

Section 2 - Level 2

In-Frame Overhaul Tools

Level 2 consists of component removal and replacement. There are no component rebuild tools listed in this level. The tool requirements list for Level 2 is broken down by part number, function, description and engine model. Level 1 tools should be added to Level 2 tools for shops desiring Level 2 capability. Level 2 tools are required to remove, replace, adjust and check the installation and operation (where applicable) of the below listed components. This section also includes minor repair tools so that repairs can be made without removing the engine from the chassis.

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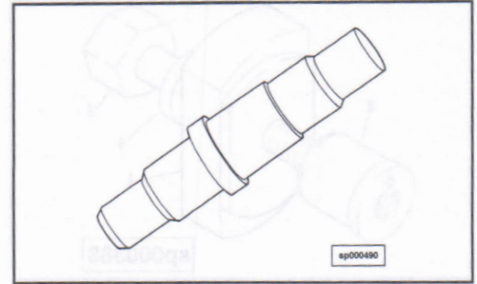
Accessory Drive Tools

ST 598

Gear Cover Bushing Mandrel

Engine Series: H/NH, NT

This mandrel is designed to install and/or remove the precision bushings in the gear cover accessory drive bore.

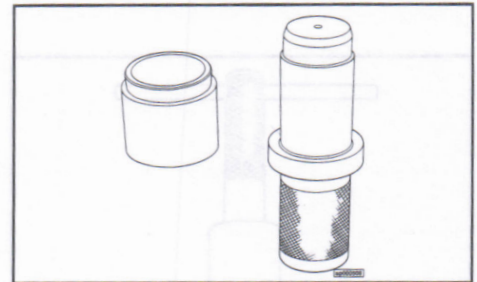


ST 837

Accessory Drive Bushing Driver

Engine Series: V378, V504, V555

This tool is used to install the bushing into the fuel pump support.

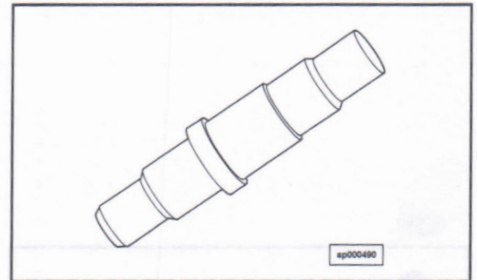


ST 1171

Gear Cover Bushing Mandrel

Engine Series: NTA 370/420

This mandrel is designed to install and/or remove the precision bushings in the gear cover accessory drive bore.

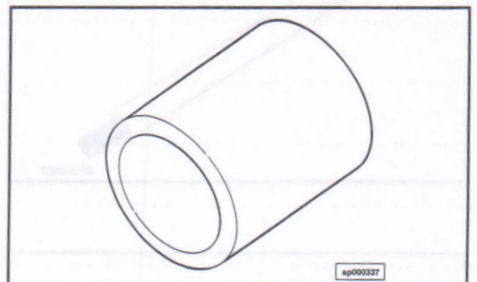


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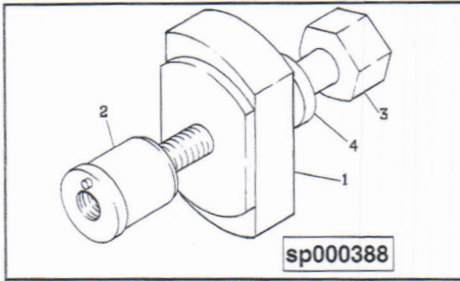
Accessory Drive Gear Mandrel

Engine Series: L10

This mandrel is used to position the accessory drive shaft gear on the shaft while being pressed on. This assures that the shaft is pressed into the gear for proper shaft protrusion.



Ref. No.	Part No.	Description
4	3183174	Gauge Block
1	3183330	Gauge Fixture
2	3183334	Tensioning Shaft
5	3183335	Wire (25 Gauge)
3	3183336	Set Screw

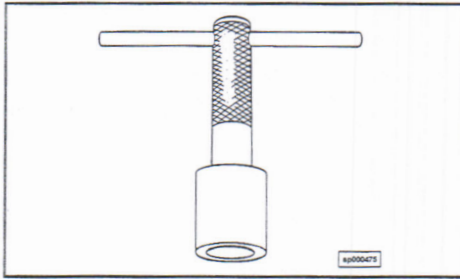


3824703
Accessory Drive Bushing Tool

Engine Series: N14

This tool is required to remove or install the accessory drive support bushing in the front cover plate. By using this tool, the bushing can be removed or installed "in chassis" without removal of the front cover plate.

Ref. No.	Part No.	Description
1	3824704	Driver Plate
2	3824705	Driver Mandrel
3	3824706	Forcing Screw
4	3822546	Thrust Bearing



Alignment and Guide Tools

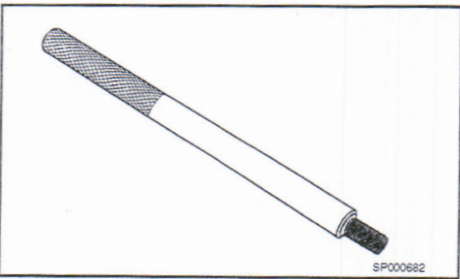
ST 400
Gear Cover Alignment Plug

Engine Series: V28

ST 407 and **ST 757 Alignment Plugs** are used to accurately locate a new gear cover to the gear housing before doweling. One of the locating plugs is inserted in each camshaft bearing support bore and over the camshaft. 2 are required.

ST 400 Alignment Plug is used to accurately locate the gear housing to the cylinder block before doweling. 2 are required.

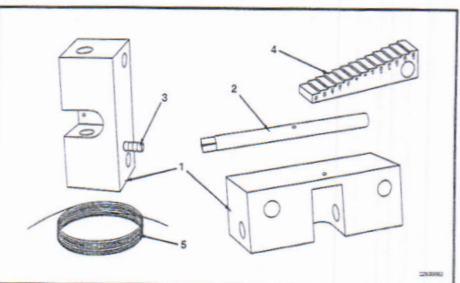
Part No.	Description
ST 400	Gear Cover Alignment Plug (Gear Housing - 5 1/8 & 5 1/2)
ST 407	Gear Cover Alignment Plug (Gear Cover - 5 1/8)
ST 757	Gear Cover Alignment Plug (Gear Cover - 5 1/2)



3163097
Rod Connecting Guide Pin

Engine Series: Signature/ISX

Rod Guide Pin is used to guide the rod around the crankshaft to seat the bearing on the rod when installing the piston and rod assembly into the block.



3163173
Exhaust Manifold Alignment Kit

Engine Series: KV

This kit will facilitate in deciding the thickness of the exhaust manifold gasket needed for the slip joints to remain in alignment.

Ref. No.	Part No.	Description
4	3163174	Gauge Block
1	3163333	Gauge Fixture
2	3163334	Tensioning Shaft
5	3163335	Wire (25 Gauge)
3	3163336	Set Screw

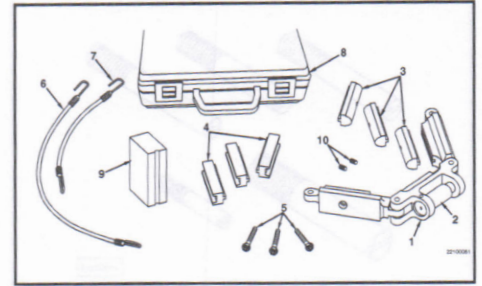
3163524
Pulley Alignment Fixture

Engine Series: All

This fixture allows technicians to use a laser light positioned on one pulley to target a second pulley. The fixture allows the technician to see the misalignment and take steps to correct the alignment problem.

Ref. No.	Part No.	Description
1	3163538	Pulley Alignment Fixture
2	3163536	Laser Light
3	3163576	Pulley Adapter ("V" Groove)
4	3163477	Pulley Adapter ("V-Ribbed" Groove)
5	3163578	Socket Head Cap Screw
6	3163402	Elastic Shock Cord
7	3163537	Elastic Shock Cord
8	3163616	Storage Case
9	3163645	Alignment Gauge Block
10	3163644	Socket Set Screw

NOTE: Includes allen wrenches for changing adapters and adjusting laser light.

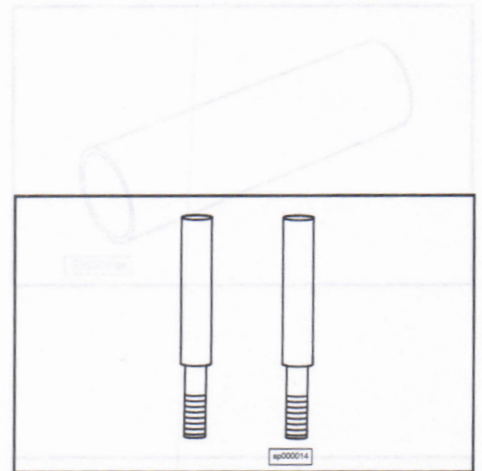


3375098
Connecting Rod Guide Pins

Engine Series: K19, K38, K50, NT, L10, B3.3

These guide pins are special nylon guide pins used to protect the crankshaft journal, during assembly of the connecting rod, by guiding the connecting rod during installation or removal. These are priced individually. 2 are required.

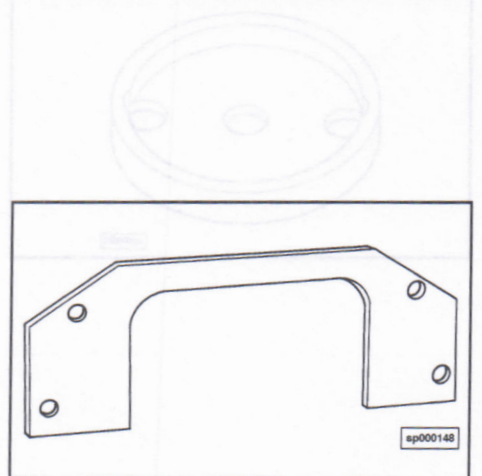
Part No.	Description
3163698	Connecting Rod Guide Pins (B3.3)
3375098	Connecting Rod Guide Pins (K19, K38, K50)
3375601	Connecting Rod Guide Pins (NT 2 1/2 Cam)
3375925	Connecting Rod Guide Pins (V28 Phase 3)
3376038	Connecting Rod Guide Pins (L10 Connecting Rod Guide Pins)

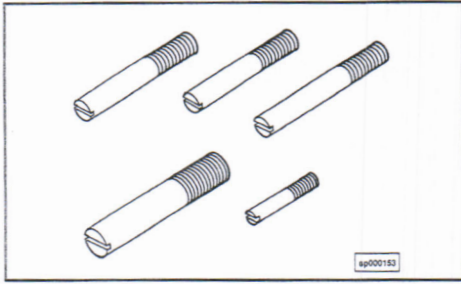


3376606
Flywheel Housing Alignment Plate

Engine Series: L10

The alignment plate is used to support the flywheel housing. This is necessary to hold the flatness specification between the oil pan rail and the housing while measuring the radial runout of the flywheel housing.



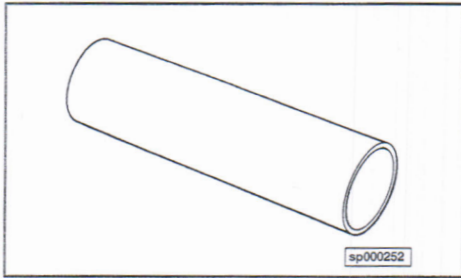


3376696
Guide Pin

Engine Series: L10, Signature/ISX

These various size guide pins are used during assembly and/or disassembly to align parts and aid in the control of the parts. The use of 1 or more guide pins can 'free-up' a hand to turn capscrews etc.

Part No.	Description
3376696	Flywheel Guide Pin (L10)
3376697	Flywheel Housing Guide Pin (L10)
3376698	Water Pump Bearing Support Guide Pin (L10)
3376638	Vibration Damper Guide Pin (L10)
3376488	Accessory Drive Support Guide Pin (L10)
3163157	Guide Pin (Signature 600)

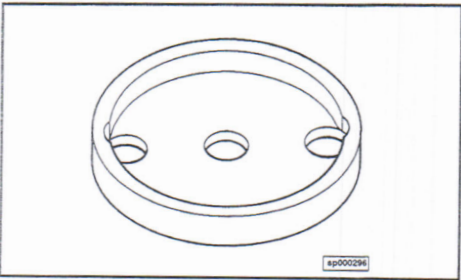


3377397
Connecting Rod Guide Pins

Engine Series: V378, V555, V903, V504, C Series

These special 'non-marring' guide pins are required when installing connecting rods/piston assemblies. The guide pins are placed over the connecting rod bolts and provide a positive guide over the crankshaft without scratching the journals. These are priced individually and 2 are required.

Part No.	Description
3377397	Connecting Rod Guide Pins (V555 Engines)
3377400	Connecting Rod Guide Pins (V378/V504 Engines)
3377398	Connecting Rod Guide Pins (V903 Engines)
3824496	Connecting Rod Guide Pins (C Series)



3823096
Power Steering Assembly Fixture

Engine Series: B & C Series W/Saginaw Pump

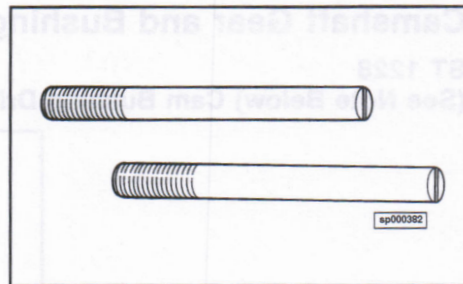
This fixture is required to align the power steering pump and adapter to insure proper drive gear lash for the Saginaw power steering pump.

3824453
Guide Stud Kit

Engine Series: All Except L10, B and C Series

This is a miscellaneous size guide stud set used to guide various engine parts during assembly or disassembly.

NOTE: Two of each size is included in the kit. To reorder individual part numbers, the part numbers are sold as a quantity of one. Each guide stud is 6 inches long.



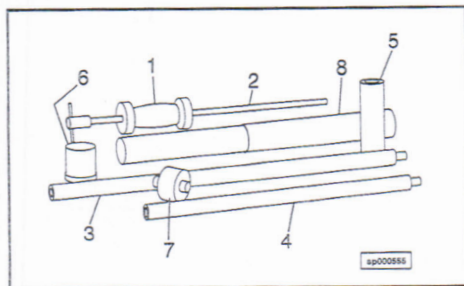
Part No.	Description
3824454	Guide Stud (3/8-16 thread)
3824455	Guide Stud (3/8-24 thread)
3824456	Guide Stud (7/16-14 thread)
3824457	Guide Stud (7/16-20 thread)
3824458	Guide Stud (1/2-13 thread)
3824459	Guide Stud (9/16-12 thread)
3824460	Guide Stud (9/16-18 thread)
3824461	Guide Stud (5/8-11 thread)
3824462	Guide Stud (5/8-18 thread)

Part No.	Description
3824453	Guide Stud Kit
3824454	Guide Stud (3/8-16 thread)
3824455	Guide Stud (3/8-24 thread)
3824456	Guide Stud (7/16-14 thread)
3824457	Guide Stud (7/16-20 thread)
3824458	Guide Stud (1/2-13 thread)
3824459	Guide Stud (9/16-12 thread)
3824460	Guide Stud (9/16-18 thread)
3824461	Guide Stud (5/8-11 thread)
3824462	Guide Stud (5/8-18 thread)

Camshaft Gear and Bushing Installer and Remover

ST 1228

(See Note Below) Cam Bushing Driver Set



Engine Series: See Below

ST 1228 Kit is no longer available as a kit. Order engine application kits as needed. All spare parts are still available. These bushing mandrels are used to remove and/or install cam bushings in the cylinder block. It is suggested that 3376637 Driver Set be ordered and then select the appropriate driver mandrel kit for the engine model being serviced. The "Pullers" are designed to remove the rear cam bushing without removing the flywheel housing.

Ref. No.	Part No.	Description
	3376637	Driver Assembly (all)
1	ST 1228-1	Slide Hammer
2	ST 1228-2	Rod
3	ST 1228-3	Mandrel Shank
4	ST 1228-4	Shaft Assembly
	3376626	Kit for C & J
5	ST 1228-7	Guide
6	ST 1228-11	Driver
	3376627	Kit for H/NH (2.129 cam bore)
5	ST 1228-5	Guide
6	ST 1228-9	Driver
7	ST 1228-13	Puller
	3376628	Kit for V378, V504 (2.1265 cam bore)
5	ST 1228-5	Guide
6	ST 1228-9	Driver
	3376629	Kit for V28
5	ST 1228-8	Guide
6	ST 1228-12	Driver
	3376630	Kit for V903, V555 (2.625 cam bore)
5	3375154	Guide
6	ST 1228-10	Driver
	3376631	Kit for V903 (2.687 cam bore)
5	ST 1228-6	Guide
6	3375861	Driver
	3376632	Kit for NH Big Cam (2.627 cam bore)
5	3375154	Guide
6	ST 1228-10	Driver
7	3822782	Puller
	3376633	Kit for NH Big Cam (2.687 cam bore)
5	ST 1228-6	Guide
6	3375861	Driver for No. 7
6	3376412	Driver, all others
7	3822782	Puller
	3376634	Kit for K19, K38, K50 (3.188 cam bore)
6	ST 1228-19	Driver

Ref. No.	Part No.	Description
7	3822781	Puller
	3376635	Kit for K19 (3.254 cam bore)
5	3375862	Guide
6	3375864	Driver
7	3822781	Puller
	3376636	Kit for L10
5	3376069	Guide
6	3376070	Driver

Puller Pin Repair Kits may be ordered per the following:
 3376429 to repair ST 1228-12 Puller
 3822783 to repair 3822781 and 3822782 Puller

These may be ordered separately as desired.

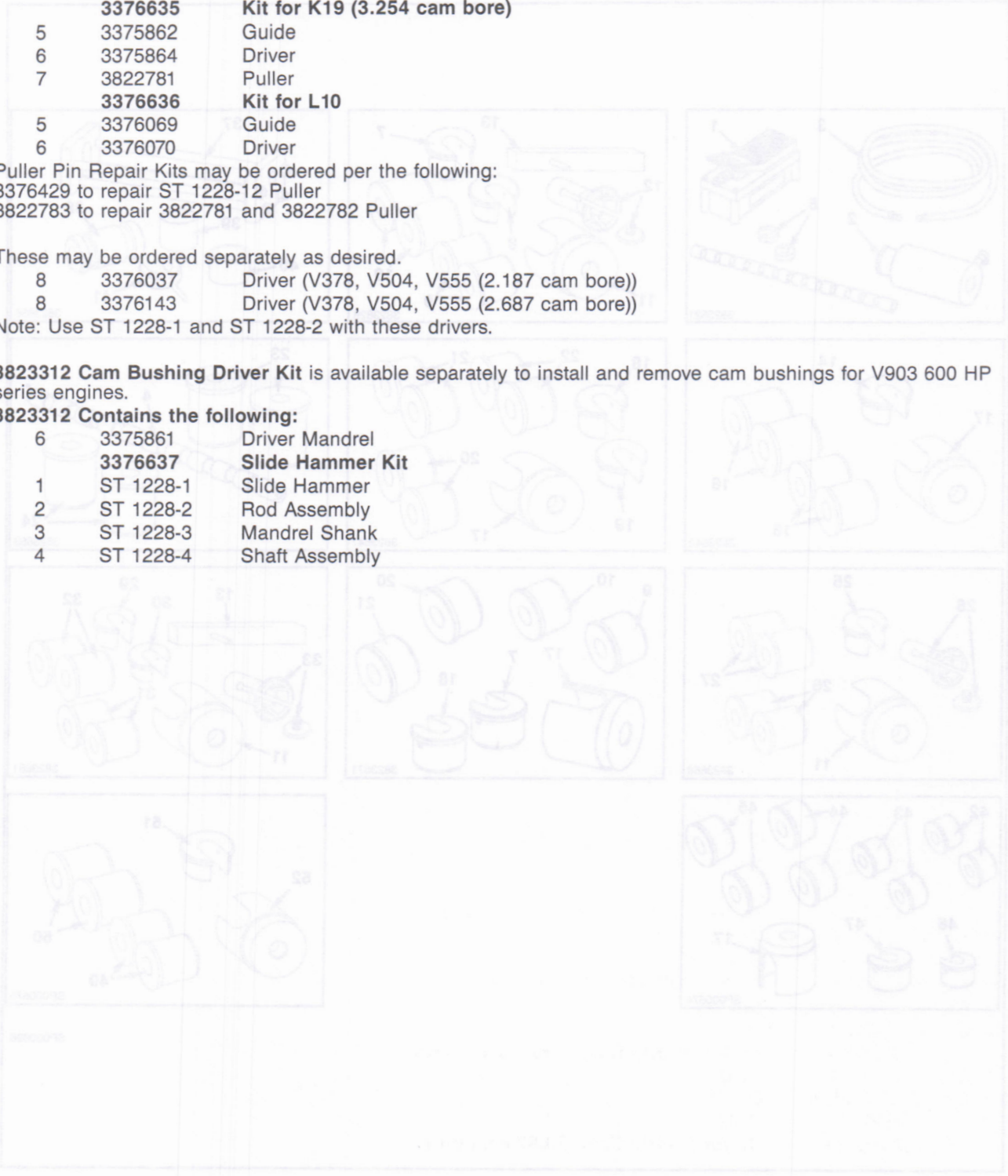
- 8 3376037 Driver (V378, V504, V555 (2.187 cam bore))
- 8 3376143 Driver (V378, V504, V555 (2.687 cam bore))

Note: Use ST 1228-1 and ST 1228-2 with these drivers.

3823312 Cam Bushing Driver Kit is available separately to install and remove cam bushings for V903 600 HP series engines.

3823312 Contains the following:

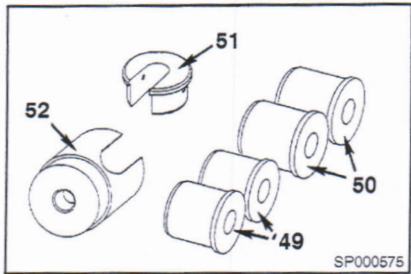
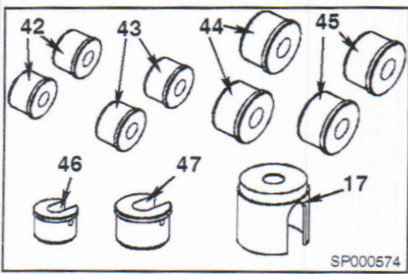
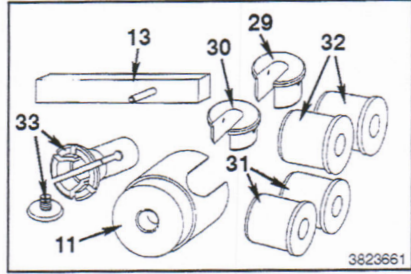
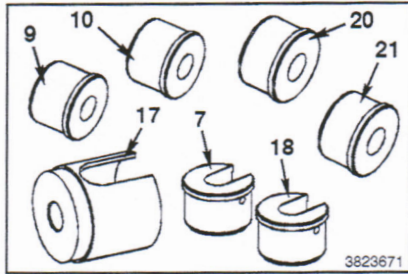
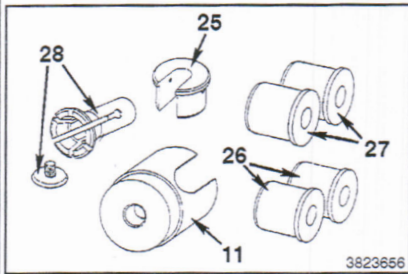
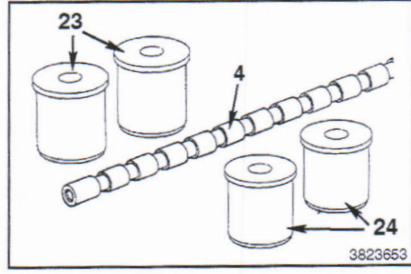
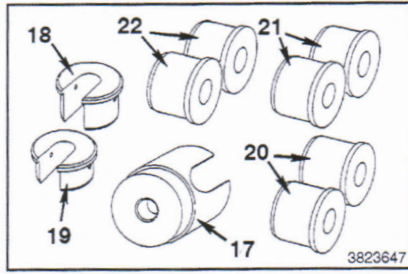
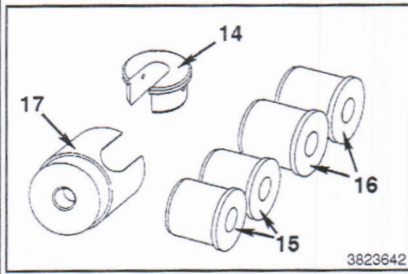
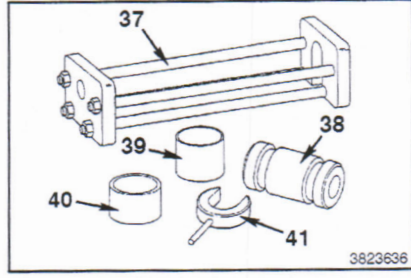
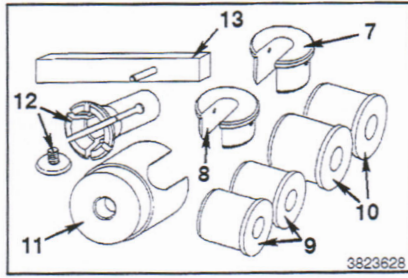
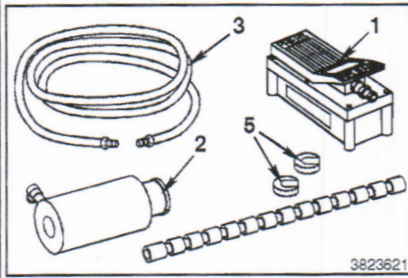
- 6 3375861 Driver Mandrel
- 3376637 Slide Hammer Kit**
- 1 ST 1228-1 Slide Hammer
- 2 ST 1228-2 Rod Assembly
- 3 ST 1228-3 Mandrel Shank
- 4 ST 1228-4 Shaft Assembly



Engine Series: See Below

This tool can be purchased as a kit to install and remove cam bushings in the cylinder block or individual kits are available for specific engine model series. A hydraulic ram provides the necessary force to install or remove the cam bushings. An air over hydraulic pump powers the hydraulic ram.

3162248
Hydraulic Cam Bushing Tool Kit



SP000696

Engine Series: See Below

This tool can be purchased as a kit to install and remove cam bushings in the cylinder block or individual kits are available for specific engine model series. A hydraulic ram provides the necessary force to install or remove the cam bushings. An air over hydraulic pump powers the hydraulic ram.

NOTE: Instructions for using this tool and component groups is covered in Instruction Bulletin 3377780.

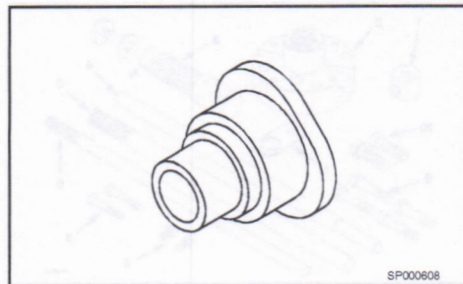
Ref. No.	Part No.	Description
	3162248	All the below assemblies
	3823621	Cam Bushing Hydraulic Actuator Kit (Needed for all kits below)
1	3823622	Air/Hydraulic Pump
2	3823623	Hydraulic Ram
3	3823624	Hydraulic Hose
4	3823625	Cam Bushing Shaft
5	3823626	Stop Collar
	3823770	Storage Case
	3823628	Cam Bushing Installation/Removal Kit (NH, V903 Thickwall Bushing (2.687 cam bore)) Note: 3823636 cylinder support is also required.
7	3823629	Driver (NH (2 1/2) 3 and 5 thickwall)
8	3823630	Driver (V903, NH (2 1/2) 1, 2, 4, 6 & 7 thickwall)
9	3823631	Centering Guide (NH, V903) (with bushing)
10	3823632	Centering Guide (NH, V903) (without bushing)
11	3823633	Receiver Spacer
12	3823634	Bushing Puller (NH)
13	3823635	Bushing Alignment Pointer
	3823642	Cam Bushing Installation/Removal Kit (L10)
14	3823643	Driver
15	3823644	Centering Guide (with bushing)
16	3823645	Centering Guide (without bushing)
17	3823646	Receiver Spacer
	3823647	Cam Bushing Installation/Removal Kit (K19)
18	3823648	Driver (K19, KV thinwall (3.1880))
19	3823649	Driver (K19, KV thickwall (3.2540))
20	3823650	Centering Guide (K19 (with bushing))
21	3823651	Centering Guide (K19 (without bushing) (3.1880))
22	3823652	Centering Guide (K19 (without bushing) (3.2540))
17	3823646	Receiver Spacer
	3823653	Cam Bushing Centering Guide Kit (K38, K50 (used with 3823647))
23	3823654	Centering Guide (KV (with bushing))
24	3823655	Centering Guide (KV (without bushing))
4	3823625	Cam Bushing Shaft
	3823656	Cam Bushing Installation/Removal Kit (V28) (use with 3823636 cylinder support kit)
25	3823657	Driver
26	3823658	Centering Guide (with bushing)
27	3823659	Centering Guide (without bushing)
28	3823660	Cam Bushing Puller
11	3823633	Receiver Spacer
	3823661	Cam Bushing Installation/Removal Kit (NH, (2 in. cam) (use with 3823636 cylinder support kit))
29	3823662	Driver (3 and 5)
30	3823663	Driver (1, 2, 4, 6 and 7)
31	3823664	Centering Guide (with bushing)
32	3823665	Centering Guide (without bushing)
33	3823666	Cam Bushing Puller
11	3824518	Receiver Spacer
13	3823635	Bushing Alignment Pointer (NH 2 in. & 2 1/2 in.)
	3823667	Cam Bushing Installation/Removal Kit (NH, V903 2 1/2 cam thinwall. (Use with 3823628 and 3823636))
	(Ref. 3823628 Line Art)	
7	3823668	Driver (NH (thinwall) 3 and 5)
8	3823669	Driver (V903, NH (2 1/2) 1, 2, 4, 6 & 7) thickwall)
10	3823670	Centering Guide (V903, NH 2 1/2 (thinwall) without bushing)
	3823671	Cam Bushing Installation/Removal Kit (V903 600 hp)
7	3823629	Driver (1)

Ref. No.	Part No.	Description
18	3823648	Driver (2, 3, 4 and 5)
9	3823631	Centering Guide (1 (with bushing))
10	3823632	Centering Guide (1 (without bushing))
20	3823650	Centering Guide (2, 3, 4 and 5 (with bushing))
21	3823651	Centering Guide (2, 3, 4 and 5 (without bushing))
17	3823646	Receiver Spacer
	3823636	Cam Bushing Hydraulic Cylinder Support Kit (All Engines)
37	3823637	Pusher Cradle (H, V28)
38	3823638	Pusher Cradle Mandrel (NH, V28)
39	3823639	Pusher Cradle Mandrel (Adapter, NH 2 1/2 cam)
40	3823640	Pusher Cradle Mandrel (Adapter, V28 2 1/8 cam)
41	3823641	Cradle Stop Collar
	3824863	Cam Bushing Install/Remove Kit (QSK 19)
	Ref. 3823642	
14	3824862	Cam Bushing Driver
17	3824864	Receiver Spacer
16	3824865	Centering Guide
15	3823652	Centering Guide
	3162249	Cam Bushing Install/Remove Kit (B Series)
14	3162250	Driver
15	3162251	Centering Guide (w/bushing)
16	3162252	Centering Guide (wo/bushing)
17	3823633	Receiver/Spacer
	3162253	Cam Bushing Install/Remove Kit (C Series)
14	3162254	Driver
15	3162255	Centering Guide (w/bushing)
16	3162256	Centering Guide (wo/bushing)
17	3823633	Receiver/Spacer
	3162257	Cam Bushing Install/Remove Kit (QST Series)
14	3162258	Driver
15	3162259	Centering Guide (w/bushing)
16	3162260	Centering Guide (wo/bushing)
17	3823633	Receiver/Spacer
	3162980	Cam Bushing Install/Removal Kit (Sig/ISX)
42	3163018	Cam Bushing Centering Guide (Valve cam, with bushing)
43	3163019	Cam Bushing Centering Guide (Valve cam, without bushing)
44	3163030	Cam Bushing Centering Guide (Injector cam, with bushing)
45	3163031	Cam Bushing Centering Guide (Injector cam, without bushing)
46	3163032	Cam Bushing R&I Driver (Valve cam bushing)
47	3163033	Cam Bushing R&I Driver (Injector cam bushing)
17	3824864	Receiver Spacer
	Not Included In Kit:	
	3824518	Receiver Spacer
	3163015	Cam Bushing Install/Remove Kit (QSKV45/60)
49	3163034	Cam Bushing Ctr. Guide (w/bushing)
50	3163035	Cam Bushing Ctr. Guide (wo/bushing)
51	3163036	Cam Bushing Driver
52	3163037	Spacer

3162411
Bearing Installer

Engine Series: Onan, CCK, LK, B, N, T & P

Use this tool with 3162435 Drive Handle to install the crankshaft and front camshaft bearings on all CCK, LK, B, N, T and P series. Also included in 3162417.

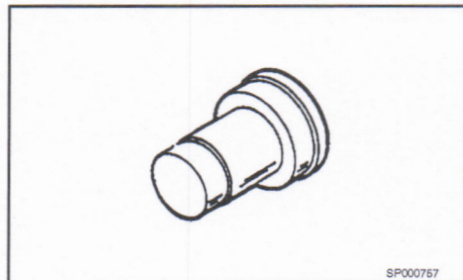


SP000608

3162412
Bearing Remover

Engine Series: Onan, CCK, LK, B, N, T & P

Use this tool with 3162435 Drive Handle to remove the crankshaft & camshaft bearings for all CCK, LK, B, N, T and P series. Also included in 3162417.



SP000767

3162414
Rear Camshaft Bearing Installer

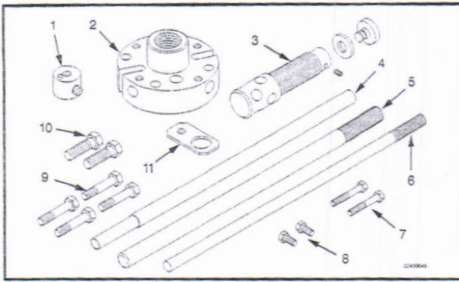
Engine Series: Onan, CCK, LK, B, N, T & P

Use this tool with 3162435 Drive Handle to install the rear camshaft bearing on all CCK, LK, B, N, T and P series. Also included in 3162417.



SP000768

Part No.	Description
3162408	Pressure Screw
3162408	Gear Installer Yoke
3162408	Flots
3162408	Torque Arm
3162408	Retainer
3162408	Nuts
3162408	Gear Remover Yoke
3162408	Remover Mandrel



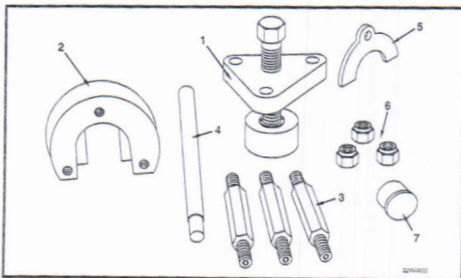
**3162895
Cam Gear Puller Kit**

Engine Series: L10, M11, K19, K38, K50 and QSK19/45/60

This is a heavy duty mechanical puller to pull the camshaft "in chassis" without disturbing the overhead assemblies. This puller is designed to fit a wide range of engines and not to be used with impact wrenches. Sufficient leverage is obtained with the long extension bar and torque reaction bar provided. A hook eye is provided so that the tool and gear (when removed) can be suspended from a chain hoist, to avoid strain on the operator.

NOTE: The adapter is also suitable for the old version of cam gears used on L-10/M-11 engines and can be used with obsolete pullers 3824900 & 3376400.

Ref. No.	Part No.	Description
1	3162896	Puller Adapter Assembly
2	3162997	Holder Plate Assembly
3	3162998	Forcing Screw Assembly
4		Lever Bar
5		Extension Bar
6		Torque Reaction Lever
7		Capscrew, Hex Head 1/2-20UNF x 2 3/4 Lg.
8		Capscrew, Hex Head 1/2-13UNC x 1 in. Lg.
9		Capscrew, Hex Head M16 x 2-65 mm Lg.
10		Capscrew, Hex Head 3/4-16UNF x 2 1/4 Lg.
11		Lifting Plate



**3163054
Cam Gear Removal and Installation Tool**

Engine Series: B and C Series

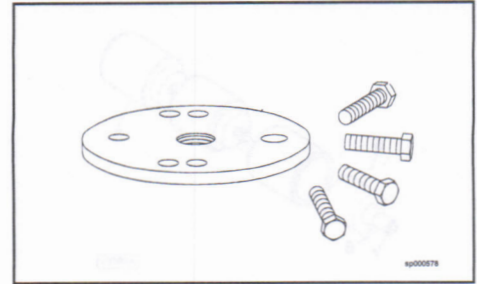
This tool is designed specifically to remove and/or install the cam gear, without heat, and with the cam partially removed from the engine. All necessary components are included to perform this operation without heating the cam gear.

Ref. No.	Part No.	Description
1		Pressure Screw
2	3163055	Gear Installer Yoke
3		Rods
4		Torque Arm
5	3824269	Retainer
6		Nuts
7		Gear Remover Yoke
8	3824098	Remover Mandrel

3163069
Cam Gear Remover

Engine Series: Signature/ISX

This kit designed for the Signature 600 engine uses the holes provided in the cam gear to allow removal. The center hole allows the mounting bolt to control the gear until the technician is ready to control the disassembly. 4 cap screws are provided and should be alternately tightened to free the gear from the cam shaft.

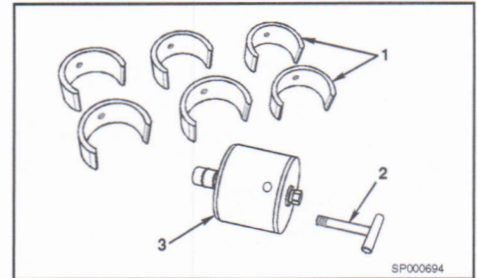


3163195
Cam Shaft Removal/Installation Kit

Engine Series: QSKV45/60

This kit provides cam guides to protect against handling damages on in & out of chassis applications. When snapped over the cam lobes, they offer wider support surface area for the heavy camshaft.

Ref. No.	Part No.	Description
1	3163016	Cam shaft Guide
2	3825153	Cam Shaft Guide Extractor
3	3163325	Cam Shaft Pilot

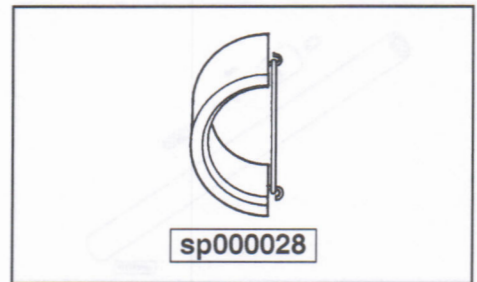


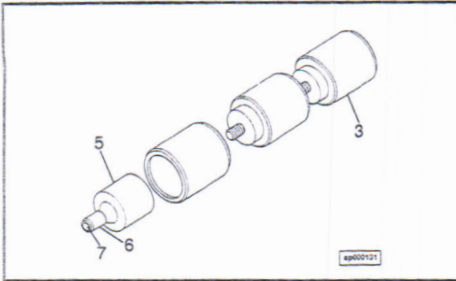
3375268
Camshaft Installation Pilot

Engine Series: K19, K38, K50, NT

These pilots attach to the camshaft injector lobe. The O'Ring retains the pilot to the camshaft. When 4 of these are attached to the camshaft, a positive pilot is provided to install the camshaft without scratching the camshaft bushings. Pilots can be removed through the hand hole covers or cam follower cover hole.

Part No.	Description
3375268	Camshaft Installation Pilot (NT 855 (2 1/2 cam))
3376280	Camshaft Installation Pilot (K19, K38, K50)
3823305	Camshaft Installation Pilot (NT STC)
3824285	Camshaft Installation Pilot (N14 Celect)





3376388
Camshaft Guide Pilot

Engine Series: L10, M11

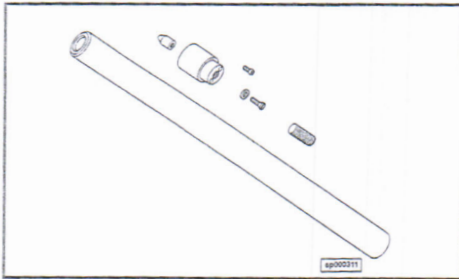
This guide pilot has a special expansion sleeve located on the front of the pilot that locates in the bore of the camshaft. The 3 components are assembled together as illustrated and provides a positive pilot to install the camshaft without scratching the cam bushings.

Ref. No.	Part No.	Description
3	3376942	Guide Sleeve
	3376923	Guide Expander
5	3376927	Locating Pilot
6	3376928	Expanding Sleeve
7	3376939	Expander Rod

3376876 Guide Expander can be ordered as desired for camshafts with 2 inch pilot hole. This is not part of 3376388 but must be used with 3376388 above in place of 3376923 Guide Expander.

Spare parts for 3376876 are:

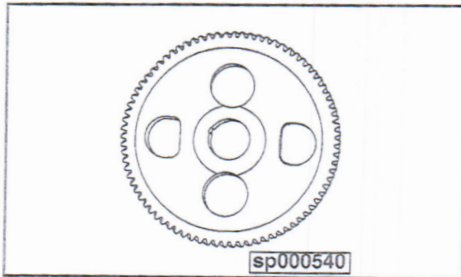
5	3376924	Locating Pilot
6	3376925	Expander
7	3376926	Expander Screw



3823295
Cam Install/Removal Tool

Engine Series: V903 600 h.p.

This special mandrel is used to install or remove the camshaft on the V903 600 h.p. engine. The mandrel installs on the front of the camshaft to serve as a guide so that cam can be moved in or out without scratching any of the cam bushings. **3823300 Spring Washer is available as required.**



3824652
Master Cam Gear

Engine Series: L10, M11

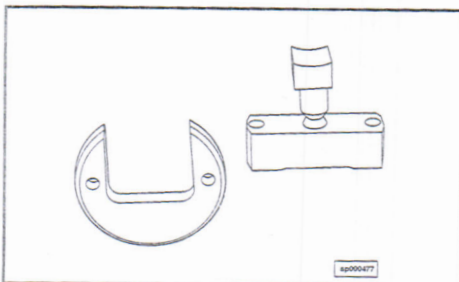
This camshaft timing gear has the inside diameter enlarged to provide a slip fit for the M11 series engines. The slip fit permits easy installation onto the camshaft when selecting the proper cam key. The master gear will enable the timing to be checked and the proper camshaft gear key selected before finish installation of the engine cam gear.

Counterbore and Liner Tools

ST 414
Liner Removal Tool

Engine Series: V28

This tool is used to remove the liner/piston/connecting rod as a complete assembly on older V12 engines. This tool must be positioned between the crankshaft journal and the cylinder liner. By rotating the crankshaft by hand the liner is pushed from the block.

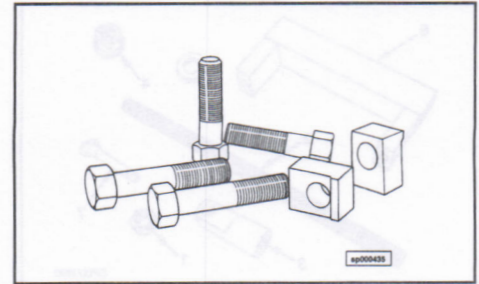


**ST 1183
Cylinder Liner Clamp**

Engine Series: NH, V378, V555, V504

These clamps are used to secure the cylinder liner in the block while checking liner protrusion.

Part No.	Description
ST 1183	Cylinder Liner Clamp (NH 5 1/8 Bore)
ST 1200	Cylinder Liner Clamp (V378, V504, V555)
Replacement parts for the above tools are:	
ST 1183-2	Capscrew
ST 1184-2	Capscrew (11/16 - 16 x 2 1/2)

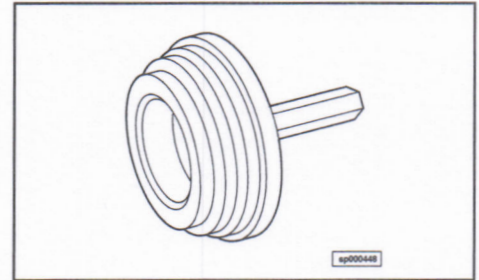


**ST 1229
Liner Driver**

Engine Series: All

These high grade aluminum liner drivers are designed to be used with a hammer to drive the cylinder liners in the block without damage to the liner lip or bead area.

Part No.	Description
ST 1229	Liner Drivers (All Models except K, L10, M11, & B)
ST 1266	Liner Drivers (K19, K38, K50)
3376056	Liner Drivers (L10)
3823230	Liner Drivers (B Series)

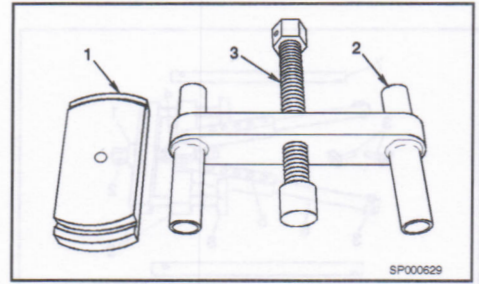


**3162461
Cylinder Liner Installer Kit**

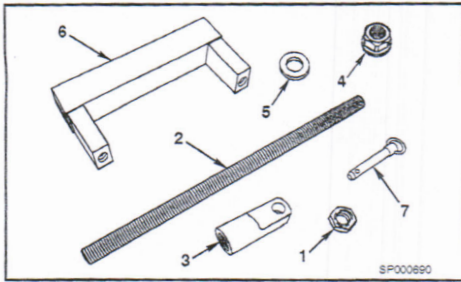
Engine Series: Signature/ISX

Used to push the Signature cylinder liner into the cylinder block. Also allows for the proper clamping of the liner to check the the liner to block deck specification when using the 3823495 depth gauge assembly.

Ref. No.	Part No.	Description
1	3162984	Cyl. Liner Installer Plate
2	3162985	Cyl. Liner Installer Bridge
3	3823617	Liner Instl. Force Screw



Ref. No.	Part No.	Description
1	3376016	Thrust Bearing Assembly
2	3376017	Special Lifting Bolt
3	3376018	Arm Extension Foot
4	3376019	Puller Bushing
5	3376020	Hoisting Pin
6	3376752	Short Arm Extension (3/4 in.)
7	3376753	Long Arm Extension (1 1/2 in.)
8	3824408	Liner Hold Down Foot
9	3824407	Top Plate & Lifting Bar Assy.
		* Optional



**3163745
Liner Puller (Universal)**

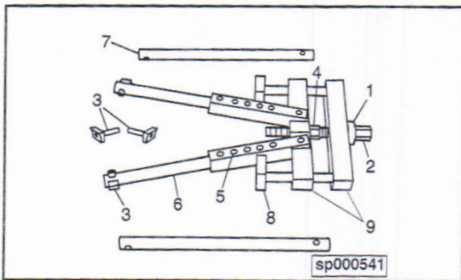
Engine Series: All Except B Series

This tool is a universal puller to pull cylinder liners from the block. Order appropriate puller plate as needed separately. Puller plates are not included in the kit.

Ref. No.	Part No.	Description
1	3163748	Regular Nut
2	3163746	Allthread Rod
3	3163747	Connector
4	3163877	Bearing Needle Hexagon Nut
5	3162876	Thrust Washer
6	3162877	Remover Support
7	3162878	Detent Pin

The following puller plates must be ordered separately as desired.

3162880	Puller Plate (NT, V28, V903)
3162881	Puller Plate (H.4 7/8 bore)
3162882	Puller Plate (H, V12, 5 1/8 bore)
3162883	Puller Plate (C, 4 7/16 bore)
3162884	Puller Plate (J, 4 1/8 bore)
3162885	Puller Plate (V378, V504, V555)
3162886	Puller Plate (K19, K38, K50)
3376049	Puller Plate (L10)
3822786	Puller Plate (6CT 8.3)
3162462	Puller Plate (S600)



**3376015
Liner Puller (Universal)**

Engine Series: All Except B Series and L10/M11

This puller is designed to pull all "wet" liners from 4 inches to 6 1/4 inches bore. This puller is for all Cummins plus Caterpillar engines. The puller can be adapted to Detroit Diesel engines by adding 3376029 Liner Puller Kit.

NOTE: Use 3823784 Puller Ring when pulling liners when a counterbore repair sleeve has been installed. The ring will hold the repair sleeve in place.

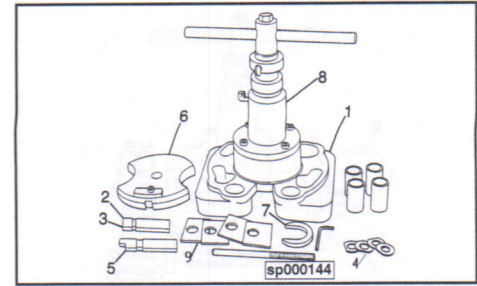
Ref. No.	Part No.	Description
1	3376016	Thrust Bearing Assembly
2	3376017	Special Lifting Bolt
3	3376018	Arm Extension Foot
4	3376019	Puller Bushing
5	3376020	Holding Pin
6	3376752	Short Arm Extension (9 1/2 in.)
7	*3376753	Long Arm Extension (14 1/2 in.)
8	3824406	Liner Hold Down Foot
9	3824407	Top Plate & Lifting Bar Ass'y
		* Optional

3376563
Counterbore Tool

Engine Series: All K Series

These tools are used to cut the cylinder liner block counterbore ledge as required if the ledge is worn, damaged or if liner protrusion is higher than specified.

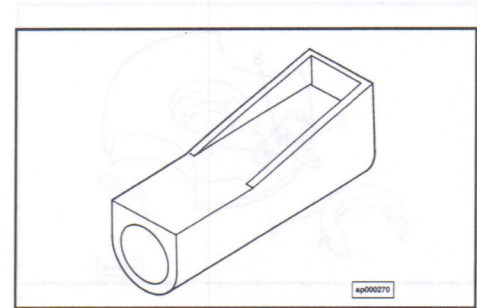
Ref. No.	Part No.	Description
	3376498	Counterbore Conversion Kit
1	3375827	Base Plate
3	3376567	Tool Bit (For Thick Flange Liner)
4	3375830	Flat Washer
7	3823608	Depth Set Collar
6	3824110	Counterbore Tapered Cutter Plate Ass'y
	3823376	O'Ring
	3823377	Elastic Locknut
2	3376565	Tool Bit (For 7.4925 C'bore)
5	3822216	Tool Bit ((K6 7.4000 C'bore) For Under-cut Radius)



3822503
Cylinder Liner Clamp Set

Engine Series: K19, K38, K50, NH, NT, V28, V903, C Series

These clamps are used with cylinder head bolts to hold the cylinder liner seated securely while checking liner protrusion.

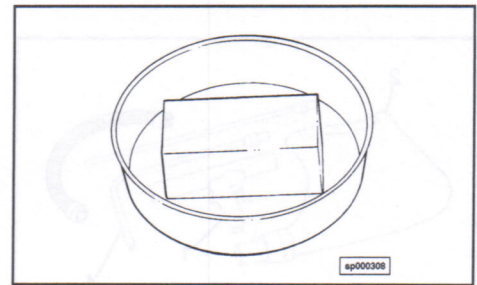


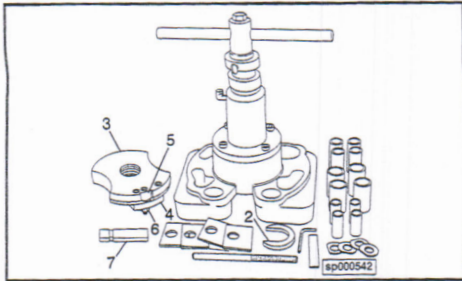
3823231
Liner Bore Chip Control Plug

Engine Series: See Below

This special plastic plug is designed to fit snugly in the cylinder block lower bore when cutting counter bores to catch chips from falling into the crankcase.

Part No.	Description
3823231	Liner Bore Chip Control Plug (NT, N14)
3823924	Liner Bore Chip Control Plug (K19, K38, K50)





3823326
Counterbore Tool

Engine Series: See Below

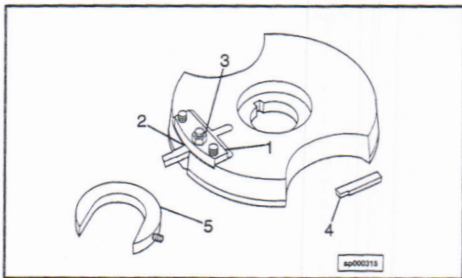
These tools are used to cut the cylinder block counterbore ledge as required if ledge is worn, damaged or if liner protrusion is higher than specified.

Ref. No.	Part No.	Description
	3823326	Counterbore Ledge Tool Kit
2	3823608	Depth Set Collar
3	3823373	Counterbore Tapered Cutter Plate (5 1/2 bore)
4	3823375	Cutter Holder Plate
5	3823376	Cutter Plate O'Ring
6	3823377	Elastic Locknut
7	ST 1255-10	Tool Belt

Optional cutter plate available.

ST 1255-5114 Cutter Plate (NH 5 1/8)

Note: (2) **ST 1255-10 Tool Bits** are included with each cutter plate.

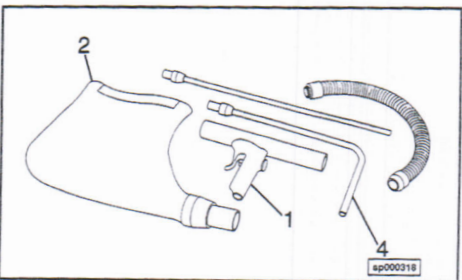


3823374
Tapered Cutter Plate Assembly Low Profile

Engine Series: N855

This cutter plate is designed for 3823327 Low Profile Counterbore Tool and Model PT 2205. Other miscellaneous parts are also listed.

Ref. No.	Part No.	Description
1	3823375	Cutter Holder Plate
2	3823376	Cutter Plate O'Ring
3	3823377	Elastic Locknut
4	ST 1255-10	Cutter Bit
5	3823608	Depth Set Collar



3823461
Super Chip Vacuum Kit

Engine Series: All

This kit is used to 'suck up' small machining chips during salvage operations. This is especially useful when salvaging counterbores and head bolt capscrew threads in the block.

Ref. No.	Part No.	Description
1	3823462	Chip Sucker Assembly
2	3823463	Vacuum Bag
4	3823465	Adapter (90 Degree)

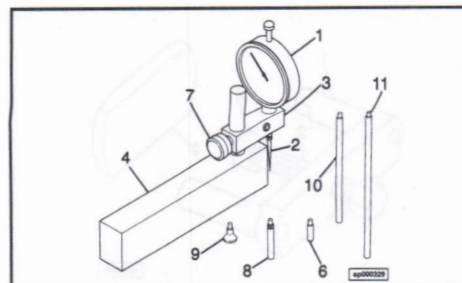
3823495
Depth Gauge Assembly

Engine Series: All

This tool is used to measure liner protrusion, injector protrusion, cylinder block counterbore depths and valve intrusion and/or protrusion.

Ref. No.	Part No.	Description
1	3823496	Dial Indicator
2	3376880	Indicator Point
3	3823498	Dial Indicator Holder
4	3823499	Gauge Plate Assembly
	3823504	Extension Arm
6	3823505	Indicator Point (1/2 in.)
7	3823506	Plastic Knob
8	3823507	Indicator Point (1 in.)
9	ST 547-5	Indicator Point (3/8 in.)
10*	3823500	Indicator Extension (3 in.)
11*	3823501	Indicator Extension (4 in.)

* These must be ordered separately if needed. (Not included in kit)



3823558
Counterbore Ledge Cutter Kit

Engine Series: L10 and C Series

This counterbore kit is designed specifically for the L10 and C Series engines to resurface the counterbore ledge area as required.

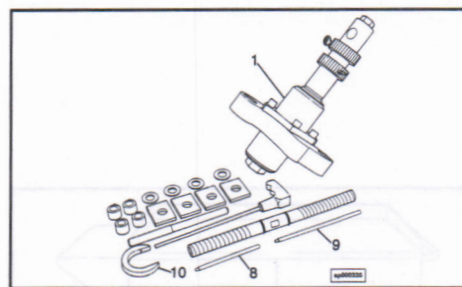
Ref. No.	Part No.	Description
1	3823559	Drive Unit and Base Plate Assembly
8	3823500	Indicator Extension (3 in.)
9	3823501	Indicator Extension (4 in.)
10	3823608	Depth Set Collar

**The below listed cutter plates must be ordered separately as desired. They are not included in above kit.

- 3823567 Cutter Plate Ass'y (C Series)
- 3823569 Cutter Plate Ass'y (L10, M11)

These parts are common to both cutter plates:

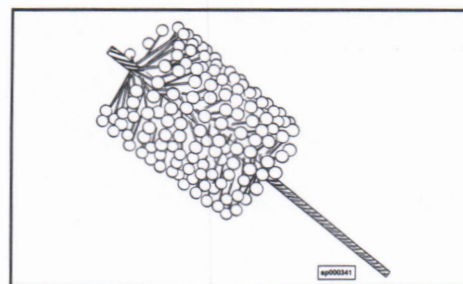
- 3823375 Cutter Holder Plate
- 3823376 O'Ring
- 3823377 Elastic Locknut
- 3823570 Cutter Bit (1)

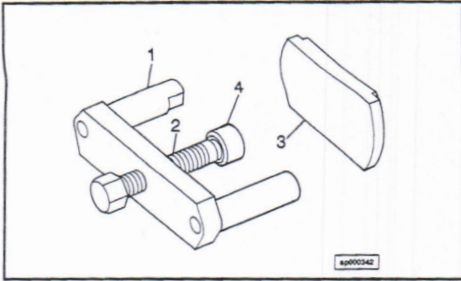


3823612
Flexible Hone

Engine Series: B Series

This design hone is used only to de-glaze the cylinder walls before installing new rings and/or pistons. This is the flexible brush type with abrasive balls attached to the end of the bristles.



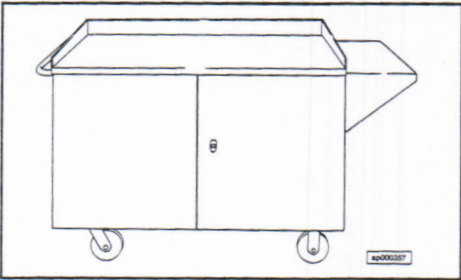


**3823615
Liner Installation Tool**

Engine Series: See Below

This tool is used to push the cylinder liner into the cylinder block. This is especially useful for lower press fit liners.

Ref. No.	Part No.	Description
	3823615	Liner Installation Tool (all N855)
1	3823616	Bridge
2	3823617	Forcing Screw
3	3823618	Forcing Plate
4	3823619	Shear Pin (6 pcs)
	3824272	Liner Installation Tool (L10 & M11)
1	3824273	Bridge
2	3824274	Forcing Screw
3	3823618	Forcing Plate
4	3823619	Shear Pin (6 pcs)
	3375422	Liner Installation Tool (all K)
1	3375423	Bridge
2	3376833	Forcing Screw
3	3163598	Forcing Plate
	3163329	Installation Kit for QSK 45/60
	3163330	Bridge
	3376833	Forcing Screw
	3163598	Forcing Plate



**3823837
Counterbore Work Station**

Engine Series: All

This is a mobile work station for in-shop storage and transport of tools especially those for counterboring, ring bearing bore salvage, cam bore salvage and many more uses in a truck bay or rebuild area.

Height: 34 inches with 3 inch backstop

Top: 26 inches x 48 inches with an additional vise shelf 12 in. x 25 in.

Interior: 2 shelves, 24 3/4 in. x 47 3/4 in.

Weight Capacity: 1500 lbs.

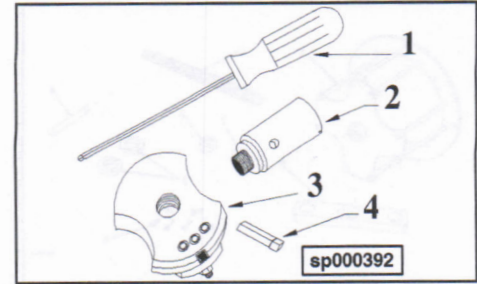
Door Lock is included.

3824789
Counterbore Salvage Kit

Engine Series: L10/M11

These tools are used to salvage the L10/M11 mid stop liner ledge. In some instances, the ledge cannot easily be "cleaned up" with the hand operated **3823558 Counterbore Ledge Cutter Kit**. This kit is used with the power tool mentioned below to bore (cut) the ledge up to .125 inch deeper if necessary to clean up the counterbore ledge. This kit provides an extension shaft and cutter plate and tool bit to be used with **3823352 Counterbore Cutter tool**.

NOTE: Many customers have this tool in their **3823325 Counterbore Tool Kit** for repairing lower press fit liner counterbores with repair sleeves. Also 3823495 Depth Gauge Block must be used to measure the depth of cut precisely.



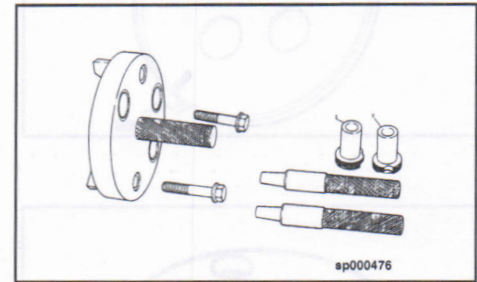
Ref. No.	Part No.	Description
1	3824791	Hex Key Driver
2	3824790	Shaft Extension Adapter
3	3823569	Cutter Plate
4	3823570	Cutter Bit

Crankshaft and Damper Tools

ST 404
Drill and Ream Fixture

Engine Series: V28

This special fixture is required when drilling and reaming dowel holes through the flywheel and into the crankshaft flange. Tapered locator pins are used to position the fixture before securing with capscrews. Drills and reamers are not provided.

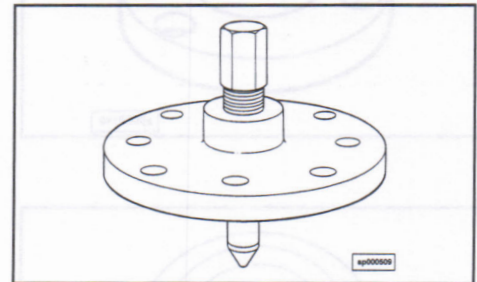


ST 842
Crankshaft Flange Adapter Puller

Engine Series: V555 and V903

This special puller is used to pull the crankshaft/flywheel flange adapter from the crankshaft.

Part No.	Description
3375152	Puller Screw

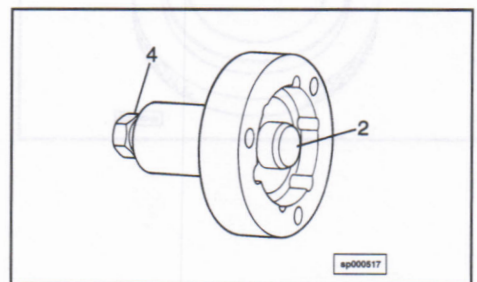


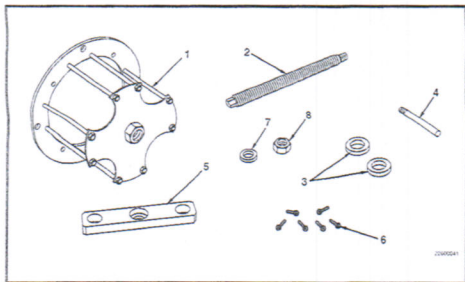
ST 887
Crankshaft Flange Puller

Engine Series: C & J, NH

This flange puller is required to pull the crankshaft flange from the front of the crankshaft on older tapered nose crankshafts.

Ref. No.	Part No.	Description
2	ST 887-2	Plunger
	ST 887-3	Set Screw
4	ST 887-4	Puller Screw



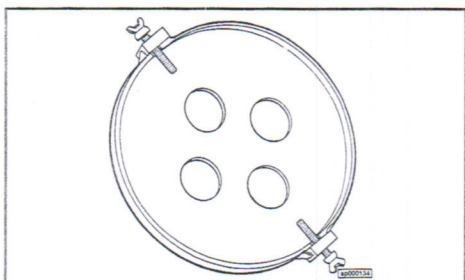


3163340
Crankshaft Seal R/I Kit

Engine Series: QSK45/60

This tool facilitates removal and installation of both front and rear crankshaft seals. The kit is used for in and out of chassis applications.

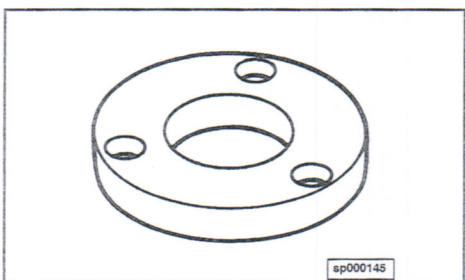
Ref. No.	Part No.	Description
1	3163350	Housing Fixture
2	3163361	Forcing Screw
3	3163352	Spacer
4	3163353	Guide Pin
5	3163354	Mounting Plate
6	3163356	Self Drilling Screw
7		Washer
8	3163357	Lock Nut



3376419
Damper Torque Fixture

Engine Series: K38, K50

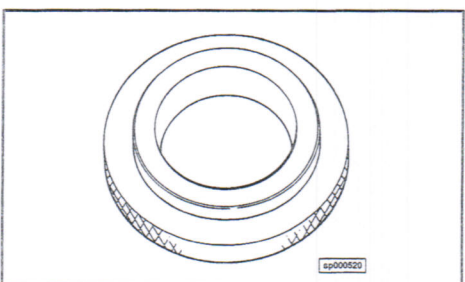
This special tool is positioned on the damper/pulley assembly and secured with 2 wing head thumb screws. The tool then provides added support for the socket and extension during torquing operation.



3376578
Front Crank Spacer Plate

Engine Series: L10

This plate is used to clamp the viscous damper and the adapter shaft together. This is necessary to perform radial and circular measurement readings.



Cylinder Bore Gauges

ST 900
Cylinder Liner Ring Gauge

Engine Series: All Except B and C Series

These ring gauges are sized especially for checking cylinder liner bores. Use these with **3375072** or **3376619 Dial Bore Gauges** or equivalent.

NOTE: ST 900 is also used for checking C & J main bearing bores.

Part No.	Description
ST 900	Cylinder Liner Ring Gauge (4.125 C & J)
ST 902	Cylinder Liner Ring Gauge (4.625 V378, V504, V555)
ST 905	Cylinder Liner Ring Gauge (5.126 NH, V12)
ST 907	Cylinder Liner Ring Gauge (5.501 NT, V903, V28)
ST 1291	Cylinder Liner Ring Gauge (6.251 K19, K38, K50)
3376574	Cylinder Liner Ring Gauge (125.000 mm L10)

3375072
Dial Bore Gauge Kit

Engine Series: All

2 dial bore gauge kits are available to measure diameters of bores from 3 inches up to 8 inches. Both dial faces are dimensioned in inches and millimeters.

NOTE: 3375073 Dial Bore Gauge Extension may be added to earlier **3375072 Kits** to allow capacity for the KV series engines.

Part No.	Description
3375072	Dial Bore Gauge Kit (Short Handle)
3376619	Dial Bore Gauge Kit (Long Handle)

3823292
Cylinder Block Counterbore "Step" Ring Gauge

Engine Series: NT, V28, K19

Each ring gauge is sized for an appropriate application. These ring gauges are different than most ring gauges. Each ring gauge contains two sizes, called "Step" Gauges.

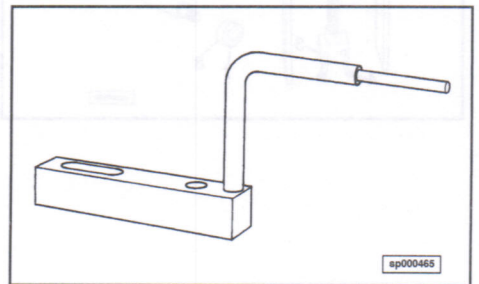
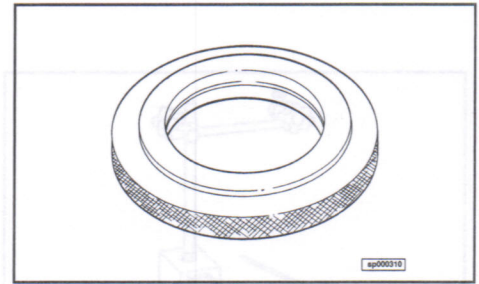
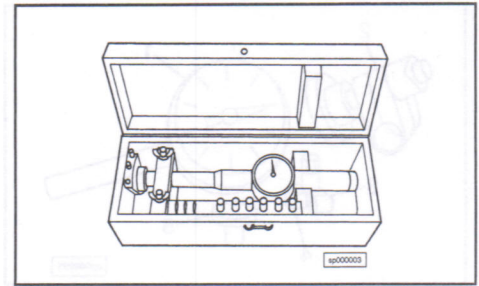
Part No.	Description
3823292	Counterbore Ring Gauge (N855 Lower Press Fit Std. and .040 O.S. (6.294 & 6.334))
3823293	Counterbore Ring Gauge (N855, V28 Std. and .020 O.S. (6.750 & 6.770))
3823976	Counterbore Ring Gauge Set
3823973	Counterbore Ring Gauge (K19 Std. and .020 O.S. (7.091 & 7.111))
3823974	Counterbore Ring Gauge (K19 .040 and .060 O.S. (7.131 & 7.151))
3823975	Counterbore Ring Gauge (K19 .065 and .085 O.S. (7.156 & 7.176))

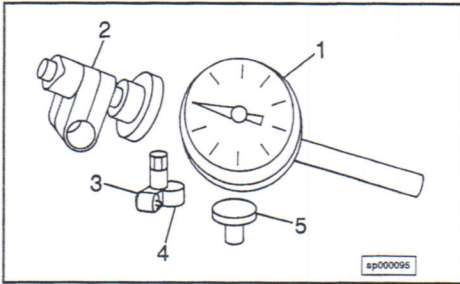
Dial Indicator Tools

ST 1325
Dial Gauge Attachment

Engine Series: All

This special rod/bracket assembly is needed to mount on the crankshaft flange when checking flywheel housing runout. This tool can be used for other applications to check end play or run out.





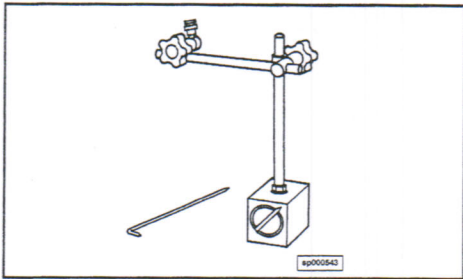
3376050
Dial Indicator Assembly

Engine Series: All

This dial indicator is used for checking bore and face of flywheel. The indicator is also useful in checking end play of crankshaft and camshaft.

It contains 3 extra contact points for checking flywheel housing runout and/or checking end play on various components.

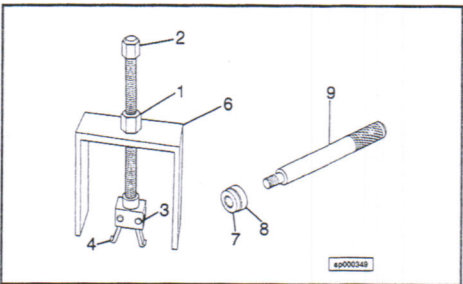
Ref. No.	Part No.	Description
1	3376051	Dial Indicator
2	3376052	Dial Indicator Sleeve
3	3376053	Contact Point
4	3376054	Contact Point
5	3376055	Contact Point



3377399
Magnetic Base Indicator Holder

Engine Series: All

This tool is used in conjunction with 3376051 Dial Indicator to check gear/shaft end play and also gear back lash. The magnetic base is convenient any time to check runout, end play or backlash.



3823774
Gear Housing Bearing Install and Remover

3823774
Gear Housing Bearing Install/Remove Tool

Engine Series: 91 L10

This kit is used to remove and/or install the front gear housing bearings. The Puller may be used for other bearings also.

Ref. No.	Part No.	Description
1	ST 709-2	Puller Nut
2	ST 709-1	Puller Screw
3	3823781	Puller Jaw Pin
4	3823780	Puller Jaw
6	3823778	Puller Bridge
7	3823777	Bearing Driver Mandrel
8	3823776	Bearing Driver Mandrel
9	3823775	Handle/Nut/Driver Assembly

Injector Tools

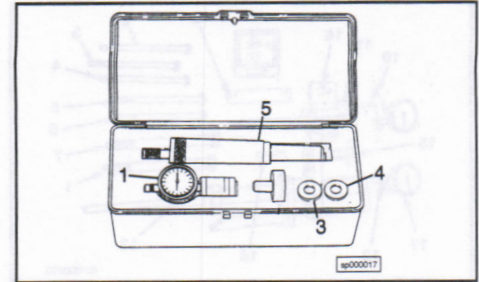
3375155

Injector Protrusion Comparator

Engine Series: K19, K38, K50, NH, NT, V28, L10

This tool is a comparator to enable checking injector protrusion without removing the cylinder head. This is an excellent time saver if an injector protrusion problem is suspected.

Ref. No.	Part No.	Description
1	3375156	Dial Indicator
3	3375158	Setting Standard Spacer
4	3376764	Spacer
5	3377451	Main Shaft (order on demand only)



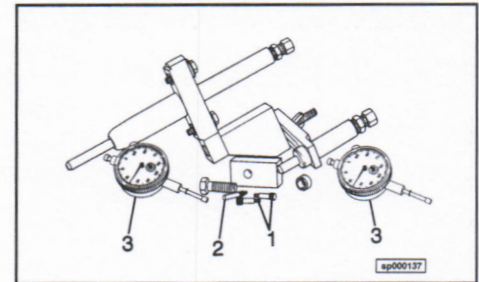
3376461

Injection Timing Fixture

Engine Series: K19, K38, K50, NT, V28, V903

This Timing Tool is a "Low Profile" design timing tool which allows use in applications where interference would occur with 3823451 timing tool. Note: The rocker lever housing must be removed to use this tool.

Ref. No.	Part No.	Description
1	3376604	Contact Point (9/16 in.)
2	3376605	Contact Point (1 in.)
3	3376408	Dial Indicator



3377229

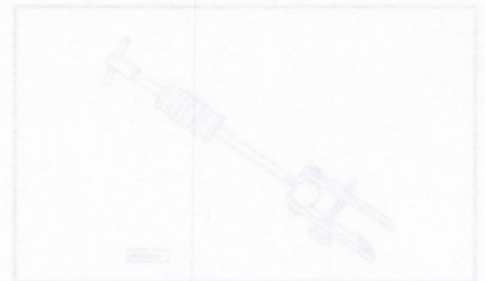
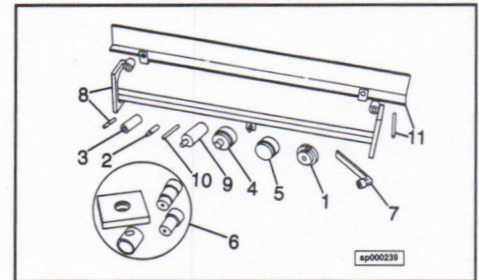
Mechanical Variable Timing Kit

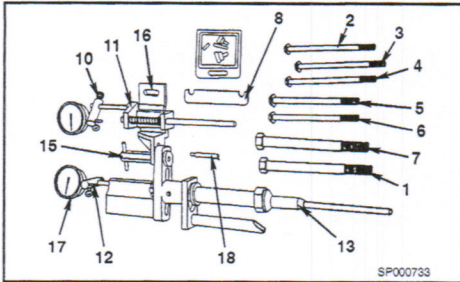
Engine Series: NT

This kit contains all the necessary tools to assemble the mechanical variable timing components for the NT Big Cam II & III.

Ref. No.	Part No.	Description
1	3376021	Adjustment Tool Retainer Actuator
2	3376022	Solenoid Valve Seat Install Tool
3	3376023	Solenoid Stem
4	3376024	Sleeve & Guide Install Tool
5	3376025	Sleeve & Guide Removal Tool
7	3376027	Cam Follower Shaft Position Tool
8	3376028	Timing Fixture
9	3376185	Male & Female Position Gauge
10	3376186	Expansion Plug Driver
11	3376209	Timing Bracket & Studs

Note: Ref. 6 above, 3376026 Cam Follower Lever Block and Mandrel Set must be ordered separately as desired.





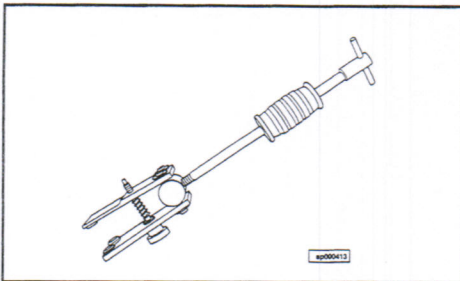
3824942 Injection Timing Tool

Engine Series: All Except B and C Series

The Injection Timing Tool is required to determine the relationship of the injector push tube travel to the piston travel so that fuel injection occurs at the proper time.

NOTE: To update your old 3823451 Injection Timing Tool to make it equivalent to 3824942, order 3824946 Adapter Kit and new 3824947 Distance Setting Gauge for L10/M11. 3824947 replaces 3376180. 3824946 Adapter Kit includes special adapters required for QSK19 series engines.

Ref. No.	Part No.	Description
1	3823510	Hold Down Screw (M8 x 1.25)
2	3823511	Hold Down Screw (5/16-18)
3	3823512	Hold Down Screw (3/8-16)
4	3823513	Hold Down Screw (3/8-24)
5	3823514	Hold Down Screw (1/2-13)
6	3823515	Hold Down Screw (1/2-20)
7	3823600	Hold Down Screw (M10 x 1.25)
8	3824947	Distance Setting Gauge (L10 Engines)
	3823268	Case
10	3823530	Thumb Screw
11	3823518	Push Tube Side Bracket Assembly
12	3823517	Dial Indicator Bracket Assembly
13	3823519	Piston Side Plunger/Bracket Assembly
	3376451	Knob (for Dets. 11 and 16)
15	3376452	Locking Nut
16	3376453	Bracket Assembly
17	3376408	Dial Indicator
18	3376409	Dial Indicator Extension (1 1/4 in.)
	3824946	Adapter Kit (for QSK19 series engines)
	3824943	Hold Down Screw (3/8-24x7) (QSK19)
	3163304	Locator Spacer (QSK19)
	3824945	Extension Plate
	3163303	Adapter Kit (for QSK45/60 series engines)
	3163304	Locator Spacer (QSK19/45/60)
	3163305	Indicator Stem Extension
	3163306	Alignment Gauge (QSK45/60)
	3163307	Hold-down Screw, L10 x 1.25mm x 165mm long



Main Bearing and Cap Tools

ST 1116 Main Bearing Cap Puller

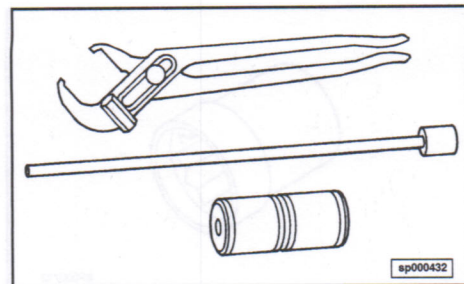
Engine Series: K19, K38, K50, V28

This puller is used to remove the main bearing caps from the cylinder block.

ST 1178
Main Bearing Cap Puller

Engine Series: C & J, NH, NT, V378, V555, V903, V504, L10, M11

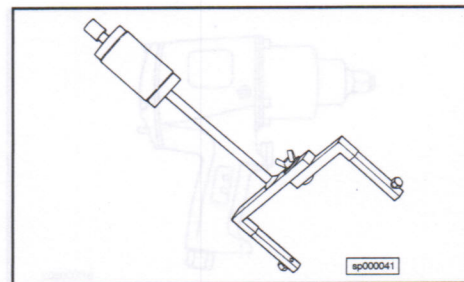
This is a universal main bearing cap puller used to remove the main bearing caps from the cylinder block.



3375356
Main Bearing Cap Puller

Engine Series: V28

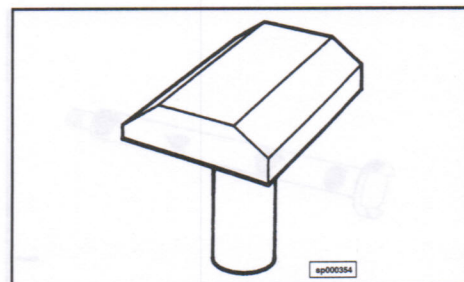
This main bearing cap puller is designed for Phase III series V12 engines. This design is used with main bearing caps with cross bolt hole to pull the main bearing cap. The puller legs are positioned through the main bearing bolt holes and the puller legs engage the cross bolt hole to permit a positive engagement to pull the cap with the slide hammer.



3823818
Main Bearing Roll-out Tool

Engine Series: N14, L10/M11, C

This special bronze tool is used to remove and install upper main bearing shells "in chassis". The bronze material assures no damage to the crankshaft when inserted in the oil drilling and 'rolling out' the upper main bearing.

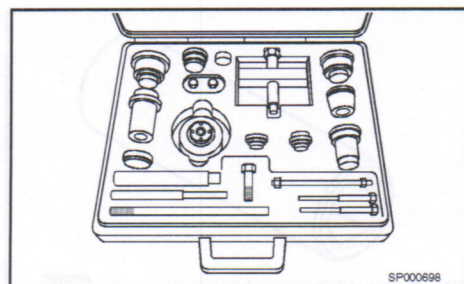


Mechanical Tools

3162417
Special Tool Kit

Engine Series: Onan

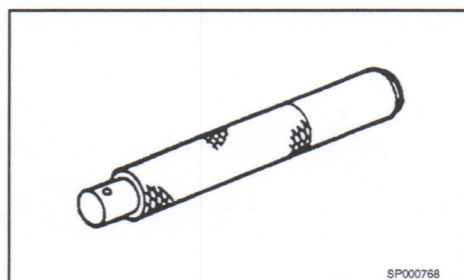
This kit contains all the required tools to properly install all bearings, seals & valve guides in 2 cylinder engines.

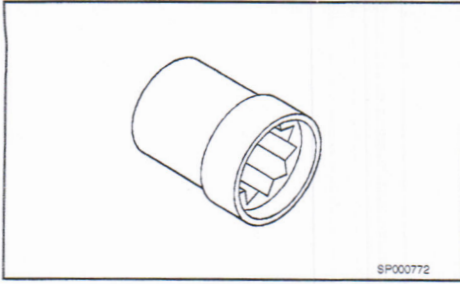


3162435
Drive Handle

Engine Series: Onan

A universal drive handle used for various tools. The ball detent snaps the drive handle onto the tool. Also included in 3162417.

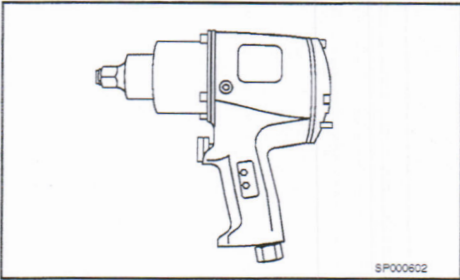




3162813
21mm Impact Socket

Engine Series: Signature/ISX

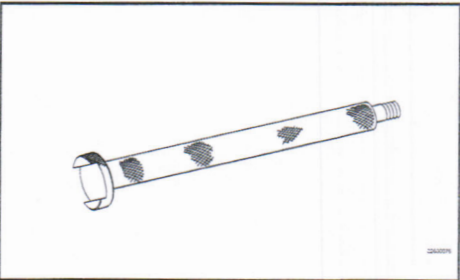
Used to remove & install the cap screws that attach the flywheel to the crankshaft on the Signature/ISX engine.



3163059
Air Impact Wrench

Engine Series: Signature/ISX

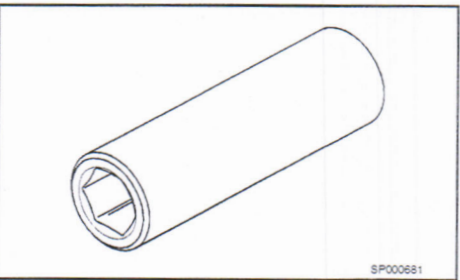
A tool which produces the amount of torque required to rotate Signature 600 cap screws. It has a square drive size of $\frac{3}{4}$ inch, an output of 75-900 ft-lbs and a continuous working torque of 500 ft.-lb when using a $\frac{3}{8}$ in. unrestricted hose & a 90 P.S.I. pressure source.



3163471
Connecting Rod Piston Remover

Engine Series: QSK45/60

Tool pushes the connecting rod-piston assembly out of the cylinder block. This tool operates through the handhole of the cylinder block. There is no need to remove the oil pan.



3163484
24-MM Impact Socket

Engine Series: Signature/ISX

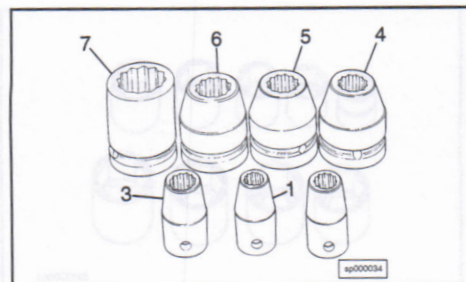
To tighten both the cylinder head bolts and the main bearing cap bolts. Socket has sufficient length for the Signature 600 and is laser marked at 90-degree increments.

3375292
Socket Set - Heavy Duty

Engine Series: K19, K38, K50

These 12 point sockets are heavy duty impact sockets designed for use with impact wrenches.

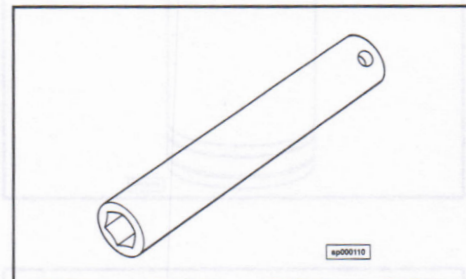
Ref. No.	Part No.	Description
1	3375293	Sockets, Heavy Duty ($\frac{3}{8}$ x $\frac{1}{2}$ in. drive)
3	3375295	Sockets, Heavy Duty ($\frac{1}{2}$ x $\frac{1}{2}$ in. drive)
4	3375296	Sockets, Heavy Duty ($\frac{5}{8}$ x $\frac{3}{4}$ in. drive)
5	3375039	Sockets, Heavy Duty ($\frac{11}{16}$ x $\frac{3}{4}$ in. drive)
6	3375298	Sockets, Heavy Duty ($\frac{3}{4}$ x $\frac{3}{4}$ in. drive)
7	3375299	Sockets, Heavy Duty (1 x $\frac{3}{4}$ in. drive)



3376194
Impact Drive Socket

Engine Series: NT

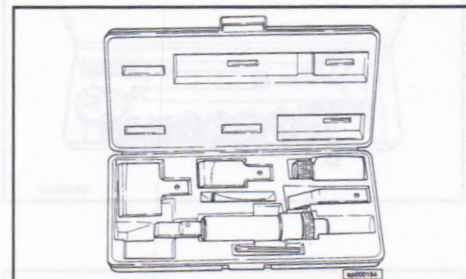
This $\frac{5}{8}$ heavy duty socket is used during the installation of the Jacobs Brake.



3376742
Air Powered Scraper

Engine Series: All

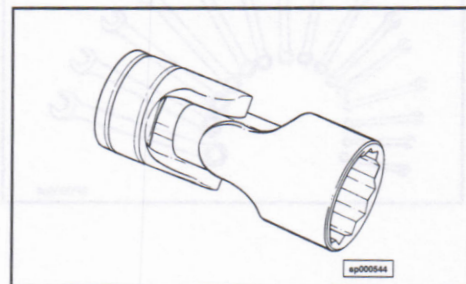
This kit contains 3 different width blades ($\frac{3}{4}$, 1 $\frac{1}{2}$ and 3 in) that may be needed to remove gaskets from various components of the engine.

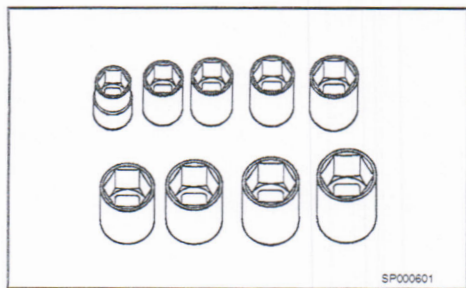


3399658
Flex Socket

Engine Series: K38, K50

This $\frac{9}{16}$ flex socket is necessary to remove the turbocharger oil drain flange when the turbocharger is mounted to the engine. This is the only way to remove the capscrews without removing the turbocharger.

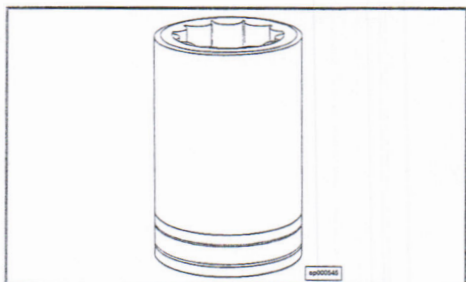




3399774
Socket Set - Metric ($\frac{3}{8}$ Drive)

Engine Series: All Metric Engines

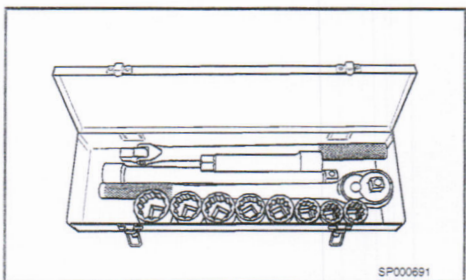
This socket set contains (8) 6 point metric sockets. The socket sizes are 10mm, 11mm, 12mm, 13mm, 14mm, 15mm, 17mm and 19mm. A rail clip is also provided.



3399795
Socket Set, Metric

Engine Series: L10, B and C Series

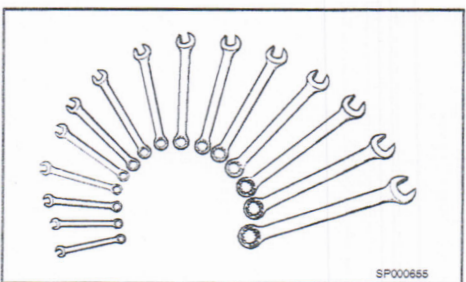
This is a $\frac{1}{2}$ in. drive, 12 point, metric socket set containing 23 sockets ranging from 10 thru 32 mm used for general mechanical work.



3399799
Socket Set - Heavy Duty

Engine Series: C & J, K19, K38, K50, NH, NT, V28, V903

This heavy duty $\frac{3}{4}$ drive socket and ratchet set contains those larger than normal sockets, 1 $\frac{1}{8}$ to 2 inches (10 sockets). A 6 inch extension and a 20 inch long handle is provided for the ratchet head.



3399851
Combination Wrench Set (Metric)

Engine Series: L10, B and C Series

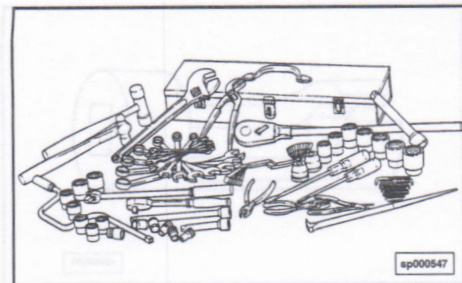
This wrench kit contains 12 combination wrenches ranging from 8 mm to 19 mm. This kit contains the basic wrench sizes to begin working on 'Metric' fasteners.

3399878
Mechanics Hand Tool Set

Engine Series: All Except B, C and L10

This tool set contains the minimum tools required to assemble and disassemble all Cummins engines except the B, C, and L10 series. The set is sold as a complete set. Only the 12 point sockets listed in the table are available separately.

Part No.	Description
3375039	Sockets (1 ¹ / ₁₆ x 3/4 drive)
3375298	Sockets (3/4 x 3/4 drive)
3399099	Sockets (1 ⁵ / ₁₆ x 3/4 drive)
3399100	Sockets (1 in. x 3/4 drive)



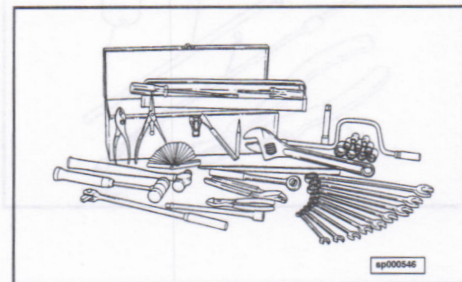
sp000547

3399880
Mechanics Tool Set (Metric)

Engine Series: B, C and L10

This tool set contains the minimum tools required to assemble all engines with metric fasteners. The set is sold as a complete set. Only the tools listed in table are available separately.

Part No.	Description
3399334	Half Moon Wrench (9/16 and 5/8)
3376570	Half Moon Wrench (14mm and 17 mm)
3376571	S Shape Wrench (14 mm and 15 mm)
3398720	Hex Socket (8 mm x 1/2 Drive)

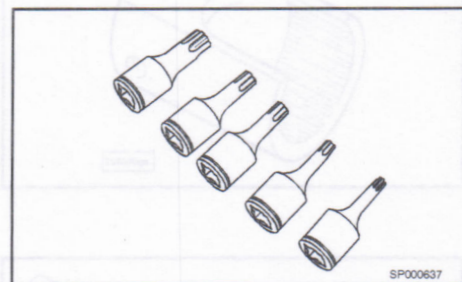


sp000546

3400034
Torx Plus Driver Set

Engine Series: All

Meets Federal regulations to make fuel systems more tamper resistant by unauthorized persons. Includes five driver sizes: 10, 15, 25, 27 and 40 IPR.

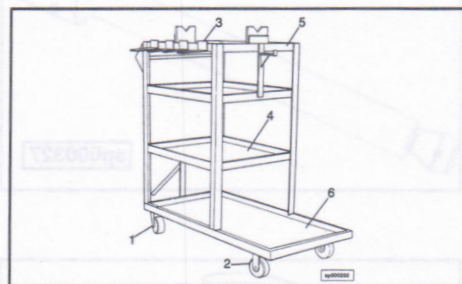


SP000637

3822390
Engine Parts Rack

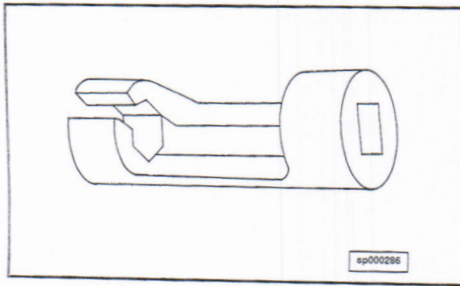
Engine Series: All Except K38, K50, V28

This heavy duty engine parts rack is an excellent place to place engine parts during engine disassembly, whether it is in a truck bay or in the rebuild area. The rack has sufficient storage for a complete engine less the cylinder block. Special hooks are provided for storing connecting rod assemblies plus the camshaft and other major parts. The four heavy duty castors are convenient to roll the rack to another location as required.



3822390

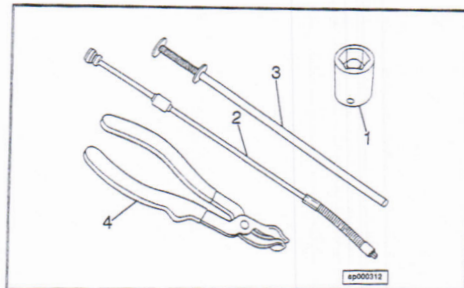
Ref. No.	Part No.	Description
These parts are available on special order only.		
1	3822391	Swivel Casters (2)
2	3822392	Rigid Casters (2)
3	3822393	Piston Hanger Brkt.
4	3822394	Middle Tray
5	3822395	Top Tray
6	3822396	Bottom Tray



3822747
Engine Speed Sensor Socket

Engine Series: CELECT, N14, L10, M11

This special socket is used to install or remove O'Ring sealed magnetic pick-up speed sensors on CELECT engines.

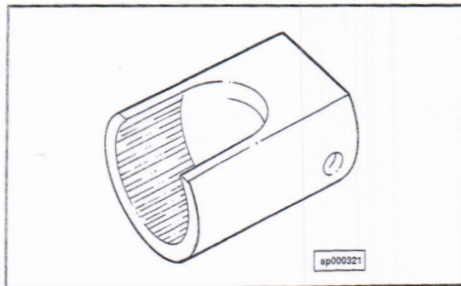


3823299
Piston Cooling Nozzle Tool

Engine Series: V903 600 h.p.

These are miscellaneous tools required to install or remove piston cooling nozzles. Order each piece as required.

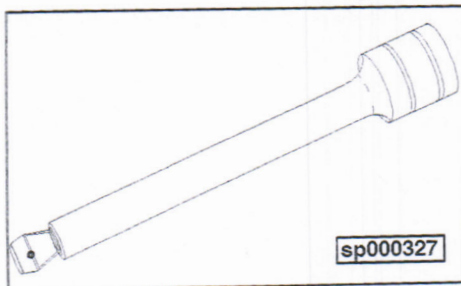
Ref. No.	Part No.	Description
1	3823299	Piston Cooling Nozzle Socket
2	3823298	Flexible Adjusting Wrench
3	3823297	Flexible Pick-Up (4 Claw)
4	3397568	Injector Oil Supply Pliers



3823488
Heat Plug Socket

Engine Series: V903 600 horsepower

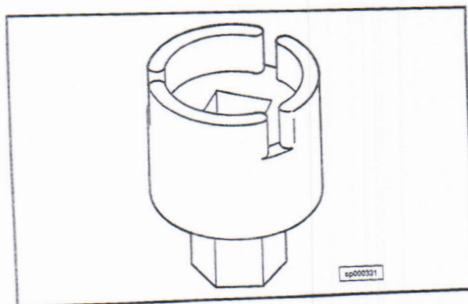
This is a special $15/16$ in. cutout socket used to remove and install the heat plug socket in conjunction with **3823489 Extension**.



3823489
Wobble Drive Extension

Engine Series: V903 600 horsepower

This wobble drive extension is used with **3823488 Socket** to remove the heat plug socket.



3823528
Air Compressor Seat Installation Socket

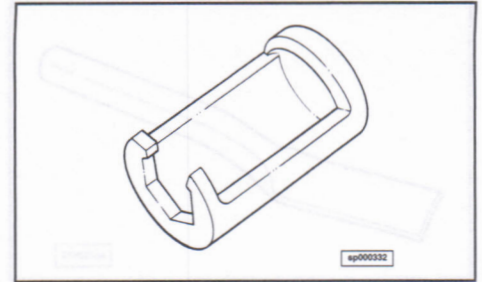
Engine Series: B Series

This is a special designed socket to remove and/or install the threaded valve seat and intake valve cage in the Holset SS191 single cylinder 8.5 cfm air compressor.

3823531
Fan Temperature Switch Socket

Engine Series: L10 Bus Engines

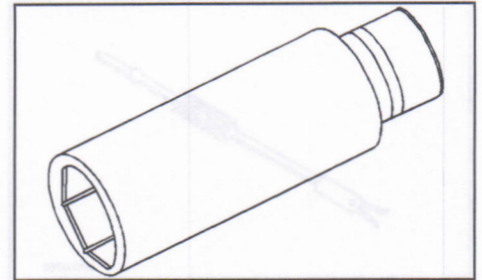
This special 1 inch socket is used to install and remove the 1 inch hex Kysar-Cadillac fan temperature switch.



3823843
Temperature Sensor Socket

Engine Series: N14, L10, M11

This socket is a 6 point 1 1/4 inch deep well socket to install or remove oil pressure, boost pressure, and ambient air temperature sensors on CELECT N14, L10 and M11 series engines.



3823942
Small Bushing Driver Set

Engine Series: All

This bushing kit is used to install and remove small bushings ranging from 7/16 I.D. to 1 3/8 I.D. All parts are contained in a special plastic container.

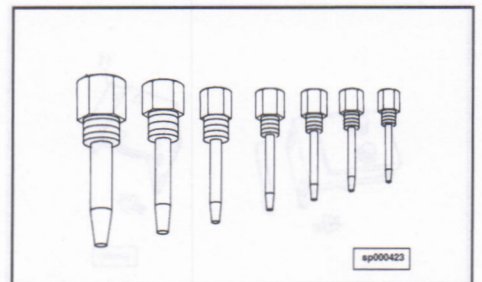


Miscellaneous

ST 1160
Hose Assembly Tools

Engine Series: All

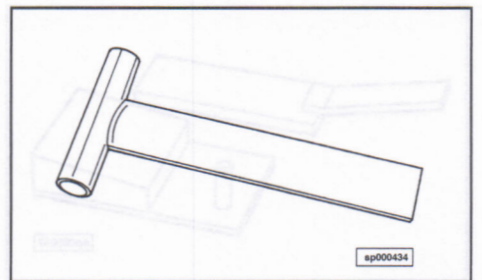
These special tapered mandrels are required to assemble the three piece fittings on Stratoflex hose assemblies.

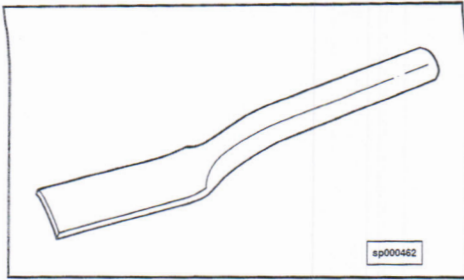


ST 1182
Valve Spring Nozzle Locator

Engine Series: NT

This tool is required to position the cylinder head oil spray nozzles so that the jet spray of oil is properly directed on 80 degree tilt NT engines.



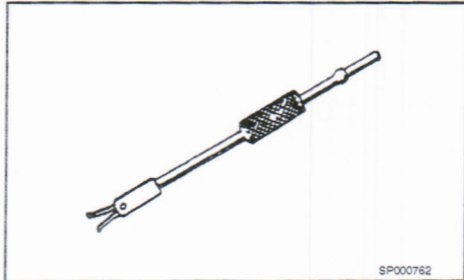


**ST 1319
Water Tube Driver**

Engine Series: K19, K38, K50

This tool is used to install or remove the water transfer tubes from the rocker lever housings.

sp000462

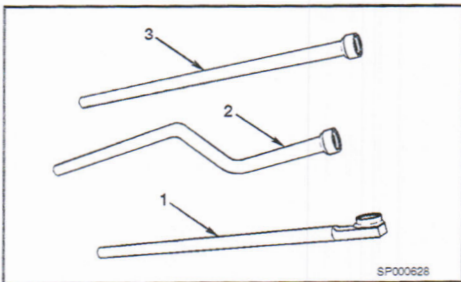


**3162423
Blind Hole Puller Set**

Engine Series: Onan

This set provides a complete selection of expanding collets ranging in sizes from 5/16 to 1 3/4 inches.

SP000762



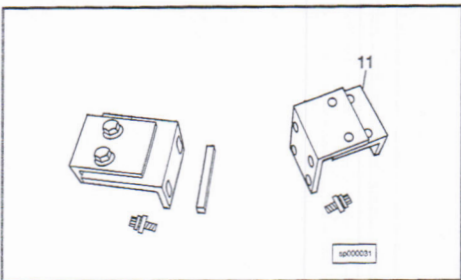
**3163500
Lockplate Installer Kit**

Engine Series: KV

This kit properly and easily installs the exhaust manifold lockplate.

SP000628

Ref. No.	Part No.	Description
1	3162841	Lockplate Installer
2	3162842	Lockplate Installer
3	3162843	Lockplate Installer



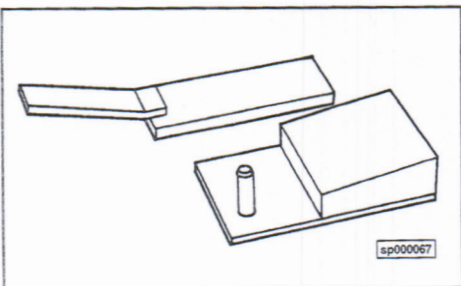
**3375272
Engine Support Bracket Kit**

Engine Series: K19

This special bracket kit is designed to fit many different truck frames when the oil pan is removed. These brackets attach to the side of the cylinder block and support the front of the engine while the oil pan adapter is removed while the engine is in the chassis.

sp000031

Ref. No.	Part No.	Description
11	3375252	Fuel Pump Side Bracket



**3375709
Breather Installation Fixture**

Engine Series: NH, NT

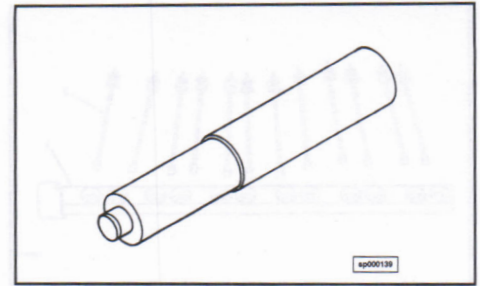
This special fixture is used to provide the support needed when pressing the breather tube in steel stamped valve covers.

sp000067

3376486
Regulator Valve Seat Driver

Engine Series: L10

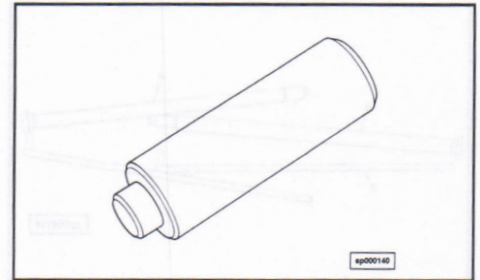
This driver is used to install the pressure regulator valve seal p/n 3026758 in the bottom of the valve bore.



3376489
Cup Plug Driver

Engine Series: L10

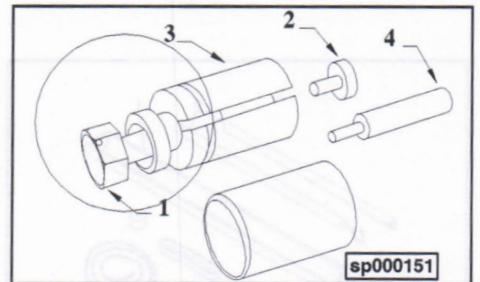
This driver is used to install the pressure regulator retainer plug p/n 3025308 to the correct depth in the block.



3376663
Spline Coupling Puller

Engine Series: All Engine Models

This tool is designed to pull the spline drive coupling on fuel pumps and air compressors.

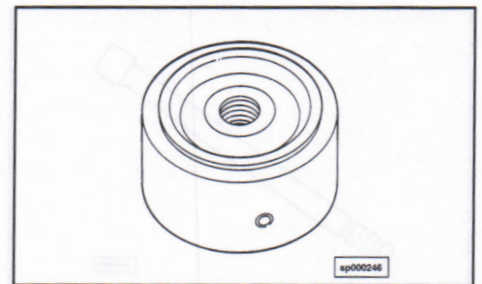


Ref. No.	Part No.	Description
1	ST 1249-5	Puller Bolt
2	ST 1249-4	Bolt Center
3	3823307	Puller Jaw
4	3823923	Spacer Pin (Holset SS 296 and SS 338 Air Compressors C Series Engines)

3377292
Water Filter Cap

Engine Series: NT

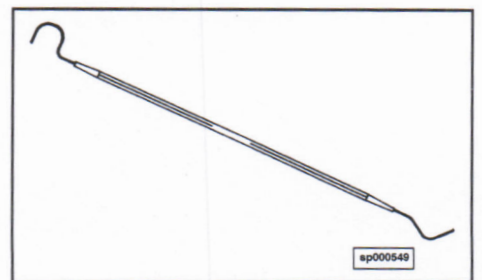
This special spin on cap is used in place of spin on water filter for certain NT Big Cam IV truck fleet requirements. Use **3377348 replacement gasket** as required.

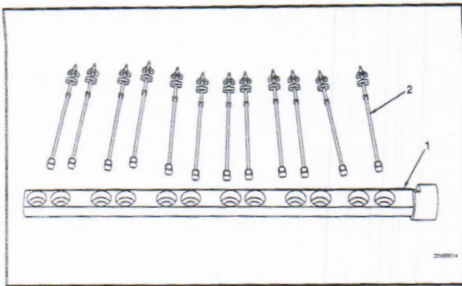


3398017
O'Ring Pick

Engine Series: All

The O'Ring pick is used to remove O'Rings from injectors or remove O'Rings from a deep pocket.



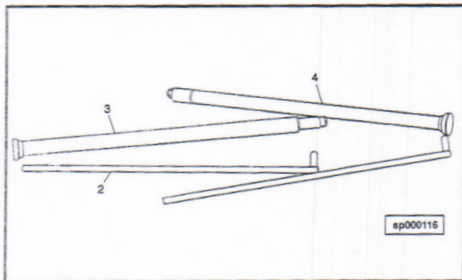


3163468
Tappet Installation/Removal Tool

Engine Series: ISL

Aids in the removal and installation of roller tappets in the ISL engine. Consists of a tappet holder and 12 tappet retrievers. The tappet retrievers may also be used to facilitate a cam change.

Ref. No.	Part No.	Description
1	3163569	Tappet Holder
2	3163540	Tappet Extractor/Installer

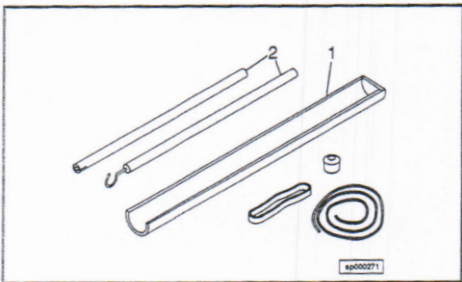


3376271
Injector and Valve Tappet Kit

Engine Series: V28

This group of special tools are required to install and remove the floating tappet design valve and injector tappets. Also included in the kit are special feeler gauges required to check the clearance between the retainer on the injector tappet body and the adjacent valve tappet body.

Ref. No.	Part No.	Description
2	3376268	Feeler Gauge (.020 in.)
3	3376678	Valve Tappet Tool
4	3376679	Injector Tappet Tool

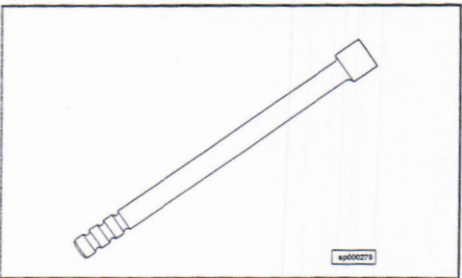


3822513
Tappet Replacement Kit

Engine Series: B and C Series

This kit is designed to remove or replace the valve tappets.

Ref. No.	Part No.	Description
1	3823566	Tappet Trough
2	3823591	Dowels and Misc. Kit



3822694
Timing Pin Extender

Engine Series: B Series

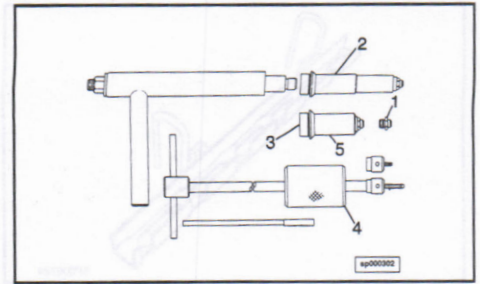
This special pin is required on Leyland 300 series trucks that are equipped with an air compressor.

3823154
AV Seal Removal/Installation Kit

Engine Series: K38, K50

This kit is designed specifically to install and/or remove the AV seal from oil drillings in the cylinder block. Tools are provided to install the special seals to proper depth and sealing pressure to insure that the seals are installed properly.

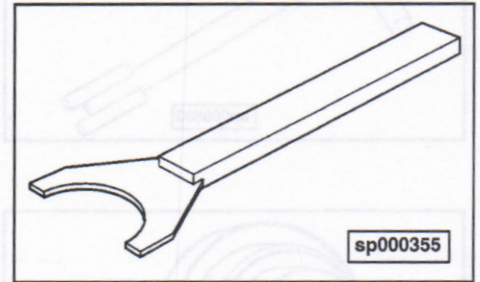
Ref. No.	Part No.	Description
1	3823156	Nose Tip (10 mm)
2	3823157	Nose Tip (8 mm)
3	3823158	Nose Tip (6 mm)
4	3823159	AV Seal Removal Tool
4	3823160	Nut (Large)
5	3823161	Nut (Small)



3823819
Jumper Tube Removal Tool

Engine Series: N14

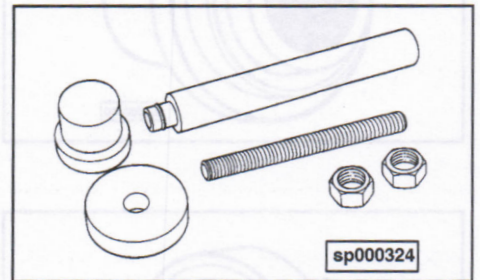
This special tool is designed specifically for 91N14 Series. The tool makes it much easier to remove the water manifold jumper tubes.



3824117
Needle Bearing Driver

Engine Series: L10

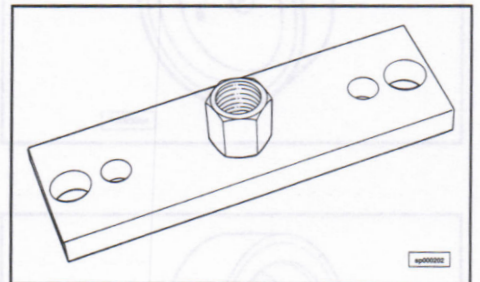
This tool is required to install and remove the needle bearing in L10 front cover. **3376795 Driver Handle** is also required.

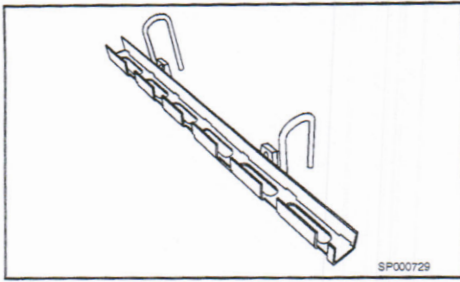


3824270
Engine Barring Tool

Engine Series: L10

This tool is designed to attach to the flywheel end of the crankshaft to rotate the crankshaft by hand. The tool can also be attached to the accessory drive pulley. A slide hammer puller is attached to the puller for pulley removal.

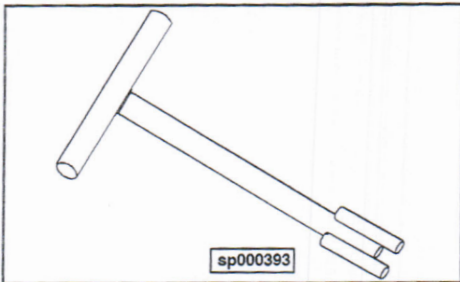




3824519
Cam Follower Installation/Removal Fixture

Engine Series: L10, M11

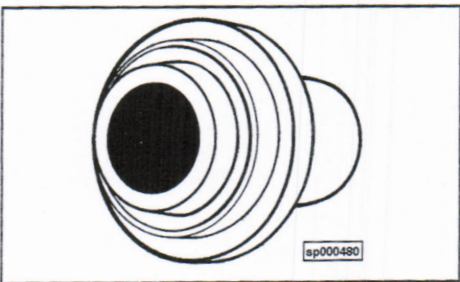
This fixture is used to hold the cam followers/shaft assembly together during installation and removal, thus reducing the time required to perform this function. The cradle design slips under the cam follower levers and provides positive support while lifting the assemblies on or off the cylinder block.



3824832
Oil Capacitor Installer

Engine Series: M11

This tool is used to install the oil capacitor in the cylinder block cam pockets for the M11 series engines. Newer engines have this oil capacitor installed in the cam pockets cavities to retard drain back of oil. This tool is to be used to replace the capacitors that have failed or for some reason been removed.

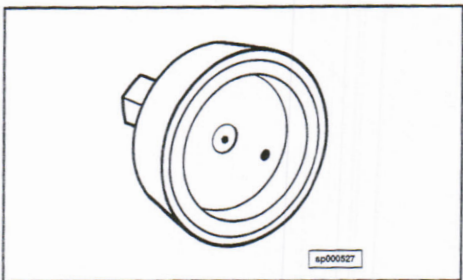


Oil Seal Installers and Pullers

ST 480
Oil Seal Installer

Engine Series: C & J

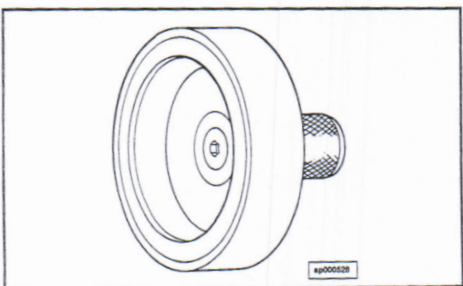
This mandrel is used to press the crankshaft oil seal into the gear case cover. The seal is positioned on the driver and pressed using an arbor press.



ST 971
Oil Seal Installer

Engine Series: V378 and V504

This tool is used to drive the crankshaft oil seal into the front cover when mounted to the cylinder block.



ST 972
Oil Seal Installer

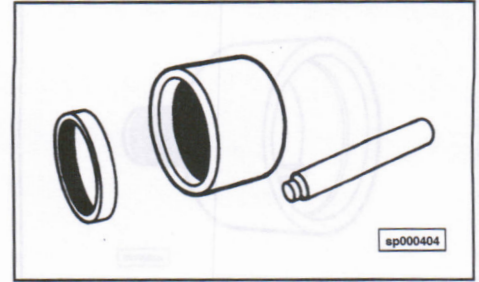
Engine Series: V378 and V504

This tool is used to drive the crankshaft oil seal into the rear gear cover when mounted to the cylinder block.

ST 1071
Oil Seal Installer

Engine Series: V903

This tool is used to drive the front crankshaft oil seal into the front cover when mounted to the cylinder block. **3375020 Spacer Ring** is available as required. The tool applies to V6 200/V8 265 and V903.

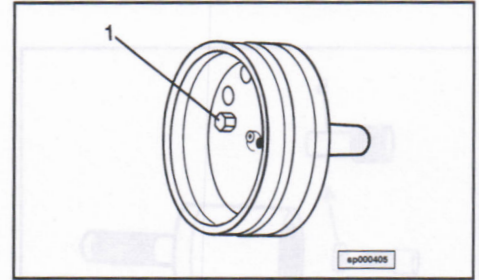


ST 1093
Oil Seal Installer

Engine Series: K38, K50, V28

This tool is used to drive the rear crankshaft oil seal into the rear rear cover plate. The tool is also used to align the rear cover plate.

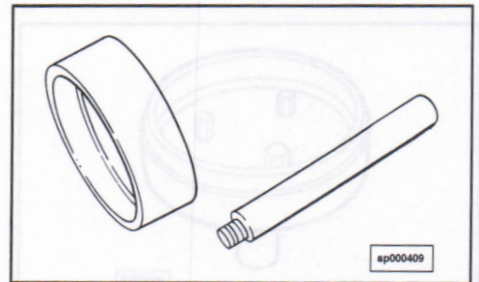
Ref. No.	Part No.	Description
1	ST 1093-1	Stop Pin (.57 in., Ph. III)
1	ST 1093-7	Stop Pin (1.11 in., Ph. I & II)
1	ST 1093-8	Stop Pin (.97 in., DBL Lip Seal)
1	3375069	Stop Pin (1.75 in., K38)



ST 1107
Wear Sleeve Installer

Engine Series: V903

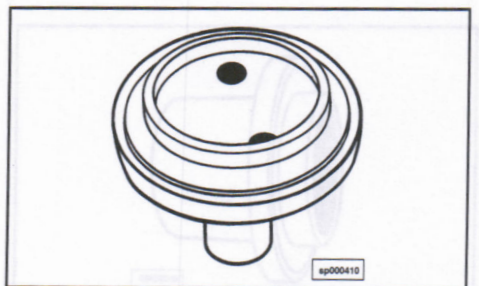
This tool is used to drive the rear oil seal wear sleeve onto the flywheel/crankshaft adapter.

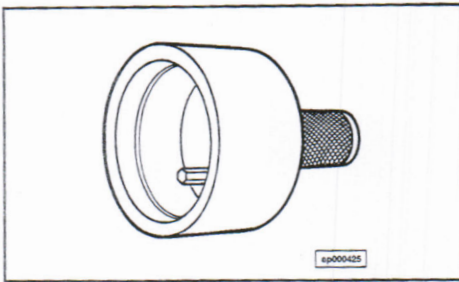


ST 1108
Oil Seal Installer

Engine Series: V903

This tool is used to drive the rear crankshaft oil seal into the rear gear cover.



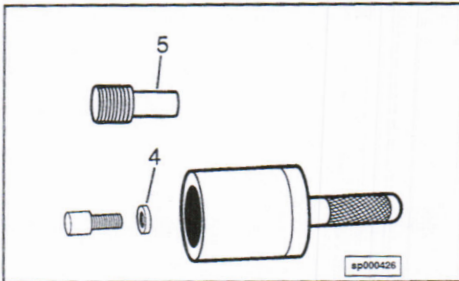


**ST 1163
Oil Seal Installer**

Engine Series: NTA-370, NTA-420

This tool is used on NTA 370/420 series engines to locate and install the crankshaft oil seal into the gear case cover. Spacer pins are provided for various front cover/seal positions. The tool also is used to install a crankshaft oil seal wear sleeve.

Part No.	Description
ST 1163-4	Stop Pin (.380 in., Pad Mtd. Cover)
ST 1163-5	Stop Pin (.245 in., Wear Sleeve, Trunion Mtd. Cover)
ST 1163-6	Stop Pin (1.625 in., Trunion Mtd. Cover)

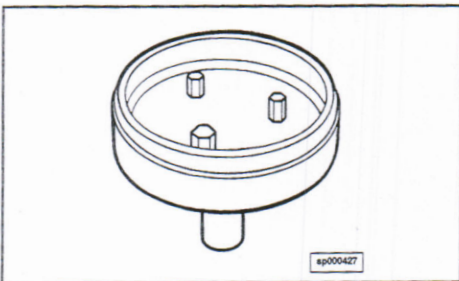


**ST 1164
Oil Seal Installer**

Engine Series: V28

This tool is used to locate and install the crankshaft oil seal into the front gear case cover. A wear sleeve can also be installed with this tool. A positive stop is provided to position the wear sleeve.

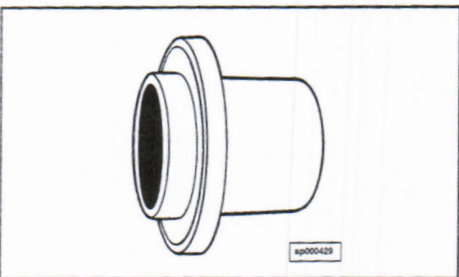
Ref. No.	Part No.	Description
4	ST 1164-4	Spacer
5	ST 1164-5	Pilot



**ST 1165
Oil Seal Installer**

Engine Series: C & J

This tool is used to locate and install the rear crankshaft oil seal into the flywheel housing. The tool is also used to install a wear sleeve. **ST 1165-4 Spacer Pin** is available as required.



**ST 1172
Oil Seal Installer**

Engine Series: NH

This tool is used to drive the front crankshaft oil seal into the front gear cover for older NH 250 series engines.



**ST 1185
Oil Seal Installer**

Engine Series: C & J, NH, V378, V504

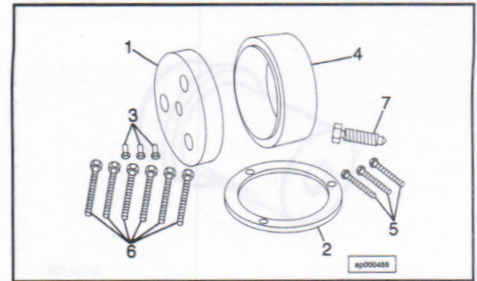
This tool is used to drive the wear sleeve onto the front crankshaft flange (taper nose crankshafts) and also can be used to install oil seal.

ST 1259
Oil Seal Puller/Installer

Engine Series: NH

This oil seal installation/removal tool will pull the front crankshaft oil seal and/or will install it. The 3 puller screws and the center puller screw will allow removal of the seal in close quarters "in frame".

NOTE: It is suggested that **3375496 Drill Pilot** be used with this tool to predrill the holes for puller screws.

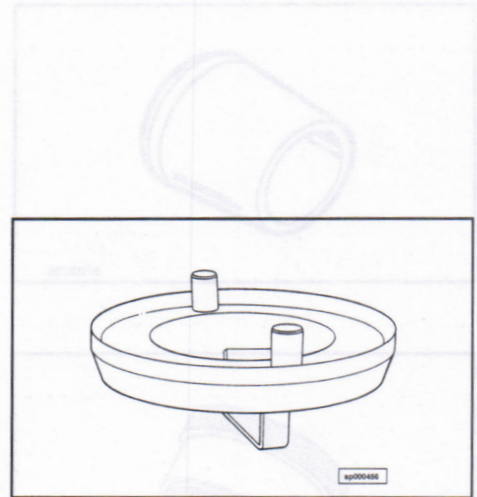


Ref. No.	Part No.	Description
1	ST 1259-1	Top Plate
2	ST 1259-2	Spacer Ring (3/16)
3	ST 1259-3	Allen Head Screw (1/4-20 x 1/2)
4	ST 1259-4	Spacer Ring (1 7/16)
5	ST 1259-5	Allen Head Screw (1/4-20 x 1 3/4)
6	ST 1259-6	Seal Puller Screw
7	ST 1259-7	Main Puller Screw

ST 1263
Oil Seal Expander

Engine Series: NT and V903

These expanders are used to guide Teflon oil seals onto the crankshaft without over expanding the seal plus avoiding damage to the sealing lips.



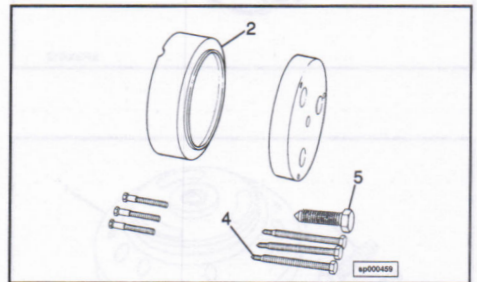
Part No.	Description
ST 1263	Oil Seal Expander (Rear Cover Seal, NT)
3375151	Oil Seal Expander (Front Cover Seal, NT)
3375112	Oil Seal Expander (Front Cover, V903)

ST 1304
Oil Seal Installer/Puller

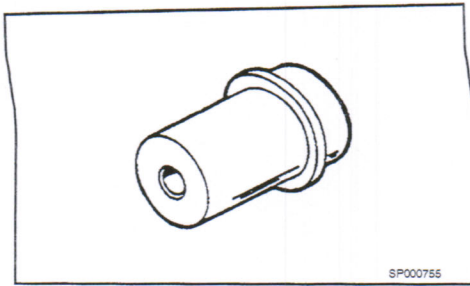
Engine Series: K38, K50, V555, V28

These tools are used to install and/or remove the front crankshaft oil seals by use of the special puller screws and the center puller screw. These tools are similar to ST 1259.

NOTE: ST 1302 is an Installation Tool only. Puller Screws are not included in ST 1302.



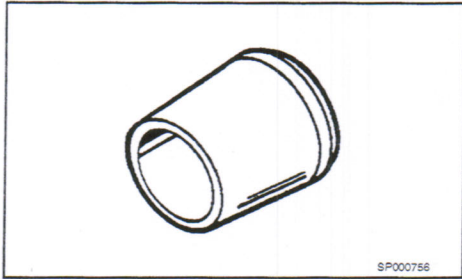
Ref. No.	Part No.	Description
	ST 1304	Complete Tool (V28)
4	3163764	Special Puller Screw
5	3163765	Center Puller Screw
Note: Use 3375497 Drill Pilot . (Order separately)		
	3163692	Oil Seal Installer Puller (K38, K50)
4	3163764	Special Puller Screw
5	3163765	Center Puller Screw
	3163697	Seal R&I Tool
Note: Use 3375497 Drill Pilot . (Order separately)		
	ST 1302	Oil Seal Installer Puller (V555)
2	ST 1302-2	Spacer Ring



3162408
Front Crankshaft Oil Seal Installer

Engine Series: Onan, B, N, T & P

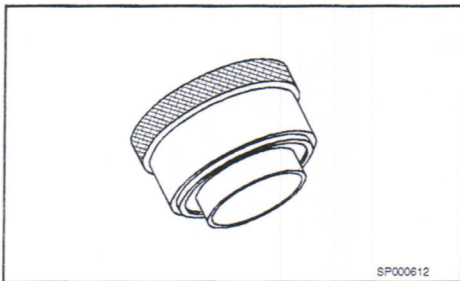
Use this tool with 3162435 Drive handle to install the front crankshaft oil seal on all B, N, T & P series. Also included in 3162417.



3162409
Seal Expander

Engine Series: Onan

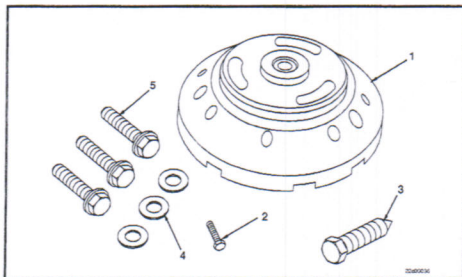
This tool is used to expand and load the rear crankshaft oil seal onto the 3162410 Seal Installer. Also included in 3162417.



3162410
Rear Crankshaft Oil Seal Installer

Engine Series: Onan

This tool requires 3162409 Expander to first load the seal onto this tool and then use 3162435 Drive Handle and 3162405 Disk to drive the seal into the bore. Also included in 3162417.



3162992
Front Crankshaft Seal R&I Kit

Engine Series: Signature/ISX

This kit allows the seal to be properly positioned on the crank nose to the front cover. The tool pushes the seal until the seal mounting band is flush with the front cover. The tool also provides a method to remove the seal by connecting three 1/4-20 attached nuts to the tool's face and using the forcing screw (3163056) to pull off.

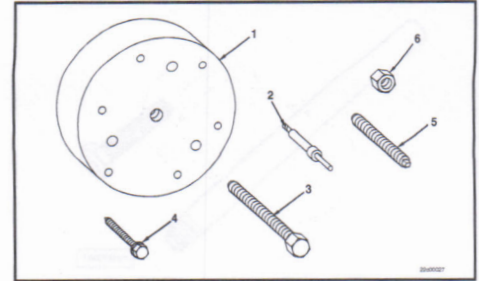
Ref. No.	Part No.	Description
1	3162993	Front Crankshaft Seal Tool
2		Cap screw, 1/4 x 20 x 1 1/4 (Grade 8)
3	3167056	Forcing Screw
4		Washer, M15x24
5		Cap screw, M14x1.5x60 (Grade 10.9)

3162994
Rear Crankshaft Seal R&I Kit

Engine Series: Signature/ISX

This tool uses the flywheel cap screws and positions the rear seal properly when pulled flush to the flywheel housing. This tool also uses self tapping screws to attach the tool to the seal. A forcing screw is then able to pull the tool and remove the seal.

Ref. No.	Part No.	Description
1	3162995	Rear Crankshaft Seal Tool
2	3163089	Drill/Pilot Assembly
3	3163057	Forcing Screw
4		Screw, Hex Washer Head Tapping

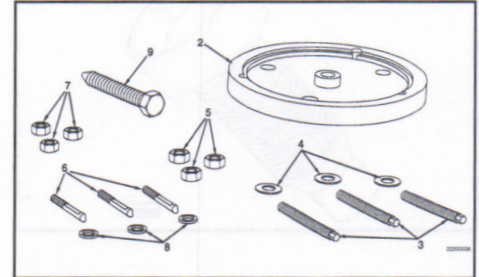


3163565
Rear Seal R&I Tool

Engine Series: M11

This tool will install both the dry and wet seals offered on the M11 engines and will also permit removal of the steel band. Three jaws clamp the steel band to the tool allowing the forcing screw to remove the assembly without crankshaft damage.

Ref. No.	Part No.	Description
1	3163705	Plate
2	3163706	Remover
3	3163707	Stud
4	3163495	Forcing Screw
5		Heavy Hex nut
6		Plain Washer
7		Plain Washer
8		Regular Hex Nut



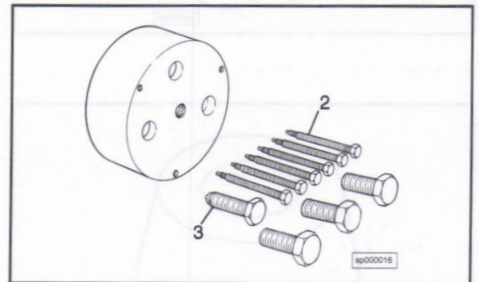
3375111
Oil Seal Installer/Puller

Engine Series: V903

This tool is used to install or remove the front crankshaft oil seal without removing the radiator. The special seal puller screws and the center puller screw are used to remove the seal.

Ref. No.	Part No.	Description
2	ST 1259-6	Special Puller Screw
3	ST 1259-7	Center Puller Screw

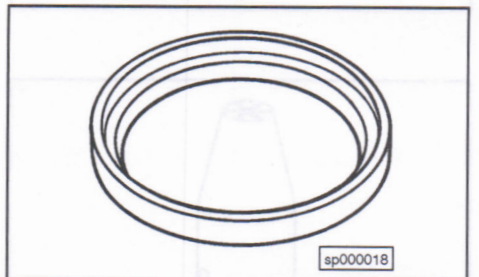
Note: Use **3375496 Drill Pilot**. (Order separately)

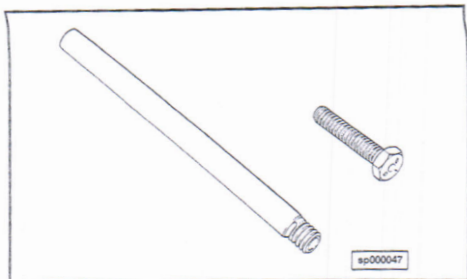


3375164
Pilot Ring

Engine Series: NH, NT

This tool is used to align the wet, one piece, rear cover plate and seal onto the crankshaft.



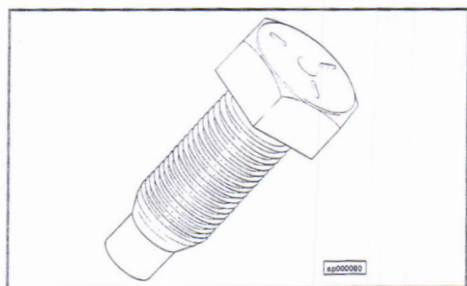


3375496
Oil Seal Puller Drill Pilot

Engine Series: K19, K38, K50, NT, V28, V903

These drill pilots are used for drilling into the front crankshaft oil seal to provide a pilot hole for the puller screws. Use #31 (.120) drill.

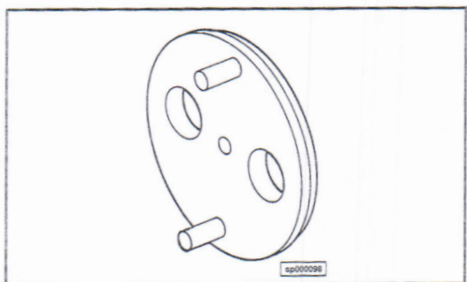
Part No.	Description
3375496	Oil Seal Puller Drill Pilot (Hex Capscrew Short Pilot. Use with ST 1259 (NH, NT) ST 1322 (K19) and 3375111 (V903))
3375497	Oil Seal Puller Drill Pilot (Long Pilot. Use with ST 1304 (V28) and 3375786 (K38, K50))



3375818
Oil Seal Installation Capscrew

Engine Series: V903

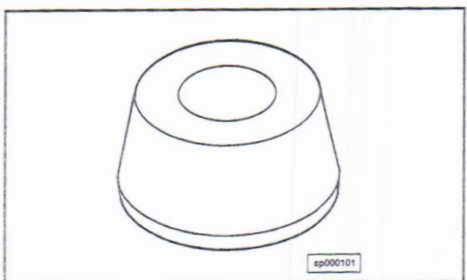
This special capscrew is used to install the rear crankshaft oil seal for the wet clutch double lip seal. 4 of these capscrews are used to push the seal in evenly, while at the same time, pulling the rear flywheel/crankshaft adapter onto the crankshaft. These capscrews are placed evenly through the flywheel mounting holes and become a mechanical press to press the seal into the gear cover.



3376076
Oil Seal Expander

Engine Series: L10, M11

This tool is an expander used to install the rear oil seal onto the crankshaft without damage to the seal lip.



3376098
Oil Seal Expander

Engine Series: L10

This tool is an expander used to install the fan hub oil seal into the front cover without damage to the oil seal lip.



3376099
Oil Seal Expander

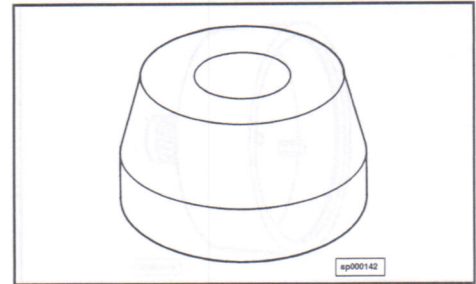
Engine Series: L10

This expander is used when installing the accessory drive oil seal into the front cover.

3376496
Oil Seal Expander

Engine Series: L10

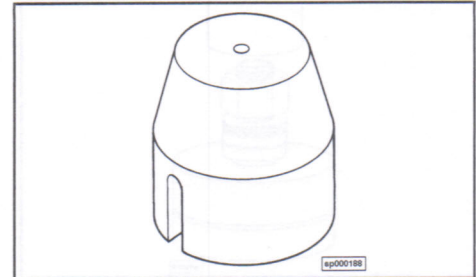
This expander is used when installing the front crankshaft oil seal onto the crankshaft to insure that the seal is not over expanded and also provides a smooth entry onto the crankshaft without scratching the seal lips.



3377148
Accessory Shaft Seal Expander

Engine Series: L10

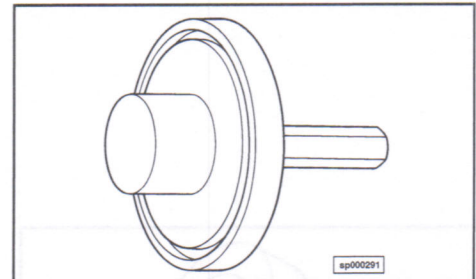
This special tapered expander is used to expand the seal for installation on the accessory drive shaft.



3822980
Rear Oil Seal Installation Tool

Engine Series: N855

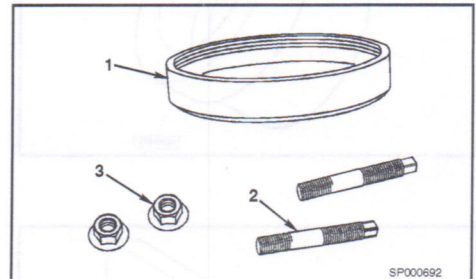
This tool is used to install the double lip and single lip seals in the "wet" rear cover plate without disturbing the installation sleeve of the teflon seal.



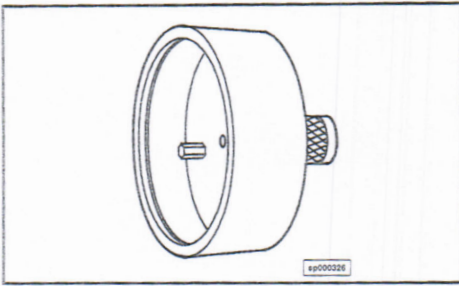
3824078
Rear Seal/Sleeve Installer

Engine Series: B and C Series

This installer is used to install rear crankshaft oil wear sleeve/seal combination. The tool may also be used to install crankshaft rear oil seal (wet or dry) verses using the disposable sheet metal driver supplied with the service kit.



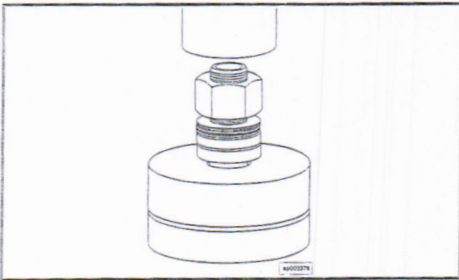
Ref. No.	Part No.	Description
1	3163734	Plate
2	3163628	Stud Washer
3	3163741	Hex Nut



3824211
Oil Seal Installer

Engine Series: NH and NT

This tool is designed to drive the rear crankshaft oil seal into the rear cover on N14 and NT series engines. The tool can also be used to align the rear cover plate to the crankshaft. **3824267 Stop Pin** is available as required.



3824424
Crankshaft Sleeve/Seal Installer

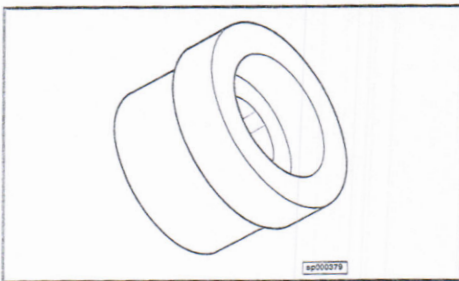
Engine Series: K38, K50, V28

This tool is designed to install the new thick wall (.062 in.) wear sleeve and oil seal assembly on the rear of the crankshaft. The kit installs wet or dry seal assemblies to the proper depth.

NOTE: A spacer ring must also be ordered according to the engine model to be serviced. See below.

Part No.	Description
The following spacer rings must be ordered separately as required.	
3824425	Spacer Rings (K38, K50)
3824426	Spacer Rings (V28, 2.50 in. Wide Flange (Phase III))
3824427	Spacer Rings (V28, 0.87 in. Wide Flange (Phase I and II))

Note: **3824428 Heavy Duty Drive Socket** (2 9/16 in.) is available to use with this tool for installing the seat/sleeves.

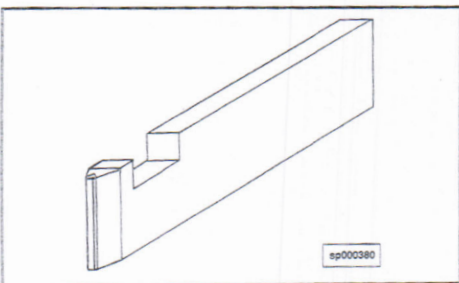


3824451
Accessory Drive Seal Tool

Engine Series: NT

This driver is designed to install the accessory drive oil seal into the gear cover. The tool will also install the wear sleeve onto the accessory drive pulley if the wear sleeve needs replacing. This tool applies to the N14 series with reduced diameter shaft and seal arrangement.

NOTE: **3376085 Pulley Installation Tool** is required with this tool to push the seal or wear sleeve onto the shaft.



3824452
Accessory Drive Wear Sleeve Tool

Engine Series: NT

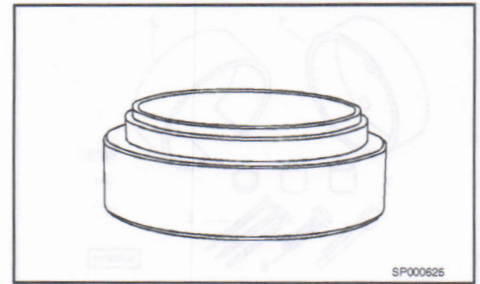
This tool is used to remove the accessory drive pulley wear sleeve, for the N14 series engines, with reduced diameter shaft and seal arrangement.

3824498
Seal Installer

Engine Series: B Series

This tool is used to install the front crankshaft oil seal in the front cover, from the engine side. This tool is used to install either the standard production oil seal or the larger inside diameter service oil seal used with the crankshaft thick wall wear sleeve.

NOTE: The front cover must be removed from the engine to use this tool.

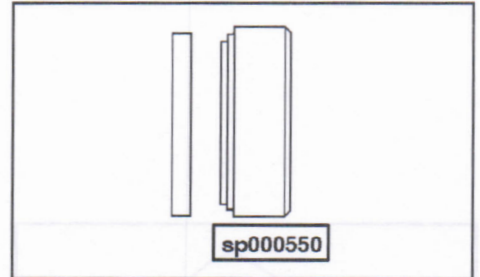


3824499
Seal Installer

Engine Series: C Series

This tool is used to install the front crankshaft oil seal in the front cover, from the engine side. This tool is designed to install either the standard production oil seal or the larger inside diameter service seal used with the crankshaft thick wall wear sleeve.

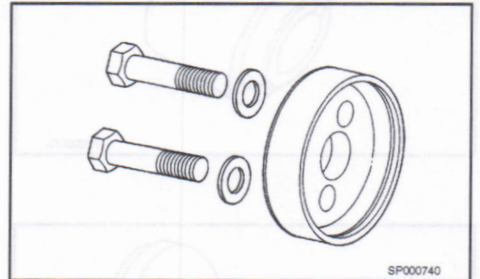
NOTE: The front cover must be off the engine to use this tool.



3824500
Wear Sleeve Installer

Engine Series: B Series

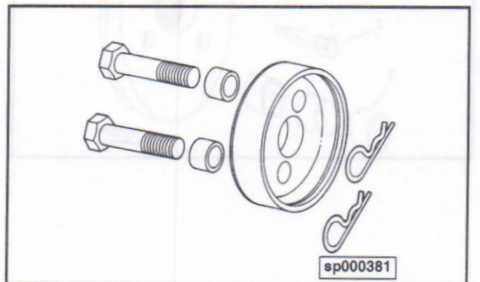
This tool is used to install the .052 thick wall and wider wear sleeve onto the front of the crankshaft. This tool is used as required to install the wear sleeve to repair crankshafts that have grooves in the crankshaft. The tool is used with front covers with thicker material and reinforced ribs. The tool pushes the wear sleeve onto the crankshaft with the use of the 2 capscrews, to the proper depth, to match up with the seal position.



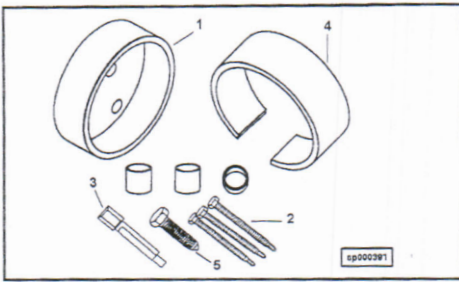
3824501
Wear Sleeve Installer

Engine Series: C Series

This special driver is used to install the crankshaft front oil wear sleeve as required to repair crankshafts that have grooves in the crankshaft.



Ref. No.	Part No.	Description
1	3824501	Mandrel
2	3824502	Expander (wedge)
3		Spacer

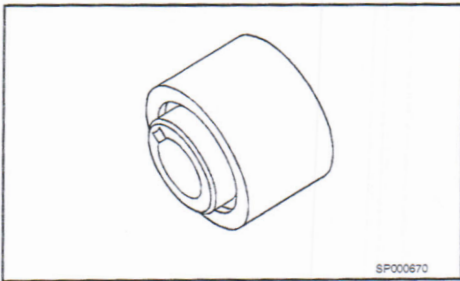


3824760
Oil Seal/Wear Sleeve Installer/Puller

Engine Series: K19

This front Oil Seal Installer/Remover is used to install the seal/sleeve assembly or by using the special puller screws, the seal can be removed. This kit contains a special chisel type wedge and protective sleeve (provided) to remove the thick wall (.060) Mather wear sleeve. The tool has a cam lobe, that wedges between the gear cover and wear sleeve. By rotating the wedge chisel, the chisel edge deforms (notches) the wear sleeve, to relieve the press fit. The wear sleeve can then be removed easily.

Ref. No.	Part No.	Description
1	3824761	Mandrel
2	3824762	Special Puller Screw
3	3824763	Expander (chisel)
4	3824764	Protective Sleeve
5	3375099	Center Puller Screw

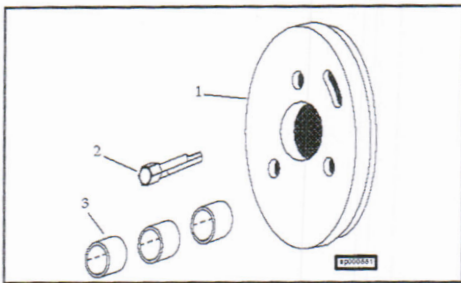


3824922
Accessory Drive Oil Seal Installer

Engine Series: NH, NT, All K

This tool is used to assemble accessory drive oil seals into the front gear cover with the accessory drive installed to the front cover. By rotating the tool end for end the tool is used to install the oil seal on the generator/alternator side or the fuel pump drive side of the engine.

NOTE: ST 386 or 3376326 must also be used to push the seal into position.



3824971
Wear Sleeve Installer/Remover

Engine Series: K19

This installer is required to install or remove the thick wall wear sleeve on the rear of the crankshaft for K19 series engines. The kit contains a special chisel type wedge to remove the thick wall wear sleeve. The tool has a cam lobe that wedges between the rear cover and the wear sleeve. By rotating the wedge chisel, the chisel edge deforms (notches) the wear sleeve to relieve the press fit. The wear sleeve can then be removed. This tool is also used to install the wear sleeve by using the 3 spacers and flywheel bolts to "push" the sleeve and seal into position.

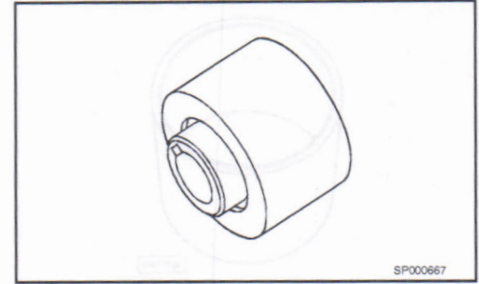
Ref. No.	Part No.	Description
1	3824972	Mandrel
2	3824763	Expander (wedge)
3		Spacer

3825104
Accessory Drive Oil Seal Installer

Engine Series: V28

This tool is used to assemble accessory drive oil seals into the front gear cover with the accessory drive installed to the front cover. This is for V1710 engines alternator drive side to install the oil seal on either the front or back side on shafts .880 or 1.00 in. diameter. By rotating the tool end for end the tool is used to install the oil seal on the generator/alternator side or the fuel pump drive side of the engine.

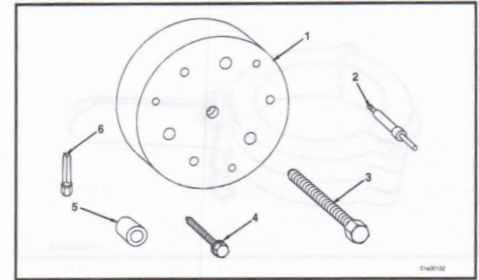
NOTE: ST 386 or 3376326 must also be used to push the seal into position.



3825191
Wear Sleeve/Seal Installer/Remover

Engine Series: QST30

To install and remove rear crankshaft wear sleeve/oil seal assembly and/or standard oil seal. Installs to a controlled depth using existing flywheel assy. Capscrews.



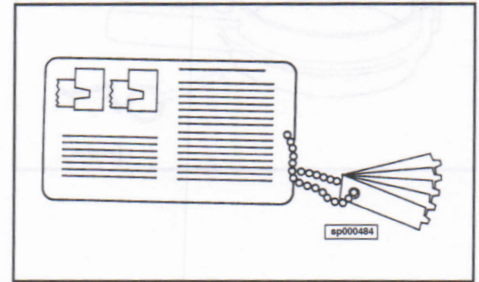
Ref. No.	Part No.	Description
1	3825195	Rear crankshaft seal
2	3163458	Drill/pilot assembly
3	3163495	Forcing screw
4	3163535	Self-tapping capscrew (10 x 1.25-in.)
5	3163490	Spacer
6	3824763	Wedge expander

Piston Ring Tools

ST 560
Piston Ring Groove Wear Gauge

Engine Series: All Except B and C Series

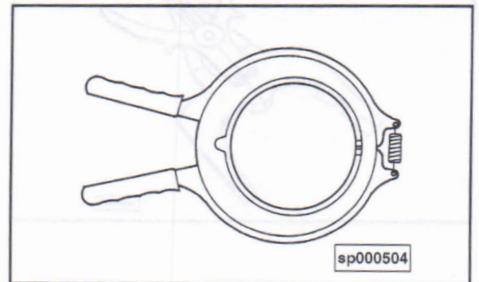
These special gauges are accurately machined at the wear limit dimensions for the Keystone piston ring grooves in Cummins pistons. The gauge is placed in the ring groove. If the gauge shoulder touches the ring groove lands, the groove is too badly worn to permit reuse of that piston.



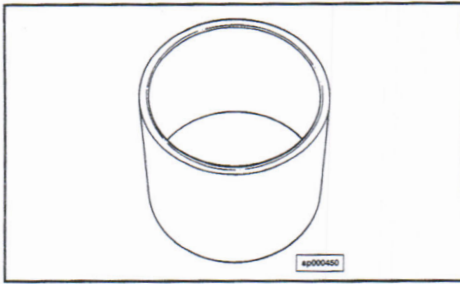
ST 760
Piston Ring Expander

Engine Series: All Except B and C Series

These piston ring expanders are designed to install piston rings on the piston without damage to the piston or the piston rings. Use of these expanders are required to avoid distortion and/or over-expansion of the piston rings.



Part No.	Description
ST 760	Piston Ring Expander (J 4 1/8 bore)
ST 761	Piston Ring Expander (C 4 7/16 bore)
ST 762	Piston Ring Expander (NH, V12 5 1/8 bore)
3823871	Piston Ring Expander (NT, V28, V903 5 1/2 bore)
ST 820	Piston Ring Expander (V378, V504, V555 4 5/8 bore)
ST 821	Piston Ring Expander (H, L10 4 7/8 bore)
ST 1269	Piston Ring Expander (K19, K38, K50 6 1/4 bore)

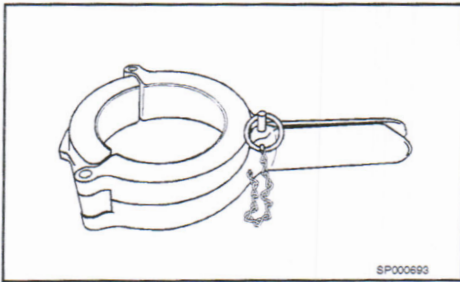


ST 1240
Piston Ring Compressor Sleeve

Engine Series: NH, L10

These ring compressors are the sleeve type used to compress the rings on the pistons when inserting the piston assembly into the cylinder bore.

Part No.	Description
ST 1240	Piston Ring Compressor Sleeve (Sleeve for 5 1/8 bore)
3376046	Piston Ring Compressor Sleeve (Sleeve for L10 series)

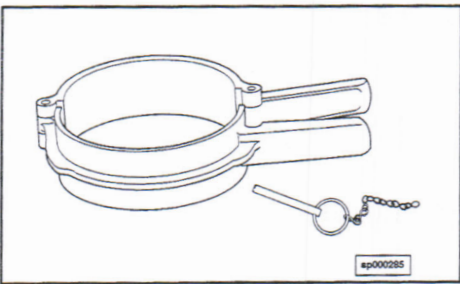


3163158
Piston Ring Compressor

Engine Series: Signature 600

This two hinge ring compressor was released to reduce time needed to install pistons. It easily traps the wide gape rings on this engine. The longer handle helps in closing and a locking device is in place to free up the hands during assembly.

Ref. No.	Part No.	Description
	3163454	Groove Pin
	3163455	Straight Pin

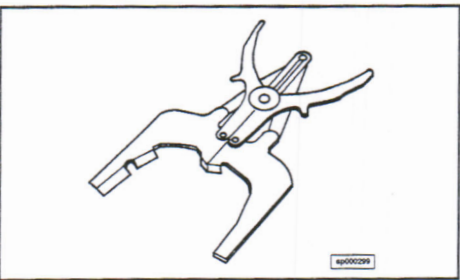


3822736
Piston Ring Compressor

Engine Series: See Below

These piston ring compressors are used to compress the piston rings when installing pistons in the cylinder liners.

Part No.	Description
3822736	Piston Ring Compressors (All 5 1/2 Bore Engines)
3823290	Piston Ring Compressors (C Series)
3823294	Piston Ring Compressors (All K Series)
3823308	Piston Ring Compressors (V378, V504, V555)
3823309	Piston Ring Compressors (L10 Series)



3823137
Piston Ring Expander

Engine Series: B and C Series

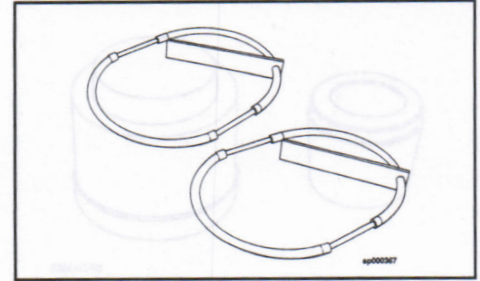
This piston ring expander is designed for engines with ring capacity of 2 3/4 to 4 1/2 inches. This tool is necessary so that piston ring expansion is controlled while assembling rings to the piston.

3823925
Piston Ring Groove Gauge

Engine Series: See Below

These ring gauges consist of 2 precision gauge pins attached with a rubber tube for measuring piston ring groove wear with micrometers.

Part No.	Description
3823925	Piston Ring Groove Gauge (N14 Series)
3824846	Piston Ring Groove Gauge (Q19 & K19 using the same piston ring pack)

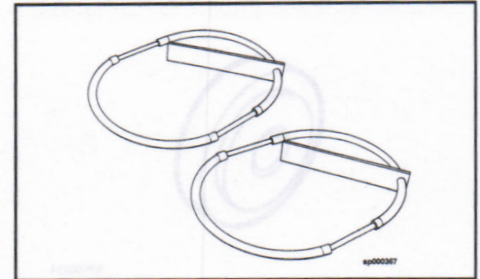


3823964
Piston Ring Groove Gauge

Engine Series: See Below

This ring gauge consists of 2 precision gauge pins attached with a rubber tube for measuring piston ring groove wear with micrometers.

Part No.	Description
3823964	Piston Ring Groove Gauge (C Series with Dual Ni Resist Pistons)



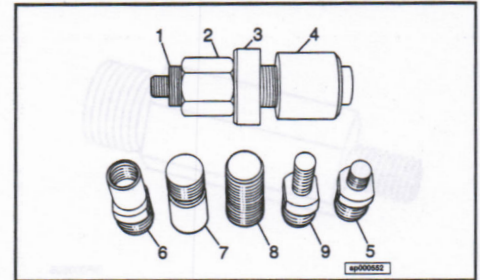
Pulley Installers and Pullers

ST 386
Pulley Installation Tool (See Note Below)

Engine Series: All

ST 386 is superseded to 3376326. Spare parts for ST 386 are still available as listed below.

This tool is used to push various pulleys onto their respective shaft. Various adapters are included to enable the tool to 'fit' various applications.



Ref. No.	Part No.	Description
1	ST 386-2	Arbor
2	ST 386-3	Nut
3	ST 386-11	Roller Thrust Bearing
4	ST 386-5	Spacer
5	ST 386-6	Adapter (1/2-20 male)
6	ST 386-8	Adapter (5/8-18 female)
7	ST 386-9	Adapter (3/4-16 female)
8	ST 386-10	Adapter (7/8-14 male)
9	3375205	Adapter (1/2-13 male)

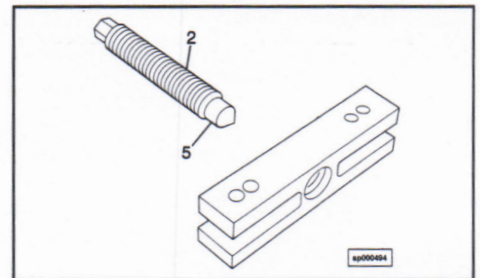
ST 647
Standard Puller

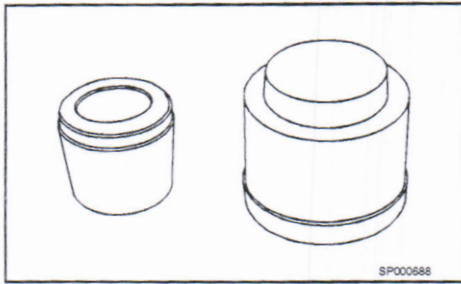
Engine Series: All

This standard puller is used to remove drive pulleys, impellers and/or counterweights.

NOTE: Use 3376104 Puller Capscrews to pull L10 pulleys.

Ref. No.	Part No.	Description
2	ST 647-2	Puller Screw
5	ST 647-5	Live Center

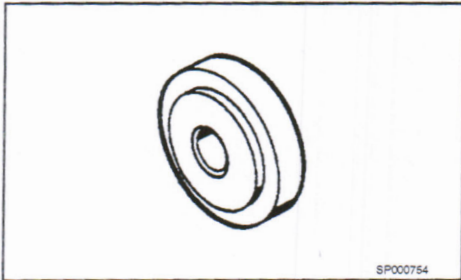




3162395
Oil Seal Guide and Driver

Engine Series: Onan J

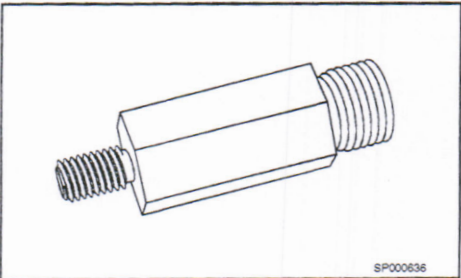
This kit simplifies seal installation & prevents damage to crankshaft seal when installing bearing plate for all J series engines.



3162405
Seal Remover Disk

Engine Series: Onan, CCK, LK, J, B, N, T & P

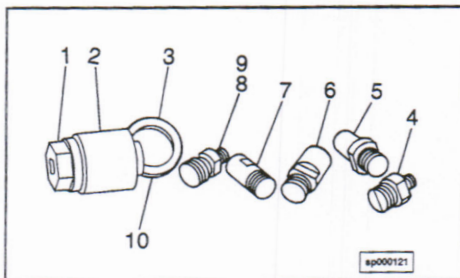
Use this with 3162435 Drive Handle to remove the front and rear crankshaft oil seals on all CCK, LK, J, B, N, T & P series. Also included in 3162417.



3163373
Pulley Installation Adapter

Engine Series: QSK45/60

Used to locate and install QSK46/60 alternator and accessory drive pulleys. M12 x 1.75 threads compatible with metric threads in drive shafts. **MUST BE USED WITH 3824502 PULLEY ADAPTER KIT AND 3376085 PULLEY ASSEMBLY TOOL**



3376326
Pulley Installation Tool

Engine Series: All Except L10, B & C Series

This tool contains a variety of adapters to assemble (push) pulleys onto shafts such as accessory drive, water pump drive, etc.

Ref. No.	Part No.	Description
	3376085	Pulley Pusher Assembly
1	3823769	Pulley Pusher Housing
2	3823768	Pulley Installer
3	3823767	Special Washer
Miscellaneous Pusher Adapters Included:		
4	3376086	Adapter (1/2-13 Male)
5	3376087	Adapter (7/8-14 Male)
6	3376088	Adapter (1/2-20 Male)
7	3376089	Adapter (3/4-16 Female)
8	3376090	Adapter (5/8-18 Female)
9	3376842	Adapter (3/4-16 Male)
10	3376843	Spacer

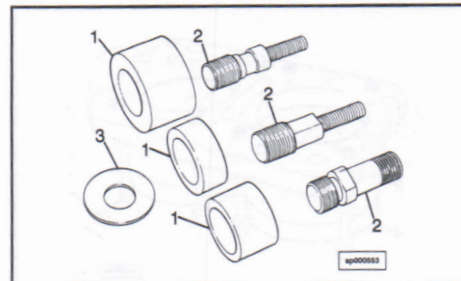
3823765
Pulley Adapter Kit

Engine Series: L10

The following adapters and spacers are required to assemble pulleys on shafts and are all included in 3823765 Kit.

NOTE: 3376085 Pulley Pusher Assembly must also be used in conjunction with any one of the below listed assembly numbers. Each kit is available separately as desired.

Ref. No.	Part No.	Description
	3376383	Pulley Adapter Spacer Kit (Older L10 Acc. Drive and Alternator Drive)
1	3823766	Spacer
2	3377150	Adapter (M12 x 1.75-6h x 3 5/8)
	3377401	Pulley Pusher Adapter Kit (Water Pump Drive Pulley)
1	3377403	Spacer 1 1/4 dia. x 1 1/8 thick
2	3377402	Adapter (M12 x 1.75 x 3 7/16)
3	3377404	Washer
	3377453	Pulley Pusher Adapter Kit (New Style Acc. Drive Pulley)
1	3377455	Spacer (1 1/8 dia. x 3/4 thick)
2	3377454	Adapter (M20 x 2.5-6g x 2 3/4)

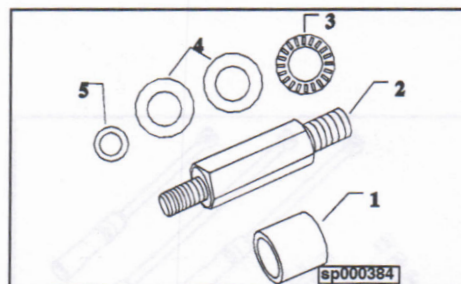


3824502
Pulley Adapter Kit

Engine Series: All K

The below listed adapters are used, with **3376326 Pulley Installation Tool**, to assemble pulleys on shafts such as accessory drive or water pump drive pulleys etc. for the KV series engines.

Ref. No.	Part No.	Description
1	3376843	Spacer
2	3824503	Adapter (1/2-20 Male)
3	3824504	Thrust Bearing
4	3824505	Thrust Washer
5	3824506	Copper Washer

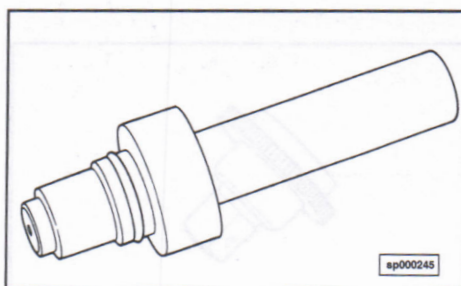


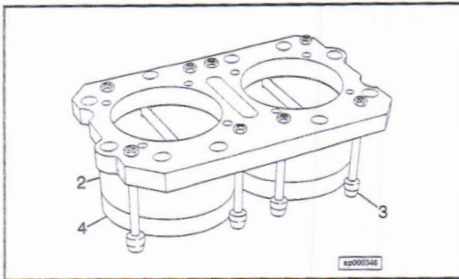
Thermostat Seal Drivers and Coolant Pressure Test

3377291
Thermostat Seat Driver

Engine Series: NT

This tool is used to install and position the thermostat seat into the thermostat housing for the NT Big Cam IV series engines using dual thermostats.





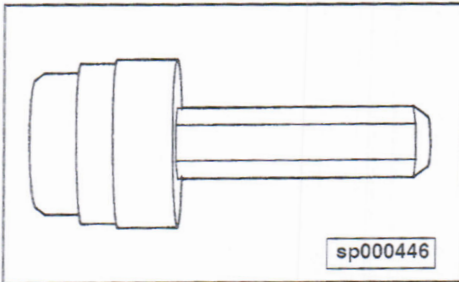
3823745
Coolant Pressure Test Fixture Assembly

Engine Series: All NH 5 1/2 Bore Engines

This fixture is installed on the cylinder block instead of the cylinder head for pressure testing the cylinder block for coolant leaks.

NOTE: 3 of this kit is required for complete testing of cylinder block.

Ref. No.	Part No.	Description
2	3823747	Locating Cylinder
3	3823748	Coolant Passage Stop
4	3823749	Bead Clearance Insert

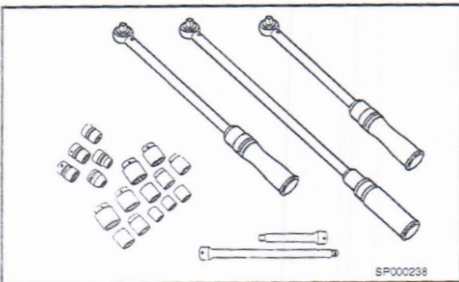


3824716
Thermostat Seal Driver

Engine Series: See Below

These drivers are used to assure alignment of the seal while driving to the proper position in the thermostat housing.

Part No.	Description
3375411	Thermostat Seal Driver (All K Series)
3824716	Thermostat Seal Driver (N855, V903, V555, L10, V28 (All with 186780 seal.))
ST 1226	Thermostat Seal Driver (J & C (and others w/188319 seal.))
3824833	Thermostat Seal Driver (Low Temperature Aftercooler thermostat driver Q19)



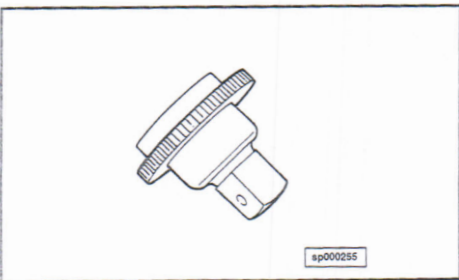
Torque Wrenches

3377217
Torque Wrench Socket Set

Engine Series: All Except B and C Series

This set contains heavy duty click type torque wrenches, extensions, and 15/16 to 2 in. (17 total).

Part No.	Description
3399798	Drive Socket Set (3/4 inch)
3399873	Torque Wrench Kit (600 ft.lb.)



3377418
Template Spinner

Engine Series: All

This special 1/2 inch drive spinner can be used to tighten capscrews by the template method. Notches are evenly spaced at 60 degree angle intervals.

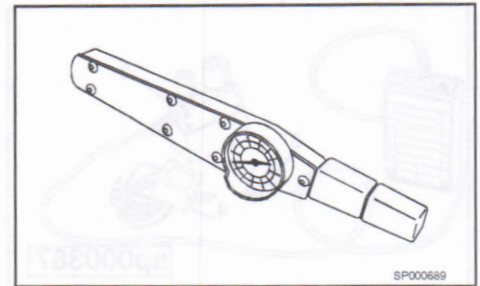
NOTE: This must be used with a torque wrench or other leverage bar.

3398033
Torque Wrench

Engine Series: All

Part No.	Description
3398033	Torque Wrench (0-250 ft. lb.) (0-345.68 N•m) 1/2" Drive
3398034	Torque Wrench (0-600 ft. lb.) (0-830 N•m) 3/4" Drive

NOTE: These dial type torque wrenches provide the required accuracy when torquing within the range of each torque wrench.

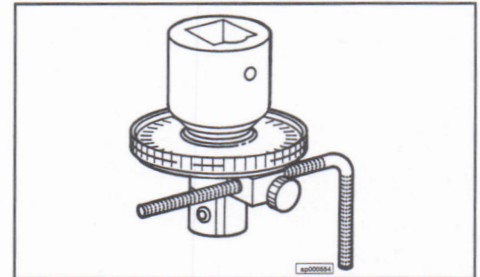


3398212
Torque Angle Gauge (1/2 In. Drive)

Engine Series: All Engines

3823879
Torque Angle Gauge (3/4 In. Drive)

These angle gauges are calibrated in degrees in large easy-to-read increments so that capscrews requiring the 'torque plus angle' tightening method can be accomplished.

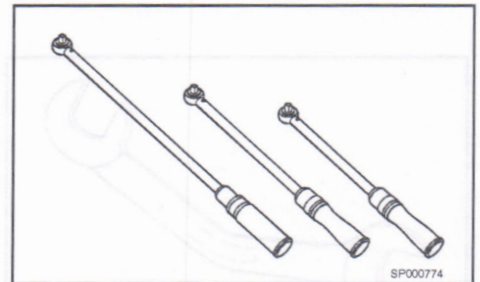


3399873
Torque Wrench Kit

Engine Series: All

This kit contains 3 of the most popular range torque wrenches. Micrometer-type setting adjusts by rotating the hand-grip. Wrenches indicate desired torque by feel and sound (click) and are accurate to +/-3% on the upper 80% range. Each part number can be ordered separately as desired.

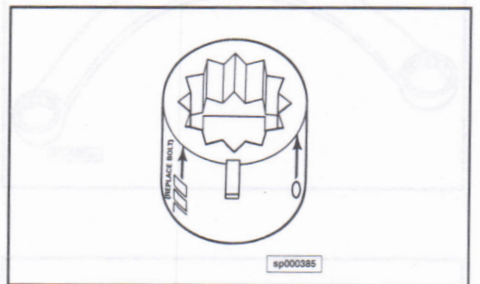
Part No.	Description
3398329	Torque Wrench 10-100 ft.lb. (16.9-138.9 N•m) 3/8 drive
3398330	Torque Wrench 25-250 ft.lb. (43.4-348.4 N•m) 1/2 drive
3398107	Torque Wrench 100-600 ft.lb. (153-830 N•m) 3/4 drive

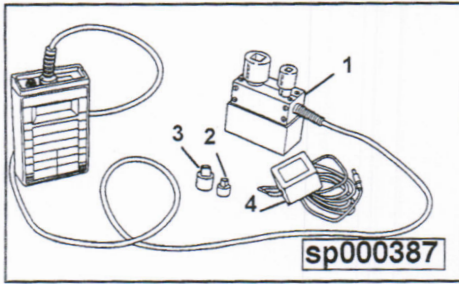


3824520
Torque Angle Socket

Engine Series: N14

This Torque/Angle Socket Gauge is a special marked, heavy duty, socket used to both achieve the correct angle and to check for correct tightening of the N14 Connecting Rod Cap Bolts to an angle of 60 degrees after pre-torquing to 95 ft. lbs.



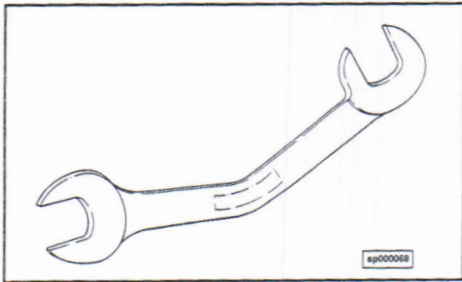


3824532
Torque Wrench Validator Kit

Engine Series: All

This kit is designed to check (validate) torque wrench accuracy within +/- 2%. This kit is a light weight, compact system, with digital display, to check torque wrench accuracy. As illustrated, two input drives are provided, a 3/4 inch drive, 0-700 ft. lbs. (0-931 N•m) for the higher torque ranges and a 1/2 inch drive, dual range, 0-200 ft. lbs. (0-265 N•m) medium range and 0-868 in. lb. (0-999 kg/cm) for the lower ranges. Also provided are 1/4 inch to 1/2 inch and 3/8 inch to 1/2 inch adapters.

Ref. No.	Part No.	Description
1	3824533	Torque Wrench Validator
2	3824534	Adapter (1/4 to 1/2 inch)
3	3824535	Adapter (3/8 to 1/2 inch)
4	3824536	Adapter (120 VAC)
	3824537	Storage Case
	3824837	Calibration Tags & Certificates (150 ea.)
	3824838	Quick Reference Card
	3824995	Torque Wrench Validator Kit (220 VAC)
	3824532	Torque Wrench Validator Kit
	3824996	VDC Adapter (220 VAC/7.5)
	3824997	International Electrical Adapter Kit

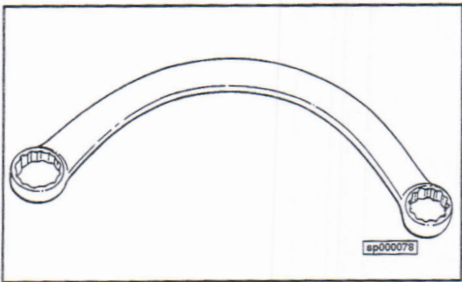


Wrenches

3375764
Fuel Pump Wrench

Engine Series: K19, K38, K50, NT, V28, V378, V555, V903, V504

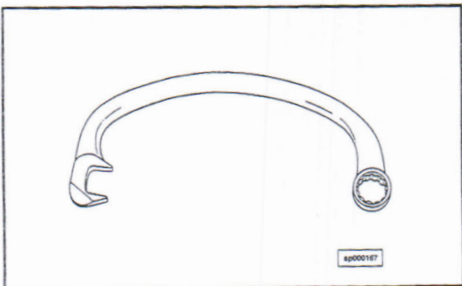
This special 7/16 in. curved wrench will enable the AFC front cover and the vent capscrew to be removed from the fuel pump without removing the fuel pump from the engine.



3375787
Bent Wrench

Engine Series: K38, L10

This special bent wrench is used to remove and/or install the air compressor mounting support capscrews. Size is 7/16 and 1/2 in.



3376845
Fuel Pump/Air Compressor Wrench

Engine Series: All Except L10, B and C Series

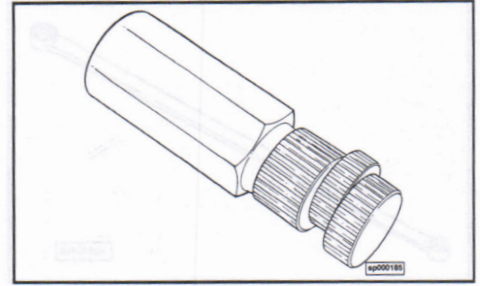
This special curved wrench is needed to reach nuts in the fuel pump/air compressor when installing or removing. Size is 5/8 box & 11/16 open end.

3377144
Internal Pipe Wrench

Engine Series: NT

This internal pipe wrench is used to install or remove the hose coupling from the thermostat housing as required. These apply to NH Big Cam IV.

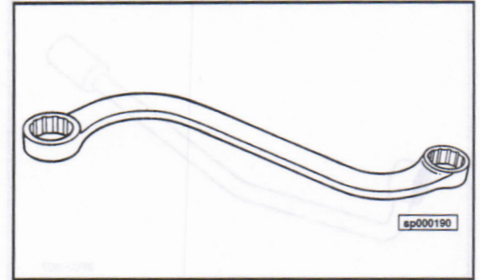
Part No.	Description
3377144	Internal Pipe Wrench (3/4 i.d. pipe)
3377387	Internal Pipe Wrench (1 in. i.d. pipe)



3377198
Fuel Pump S Wrench

Engine Series: L10, B and C Series

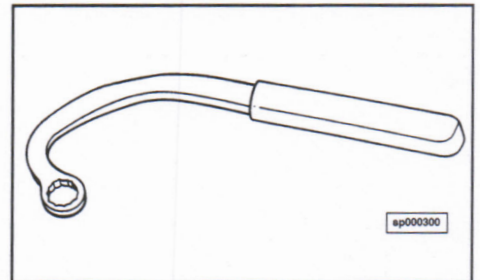
This special bent wrench is required for those difficult to reach fuel pump mounting capscrews. Sizes are 11 mm and 13 mm.



3823144
Fuel Pump Wrench

Engine Series: All B Series

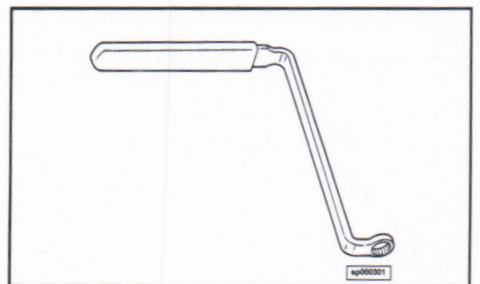
This special bent wrench is used to gain access to the bottom-most nut for installation and/or removal of CAV or Bosch Fuel Pumps.



3823145
Fuel Pump Idler Jam Nut Wrench

Engine Series: B Series W/Bosch VE Pumps

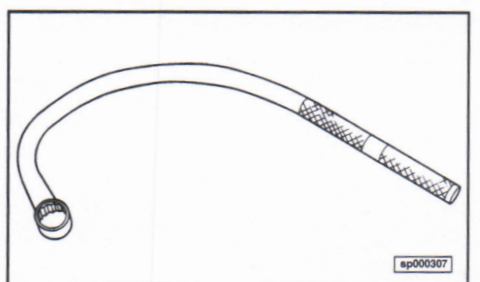
This is a special wrench used to adjust the Bosch VE series pump idle adjust jam nut. (10 mm)

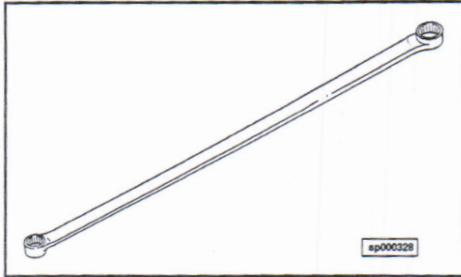


3823228
Special Fuel Pump Wrench

Engine Series: NT855

This special wrench is used to remove the two (7/16) capscrews nearest the cylinder block on All NT 855 series engines.

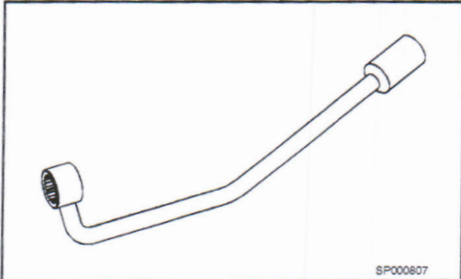




3823490
Fuel Pump Wrench AFC

Engine Series: All with AFC

This special wrench is used to install and remove the upper fuel pump front cover 12 point head capscrew on the AFC side of the fuel pump. Size is $\frac{1}{4}$ and $\frac{5}{16}$ in.



3823750
Fuel Pump Idle Screw Nut Wrench

Engine Series: B Series W/Bosch VE Pumps

This is a special wrench to loosen/tighten the Bosch VE pump idle adjust jam nut for special applications, such as vans, where access to the idle screw nut is difficult. (10 mm)