMER (MST™)

Defoamer MST defoaming tablets are designed for use in coolant and washer sumps ranging in size from 10 gallons to 500 gallons. The slow release feature of the tablet means that a constant level of defoamer is always present in the fluid and that carry-out is minimized. One tablet for every 25-50 gallons of fluid in sump. Each treatment will last between one and two weeks.



Pioneer
Number
T-MST

Description
1 TABLET PER PACKAGE

(Continued on next page)

LIQUI-GASKET

PIONEER NUMBER **426807**

LIQUI-GASKET liquid gasket sealant dries quickly to a pliable film. For use on most types of gaskets, machined surfaces and screw thread connections. Recommended for use on water pumps.

- ☐ Applies as liquid with handy brush-top applicator - Changes to paste in a few seconds.
- ☐ Pressure resistant and leak proof to 400°F.
- ☐ Resists hot and cold water, anti-freeze, glycerine, gas and oil.
- ☐ 16 Oz. can/brush top can.

ALUMINUM-POXY

PIONEER NUMBER **451110**

ALUMINUM-POXY is an aluminum epoxy compound for patching, filling, sealing and repair of aluminum or other non-rusting components.

- ☐ Recommended for use on Water Pumps.
- ☐ High Temperature epoxy suitable for 250°F service.
- ☐ Effective in re-newing bolt holes.
- ☐ 1 Lb. Kit

HEAT TAB ADHESIVE

PIONEER NUMBER **451140**

HEAT TAB ADHESIVE is a no-mix compound for Long-term adhesion under all engine operations conditions.

- ☐ Recommended for adhering Pioneer T-580 Heat Tabs to engine heads or blocks.
- ☐ Will withstand temperature up to 350°C.
- ☐ 3.0 Oz. Tube

LUBE OIL FOR KNURLING & REAMING

These oils were specially formulated for guide knurling and finish reaming. Reamer and arbor life will be extended if the proper amount and type of oil is used. The **ARBOR LUBE** is designed for knurling cast iron guides. **BRONZE LUBE** should be used on bronze guide liners but can also be used on cast iron guides.

ARBOR LUBE		BRONZE LUBE	
PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION
K-1220	1/2 Pint	K-1224	Pint
K-1221	Pint	K-1225	Quart
K-1222	Quart	K-1226	Gallon
K-1223	Gallon		

METAL MAGIC STEEL™

PIONEER NUMBER **451114**

- ☐ Cures under water
- ☐ Workable for 4 minutes,
Sets up in 10 minutes
- ☐ Convenient and easy to use

10 MINUTE REPAIR EPOXY – This versatile and easy to use epoxy compound is easy to use. Simply cut off the desired amount and knead until the epoxy has a consistent color. Once kneaded apply the epoxy to the repair area. Once the epoxy has cured, it has a metal-like finish. Excellent for filling water pump casting imperfections, patching pipes, and bonding broken parts.

(Continued on next page)

ANAEROBIC ADHESIVE / SEALANTS

THREAD LOCK

PIONEER NUMBER
T-51404
T-51404-12

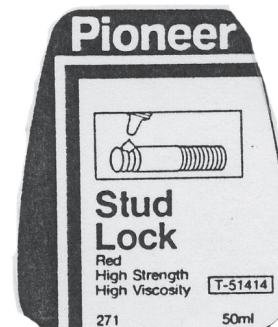
(BLUE) Medium-Strength, General purpose, gap filling formulation for all nuts, bolts, and screws. Transforms regular nuts into lock nuts, locking them against shock and vibration.



STUD LOCK

PIONEER NUMBER
T-51414
T-51414-12

(RED) High-Strength, gap filling formulation for use on all studs and bolts up to 1" diameter. Gives class 2 studs a strength greater than a class 5 fit. Use on aluminum and cast iron head/block fittings, rocker arm studs, and many other parts which need to lock and seal.



METAL LOCK

T-51444	50ML Bottle
T-51444-A	250ML Bottle
T-51444-L	1 Liter Bottle
T-51444-12	50 ML Bottle

(GREEN) A quick cure, low viscosity, gap filling product for use between close fitting gears, bushings, pulleys, bearings, rotors, collars, etc. Provides 100% contact - as opposed to only 20% contact provided by the best machined fittings. Provides shear strength of 3000 psi.



CORE PLUG SEALANT

T-41747 1 Liter Bottle

(BLUE) This high viscosity anaerobic sealant was designed to seal any imperfection between the engine block and expansion plug. It's high gap filling abilities and medium strength capabilities make this product very desirable in areas where extra strength or sealing is needed, while allowing the product to be disassembled at a later date. This product is widely used by water pump remanufacturers during the installation of the water pump seal.



CLEANER / PRIMER

T-51481 PIONEER NUMBER

For all Anaerobic Compounds,
use on any surface.

- ☐ Cleans and primes
- ☐ Speeds anaerobic curing time
- ☐ Increases locking and sealing strength of anaerobic
- ☐ Saves money by increasing effectiveness of all anaerobic

Packed 4.5 Oz. Can / 12 Per Case

(Continued on next page)

AEROSOLS

ENGINE DEGREASER

421912 PIONEER NUMBER

- PETROLEUM PENETRATION AGENTS – Break-down and emulsify encrusted grease, grime, oil and other chemicals commonly found on or around engines; no scrubbing required.
- NON-STAINING – No extra clean-up required.
- WATER RINSEABLE – Quick, economic.
- PLASTIC-SAFE FORMULA – Will not damage wire or plastic parts.

13 OZ. CAN / 6 PER CASE

CARBURETOR / CHOKE CLEANER

421944-A PIONEER NUMBER

- EXTRA HIGH PRESSURE DELIVERY – Creates a powerful blast of cleaning action. Breaks down even baked-on gum, varnish and carbon.
- SPECIAL BLEND OF HIGH STRENGTH SOLVENTS – Removes harmful deposits from internal chambers quick and effective.
- SAFE ON OXYGEN SENSORS AND CATALYTIC CONVERTERS
- MULTI-APPLICATION RATED

16 OZ. CAN / 6 PER CASE

BRAKE CLEANER

419440-A PIONEER NUMBER

- HIGH PRESSURE SPRAY IN EXTRA LARGE CAN – Blasts dirt, grease, oil, grime, road film and rust. No scrubbing required.
- RESIDUE-FREE FORMULA – No contaminants.
- FAST-DRYING – Parts may be reassembled quickly.
- CONTAINS DEMOISTURANTS – Removes water from brake parts.

20 OZ. CAN / 6 PER CASE

ELECTRIC INSULATING VARNISH

419457 PIONEER NUMBER

- HIGH DIELECTRIC STRENGTH – 1200 VPM (Wet) and 2000 VPM (Dry)
- EXCELLENT CHEMICAL RESISTANT PROPERTIES – Resists acids, oils, alkalies, heat and moisture.
- RED BAKEABLE FORMULA – May be baked at 150° to 250°F.
- FAST AND DRYING.
- MEETS ASTM D-149 – Documented quality.

12-3/4 OZ. CAN / 6 PER CASE

COPPER GASKET

T-4000-A PIONEER NUMBER

EASY TO USE / SPRAY ON / SETS FAST

Pioneer Copper Gasket Cement contains expensive copper metal to improve heat transfer and eliminate hot spots. Outstanding holding power on large and hard-to-hold gaskets. Seals gaskets, hoses, and threaded fittings to prevent leaks. Sets up in just 60 seconds and remains tack for positioning and easy removal. Effective sealing properties over wide temperature range (20°F to 350°F). Performs equally well on metal, asbestos, felt, cork, or paper gaskets.

12-3/4 OZ. CAN / 6 PER CASE

AEROSOLS

PENETRATING OIL

T-777-A PIONEER NUMBER

Pioneer T-777 contains an ionized penetrating agent that chemically separates rust from base metal. Its capillary action penetrates into threads and tight fitting crevices where action is needed. It is a petroleum oil-base lubricant with anti-moisture properties that lubricates and helps prevent rust and corrosion.

T-777 has a wide temperature range (-25°F to 250°F) which allows it to be used on both indoor and outdoor applications. Each aerosol can has a unique nozzle design that produces a mist spray and is supplied with an extension tube for hard-to-reach areas.

PACKED 12 OZ. CAN / 6 PER CASE

DRY GRAPHITE

T-4005-A PIONEER NUMBER

DRY - For Pre-Assembly Lubrication

Step 1 (DRY) Spray Pioneer Dry Graphite Lubricant on any clean, dry surface. Dries in minutes. Bonds to metal, wood, concrete, and permits heavy loads up to 18,000 psi to slide easily. Conducts heat and electricity. Protects against rust and corrosion. Does not gather dust and grit. Effective from -80°F to +1060°F.

Used by leading engine rebuilders, automotive and machinery manufacturers. Great for locks, springs, lawn and garden tools, bicycles, overhead doors, and almost any other mechanical lubrication need.

12-3/4 OZ. CAN / 6 PER CASE

WET GRAPHITE

T-4010-A PIONEER NUMBER

WET- For Final Assembly Lubrication

Step 2 (WET) Spray Pioneer Wet Graphite Lubricant on engine and machinery parts for easy assembly and final assembly protection against wear, corrosion, seizure and misalignment. Withstands high temperatures. Reduces friction and heat. Creeps to protect and lubricates vital parts until oil pressure builds and circulating oil reaches these areas. Insures initial lubrication on new rebuilt engine components and machinery before start-up.

12-3/4 OZ. CAN / 6 PER CASE

KWIK-CHEK KITS

AEROSOL PENETRANT DYE CRACK DETECTION for ferrous and non-ferrous metals.

T-601

KIT CONTAINS: 1 Each – T-602 Penetrant, T-603 Cleaner, T-604 Developer packed in a durable plastic tool box. (ALSO AVAILABLE SEPARATELY)

UV CRACK DETECTION PRODUCTS

T-605

**KIT CONTAINS: 1 EACH - T-606 UV Cleaner -Remover, T-607 UV FLOURESCENT PENETRANT
T-608 UV Developer - (Also Available Separately)
*NOTE - USE SL-510 UV CRACK DETECTION LIGHT**

T-601 PIONEER NUMBER

T-605



8-1/2 OZ. CAN

VALVE RESURFACING OIL

T-614 PIONEER NUMBER

This specially designed oil is formulated to give a superior finish without loading up your stone. Not only will you get maximum cooling, our resurfacer oil with it's built in antifoaming agents, allow for a cleaner viewing of your work.

1 Gallon

(Continued on next page)

ULTRA VIOLET (UV) TESTING

MATERIALS AND EQUIPMENT

Our OEM approved ultra violet light leak detection system is quickly becoming recognized as the best way to find problem leaks.

The dyes listed below are designed to be introduced into the fluid that you suspect may be leaking. Once the dye has been introduced simply run the vehicle for a short period to distribute the dye through out the entire system. Now take the UV light and shine it on the suspect area. If the dye has leaked into the suspect area it will show up clearly under the UV light. All dyes are formulated so they will not interfere with the working properties of the fluid they are introduced into.

Dyes come in easy to pour 1 oz. bottles or convenient prefilled disposable capsules for Air Conditioning System. AC system dyes will work with both R-11, R-22, R-502 and R-134A refrigerants.

Tested in accordance with ASHRAE and ANSI standards.

Most testing requires just minutes from beginning to completion.

DYE KIT

PIONEER KIT NUMBER	DESCRIPTION
T-670	120 Watt Master Dye Kit

KIT CONTAINS:

- 1 - 120 Watt High-Intensity UV Inspection Light (T-672 Lamp & Case)
- 1 Pair of UV Absorbing Spectacles (T-679)
- 6 Tracer-Stick Capsules for R-12 AC Systems (T-685)
- 2 Control Valves (T-675)
- 1 Quick Coupler (T-678)
- 8 - 1 oz. Bottles of Gas Engine Oil Dye (T-680)
- 2 - 1 oz. Bottles of ATF Dye (T-681)
- 2 - 1 oz. Bottles of Engine Coolant Dye (T-682)



PIONEER NUMBER	DESCRIPTION
T-673	Replacement Bulb for 120 Watt Lamp
T-674	Replacement UV Filter/Lens

DYES

PIONEER NUMBER	DESCRIPTION	APPLICATION GUIDE
T-680-6	Gas Engine Oil Dye	1 oz./4-5 Quarts of Oil
T-681-6	Automatic Trans. Oil Dye	1 oz./6 quarts of Fluid
T-682-6	Engine Coolant Dye	1 oz./4 Gallons of Coolant
T-683-6	Fuel System Dye	1 oz./2 Gallons of Fuel



TRACER-STICK CAPSULE APPLICATION GUIDE

CHARGE* REFRIGERANT - Up to 2.9 Lbs.
 COMPRESSOR OIL - Up to 15 Fl. Oz.

PIONEER NUMBER	DESCRIPTION:	CONTROL VALVE	QUICK COUPLER
T-685	Mineral Oil	T-675 (2 required)	T-678
T-686	PAG	See Note (2 required)	Not Needed
T-687	ESTER	See Note(2 required)	Not Needed
T-688	Alkyl Benzene Coupler	See Note (2 required)	Not Needed
NOTE: T-676 IS FOR 1/2" ACME HOSE FITTINGS. T-677 IS FOR THE 3/8" FLARE FITTINGS			



FOR COMPLETE SELECTION OF QUALITY AUTOMOTIVE PRODUCTS,
 ASK FOR INFORMATION ON PIONEER PRODUCTS LISTED BELOW:

- CLUTCH BEARINGS/BUSHINGS •CLUTCH COMPONENTS
- ENGINE COMPONENTS •VALVE TRAIN COMPONENTS
- HIGH PERFORMANCE PRODUCTS •POWERTRAIN PRODUCTS
- TRANSMISSION PRODUCTS

CALL TOLL-FREE – 1-800-647-6272
OR MAIL TO P.O. BOX 191, MERIDIAN, MS 39301

(Continued on next page)

PENTRANT / LUBRICANT

HYPEN provides excellent water displacement rust protection for long term indoor exposure or short term outdoor exposure and passes 2,000 hours in the humidity cabinet. It also displaces water and dries out parts or assemblies.

HYPEN is an excellent rust and corrosion inhibitor in acid contaminated atmospheres. In addition to being an excellent rust inhibitor, HYPEN is an outstanding penetrant for freeing up seized bolts, hinges and corroded assemblies.

Apply HYPEN to frozen joints or parts, then tap the joint to set up vibration. HYPEN will loosen and lubricate the frozen joint. In stubborn cases, allow several hours for HYPEN to penetrate.

Physical Properties: Color – Clear Amber / Flash Point – 140°F / Spray, Brush or Dip / Leaves Thin Oily Film

PIONEER NUMBER	T-5140-1	1 Gallon
	T-5140-5	5 Gallon
	T-5140-55	55 Gallon

CLEANER / SOLVENT

HYKLEEN is a heavy duty general purpose cleaner/solvent for removing oil, wax, mildew, grease and grime.

HYKLEEN is non-flammable, biodegradable and economical because it is water diluted. It is a heavy duty solvent cleaner for walls floors, machines, lavatories, vehicles, motors and production parts.

HYKLEEN is easy to use following a simple four step process.

1. Dilute with recommended amount of water.
2. Spray, dip or mop on surface to be cleaned.
3. Wait a few minutes for solvent to penetrate.
4. Wipe off or spray with water.

For particularly difficult soil, repeat the process.

PIONEER NUMBER	T-5160-1	1 Gallon
	T-5160-5	5 Gallon
	T-5160-55	55 Gallon

CONCENTRATE - DILUTE AS FOLLOWS:

Light Cleaning – Add 20 parts water

Medium Cleaning – Add 10-20 parts water

Heavy Cleaning – Add 0-3 parts water

SUPER DUTY SYNTHETIC GRINDING SOLUTION

Especially designed for Carbide Grinding and use in all Automotive grinding applications.

- Reduces wheel wear
- Superior finish
- No foam
- Extends stone life
- Improve finish
- Kind to the skin
- Corrosion resistant

PIONEER NUMBER	T-5155-1	1 Gallon
	T-5155-5	5 Gallon

Grinding Mix: 1:40 to 50 (In head surface applications - Mix 1:30, journal grinding applications normally report double stone life at 1:40. 1:50 is the design mixture limit.) Operating mix ratio's are suggested and may be varied depending on materials, feed and speeds.

ALUMINUM CLEANER

ALUMNIKLEEN is a non-toxic water based cleaner for aluminum heads, blocks, pistons, carburetors, water pump housing, etc.

It effectively removes carbon, grease, varnish and dirt from aluminum without smutting. ALUMNIKLEEN is especially formulated for the rebuilder for use in hot or cold soak applications and in jet spray washes.

ALUMNIKLEEN is also non-hazardous for employees. It eliminates the toxicity and odor of the cresylic acid* cleaners and avoids the noxious fumes and hazards of acid cleaners.

CONCENTRATE - DILUTE AS FOLLOWS:

REBUILDERS PARTS.....	Cold Soak, 20 to 25 parts water with 1 part Aluminum Cleaner
HEAT SOAK	25 to 35 parts water with 1 part Aluminum Cleaner
JET SPRAY	Same as hot soak

(* ALUMNIKLEEN DOES NOT CONTAIN CRESYLIC ACID.)

PIONEER NUMBER	T-5175-5	5 Gallon
	T-5175-55	55 Gallon

CUTTING / TAPPING FLUID

For tapping...drilling...sawing...boring...reaming...
milling...threading...facing

HYTAP is a cutting fluid that improves surface finish, machinability and improves tool life.

HYTAP'S refrigerant and anti-bonding chemicals help prevent dulling taps and drills by keeping them cool and letting the chips flow out, carrying the heat away from the work piece.

With HYTAP you know you will get a finer finish and that the threads will be the exact size of the tool you have chosen. There will be no galling or chatter marks and the tool will be good for many more cycles.

PIONEER NUMBER	T-611
	T-611-1
	T-611-5

8 Oz. Bottle
1 Gallon
5 Gallon

ALUMINUM CUTTING AND TAPPING MACHINING OIL

This machine quality oil is specially formulated to prevent build-up when drilling, reaming, tapping and turning aluminum. Pioneer Aluminum Machining Oil is designed to improve the finish and reduce aluminum flake build-up when machining aluminum.

(Packaged in handy plastic squirt bottle)

PIONEER NUMBER	T-666
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16 Oz. Bottle

ENGINE ASSEMBLY FLUID

PRELUBE Engine Assembly Fluid is specially formulated for assembly of both gasoline and diesel engines.

The viscosity is sufficiently high to maintain a lubricating film even after long storage at high ambient temperatures and yet not so high that it cannot be sprayed from conventional hand pump oilers

PRELUBE Engine Assembly Fluid contains a special extreme pressure additive that plates out on the bearings and journals to assure freedom from scoring or galling during that critical engine start up period before the oil pump delivers engine oil to the bearings.

In addition to the special extreme pressure, lubricity and anti-gall additives, PRELUBE Engine Assembly Fluid contains corrosion inhibitors to prevent rust and corrosion in storage.

PIONEER NUMBER	T-5110
	T-5110-1
	T-5110-5

4 Oz. Bottle
1 Gallon
5 Gallon

GRINDING SOLUTION

HYKOOL is a heavy duty biodegradable synthetic grinding solution especially formulated for use in crankshaft and head surface grinding operations.

HYKOOL contains detergency lubricity and extreme pressure additives to improve wheel life and finish on parts.

The lubricity and extreme pressure additives also permit high speed grinding without burning of the surface being ground. HYKOOL contains additives to inhibit rust and corrosion of parts and equipment and to inhibit bacterial growth in the coolant for long tank life. These coolants do not contain any potential hazardous nitrates, nitrosamines, phenols, heavy metals or other toxic ingredients.

HYKOOL is highly concentrated. Normal ratio of end-use liquid is one part concentrate to 30 to 40 parts water. 20 parts water to 1 part solution recommended for belt sanders.

To determine amount of water used in tank to get correct concentrate charge: Measure in inches-vat length x width x depth = total cubic inches. Divide by 231 (number of cubic inches in gallon) = number of gallons of water. Then figure concentrate for amount of water.

PIONEER NUMBER	T-5150-1
	T-5150-5
	T-5150-55

1 Gallon
5 Gallon
55 Gallon

HONING OIL

This MULTI-PURPOSE HONING OIL provides better finish and closer tolerances, increased tool life between regrinds, superior antiweld performance, flushes bore free on honing swarf.

Recommended for continuous honing of most materials including steel, cast iron, carbide, aluminum, bronze and ceramics. For use with any make honing equipment or tooling.

Recommended for Disc Brake Calipers / Increases rock and stone life due to better distribution of pressure load / Contains no sulphur / Spent oil can be burned in boilers.

PIONEER NUMBER	T-5170-5
	T-5170-55

5 Gallon
55 Gallon

(Continued on next page)

RTV SILICONE

RTV (Room Temperature Vulcanizing) SILICONE is fast eliminating cut gaskets. The RTV designation was derived by its ability to cure at room temperature.

RTV SILICONE has found its way into virtually all aspects of automotive and heavy-duty rebuilding. Pioneer offers a wide variety of RTV Silicone for all applications. We offer the RTV product that is right for you.

T-4100 thru T-4103 are packaged in no waste, disposable 8 oz. aerosol cans.



PIONEER NUMBER **T-4100**

RTV BLUE SILICONE - Easy Gasket Maker / Rubber Based

Adhesive / Makes any size gasket in minutes / Withstands temperatures to 500°F. / Fills holes, stops leaks / Repairs worn rubber parts / Adheres to wood, glass, metal, masonry, and plastics / Dries tough and flexible.

PIONEER NUMBER **T-4101**

RTV "PREMIUM" BLACK SILICONE - Easy Gasket Maker

/ Premium grade RTV Silicone in a pressurized dispenser. Provides superior non-leaking seal for automotive and industrial gaskets and sealing. Low volatile formula - 60°F to 450°F temperature range (meets GM specs. for hot oil resistance, Ethylene Glycol resistance and oxygen sensor equipped engines.)

PIONEER NUMBER **T-4102**

RTV RED HI-TEMP LOW VOLATILE SILICONE - Easy

Gasket Maker / High temperature silicone in a pressurized container. Withstands temperatures up to 650°F (Meets GM specs. GM1052734, GM1052366, GM1052334). Low odor, non-corrosive formula suitable for use on aluminum, steel or iron.

PIONEER NUMBER **T-4103**

RTV "PREMIUM" BLUE SILICONE - Easy Gasket Maker /

Premium grade RTV Silicone in a pressurized dispenser. Non-leaking formula produces gaskets with superior oil resistance and low odor. Non-corrosive, low volatile formula - 60°F to 450°F temperature range (Meets GM specs. for oxygen sensor equipped engines.)

ALSO AVAILABLE:

3OZ. TUBE & 11OZ CAULK TYPE TUBE

- All Premium RTV Sealants are oxygen sensor safe and Ethylene Glycol resistant.
- Red Hi-Temp RTV sealant is oxygen sensor safe and Ethylene Glycol resistant.
- All other RTV's are not recommended to be used on vehicles equipped with oxygen sensors.

	PIONEER NUMBER	PIONEER NUMBER
Type	3 OZ. TUBE	CAULK TYPE 11 OZ. TUBE
Premium Blue	T-413	T-4107
Premium Black	T-406	T-4104
Red Hi-Temp	T-411	T-4105
Clear RTV	T-412	T-4106

METAL MARKER

Refillable 2 oz. bottle Metal Markers have heavy opaque, fast drying ink that is designed to write on metal, glass, wood and other surfaces.

PIONEER NUMBER	COLOR
T-5120-B	Blue
T-5120-B-12	Blue
T-5120-O	Orange
T-5120-O-12	Orange
T-5120-R	Red
T-5120-R-12	Red
T-5120-W	White
T-5120-W-12	White
T-5120-Y	Yellow
T-5120-Y-12	Yellow



REFILLS

Metal Marker one (1) quart ink refills. Available in blue, orange, red, white and yellow.

PIONEER NUMBER	COLOR
T-5121-B	Blue
T-5121-O	Orange
T-5121-R	Red
T-5121-W	White
T-5121-Y	Yellow



T-5122-25 Replacement Tip

DYKEM® LAYOUT FLUID

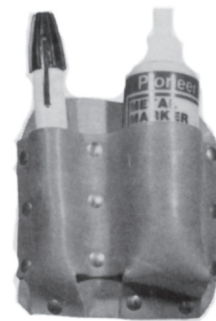
These layout fluids come with a convenient easy to use brush in the cap. Just brush on and it dries to a tough finish in two minutes. Ready to scribe on within 10 minutes. Available in two easy to see colors:

Traditional Steel Blue & Steel Red.

PIONEER NUMBER 419458	Steel BLUE
PIONEER NUMBER 419459	Steel RED



METAL MARKER HOLSTERS



Keep your bottle Metal Marker close at hand. Quality leather holster slips through belt loops or clips on.

Keep **both** 2 oz. bottle Metal Marker and felt tip Industrial Marker handy.

PIONEER NUMBER	DESCRIPTION
T-5123	Metal Marker Holster (Bottle)
T-5124	Dual Holster (Bottle & Felt Tip Marker)

INDUSTRIAL MARKER

PIONEER NUMBER

T-5125
T-5125-12

Available in BLACK only.

INDELIBLE INK - Hard pointed felt tip for accurate marking.
Just press to release ink.



TAG KIT

PIONEER NUMBER

T-5126-K

**PARTS TAGS
W/MARKERS**

Tag your part permanently with these white plastic tags.
Tag Dimensions - Approximately 2-1/4" x 3-1/2"

KIT CONTAINS: 1,000 Tags
1,000 Tag Wires
3 Black Industrial (Felt Tip) Markers



(Continued on next page)

COOLING SYSTEM FLUSH & SEALER

FLUSH

PIONEER NUMBER **T-613**

Use **T-613 Radiator and Cooling System Flush** to effectively loosen and remove rust, scale, grease, oil and sludge from your radiator and cooling system.

T-613 also leaves a corrosion inhibiting coating to protect your engine radiator.

16 Oz. Bottle



SEALER

PIONEER NUMBER **T-612**

Protect your anti-freeze investment with **T-612 Sealer**.

- ☐ Seals leaks and cracks in the cooling system.
- ☐ Prevents anti-freeze seepage.
- ☐ Lubricates water pump seals.

This fast acting non-corrosive, non-clogging sealer is recommended for use with any anti-freeze or coolant.

8 Oz. Bottle



COOLING SYSTEM CERAMIC COAT -High Performance

PIONEER NUMBER **T-610** – 16 Oz. Bottle
PIONEER NUMBER **T-610-A** – 1 Gallon

Seals and Coats Auto and Truck radiators and Cooling Systems.

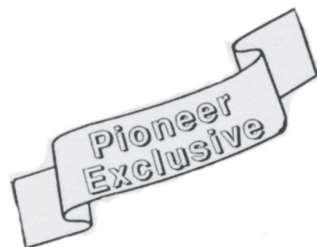
- ☐ Forms a ceramic coat in entire cooling system.
- ☐ Reduces friction and increases engine power.
- ☐ Seals leaks and minor cracks in head and block.
- ☐ Recommended for High-Performance and heavy duty use.
- ☐ Cooling System must be FREE of Anti-Freeze.

16 Oz. Bottle

For Large Trucks use T-610-A (1 Gallon)



AIR FLO



PIONEER NUMBER **T-5100**

AIR FLO Radiator Sealant and Leak Preventative eliminates radiator “comebacks”. A premeasured scoopful (scoop included in every can) blown into each manufactured or remanufactured radiator provides “insurance” against pin hole leaks and seepage after installation.

- ☐ **SEALS OIL TO WATER LEAKS**
- ☐ **CLEANS AS IT SEALS, WON'T CLOG**
- ☐ **SEALS INTERNAL AND EXTERNAL LEAKS**
- ☐ **SAFE FOR ALUMINUM AND ALL METALS**
- ☐ **INDUSTRY PROVEN FOR OVER 50 YEARS**
- ☐ **PREVENTS DEPOSITS OF RUST AND CORROSION**
- ☐ **SAFE FOR USE WITH ALL TYPES OF ANTI-FREEZE**

INSURE your good work against installation and transport damage with **AIR FLO**.

(14 OZ. CAN / 6/CASE)



REBUILDER CUBES

PIONEER NUMBER T-5101	32 CUBES/BOX
PIONEER NUMBER T-5101-250	250 CUBES/BOX

For use by engine remanufacturers and machine shops, cubes placed in the water jacket before the last expansion plug is installed will protect and “insure” against water seepage. The same exclusive formula as **AIR FLO** in easy to use cube form.

“Proven effective for over 50 years.”

(Continued on next page)

HAND CLEANER

HAND CLEANER WITH SCRUBBING PARTICLES

PIONEER NUMBER **421406** – 1 Gallon

From the race track to the shop.

- ☐ Contains scrubbing particles for superior scrubbing strength.
- ☐ Scrubbing particles dissolve and won't clog drains like pumice.
- ☐ Use with or without water.
- ☐ Professional strength lotion formula attacks grease, grime, soil, resins, ink, paint, glue, etc.
- ☐ Skin care formula to condition hands.
- ☐ Convenient pump dispenser for fast, easy application with no waste.
- ☐ 1 gallon container with carrying handle for convenience.
- ☐ Pleasant scent with no offensive chemical odor.

MAGNETEST POWDER

Pioneer Magnetest Powder especially formulated for use in crack detection.

Available in a variety of sizes and choice of gray or yellow.

– GRAY –			– YELLOW –		
PIONEER NUMBER	COLOR	SIZE	PIONEER NUMBER	COLOR	SIZE
MP-2-G	Gray	2-1/2 Lbs.	MP-2-Y	Yellow	2-1/2 Lbs.
MP-10-G	Gray	10 Lbs.	MP-10-Y	Yellow	10 Lbs.
MP-25-G	Gray	25 Lbs.	MP-25-Y	Yellow	25 Lbs.
MP-100-G	Gray	100 Lbs.	MP-100-Y	Yellow	100 Lbs.

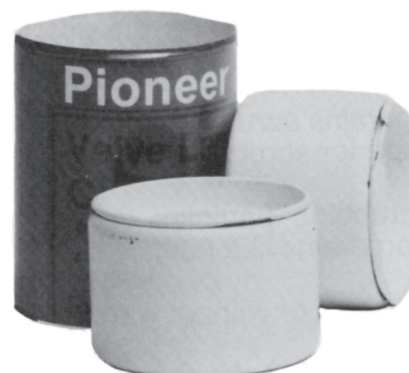
LAPPING COMPOUND

451840 PIONEER KIT NUMBER

Available in convenient duplex cans with coarse and fine abrasive compounds.

EACH KIT CONTAINS - 2 – 2 Oz. Cans each of coarse (120 Grit) perfect for seating and fine (280 Grit) ideal for finish work.

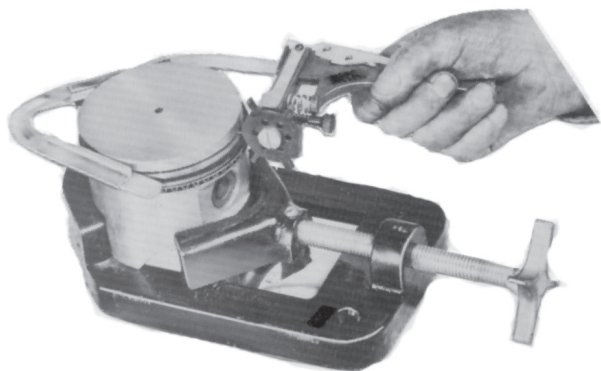
(12 Per Case)



PISTON GROOVE

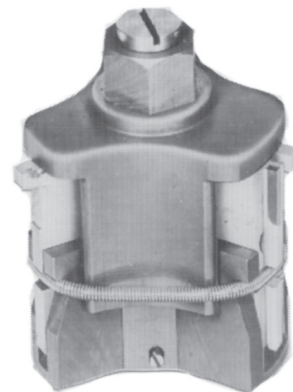
RIDGE REAMER

CUTTER & CLEANER



Designed for limiting the depth of cut. Slide flanges for slotted pistons. Five points for grooving and one for trimming lands on one blade. Spring-and-ball ratchet controls alignment of blade. Cutter is hardened and ground. Weight 1 Lb.

PIONEER NUMBER	DESCRIPTION
T-222	FITS ALL PISTONS (Range 2.6" to 5")
T-222-D	CUTTER - Widths: 3/32", 1/8", 5/32", 3/16", 1/4"
T-222-A	CUTTER BLADE ONLY - Wide Groove Widths: 1/16", 5/64", 3/32", 1/8", 3/16"
T-222-B	CUTTER BLADE - 1/16" .062, 1/16" .062 (two blades same size, most popular), 1/4" .250, 5/16" .312", 3/8" .375
T-222-C	CUTTER BLADE - 1/16" .062, 5/64", 3/32", 1/8", 3/16"
T-222-M	CUTTER BLADE - Millimeter Sizes: 5mm, 4mm, 3mm, 2.5mm, 1.5mm



SPEED...SIMPLICITY...DURABILITY

This type turns as a unit in the engine cylinder and is supported by lugs projecting from the expansion plates and resting on top of the engine block.

CARBIDE TIPPED CUTTER and automatic stop assures cutting pressure against the ridge by a coiled compression spring of correct strength. The Carbide top will cut the hardest ridges with ease. The pivotal mounting insures against over cutting and the spring pressures a cut conforming to the shape of the cylinder wall, regardless of the out-of-round condition.

Individual Carton / Weight 2 Lbs.

PIONEER NUMBER	DESCRIPTION
T-298	CARBIDE TIPPED CUTTER - Range 2-5/8" to 4" (66.7 - 101.6mm)
T-299	Extra Carbide Cutter for Above

SOLID CARBIDE BURS

PIONEER NUMBER

449100

Set of Eight 1/4" Shank X 1-5/8" Burs in a sturdy oak box.

Solid carbide cutting burs for porting, chamfering, deburring, etc. Highest quality materials and workmanship available.

PIONEER NO.	CUTTER DIAMETER	FLUTE LENGTH	STYLE NO.
449143	1/2"	1"	1
449145	3/8"	3/4"	2
449147	1/2"	1"	2
449151	1/2"	7/16"	3
449152	3/8"	3/4"	4
449155	1/2"	1"	4
449157	3/8"	3/4"	5
449162	1/2"	1-1/8"	6
449160	60°	1/2"	
449190	90°	1/2"	



STYLE NO.

(Continued on next page)

LONG SHANK (Single Cut) SOLID CARBIDE BURS

1/4" Shank Diameter - 6" Long Steel Shank



PIONEER NO. 449145L



PIONEER NO. 449152L



PIONEER NO. 449151L



PIONEER NO. 449157L



PIONEER NO. 449162L

PIONEER NUMBER	DESCRIPTION	CUTTER DIAMETER	LENGTH OF CUT
449145L	Cylinder - Radius End	3/8"	3/4"
449151L	Ball Shape	1/2"	7/16"
449152L	Tree Shape - Radius End	3/8"	3/4"
449157L	Cylinder - Radius End	1/4"	1/2"
449162L	14° Taper - Radius End	1/2"	1-1/8"

SOLID CARBIDE BURS – FOR ALUMINUM



PIONEER NO. 449143A



PIONEER NO. 449151A



PIONEER NO. 449145A



PIONEER NO. 449155A



PIONEER NO. 449162A

NF Burs are designed for use on aluminum, nonferrous metals, soft steel, reinforced plastics and other soft materials. The NF Burs feature authentic milling cutter relief style of flute grind and high flute finish for easy chip flow and fast stock removal. These burs also provide excellent work finish with minimum loading when cutting soft, sticky materials.

PIONEER NUMBER	DESCRIPTION	SIZE	SHANK DIAMETER
449143A	Cylinder Shape	1/2" x 1"	1/4"
449145A	Cylinder Shape - Radius End	1/2" x 3/4"	1/4"
449151A	Ball Shape	1/2" x 7/16"	1/4"
449155A	Tree Shape - Radius End	1/2" X 1"	1/4"
449162A	14° Taper - Radius End	3/8" x 1-1/16"	1/4"

BRAKE - REPLACEMENT CARBIDE TIPS

Replaceable Carbide Inserts - The modern and most efficient way to maintain sharp cutting tools for optimum performance.

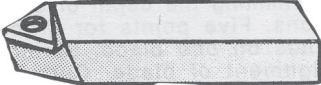
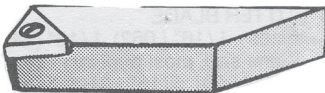
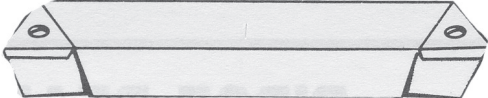
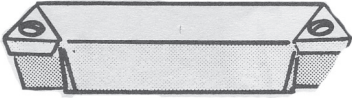
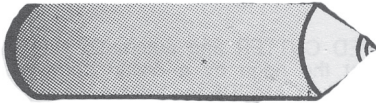
Maintaining a supply of carbide inserts and insert locking screws insures that the toolholder will be serviceable at a moments notice.

AMMCO		HORVATH	
PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION
TC-10-10	AMMCO MODEL 3000, 4000, 4100, 6900, 7000 DISC ROTOR LATHE  Triangular Carbide Insert - Has six (6) cutting edges by indexing the inset. <i>Ammco No. 9629</i>	TC-16-6	HORVATH STYLE 1600 TOOLHOLDER  Triangular Carbide Insert - Has six (6) cutting edges by indexing the insert. <i>Horvath No. 1605</i>
TC-11-6	AMMCO MODEL 3000, 4000, 4100, 7700 DRUM LATHES  For Cars & Light/Medium Trucks Triangular Carbide Insert - Has three (3) cutting edges by rotating the insert. <i>Ammco No. 9640</i>	KWIK-WAY	
TC-12-3	AMMCO OLDER MODEL 3000, 4000 LATHE  Oblong Carbide Insert - Has two (2) cutting edges by rotating the insert. <i>Ammco No. 3205640</i>	TC-17-6	KWIK-WAY MODEL SKL AND 850 DISC BRAKE ATTACHMENT  Triangular Carbide Insert - Has three (3) cutting edges by rotating the insert. <i>Kwik-Way No. 109-1092-07</i>
TC-13-2	AMMCO MODEL 5000 LATHE FOR TRUCKS  Carbide Insert - Has three (3) cutting edges. <i>Ammco No. 5677</i>	VAN NORMAN	
BEAR		TC-18-3	RIGHT HAND FOR STANDARD BRAKE AND FLYWHEEL LATHES  VAN NORMAN MODEL 204, 205, 205DR, 300, 302 AND 333 <i>Van Norman No. 24176-D</i>
TC-14-6	BEAR 1478 DISC LATHE AND 1410 DRUM LATHE  Left and Right Hand Tool Holders Carbide Insert - Has six (6) cutting edges. <i>Bear No. 72283-4</i>	TC-19-3	LEFT HAND FOR VAN NORMAN MODELS 303, 304, 305, 404, 405  <i>Van Norman No. 24209-D</i>
FMC		TC-20-2	VAN NORMAN DISC LATHE MODELS 204D, 205DC, 415 AND OTHERS  3/8" Inscribed Circle <i>Van Norman No. 29687</i>
TC-15-6	ALL FMC LATHES  Triangular Carbide Insert - Has three (3) cutting edges. <i>FMC No. 487</i>	TC-21-2	VAN NORMAN FLYWHEEL CUTTER AND FLYWHEEL ATTACHMENT  1/2" Inscribed Circle <i>Van Norman No. 25368</i>
BRAKE DRUM		TC-25	CARBOLOY AND KENAMETAL TOOLHOLDER  TNMS Negative Rake Carbide Insert with positive chip control 1/32 Radius - 3/8" I.C. - 3/16" Thick

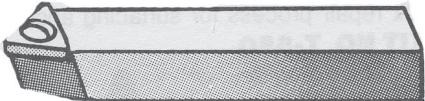
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BRAKE - CARBIDE TOOLHOLDERS WITH TIPS

AMMCO

PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION
TC-30	AMMCO OLDER MODEL 3000, 4000, 4100, 7700 LATHES  Clamp type tool holders assembly Includes: Carbide Insert TC-12 w/Locking Clamp and Screw 3/8" x 1/2" Shank <i>Ammco No. 3657</i>	TC-34	MODEL 3000, 4000, 4100, 7700 DRUM LATHES  Right Hand negative rake tool holder Complete w/Carbide Insert TC-10 & Insert Locking Screw 3/8" x 1/2" Shank <i>Ammco No. 9872</i>
TC-31	MODELS 3000, 4000, 41000, 7700 LATHES  Small Drum turning 5/8" x 3/4" Shank <i>Ammco No. 5392</i>	TC-36	RIGHT HAND TOOL HOLDER ASSEMBLY FOR MODEL 3000, 4000, 4100 DRUM LATHES & MODEL 6900, 7000 DISC ROTOR LATHE  Complete w/Carbide Insert TC-10 & Insert Locking Screw 3/8" Shank <i>Ammco No. 10701</i>
TC-32	MODEL 5000 BRAKE LATHE FOR TRUCKS  Flywheel facing set & for disc brake rotors double-end heavy-duty. Complete w/Carbide Inserts TC-13 & Insert locking screws 5/8" Square Shank <i>Ammco No. 5878</i>	TC-37	LEFT HAND TOOL HOLDER ASSEMBLY For use on same Models as TC-36
TC-33	MODEL 3000, 4000, 4100, 7700 DRUM LATHES  Cars & Light/Medium Trucks, Double-end disc toolholder. Complete w/2 Carbide Inserts TC-13 & insert locking screws 3/8" Square Shank <i>Ammco No. 7692</i>	TC-48	DIAMOND NIB FOR AMMCO MODEL 3000, 4000, 5000  1/10th Carat Diamond 1/2" x 1-3/4" Round <i>Ammco No. 3229</i>

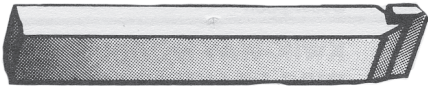
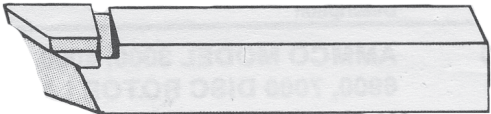
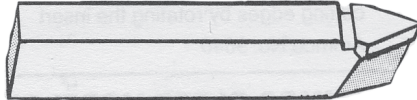
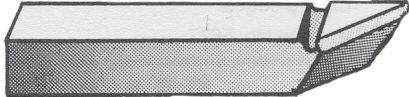
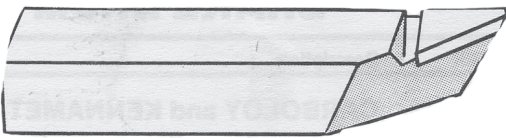
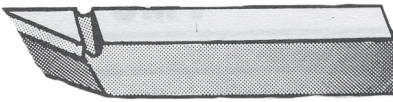
FMC

	TC-40	RIGHT HAND FMC FOR ALL FMC BRAKE LATHES 3/8" Square Shank <i>FMC No. 494</i>
	TC-41	LEFT HAND FMC FOR ALL FMC BRAKE LATHES <i>FMC No. 495</i>
	TC-65	RIGHT HAND FMC OFFSET CUTTER FOR FOREIGN ROTORS Use w/hubs that have wheel mounting flange, preventing standard cutters from beginning at the worn portions. For use w/Dodge Colt, Toyota & other, when a 3/8" Square Shank is required. Complete w/Carbide Insert No. TC-15 & Insert Locking Screw. 3/8" Square Shank <i>FMC No. 494</i>
	TC-66	LEFT HAND FMC OFFSET CUTTER For use when a 3/8" Square Shank is required (For use on same as above)

BRAKE - CARBIDE TIP CUTTING TOOLS

Pioneer Brazed Turning Tool is made with the finest quality carbide cutting edge available and are solidly and firmly bonded by induction-brazing to steel shanks.

AMMCO

PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION
TC-50	MODEL 3000, 4000, 4100, 7700, DRUM LATHES  For Heavy Duty Drum Turning Easily resharpened by grinding across flat top 3/8" Square Shank <i>Ammco No. 4114</i>	TC-54	BRAKE DRUM – MODEL 5000, 6000 BRAKE LATHE FOR TRUCKS  LEFT HAND Heavy Duty Tool Super-Duty Truck Drum Turning Tool 5/8" Square Shank
TC-51	MODEL 3000, 4000, 4100, 5000, 6000 AND 7000 DRUM LATHES  RIGHT HAND Heavy Duty Tool for Cars and Light/Medium Trucks Hard Spot Tool 1/2" Square Shank <i>Ammco No. 4725</i>	TC-55	MODELS 5000, 6000 BRAKE LATHE FOR TRUCKS  Van Norman No. 310, 404 (Big Brute), 510 For cuts going IN or OUT of a drum Super-Duty Truck Drum Turning Tool 5/8" Square Shank <i>Ammco No. 5725</i>
TC-52	MODEL 5000, 6000 DRUM LATHES  LEFT HAND Heavy Duty Tool for Cars and Light/Medium Trucks 1/2" Square Shank <i>Ammco No. 4726</i>	TC-56	RIGHT HAND TOOL FOR:  BARRETT - Model B-400 BEAN-FMC - B-4E, 400, 401, 410, 500, 501, 727 BEAN-FMC - Model 644, 645 Disc Attachment BEAR - Models 1405, 1405, 1407, 1410, 1418, 1419, 1466B, 1467B ALL DIXIE KWIK-WAY - SDL & DL KW-850 Disc Attachment STAR - 1200 Drum Lathe & 1265 Disc Lathe ALL VAN NORMAN - Models DR-205 & 205C, DRB-204, 204H, 205, 300, 333H 3/8" Square Shank <i>Ammco No. CT-41</i>
TC-53	MODEL 5000, 6000 BRAKE LATHE FOR TRUCKS  For Van Norman No. 310, 404, 405 RIGHT HAND Tool for coming OUT of a drum Super-Duty Truck Drum turning tool 5/8" Square Shank <i>Ammco No. 5720</i>	TC-57	LEFT HAND TOOL FOR:  BEAR - Model 1466B, 1467B BEAN-FMC - Model 644, 645 Disc Attachment KWIK-WAY - Model SDL & DL KW-850, Disc Attachment STAR - Model 1265 Disc Lathe VAN NORMAN - Model 303, 304, 304H 3/8" Square Shank <i>Ammco No. CT-42</i>

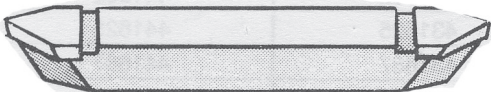
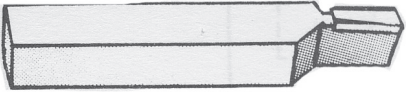
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BRAKE - CARBIDE TIP CUTTING TOOLS, Cont'd.

VAN NORMAN

PIONEER NUMBER	DESCRIPTION	
TC-58	RIGHT HAND TOOL FOR VAN NORMAN NO. - DRB-204, 204H, 205, 300, 300H, 302, 302H, 303, 333, 333H AMMCO NO. - Models 3000, 4000, 4100, 7700 3/8" x 1/2" Shank	
TC-59	LEFT HAND TOOL used on the above mentioned Lathes	

AMMCO

TC-62	DOUBLE-END DRUM TOOL FOR AMMCO MODELS 6900 & 7000		TC-63	RIGHT HAND GROOVING & CUT-OFF TOOL	
	Designed especially for hard spot cuts IN or OUT of drums. Fits ANY lathe using a 3/8" Square Shank Tool 3/8" x 1/2" Shank			For general purpose lathe work 1/8" wide carbide tip can be ground to meet your requirements 2-3/4" Shank Length / 3/8" Square Shank	
			TC-64	LEFT HAND GROOVING & CUT-OFF TOOL Same as TC-63 in opposite hand.	

BORING BAR CUTTERS

KWIK-WAY

PIONEER NUMBER	MFG. NO. / DESCRIPTION	MODEL NO. / DESCRIPTION
TCK-20C	Cut-Off (5/16)	All Bars after Serial No. 1700
TCK-20F	062-1072-00 (1-1/8")	FS, FR, FW, FT, FN, FL - Finish
TCK-20R	062-1071-03 (1-1/8")	FS, FR, FW, FT, FN, FL - Roughing



TCK-20C

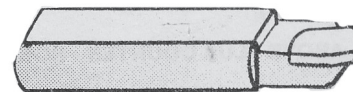
TCK-20F



TCK-20R

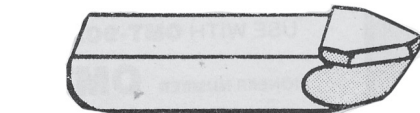
ROTTLER

TC-44	—	1-1/4"
TC-45	—	1-3/4"
TC-46	—	1-7/16"
TC-47	Cut-Off	1-7/16"



VAN NORMAN

TC-42	570-00065 (1/2" Dia. x 1-15/16" Long)	570 Head Resurfacers & Super Rotary Broach
TC-43	777-00179 (3/8" Dia. x 7/8" Long)	944S, 777S, 777S, 777S-4



TC-42



TC-43

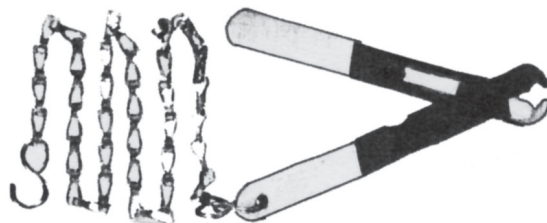
FILES

PIONEER NUMBER	DESCRIPTION	SIZE
421724	Flat Bastard	10"
		
421727	Mill Bastard	10"
		
421731	Half Round Bastard	10"
		
421735	Round Bastard	10" x 3/8"
		
421748	Slim Tapered	10"
		
421739	Triangle Bastard	10"
		

WIRE CUTTERS

Equipped with slide bolt for adjustable insulation stripping.
Chain and hook length of 18" to fasten cutter to rack or counter.

419336 PIONEER NUMBER



UTILITY KNIFE

Contains a retractable blade with thumb control to adjust blade to 3 locking positions.
Die Cast handle provides handy blade storage.



421714 PIONEER NUMBER

Replacement Blade

421716-50 (50/Box)



INDUSTRIAL RAZOR BLADE (Single Edge)

421719-100 PIONEER NUMBER

For use with Pioneer Numbers:
421718 & 419033.

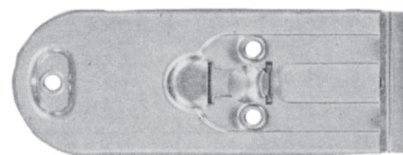
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RAZOR BLADE HOLDER

421718 PIONEER NUMBER

Ideal for general purpose.
Closed for safety.



ALL PURPOSE SCRAPER

419033 PIONEER NUMBER

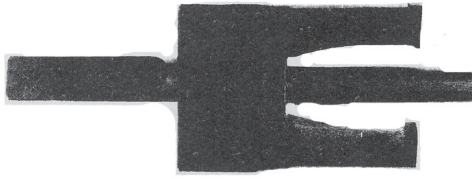
Ideal for gasket scraping, paint removal
and general purpose.
Closed for safety.



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VALVE SPRING CUTTERS

Carbide tipped Valve Spring Seat Cutters for enlarging and correcting valve spring pads for oversize dual valve springs.



ORDER CUTTER BODIES AND PILOTS SEPARATELY			
CUTTER BODIES		PILOTS	
PIONEER NO.	STEM DIA.	PIONEER NO.	STEM DIA.
431457	.625 x 1.350	431436	5/16" (.312)
431458	.625 x 1.500	431438	11/32" (.343)
431459	.625 x 1.750	431442	3/8" (.395)
		431445	7/16" (.437)

VALVE TOP CUTTER

This straight shanked replaceable tipped guide top cutter is to be used when removing the excess material after installing a brass valve guide liner. This tool measures 5/8" x 4" and along with the interchangeable pilots it has a replaceable carbide insert which is held in place by holding screws.

PIONEER NO.	APPLICATION
K-4233	Small Diameter Guide Top Cutter
K-4235	Deluxe Guide Top Cutter
K-4236	Replacement Carbide Blade

CUTTER PILOTS

PIONEER NO.	DIAMETER	PIONEER NO.	DIAMETER
K-4238	5/16"	K-4243	7mm
K-4239	11/32"	K-4244	8mm
K-4240	3/8"	K-4245	9mm
K-4241	7/16"	K-4246	5.5mm
K-4242	6.6mm	K-4247	5mm



CARBIDE TIP GUIDE TOP CUTTER



Designed for cast iron valve guides with three carbide blades, face or shorten this wall cast iron valve guides. Fits a variety of production guide machines or can be used with a 3/8" or 1/2" portable drill.

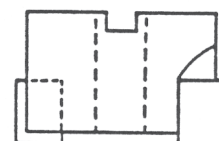
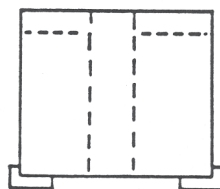
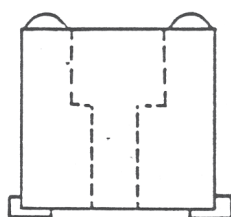
ORDER CUTTER BODIES AND PILOTS SEPARATELY				
CUTTER BODIES			PILOTS	
PIONEER NO.	DESCRIPTION	APPLICATION	PIONEER NO.	SIZE
44270	15/16" Dia. x 2" x 3/8"	3/8"-1/2" Portable Drills	K-1270-A	5/16" / 8mm
			K-1270-B	11/32"
			K-1270-C	3/8"
			K-1270-D	7/16"
			K-1270-E	1/2"
			K-1270-F	9mm
			K-1270-G	10mm

VALVE SEAT CUTTERS

IDL, VAN NORMAN

KWIK-WAY

WINONA, DCM,

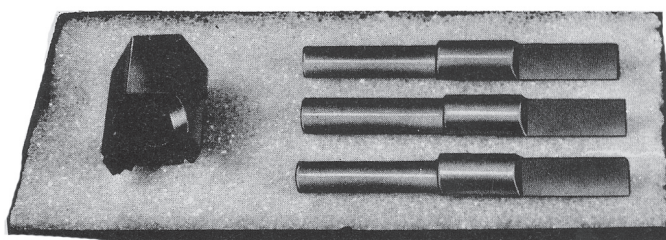


SIZE	DEC.	PIONEER NUMBER	PIONEER NUMBER	PIONEER NUMBER
		(IDL & VAN NORMAN #)	(KWIK-WAY, PETTERSON #)	(WINONA, DCM, PICKETT #)
1-1/4"	1.250	421250	431250	441250
1-5/16"	1.312	421312	431312	441312
1-3/8"	1.375	421375	431375	441375
1-7/16"	1.437	421437	431437	441437
1-1/2"	1.500	421500	431500	441500
1-9/16"	1.562	421562	431562	441562
1-5/8"	1.625	421625	431625	441625
1-11/16"	1.687	421687	431687	441687
1-3/4"	1.750	421750	431750	441750
1-13/16"	1.812	421812	431812	441812
1-7/8"	1.875	421875	431875	441875
1-15/16"	1.937	421937	431937	441937
2"	2.000	422000	432000	442000
2-1/8"	2.125	422125	432125	442125
2-1/4"	2.250	422250	432250	442250

* NOTE: WILL NOT FIT PH-2000 H.S. TAPER CUTTER

VALVE GUIDE O.D. MACHINING

PIONEER NO.	DESCRIPTION	SIZE
OMT-9026	Cutter	.530"
OMT-9027	Pilot	.312"
OMT-9028	Pilot	.343"
OMT-9029	Pilot	.375"



OMT-9025 PIONEER KIT NUMBER INCLUDES ALL ABOVE

RESURFACING INSERTS FOR CAST IRON AND ALUMINUM

CBN (Cubic Boron Nitride) Inserts with two-sided honed edges for resurfacing cast iron.

TC-375-CBN 3/8" X 1/8" THICK

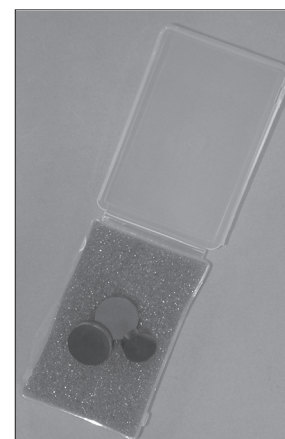
TC-500-CBN 1/2" X 1/8" THICK

TC-500-CBNS 1/2" X 3/16" THICK

PCD (Polycrystalline Diamond) Inserts with single sided edge for resurfacing aluminum.

TC-375-PCD 3/8" X 1/8" THICK

TC-500-PCD 1/2" X 1/8" THICK



(Continued on next page)

*FOR COMPLETE SELECTION OF QUALITY AUTOMOTIVE PRODUCTS,
ASK FOR INFORMATION ON PIONEER PRODUCTS LISTED BELOW.*

CALL TOLL-FREE – 1-800-821-2302 OR MAIL TO P.O. BOX 191, MERIDIAN, MS 39302

CLUTCH COMPONENTS

- **BROADEST COVERAGE ON COMPONENTS:**
Passenger Cars; Light, Medium, and Heavy Duty Trucks; Imports
- CLUTCH BRAKES
- CLUTCH RELEASE BEARINGS
- COVER ASSEMBLY KITS
- PILOT BEARINGS AND BUSHINGS
- UNLINED CLUTCH DISCS
- **NEW CLUTCH KITS**

ENGINE COMPONENTS

- EXPANSION PLUGS & KITS
- SPECIALITY ENGINE PARTS
 - Fasteners
 - Pipe Plugs
 - Oil System Components
 - Pilot Bushings
 - Harmonic Balancer Repair Sleeves
- HARMONIC BALANCERS
- OIL PUMPS & COMPONENTS
- VALVE TRAIN COMPONENTS
 - Valves
 - Valve Guides
 - Valve Keys
 - Valve Seals
 - Valve Retainers
 - Valve Springs
 - Push Rods
 - Lifters
 - Rocker Arm & Related Items

POWERTRAIN PRODUCTS

- CABLES
 - Accelerator
 - Brake
 - Clutch
 - Control
 - Detent
 - Ground Strap
 - Manual Transhift
 - Miscellaneous
 - Speedometer
 - Transhift
- FLYWHEEL ASSEMBLIES
- FLYWHEEL RING GEARS
- CLUTCH FORKS AND ADJUSTERS
- ALIGNMENT TOOLS
- STANDARD FLYWHEELS

TRANSMISSION PRODUCTS

- FILTER KITS
- MODULATORS
- GASKET KITS
- SEALS & BUSHINGS
- OVERHAUL KITS
- CLUTCH PLATES
- BANNER KITS
- SPRAG KITS
- MASTER KITS
- VALVE BODY KITS
- SUPER KITS
- *AND MUCH MORE!*

HIGH PERFORMANCE

- **CYLINDER HEAD COMPONENTS:**
Complete Valve Train Parts
- **SHORT BLOCK COMPONENTS:**
Expansion Plugs, Fasteners, Oil Pumps, Pilot Bushings, Miscellaneous Components
- **FASTENERS:**
12 Point & Miscellaneous, Rod Bolts & Nuts, Head Studs & Bolts, Main Studs & Bolts
- **MISCELLANEOUS:**
Spring Inserts, Repair Sleeves, Flywheel Assemblies, Tools

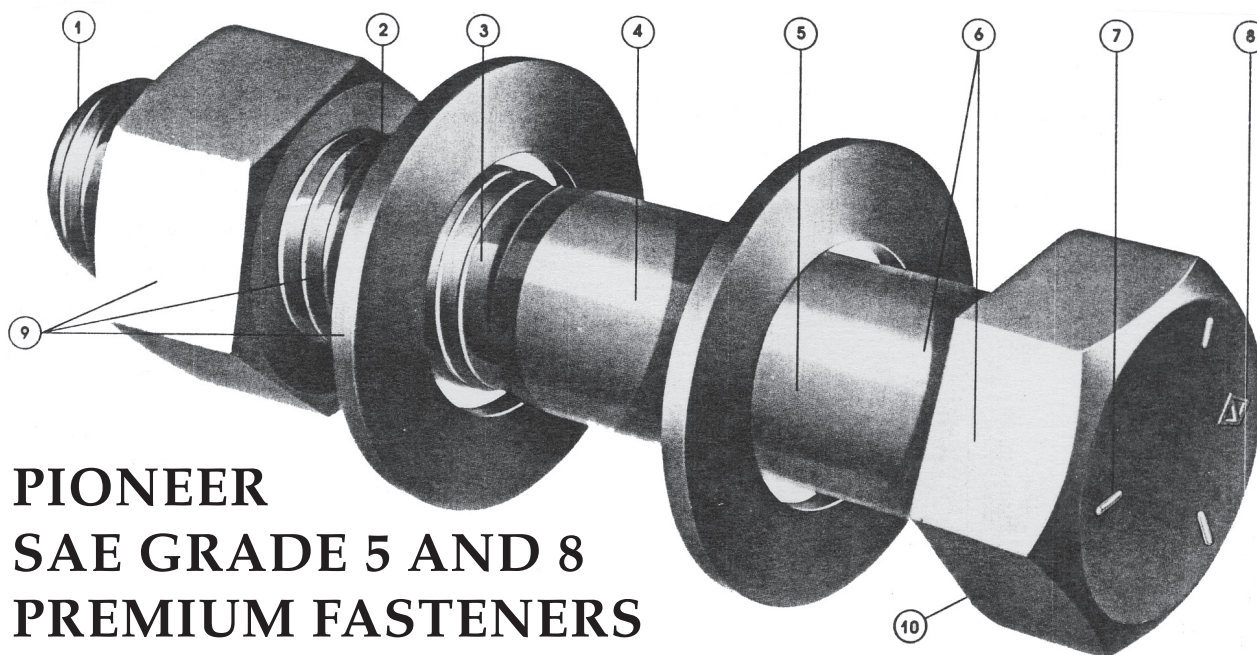
SHOP SUPPLIES

- **ABRASIVES:**
Bonded - Grinding Wheels, Stones, Segments, Hones, Diamond Tools
Coated - Sanding, Polishing, Chamfering
- **CUTTERS:**
Carbide, Boring Bar, Files, Rotary, Blade, Box
- **BRUSHES:**
Wheel, End, Cup, Loop, Scratch, Gallery, Cleaning, Brooms
- **CHEMICALS:**
Paint, Adhesives, Aerosols, Cleaners, Solvents, Oils, Sealants, Silicone, Leak Detection
- **FASTENERS:**
Grade 5, Grade 8, Metric, Specialty, Assortments, Thread Repair
- **TOOLS & ACCESSORIES:**
Valve Equipment, Pullers, Crack Repair, Measuring Instruments, Brake Tools, Safety Equip. & Access.

MOUNTS

- ENGINE MOUNTS - Solid
- ENGINE MOUNTS - Hydraulic
- TRANSMISSION MOUNTS
- TORQUE MOUNTS
- DRIVE SHAFT CENTER SUPPORT MOUNTS
- SUSPENSION STRUT MOUNTS
- BODY MOUNTS

FASTENERS



PIONEER SAE GRADE 5 AND 8 PREMIUM FASTENERS

PIONEER'S EXTREME CARE AND ATTENTION TO PRODUCT QUALITY CONTROL PRODUCE THE MOST THOROUGHLY INSPECTED AND QUALITY TESTED FASTENERS ON THE MARKET.

- ① **SMOOTH CHAMFERED TIP:**
Always quick and easy thread engagement.
- ② **CLASS 2-A THREAD FIT:**
Permits maximum plating thickness while maintaining precision thread engagement.
- ③ **PRECISION ROLLED THREADS:**
Strong, rolled threads resist shear and enhance thread engagement. Maintains a consistent stress pattern that reduces load concentration.
- ④ **EXCELLENT ELONGATION PROPERTIES:**
Superior shock absorption and ductility.
- ⑤ **MULTIPLE HEAT TREATED STEEL:**
Quenched and tempered for superior tensile strength, 105,000 PSI MINIMUM GRADE 5 and 150,000 PSI MINIMUM GRADE 8 SAE REQUIREMENTS.
- ⑥ **ZINC GUARD™ PLATED:**
All fasteners are ZINC plated for long life and corrosion resistance.
- ⑦ **HIGH VISIBILITY GRADE MARKINGS:**
 - 3 raised radial lines indicating a true SAE GRADE 5.
 - 6 raised radial lines indicating a true SAE GRADE 8.
- ⑧ **MANUFACTURER'S IDENTIFICATION CODE:**
All GRADE 5 and GRADE 8 are clearly marked for traceability.
- ⑨ **MATCHING FASTENER COMPONENTS:**
For ultimate strength, holding power and service life - match SAE Grade 5 and 8 bolts, nuts and washers.
- ⑩ **SMOOTH FILLET & WASHER-FACED BEARING SURFACE:**
Reduces stress concentration where the head and shank meet. Minimizes the possibility of "popping" the head. Permits 360° load distribution.

(Continued on next page)

GRADE 5

PIONEER GRADE 5 HEX HEAD CAP SCREWS (BOLTS), NUTS AND WASHERS

- ☐ Carbon Steel
 ☐ Multiple Heat Treated
 ☐ 150,000 PSI Minimum
☐ Zinc Guard™ Plated
 ☐ Meets SAE Grade 5 Requirements

FASTENERS

UNC COARSE – USS THREAD				UNF FINE – SAE THREAD					
PIONEER NUMBER	SIZE	TPI	STD. PKG.	PIONEER NUMBER	SIZE	TPI	STD. PKG.		
1/4" DIA. (20 THREADS PER INCH)				1/4" DIA. (28 THREADS PER INCH)					
430000-100	1/4" x 1/2"		100	430175-100	1/4" X 1/2"		100		
430002-100	1/4" x 3/4"		100	430177-100	1/4" x 3/4"		100		
430004-100	1/4" x 1"		100	430179-100	1/4" x 1"		100		
430005-100	1/4" x 1-1/4"		100	—	—		—		
430006-100	1/4" x 1-1/2"		100	430181-100	1/4" x 1-1/2"		100		
430008-100	1/4" x 2"		100	430183-100	1/4" x 2"		100		
5/16" DIA. (18 THREADS PER INCH)				5/16" DIA. (24 THREADS PER INCH)					
430025-100	5/16" x 1/2"		100	430200-100	5/16" x 1/2"		100		
430027-100	5/16" x 3/4"		100	430202-100	5/16" x 3/4"		100		
430029-100	5/16" x 1"			430204-100	5/16" x 1"		100		
430030-100	5/16" x 1-1/4"		100	430205-100	5/16" x 1-1/4"		100		
430031-100	5/16" x 1-1/2"		100	430206-100	5/16" x 1-1/2"		100		
430033-100	5/16" x 2"		100	430208-100	5/16" x 2"		100		
430035-100	5/16" x 2-1/2"		100	430210-100	5/16" x 2-1/2"		100		
430037-100	5/16" x 3"		100	—	—		—		
430039-100	5/16" x 3-1/2"		100	—	—		—		
3/8" DIA. (16 THREADS PER INCH)				3/8" DIA. (24 THREADS PER INCH)					
430050-100	3/8" x 1/2"		100	—	—		—		
430052-100	3/8" x 3/4"		100	430227-100	3/8" x 3/4"		100		
430054-100	3/8" x 1"		100	430229-100	3/8" x 1"		100		
430055-100	3/8" x 1-1/4"		100	430230-100	3/8" x 1-1/4"		100		
430056-100	3/8" x 1-1/2"		100	430231-100	3/8" x 1-1/2"		100		
430058-50	3/8" x 2"		50	430233-50	3/8" x 2"		50		
430060-50	3/8" x 2-1/2"		50	430235-50	3/8" x 2-1/2"		50		
430062-50	3/8" x 3"		50	—	—		—		
430064-50	3/8" x 3-1/2"		50	—	—		—		
430066-25	3/8" x 4"		25	—	—		—		
7/16" DIA. (14 THREADS PER INCH)				7/16" DIA. (20 THREADS PER INCH)					
430077-100	7/16" x 3/4"		100	430252-100	7/16" x 3/4"		100		
430079-100	7/16" x 1"		100	430254-100	7/16" x 1"		100		
430080-100	7/16" x 1-1/4"		100	430255-100	7/16" x 1-1/4"		100		
430081-100	7/16" x 1-1/2"		100	430256-100	7/16" x 1-1/2"		100		
430082-100	7/16" x 1-3/4"		100	430257-100	7/16" x 1-3/4"		100		
430083-50	7/16" x 2"		50	430258-50	7/16" x 2"		50		
430084-50	7/16" x 2-1/4"		50	430259-50	7/16" x 2-1/4"		50		
430085-50	7/16" x 2-1/2"		50	430260-50	7/16" x 2-1/2"		50		
430086-25	7/16" x 2-3/4"		25	430261-25	7/16" x 2-3/4"		25		
430087-25	7/16" x 3"		25	430262-25	7/16" x 3"		25		
1/2" DIA. (13 THREADS PER INCH)				1/2" DIA. (20 THREADS PER INCH)					
430102-50	1/2" x 3/4"		50	—	—		—		
430104-50	1/2" x 1"		50	430279-50	1/2" x 1"		50		
430106-50	1/2" x 1-1/2"		50	430281-50	1/2" x 1-1/2"		50		
430108-50	1/2" x 2"		50	430283-50	1/2" x 2"		50		
430110-25	1/2" x 2-1/2"		25	430285-25	1/2" x 2-1/2"		25		
430112-25	1/2" x 3"		25	430287-25	1/2" x 3"		25		
430114-25	1/2" x 3-1/2"		25	—	—		—		
430116-25	1/2" x 4"		25	—	—		—		
HEX NUTS Grade 5 / UNC				HEX NUTS Grade 5 / UNF					
431201-200	1/4"	20	200	431211-200	1/4"	28	200		
431202-200	5/16"	18	200	431212-200	5/16"	24	200		
431203-200	3/8"	16	200	431213-200	3/8"	24	200		
431204-100	7/16"	14	100	430214-100	7/16"	20	100		
431205-50	1/2"	13	50	431215-50	1/2"	20	50		
LOCK WASHERS Grade 5				LOCK WASHERS Grade 5					
431325-250	1/4"		250	431325-250	1/4"		250		
431326-250	5/16"		250	431326-250	5/16"		250		
431327-250	3/8"		250	431327-250	3/8"		250		
431328-200	7/16"		200	431328-250	7/16"		250		
431329-250	1/2"		250	431329-250	1/2"		250		
FLAT WASHERS Grade 5 / UNC				FLAT WASHERS Grade 5 / UNF					
PIONEER NUMBER	SIZE	I.D.	O.D.	STD. PKG.	PIONEER NUMBER	SIZE	I.D.	O.D.	STD. PKG.
431401-250	1/4"	5/16	3/4"	250	431431-250	1/4"	9/32"	5/8"	250
431402-250	5/16"	3/8"	7/8"	250	431432-250	5/16"	11/32"	11/16"	250
431403-100	3/8"	7/16"	1"	100	431433-250	3/8"	13/32"	13/16"	250
431404-250	7/16"	1/2"	1-1/4"	250	431434-100	7/16"	15/32"	15/16"	100
431405-50	1/2"	9/16"	1-3/8"	50	431435-100	1/2"	17/32"	1-1/16"	100

GRADE 8

PIONEER GRADE 8 HEX HEAD CAP SCREWS (BOLTS), NUTS AND WASHERS

- ☐ Medium Carbon Alloy Steel ☐ Multiple Heat Treated ☐ 150,000 PSI Minimum
☐ Zinc Guard™ Plated Gold ☐ Meets SAE Grade 8 Requirements

UNC COARSE – USS THREAD					UNF FINE – SAE THREAD				
PIONEER NUMBER	SIZE	TPI	STD. PKG.		PIONEER NUMBER	SIZE	TPI	STD. PKG.	
1/4" DIA. (20 THREADS PER INCH)					1/4" DIA. (28 THREADS PER INCH)				
439000-100	1/4" x 1/2"		100		439300-100	1/4" X 1/2"		100	
439002-100	1/4" x 3/4"		100		439302-100	1/4" x 3/4"		100	
439004-100	1/4" x 1"		100		439304-100	1/4" x 1"		100	
439005-100	1/4" x 1-1/4"		100		—	—		—	
439006-100	1/4" x 1-1/2"		100		439306-100	1/4" x 1-1/2"		100	
439008-100	1/4" x 2"		100		439308-100	1/4" x 2"		100	
5/16" DIA. (18 THREADS PER INCH)					5/16" DIA. (24 THREADS PER INCH)				
439025-100	5/16" x 1/2"		100		439325-100	5/16" x 1/2"		100	
439027-100	5/16" x 3/4"		100		439327-100	5/16" x 3/4"		100	
439029-100	5/16" x 1"		100		439329-100	5/16" x 1"		100	
439030-100	5/16" x 1-1/4"		100		439330-100	5/16" x 1-1/4"		100	
439031-100	5/16" x 1-1/2"		100		439331-100	5/16" x 1-1/2"		100	
439033-100	5/16" x 2"		100		439333-100	5/16" x 2"		100	
439035-100	5/16" x 2-1/2"		100		439335-100	5/16" x 2-1/2"		100	
439037-100	5/16" x 3"		100		—	—		—	
439039-100	5/16" x 3-1/2"		100		—	—		—	
3/8" DIA. (16 THREADS PER INCH)					3/8" DIA. (24 THREADS PER INCH)				
439050-100	3/8" x 1/2"		100		—	—		—	
439052-100	3/8" x 3/4"		100		439352-100	3/8" x 3/4"		100	
439054-100	3/8" x 1"		100		439354-100	3/8" x 1"		100	
439055-100	3/8" x 1-1/4"		100		439355-100	3/8" x 1-1/4"		100	
439056-100	3/8" x 1-1/2"		100		439356-100	3/8" x 1-1/2"		100	
439058-50	3/8" x 2"		50		439358-50	3/8" x 2"		50	
439060-50	3/8" x 2-1/2"		50		439360-50	3/8" x 2-1/2"		50	
439062-50	3/8" x 3"		50		—	—		—	
439064-50	3/8" x 3-1/2"		50		—	—		—	
439066-25	3/8" x 4"		25		—	—		—	
7/16" DIA. (14 THREADS PER INCH)					7/16" DIA. (20 THREADS PER INCH)				
439077-50	7/16" x 3/4"		50		439377-50	7/16" x 3/4"		50	
439079-50	7/16" x 1"		50		439379-50	7/16" x 1"		50	
439080-50	7/16" x 1-1/4"		50		439380-50	7/16" x 1-1/4"		50	
439081-50	7/16" x 1-1/2"		50		439381-50	7/16" x 1-1/2"		50	
439082-50	7/16" x 1-3/4"		50		439382-50	7/16" x 1-3/4"		50	
439083-50	7/16" x 2"		50		439383-50	7/16" x 2"		50	
439084-50	7/16" x 2-1/4"		50		439384-50	7/16" x 2-1/4"		50	
439085-50	7/16" x 2-1/2"		50		439385-50	7/16" x 2-1/2"		50	
439086-25	7/16" x 2-3/4"		25		439386-25	7/16" x 2-3/4"		25	
439087-25	7/16" x 3"		25		439387-25	7/16" x 3"		25	
1/2" DIA. (13 THREADS PER INCH)					1/2" DIA. (20 THREADS PER INCH)				
439102-50	1/2" x 3/4"		50		—	—		—	
439104-50	1/2" x 1"		50		439404-50	1/2" x 1"		50	
439106-50	1/2" x 1-1/2"		50		439406-50	1/2" x 1-1/2"		50	
439108-50	1/2" x 2"		50		439408-50	1/2" x 2"		50	
439110-25	1/2" x 2-1/2"		25		439410-25	1/2" x 2-1/2"		25	
439112-25	1/2" x 3"		25		439412-25	1/2" x 3"		25	
439114-25	1/2" x 3-1/2"		25		—	—		—	
439116-25	1/2" x 4"		25		—	—		—	
HEX NUTS Grade 8 / UNC					HEX NUTS Grade 8 / UNF				
439601-100	1/4"	20	100		439611-100	1/4"	28	100	
439602-100	5/16"	18	100		439612-100	5/16"	24	100	
439603-100	3/8"	16	100		439613-100	3/8"	24	100	
439604-50	7/16"	14	50		439614-50	7/16"	20	50	
439605-50	1/2"	13	50		439615-50	1/2"	20	50	
LOCK WASHERS Grade 8					LOCK WASHERS Grade 8				
439725-250	1/4"		250		439725-250	1/4"		250	
439726-250	5/16"		250		439726-250	5/16"		250	
439727-250	3/8"		250		439727-250	3/8"		250	
439728-50	7/16"		50		439728-50	7/16"		50	
439729-250	1/2"		250		439729-250	1/2"		250	
FLAT WASHERS Grade 8 / UNC					FLAT WASHERS Grade 8 / UNF				
PIONEER NUMBER	SIZE	I.D.	O.D.	STD. PKG.	PIONEER NUMBER	SIZE	I.D.	O.D.	STD. PKG.
439750-200	1/4"	5/16"	3/4"	200	439701-200	1/4"	9/32"	5/8"	200
439751-200	5/16"	3/8"	7/8"	200	439702-200	5/16"	11/32"	11/16"	200
439752-200	3/8"	7/16"	1"	200	439703-200	3/8"	13/32"	13/16"	200
439753-100	7/16"	1/2"	1-1/4"	100	439704-100	7/16"	15/32"	15/16"	100
439754-100	1/2"	9/16"	1-3/8"	100	439705-100	1/2"	17/32"	1-1/16"	100

(Continued on next page)

METRIC

METRIC HEX HEAD CAP SCREWS (BOLTS), NUTS AND WASHERS

- ☐ CARBON STEEL
- ☐ ZINC GUARD™ PLATED
- ☐ MULTIPLE HEAT TREATED
- ☐ MEETS ISO PROPERTY CLASS 8.8 SPECIFICATIONS

METRIC CAP SCREWS – STANDARD THREAD –

PIONEER NUMBER	SIZE	STD. PKG.	PIONEER NUMBER	SIZE	STD. PKG.
4MM (Standard Thread .70)			8MM (Standard Thread 1.25)		
442001-50	4mm x 12mm	50	442051-50	8mm x 12mm	50
442004-50	4mm x 20mm	50	442054-50	8mm x 20mm	50
5MM (Standard Thread .80)			442058-50	8mm x 30mm	50
442009-50	5mm x 12mm	50	442061-50	8mm x 40mm	50
442011-50	5mm x 20mm	50	442063-50	8mm x 50mm	50
442015-50	5mm x 30mm	50	442067-50	8mm x 70mm	50
6MM (Standard Thread 1.0)			10MM (Standard Thread 1.5)		
442027-50	6mm x 12mm	50	442076-50	10mm x 20mm	50
442030-50	6mm x 20mm	50	442080-50	10mm x 30mm	50
442034-50	6mm x 30mm	50	442083-50	10mm x 40mm	50
442037-50	6mm x 40mm	50	442085-50	10mm x 50mm	50
			12MM (Standard Thread 1.75)		
			442099-50	12mm x 20mm	50
			442105-50	12mm x 40mm	50

NUTS			LOCK WASHER			FLAT WASHER		
PIONEER NUMBER	SIZE	STD. PKG.	PIONEER NUMBER	SIZE	STD. PKG.	PIONEER NUMBER	SIZE	STD. PKG.
442400-50	4mm	50	442450-200	4mm	200	442460-200	4mm	200
442401-50	5mm	50	442451-200	5mm	200	442461-200	5mm	200
442402-50	6mm	50	442452-200	6mm	200	443981-200	6mm	200
442404-50	8mm	50	442454-200	8mm	200	443983-200	8mm	200
442405-50	10mm	50	442455-100	10mm	100	443984-100	10mm	100
442406-50	12mm	50	442456-100	12mm	100	443985-100	12mm	100

STOP NUTS

STOP HEX NUTS – NYLON INSERT TYPE

- ☐ CARBON STEEL
- ☐ ZINC GUARD™ PLATED
- ☐ VIBRATION RESISTANT
- ☐ AVAILABLE FOR USS AND SAE THREAD

UNC COARSE USS THREAD				UNF FINE SAE THREAD			
PIONEER NUMBER	SIZE	TPI	STD. PKG.	PIONEER NUMBER	SIZE	TPI	STD. PKG.
434272-100	1/4"	20	100	434282-100	1/4"	28	100
434273-100	5/16"	18	100	434283-100	5/16"	24	100
434274-100	3/8"	16	100	434284-100	3/8"	24	100
434276-50	1/2"	13	50	434286-50	1/2"	20	50

WING NUTS

TYPE A WING NUTS

- ☐ COLD FORGED STEEL
- ☐ MEETS ANSI B18-17 SPECIFICATION
- ☐ ZINC GUARD™ PLATED
- ☐ AVAILABLE USS THREAD ONLY

UNC COARSE USS THREAD			
PIONEER NUMBER	SIZE	TPI	STD. PKG.
434354-25	1/4"	20	25
434355-25	5/16"	18	25

OVERSIZE WASHERS

Oversize Washers - Ideal for Machine Shop and hold down work.

ZINC GUARD™ PLATED

PIONEER NUMBER	BOLT SIZE	I.D.	O.D.	THICKNESS	STD. PKG.
432572-100	1/4"	9/32"	1"	1/16"	100
432579-100	5/16"	11/32"	1-1/4"	1/16"	100
432576-100	3/8"	13/32"	1-1/4"	3/32"	100
432581-50	1/2"	17/32"	2"	1/8"	50

(Continued on next page)

ASSORTMENTS - HANDY PAK

PIONEER HANDY-PAK Assortments are an effective time saver for shops and mechanics, providing the most commonly used bolts, nuts and washers. They are packed in a steel service tray of tool box quality with 24 fixed plastic compartments in attractive enamel finish.

- AVAILABLE IN POPULAR UNC AND METRIC THREAD ASSORTMENTS -

UNC THREAD HANDY - PAK

PIONEER NUMBER 430

OVER 3,000 COMMONLY USED GRADE 5 UNC PLATED FASTENERS WITH STEEL STORAGE CASE.

431325 1/4" LOCK WASHER (QTY-250)	431401 1/4" FLAT WASHER (QTY-250)	431201 1/4" HEX NUT (QTY-200)	430000 1/4" x 1/2" CAP SCREW (QTY-100)	430002 1/4" x 3/4" CAP SCREW (QTY-100)	430004 1/4" x 1" CAP SCREW (QTY-100)
431326 5/16" LOCK WASHER (QTY-250)	431402 5/16" FLAT WASHER (QTY-250)	431202 5/16" HEX NUT (QTY-200)	430027 5/16" x 3/4" CAP SCREW (QTY-100)	430029 5/16" x 1" CAP SCREW (QTY-100)	430031 5/16" x 1-1/2" CAP SCREW (QTY-100)
431327 3/8" LOCK WASHER (QTY-250)	431403 3/8" FLAT WASHER (QTY-100)	431203 3/8" HEX NUT (QTY-200)	430054 3/8" x 1" CAP SCREW (QTY-100)	430055 3/8" x 1-1/4" CAP SCREW (QTY-100)	430056 3/8" x 1-1/2" CAP SCREW (QTY-100)
431329 1/2" LOCK WASHER (QTY-250)	431405 1/2" FLAT WASHER (QTY-50)	431205 1/2" HEX NUT (QTY-50)	430104 1/2" x 1" CAP SCREW (QTY-50)	430106 1/2" x 1-1/2" CAP SCREW (QTY-50)	430108 1/2" x 2" CAP SCREW (QTY-50)

METRIC THREAD HANDY - PAK

PIONEER NUMBER 440

APPROX. 2,000 COMMONLY USED METRIC PLATED FASTENERS WITH STEEL STORAGE CASE.

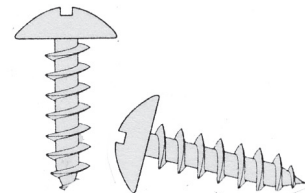
442452 6mm LOCK WASHER (QTY-200)	443981 6mm FLAT WASHER (QTY-200)	442402 6mm HEX NUT (QTY-50)	442027 6mm x 12mm CAP SCREW (QTY-50)	442030 6mm x 20mm CAP SCREW (QTY-50)	442034 6mm x 30mm CAP SCREW (QTY-50)
442454 8mm LOCK WASHER (QTY-200)	443983 8mm FLAT WASHER (QTY-200)	442404 8mm HEX NUT (QTY-50)	442054 8mm x 20mm CAP SCREW (QTY-50)	442058 8mm x 30mm CAP SCREW (QTY-50)	442061 8mm x 40mm CAP SCREW (QTY-50)
442455 10mm LOCK WASHER (QTY-100)	443984 10mm FLAT WASHER (QTY-100)	442405 10mm HEX NUT (QTY-50)	442076 10mm x 20mm CAP SCREW (QTY-50)	442080 10mm x 30mm CAP SCREW (QTY-50)	442083 10mm x 40mm CAP SCREW (QTY-50)
442456 12mm LOCK WASHER (QTY-100)	443985 12mm FLAT WASHER (QTY-100)	442406 12mm HEX NUT (QTY-50)	442099 12mm x 20mm CAP SCREW (QTY-50)	442105 12mm x 40mm CAP SCREW (QTY-50)	

SHEET METAL SCREWS

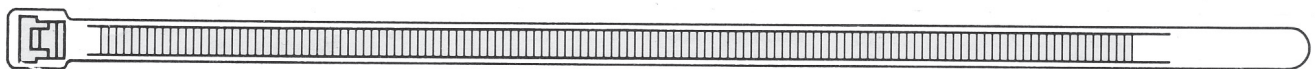
PIONEER NUMBER	SIZE	STD. PKG.
431711-100	#6 x 3/8"	100
431712-100	#6 x 1/2"	100
431714-100	#6 x 3/4"	100
431732-100	#8 x 1/2"	100
431734-100	#8 x 3/4"	100
431736-100	#8 x 1"	100
431742-100	#10 x 1/2"	100
431744-100	#10 x 3/4"	100
431746-50	#10 x 1"	50
431752-100	#12 x 1/2"	100
431754-50	#12 x 3/4"	50
431756-50	#12 x 1"	50

Pioneer Sheet Metal Screws

- Case Hardened Steel
- Slotted Pan Head Design
- Zinc Guard™ Plated

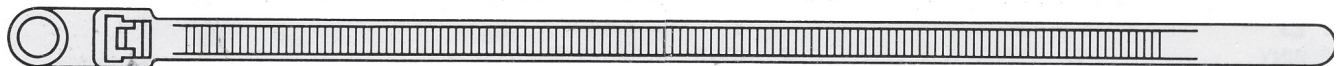


TIE WRAPS



PIONEER NYLON ALL PURPOSE TIES feature smooth edges and low insertion force, and our locking mechanism gives you a firm hold for all binding requirements. Hundreds of uses and ideally suited general shop use binding, tagging, bundling, etc.

PIONEER NUMBER	LENGTH	TENSILE STRENGTH	BUNDLE RANGE	STD. PKG.
423923-100	7"	50 Lbs.	1/16" to 1-3/4"	100
423926-100	14"	50 Lbs.	1/16" to 4"	100

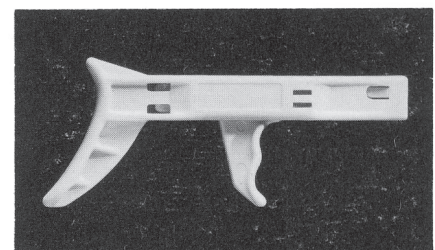


PIONEER "LOOP-END" TIES feature same advantages as above with the addition of loop-end. LOOP-END provides easy identification as well as many other uses.

PIONEER NUMBER	LENGTH	TENSILE STRENGTH	BUNDLE RANGE	STD. PKG.
423924-100	7"	50 Lbs.	1/16" to 1-3/4"	100
423928-50	14"	50 Lbs.	1/16" to 4"	50

INSTALLATION TOOL

A lightweight durable hand tool. Eases installation of tie wraps. Tension is installer controlled with a twist of the wrist.



423901 PIONEER NUMBER **Installation Tool for Tie Wraps**

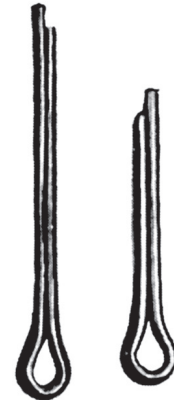
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COTTER PINS

CA-1 PIONEER NUMBER COTTER PIN ASSORTMENT

PIONEER NUMBER	DIAMETER & LENGTH	PIONEER NUMBER	DIAMETER & LENGTH
C-1-100	1/16" x 3/4"	C-10-100	1/8" x 1-1/2"
C-2-100	1/16" x 1"	C-11-100	1/8" x 2"
C-3-100	3/32" x 1/2"	C-12-100	5/32" x 1"
C-4-100	3/32" x 3/4"	C-13-100	5/32" x 1-1/2"
C-5-100	3/32" x 1"	C-14-100	5/32" x 2"
C-6-100	3/32" x 1-1/2"	C-15-100	3/15" x 2"
C-7-100	3/32" x 1-3/4"	C-16-100	1/4" x 2"
C-8-100	3/32" x 2"	C-17-100	1/8" x 1-1/4"
C-9-100	1/8" x 1"		

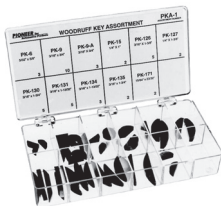
ASSORTMENT INCLUDES: 25 - C-2 (1/16" x 1") 25 - C-9 (1/8" x 1")
 25 - C-5 (3/32" x 1") 25 - C-11 (1/8" x 2")
 25 - C-8 (3/32" x 2") 25 - C-13 (5/32" x 1-1/2")



WOODRUFF KEYS

PKA-1 PIONEER NUMBER WOODRUFF KEY ASSORTMENT

SIZE	PIONEER NUMBER	SIZE	PIONEER NUMBER	SIZE	PIONEER NUMBER
3/32" x 1/2"	PK-2-25	3/16" x 3/4" (Alloy)	PK-9-A-25	3/16" x 2-3/8"	PK-145-25
3/32" x 5/8"	PK-4-25	3/16" x 7/8"	PK-11-25	15/64" x 23/32"	PK-171-25
1/8" x 1/2"	PK-3-25	3/16" x 1"	PK-13-25	1/4" x 3/4"	PK-91-25
1/8" x 5/8"	PK-5-25	3/16" x 1-3/8"	PK-126-25	1/4" x 1"	PK-15-25
1/8" x 3/4"	PK-7-25	3/16" x 1-3/8" (Alloy)	PK-126-A-25	1/4" x 1-1/4"	PK-21-25
5/32" x 5/8"	PK-6-25	3/16" x 1-13/32"	PK-134-25	1/4" x 1-3/8"	PK-127-25
5/32" x 3/4"	PK-8-25	3/16" x 1-3/4"	PK-130-25	5/16" x 1-1/4"	PK-D-25
5/32" x 7/8"	PK-10-25	3/16" x 1-13/32"	PK-131-25	3/8" x 2-1/8"	PK-29-25
3/16" x 3/4"	PK-9-25	3/16" x 1-3/4"	PK-135-25	3/8" x 3-3/4"	PK-250-25



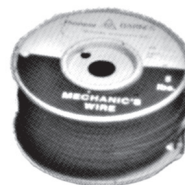
ASSORTMENT INCLUDES:

3 - PK-6 (5/32" x 5/8")
 10 - PK-9 (3/16" x 3/4")
 3 - PK-9-A (3/16" x 3/4" (Alloy))
 2 - PK-15 (1/4" x 1")
 5 - PK-126 (3/16" x 1-3/8")
 2 - PK-127 (1/4" x 1-3/8")
 5 - PK-130 (3/16" x 1-3/4")
 5 - PK-131 (3/16" x 1-13/32")
 3 - PK-134 (3/16" x 1-13/32")
 2 - PK-135 (3/16" x 1-3/4")
 2 - PK-171 (15/64" x 23/32")

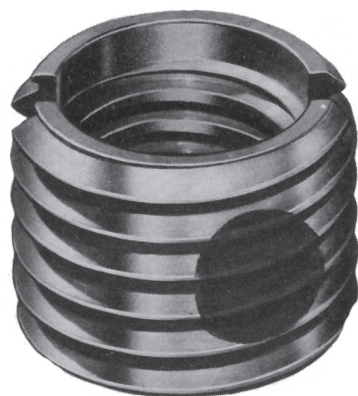
MECHANIC'S WIRE

419336 PIONEER NUMBER WIRE CUTTER

PIONEER NO.	DESCRIPTION
MW-14-V	5 Lbs. Spool - 14 Gauge Wire (1 Spool/Box)
MW-16-V	5 Lbs. Spool - 16 Gauge Wire (1 Spool/Box)
MW-18-V	5 Lbs. Spool - 18 Gauge Wire (1 Spool/Box)
MW-19	50 Ft. Coil - 19 Gauge Wire (12 Rolls/Box)
MW-19-V	5 Lb. Spool - 19 Gauge Wire (1 Spool/Box)



THREAD REPAIR - KITS



PIONEER E-Z LOK inserts will not back out or vibrate loose.

Immediately on installation, microencapsulated epoxy molecules begin to set, and newly installed insert can be fastened to within minutes. The adhesive continues to cure overnight until completely set.

The adhesive seals against liquids and gases to pressures of 6,000 psi, and bonds to virtually all metals.

Convenient THREAD REPAIR KITS contain a selection of popular sizes of PIONEER E-Z LOK Thread Inserts.

Packaged in heavy duty, welded steel box with hinged lid and snap lock.



PIONEER E-Z LOK external threads are standard size and pitch to permit use of standard drills and taps. No special tap size or installation tools are required.

USE IN: magnesium / aluminum / cast iron
steel / copper / brass

EASY INSTALLATION:

- Drill with standard drill
- Tap hole with standard tap
- Turn E-Z LOK home flush with bolt, stud or spark plug.

EASY REMOVAL

Use a standard screw and bolt extractor to back out a damaged insert and then replace it with a new insert. Removal is simply a matter of overcoming the resistance to torque-out which has been produced by the thread locking material.

	PIONEER KIT NO.	QTY. OF INSERTS	INSERT PART #	INTERNAL THREAD SIZE		PIONEER KIT NO.	QTY. OF INSERTS	INSERT PART #	INTERNAL THREAD SIZE
COARSE THREAD 10-7/16"	ELK-101 (EZ-C107)	10	EL-3	10-24	MOTORCYCLE SPARK PLUG 10mm - 14mm	ELK-108 (EZ-M1014)	5	EL-44	M10 X 1/2"
		10	EL-4	1/4 - 20			5	EL-45	M12 X 1/2"
		10	EL-5	5/16 - 18			5	EL-46	M12 X 3/4"
		10	EL-6	3/8 - 16			5	EL-47	M14 X 3/8"
		8	EL-7	7/16 - 14			5	EL-48	M14 X 1/2"
COARSE THREAD 1/2" - 1"	ELK-103 (EZ-C816)	6	EL-8	1/2 - 13	MOTORCYCLE SPARK PLUG 14mm	ELK-109 (EZ-M1400)	10	EL-47	M14 X 3/8"
		7	EL-10	5/8 - 11			10	EL-48	M14 X 1/2"
		7	EL-12	3/4 - 10			10	EL-49	M14 X 3/4"
		2	EL-16	1 - 8					
FINE THREAD 10-7/16"	ELK-105 (EZ-F107)	10	EL-23	10 - 32	METRIC INT./EXT. THREAD M3-0.5 M8-1.25	ELK-112 (EZ-M100)	10	EL-90	M3 - 0.5
		10	EL-24	1/4 - 28			10	EL-91	M4 - 0.7
		10	EL-25	5/16 - 24			10	EL-92	M5 - 0.8
		10	EL-26	3/8 - 24			10	EL-93	M6 - 1.0
		8	EL-27	7/16 - 20			10	EL-94	M8 - 1.25
METRIC THREAD 6mm - 12mm	ELK-106 (EZ-M612)	10	EL-40	M6 - 1.0	M8 - 1.25 M16 - 2.0	ELK-113 (EZ-M200)	10	EL-94	M8 - 1.25
		10	EL-41	M8 - 1.25			10	EL-95	M10 - 1.15
		10	EL-42	M10 - 1.5			8	EL-95	M12 - 1.75
AUTOMOBILE SPARK PLUG 14mm - 18mm	ELK-107 (EZ-M1418A)	10	EL-47	M14 X 3/8"			5	EL-97	M16 - 2.0
		10	EL-48	M14 X 1/2"					
		5	EL-49	M14 X 3/4"					
		4	EL-50	M18 X 1/2"					

REFILLS AVAILABLE PACKED FIVE OR TEN TO A CARTON, DEPENDING ON SIZE.

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THREAD REPAIR

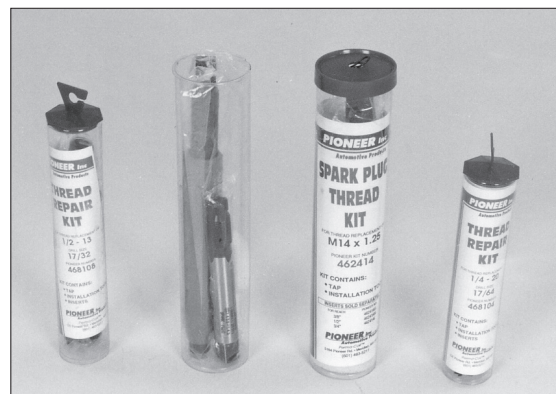
THREAD INSERTS are available in a broad range of sizes including those for special automotive applications, spark plug port repair, standard coarse and fine thread sizes and metric bolts sizes.

PIONEER NUMBER	E-Z LOK NUMBER	INTERNAL THREAD	EXTERNAL THREAD	LENGTH	TAP DRILL SIZE	TAP SIZE	TAP NUMBER	MINIMUM FULL THREAD DEPTH
COARSE THREAD SIZE								
EL-3-10	329-3	10-24	3/8-16	.406	5/16	3/8-16	423007	15/32
EL-4-10	329-4	1/4-20	7/16-14	.437	23/64	7/16-14	423009	1/2
EL-5-10	329-5	5/16-18	1/2-13	.484	27/64	1/2-13	423011	9/16
EL-6-10	329-6	3/8-16	9/16-12	.515	31/64	9/16-12	423013	19/32
EL-7-5	329-7	7/16-14	5/8-11	.656	17/32	5/8-11	423015	23/32
EL-8-5	329-8	1/2-12	3/4-10	.656	21/32	3/4-10	423017	3/4
EL-9-10	329-9	9/16-12	3/4-10	.656	21/32	3/4-10	423017	3/4
EL-10-5	329-10	5/8-11	7/8-9	.687	49/64	7/8-9	423019	13/16
EL-11-5	329-1018	5/8-11	7/8-9	1.125	49/64	7/8-9	423019	1-1/4
EL-12-5	329-12	3/4-10	1-8	.781	7/8	1-8	423021	7/8
EL-16-5	329-16	1-8	1-3/8-12	1.250	19/32	1-3/8-12	423026	1-3/8
EL-17-10	329-004	4-40	10-32	.250	5/32	10/32	423002	9/32
EL-18-10	329-006	6-32	1/4-20	.280	7	1/4-20	423003	11/32
EL-19-10	329-008	8-32	5/16-18	.290	F	5/16-18	423005	7/16
FINE THREAD SIZES								
EL-23-10	329-332	10-32	3/8-16	.406	5/16	3/8-16	423007	15/32
EL-24-10	329-428	1/4-28	7/16-14	.437	23/64	7/16-14	423009	1/2
EL-25-10	329-524	5/16-24	1/2-13	.484	27/64	1/2-13	423011	9/16
EL-26-10	329-624	3/8-24	9/16-12	.515	31/64	9/16-12	423013	19/32
EL-27-5	329-720	7/16-20	5/8-11	.656	17/32	5/8-11	423015	23/32
EL-28-5	329-820	1/2-20	3/4-10	.656	21/32	3/4-10	423017	3/4
EL-295	329-10F	5/8-18	7/8-9	.687	49/64	7/8-9	423019	13/16
EL-30-5	329-1216	3/4-16	1-8	.781	7/8	1-8	423021	7/8
METRIC THREAD SIZES								
EL-40-10	650-6	M6-1.0	3/8-16	.406	5/16	3/8-16	423007	15/32
EL-41-10	650-8	M8-1.25	1/2-13	.484	27/64	1/2-13	423011	9/16
EL-42-10	650-10	M10-1.50	9/16-12	.515	31/64	9/16-12	423013	19/32
EL-42-F-10	650-10F	M10-1.25	9/16-12	.515	31/64	9/16-12	423013	19/32
EL-43-5	650-12	M12-1.75	3/4-10	.656	21/32	3/4-10	423017	3/4
EL-51-5	650-14	M14-2.0	7/8-9	.687	49/64	7/8-9	423019	13/16
EL-52-5	650-16	M16-2.0	1-8	.781	7/8	1-8	423021	7/8
SPARK PLUG SIZES								
EL-44-5	329-1008	M10 x 1/2"	9/16-18	.453	33/64	9/16-18	423014	—
EL-45-5	329-1208	M12 x 1/2"	5/8-18	.453	37/64	5/8-18	423016	—
EL-46-5	329-1212	M12 x 3/4"	5/8-18	.703	37/64	5/8-18	423016	—
EL-47-5	329-1406	M14 x 3/8"	3/4-16	.328	11/16	3/4-16	423018	—
EL-48-5	329-1408	M14 x 1/2"	3/4-16	.453	11/16	3/4-16	423018	—
EL-49-5	329-1412	M14 x 3/4"	3/4-16	.703	11/16	3/4-16	423018	—
EL-50-5	329-1808	M18 x 1/2"	1-12	.453	59/64	1-12	423022	—
VW CASE SAVERS								
EL-60-5	330-10 (Open)	M10-1.50	9/16-12	1.000	31/64	9/16-12	423013	1-1/16
EL-61-5	330-11 (Closed)	M10-1.50	9/16-12	1.000	31/64	9/16-12	423013	1-1/16
BOLT SIZES								
EL-90-10	450-3	M3-0.5	M6-1.0	6.5mm	5.1mm	M6-1.0		7.8mm
EL-91-10	450-4	M4-0.7	M8-1.25	7.5mm	6.9mm	M8-1.25		8.5mm
EL-92-10	450-5	M5-0.8	M8-1.25	7.5mm	6.9mm	M8-1.25		9.0mm
EL-93-10	450-6	M6-1.0	M10-1.5	10.5mm	8.6mm	M10-1.5		12.0mm
EL-94-10	450-8	M8-1.25	M12-1.75	12.5mm	10.4mm	M12-1.75		14.5mm
EL-95-10	450-10	M10-1.5	M16-2.0	17.0mm	14.0mm	M16-2.0		15.5mm
EL-96-5	450-12	M12-1.75	M16-2.0	17.0mm	14.0mm	M16-2.0		19.0mm
EL-97-5	450-16	M16-2.0	M24-3.0	20.0mm	21.0mm	M24-3.0		24.0mm

HELICALLY COILED THREAD REPAIR KITS

Stainless Steel Helically Coiled Thread Repair Kits

- Fine Thread Repair Kits
- Coarse Thread Repair Kits
- Metric Thread Repair Kits
- Spark Plug Repair Kits



PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION
460014	Perma-Plug Spark Plug Kit	462414	14 x 1.25 Spark Plug Kit	468110	5/8-11 x .938 Thread Kit
461215	12 x 1.5mm x 18.0 Thread Kit	468018	8-32 x .246 Thread Kit	468112	3/4-10 x 1.125 Thread Kit
461305	5 x 8mm x 7.5 Thread Kit	468101	10-24 x .285 Thread Kit	468201	10-32 x .285 Thread Kit
461306	6 x 1mm x 9.0 Thread Kit	468102	12-24 x .285 Thread Kit	468204	1/4-28 x .375 Thread Kit
461308	8 x 1.25mm x 12.0 Thread Kit	468104	1/4-20 x .375 Thread Kit	468205	5/16-24 x .469 Thread Kit
461309	9 x 1.25mm x 13.5 Thread Kit	468105	5/16-18 x .469 Thread Kit	468206	3/8-24 x .562 Thread Kit
461310	10 x 1.5mm x 15.0 Thread Kit	468106	3/8-16 x .562 Thread Kit	468207	7/16-20 x .656 Thread Kit
462110F	10 x 1.25mm x 15.0 Thread Kit	468107	7/16-14 x .656 Thread Kit	468208	1/2-20 x .750 Thread Kit
462112C	12 x 1.75mm 18.0 Thread Kit	468108	1/2-13 x .750 Thread Kit	468210	5/8-18 x .938 Thread Kit
462112F	12 x 1.25mm x 18.00 Thread Kit	468109	9/16-12 x .844 Thread Kit	468500	18-1.50mm Spark Plug Thread Kit

REPLACEMENT INSERTS:



PIONEER NUMBER	DESCRIPTION
460214L	14 x 1.25 x 3/4 Perma-Plug Inserts
460214N	14 x 1.25 x 1/2 Perma-Plug Inserts
460214S	14 x 1.25 x 3/8 Perma-Plug Inserts
461215I-6	12 x 1.5mm Inserts
462414L-6	14 x 1.25 x 3/4 Spark Plug Insert
462414N-6	14 x 1.25 x 1/2 Spark Plug Insert
462414S-6	14 x 1.25 x 3/8 Spark Plug Insert
46130I-12	5 x 8mm Inserts

PIONEER NUMBER	DESCRIPTION
461306I-12	6 x 1mm Inserts
461308I-12	8 x 1.25mm Inserts
461309I-12	9 x 1.25mm Inserts
461310I-12	10 x 1.5mm Inserts
462112CI-6	12 x 1.75mm Inserts
462110FI-6	10 x 1.25mm Inserts
462112FI-6	12 x 1.25mm Inserts
468018I-12	8-32 Inserts
468101I-12	10-24 Inserts
468102I-12	12-24 Inserts
468104I-12	1/4-20 Inserts
468105I-12	5/16-18 Inserts
468106I-12	3/8-16 Inserts
468107I-6	7/16-14 Inserts
468108I-6	1/2-13 Inserts
468109I-6	9/16-12 Inserts
468110I-6	5/8-11 Inserts
468112I-4	3/4-10 Inserts
468201I-12	10-32 Inserts
468204I-12	1/4-28 Inserts
468205I-12	5/16-24 Inserts
468206I-12	3/8-24 Inserts
468207I-6	7/16-20 Inserts
468208I-6	1/2-20 Inserts
468210I-6	5/8-18 Inserts
468500I-6	18-1.50mm Inserts

BULK INSERTS:

PIONEER NUMBER	DESCRIPTION
460214L-25	14 x 1.25 X 3/4 Perma-Plug Bulk Inserts
460214N-25	14 x 1.25 x 1/2 Perma-Plug Bulk Inserts
460214S-25	14 x 1.25 x 3/8 Perma-Plug Bulk Inserts
461306I-250	6 x 1mm Bulk Inserts
461308I-250	8 x 1.25mm Bulk Inserts
461310I-250	10 x 1.5mm Bulk Inserts

PIONEER NUMBER	DESCRIPTION
462110FI-250	10 x 1.25mm Bulk Inserts
468104I-250	1/4-20 Bulk Inserts
468105I-250	5/16-18 Bulk Inserts
468106I-250	3/8-16 Bulk Inserts
468107I-250	7/16-14 Bulk Inserts
468108I-250	1/2-13 Bulk Inserts

(Continued on next page)

HELICALLY COILED THREAD REPAIR - Cont'd.

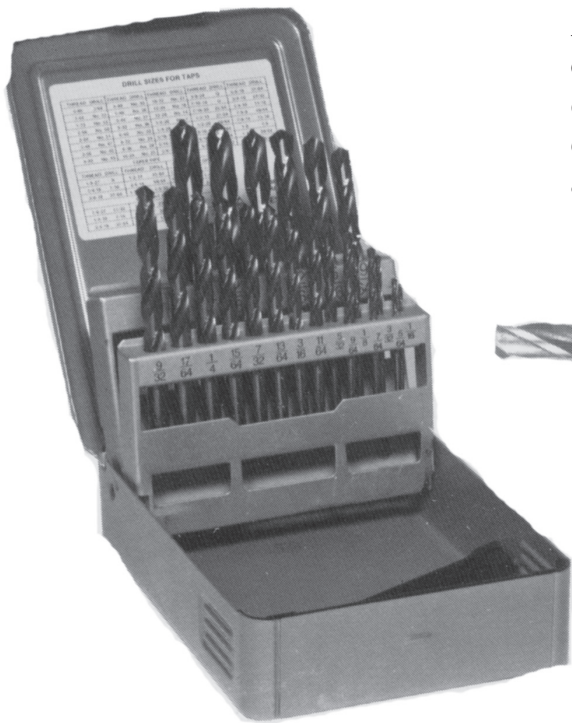
REPLACEMENT TAPS:

PIONEER NUMBER	DESCRIPTION
461004F	M10 x 1.25mm Tap
461204C	M12 x 1.75mm Tap
461204F	M12 x 1.25mm Tap
461215T	M12 x 1.5mm Tap
468018T	8-32 Tap
468101T	10-24 Tap
468102T	12-24 Tap
468104T	1/4-20 Tap
468105T	5/16-18 Tap
468106T	3/8-16 Tap
468107T	7/16-14 Tap
468108T	1/2-13 Tap
468109T	9/16-12 Tap
468110T	5/8-11 Tap
468112T	3/4-10 Tap

PIONEER NUMBER	DESCRIPTION
468140T	14-1.25mm Perma-Plug Tap
468185T	18-1.50mm Tap
468201T	10-32 Tap
468204T	1/4-28 Tap
468205T	5/16-24 Tap
468206T	3/8-24 Tap
468207T	7/16-20 Tap
468208T	1/2-20 Tap
468210T	5/8-18 Tap
468212T	3/4-16 Tap
468305T	M5 x .8mm Tap
468306T	M6 x 1mm Tap
468308T	M8 x 1.25mm Tap
468310T	M10 x 1.5mm Tap
468140S	14-1.25mm Perma-Plug Tool

DRILL BITS

135° Split Point Drills have straight shanks and are constructed of high speed steel. Meets National Aircraft Standards A.I.A. NAS907 Type B. Available in Fractional sizes. Heavy Duty...no center punching required. Designed to eliminate drill walking even on curved surfaces. For use on all steels including aircraft type stainless steel and titanium alloys.



PIONEER NUMBER	DIA.	DECIMAL EQUIVALENT	LENGTH	STD. PKG.
422101-5	1/8"	.1250	2-3/4"	5
422104-5	11/64"	.1719	3-1/4"	5
422105-5	3/16"	.1875	3-1/2"	5
422106-5	13/64"	.2031	3-5/8"	5
422109-5	1/4"	.250	4"	5
422113-5	5/16"	.3125	4-1/2"	5
422115-5	11/32"	.3438	4-3/4"	5
422117-5	3/8"	.3750	5"	5
422118-5	25/64"	.3906	5-1/8"	5
422121-5	7/16"	.4375	5-1/2"	5
422123-5	15/32"	.4588	5-3/4"	5
422126-5	1/2"	.500	6"	5

423951 PIONEER ASSORTMENTS NO.

15 Drills, 1/16" to 1/2" by 32nds, in Handy Metal Box

423950 PIONEER ASSORTMENTS NO.

29 Drills, 1/16" to 1/2" by 64ths, in Handy Metal Box

118° DRILL BITS

These jobber length 118° high speed drill bits are manufactured from high quality steel for long life. They are quick starting and long lasting, this coupled with economy pricing makes them the perfect choice for the applications where high breakage may occur.

118° DRILL BIT KIT

423952 PIONEER NUMBER

29 Drills, 1/16" to 1/2" by 64ths, in Handy Metal Box

PIONEER NUMBER	DIA.	DECIMAL EQUIVALENT	LENGTH	STD. PKG.
422127-5	1/8"	.1250	2-3/4"	5
422128-5	11/64"	.1719	3-1/4"	5
422129-5	3/16"	.1875	3-1/2"	5
422130-5	13/64"	.2031	3-5/8"	5
422131-5	1/4"	.250	4"	5
422132-5	5/16"	.3125	4-1/2"	5
422133-5	11/32"	.3438	4-3/4"	5
422134-5	3/8"	.3750	5"	5
422135-5	25/64"	.3906	5-1/8"	5
422136-5	7/16"	.4375	5-1/2"	5
422137-5	15/32"	.4588	5-3/4"	5
422138-5	1/2"	.500	6"	5

BOLT HOLE COUNTER BORE TOOL

422100 PIONEER NUMBER

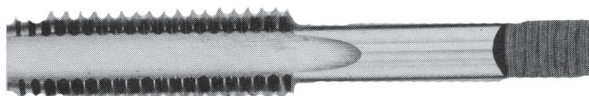
1/2" HSS Counter Bore Tool

This 1/2" six fluted "chatterless" tool is an excellent tool to counter bore bolt holes in an effort to keep the threads from pulling out.



TAPS

Carbon Steel hand taps are designed to be used on mild steel and cast metals. The perfect choice for tapping the bolts holes in an engine block or head prior to assembly.



PIONEER NUMBER	SIZE	PIONEER NUMBER	SIZE	PIONEER NUMBER	SIZE
423001	10-24	423010	7/16-20	423019	7/8-9
423002	10-32	423011	1/2-13	423020	7/8-14
423003	1/4-20	423012	1/2-20	423021	1-8
423004	1/4-28	423013	9/16-12	423022	1-12
423005	5/16-18	423014	9/16-18	423023	1-1/4-7
423006	5/16-24	423015	5/8-11	423024	1-1/4-12
423007	3/8-16	423016	5/8-18	423025	1-3/8-6
423008	3/8-24	423017	3/4-10	423026	1-3/8-12
423009	7/16-14	423018	3/4-16	423027	1-1/2-6
				423028	1-1/2-12

(Continued on next page)

PIONEER PRODUCT LINES

CLUTCH PRODUCTS • ENGINE PRODUCTS
PERFORMANCE PRODUCTS • SHOP SUPPLY PRODUCTS
POWERTRAIN PRODUCTS • TRANSMISSION PRODUCTS
ENGINE & TRANSMISSION MOUNTS

• • • • •

*FOR COMPLETE SELECTION OF QUALITY AUTOMOTIVE PRODUCTS,
CALL OR WRITE TODAY FOR INFORMATION ON ALL PIONEER PRODUCTS.*

CALL TOLL-FREE – 1-800-821-2302

(24 HR.) FAX: 1-800-821-2303

OR MAIL TO P.O. BOX 191, MERIDIAN, MS 39302

ORDER DESK: 1-800-821-2302

(24 HR.) ORDER FAX NUMBER: 1-800-821-2303

TECHNICAL ASSISTANCE - 1-800-647-6272

AIR HAMMER

For use in crack repair, valve guide installation and many other uses.

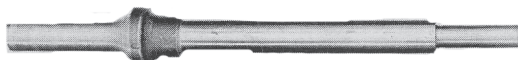


Convenient Carrying Case
2,600 BPM • 90 PSI
Hose Size - 3/8" I.D.

LIFETIME WARRANTY - #45

PIONEER NUMBER 45	HEAVY DUTY AIR HAMMER	
PIONEER NUMBER 45-A	CHISEL	
PIONEER NUMBER 45-B	PUNCH	
PIONEER NUMBER 45-C	PUNCH	
PIONEER NUMBER 46	AIR HAMMER - ECONOMY	

AIR HAMMER VALVE GUIDE DRIVERS



Designed for air impact drivers to install or remove thin-wall Bron-El® or cast iron valve guides. A special alloy steel is used and heat-treated for long life and durability. H.D. .401 parker shank fits all standard impact drivers.

PIONEER NUMBER	DESCRIPTION
K-3001	7mm Air Impact Guide Driver
K-3002	8mm Air Impact Guide Driver
K-3005	5/16" Air Impact Guide Driver
K-3006	11/32" Air Impact Guide Driver
K-3007	3/8" Air Impact Guide Driver
K-3008	7/16" Air Impact Guide Driver
K-3004	VALVE GUIDE DRIVER KIT

Kit Includes: 1-K-3005 (5/16") 1-K-3006 (11/32")
1-K-3007 (3/8") 1-K-3008 (7/16")

Packed in Heavy Vinyl Storage Pouch

HAND VALVE GUIDE DRIVERS



Designed to remove and install thin wall cast iron guides. Made of special tool steel for long life and durability.

Available in a set or individually.

PIONEER NUMBER	DESCRIPTION
K-1754	5/16" Pilot Dia. x 7/16" Body Dia.
K-1757	5/16" Pilot Dia. x 1/2" Body Dia.
K-1765	11/32" Pilot Dia. x 1/2" Body Dia.
K-1766	3/8" Pilot Dia. x 1/2" Body Dia.
K-1774	7/16" Pilot Dia. x 5/8" Body Dia.
K-2133	VALVE GUIDE DRIVER KIT

Kit Includes: 1-K-1754 (5/16") 1-K-1757 (5/16")
1-K-1765 (11/32") 1-K-1766 (3/8") 1-K-1774 (7/16")

Packed in Heavy Vinyl Storage Pouch

AIR HAMMER VALVE GUIDE DRIVERS with Inter-Changeable Pilots

This unique valve guide driver has been designed to give superior performance and save money. The driver comes in two pieces, driver body and pilot. The driver body is through hardened, to give longer tool life. Pilots come in the most popular sizes. This tool has been designed to dress the driver as wear occurs. The pilots have been designed to enable replacement as wear occurs.



PIONEER NUMBER	DRIVER BODY / PILOT TIP
493300	DRIVER BODY
493312	.312 Pilot Tip
493343	.343 Pilot Tip
493373	.373 Pilot Tip

(Continued on next page)

DRILL-OUT® BROKEN BOLT EXTRACTOR

This product is a two-piece tool that extracts broken bolts and studs in a fraction of the time used by other tools designed for the same purpose.

The drill body is manufactured using the finest quality hi-speed steel. The collet is produced from hot die steel, using the finest steel of its type.

All Drill-Out® Broken Bolt Extractors are made with a precision ground, left hand cutting, self-centering point, and are heat treated for toughness.



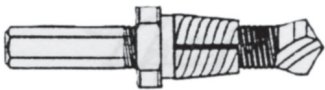
498200 PIONEER KIT NUMBER

KIT CONTAINS ALL FOUR SIZES

The Drill-Out® represents a new, revolutionary idea on how to remove broken bolts.

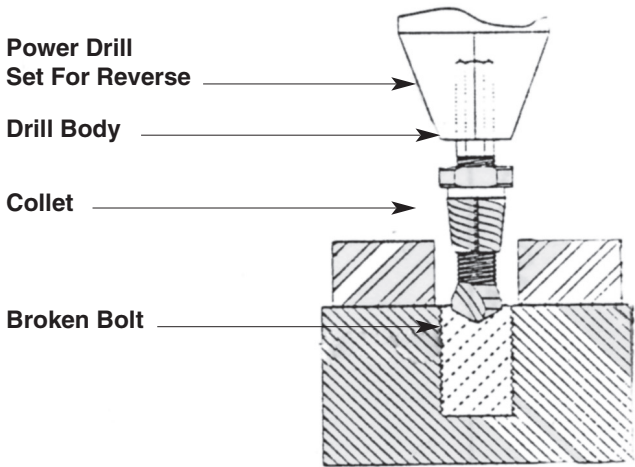
The Drill-Out® is comprised of both a drill and an extractor uniquely designed to efficiently extract a broken bolt in one quick, reliable operation. The type and size of drill needed for the extraction is no longer a problem. The depth of drill and type of extractor is all pre-determined by the Drill-Out® Broken Bolt Extractor.

The self-centering point on the drill enables the user to overcome the problem of finding the center of the broken bolt even when the break is jagged. This tremendous feature for center drilling provides for a quick, efficient extraction without damaging the bolt casing - eliminating drilling a new hole and tapping and re-chasing.

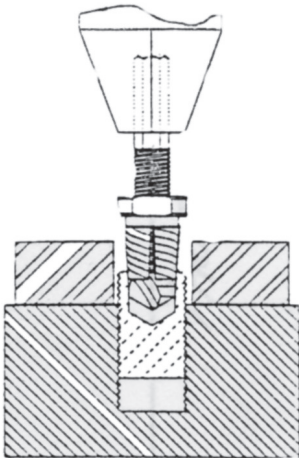


INDIVIDUAL DRILL-OUTS®

SIZE	MM	PIONEER NUMBER
1/4	6mm	498250
5/16	8mm	498261
3/8	10mm	498266
1/2	12mm	498268



Drilling



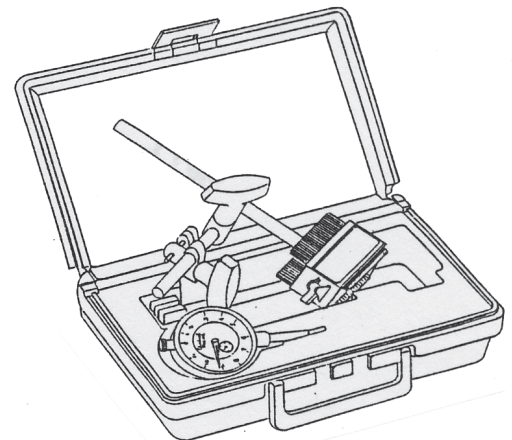
Extracting

MAGNETIC BASE FOR IRREGUALR SURFACES

46419 PIONEER NUMBER

This unique magnetic base will conform to almost any surface. Ideal for mounting in engine lifter valley to check cam runout. Equipped with cam lever arm to conform to any position.

ORDER DIAL INDICATOR SEPARATELY – PIONEER NO. 44344

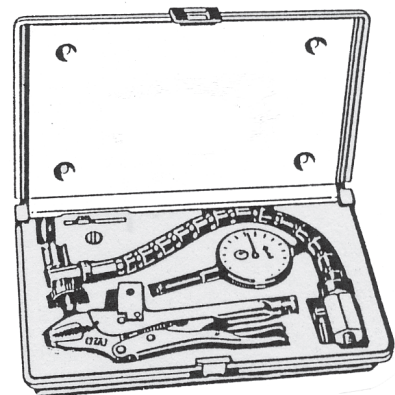


INDICATOR WITH BALL JOINTED ARM

46450 PIONEER NUMBER

Checks runout quickly and accurately. This all purpose gauge can be used to check runout on any part from timing sets to flywheels. Adjust in seconds by using a ball jointed flex arm.

Packaged in a fitted storage case.



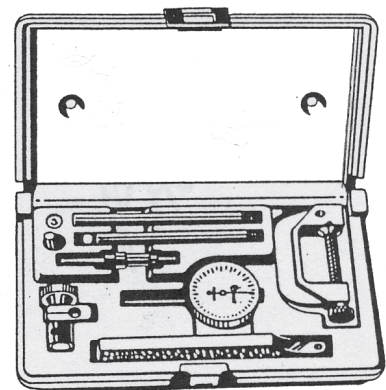
UNIVERSAL DIAL INDICATOR TEST SET

46400 PIONEER NUMBER

This set has been designed to make comparative test on automotive and industrial jobs where precision is important.

Set includes a jeweled bearing indicator with 1-1/2" diameter bezel and rear mounted plunger, two extra contacts (3/16" diameter and 5/16" diameter), indicator holding rod (2 sections), hole attachment for checking bores (.125 range) indicator C - clamp, universal rod connector and tool post holder.

Furnished in a fitted storage case.

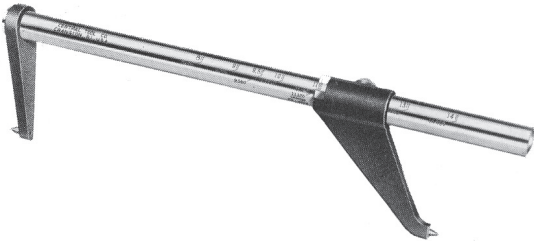


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BRAKE DRUM WEAR LIMIT GAUGE

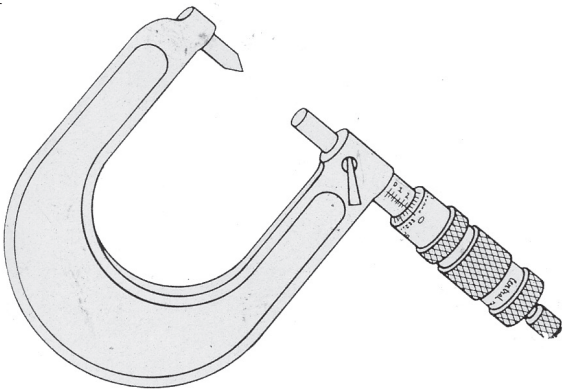
A must for every inspection station. Two models, each with pointed contacts, for pre-inspecting scored brake drums to determine if they can be safely machined.

PIONEER NUMBER	DESCRIPTION
46456	Range 8" to 14" Has .060" limit for each drum size of passenger cars.



DISC BRAKE MICROMETERS

Disc brake micrometers are specially designed for today's large size rotors. Extra deep throats (3-7/16") make it easy to measure across the entire baking surface, plus measurements for thickness, thickness variation and score depths. Carbide faced spindle.



PIONEER NUMBER	DESCRIPTION
46202	Range of .300 to 1.300"
46203	Range of 1.000 to 2.000"

DIGITAL DISC BRAKE GAUGE

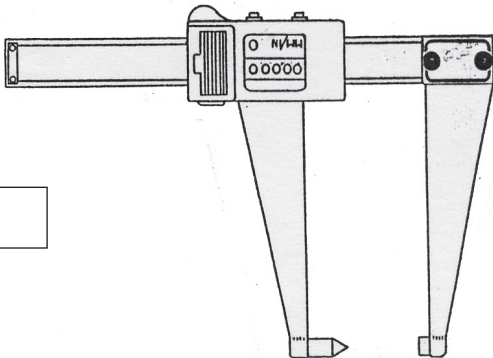
Easy to use digital read out disc micrometer will accurately read any rotor -- scored or unscored. This precision instrument is a must for any shop working with rotors.

Specifications:

Measuring Range: 0-2.250" + and 0-58 mm+
Measuring Depth: 3.25" +/-0-82mm+

Powered by a standard SR44 battery.
Packaged in a protective case.

46459 PIONEER NUMBER



INSIDE MICS

PIONEER NUMBER **46220**

Perfect for any inside measurement from 1.5" to 8".
Check connecting rods, camshaft bores and main bearing bores.

English and Metric versions, all have satin chrome finish.



DEPTH MICS

PIONEER NUMBER **46241**

For precision depth measurements.
Measure hole depth, recesses and keyways.
Graduation numbers read right side up when gauge is in measuring position.
Satin chrome finish.

Complete in fitted case with measuring rods.
0 - 6" / .001 GRADS



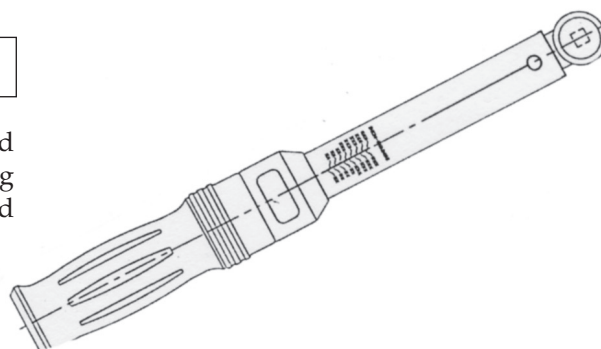
TORQUE WRENCH

PIONEER NUMBER **496353** 25 to 250 Ft. Lbs.

This precision torque wrench features a ratchet head with dual english/metric scales, positive locking mechanism, contoured comfort grip and easy to read scale.

Packaged in a protective plastic case.

MEETS ANSI/ASME B107.41M



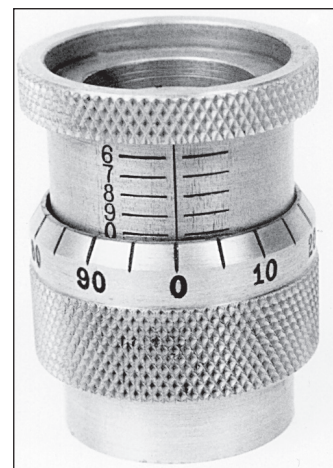
VALVE SPRING HEIGHT GAUGE

PIONEER NUMBER **498450** Range 1.5 to 1.8

PIONEER NUMBER **498460** Range 1.6 to 2.0

Designed to quickly check valve spring installed height after valve and seat regrinding.

Simple place the gauge over the valve on the spring seat pad, install the retainer and keepers and screw the gauge out until pressure is applied.



(Continued on next page)

MICROMETERS

FEATURE:

Extra Hard Measuring Surfaces -

Anvil and one piece spindle are made of finest quality tool steel. Careful lapping assures that faces are square and parallel.

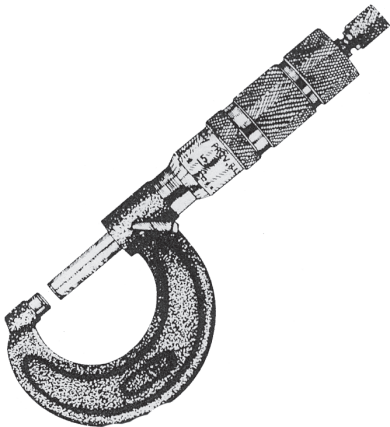
Simplified Zero Adjustment - Lets you reset simply with the hex key provided.

I Beam Frame - Drop forged to maintain dimensional stability.

Easy Reading Graduations - Machine spaced. All thousandths graduations are numbered so you can read directly without counting.

PIONEER NUMBER	RANGE
46009	0-1"
46031	1-2"
46051	2-3"
46071	3-4"
46091	4-5"
46111	5-6"

.001" GRADUATIONS

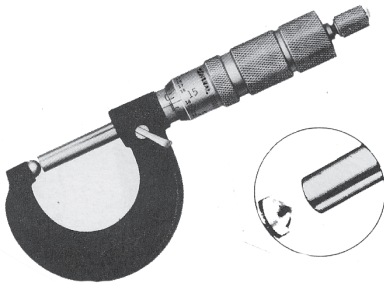


BALL ANVIL MIC

PIONEER NUMBER **46190**

Features a special rounded anvil for measuring bearing inserts and other curved surfaces.

.001" GRADS



CONNECTING ROD JOURNAL MICROMETERS

PIONEER NUMBER 46190	1.5" - 2.5"
46262	2.5" - 3.5"

Specially designed to check rod journals. Grads (.001") are located so measurement is read with micrometer in position.

All models have drop forged, I Beam Frame with baked enamel finish.

Standard included with each model..... **.001" GRADS**

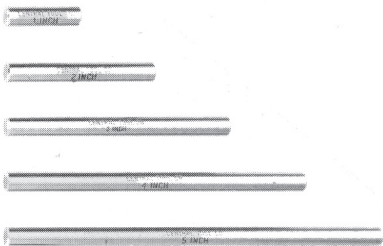


STANDARDS

Check and adjust micrometers with these standards made of finest quality special alloy steel. Hardened, ground with faces lapped parallel.

PIONEER NUMBER	SIZE
46280	1"
46281	2"
46282	3"
46283	4"
46284	5"

PIONEER NUMBER **46300**



OUTSIDE INCH MICROMETER SET

Swiss style design, balance & quality.

- Ratchet thimble. Barrel and thimble satin chrome finished.
- Dia. of carbide tipped measuring faces .256"
- Anvil and spindle hardened and precision ground.
- Graduation .0001" with standards.
- Meets or exceeds Federal accuracy specifications.
- Price includes micrometers, standards for sizes 2" and over, wrench and case.



PIONEER NUMBER	DESCRIPTION
46103	1" to 3" Micrometer Set
46104	1" to 4" Micrometer Set
46106	1" to 6" Micrometer Set

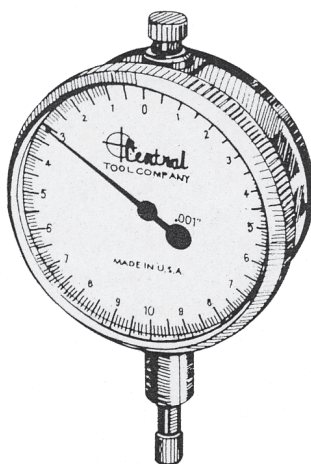
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DIAL INDICATOR

PIONEER NUMBER	DESCRIPTION
44343	Flat Black
44344	Lug Back - For use with Magnetic Bases

1/2" DIAMETER SHANK

RANGE - 1.0"
GRADS - .001"
READING - 0 - 100
DIAMETER - 2-1/4"



MAGNETIC BASES:

Securely mount your dial indicators on these magnetic bases.

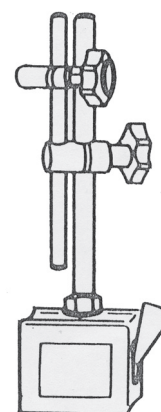
Powerful, rugged, heavy duty magnets grip either flat or curved steel surfaces.



46415 PIONEER NUMBER

Powerful, compact base with adjustable swivel clamp for post and arm.

POST 4", ARM 4"



46416 PIONEER NUMBER

Features magnetic release switch and separately adjustable post and arm clamps with large locking knobs.

POST 7", ARM 6"

VALVE SEAL INSTALLATION TOOL

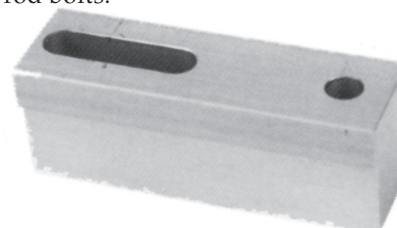
PIONEER NUMBER	DESCRIPTION
VSIT-1	FOR 9/16" GUIDE O.D. & OVER
VSIT-2	FOR 11/32" GUIDE O.D. & OVER



CONNECTING ROD BOLT INSTALLATION

T-120 PIONEER NUMBER

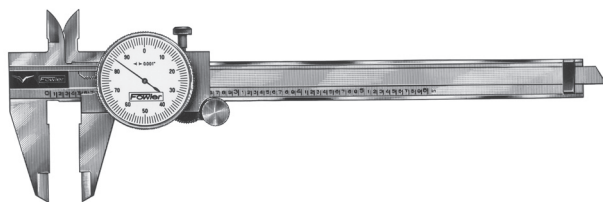
As shown in the illustration the connecting rod is placed on top of the Pioneer T-120 tool providing a smooth surface which will not scare the rod during rod bolt installation. The sides of the tool are relieved to allow for clamping in a vice should the installer prefer to do so. The single hole is 10mm diameter but can be enlarged by the user if there is a need to install 7/16" rod bolts.



(Continued on next page)

"One-Rev" DIAL CALIPERS

- "One-Rev" completes one revolution per each .100".
Inverted conevered rack prevents dirt accumulation.
 •Microfine graduations in inches. Knurled lock for precise settings.
 •Graduations .001", 4-way jaw for inside, outside, depth and sep measurement. Accuracy = .001" per 6". Thumb roll adjustment.
 •Extra length of jaws ensures squareness and perfect alignment.
 •Exclusive dual inion drive mechanism reduces wear on rack and pinion. Beam graduated in .10" increments.
 •Meet or exceed U.S. Federal specs. for accuracy.
 •Price includes fitted case.



PIONEER NUMBER	DESCRIPTION
46423	"One-Rev" Dial Calipers

CALIPERS

PIONEER NUMBER **46420**

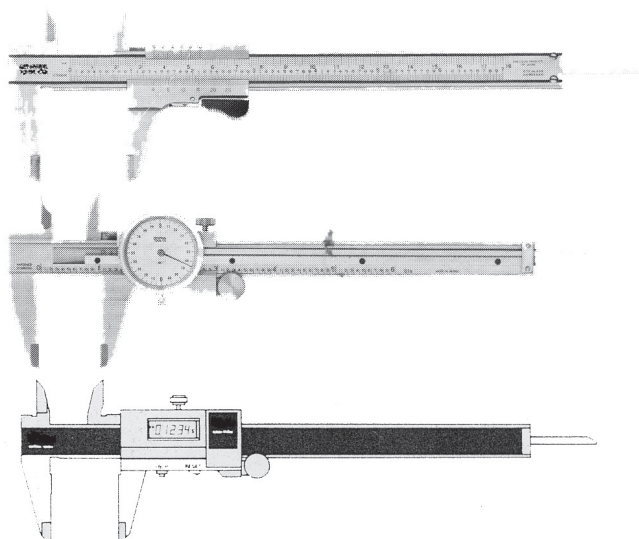
VERNIER STYLE - 0 – 6"
 .001" & .05mm GRADS

PIONEER NUMBER **46422**

DIAL STYLE - 0 – 6"
 .001" GRADS

PIONEER NUMBER **46425**

ELECTRONIC DIGITAL
 0 – 6"



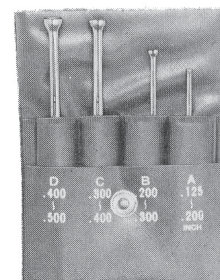
GAUGE SETS

SMALL HOLE GAUGE SET

PIONEER NUMBER **46552**

Range: 1/8" to 1/2"

Ideal for checking valve guide wear and small hole diameters.
 Insert split ball into hole and expand by turning knob on handle.
 Measurement is read with outside micrometer.



TELESCOPING GAUGE SET (Self-Centering)

PIONEER NUMBER **46553**

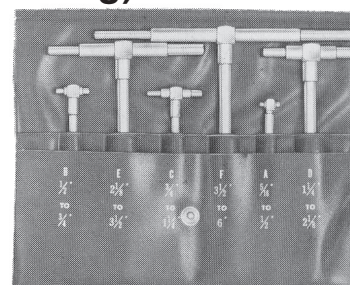
FOUR GAUGES, 5/16" TO 2-1/8"

PIONEER NUMBER **46554**

SIX GAUGES, 5/16" TO 6"

Heavy Duty:

Checks slots, grooves, recesses, cylinders.
 Handles are up 5-1/2" long. Satin chrome finish.
 Both contacts release or lock by turning knob at end of handle.



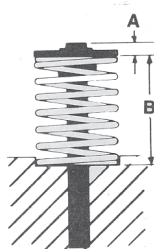
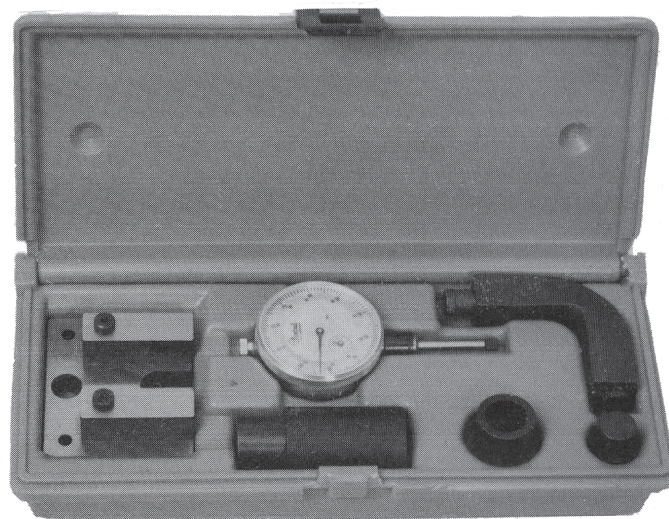
VALVE MEASURING GAUGES

PIONEER NUMBER	DESCRIPTION
46435	Valve Stem Height and Specification Master Set (NO SPEC SHEET NEEDED)

Two gauge measuring system will give you correct stem heights for valves in any engine (a spec, not published in service manuals) AND lets you check results after the reground valves are back in the head.

FIRST - Measures the distance from bottom of valve spring retainer to end of valve stem. Add this dimension to valve spring assembled height (given in service manual) for correct valve stem height. Base has convenient holes for mounting gauge to bench or wall.

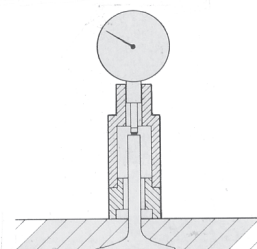
SECOND - Checks height of valve stems in cars, busses, or trucks without removing valve from head. Reference surface of gauge is hardened and ground flat. Extension collar slips into base for checking longer length stems. No need to reposition indicator. Gauge checks any length stem protrusion up to 2-1/2".



6437 measures from top of spring to end of stem.

Valve Spring installed height (obtain from Service Manual).

$A + B =$ Valve Stem Height specification. No spec sheet needed.



DEBURRING CUTTER

Hollow handle stores blades - removes end cap. Patented push-button locking collet device removes/inserts new blades. Body of lightweight wear-resistant acetal material fits hand without slippage or fatigue. Rounded head blades for safe deburring of drilled and machined holes, end milled areas, tubing, backside of holes.

PIONEER NUMBER	DESCRIPTION
498003	Cutter
BLADES - Top to bottom:	
498003A	For Steel & Aluminum
498003B	For Brass & Cast Iron
498003S	Deburrs straight edges on all metals



TRANSFER PUNCH SET

Made of hardened and tempered tool steel, black oxide finish. Diameters slightly undersize to facilitate use. Sizes marked on punches and supplied with metal index stand.

PIONEER NUMBER	DESCRIPTION
498028	Transfer Punch Set



(Continued on next page)

VALVE SEAT RUNOUT GAUGE

Check valve seat runout on any automobile, truck, motorcycle, snowmobile or outboard engine with this jeweled bearing indicator.

Most engine valve seat runout specifications require accuracy within .001".

Place gauge on pilot, position probe on valve seat and rotate gauge a full revolution.

Interchangeable adaptors are available for different pilots.



PIONEER NUMBER	SIZE	APPLICATION
46440	3/8"	Black & Decker, K.O. Lee, Winona, Neway, Olcott
46442	3/8" + .010"	Sioux
46444	7/16"	Kwik-Way

VALVE STEM RETAINER GAUGE

488875 PIONEER NUMBER
488876 PIONEER NUMBER

Used for calculating and comparing valve spring installed heights relative to the spring retainer utilizing a depth micrometer or dial caliper. Can also be used for comparison checking accuracy of valve spring retainers. Auxiliary 1/4" holes accommodate easy fixturing to magnetic base stand or post. For 1.550 and 1.625 valve spring retainers.

HEAT TABS

Inexpensive insurance against claims arising from failures due to over-heating. Secured to the head or block, the center of the tab will melt and fall from the holder.

Install with Pioneer No. 451140

T-580	PIONEER NUMBER	Heat Tabs – Indicating Range 255-260
T-581	PIONEER NUMBER	Heat Tabs – Indicating Range 225-230
451140	PIONEER NUMBER	No Mix / Ready to Use / Size 3 Oz. Tube (Use with T-580)

VALVE KEY TWIN-MAGNETIC TOOL

To take Valve Keys out, secure valve as you do when using squeezers. Force the handle part of the tool down only 1/4" to 3/8" at most and the keys come out into the magnetic end of the tool. Some mechanics use a hammer, but some just push down or use their fist. It's easy.

Replace seal by pushing the seal down with plunger in the small diameter end of the attachment.

Replace Valve Keys by putting them in place. Put attachment in handle. Tap it only hard enough to force it down 1/4". If it does not go far enough, tap it lightly again. Some put keys back with very little force. Even without a hammer!

TVK-100	PIONEER NUMBER	Passenger Car & Light Truck Applications
TVK-101	PIONEER NUMBER	Large Truck Applications



VALVE LAPPING TOOL & COMPOUND



TVL-100	PIONEER NUMBER	LAPPING TOOL
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For hand grinding flat head, unslotted valves, synthetic rubber vacuum cups are resistant to oil, grease, gasoline and are replaceable. High impact plastic handles.
Cup diameters 7/8" and 1-5/16"

451840	PIONEER NUMBER	LAPPING COMPOUND
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Convenient Duplex Kit

Kit Contains: 2, 2 oz. cans each of coarse (120 Grit) and fine (280 Grit).

(Continued on next page)

SPRING TESTER - 500-1,000 LB. CAPACITY

FOR CHECKING VALVE AND CLUTCH COMPRESSION SPRINGS

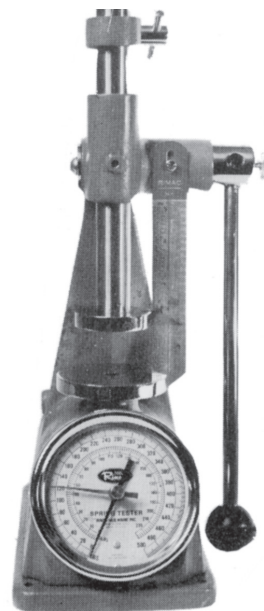
T-69 PIONEER NUMBER	500 Lb. Capacity
T-70 PIONEER NUMBER	1,000 Lb. Capacity

Today more than ever, valve servicing requires higher standards of workmanship and closer adherence to specifications than ever before. The great emphasis on high compression and top performance has put a tremendous strain on each component in the valve train - each must function at peak efficiency. Any variation from factory specifications during service work will usually result in poor engine performance.

Rimac Spring Testers are specially designed for rapid testing of compression springs. Because of their 500 and 1,000 pound pressure ranges, these testers are well equipped to handle a wide variety of valve and clutch springs, including the heavy-duty diesel types, up to 2" diameter and 4-1/2" free-length.

NEW - Each unit is equipped with an easy zero adjustment, a recoil protected mechanism and an adjustable maximum reading pointer which can be used as a fixed tolerance marker for measuring pressure or breaking strains.

A handy up-to-date Valve Spring Specification Chart for domestic cars and tractors is included with every Rimac Spring Tester.

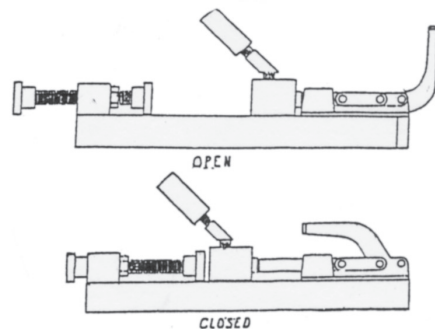
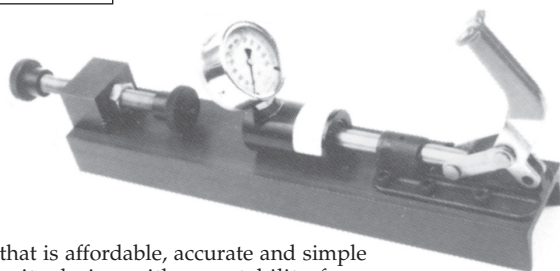


T-69	500 Lbs.
T-70	1,000 Lbs.
Ram Travel	4-5/8"
Upper Platform	2-1/4" Diameter
Lower Platform	3-1/4" Diameter

Spring Length Scale	graduated in inches & centimeters
Spring Pressure Scale	graduated in pounds & kilograms
Height	15-1/4"
Base	5 - 5-3/4" Wide x 10-1/4" Deep
Shipping Weight	18 Lbs.

SPRING TESTER - 400 LB. CAPACITY

491150 PIONEER NUMBER



At last a valve spring tester that is affordable, accurate and simple to use. Setup is easy due to its design with repeatability from spring to spring. The design of the tester makes it portable so it can be used both in the shop and on the parts counter.

This tester comes with an oil filled hydraulic gauge, as with all hydraulic gauges, they should only be operated to about 2/3rds of their maximum pressure reading. Thus this 600 pound tester will accommodate spring pressures of 400 pounds safely.

Repairability, if ever necessary for any reason, can be done in the field due to the design of all the components.

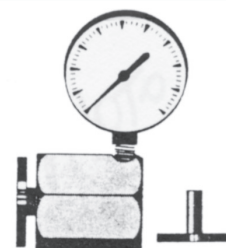
Overall Length	14-1/2"
Gauge Diameter	2"
Ram Stroke Closed	1/2" to 3-1/4"
Ram Stroke Open	2-1/2" to 5-1/4"
Shipping Weight	10 Lbs.
Recommended Maximum Lbs.	400 Lbs.

MINI VALVE SPRING TESTER

488000 PIONEER NUMBER	Spring Tester 300 PSI
488001 PIONEER NUMBER	Spring Tester 600 PSI
488005 PIONEER NUMBER	Drill Press Chuck Flange

Hex design for easier handling. Can be used in a vise, arbor or a drill press with our optional chuck flange.

All surfaces anodized or plated.

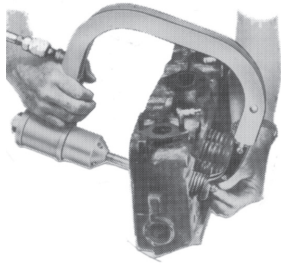


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VALVE SPRING COMPRESSORS

TCF-700 PIONEER NUMBER

AIR OPERATED "C" CLAMP VALVE SPRING COMPRESSOR



The FIRST successfully engineered air operated valve spring compressor for most spring work on late model cars, trucks, busses, tractors, marine and industrial type engines. This easily handled, light weight (less than 6 lbs.) unit features a completely paralleled lift which positively will not bend the valve stem. It operates on line pressure of 90 to 125 lbs. and develops pressure equal to three times the line pressure.

Size: Height – 10-1/2", Width – 9"

Supplied with 3 pair of quick change jaws:
TCF-21-B, TCF-22-E, TCF-23-A

TCF-700-R – REBUILD KIT

TCF-17 PIONEER NUMBER

"C" CLAMP FOR HIGH COMPRESSION ENGINES FOR SPRING DIAMETERS OF 1" OR 2"

Designed especially for V8 car and truck engines with overhead valving. Light weight, exceptionally strong, rigid frame.

Pin operated screw adjustment and positive one-hand control when lowering spring.

Supplied with medium offset general purpose jaw: TCF-22-E

Size: Height – 9-3/4", Width – 7"

MANUAL SPRING COMPRESSOR

TCF-711 PIONEER NUMBER

Working space 8" deep x 10" high. Equipped with medium offset quick change jaws: TCF-22-E

Capacity of the jaws: 1" - 2" Diameter

New Weight of the TCF-711 is 5 Lbs. 8 Oz.

Packaged Weight is 6 Lbs.

FEATURES:

1. Vertical lift.
2. Less possibility of bending the valve stem.
3. One hand release freeing the other hand to hold the split locks.
4. Quick change of jaws:
 - Loosen two screws to slip the jaws off
 - Slide replacement jaw onto frame
 - Tighten two screws
5. With TCF-22-6 adaptor and TCF-711 key replacer will service heads with recessed springs.



TCF-21-B



TCF-22-E



TCF-23-A

QUICK CHANGE JAWS AVAILABLE:

PIONEER NUMBER	DESCRIPTION
TCF-21-B	Small Straight Quick Change Jaws 7/8" – 1-7/8" Capacity
TCF-22-E	Medium Offset Quick Change Jaw 1" – 2" Diameter
TCF-23-A	Large Straight Quick Change Jaw 1-1/2" – 2-1/2" Capacity
TCF-22-6	Adaptor for Recessed Spring
TCF-26-A	26MM 4 valve & heads with small recessed valve springs
TCF-27-A	27MM 4 valve & heads with small recessed valve springs
TCF-32-A	32MM 2 valve heads



(Use with TCF-22-E) TCF-22-6



(NOTE: ALL QUICK CHANGE JAWS WILL FIT ON ALL "C" CLAMP COMPRESSORS LISTED ABOVE.)

IMPORT VALVE SPRING COMPRESSORS

PIONEER NO.	DESCRIPTION
TCF-731	Hyundai, Toyota, Lexus, Nissan & other import applications

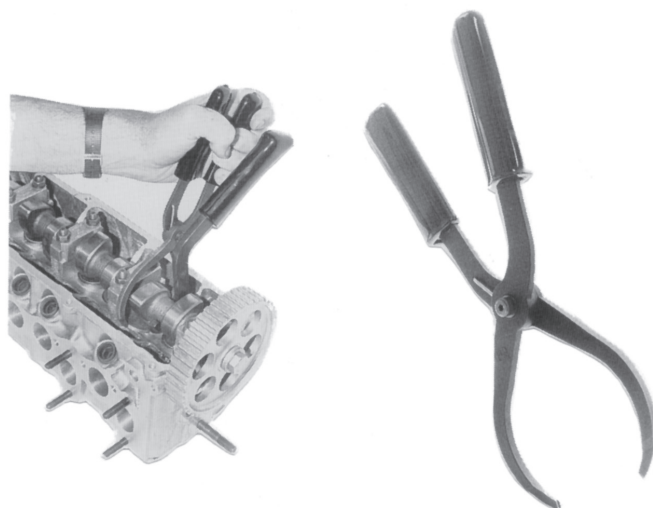
These easy to use valve spring compressors are designed to be used with the head installed in the car or on the bench. The base of these tools will bolt directly to the head, leaving the adjustable lever mechanism free to pivot back and forth while compressing the valve spring. The lever mechanism with it's easy grip handle features a large window for easy retaining keeper removal.



TCF-731

VALVE ADJUSTMENT PLIERS

These handy pliers are to be used along with our 46530 and 46537 valve adjustment tools. They are designed to reach around the camshaft and remove the lifter spacer shim. These stainless steel pliers with their extra thick hand grips feature a stainless steel spring and should last the professional a lifetime.

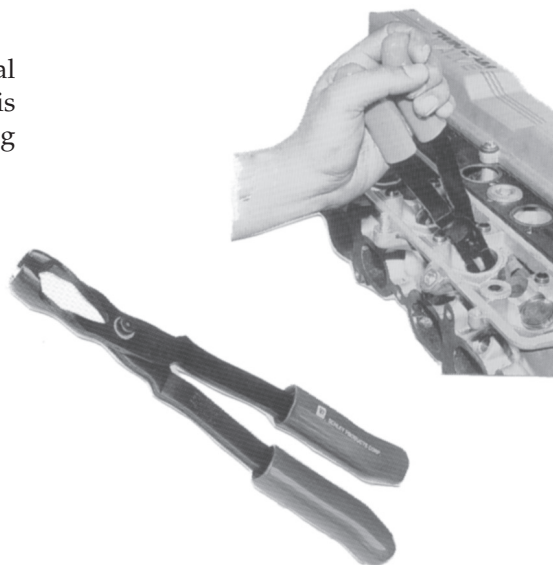


PIONEER NO.	DESCRIPTION
46538	Valve Adjustment Pliers

(Continued on next page)

NARROW ACCESS VALVE STEM SEAL REMOVAL PLIERS

These pliers are designed to remove the valve stem seal on applications where access to the seal is limited. This tool will work on most OHC design heads including most four valve per cylinder applications.

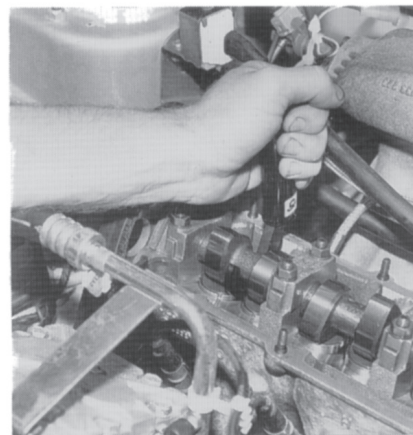


PIONEER NO.	DESCRIPTION
46524	Narrow Access Pliers

VALVE ADJUSTMENT TOOLS

EARLY MODEL VW AND CHRYSLER APPLICATIONS

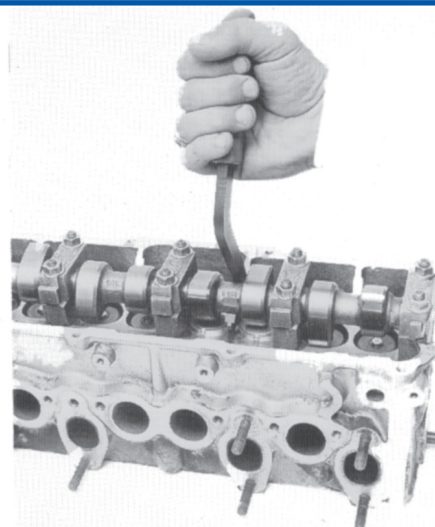
This is a universal valve adjusting tool that will work on many applications including the Audi 5000, the 5 cylinder VW and late model VW's that require tool #2078. Due to it's design, this tool can clear hoses and obstructions as well as the AC line on certain VW applications.



PIONEER NO.	DESCRIPTION
46536	Valve Adjustment Tool

LATE MODEL VW AND AUDI 5000

This original valve adjusting tool will work on Chrysler Omni and Horizon engines as well as earlier model Volkswagens which do not specify tool #2078.



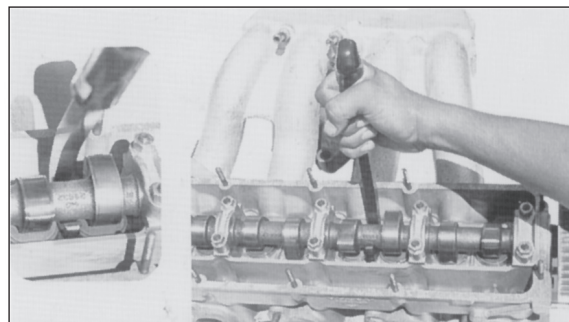
PIONEER NO.	DESCRIPTION
46537	Valve Adjustment Tool

VALVE ADJUSTMENT TOOLS, Cont'd.

VOLVO APPLICATIONS

This valve adjustment tool is designed to work on 1976 and later Volvo Engines. Like the 46536 and 46537, the 46539 works on a lever action, forcing the lifter down so the spacer shim can be removed.

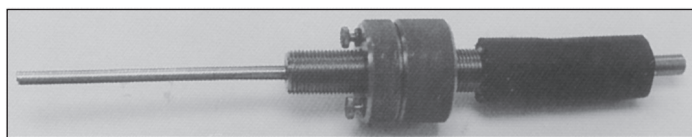
PIONEER NO.	DESCRIPTION
46539	Valve Adjustment Tool



VALVE GUIDE HONE

PIONEER NO.	RANGE
4130	.240 - .302
4135	.302 - .365
4138	.365 - .427

PIONEER NO.	GRIT	RANGE
4131	180	.240 - .302
4132	220	.302 - .302
4133	320	.365 - .427
4134	180	.302 - .365
4136	220	.302 - .365
4137	320	.302 - .365
4139	180	.365 - .427
4140	220	.365 - .427
4141	320	.365 - .427



This tool has been designed to allow the valve guide to be honed to exact tolerances, while leaving a cross hatch pattern for excellent oil control and lubrication.

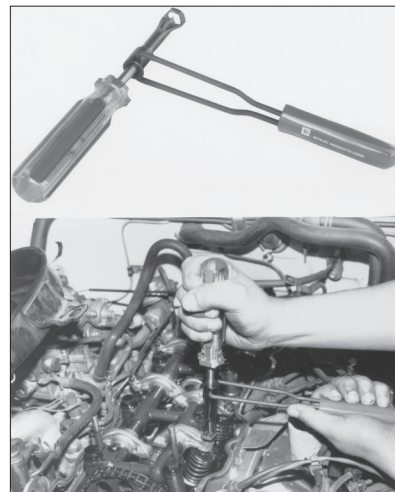
Madrel	RANGE
4142	.240 - .302
4143	.302 - .365
4144	.365 - .427

UNIVERSAL VALVE ADJUSTMENT TOOLS

These valve tools are designed to work on vehicles that use a jam nut valve adjustment screw. These tools feature a window for viewing the direction of the adjustment screw while the jam nut is tightened. The handle pivots from side to side allowing the user full access to the window.

PIONEER NO.	DESCRIPTION
46525	10mm Jam Nut
46526	12mm Jam Nut
46527	13mm Jam Nut
46528	1/2" Jam Nut
46529	9/16" Jam Nut

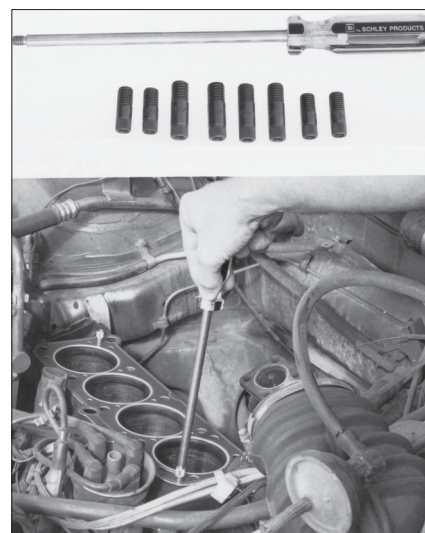
These long life heat treated chrome vanadium steel tools fit the 12mm, 13mm, 1/2" and 9/16" jam nuts.



CYLINDER HEAD ALIGNMENT TOOL

This tool helps keep the head gasket lined up when installing the head. Just thread in two studs into the block opposite of each other. Position the head gasket on the block then lower the head into place. Install and slightly tighten several head bolts, once this is completed just remove the studs with the left hand threaded driver. Studs included in this kit will fit blocks drilled for 1/2" x 13, 7/16" x 14, and 12 x 1.75mm.

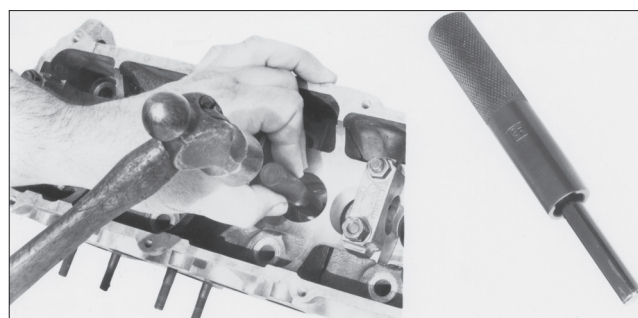
PIONEER NO.	DESCRIPTION
46540	Cylinder Head Alignment Tool



VALVE GUIDE INSTALLATION TOOL

This tool has been developed to install valve guides in all water cooled VW and Audi 4000 and 5000 heads with an 8mm guide. This unique design will not damage the seal area, since it presses directly on the retaining shoulder of the guide.

PIONEER NO.	SIZE
46530	8mm Valve Guide Installation Tool



VALVE SEAT GRINDER PILOTS

SOLID - VALVE SEAT GRINDER PILOTS

Precision ground pilots to fit the most popular seat grinders. Heat treated and tempered to stand up under repeated use. Machined for proper alignment of valve seat to pilot. Available for the most popular metric and decimal sizes.

PIONEER NO. FOR KWI-KWAY 7/16" (.437)	PIONEER NO. FOR SIOUX 3/8" + .010 (.385)	DECIMAL	INCHES	MM
K-5258-K	K-5258-S	.258	—	6.6mm - .002"
K-5259-K	K-5259-S	.259	—	6.6mm - .001"
K-5260-K	K-5260-S	.260 (Standard)	—	6.6mm
K-5261-K	K-5261-S	.261	—	6.6mm + .001"
K-5262-K	K-5262-S	.262	—	6.6mm + .002"
K-5263-K	K-5263-S	.263	—	6.6mm + .003"
K-5273-K	K-5273-S	.273	9/32" - .008"	7mm - .002"
K-5274-K	K-5274-S	.274	9/32" - .007"	7mm - .001"
K-5275-K	K-5275-S	.275 (Standard)	9/32" - .006"	7mm
K-5276-K	K-5276-S	.276	9/32" - .005"	7mm + .001"
K-5277-K	K-5277-S	.277	9/32" - .004"	7mm + .002"
K-5278-K	K-5278-S	.278	9/32" - .003"	7mm + .003"
K-5310-K	K-5310-S	.310	5/16" - .002"	8mm - .005"
K-5311-K	K-5311-S	.311	5/16" - .001"	8mm - .004"
K-5312-K	K-5312-S	.312 (Standard)	5/16"	8mm - .003"
K-5313-K	K-5313-S	.313	5/16" + .001"	8mm - .002"
K-5314-K	K-5314-S	.314	5/16" + .002"	8mm - .001"
K-5315-K	K-5315-S	.315 (Standard)	5/16" + .003"	8mm
K-5316-K	K-5316-S	.316	5/16" + .004"	8mm + .001"
K-5317-K	K-5317-S	.317	5/16" + .005"	8mm + .002"
K-5318-K	K-5318-S	.318	5/16" + .006"	8mm + .003"
K-5339-K	K-5339-S	.339	11/32" - .005"	—
K-5340-K	K-5340-S	.340	11/32" - .004"	—
K-5341-K	K-5341-S	.341	11/32" - .003"	—
K-5342-K	K-5342-S	.342	11/32" - .002"	—
K-5343-K	K-5343-S	.343	11/32" - .001"	—
K-5344-K	K-5344-S	.344 (Standard)	11/32"	—
K-5345-K	K-5345-S	.345	11/32" + .001"	—
K-5346-K	K-5346-S	.346	11/32" + .002"	—
K-5347-K	K-5347-S	.347	11/32" + .003"	—
K-5348-K	K-5348-S	.348	11/32" + .004"	—
K-5352-K	K-5352-S	.352	—	9mm - .002"
K-5353-K	K-5353-S	.353	—	9mm - .001"
K-5354-K	K-5354-S	.354 (Standard)	—	9mm
K-5355-K	K-5355-S	.355	—	9mm + .001"
K-5356-K	K-5356-S	.356	—	9mm + .002"
K-5357-K	K-5357-S	.357	—	9mm + .003"
K-5368-K	K-5368-S	.368	3/8" - .007"	—
K-5369-K	K-5369-S	.369	3/8" - .006"	—
K-5370-K	K-5370-S	.370	3/8" - .005"	—
K-5371-K	K-5371-S	.371	3/8" - .004"	—
K-5372-K	K-5372-S	.372	3/8" - .003"	—
K-5373-K	K-5373-S	.373	3/8" - .002"	—
K-5374-K	K-5374-S	.374	3/8" - .001"	—
K-5375-K	K-5375-S	.375 (Standard)	3/8"	—
K-5376-K	K-5376-S	.376	3/8" + .001"	—
K-5377-K	K-5377-S	.377	3/8" + .002"	—
K-5378-K	K-5378-S	.378	3/8" + .003"	—
K-5379-K	K-5379-S	.379	3/8" + .004"	—
K-5392-K	K-5392-S	.392	—	10mm - .002"
K-5393-K	K-5393-S	.393	—	10mm - .001"
K-5394-K	K-5394-S	.394 (Standard)	—	10mm
K-5395-K	K-5395-S	.395	—	10mm + .001"
K-5396-K	K-5396-S	.396	—	10mm + .002"
K-5432-K	K-5432-S	.432	7/16" - .005"	11mm - .001"
K-5433-K	K-5433-S	.433 (Standard)	7/16" - .004"	11mm
K-5434-K	K-5434-S	.434	7/16" - .003"	11mm + .001"
K-5435-K	K-5435-S	.435	7/16" - .002"	11mm + .002"
K-5436-K	K-5436-S	.436	7/16" - .001"	—
K-5437-K	K-5437-S	.437 (Standard)	7/16"	—
K-5438-K	K-5438-S	.438	7/16" + .001"	—
K-5439-K	K-5439-S	.439	7/16" + .002"	—
K-5440-K	K-5440-S	.440	7/16" + .003"	—



KWI-KWAY 7/16" (.437)

SIOUX 3/8" + .010 (.385)

GUIDE-LINER® INSTALLATION

FOR FAST GUIDE-LINER® INSTALLATION

This tooling is for those shops that need a very fast, accurate and economical method to install Guide-Liners®. With the piloted carbide reamer and the use of a centering cone, this spring loaded cutter will align to the seat surface for an accurate one step cut of the worn guide. The guide is then ready for installing a Guide-Liner®. This tool can be used with any heavy duty drill. This is the fastest and best method available for Guide-Liner® installation.

TOP COLLAR:

Holds spring in position to maintain pressure on the bushing as the reamer enters guide bore.

SPRING:

Holds seat cone in the seat while reaming the guide bore.

BUSHING:

Acts as a wear guard to prevent bushing wear as tool rotates.

SEAT CONE:

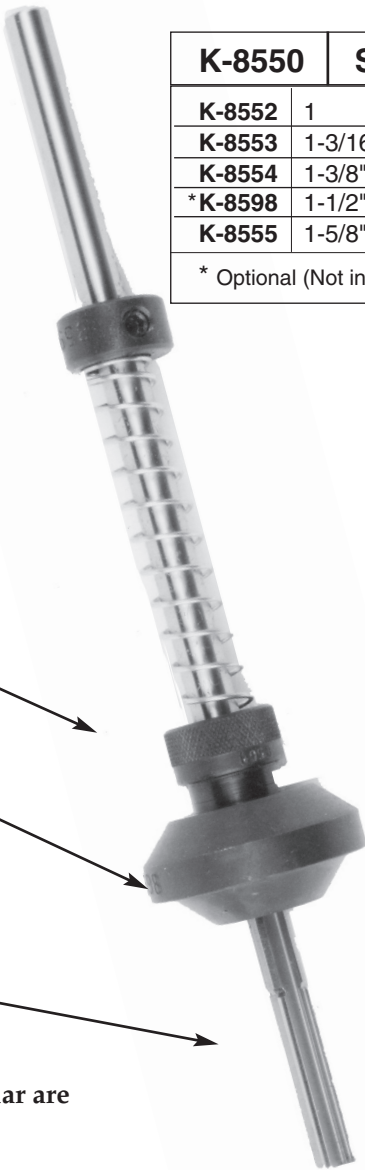
Centers to the valve seat to align and center reamer for perfect align to guide bore.

REAMER:

A fluted carbide reamer (accurate to .0001") with a 1" pilot to quickly align and enlarge guide bore to accept .030 Bronze Guide-Liner®.

Carbide Boring Tool, Bushing, Spring and Top Collar are included in each accessory package.

K-8550		SEAT CONE KIT	
K-8552	1	K-8556	1-3/4"
K-8553	1-3/16"	* K-8599	1-7/8"
K-8554	1-3/8"	K-8557	2"
* K-8598	1-1/2"	K-8558	2-1/4"
K-8555	1-5/8"	* K-8559	2-1/2"
* Optional (Not included in Kit)			



BORING ACCESSORIES		REPLACEMENT TOOLING			
GUIDE SIZE	ACCESSORY PACKAGE NO.	INSERT REAMER BUSHING	RETAINER COLLAR	SPRING	CARBIDE REAMER
5/16"	K-8560	K-8561	K-8593	K-8596	K-1719-C
11/32"	K-8565	K-8566	K-8593	K-8596	K-1725-C
3/8"	K-8570	K-8571	K-8594	K-8597	K-1735-C
7/16"	K-8575	K-8576	K-8594	K-8597	K-1749-C
6.6mm	K-8580	K-8581	K-8592	K-8596	K-3571-C
7mm	K-8585	K-8586	K-8592	K-8596	K-3576-C
8mm	K-8590	K-8591	K-8593	K-8596	K-3581-C
9mm	K-8595	K-8589	K-8593	K-8597	K-3586-C

DELUXE GUIDE LINER INSTALLATION KITS

These Deluxe Valve Guide Liner Kits come complete with the carbide boring tool and speciality tooling for installation of the popular bronze guide liners.

Each kit comes with instructions to ensure proper guide liner installation.



GUIDE SIZE	KIT NO.	BALL BROACHES	BORING ACCSY.	AUTO INSTALLER	REMOVAL TOOL	GO-NO GAUGE	GUIDE-TOP CUTTER	CUTTER PILOT	FLEX HONE	GUIDE BRUSH
5/16"	K-1600NX	K-5844 (.312) K-5845 (.313) K-5846 (.314)	K-8560	K-9961	K-5680	K-2500	K-4235	K-4238	K-2427	K-1036
11/32"	K-1601NX	K-5857 (.3435) K-5858 (.3445) K-5859 (.3455)	K-8565	K-9962	K-5681	K-2501	K-4235	K-4239	K-2428	K-1036
3/8"	K-1602NX	K-5872 (.374) K-5873 (.375) K-5874 (.376)	K-8570	K-9963	K-5682	K-2502	K-4235	K-4240	K-2429	K-1036
7/16"	K-1603NX	K-5883 (.436) K-5884 (.437) K-5885 (.438)	K-8575	K-9964	K-5683	K-2503	K-4235	K-4241	K-2430	K-1038
6mm	K-1612NX	K-5815 (.237) K-5816 (.2375) K-5817 (.238) K-5818 (.2385)	K-8600	K-9965	K-5679	K-2499	K-4233	K-4245	K-2425	K-1036
6.6mm	K-1606NX	K-5825 (.260) K-5826 (.261) K-5827 (.262)	K-8580	K-9966	K-5684	K-2504	K-4233	K-4242	K-2425	K-1036
7mm	K-1607NX	K-5836 (.277) K-5837 (.278) K-5838 (.279)	K-8585	K-9967	K-5685	K-2505	K-4233	K-4243	K-2426	K-1036
8mm	K-1608NX	K-5847 (.315) K-5848 (.316) K-5849 (.317)	K-8590	K-9968	K-5686	K-2506	K-4235	K-4238	K-2427	K-1036
9mm	K-1609NX	K-5864 (.354) K-5865 (.355) K-5866 (.356)	K-8595	K-9969	K-5687	K-2507	K-4235	K-4244	K-2428	K-1036

STANDARD VALVE GUIDE LINER INSTALLATION KITS

These kits are designed to be used where the need for economical replacement of valve guides exist.

Each kit comes with instructions to ensure proper guide liner installation.



GUIDE SIZE	KIT NO.	BALL BROACHES				BORING ACCSY.	AUTO INSTALLER	TRIM TOOL	GUIDE BRUSH
5/16"	K-1600-RX	K-5844 (.312)	K-5845 (.313)	K-5846 (.314)		K-8560	K-9961	K-1787	K-1036
11/32"	K-1601-RX	K-5857 (.3135)	K-5858 (.3445)	K-5859 (.3455)		K-8565	K-9962	K-1797	K-1036
3/8"	K-1602-RX	K-5872 (.374)	K-5873 (.375)	K-5874 (.376)		K-8570	K-9963	K-1807	K-1036
7/16"	K-1603-RX	K-5883 (.436)	K-5884 (.437)	K-5885 (.438)		K-8575	K-9964	K-1817	K-1036
6mm	K-1612-RX	K-5815 (.237)	K-5816 (.2375)	K-5817 (.238)	K-5818 (.2385)	K-8600	K-9965	K-3185	K-1036
6.6mm	K-1606-RX	K-5825 (.260)	K-5826 (.261)	K-5827 (.262)		K-8580	K-9966	K-3205	K-1036
7mm	K-1607-RX	K-5836 (.277)	K-5837 (.278)	K-5838 (.279)		K-8585	K-9967	K-1987	K-1036
8mm	K-1608-RX	K-5847 (.315)	K-5848 (.316)	K-5849 (.317)		K-8590	K-9968	K-1787	K-1036
9mm	K-1609-RX	K-5864 (.354)	K-5865 (.355)	K-5866 (.356)		K-8595	K-9969	K-3235	K-1036

(Continued on next page)

VALVE GUIDE KNURLING

You can now resize the inside diameter of worn valve guides quickly and accurately:

VALVE GUIDE KNURLING:

Eliminates:

- Oil consumption due to Valve Guide wear
- Costly Valve Guide removal and replacement

Reduces:

- Valve sticking and scoring
 - Guide and stem wear
- ✓ Resizing arbors are easy to use-self starting
 - ✓ Extremely fast and inexpensive to maintain
 - ✓ Resizing arbors can be backed out at anytime
 - ✓ Reconditions all makes and sizes of guides except chilled or hardened guides.



TYPICAL GUIDE WEAR



K-1032- STANDARD RESIZE KIT

(For knurling 5/16", 11/32", 3/8" Guides)

K-1033 - MASTER RESIZE KIT

(For knurling 5/16", 11/32", 3/8", 7/16" Guides)

K-1034 - METRIC RESIZE KIT

(For knurling 6, 7, 8, 9mm)

- KITS AND CONTENTS -

K-1032 KIT			K-1033 KIT			K-1034 KIT		
QTY.	PIONEER NUMBER	DESCRIPTION	QTY.	PIONEER NUMBER	DESCRIPTION	QTY.	PIONEER NUMBER	DESCRIPTION
1	K-0101-B	Steel Case	1	K-0101-B	Steel Case	1	K-0101-B	Steel Case
1	K-1031	Speed Reducer	1	K-1031	Speed Reducer	1	K-1031	Speed Reducer
1	K-1035	Tap Wrench	1	K-1035	Tap Wrench	1	K-1035	Tap Wrench
1	K-1036	Brush	1	K-1036	Brush	1	K-1036	Brush
1	K-1088	5/16" Resize Arbor	1	K-1088	5/16" Resize Arbor	1	K-1081	6mm Resize Arbor
1	K-1089	11/32" Resize Arbor	1	K-1089	11/32" Resize Arbor	1	K-1082	7mm Resize Arbor
1	K-1091	3/8" Resize Arbor	1	K-1091	3/8" Resize Arbor	1	K-1083	8mm Resize Arbor
1	K-1118	.312 High Speed Reamer	1	K-1094	7/16" Resize Arbor	1	K-1084	9mm Resize Arbor
1	K-1121	.343 High Speed Reamer	1	K-1117	.311 High Speed Reamer	1	K-1110	6mm High Speed Reamer
1	K-1123	.345 High Speed Reamer	1	K-1118	.312 High Speed Reamer	1	K-1111	7mm High Speed Reamer
1	K-1126	.373 High Speed Reamer	1	K-1119	.341 High Speed Reamer	1	K-1112	8mm High Speed Reamer
1	K-1128	.375 High Speed Reamer	1	K-1120	.342 High Speed Reamer	1	K-1113	9mm High Speed Reamer
1	K-1220	Arbor-Lube	1	K-1121	.343 High Speed Reamer	1	K-1031-E	3/16" Drive Adaptor
		Operating Instructions	1	K-1123	.345 High Speed Reamer	1	K-1220	Arbor-Lube
			1	K-1124	.371 High Speed Reamer			Operating Instructions
			1	K-1126	.373 High Speed Reamer			
			1	K-1128	.375 High Speed Reamer			
			1	K-1131	.437 High Speed Reamer			
			1	K-1220	Arbor-Lube			
					Operating Instructions			

VALVE GUIDE KNURLING

RESIZING ARBORS



(* SPECIAL - USE ON BRONZE LINERS AND NEW CAST IRON GUIDES ONLY)

PIONEER NUMBER	SIZE	DECIMAL SIZE	DESCRIPTION	PIONEER NUMBER	SIZE	DECIMAL SIZE	DESCRIPTION
K-1080	6.6mm	.260	Resizing Arbor	K-1084	9mm	.354	Resizing Arbor
K-1081	6mm	.236	Resizing Arbor	K-1089-B	11/32" + .016	.358	Resizing Arbor
K-1086	1/4"	.250	Resizing Arbor	K-1091	3/8"	.375	Resizing Arbor
K-1082	7mm	.276	Resizing Arbor	K-1103	3/8"	.375 *	Resizing Arbor
K-1088	5/16"	.312	Resizing Arbor	K-1091-A	3/8" + .005	.380	Resizing Arbor
K-1101	5/16"	.312 *	Resizing Arbor	K-1091-B	3/8" + .015	.390	Resizing Arbor
K-1083	8mm	.315	Resizing Arbor	K-1085	10mm	.394	Resizing Arbor
K-1088-A	5/16" + .005	.317	Resizing Arbor	K-1093	13/32"	.406	Resizing Arbor
K-1088-B	5/16" + .015	.327	Resizing Arbor	K-1094	7/16"	.437	Resizing Arbor
K-1089	11/32"	.343	Resizing Arbor	K-1104	7/16"	.437 *	Resizing Arbor
K-1102	11/32"	.343 *	Resizing Arbor	K-1094-A	7/16" + .005	.442	Resizing Arbor
K-1089-A	11/32" + .005	.348	Resizing Arbor	K-1095	1/2"	.500	Resizing Arbor
				K-1096	9/16"	.562	Resizing Arbor

HIGH SPEED PILOTED VALVE GUIDE REAMERS



PIONEER NUMBER	SIZE	DECIMAL SIZE	DESCRIPTION	PIONEER NUMBER	SIZE	DECIMAL SIZE	DESCRIPTION
K-1110	6mm	.236	High Speed Reamer	K-1136		.346	High Speed Reamer
K-1115	1/4"	.250	High Speed Reamer	K-1137	11/32" + .005	.348	High Speed Reamer
K-1183	6.5mm	.256	High Speed Reamer	K-1113	9mm	.354	High Speed Reamer
K-1173	6.6mm	.260	High Speed Reamer	K-1138	11/32" + .015	.358	High Speed Reamer
K-1111	7mm	.275	High Speed Reamer	K-1124	-	.371	High Speed Reamer
K-1116	-	.310	High Speed Reamer	K-1125	-	.372	High Speed Reamer
K-1117	-	.311	High Speed Reamer	K-1126	-	.373	High Speed Reamer
K-1118	5/16"	.312	High Speed Reamer	K-1127	-	.374	High Speed Reamer
K-1176		.313	High Speed Reamer	K-1128	3/8"	.375	High Speed Reamer
K-1177		.314	High Speed Reamer	K-1139	3/8" + .001	.376	High Speed Reamer
K-1112	8mm	.315	High Speed Reamer	K-1194	3/8" + .005	.380	High Speed Reamer
K-1174		.316	High Speed Reamer	K-1197	3/8" + .015	.390	High Speed Reamer
K-1175	5/16" + .005	.317	High Speed Reamer	K-1114	10mm	.394	High Speed Reamer
K-1188	5/16" + .015	.327	High Speed Reamer	K-1130	11/32"	.406	High Speed Reamer
K-1119	-	.341	High Speed Reamer	K-1134		.433	High Speed Reamer
K-1120	-	.342	High Speed Reamer	K-1131	7/16"	.437	High Speed Reamer
K-1121	11/32"	.343	High Speed Reamer	K-1132	1/2"	.500	High Speed Reamer
K-1122	-	.344	High Speed Reamer	K-1133	9/16"	.562	High Speed Reamer
K-1123	-	.345	High Speed Reamer				

VALVE GUIDE KNURLING ACCESSORIES

PIONEER NUMBER	DESCRIPTION
K-1031	Speed Reducer
K-1035	Tap Wrench
K-1036	Cleaning Brush
K-1224	1 Pint Bronze Lube

(Continued on next page)

VALVE GUIDE-LINER BALL BROACH



A new simple fast method for sizing the inside diameter of bronze guides. Made of high quality tool steel with a special ground configured ball section which quickly pressure forms the inside diameter to size and eliminates reaming or honing. All ball broaches can be hammer driven or a special broach holder/driver is available with a .401 parker shank to fit most popular air hammer guide drivers.

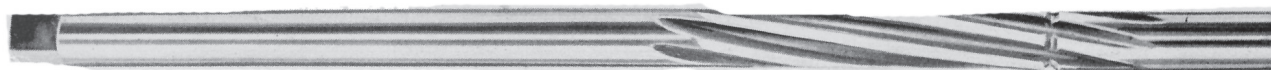
As an alternative to spiraling and finish reaming you can BALL BROACH the Valve Guide-Liner®.

A Ball Broach is fast, accurate, and less expensive.

Four easy steps: 1. Bore the Valve Guide; 2. Install the Guide-Liner®; 3. Trim to length; 4. Ball broach the I.D.

PIONEER NO.	SIZE	DEC.	PIONEER NO.	SIZE	DEC.	PIONEER NO.	SIZE	DEC.
K-5825	6.6mm	.260	K-5853	11/32"	.339	K-5876	10mm	.394
K-5826		.261	K-5854		.340	K-5877		.395
K-5827		.262	K-5855		.341	K-5878		.396
K-5828		.263	K-5856		.342			
K-5835	7mm	.276	K-5857	9mm	.3435	K-5879	11mm	.432
K-5836		.277	K-5858		.3445	K-5880		.433
K-5837		.278	K-5859		.3455	K-5881		.434
K-5831		.283				K-5882		.435
K-5842	5/16"	.310	K-5864	3/8"	.354	K-5883	7/16"	.436
K-5843		.311	K-5865		.355	K-5884		.437
K-5844		.312	K-5866		.356	K-5885		.438
K-5845		.313						
K-5846	8mm	.314	K-5867		.369	BALL BROACH AIR HAMMER HOLDER/DRIVER		
K-5847		.315	K-5868		.370			
K-5848		.316	K-5870		.371			
K-5849		.317	K-5871		.372			
K-5850		.318	K-5869		.373	K-5758	6.6mm – 8.8mm	
K-5851		.319	K-5872		.374	K-5759	11/32" – 7/16"	
			K-5873		.375			
			K-5874		.376			

BRONZE VALVE GUIDE TOOLS



PATENT NUMBER 4,231,693

PRECISION H.S. piloted valve guide reamers for reaming high density phosphor bronze or other hard to machine bronze based material. Specially fluted, heat treated and ground to produce a smooth on size I.D. with the same cutting ease as reaming cast iron. Lubricant is required when reaming bronze. BRONZE-LUBE or an acceptable bronze cutting oil is recommended to assure maximum finish and tool life.

PIONEER NO.	DEC.	MM	PIONEER NO.	DEC.	MM	PIONEER NO.	DEC.	MM
K-1185-B	.216	5.50	K-1117-B	.311	7.90	K-1123-B	.345	8.76
K-1110-B	.236	6.00	K-1118-B	.312	7.92	K-1113-B	.354	9.00
K-1115-B	.250	6.35	K-1176-B	.313	7.95	K-1124-B	.371	9.42
K-1183-B	.256	6.50	K-1177-B	.314	7.97	K-1125-B	.372	9.45
K-1206-B	.257	6.53	K-1112-B	.315	8.00	K-1126-B	.373	9.47
K-1207-B	.258	6.55	K-1174-B	.316	8.03	K-1127-B	.374	9.50
K-1208-B	.259	6.58	K-1175-B	.317	8.05	K-1128-B	.375	9.52
K-1173-B	.260	6.60	K-1178-B	.318	8.08	K-1114-B	.394	10.00
K-1184-B	.261	6.63	K-1119-B	.341	8.66	K-1134-B	.433	11.00
K-1186-B	.262	6.65	K-1120-B	.342	8.69	K-1131-B	.437	11.10
K-1111-B	.275	7.00	K-1121-B	.343	8.71	K-1135-B	.472	12.00
K-1116-B	.310	7.87	K-1122-B	.344	8.74			

REPLACEMENT VALVE GUIDE TOOLS

HIGH SPEED PILOTED CORE DRILLS AND REAMERS FOR BRON-EL® OR CAST IRON VALVE GUIDES



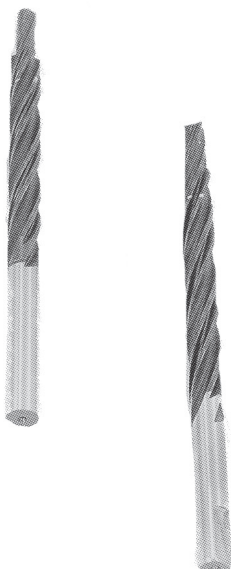
MACHINE & SHANK TYPE	PART NUMBER	VALVE GUIDE SIZE										
		5/16" I.D. X 7/16" O.D.		5/16" I.D., 11/32" I.D., 3/8" I.D. X 1/2" O.D.				11/32" I.D., 3/8" I.D. X 9/16" O.D.			7/16" I.D. X 5/8" O.D.	
		Core Drill	Reamer	Core Drill	Core Drill	Core Drill	Reamer	Core Drill	Core Drill	Reamer	Core Drill	Reamer
KWIK-WAY  Round	Original No.	018-1061-08	004-0002-00	—	018-1062-05	018-1063-02	004-0002-18	—	—	—	018-1064-00	004-0002-26
	PIONEER NUMBER	K-4205	K-4206	K-4210	K-4211	K-4212	K-4214	K-4223	K-4224	K-4226	K-4220	K-4221
PETERSON  Round	Original No.	DP-1350	RR-713	—	DP-1511	DP-1530	RR-115	—	—	—	DP-1970	RR-519
	PIONEER NUMBER	K-4190	K-4191	K-4195	K-4196	K-4197	K-4198	K-4202	K-4203	K-4204	K-4200	K-4201
TOBIN-ARP  Round w/Flat	Original No.	VGS-20081	VGS-20096	—	VGS-20082	VGS-20083	VGS-20097	—	—	—	VGS-20084	VGS-20098
	PIONEER NUMBER	K-4100	K-4101	K-4104	K-4105	K-4106	K-4107	K-4111	K-4112	K-4114	K-4109	K-4110
VAN NORMAN  Round w/ 5/16" Square	Original No.	DET-1	40078	—	DET-2	DET-3	40079	DET-5	—	40202	DET-4	40080
	PIONEER NUMBER	K-1752	K-1753	K-1758	K-1762	K-1763	K-1764	K-4228	K-4229	K-4231	K-1772	K-1773
WINONA  Round w/Flat	Original No.	DD-1332	DR-437	—	DD-1532	DD-1532A	DR-500	DD-1732	DD-1732A	DR-562	DD-1932	DR-625
	PIONEER NUMBER	K-4050	K-4051	K-4054	K-4055	K-4056	K-4057	K-4061	K-4062	K-4064	K-4059	K-4060

PLEASE NOTE: All Core Drills and Reamers are made from high speed steel, however, due to the fact that we have no control over how they are used, we cannot guarantee them for any specific time or number of guides.

CORE DRILL-REAMER COMBO

Reduce operator time with this one pass tool. This unique tool bores guide holes to .500 to accommodate all makes of 1/2".

Replacement Valve Guides available in the popular 11/32", 3/8" guides.



MACHINE & SHANK TYPE	PIONEER NO. 11/32" I.D. x 1/2" O.D.	PIONEER NO. 3/8" I.D. x 1/2" O.D.
KWIK-WAY / PETERSON Round 	CDR-6211	CDR-6212
TOBIN-ARP Round w/Flat 	CDR-6105	CDR-6106
IDL & WAN NORMAN Round w/5/16" Square 	CDR-6762	CDR-6763
WINONA Round w/Flat 	CDR-6055	CDR-6056
SERDI Round 	CDR-7196	CDR-7197

(Continued on next page)

VALVE GUIDE AND SEAL MACHING/ INSTALLATION TOOLS

TEFLON® IN STEEL

PIONEER NUMBER (BULK)	TOOLS FOR MACHINING GUIDES	PILOT	CUTTER	INSTALLATION TOOL		VALVE STEM NOM. DIA.	VALVE GUIDE DIA. AFTER MACHINING	PIONEER SET NO. (SKIN PACKED)
				PLASTIC	METAL			
OS-2001	OMT-9005	OMT-9027	OMT-9026	OIT-9023	OIT-9002	.312	.530	SS-2001
OS-2002	OMT-9006	OMT-9028	OMT-9026	OIT-9023	OIT-9002	.343	.530	SS-2002
OS-2003	OMT-9007	OMT-9028	N/A	OIT-9023	OIT-9002	.343	.562	SS-2003
OS-2004	OMT-9008	OMT-9029	OMT-9035	OIT-9024	OIT-9003	.375	.625	SS-2004
OS-2006	OMT-9009	OMT-9029	OMT-9026	OIT-9024	OIT-9003	.375	.530	SS-2006
OS-2007	OMT-9040	OMT-9028	OMT-9039	OIT-9023	OIT-9002	.343	.500	SS-2007
OS-2009	OMT-9041	OMT-9027	OMT-9039	OIT-9023	OIT-9002	.312	.500	SS-2009

ALL TEFLON®

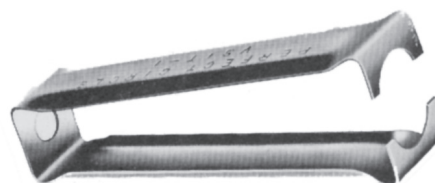
PIONEER NUMBER	MACHINING TOOL	GUIDE O.D.	NOMINAL STEM DIA.
OS-1053	OMT-9053	.415	.311
OS-1072	OMT-9072	.428	.311
OS-1090	OMT-9045	.500	.341
OS-1091	OMT-9050	.500	.372
OS-1046	OMT-9046	.531	.311
OS-1066	OMT-9065	.531	.341
OS-1067	OMT-9067	.531	.373

TEFLON® AND RUBBER

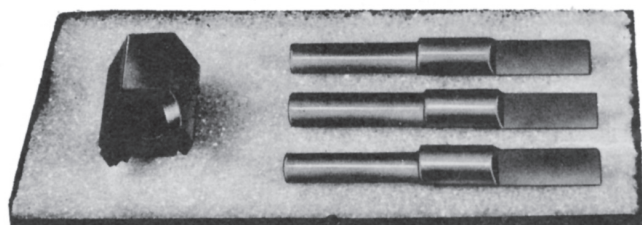
PIONEER NUMBER	MACHINING TOOL	GUIDE O.D.	NOMINAL STEM DIA.
OS-1062	OMT-9062	.500	.311
OS-1045	OMT-9045	.500	.341
OS-1050	OMT-9050	.500	.372
OS-1065	OMT-9065	.531	.341
OS-1054	OMT-9054	.562	.341
OS-1068	OMT-9068	.562	.372
OS-1036	OMT-9036	.625	.372
OS-1069	OMT-9060	.625	.404
OS-1043	OMT-9041	.620	.434
OS-1055	OMT-9055	.687	.434
OS-1056	OMT-9056	.660	.450

VALVE SEAL INSTALLATION TOOLS

PIONEER NUMBER	VSIT-1	For 9/16" Guide O.D. & Over
PIONEER NUMBER	VSIT-2	For 11/32" Guide O.D. & Over



MACHINING TOOL SETS



PIONEER KIT NUMBER	KIT CONTENTS:
OMT-9025	1 - .530 Cutter (OMT-9026), 1 - Each .312" (OMT-9027) Pilot .343" (OMT-9028) Pilot .375" (OMT-9029) Pilot

VALVE SEAT DRIVING TOOLS

This tool centers off common valve grinder pilots, making it easy to align the seat with the seat pocket. This combined with the heavy duty driver and hardened washers with their wide contact surfaces help eliminate galling and warpage during seat replacement.

PIONEER NO.	SIZE & APPLICATION
K-3520	3/8" .375 – Black & Decker, Snap On, K.O. Lee, Thor
K-3521	3/8" + .010, .385 – Souix
K-3522	7/16" – Kwik Way, Hall



DRIVER WASHERS

PIONEER NO.	DIAMETER	PIONEER NO.	DIAMETER
K-3507	1-1/8"	K-3512	1-3/4"
K-3508	1-1/4"	K-3513	1-7/8"
K-3509	1-3/8"	K-3514	2"
K-3510	1-1/2"	K-3515	2-1/8"
K-3511	1-5/8"	K-3516	2-1/4"

VALVE TOP CUTTER

This straight shanked replaceable tipped guide top cutter is to be used when removing the excess material after installing a brass valve guide liner. This tool measures 5/8" x 4" and along with the interchangeable pilots it has a replaceable carbide insert which is held in place by holding screws.

PIONEER NO.	APPLICATION
K-4233	Small Diameter Guide Top Cutter
K-4235	Deluxe Guide Top Cutter
K-4236	Replacement Carbide Blade

CUTTER PILOTS

PIONEER NO.	DIAMETER	PIONEER NO.	DIAMETER
K-4238	5/16"	K-4243	7mm
K-4239	11/32"	K-4244	8mm
K-4240	3/8"	K-4245	9mm
K-4241	7/16"	K-4246	5.5mm
K-4242	6.6mm	K-4247	5mm



VALVE ADJUSTMENT TOOLS

for Nissan & Other Imports

These multi application tools are designed to simplify valve adjustment on all Nissan's as well as many other engines using the overhead camshaft with spacer shims. The special pliers with their unique design will push between the space shim and camshaft when they are squeezed close. This action will force the lifter away from the shim allowing access for the wedge tool to be inserted into the lifter edge and camshaft. The wedge will maintain the necessary space for shim replacement.

PIONEER NO.	APPLICATION
46533	Adjusting set for Nissan
46534	Replacement wedge for Nissan
46535	Replacement Pliers



(Continued on next page)

DRILL BITS



135° Split Point Drills have straight shanks and are constructed of high speed steel. Meets national Aircraft Standards A.I.A. NAS907 Type B. Available in Fractional sizes. Heavy Duty...no center punching required. designed to eliminate drill walking even on curved surfaces. For use on all steels including aircraft type stainless steel and titanium alloys.



PIONEER NUMBER	DIA.	DECIMAL EQUIVALENT	LENGTH	STD. PKG.
422101-5	1/8"	.1250	2-3/4"	5
422104-5	11/64"	.1719	3-1/4"	5
422105-5	3/16"	.1875	3-1/2"	5
422106-6	13/64"	.2031	3-5/8"	5
422109-5	1/4"	.250	4"	5
422113-5	5/16"	.3125	4-3/4"	5
422115-5	11/32"	.3438	4-3/4"	5
422117-5	3/8"	.3750	5"	5
422118-5	25/64"	.3906	5-1/8"	5
422121-5	7/16"	.4375	5-1/2"	5
422123-5	15/32"	.4588	5-3/4"	5
422126-5	1/2"	.500	6"	5

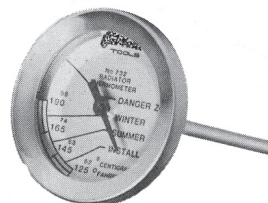
PIONEER NUMBER **423951** 15 DRILLS, 1/16" TO 1/2" BY 32NDS, IN HANDY METAL BOX
PIONEER NUMBER **423950** 29 DRILLS, 1/16" TO 1/2" BY 64NDS, IN HANDY METAL BOX

RADIATOR THERMOMETER

PIONEER NUMBER **4732**

Check for condition of car's cooling system and the correct functioning of thermostats with this top quality thermometer. dial is calibrated in Centigrade and Fahrenheit for easy reading.

4-1/2" thermo tube for easy use.

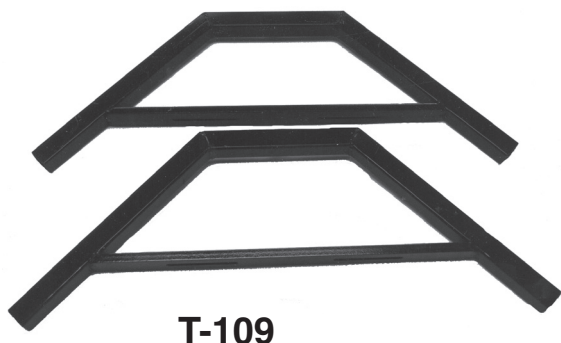


ENGINE ROLLOVER STANDS

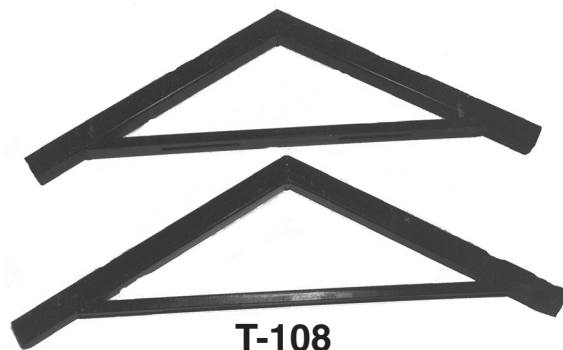
T-108 PIONEER KIT NUMBER **90° Stand**

T-109 PIONEER KIT NUMBER **60° Stand**

These heavy duty stands will securely hold engines in either a 90° or 60° angle, easing boring and honing operations.



T-109



T-108

FLEXIBLE VALVE AIR-HOLD TOOL

488002 PIONEER NUMBER



- This tool allows replacement of valve seals and broken or weak valve springs on OHV & OHC engines without removing the head by applying air to cylinder through spark plug hole.
- Flexible design makes job easier and quicker where spark plug holes are hard to get at.
- Overall length 13", with one end 14mm and 18mm threads fit spark plug hole. Other end 1/4" female pipe thread for coupler plug attachment.
- After attaching plug and quick coupler, air pressure keeps valve closed while working.
- Instructions included.

FLEX DRIVE COMPRESSION TESTER

488007 PIONEER NUMBER



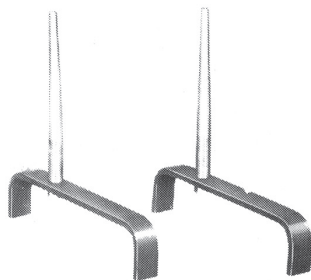
- Tests all Domestic & Imported cars and trucks with gasoline engines.
- Has 14mm & 18mm adapter attached to end of hose. Plus separate 14mm long reach adapter that can be screwed onto end of hose adapter by hand. Tests cars with both 13/16" and 5/8" hex plugs.
- By adding our 10mm & 12mm adapters (available separately) it will be the ideal tester for small engines.
- Tester can be screwed into spark plug hole by hand with just a few turns for testing.
- Side release valve allows multiple re-testing without removing tester.
- Dual 2-1/2" gauge 0-300 PSI and 0-21kg/cm².
- Instructions and specifications included.

(Continued on next page)

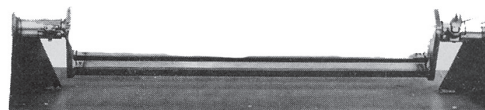
CYLINDER HEAD HOLDERS

T-110 PIONEER NUMBER STAND HOLDER

A real time saver for any shop! This sturdy stand holds cylinder heads safely and securely while you repair cracks, grind seats, clean carbon, knurl and ream guides. There is ample clearance under heads for knurling and reaming valve guides.



T-111 PIONEER NUMBER ROTATING HOLDER



The Pioneer 360° Rotating Cylinder Head Holder features one hand position locking and can be attached to most any work surface. It is excellent for use in boring, knurling, reaming, or installing valve guides; cutting, grinding, or installing valve seats; tapping; cutting of spring pads; total reassembly of heads; and precision leveling for CC'ing combustion chambers. Passenger car, light truck, and small diesel heads can easily be attached to the intake or exhaust side or on some models to valve cover bolt holes. Sturdy, durable, all steel construction assures long life.

CYLINDER HEAD HOLDER UNIVERSAL

Pioneer Number

T-114

Designed for use with foreign & domestic heads. Slip resistant neoprene coated rails hold head in position and provides protection. Head can be rotated 360 degrees. Made of lightweight polished aluminum for easy placement or can be mounted for increased durability.



STRAIGHT EDGE

PIONEER NUMBER	SIZE
T-619	36" Long
T-620	32" Long
T-621	24" Long

Variance should be no more than .001 over its total length



HEADS / BLOCKS / VALVE SPRINGS

- Used to check for flatness on blocks, heads, valve springs.
- Accurate to .001 inch (1 thousandth)

NON-INDICATED ROUND STRAIGHT EDGE

T-618 PIONEER NUMBER

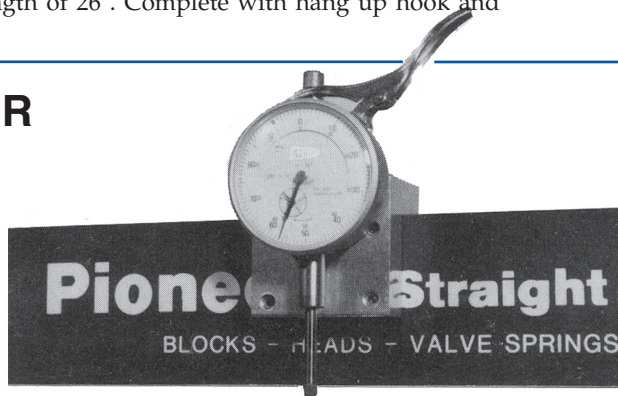


This heavy duty 3/4" diameter bar is ideal for checking clearances with a feeler gauge on engine blocks, and heads. It is accurate to within .002 over its total length of 26". Complete with hang up hook and detachable anti-roll block.

STRAIGHT EDGE DIAL INDICATOR

PIONEER NUMBER	DESCRIPTION
T-622	Straight Edge Dial Indicator

Designed especially for use with T-620, T-621 straight edges. The straight edge dial indicator can be used to speed up the checking of head or deck warpage, flywheel step, saddle deflection. TDC, and many other uses.

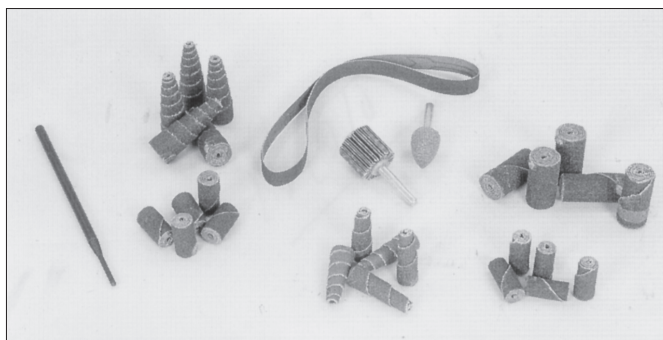


PORTING & POLISHING

COMPLETE PORTING & POLISHING ABRASIVE KIT

PPK-100 PIONEER KIT NUMBER

PIONEER NO.	QTY.
PPK-1	5
PPK-2	5
PPK-3	5
PPK-4	1
PPK-5	1
PPK-12	1
PPK-15	5
PPK-16	5
TM-12	1



***DESCRIPTION OF PARTS IN PIONEER KIT NO. PPK-100
REPLACEMENT ABRASIVES PACKS**

PIONEER NUMBER	DESCRIPTION	GRIT	QTY.
*PPK-1-50	Full-Taper Sprial Roll 1/2" X 1-1/2" X 1/8"	80	50
*PPK-2-50	Full-Taper Sprial Roll 3/4" X 2" X 1/8"	80	50
*PPK-3-50	Cartridge Roll 3/4" X 1-1/2" X 1/8"	50	50
*PPK-4-5	Flap Wheel 1" X 1" X 1/4"	120	5
*PPK-5	Roll Mandrel		
PPK-7	Flap Wheel 1-5/8" X 1"	80	1
PPK-8	Flap Wheel 2" X 1"	80	1

PIONEER NUMBER	DESCRIPTION	GRIT	QTY.
PPK-9	Flap Wheel 2-1/2" X 1"	80	1
PPK-11-10	Abrasive Belt 1/2" X 18"	80	10
*PPK-12-10	Abrasive Belt 1/2" X 18"	120	10
*PPK-15-10	Straight 1/2" X 1"	80	10
*PPK-16-10	Straight 3/8" X 1"	80	10
*TM-12	Grinding Wheel		

MECHANIC'S WIRE

419336 PIONEER NUMBER WIRE CUTTER	
PIONEER NO.	DESCRIPTION
MW-14-V	5 Lbs. Spool - 14 Gauge Wire (1 Spool/Box)
MW-16-V	5 Lbs. Spool - 16 Gauge Wire (1 Spool/Box)
MW-18-V	5 Lbs. Spool - 18 Gauge Wire (1 Spool/Box)
MW-19	50 Ft. Coil - 19 Gauge Wire (12 Rolls/Box)
MW-19-V	5 Lb. Spool - 19 Gauge Wire (1 Spool/Box)



(Continued on next page)

CRACK DETECTION

MAGNETIC CRACK DETECTOR KIT

MK-125 PIONEER KIT NUMBER

**ENGINE REBUILDERS / JOBBER MACHINE SHOPS
GARAGE AND FLEET OPERATORS**

The MK-125 Magnetic Crack Detector is the most versatile and effective instrument available. Designed to give fast and accurate results in places difficult to check.

Powered by two ALNICO-5 permanent magnets, the MK-125 will under normal usage, retain its power indefinitely.



Kit Includes: 1 - Magnetic Crack Detector
1 - 2-1/2 Lbs. of Magnetest Powder
1 - SPAR-BULB (MS-1) & Instructions
Shipping Weight 5 Lbs.

ELECTRO-MAGNETIC CRACK DETECTOR KIT

FAST AND RELIABLE DETECTION OF CRACKS IN FERROUS CASTING
AUTOMOTIVE • DIESEL • INDUSTRIAL

T-600 PIONEER KIT NUMBER

FEATURES:

- Heavy Duty Industrial Grade Electro-Magnet
- Poly-Urethane Coated Magnet
- Heavy Duty Momentary Switch
- 110 Volt, 60 HZ AC or 12 Volt (5 AMP Nominal) DC Operation
- 9 Foot Power Cord
- Demagnetization Capability in AC Mode



(Transformer built in handle, no bulky transformer box to get in the way)

KIT CONTENTS: Heavy Duty Electro Magnet / 8 Oz. Spray Bulb
1 Lb. Magnetest Powder / 4 Oz. Plastic Funnel / DC Adapter Cord
Instruction Sheet / Molded Plastic Box • Shipping Weight 12 Lbs.

MAGNETEST POWDER • SPRA-BULB

PIONEER NO.	DESCRIPTION	WEIGHT
MP-2-G	Gray Powder	2-1/2 Lbs.
MP-2-Y	Yellow Powder	2-1/2 Lbs.
MP-10-G	Gray Powder	10 Lbs.
MP-10-Y	Yellow Powder	10 Lbs.
MP-25-G	Gray Powder	25 Lbs.
MP-25-Y	Yellow Powder	25 Lbs.
MP-100-G	Gray Powder	100 Lbs.
MP-100-Y	Yellow Powder	100 Lbs.
MS-1	SPRA-BULB	



CRACK REPAIR

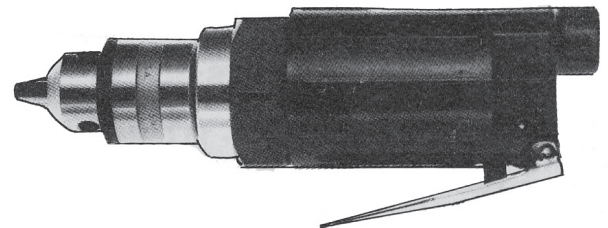
PIONEER TAPERED THREADED PLUGS are made of the finest ductile iron with just the right coefficient of expansion and contraction. Threaded to rigid quality control standard. All plugs listed have .0625 taper per inch.

PIONEER DRILLS, REAMERS AND TAPS are made of high speed steel. Each is especially designed for the purpose of making the installation of Pioneer Tapered Threaded Plugs simple and precise and to assure the perfect metal to metal seal.

PLUGS: Dia. (Small End) x Thread Length	TP-200 (.200 x .920)	TP-235 (.235 x .950)	TP-327 (.327 x 1.400)	TP-386 (.386 x .690)	TP-420 (.420 x 1.015)	TP-421 (.420 x 1.525)
						
DRILLS:	TD-200	TD-235	TD-327	TD-386	TD-420	TD-420
REAMERS:	—	TR-235	TR-327	TR-386	TR-420	TR-420
TAPS:	TT-200	TT-235	TT-327			

AIR GRINDERS

T-595 PIONEER NUMBER	Heavy Duty
T-596 PIONEER NUMBER	Economy



For use with rotary files and mounted stones.

- Geared chuck with key, 1/4"
- 20,000 RPM
- 6-1/2" Long
- 90 PSI
- Hose Size - 3/8" I.D.
- LIFETIME WARRANTY (T-595)

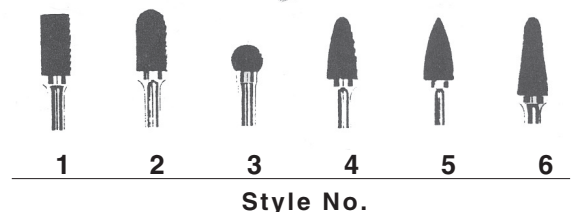
SOLID CARBIDE BURS

449100 PIONEER NUMBER

Set of Eight 1/4" X 5/8" Shank Burs in a sturdy oak box. (Also sold separately.)

Solid carbide cutting burs for porting, chamfering, deburring, etc. Highest quality materials and workmanship available.

PIONEER NO.	CUTTER DIAMETER	FLUTE LENGTH	STYLE NO.
449143	1/2"	1"	1
449145	3/8"	3/4"	2
449147	1/2"	1"	2
449151	1/2"	7/16"	3
449152	3/8"	3/4"	4
449155	1/2"	1"	4
449157	3/8"	3/4"	5
449162	1/2"	1-1/8"	6
449160		60° X 1/2"	
449190		90° X 1/2"	



(Continued on next page)

LONG SHANK (Single Cut) SOLID CARBIDE BURS

1/4" Shank Diameter - 6" Long Steel Shank



PIONEER NO. 449145L



PIONEER NO. 449152L



PIONEER NO. 449151L



PIONEER NO. 449157L



PIONEER NO. 449162L

PIONEER NUMBER	DESCRIPTION	CUTTER DIAMETER	LENGTH OF CUT
449145L	Cylinder - Radius End	3/8"	3/4"
449151L	Ball Shape	1/2"	7/16"
449152L	Tree Shape - Radius End	3/8"	3/4"
449157L	Cylinder - Radius End	1/4"	1/2"
449162L	14° Taper - Radius End	1/2"	1-1/8"

SOLID CARBIDE BURS – FOR ALUMINUM



PIONEER NO. 449143A



PIONEER NO. 449151A



PIONEER NO. 449145A



PIONEER NO. 449155A



PIONEER NO. 449162A

NF Burs are designed for use on aluminum, nonferrous metals, soft steel, reinforced plastics and other soft materials. The NF Burs feature authentic milling cutter relief style of flute grind and high flute finish for easy chip flow and fast stock removal. These burs also provide excellent work finish with minimum loading when cutting soft, sticky materials.

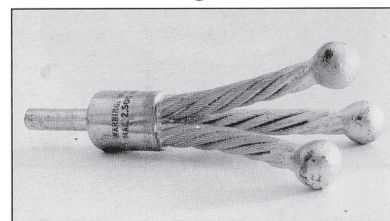
PIONEER NUMBER	DESCRIPTION	SIZE	SHANK DIAMETER
449143A	Cylinder Shape	1/2" x 1"	1/4"
449145A	Cylinder Shape - Radius End	1/2" x 3/4"	1/4"
449151A	Ball Shape	1/2" x 7/16"	1/4"
449155A	Tree Shape - Radius End	1/2" X 1"	1/4"
449162A	14° Taper - Radius End	3/8" x 1-1/16"	1/4"

FLARE BRUSHES

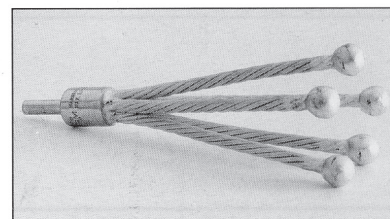
The TEB-3 and TEB-4 Flare Brushes have a cobalt Base hard facing which is flame-coated to the ends of stainless steel aircraft cable.

TEB-3 3-Prong Heavy Duty - Use with slow RPM drill motor for chipping operation. Suitable for carbon removal from ports, etc.

TEB-4 5-Prong Light Duty - Will flare out at 2,000 RPM. Will cover ID's from 1-1/2" - 4"



TEB-3



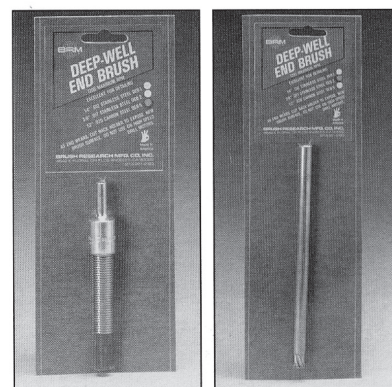
TEB-4

NUMBER	NUMBER	APPLICATION
TEB-3		3-Prong Heavy Duty
TEB-4		5-Prong Light Duty

DEEP WELL END BRUSHES

The Deep Well End Brushes are excellent for detailing. They have been designed so that when the end wears away, the body may be cut back to expose a new brush surface.

PIONEER NUMBER	SIZE	BRUSH PART	FILL MATERIAL	BODY
TEB-1	1/4"	4"	.012 Stainless Steel	Brass Tube
TEB-2	3/8"	6"	.017 Stainless Steel	Brass Tube
TEB-5	1/2"	2-1/2"	.020 Carbon Steel	Spring Cup



VALVE GUIDE BRUSHES

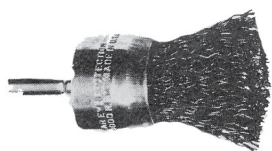
Rugged small diameter brushing tools for cleaning valve guides and other small holes. To be used with portable tools and drill presses.



PIONEER NO. (WIRE)	PIONEER NO. (NYLON)	DIAMETER	BRUSH LENGTH	OVERALL LENGTH
TVP-10	TVP-10-Y	5/16"	2-1/2"	9-1/2"
TVP-11	TVP-11-Y	11/32"	2-1/2"	9-1/2"
TVP-12	TVP-12-Y	3/8"	2-1/2"	9-1/2"
TVP-13	TVP-13-Y	13/32"	2-1/2"	9-1/2"
TVP-14	TVP-14-Y	7/16"	2-1/2"	9-1/2"
TVP-16	TVP-16-Y	1/2"	2-1/2"	9-1/2"
TVP-18	TVP-18-Y	9/16"	2-1/2"	9-1/2"
TVP-20	TVP-20-Y	5/8"	2-1/2"	9-1/2"
TVP-24	—	3/4"	2-1/2"	9-1/2"
TVP-33	TVP-33-Y	1-1/32"	2-1/2"	9-1/2"

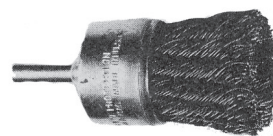
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END BRUSHES (Special Analysis High Tensile Wire)



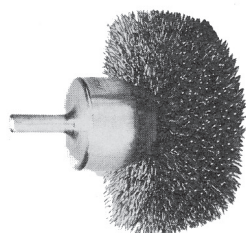
SOLID END

PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNS-4	1/2"	1/4"	.020	20,000
TNS-6	3/4"	1/4"	.020	20,000
TNS-8	3/4"	1/4"	.014	20,000
TNS-10	1"	1/4"	.020	20,000
TNS-12	1"	1/4"	.014	20,000



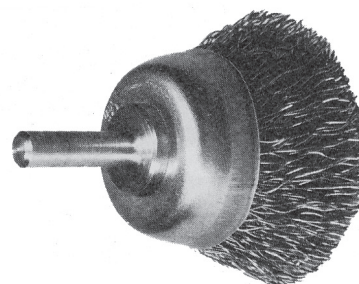
HOLLOW END KNOT TYPE

PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNH-6	3/4"	1/4"	.020	20,000
TNH-8	3/4"	1/4"	.014	20,000
TNH-10	1-1/8"	1/4"	.014	20,000
TNH-12	1-1/8"	1/4"	.020	20,000



CIRCULAR FLARED

PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNF-14	1-1/2"	1/4"	.020	20,000
TNF-26	2-3/4"	1/4"	.020	8,000
TNF-30	3"	1/4"	.020	8,000



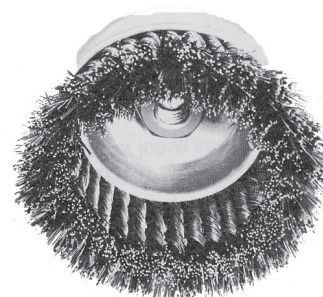
CRIMPED CUT HOLLOW END (Small Cup)

PIONEER NUMBER	DIA.	SHANK	WIRE GAUGE	MAX. RPM
TNH-16	1-3/4"	1/4"	.0118	10,000
TNH-26	2-3/4"	1/4"	.0118	4,500

CUP BRUSHES

KNOT TYPE

PIONEER NUMBER	DIA.	THREAD ARBOR	WIRE GAUGE	MAX. RPM
TUS-4	4"	5/8" - 11NC	.0118	8,500
TUS-5	5"	5/8" - 11NC	.014	7,000
TUS-6	6"	5/8" - 11NC	.020	6,000



118° DRILL BITS

These jobber length 118° high speed drill bits are manufactured from high quality steel for long life. They are quick starting and long lasting, this coupled with economy pricing makes them the perfect choice for the applications where high breakage may occur.

118° DRILL BIT KIT

423952 PIONEER NUMBER

29 Drills, 1/16" to 1/2" by 64ths, in Handy Metal Box

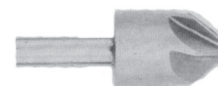
PIONEER NUMBER	DIA.	DECIMAL EQUIVALENT	LENGTH	STD. PKG.
422127-5	1/8"	.1250	2-3/4"	5
422128-5	11/64"	.1719	3-1/4"	5
422129-5	3/16"	.1875	3-1/2"	5
422130-5	13/64"	.2031	3-5/8"	5
422131-5	1/4"	.250	4"	5
422132-5	5/16"	.3125	4-1/2"	5
422133-5	11/32"	.3438	4-3/4"	5
422134-5	3/8"	.3750	5"	5
422135-5	25/64"	.3906	5-1/8"	5
422136-5	7/16"	.4375	5-1/2"	5
422137-5	15/32"	.4588	5-3/4"	5
422138-5	1/2"	.500	6"	5

BOLT HOLE COUNTER BORE TOOL

422100 PIONEER NUMBER

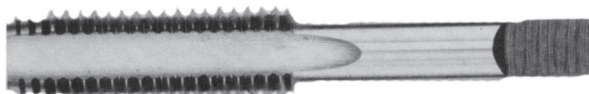
1/2" HSS Counter Bore Tool

This 1/2" six fluted "chatterless" tool is an excellent tool to counter bore bolt holes in an effort to keep the threads from pulling out.



TAPS

Carbon Steel hand taps are designed to be used on mild steel and cast metals. The perfect choice for tapping the bolts holes in an engine block or head prior to assembly.



PIONEER NUMBER	SIZE	PIONEER NUMBER	SIZE	PIONEER NUMBER	SIZE
423001	10-24	423010	7/16-20	423019	7/8-9
423002	10-32	423011	1/2-13	423020	7/8-14
423003	1/4-20	423012	1/2-20	423021	1-8
423004	1/4-28	423013	9/16-12	423022	1-12
423005	5/16-18	423014	9/16-18	423023	1-1/4-7
423006	5/16-24	423015	5/8-11	423024	1-1/4-12
423007	3/8-16	423016	5/8-18	423025	1-3/8-6
423008	3/8-24	423017	3/4-10	423026	1-3/8-12
423009	7/16-14	423018	3/4-16	423027	1-1/2-6
				423028	1-1/2-12

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SAFETY ACCESSORIES

SAFETY GLASSES WITH SIDE SHIELDS

PIONEER NUMBER	424277	CLEAR
PIONEER NUMBER	424278	GRAY



- WIRE REINFORCED PLASTIC FLAMES • COMFORTABLE, MODERN DESIGN
- MEETS ANSI SPECIFICATIONS FOR SAFETY • ONE SIZE FITS ALL

SAFETY GOGGLES

PIONEER NUMBER	419012
----------------	---------------

- PROVIDES COMFORTABLE EYE PROTECTION
- FOR A WIDE RANGE OF HAZARDS
- ANTI-FOG DESIGN
- MEETS ANSI Z87-1979 STANDARDS
- ONE SIZE FITS ALL (ADJUSTABLE)



FACE SHIELD HEAD GEAR

PIONEER NUMBER	424863
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- HAND ADJUSTABLE
- UP-AND-DOWN VISOR MOVEMENT
- MEETS ANSI Z87-1-1979 STANDARDS
- MEETS ANSI Z87-1979 STANDARDS
- ORDER SHIELD SEPARATELY



PIONEER NUMBER **424864** - REPLACEMENT SHIELD

- CLEAR ACETATE • 8" x 12" • METAL REINFORCED

INDUSTRIAL BACK SUPPORT BELT

PIONEER NUMBER	44701
----------------	--------------

This belt is built to take the heavy duty every day use the professional will put it through. Unlike many inexpensive

support belts on the market today, this belt uses only superior materials that will out last the competitions. These belts use 5 plastic coated steel stays for lumbo-sacral support, with the center stay positioned to be placed directly over the spine, providing maximum support. Anchortex rubber tracked webbing is used on the inside of these belts to limit slipping and the riding-up of the belt during use. Special straight lock stitching is used to prevent unraveling and snagging of the belt due to heavy use.

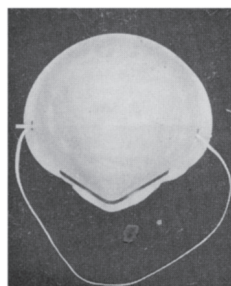


PARTICLE DUST MASK

PIONEER NUMBER	424276
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Self-supporting design provides non-approved relief from dust and other non-toxic particles

STD. PKG. - 50/Box * 600/Case



FOAM EAR PLUGS

PIONEER NUMBER	424160
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SOFT, COMFORTABLE, EASY TO USE. SANITARY PACKAGE

STD. PKG. - 200 PAIRS PER BOX



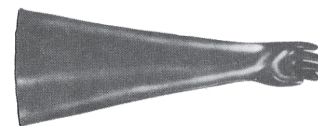
SAFETY ACCESSORIES

GLASS BEAD GLOVES

PIONEER NUMBER **44708** (Left)

PIONEER NUMBER **44710** (Right)

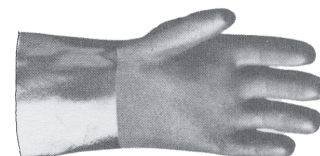
REPLACEMENT FOR GLASS BEAD MACHINES WITH UP TO 8" O.D. GLOVE PORTS



HOT TANK GLOVES

PIONEER NUMBER **44700**

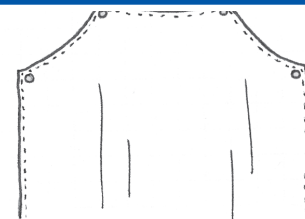
- ALKALINE AND OIL RESISTANT.
- NEOPRENE COATED AND INSIDE LINED FOR HEAT.
- MID-FOREARM LENGTH



HOT TANK APRON

PIONEER NUMBER **44704**

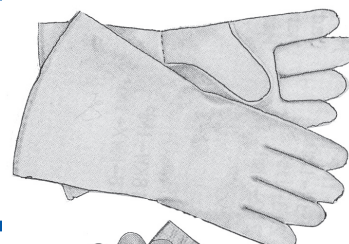
PROTECTS CLOTHING FROM CAUSTIC BURNS, OIL, GREASE AND STEAM.
35" X 45" FULL LENGTH BIB APRON



WELDING GLOVES

PIONEER NUMBER **44706**

ONE PIECE BACK, FULLY LINED WELDERS GLOVES.
COLOR: BROWN



LEATHER PALM WORK GLOVES

PIONEER NUMBER **421779** (Long Cuff)

PIONEER NUMBER **421780** (Short Cuff)

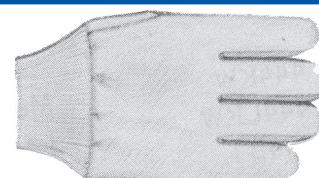
HEAVY DUTY CLOTH BACK, LEATHER PALM WITH PROTECTIVE GAUNTLET.



COTTON WORK GLOVES

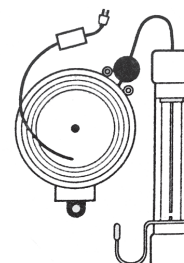
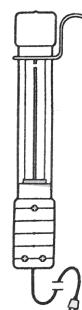
PIONEER NUMBER **421781**

10 OZ. COTTON GLOVES WITH KNIT WRIST.



FLUORESCENT White and UV Lights

PIONEER NUMBER	DESCRIPTION
SL-650	Retractable White Fluorescent Work Light
SL-510	UV Fluorescent Crack Detection Light
SL-500	White Fluorescent Work Light with a Two Foot Cord
SL-103	Replacement White Fluorescent Bulb
SL-104	Replacement UV Crack Detection Bulb



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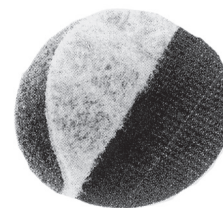
POWER GASKET REMOVER

PIONEER NUMBER	DESCRIPTION
459354	Back-up Pad - 20,000 Max. RPM
459024-10	10 Pak Abrasive Pads - Coarse
459032-10	10 Pak Abrasive Pads - Medium

Fast and economical gasket removal and surface preparation. Rubber molded back-up pad features 1/4" shank for portable drills and handy "Hook & Loop" interlock system which eliminates sticky adhesive.

Discs are available in coarse and medium grit.

3" Diameter

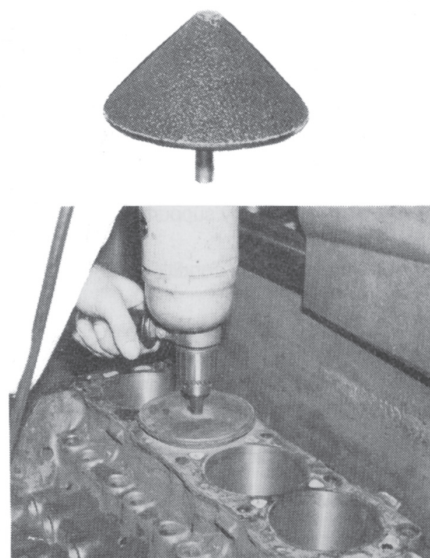


CHAMFERING TOOL

The Pioneer Chamfering Tool effectively eliminates piston ring breakage caused by sharp or straight beveled cylinder well edges. It has been tested and approved by top Production Engine Rebuilders and is now available to all.

Just chuck it into any 1/2" electric drill or equivalent and when given an oscillating motion will produce quickly and easily, a radiused bevel not otherwise obtainable. The replacement abrasive cones will do approximately 25 eight cylinder blocks of any size bore up to 5 inches. Use feathering disc cement to retain cone on mandrel.

PIONEER NUMBER	DESCRIPTION
T-101	MANDREL & DISC KIT TOOL (Contains: 1 Mandrel, 4 Disc)
T-100	Mandrel Only
TD-101-5	Abrasive Disc



CHAMFERING CONE AND MANDREL

Chamfering Cone Mandrel

For use with Pioneer, Rottler, or Sunnen
Cones 1/4" Shank.



Chamfering Cone

Slant Height - 3-1/2"
Base Dia. - 3"
Top Dia. - 2"

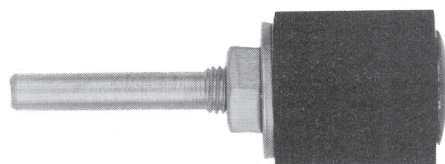


T-470 PIONEER NUMBER

T-471-5 PIONEER NUMBER

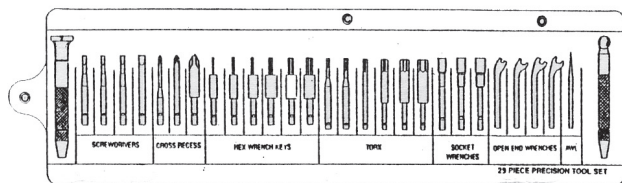
GRINDING MANDREL AND SLEEVES

PIONEER NUMBER	DESCRIPTION
T-570	1" Mandrel
T-571	40 Grit Sleeve
T-572	60 Grit Sleeve



SPECIALITY TOOLS

MINIATURE TOOL SET



46548 PIONEER NUMBER

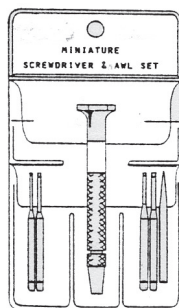
This 29 piece miniature tool set is ideal for any task requiring small precise tools. The set includes two solid locking handles with chuck type swivel tops and ball ends. There are 27 interchangeable, tempered and hardened tool ends – all packaged in a vinyl roll-up storage pouch.

SET INCLUDES:

- 6 Torx Blades -- T6 to T16
- 6 Hex Blades -- .028 to .093
- 4 Slotted Blades -- .055 to .100
- 3 Socket Wrenches -- 7/64 to 5/32
- 3 Cross Recess Blades -- .080 to .125
- 4 Open End Wrenches -- 7/64 to 3/16
- 1 Awl

MINIATURE SCREWDRIVER AND AWL SET

46551 PIONEER NUMBER



Handle and four screwdriver bits:
.055", .070", .080", .100" plus an Awl

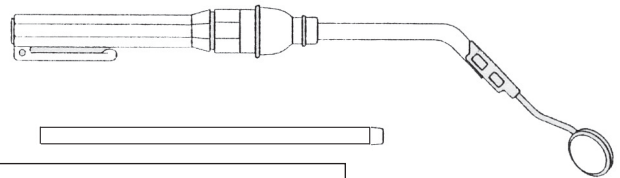
MACHINIST RULE 6"



46511 PIONEER NUMBER

High quality, precision ground and tempered.
Etched graduations 8th, 16th, 32nds and 64ths.

INSPECT-A-LITE

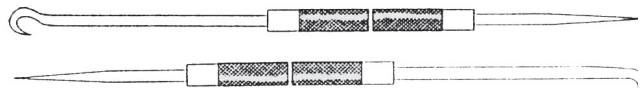


46570 PIONEER NUMBER

Ideal for inspection in very close areas and around corners. By using a light conducting rod, this light will reach areas that normally can not be seen. Comes with straight rod, curved rod, and mirror.

Packages in a handy vinyl storage case.

SCRIBERS



Ideal for removal of "O" rings, seals, and gaskets. One end sharp and other end hooked. Tempered to give lasting use.

PIONEER NUMBER	DESCRIPTION
46542	7" Long - Hook unsharpened
46543	90 Hook - Both points hardened

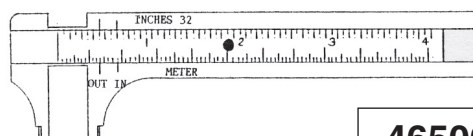
POCKET RULES



Stainless steel rule with pocket clamp.

PIONEER NUMBER	DESCRIPTION
46514	Graduated in 32nds and 64ths
46515	Metric/English graduated in mm and 64ths

POCKET SLIDE RULE / CALIPER 4"



46506 PIONEER NUMBER

Pocket sized, handy, durable caliper made of solid brass for heavy usage.

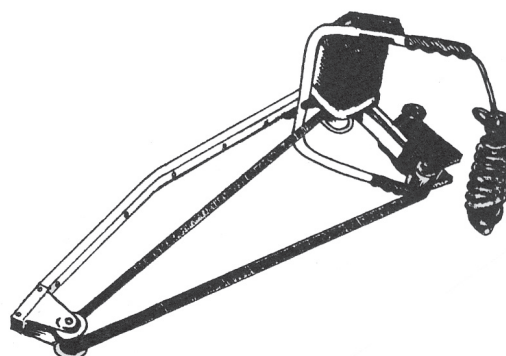
Metric and English graduations in 32nds and 1mm.

CRANKSHAFT POLISHER

PIONEER NUMBER	DESCRIPTION
48	Crankshaft Polisher
48-A	Replacement Roller Set 1" Wide (Std.)

Micro-finisher with many uses.
High speed, accepts two size belts.

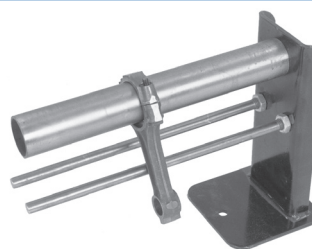
- Weight: 13.5 Lbs.
- Motor: 1/2 H.P., 10,000 RPM, 120 Volts AC-DC
- Belt Speed: 4,000 SFPM
- Belts: 1" Wide, 60" or 64" Long



TORQUING BAR

498401 PIONEER NUMBER

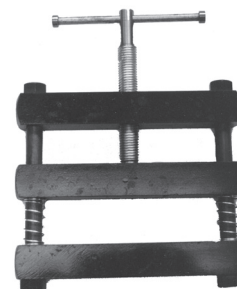
When bolted to a work bench, this torquing bar will hold up to 12 rods while you torque them in place. Saves time and money when setting up and resizing connecting rods.



HEAVY DUTY ROD VISE

498402 PIONEER NUMBER

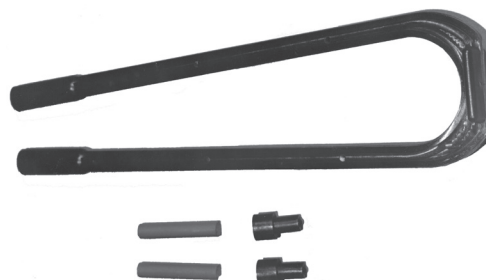
This portable speciality vise will accurately align parting surfaces without damaging the rod. Once the rod is securely in place you can easily torque the rod bolts.



ROD GUIDE

498403 PIONEER NUMBER

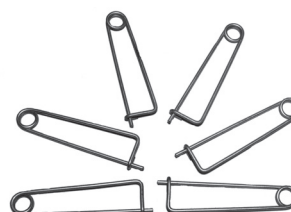
Eliminates the possibility of crankshaft or cylinder bore damage. Once this unique tool made from tough high impact plastic is attached to the connecting rod it will help prevent undesirable scratches on the crankshaft and cylinder bores during both the assembly and disassembly process. Works on virtually all connecting rods, comes complete with adapter to fit 3/8", and 7/16" connecting rod bolts as well as 3/8" dowels.



CONNECTING ROD SAFETY PINS

498404 PIONEER NUMBER

Now you can safely clean connecting rods and their caps while keeping them together. This simple but effective tool will provide long service as long as they are not used in a cleaning oven.



(Continued on next page)

UNIVERSAL PISTON PIN REMOVAL TOOL SET

K-1029 PIONEER KIT NUMBER

K-1029-1 PIN GUIDE ASSEMBLY

KIT INCLUDES: K-1029-M, K-10290-N, K-1029-P

Designed so piston pin removal can be accomplished with the aid of any shop press. The universal design allows for pin removal in virtually any piston with minimal alterations.



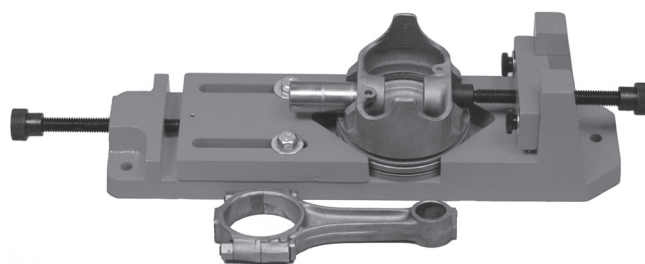
TOOLS AND FIXTURES

PIONEER NUMBER	DESCRIPTION	PIONEER NUMBER	DESCRIPTION
K-1029-A	#0 Fixture for .800 Pins	K-1029-H	.760 Drift Pin
K-1029-B	#1 Fixture for .950 Pins	K-1029-J	.812 Drift Pin
K-1029-C	#2 Fixture for 1.010 Pins	K-1029-K	.875 Drift Pin
K-1029-D	#3 Fixture for 1.010 Pins	K-1029-L	1.000 Drift Pin
K-1029-E	#4 Fixture for 1.010 Pins	K-1029-M	Tapped Handle
K-1029-F	#5 Fixture for .865 Pins	K-1029-N	Threaded Rod
K-1029-G	Base Block	K-1029-P	Threaded Adaptor

ADJUSTABLE PISTON ASSEMBLY FIXTURE

T-261 PIONEER NUMBER

This piston assembly fixture with it's no-mar surface will not damage the piston finish while allowing for quick and easy installation of the wrist pin. This innovative design incorporates an adjustable pin stop that allows the wrist pin to be installed with precision time after time. The T-261 fixture is to be used with heated connecting rods, allowing the wrist pin to be installed by hand



UNIVERSAL PISTON PIN INSTALLATION GAUGE

K-1025 PIONEER NUMBER

This low cost tool will aid in the installation of wrist pins.

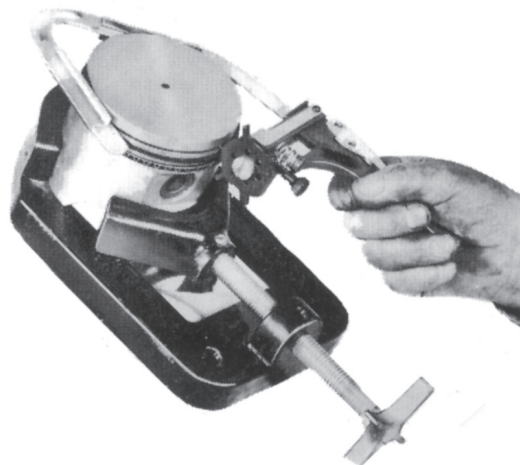


PISTON TOOLS

PISTON GROOVE CUTTER/CLEANER

PIONEER NUMBER	DESCRIPTION
T-222	Fits All Pistons Range 2.6" to 5"
T-222-D	CUTTER - Widths: 3/32", 1/8", 5/32", 3/16", 1/4"
T-222-A	CUTTER BLADE: Wide Groove Widths: 1/16", 5/64", 3/32", 1/8", 3/16"
T-222-B	CUTTER BLADE: 1/16" .062, 1/16" .062 (two blades same size, most popular), 1/4" .250, 5/16" .312", 3/8" .375
T-222-C	CUTTER BLADE: 1/16" .062, 5/64", 3/32", 1/8", 3/16"
T-222-M	CUTTER BLADE: Millimeter Sizes: 1.5mm, 2.5mm, 3mm, 4mm, 5mm
T-260	PISTON VISE (As illustrated) IDEAL FOR USE ON ALL SIZE PISTONS.

Designed for limiting the depth of cut. Slide flanges for slotted pistons. Five points for grooving and one for trimming lands on one blade. Spring-and-ball ratchet controls alignment of blade. Cutter is hardened and ground. Weight 1 Lb.



OIL SCREEN DRIVERS

PIONEER NUMBER	DESCRIPTION
494120	3/4" Driver
494121	5/8" Driver



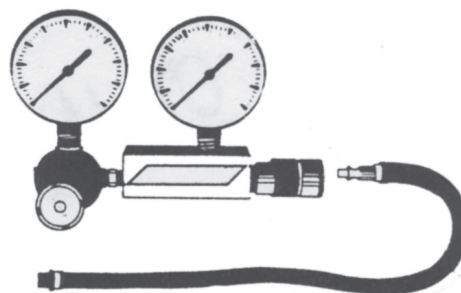
The Oil Screen Driver is used to install the Oil Screen into the Oil Pumps on both the small and big block Chevy engines. It is very easy to use due to its design. It can be used either by hand, that is driving it with a hammer, or with an air driver. The driver uses the same center line as the screen, thus the driving force used to install the screen drives the screen straight ahead.

Available 3/4" and 5/8"

DUAL GAUGE LEAKDOWN TESTER

Verify cylinder and head assembly conditions and integrity. Complete with a 14mm stainless steel fitting and hose assembly for use with most popular engines. Includes complete instructions. Can also be used to flow fuel injectors and valves.

PIONEER NUMBER	DESCRIPTION
488015	Leakdown Tester w/14mm Hose Assembly
OPTIONAL HOSE ASSEMBLIES:	
488016	14mm Extended Reach Hose Assembly
488017	18mm Hose Assembly



(Continued on next page)

PISTON RING GAPPING AND SQUARING TOOL

ENGINE BUILDERS

Whether you are a professional engine builder or a weekend warrior, fitting piston rings can be a frustrating and time consuming experience. Your time is too valuable to spend laboring over this crucial operation.

The patented piston ring squaring and end gap filing tool developed to make ring fitting quick and easy (patent no. 5,038,449).

- Simple tool allows piston rings to be squared at an equal depth...in seconds...every time!
- Dual function tool with unique feature that stabilizes piston ring for precision filing.
- Fit and file rings at the block...Eliminate extra trips to the work bench.
- Each tool fits all over bores from standard size to .060 over.



— 2 TOOLS IN 1 —

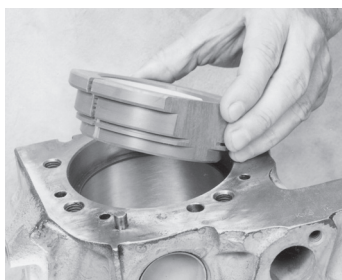
1. RING SQUARING TOOL
2. END GAP FILING TOOL

A COMPLETE KIT INCLUDES:

1. Dual Function Tool
2. Leaf - Type Feeler Gauge
3. File and Handle

TOOL SOLD SEPARATELY

PIONEER NUMBER	DESCRIPTION	SIZE
T-203	Piston Ring Gapping Set	3.736" - 3.796"
T-204	Piston Ring Gapping Set	4.000" - 4.060"
T-205	Piston Ring Gapping Set	4.125" - 4.185"
T-206	Piston Ring Gapping Set	4.250" - 4.310"
T-207	Piston Ring Gapping Set	4.320" - 4.380"
T-208	Piston Ring Gapping Set	4.500" - 4.560"
T-209	Piston Ring Gapping Tool	3.736" - 3.796"
T-210	Piston Ring Gapping Tool	4.000" - 4.060"
T-211	Piston Ring Gapping Tool	4.125" - 4.185"
T-212	Piston Ring Gapping Tool	4.250" - 4.310"
T-213	Piston Ring Gapping Tool	4.320" - 4.380"
T-217	Piston Ring Gapping Tool	4.500" - 4.560"



- ① Use fixture to put ring into bore squarely



- ② Measure gap precisely with feeler gauges



- ③ Use fixture to hold ring when filing end cap

(Continued on next page)

SPEEDY TOOLS FOR INSTALLING PISTONS IN MOST MAKES AND MODELS OF ENGINES

T-214	TWO-BAND MODEL
--------------	-----------------------

Capacity 2-1/8" to 5" Depth 3-1/2"

Compressor band takes all rings at once, including skirt rings. Self-locking heavy duty ratchet pawl prevents premature release. Double tension band of highest grade spring steel eliminates bottom flare. Square wrench included / Individual Carton / Weight 1 Lb.

T-215	FOUR-BAND MODEL
--------------	------------------------

Capacity 3-1/2" to 7" Depth 6-1/2"

Special for heavy duty skirt pistons. Equipped with four tension bands, double self-locking ratchet. Square wrench included / Individual Carton / Weight 2 Lbs.

PIONEER NO.	DESCRIPTION
T-216	RING-O-MATIC SET Complete Set w/Pliers and size bands: Range from 2-7/8" to 4-3/8"
T-216-A	PLIERS ONLY / Wt. 1 Lb. 2 Ozs.
T-216-S	PLIERS W/ONE BAND SIZE - 3-3/8" to 3-5/8", the most popular size used / Wt. 1-1/2 Lbs.



PISTON RING COMPRESSORS WITH TRIGGER RATCHET

COMPLETE SET BANDS AND PLIERS, makes repetitive ring installation easier...particularly when identical size of rings are installed at the same assembly unit. It speeds work and thus reduces labor costs. Without taking the pliers off the band on which you are working, you can operate it from either a vertical or horizontal position. Pliers have a fine ratchet mechanism which permits the bands to be contracted by minute graduations. To instantly release bands to regular position, just depress the thumb ratchet. Hardened steel for durable wear.

Weight 3-1/2 Lbs.

PISTON RING BANDS AVAILABLE

T-216-B	Size - 2-7/8" to 3-1/8"
T-216-C	Size - 3-1/8" to 3-3/8"
T-216-D	Size - 3-3/8" to 3-5/8"
T-216-E	Size - 3-5/8" to 3-7/8"
T-216-F	Size - 3-7/8" to 4-1/8"
T-216-G	Size - 4-1/8" to 4-3/8"

TAPERED RING COMPRESSORS

488970	4.00" - 4.090" Adjustable
488975	4.125" - 4.215" Adjustable
488980	4.250" - 4.340" Adjustable

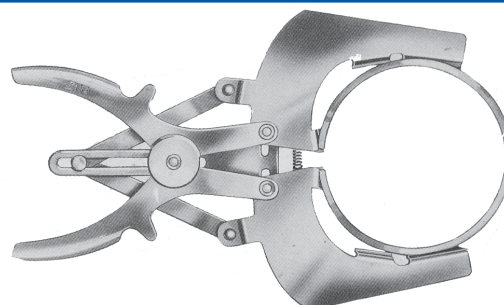


T-202	FOUR-BAND MODEL
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Range 2-3/4" to 4-1/4" (69.9 - 108mm)

Without the danger of breakage or distortion. No adjustments needed, all rings expanded whether step-out or diagonal cut.

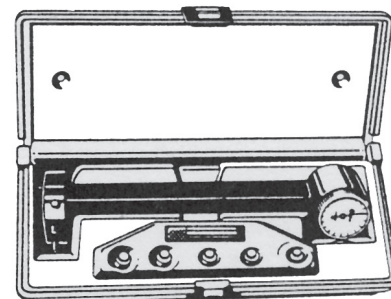
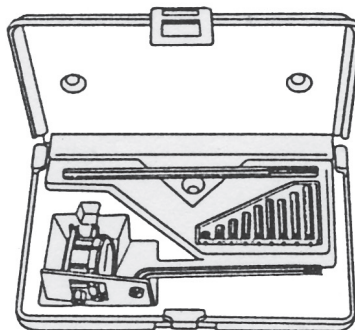
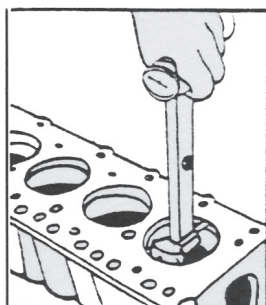
Individual Carton / Weight 10 Ozs.



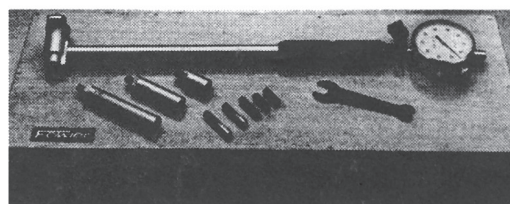
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CYLINDER BORE GAUGES

Measure taper and out-of-round from immediate underside of ridge to bottom of critical wear area without removing pistons. Can measure bore diameter to depth of 8" when used with a micrometer. Ruggedly constructed gauge comes complete with jeweled bearing indicator and six contact extensions.



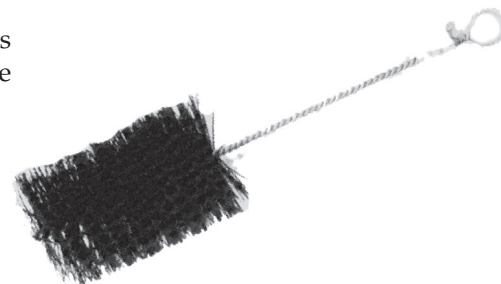
PIONEER NUMBER	- DIAL INDICATOR		
	RANGE	GRADUATIONS	READINGS
46460	2.125" - 7"	.0005"	0-20-0
46462	2.6" - 7"	.001"	0-50-0
46463	2" - 6"	.0005"	0-50-0



CYLINDER WASH BRUSHES

These nylon brushes are designed to effectively clean cylinders after boring and honing. Use with soap and water to displace metal fragments and abrasive residue.

PIONEER NUMBER	DESCRIPTION
413075	3-1/2"
413076	4"
413077	4-1/2"
413078	5"
413079	5-1/2"



CYLINDER HONE STOPS

This hone stop is designed to be operator friendly, last for many hundreds of hours of use with little maintenance, and pay for itself in a very short time with the money saved in stones. The hone allows the operator to set the depth he wishes to hone on the first cylinder, then move onto the rest of the cylinders with ease. The operator no longer has to worry about hitting the main bearing webs with his stones, as the hone stop controls the depth of stroking. Also the operator can obtain a better cross hatch pattern as the guess work is taken out of the length of the stroke, thus allowing him to concentrate on the stroking speed.

This hone stop comes in four sizes, 1/2", and 3/4". This is necessary because different manufacturers of the hones use different sizes on their shafts. These different sizes refer to the size of the hole through the center hub.

PIONEER NUMBER	DESCRIPTION
494050	1/2" Hone Stop
494075	3/4" Hone Stop

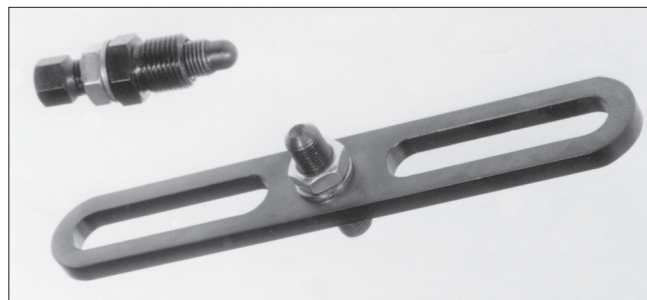


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TDC PLATE & STOP

For use during Short Block assembly to precisely locate top dead center. Features include a fine adjustment positive stop and lock nut. Precision CNC machined (not a stamping), black oxide finish.

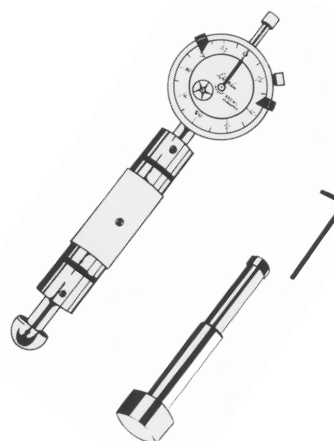
Will accommodate up to 1/2" diameter bolts and 4.600" bore engines.



PIONEER NUMBER	DESCRIPTION
488060	TCD Plate & Stop
488061	TCD For use on Assembling Engines

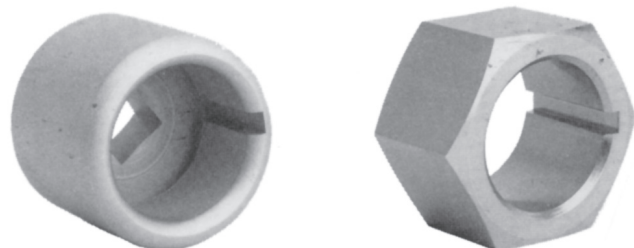
CAM CHECKER TOOL

Accurately measures camshaft lobe lift, base circle runout, and lifter travel, when degreasing a camshaft. Includes adapters to work with hydraulic, flat tappet, and roller cans. Uses a standard 1" travel dial indicator (not included).



PIONEER NUMBER	DESCRIPTION
46417	Cam Checker Tool All Ford & GM
46418	Cam Checker Tool, All Chrysler
46421	Cam Checker Tall Block Extension
44345	0-1" Travel Dial Indicator

CRANKSHAFT SOCKET AND TURNING NUTS



Rotating the crankshaft during engine assembly is now made easy with new crankshaft sockets. Manufactured from heat treated alloy steel. Gold iridite plated for maximum corrosion resistance. 1/2" square drive.

Crank turning nuts are designed to be slipped on to the crankshaft snout before installing a degree wheel. These precision machined nuts provide a convenient place to rotate the engine assembly while degreasing in a camshaft. Gold iridite plated steel.

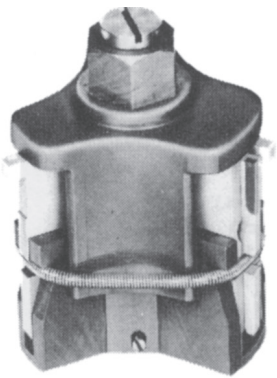
PIONEER NUMBER	DESCRIPTION
488600	Socket, Small Block Chevy V8, 90° V6
488605	Socket, Big Block Chevy V8
488610	Socket, Ford (Windsor & Cleveland), Buick, Olds & Pontiac
488615	Socket, Mopar – All V8
488620	Nut, Small Block Chevy
488625	Nut, Big Block Chevy
488630	Nut, Ford (Windsor & Cleveland), Buick, Olds, Pontiac
488631	Nut, Ford Big Block
488635	Nut, Mopar – All V8

RIDGE REAMER

PIONEER NUMBER	DESCRIPTION
T-298	Carbide Tipped Cutter Range 2-5/8" to 4" (66.7 - 101.6mm) (Individual Carton / Weight 2 Lbs.)
T-299	Extra Carbide Cutter for Above

This type turns as a unit in the engine cylinder and is supported by lugs projecting from the expansion plates and resting on top of the engine block.

CARBIDE TIPPED CUTTER and automatic stop assures cutting pressure against the ridge by a coiled compression spring of correct strength. The Carbide top will cut the hardest ridges with ease. The pivotal mounting insures against over cutting and the spring pressures a cut conforming to the shape of the cylinder wall, regardless of the out-of-round condition.



CAM BEARING INSTALLATION

A complete tool for the removal and installation of cam bearings. The mandrels are equipped with rubber mandrel sleeves to prevent damage to the bearing. The T-1 Camshaft Bearing Tool comes with a convenient display rack. Completely interchangeable with leading competitors.



24" DRIVER INCLUDED!

NOTE: Interchangeable with leading competitors.

T-1 Camshaft Bearing Tool - Includes: (Components may be ordered separately)					
PIONEER NO.	QTY.	DESCRIPTION	PIONEER NO.	QTY.	DESCRIPTION
T-1-B	1	5" Driver Bar	T-7-M	1	1.875 Mandrel
T-2-B	1	24" Driver Bar	T-8-M	1	2.250 Mandrel
T-3-B	1	36" Driver Bar	T-5-NS	1	1.370 Mandrel Sleeve
T-1-Cap	2	Replacement Cap for 24" & 36" Drivers	T-6-NS	1	1.682 Mandrel Sleeve
T-1-C	1	Guide Cone	T-7-NS	1	1.875 Mandrel Sleeve
T-3-E	1	1-7/32" Expander	T-8-NS	1	2.250 Mandrel Sleeve
T-4-E	1	1- 5/8" Expander	T-5-W	1	1.370 Metal Washer
T-1-S	1	Threaded Stud	T-6-W	1	1.682 Metal Washer
T-5-M	1	1.370 Mandrel	T-7-W	1	1.875 Metal Washer
T-6-M	1	1.682 Mandrel	T-8-W	1	2.250 Metal Washer

CAMSHAFT INSTALLATION HANDLE

488012	Camshaft Handle Chevy V8
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Hex design provides a non-slip handle to simplify camshaft installation without damaging bearings. Mounting hardware is stored inside the handle when not in use. Patent Pending.



(Continued on next page)

OIL PUMP PRIMERS

These rugged oil pump primer tools with their triangular non-slip drive ends are designed to prime the oil pump prior to engine start up. They help ensure your engine will build oil pressure during that critical start up period on your new or remanufactured engine. 488402 includes a collar that will pressurize the lifter galley during priming.

PIONEER NUMBER	APPLICATIONS
488401	Basic Chevy V-8
488402	Premium Chevy V-8 - Tool



UNIVERSAL HARMONIC BALANCER INSTALLER

Includes eight adapters (7/16", 1/2", 5/8", 9/16", 3/4", 12mm, 14mm and 16mm) to fit all popular 4, 6, and 8 cylinder engines, domestic and imports. The thrust bearing smoothly squeezes balancer onto crankshaft. Individual Adapters sold seperatly also.

488206	PIONEER NUMBER
	KIT SHOWN

488206A	7/16
488206B	1/2
488206C	9/16
488206D	5/8
488206E	3/4
488206F	12mm
488206G	14mm
488206H	16mm



DAMPER INSTALLATION/REMOVAL TOOLS

Fits both Small & Big Block Chevy crankshafts. Uses a thrust bearing to "ease" damper in place.

PIONEER NUMBER	APPLICATIONS
488200	Small & Big Block Chevy
488205	Ford



DOWEL PIN PULLER KIT

This slide hammer style Dower Pin Remover can quickly remove dowels from flywheels, crankshafts, cylinder heads, engine blocks, etc. Just place the correct size collet over the dowel pin and set it with the sliding weight. Once set, simply work the slide hammer away from the dowel/collet and remove the dowel pin. To remove the dowel pin from the collet simply insert the collet into the release stand and tap downward on the shaft with a small hammer. T-635 Kit includes four collets, 1/4", 5/16", 3/8" and 7/16". This Dowel Pin Puller Kit is supplied in a heavy gauge steel storage case.

T-635 PIONEER NO.		DOWEL PIN PULLER KIT	
PIONEER NO.	DESCRIPTION	PIONEER NO.	DESCRIPTION
T-635-A	Sliding Weight	T-635-M	5/8" Collet
T-635-B	Collet Closer	T-635-N	Collet - Chev.
T-635-C	Release Stand	T-635-P	Collet - Ford
T-635-D	Main Shaft	T-635-Q	11/16" Collet
T-635-E	3/16" Collet	T-635-R	Collet-Ford
T-635-F	1/4" Collet	T-635-S	3/4" Collet
T-635-G	5/16" Collet	T-635-T	Collet-Ford
T-635-H	3/8" Collet	T-635-V	5mm Collet-VW
T-635-J	7/16" Collet	T-635-W	6mm Collet-VW
T-635-K	1/2" Collet	T-635-X	8mm Collet-VW
T-635-L	9/16" Collet		

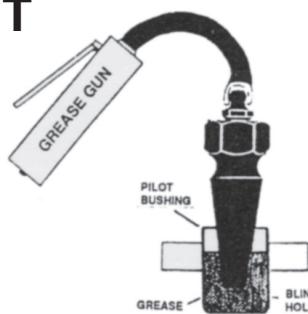


CLUTCH PILOT REMOVER

499005

PIONEER NUMBER

1. Insert Tool
2. Tighten 2-3 threads
3. Pump out with grease gun



DIP BASKET for Cleaning Parts

465510

PIONEER NUMBER

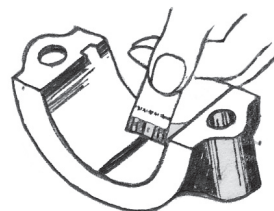
Fits easily in any five gallon bucket of cleaner.



PLASTIGAGE

PIONEER NUMBER	DESCRIPTION
PG-1-G-25	Clearance Range - .001 - .003"
PG-2-R-25	Clearance Range - .002 - .006"
PG-4-B-25	Clearance Range - .004 - .009"

Pioneer plastigage is easy to use. After the crankshaft and bearings have been installed and torqued, so that the bearings are seated, just remove the bearing cap and wipe the oil from the bearing insert and crankshaft journal. Then place a piece of plastigage the full length of the bearing insert, about 1/2" off center, block the crankshaft and reinstall the bearing cap and tighten the specified torque. When the bearing cap is removed the flattened plastigage will be found adhering to the bearing shell or crankshaft. Compare the width of the entire length of the flattened plastigage to the graduations of the envelope. The number within the matching graduation tells you the total clearance in thousandths of an inch or millimeters.

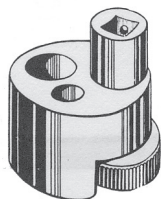


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STUD REMOVER

PIONEER NUMBER **T-637**

This powerful tool is designed to fit into the hard-to-reach spots and get out hard-to-turn studs. Capacity from 1/4" to 3/4" in diameter. Cadmium plated.

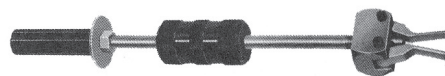


Individually packaged

The Roller Assembly is designed to wear, grips like a pipe wrench.

PILOT BEARING PULLER

PIONEER NUMBER **T-638**



Removes bearings or bushings on flywheels, pump, generator, etc. Capacity 1/2" to 1-1/2" I.D.

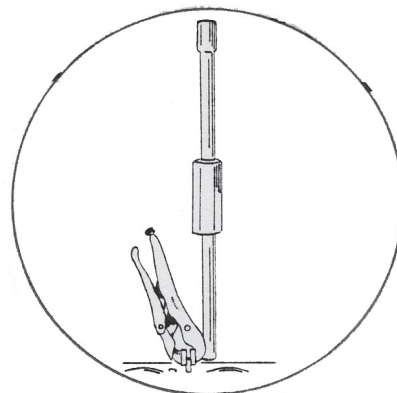
T-638-A – One smaller jaw, for T-638. Use on smaller bearings. Capacity 3/8" to 1-3/8" (2 required). Not included with T-638.

DOWEL PULLER

PIONEER NUMBER **T-639**

PIN-PAL dowel puller ideal for removal of dowels from flywheels, engine blocks, cylinder heads, etc. Adjustable for removing every size dowel.

T-639-A – Replacement embedder set (2).



HARMONIC BALANCER PULLER

PIONEER NUMBER **T-640**

This puller is designed to pull crankshafts, vibration dampers, pulleys or any gear with tapped holes. The four slots in the yoke allows the use of this tool to either two or three hole applications. The floating swivel prevents damage to shaft ends.

Included are the necessary slide screws.

3 – 3/8" - 24 N.F. - 2" Hexagon Bolt

3 – 5/16" - 18 N.C. - 2" Hexagon Bolt

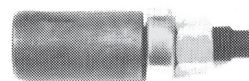
2 – 3/8" - 16 N.C. - 4" Hexagon Bolt



ROCKER STUD PULLER

PIONEER NUMBER **498305**

Heavy duty rocker arm stud puller for both 3/8 and 5/16 studs. Designed for easy removal of press in studs. Place stud remover over stud to be removed, tighten nut down until stud is removed.



BRAKE LATHE SILENCERS

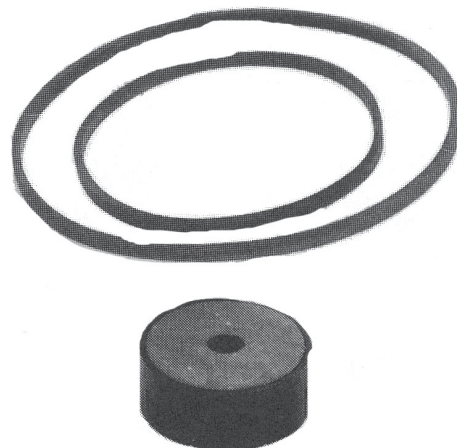
Pioneer Silencer Bands are effective in deadening vibration and eliminating chatter while machining drums and rotors. They can be used with and are recommended for all brake lathe brands.

Pioneer Silencer Bands are guaranteed to perform comparably to the O.E.M. counterpart. (Made of the finest quality natural rubber)

DISC SILENCERS FOR SOLID ROTORS

Pioneer offers 2 styles of disc silencers for our customers preference. The black rubber gasket-type are available in 2 sizes for various size rotors. The replacement silencer pads are designed to be used with the Ammco silencer for non-ventilated rotors.

PIONEER NUMBER	DESCRIPTION
TC-90	LARGE black rubber gasket-type silencer band for solids rotors 1/4" X 3/8" X 9" Diameter FMC NO. 90194
TC-91	SMALL black rubber gasket-type silencer band for small solid rotors 1/4" X 3/8" X 6-1/2" Diameter FMC NO. 90196
TC-92	REPLACEMENT PADS are made of a tough friction substance and easily snap onto Ammco No. 7075 Disc Rotor Silencer. They are especially good for thin, non-vented type rotors such as Vega and Import cars. AMMCO NO. 9183



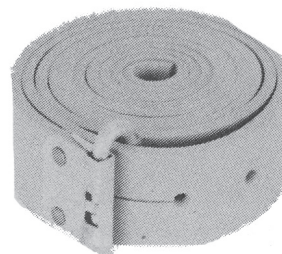
VENTILATED DISC SILENCER

TC-94	DISC SILENCER fits any Ventilated Rotor. Made of natural rubber with lead weight inserts, it easily wraps around rotor after it is mounted on the lathe and effectively deadens vibrations and chatter. AMMCO NO. 6920
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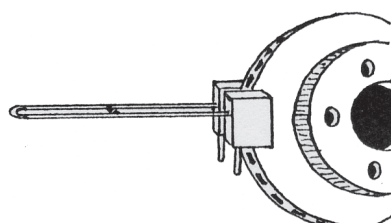
DRUM SILENCER

TC-95	DRUM SILENCER fits any passenger car drum. Made of natural rubber, it wraps around the drum and is secured with a buckle. It is 1-3/4" Wide and 72" Long. AMMCO NO. 5280
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DISC-ROTOR SILENCER

TC-96	Rests on top of cutters, follows cutting pattern, snaps off when cut is finished. Outlast conventional rubber band type.
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(Continued on next page)

HAMMERS



- H-8** 8 oz. BALL PEIN HAMMER
- H-16** 16 oz. BALL PEIN HAMMER
- H-24** 24 oz. BALL PEIN HAMMER

Pioneer hammers have drop forged, carbon steel, triple heat treated heads that are 100% magnafluxed for maximum durability and long life. The head is epoxy bonded to a fiberglass handle with a cush-n-grip® to absorb shock and eliminate pounding sting. The fiberglass handle which is "10 times stronger than wood" will not rust, rot or collapse.

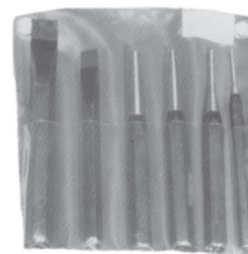
Pioneer hammers meet federal government and military specification GGG-H-86-C.

CHISELS AND PUNCHES

HTK-1 PUNCH AND CHISEL KIT

Pioneer Punch and Chisel Kit Part No. **HTK-1** contains six (6) of the most popular punches and chisels in a handy hang-up, roll up pouch.

KIT INCLUDES: One (1) each of the following tools:
HT-14, HT-16, HT-30, HT-45, HT-51, HT-52



CHISELS

PIONEER NUMBER	DESCRIPTION
HT-12	3/8" Cold Chisel
HT-14	1/2" Cold Chisel
HT-15	5/8" Cold Chisel
HT-16	3/4" Cold Chisel



SOLID PUNCH

PIONEER NUMBER	DESCRIPTION
HT-30	6" X 1/2" - 3/16" Solid Punch



LINING-UP PUNCH

PIONEER NUMBER	DESCRIPTION
HT-30	10" x 1/2" - 3/16" Lining-up Punch



CENTER & SCRIBING PUNCHES

PIONEER NUMBER	DESCRIPTION
HT-40	5" X 3/8" Scribing Punch
HT-45	6" X 1/2" Center Punch



PIN PUNCHES

PIONEER NUMBER	DESCRIPTION
HT-50	6" X 5/16" - 5/32" Pin Punch
HT-51	6" x 5/16" - 1/8" Pin Punch
HT-52	6" x 1/2" - 3/16" Pin Punch
HT-53	6" x 1/2" - 1/4" Pin Punch

NUMBER STAMPS

HT-262

High carbon heat treated select steel. Hammer end tempered to prevent mushrooming. Treated with rust preventative.

1/4" SIZE



(Continued on next page)

TAG KIT

PIONEER
NUMBER **T-5126-K**

PARTS TAGS W/MARKERS

Tag your part permanently with these white plastic tags.
Tag Dimensions - Approximately 2-1/4" x 3-1/2"

KIT CONTAINS: 1,000 Tags
1,000 Tag Wires
3 Black Industrial (Felt Tip) Markers



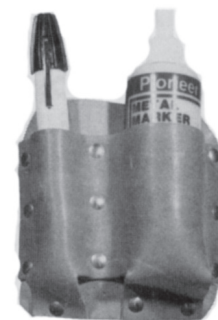
METAL MARKER

Refillable 2 oz. bottle Metal Markers have heavy opaque, fast drying ink that is designed to write on metal, glass, wood and other surfaces.

PIONEER NUMBER	COLOR
T-5120-B	Blue
T-5120-B-12	Blue
T-5120-O	Orange
T-5120-O-12	Orange
T-5120-R	Red
T-5120-R-12	Red
T-5120-W	White
T-5120-W-12	White
T-5120-Y	Yellow
T-5120-Y-12	Yellow



METAL MARKER HOLSTERS



Keep your bottle Metal Marker close at hand. Quality leather holster slips through belt loops or clips on.

Keep **both** 2 oz. bottle Metal Marker and felt tip Industrial Marker handy.

REFILLS

Metal Marker one (1) quart ink refills. Available in blue, orange, red, white and yellow.

PIONEER NUMBER	COLOR
T-5121-B	Blue
T-5121-O	Orange
T-5121-R	Red
T-5121-W	White
T-5121-Y	Yellow
T-5122	

**REPLACEMENT
TIP**



PIONEER NUMBER	DESCRIPTION
T-5123	Metal Marker Holster (Bottle)
T-5124	Dual Holster (Bottle & Felt Tip Marker)

INDUSTRIAL MARKER

PIONEER
NUMBER **T-5125**
T-5125-12

Available in BLACK only.

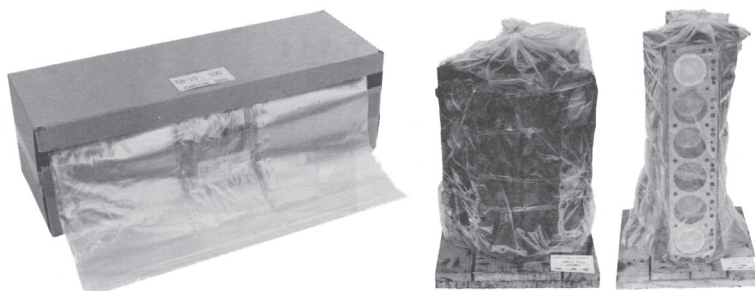
INDELIBLE INK - Hard pointed felt tip for accurate marking.
Just press to release ink.



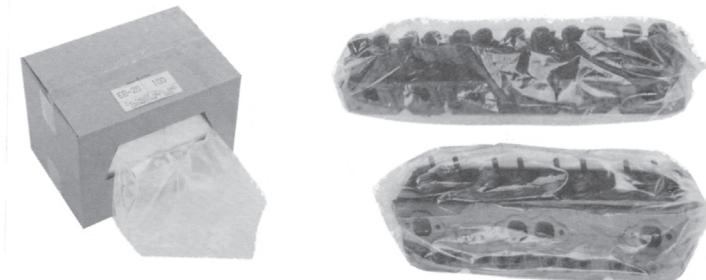
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ENGINE, HEAD AND CRANK BAGS

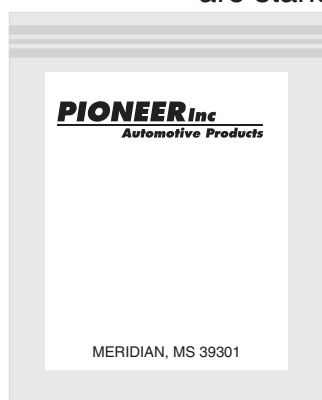
PIONEER NUMBER **EB-10-100 ENIGNE BAGS** measures 23" X 17" X50" to fit most 4 cyl., 6 cyl., and 8 cly. aplications, and are made of the highest quality 2 Mil. Virgin Poly Plastic. Bags are standard packed -100 bags per roll, in dispenser box for easy use.



PIONEER NUMBER **EB-20-100 CYLINDER HEAD & CRANKSHAFT BAGS** measures 10" x 8" x 36" to fit most heads and crankshafts, and are made of the highest quality 3 Mil, Virgin poly Plastic. Bags are standard packed - 100 bags per roll, in dispenser box.



PIONEER NUMBER **EB-30-100** These 3 Mil. heavy duty sealable bags are an easy and convenient way to package your small parts. The large white background makes it easy to list the contents by part number. Measures 6" X 9" and bags are standard packed - 100 bags in a box.



PAPER PLUGS

PIONEER NUMBER **PG-420-100**

Spark Plug Hole Paper Plugs -14mm

PIONEER NUMBER **pg-421-100**

Spark Plug Hole Paper Plugs - 18mm



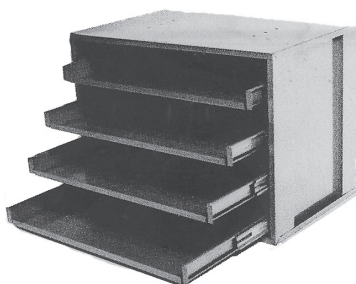
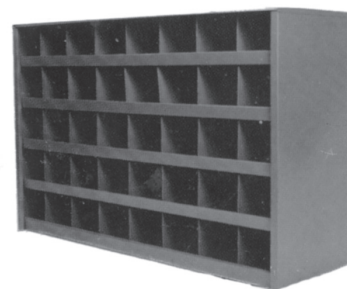
CABINETS / TRAYS

PIONEER STORAGE TRAYS AND CABINETS - Ideal for storage and merchandising of a wide variety of parts. Superior tool box grade steel in blue enamel finish.

40 HOLE BIN

PIONEER NUMBER **D-2**

- Each hole measures - 4 1/2" High X 4 1/2" Wide X 12" Deep
- Overall dimension - 23" High X 36" Wide X 12" Deep



4 DRAWER CABINET

- For use with D-4, D-5, D-6, D-7 Service Trays
- Overall dimension - 23" High X 36" Wide X 12" Deep
- Heavy Duty Double Action Tray Slides
- Order Service Trays Seperate

SERVICE TRAY

PIONEER NUMBER **D-4**

- For use in D-3, 4 Drawer Cabinet
- With 24 fixed plastic compartments
- 3" High X 18" Wide X 12 1/2" Deep



SERVICE TRAY

- For use with D-3, 4 Drawer Cabinet
- With 15 fixed plastic compartments
- 3" High X 18" Wide X 12 1/2" Deep

SERVICE TRAY

PIONEER NUMBER **D-6**

- For use in D-3, 4 Drawer Cabinet
- With 12 plastic adjustable dividers
- 3" High X 18" Wide X 12 1/2" Deep

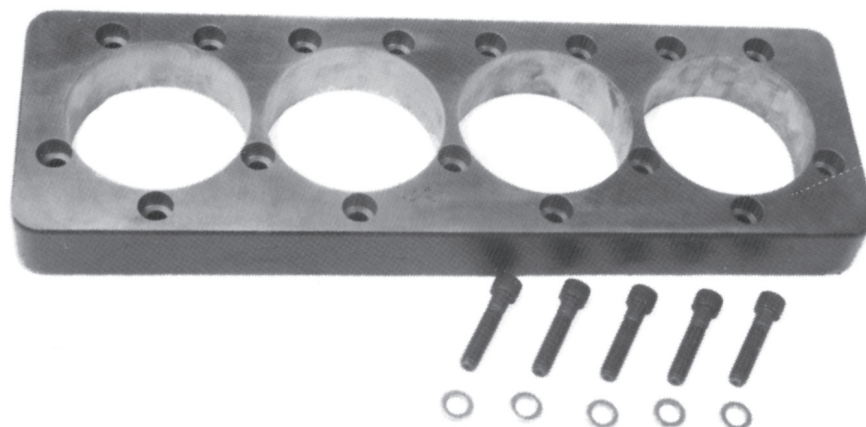


SERVICE TRAY

- For use with D-3, 4 Drawer Cabinet
- With 12 metal adjustable dividers
- 3" High X 18" Wide X 12 1/2" Deep

(Continued on next page)

TORQUE PLATES



Precision manufactured for each application, these quality torque plates are designed to prevent distortion of cylinder block due to the absence of torque stress to the block deck. This equipment is essential to any machine shop or production engine builder to insure cylinder accuracy and prevent premature ring and piston failure.

ALL TORQUE PLATES COME WITH NEEDED HARDWARE

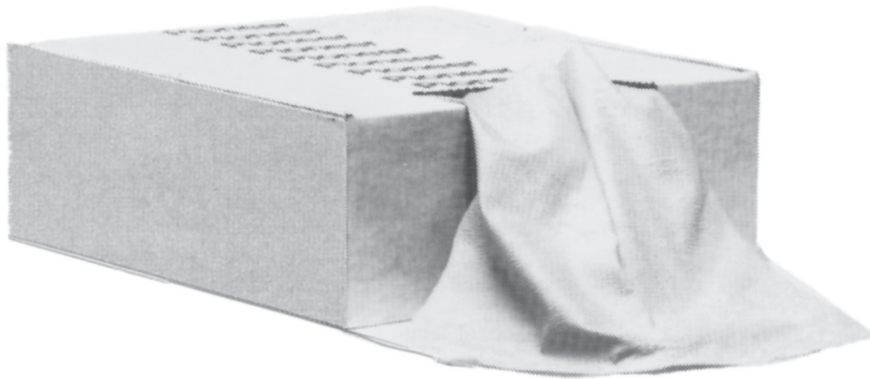
PIONEER NUMBER	APPLICATION	ENGINE SIZE
488100	Chevy Small Block	283-350
488115	Chevy Small Block	400
488117	Chevy Big Block	396-455
488119	Chevy V6	200, 229, 262
488121	Chevy Straight 6	250-292
488124	Small Block Ford	261, 289, 302, 351, 400
488129	Big Block Ford	352, 390, 406, 427, 428
488130	Big Block Ford	429, 460
488132	Ford 4 Cyl.	2000cc
488133	Ford 4 Cyl.	2.3L, 2300cc
488136	Ford V6	2.6L, 2.8L
488141	Ford V6	3.8L
488145	Ford Straight 6	240, 300
488147	Small Block Mopar	273, 318, 340, 360
488152	Big Block Mopar	361, 383, 400, 413, 426, 440
488156	Mopar 4 Cyl.	2200cc
488161	General Motors V6	3.0L (181 C.I.), 3.8L (231 C.I.)
488164	GM 4 Cyl.	1.8L, 2.0L
* 488165	GM 4 Cyl.	2.5L (151 C.I.)
* 488170	GM 4 Cyl.	2.5L (151C.I.)
488172	Oldsmobile	350, 400, 425, 455

* Indicates General Motors 4 Cyl., 151 C.I. (2.5L) Engine.

488170 - fits the "long deck" blocks, 1977 through current production (1985 and later VIN code R).

488165 - fits the "short deck" blocks (1985 and later VIN code U only).

SHOP TOWELS



421563 PIONEER NUMBER

PIONEER PRO KLEEN WIPES

- ☐ Blue spun-laced fibre towels
- ☐ Economical, less expensive than rags or rental towels.
- ☐ Multi-Purpose, absorbing and cleaning
- ☐ Heavy-Duty, strong enough for toughest jobs.
- ☐ Handy dispenser carton, convenient size 12" x 14".
- ☐ Quickly absorbs grease, oil, water and any other industrial liquid.
- ☐ Can be rinsed out and re-used.
- ☐ Virtually lint-free.
- ☐ Each towel is new, fresh and clean, unlike rental towels which may be subjected to contamination.
- ☐ 200 - 12" x 14" towels, convenient dispenser box.

PIONEER SHOULD BE YOUR CHOICE FOR QUALITY AUTOMOTIVE PRODUCTS!

CALL TOLL-FREE - 1-800-821-2302
1-800-821-2303

ORDERS - Customer Service
ORDERS - FAX

(Continued on next page)

PIONEER TECH TIPS - BONDED ABRASIVES

Troubleshooting - CRANKSHAFT GRINDING

Problem	Possible Cause	Suggested Correction
1. Poor finish	Improper wheel dressing	Use sharp, rigidly held, point contact below center, use diamond dressing attachment
2. Flats generated on diameter	Steady rest deflection	Ensure rigid steady rest
3. Chatter in radii	Dull diamond in radii attachment	Check and replace
	Work head speed too high	Slow work head speed
	Too high stock removal rate	Reduce stock removal rate
	Poor quality coolant	Increase lubricity of coolant
4. Thrust face poor geometry (Stepped/taper)	Wheel speed too low	Increase wheel speed, check correct pulley
5. Thrust face burning	One side burning - poor diamond dress	Redress and/or redress at increased infeed
	Both sides burning - poor diamond dress	Use coarser diamond dress and check for worn diamond

Troubleshooting - CAMSHAFT

Problem	Possible Cause	Suggested Correction
1. Chatter on cam nose	Interference of rocker bar motion	Sludge jamming motion, clean or replace
	Scored bearings	Check for irregularities in rocker bearings
	Insufficient lubrication	Tight bearings in rocker bar - lubricate.
2. Irregular ramp contour	Interference of rocker motion	Sludge jamming motion or scored bearing; clean and/or replace; lubricate
	Loose bearings	Check bearings for excessive wear
	Insufficient contact between master cam and follower.	Ensure positive contact between master.
3. Poor quality of grind	Poor quality of dressing	Ensure quality diamond and dress technique
	Dirty coolant	Ensure clean coolant and filter regularly

Troubleshooting - SURFACE GRINDING

Problem	Possible Cause	Suggested Correction
1. Workpiece not flat or parallel	Too heavy a cut	Take lighter cuts, particularly on finishing pass
	Burning of workpiece	Select grit, grade of wheel correctly.
	Stress relieving of workpiece	Stress relieve before final grind
	Dirty magnetic chuck	Clean chuck before final grind
	Wheel spindle not aligned	Re-align wheel spindle to be square
2. Scratching of work	Dirty coolant	Clean coolant tank or replace grinding fluid
	Incorrect wheel dressing	Check dressing attachment and replace
3. Chatter marks on workpiece	Worn spindle bearings	Check for truth and end play-correct
	Wheel out of truth	Poorly dressed wheel or incorrect mounting
	Poorly clamped wheel	Check tightness of mounting nuts
	Glazed wheel face	Redress wheel face with sharp dressing
4. Burning or checking of	Table speed too slow	Increase tablespeed
	Area of contact too large	Reduce face width by dressing back
	Wheel dressed too fine	Dress wheel coarser
	Depth of cut too large	Reduce and take lighter cuts / dress frequently
	poor coolant flow	Increase volume and direct onto wheel / work
5. Wheel loading or glazing	Depth of cut too small	Dress wheel by increasing feed and traverse
	Poor coolant quality	Change coolant or use high detergent type
	Diamond dressing worn	Replace diamond and use coarse dress

PIONEER TECH TIPS - BONDED ABRASIVES

SAFETY - GRINDING WHEEL HANDLING

All Grinding Wheels are relatively fragile and must be handled with care.

DO:

- Inspect all wheels upon receipt.
- Use pallets or trucks to transport.
- Support firmly at all times.
- Place wheels carefully in racks.

DO NOT:

- Leave wheels packed in absorbent material.
- Roll wheels on floor.
- Lean wheel against equipment.
- Place tools or parts on top of wheels.

SAFETY - GRINDING WHEEL STORAGE

DO:

- Store wheels correctly supported.
- Stack thin wheels flat.
- Ensure storage in dry conditions.

DO NOT:

- Store in damp or humid conditions.
- Subject wheels to dramatic change in temperature.
- Subject wheels to temperatures at or approaching freezing.

SAFETY - GRINDING WHEEL MOUNTING

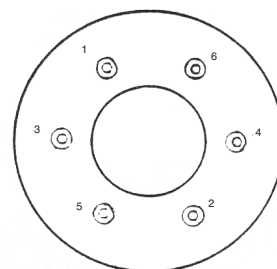
DO:

- Visually inspect all wheels for damage before mounting.
- Check machine speed against the established maximum safe operating speed.
- Check mounting flanges for equal and correct diameter.
- Tighten multi-screw flanges uniformly to the machine manufacturer's suggested torque.

DO NOT:

- Mount a cracked wheel or one that has been dropped or damaged.
- Force a wheel on a machine or alter the size of mounting hole.
- Use flanges or unequal diameter or relief.
- Over tighten flange retaining nuts.

NOTE: Order of tightening 1-2-3-4-5-6



(Continued on next page)

PIONEER TECH TIPS - COATED ABRASIVES

Problem	Possible Cause	Suggested Correction
• Dulling / Glazing	Grinding pressure too heavy or too light Excessive belt and / or contact roll speed Insufficient infeed pressure	Adjust grinding pressure Reduce belt and / or roll speed Increase infeed pressure
• Loading	Faulty or insufficient coolant or grinding aid Excessive grinding pressure Excessive infeed pressure or speed Insufficient or misdirected coolant Insufficient exhaust	Redirect or increase coolant flow Decrease pressure Decrease infeed pressure or speed Increase or redirect coolant flow Increase exhaust
• Belts Breaking	Belts creased or edge damaged in handling Belt tension too high Excessively heavy cut Belt tension too low, usually accompanied by a heavy grinding load on one side of belt Erratic belt tracking Belt installed backwards (lap joints)	Inspect belts before installing Reduce tension Adjust cut or reduce feed speed Increase tension Check tracking mechanism. Replace belt Find arrow on belt backing and install in running direction of contact wheel.
• Belts Splitting	Worn Contact wheel or roll Burr on contact wheel Excessive grinding or infeed pressure Excessively heavy cut Grinding in one area of belt only Workpiece thickness variation	Dress or replace contact roll or wheel Dress or replace contact wheel Reduce pressure Adjust cut depth Oscillate belt - Use entire surface of belt Run similar thickness workpieces in batches whenever possible
• Belt Slippage	Contact roll and idler not parallel Belt tension too low Misdirected coolant nozzles. Coolant between contact roll and belt	Parallel align idler, Contact roll and other machine parts Increase tension Redirect coolant flow
• Belts Not Tracking Properly	Contact roll worn Insufficient belt tension Excessive or insufficient grinding pressure Uneven grinding pressure, leading to uneven abrasive Idler pulley face worn Swart buildup on idler or back of belt Insufficient belt take-up capability Contact wheel face worn Idler puller defecting due to light construction or wear Misalignment between contact wheel and idler Workpiece thickness variation	Redress contact roll to establish flat lands Increase belt tension Adjust pressure Use full width of belt during grinding. Recover or change idler Redirect and / or increase coolant flow Check belt length; change belt Redress or change contact wheel Replace idler pulley. Reduce belt tension. Realign Run similar thickness workpieces in batches whenever possible
• Poor Surface Finish	Damaged or fluttering edge of belt causes tracking malfunction. Belt stretched on one edge. Previous grit grinding lines not completely removed Belt worn beyond useful life Uneven or inadequate coolant flow to belt surface Recirculating contaminated coolant Coated abrasive belt oscillation Excessive grinding pressure Contact wheel improperly dressed Ragged belt edge Insufficient belt tension	Change coated abrasive grit sequence Replace coated abrasive belt Redirect and / or increase coolant flow Check filtering system. Drain and replace coolant Check idler, belt tension. Change coated abrasive belt Reduce pressure Dress or replace contact wheel Replace belt Increase tension

NOTE: THE ABOVE SUGGESTED CORRECTIONS ARE NOT ALL INCLUSIVE, OTHER CONDITIONS MAY APPLY. CAUTION IS ADVISED IN MAKING ANY CORRECTIONS OR ADJUSTMENTS AND SHOULD BE LEFT TO A QUALIFIED TECHNICIAN.

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