AMF

# Harley-Davidson SERVICE TOOL CATALOG

ISSUED: JULY 1978

No. 99430-78

### INTRODUCTION

This catalog lists special tools used to service Harley-Davidson products. These are quality tools, specially designed and made for a specific job - either to save time, or because the service or repair operation cannot be done without special tools.

If your service shop performs any of the service operations as described for each tool in the following list, seriously consider obtaining the service tool listed, so that customer repairs can be made correctly to customer satisfaction, and quickly to increase service shop profits. Normally, the better equipment a shop has, the more profitably it

Harley-Davidson Service Manuals refer to tools in this list by part number, and the manuals also explain in detail how each tool is used to perform service operations.

For prices of tools listed in this catalog, consult your latest Harley-Davidson price list.

### NOTE

Model designations are as follows:

FL includes 74 & 80 OHV/FL & FX models XL includes 55 & 61 OHV/XL models G includes 45 SV/G models K includes 45 SV/K, KR models KH includes 55 SV/KH, KHRM WL includes 45 SV/WL, WLA U includes 74 & 80 SV/U, UL, ULH Y includes 398 & 440cc Snowmobiles 175/250 includes 175 & 250cc models SS, SX SPRINT includes 250 & 350cc models C, H, SS, SX

All other model designations apply specifically to tools listed.

Tool Part Number is given for complete tool and usually includes individual parts listed under "Description".

### IMPORTANT SAFETY RULES FOR TOOL USE

The tools in this list are specialized for particular jobs. Always use the correct size and type of tool designed specifically for the job being done. Keep tools in proper working condition. Failure to follow these common sense precautions could cause a serious injury to you and others.

- Screwdriver blades are made to turn screws, and should never be used for other purposes. Worn blades, worn screw slots or use of the wrong size blade could cause the tool to slip with possible personal injury.
- Only power drive type sockets specially designed for use on pneumatic or electric impact type wrenches should be used on such wrenches.
- All wrenches are designed to a specific size/length/ strength ratio. The use of any means for obtaining increased leverage could cause breakage or slippage and is especially hazardous.

- 4. Keep hammer heads tightened on handle to prevent heads from accidentally flying off and injuring yourself or
- 5. Suitable eye protection, through use of either safety glasses, goggles or hood, depending on the type of job, must be used for any job involving the use of tools, particularly when using punches, hammers, chisels, drills or grinding tools.
- 6. Use tools only for their designed purposes and within their size range.
- 7. Tools do not always last forever. Replace all worn out or damaged tools.

HARLEY-DAVIDSON MOTOR CO., INC. CANNOT BE RESPONSIBLE FOR PERSONAL INJURY OR DAMAGE CAUSED BY TOOLS USED IMPROPERLY OR BY TOOLS WHICH HAVE BEEN ABUSED OR WORN.

HARLEY-DAVIDSON MOTOR CO., INC.

Description	Part No.	Model
SPACER  Used with tools 96110-68P and 97297-61P to assemble crankshaft to crankcase.	24002-70	175, 250
5MM SOCKET SCREW WRENCH (1079) 6MM SOCKET SCREW WRENCH (1080) 6MM SOCKET SCREW WRENCH For starter motor lower mounting bolt.		Y
CRANKSHAFT INSTALLING TOOL  Pulls left crankshaft into ball bearing	94527-77M (2162)	MX 250
IGNITION TIMING SETTING TOOL  Mounts to crankcase to provide accurate alignment of ignition timing marks.	94528-77M (2291)	MX 250
MAGNETO ROTOR PULLER (Motoplat Ignition)  Pulls rotor off left flywheel shaft.	94529-77M (2286)	MX 250
MAGNETO ROTOR PULLER (Dansi Ignition)  Pulls rotor off left flywheel shaft.	94530-77M (2287)	MX 250

	Description	Part No.	Model
	TRANSMISSION ASSEMBLING TOOL Simplifies installation of gear retaining rings on splined shafts.	94531-77M (2292)	MX 250
	CYLINDER BASE NUT WRENCH	94533-77M (29104)	MX 250
	ROTOR HOLDING TOOL	94534-77M (2288)	MX 250
	SIDE CAR CONNECTION NUT WRENCH Fits 1-3/4 in. nuts.	94536-18	U FL
	INTAKE MANIFOLD NUT WRENCH Fits 2 in. nuts	94538-30	U WL G FL
S	INTAKE MANIFOLD NUT WRENCH Fits 2-1/8 in. nuts.	94538-40	U K FL
	FLYWHEEL SHAFT NUT WRENCH Fits 1-5/16 and 1-3/16 in. nuts.	94546-41	U KH XL FL
2			*

Description	Part No.	Model
GEAR SHAFT NUT SOCKET WRENCH  Fits pinion gear nut which secures pinion to gear shaft.	94555-55A	FL (1954 & later)
FORK DAMPER HOLDING SOCKET (Kayaba Fork)  Used to keep fork damper tube from turning when removing socket screw.	94556-73	XL (1973 & 1974) FX (1973 to 1977)
COMPENSATING SPROCKET SHAFT NUT WRENCH  Pin spanner wrench for compensating sprocket shaft nut.	94557-55	FL (1955 to early 1970) XL (1976 & earlier)
SPARK PLUG WRENCH WITH HANDLE  Fits spark plugs having 13/16 & 7/8 in. hex.  1) 94572-47 Handle	94575-58A	All Models
SOCKET WRENCH, 13/16  For adjusting XL clutch.  For removing & installing spark plugs.	94580-71	XL (1971 & later) ————————————————————————————————————
CYLINDER BASE NUT WRENCH Fits 5/8 in, nuts.	94585-30	U FL

Description	Part No.	Model	
CYLINDER BASE NUT AND HEAD BOLT WRENCH Fits 9/16 in. nuts.	94589-29A	WL G KH XL FL	
SOCKET HANDLE, CYLINDER HEAD BOLT  3/8 square drive for use with standard socket.	94590-73	U K KH XL FL	
WHEEL LUG WRENCH For recessed head wheel lug screws.	94619-35	U G FL (1972 & earlier)	
WHEEL BEARING LOCKNUT WRENCH  Fits wheel bearing slotted locknut. (laced wheels)	94630-67	G KH XL FL (1967 & later)	-
MAINSHAFT BALL BEARING LOCKNUT WRENCH Fits 1-13/32 in. hex.	94635-41	U FL (1940 & later)	
FRONT CHAIN SHOE BOLT WRENCH For adjusting chain tension through chain cover access hole.	94644-65	FL	

Description	Part No.	Model
CLUTCH HUD NUT WOENCH		
CLUTCH HUB NUT WRENCH Fits clutch hub nut.	94645-41	U WL G FL
CLUTCH HUB NUT AND ENGINE SPROCKET LOCKNUT WRENCH  Fits clutch hub nut and engine cushion sprocket locknut.	94647-52	K KH XL
TRANSMISSION SPROCKET LOCKNUT WRENCH  Fits transmission sprocket locknut.	94660-37	FL
CLUTCH SPRING NUT WRENCH	94670-66P (1543)	Sprint (1969 to 1974)
SPOKE NIPPLE WRENCH  For wheel spoke nipples (.234 and .165 in. across flats).	94681-39	FL XL G U K KH M X Z
SPOKE NIPPLE WRENCH (Stamped "S")  For wheel spoke nipples (.218 in. across flats).	94682-61	Sprint 125 175/250
FORK PISTON ROD BUSHING SPANNER WRENCH  Used to remove fork piston rod bushing from fork damper tube.	94691-52	K KH XL (1967 & earlier)
		E

	Description	Part No.	Model	
70	STARTER-GENERATOR ROTOR HOLDING TOOL  Keeps crankshaft from turning while removing or installing nut.	94692-63	D (1966 & earlier) DC (1968 &	_
	FORK PISTON ROD RETAINER WRENCH  Used to remove fork piston rod retainer from fork tube.	94694-52	K KH XL (1967 & earlier)	
	SHOCK ABSORBER SPANNER WRENCH Used to adjust shock absorbers for	94700-52B	K KH XL FL	-
	more or less spring compression.	94700-65	(1966 & earlier) XL (1967 to 1974) FL (1967 & later)	
	TILLOTSON CARBURETOR LEAKAGE TESTER  Used to check inlet valve and internal leakage.	94750-68	XL FL D DC DC	
50 90.112	CARBURETOR FLOAT GAGE, 31/32  Used to measure float gage setting on 350 cc engine.	94751-69	Sprint (1969 to 1974)	
6				

	Description	Part No.	Model
and the final design of the second se	CARBURETOR FLOAT GAGE GAGE  For setting carburetor float level.	94752-77	All Models
	EXPANSION REAMER — .790 dia.  Used for reaming pistons and upper connecting rod bushings.	94800-26	U G XL FL
	PINION SHAFT BUSHING REAMER WITH PILOT  Used to line ream replacement crankshaft end bushing in support housing.	94801-64	Sprint
	CAM GEAR SHAFT BUSHING REAMER — .812 dia.  Used to fit cam gear shaft bushings.	94802-36A	FL (1969 i earlier)
	REAR INTAKE CAMSHAFT COVER BUSHING REAMER — 1.125 dia. For reaming timer shaft bushings in gear case cover.	94803-67	G XL
	ROCKER ARM BUSHING REAMER — .55 dia.  Used to line ream replacement rocker arm bushings to size.	94804-57	XL FL
	rocker arm bushings to size.		

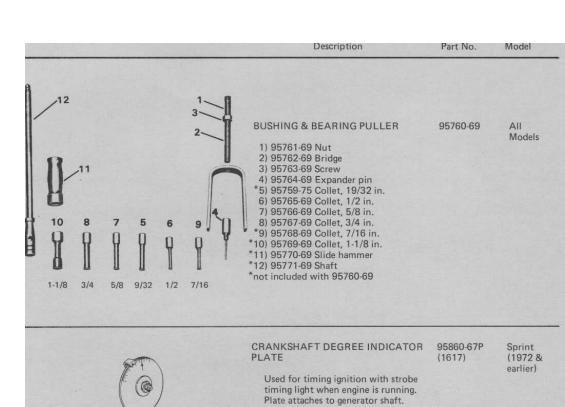
Description	Part No.	Model
PINION SHAFT BUSHING REAMER AND TWO PILOTS  Used to size pinion shaft gear case cover bushing on FL and idler gear bushing on XL.  1) 94806-57 .562 dia. reamer 2) 94815-58 reamer pilot (1968 & later - FL)	94805-57	FL (1964 & later)
SPROCKET GEAR BUSHING REAMER — 15mm dia. Used for reaming sprocket gear bushings.	94806-63	Sprint
PINION SHAFT BUSHING REAMER — .625 dia.  Used to ream pinion shaft cover bushings.	94812-37A	WL G KH XL
REAR SHOCK SPANNER WRENCH  Used to adjust rear shock absorber spring compression.	94820-75	SS/SXT-125 175/250 XL (1975 & later)
CLUTCH GEAR REAMER — .748 dia.  Used to ream clutch gear bushing.	94829-42	WL G XL
VALVE GUIDE REAMER — .344 dia.	94830-26	G

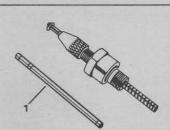
	Description	Part No.	Model
	RAWHIDE MALLET W/ENDS  1) 95004-16 Rawhide ends (pair)	95003-16	All Models
	COPPER HAMMER  For truing flywheels and for heavy blows without damage to steel surfaces.	95007-16	All Models
	EXTERNAL LOCK RING PLIERS 1/16 dia. pins.  Special pliers for replacing external type lock rings.	95017-61	All Models
	REAR CHAIN CONNECTING LINK PRESS TOOL  Used to install press fit link side plate.	95020-66	G XL FL
2	CHAIN TOOL  Removes front and rear chain links from all chains.  1) 95028-46 Chain tool screw 2) 94622-40 Handle	95021-29	All Models

	Description	Part No.	Model
5 4 6 3 7	WHEEL TRUING STAND  Adjustable stand for truing laced wheels.  1) 4716W Bolt (2) 2) 6408HB Washer (2) 3) 41598-52 Collar 4) 95515-30A Arbor shaft assembly 5) 95520-68 Arbor center 6) 95521-68 Arbor shaft 7) 95522-68 Collar - 1968 thru 1972 — FL & GE ball bearing type wheel hub.	95500-29A	All Models
	TRANSMISSION ACCESS COVER PULLER  Screws onto clutch gear end and pulls access cover which is press fit on two dowels.	95560-57	XL
	STARTER-GENERATOR ROTOR PULLER  Used to pull rotor from crankshaft taper.  1) 8860 Ball	95563-63	D (1966 & earlier) DC (1968 & earlier)
	SPROCKET RIVETING SET  Used to rivet rear wheel sprocket to brake drum.  1) 3241W Set screw 2) 95609-33A Rivet anvil 3) 95612-42 Rivet set 4) 95613-42 Rivet punch 5) 95619-58A Support - fits late ball bearing wheels.	95600-33B	K KH XL (1978 & earlier) FL (1972 & earlier)
	GENERATOR OIL SEAL SLEEVE  Tapered tool leads lip of oil seal over sharp edge on crankshaft.	95629-63	Sprint (1968 & earlier)

	Description	Part No.	Model
	OIL SEAL INSTALLING SLEEVE  Tapered tool leads lip of starter- generator oil seal over sharp edge on crankshaft.	95630-63	D (1966 & earlier) DC (1968 & earlier)
	CAMSHAFT OIL SEAL INSTALLING SLEEVE  Tapered tool leads lip of camshaft oil seal over sharp edge on crankshaft.	95631-61	Sprint (1970 & earlier)
	ALL-PURPOSE CLAW PULLER  For many uses, such as pulling FL mainshaft bearing, starter crank gears, clutch release cover, mainshaft gears, etc.  1) 95636-46 Shaft center	95635-46	All Models
	WEDGE ATTACHMENT FOR CLAW PULLER  Used with claw puller for close fitting gears or bearings.	95637-46	All Models
+ 1111	MAINSHAFT STARTER CLUTCH AND BEARING PULLER  One end used to remove mainshaft starter clutch, other end for pulling mainshaft ball bearing.  1) 95652-43A Cup center	95650-42	U FL

	Description	Part No.	Model
	MAIN DRIVE GEAR OIL SEAL TOOL  Used to remove and install transmission main drive gear oil seal.  1) 95666-42A Sleeve Sleeve is used with tool to remove and install clutch gear oil seal on mainshaft. 2) 95671-42 Screw (3)	95660-42	U FL
1-06	CLUTCH GEAR OIL SEAL TOOL  Used to remove and install clutch gear oil seal.  1) 7991 Nut 2) 95671-42 Screw (3)	95685-42	WL G
	GEAR PULLER Removes generator drive gears.	95715-19A	G XL FL
E	TAPPET GUIDE PULLER  Removes press fitted tappet guides from crankcase after tappet body adjusting screw is removed.	95724-57	XL (Early 1978 8 earlier)
	TAPPET GUIDE PULLER Removes tappet guides.	95727-38	WL K KH
12			





## IGNITION TIMING GAGES

1) 2851P Screw, indicator

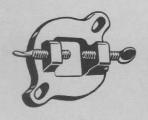
Gage indicates correct piston position for setting ignition timing.

1) 95886-61 Rod only (FL) 1) 95886-67 Rod only (Sprint)

Note: All rods are interchangeable in gage assembly.

95882-63 95883-67 95885-61

BT Sprint FL

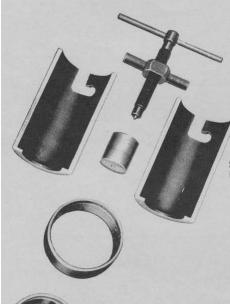


CONNECTING ROD CLAMPING TOOL 95952-33

Holds connecting rod when fitting piston pin bushing.

XL FL

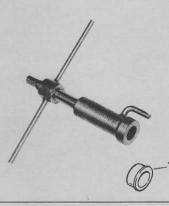
Description	Part No.	Model
CLUTCH HUB AND CHAIN HOUSING PULLER  Pulls clutch hub. With studs pulls Electra Glide inner chain housing from mainshaft.  1) 7688 Nut (4) 2) 34957-72 Screw (4)	95960-41A	FL
CLUTCH HUB AND ALTERNATOR PULLER  Used to pull clutch hub from clutch gear spline on Sportster and Alternator Rotor on Electra Glide (FL)  1) 4062W Bolt (3)	95960-52A	K KH XL 175/250 FL (1970 & later)
PISTON PIN BUSHING TOOL  Used to remove and replace piston pin bushings without removing connecting rod from crankcase.  1) 95986-32A Knurled nut (for thin bushings) 2) 95987-61 Nut (Sprint)	95970-32A	G KH XL FL Sprint
SPROCKET SHAFT TIMKEN BEAR- ING INNER RACE PULLER  Fits between sprocket shaft inner race and flywheel.	96015-52 96015-77	K KH XL (1976 & earlier) XL (1977 & later)
GEAR SHAFT BEARING INNER RACE PULLER Fits between pinion gear shaft inner race and flywheel	96030-77	XL (1977 & later)



SPROCKET SHAFT EXTENSION AND 96015-56 BEARING PULLER

Used to remove sprocket shaft extension (FL, XL) and sprocket shaft Timken bearing inner race (FL). Also pulls front wheel speedometer drive gear (B, BT).

B BT XL (1976 & earlier) FL



CRANKSHAFT INSTALLING TOOL WITH 175/250 ADAPTER

Used to pull crankshaft into right crankcase.

1) 24002-70 175/250 Adapter

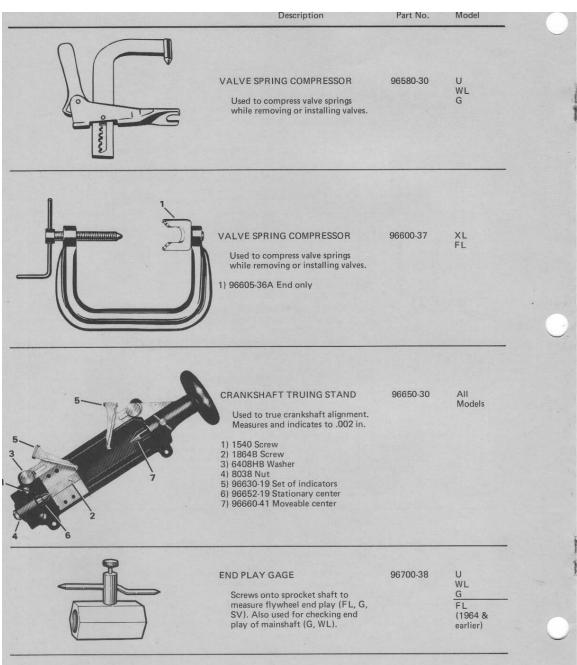
96110-68P 125 (1649) 175/250

	Description	Part No.	Model
	CRANKSHAFT TOOL SET  For disassembling and assembling connecting rod, bearing & crankpin. 96142-64A Adapter Washer (2). For adapting tool for use on crankpins with large diameter hole.  1) 96141-63 Screw (2) 2) 96142-64A Washer (2) 3) 96155-63 Crankpin aligning sleeve	96122-63	D DC D4 (1975 8 earlier)
5	CRANKSHAFT SUPPORT PLATE  Used with arbor press to separate flywheels (K, KH, Sprint) and to press Timken bearing onto sprocket shaft (FL, XL, K, KH).	96137-52A	K KH XL FL Sprint
	SPECIAL PISTON WITH PIN  Used to check connecting rod alignment.	96180-76	FL (1976 & later)
	FORK STEM AND CROSS-MEMBER ALIGNMENT GAGE  Used with fork tube straightening blocks for aligning fork stem.	96245-51	G FL
	FORK TUBE STRAIGHTENING BLOCK  Three required to support fork tubes while straightening on arbor press.	96246-50 96247-54 96247-62	G FL K KH XL (1972 & earlier) Sprint 175/250
16			

	Description	Part No.	Model
11 12 6 3 4 ir ir 3 1) 2 1 2 1 3 1 3 1 1 1 2 1 2 1 2 1 2 1 2 1	RK SLIDER BUSHING TOOL  Jsed to remove slider bushings, nstall new ones and ream to size.  96255-50 Bushing puller assembly 96262-50 Shaft, puller 96264-50 Washer, shaft 96265-50 Nut, shaft 96266-50 Spider 96287-50A Driver 96288-50 Guide, driver 96300-50 Reamer assembly 96302-50 Pilot, long 96303-50 Set screw 96304-50 Reamer, only 96305-50 Body, reamer 96306-50 Handle, reamer	96254-50	G FL (Early 1977 & earlier)
10 7 3 1) 1) 2) 3) 4) 1) 3) 4) 6) 6) 7) 8) 8) 9) 10) 10) 11) 11) 12) 13) 14) 15) 16) 16) 17) 18) 19) 19) 19) 19) 19) 19) 19) 19	RK SLIDER BUSHING TOOL  Jsed to remove slider bushings, Install new ones and ream to size.  96255-54 Bushing puller assembly 96256-69 Adapter (1969 thru 1972) 96262-50 Shaft, puller 96264-50 Washer, shaft 96265-50 Nut, shaft 96278-54 Expander cam 96287-54 Driver 96288-54 Guide, driver 96299-54 Reamer assembly 96300-54 Reamer, only 96303-50 Set screw 96306-50 Handle	96254-54	K KH XL (1972 8 earlier)
C cr ig	ING MARK VIEW PLUG lear plastic plug threads into rankcase timing hole for accurate unition timing with strobe timing ght.	96295-65	G XL FL
Tr	NG MARK VIEW COVER ransparent cover so that flywheel ming mark can be seen.	96297-71	Sprint (1971- 1972)

	Description	Part No.	Model
	PISTON INSERTER RING TOOL	96331-57	XL
	To insert pistons with rings into cylinders. Compresses rings to bore size.	96333-51A	FL-1200 FL-1340
1-9-2	1) 7689W Nut 2) 96338-54 Spacer		
	PISTON SQUARING PLATE	96179-18	FL
	For truing connecting rod.		
		96180-76	XL (1972 8 later)
		96181-26	G XL (1971 8 earlier)
	INTERNAL LOCK RING PLIERS 1/32 in. dia. pins	96215-49	All Models
00	For small retaining rings, such as piston pin lock rings, etc.		
	INTERNAL LOCK RING PLIERS 1/16 in. dia. pins	96216-49	AII Models
	For large retaining rings, such as on Hydra Glide Fork, etc.		
	FRAME HEAD BEARING ADJUST-	96219-50	G
	Fits frame head cone locknut and. head bearing adjusting cone.		FL
1-1	1) 96306-50 Handle		
	HEX SOCKET WRENCH	96225-63	FL (1963 8
	9/64 in. Allen wrench for dual circuit breaker point (socket type) adjusting screws used on 1963 & 1964 Duo-Glide.		1964)

	Description	Part No.	Model
<b>a</b> 1	FORK SHIFTER GAGE	96384-39	U FL
	Used to set and align trans- mission shifter forks.		
3 3	1) 96389-39 Pin (2) 2) 96391-39 Pin 3) 96392-39 Thumb screw (2)		
	MAINSHAFT THIRD GEAR RE- TAINING RING SLEEVE	96396-52	K KH XL
	For installing mainshaft third gear retaining ring. To insure ring is not spread too far.		
	VALVE SEATING GAUGE SET	96489-63	XL
	For checking valve seat location. Set has 2 intake and 1 exhaust valve and separate gages having step to show limits to which seat should be ground.		
	1) 96494-63 Gauge, exhaust 2) 96495-70 Gauge, intake - 1970 & later		
8 8 -			415-47
	For checking valve seat location. Set has valve and gage having step to show limits to which seat should be ground.	96490-59A	FL
	1) 96492-59 Valve gauge Exhaust (1948 & later) Intake (1948 thru 1965)		
1 2 2	VALVE LAPPING TOOL  Used to rotate valve when grinding	96550-36	Sprint XL FL
2	or lapping seat surfaces.  1) 534 Cotter Pin 2) 6335 Washer (2)		
			1



	Description	Part No.	Model
	CRANKCASE MAIN BEARING LAP  For aligning right and left main bearing races and lapping. Also used to lap pinion shaft bearing race on engines with Timken bearings.	96710-40	U WL G K KH XL FL
	1) 3953W Bolt 2) 96717-40 Lap 1-1/2 (FL, U - 1954 & earlier) 3) 96718-40 Lap 1-3/8 (1976 & earlier XL, K, KH, G, WL) (also 1955 to 1957 FL) 4) 96718-58 Lap 1-3/4 (FL - 1958 & later) 5) 96727-56 Guide Sleeve, for fitting pinic shaft bearings (FL) 6) 96728-56 Guide Sleeve for fitting pinion shaft bearings (1976 & earlier K, KH, X	nn n	
1 2	CONNECTING ROD LAPPING ARBOR	96740-17	G WL
	For lapping connecting rod bearing races when fitting new rollers.	96740-36	FL
	1) 96742-17 1-1/2 in. lap (WL, G) only 2) 96746-36 1-5/8 in. lap (FL, XL, K, KH, U) only		XL K KH U
	PISTON PIN LOCK RING TOOL	96777-72	D DC
	For removing and installing piston pin lock rings.		D4
	PISTON PIN LOCK RING TOOL	96780-32A	<u>U</u>
	For removing and installing piston pin lock rings.		(1972 & earlier)
	96783-66 Plug, for late 1966 to 1972 models with thick wall piston pin.		
,3	PISTON PIN LOCK RING TOOL	96780-58A	G K
G	For removing and installing spiral piston pin lock rings.		KH XL
12	1) 96781-66 Plug, for late 1966 to early 1977 XL models with thick wall piston pin. 2) 96781-72 Plug for 1972 to early 1977 models with larger dia. piston. 3) 96782-58 Lock Ring tool sleeve only.	KL	(Early 19 & earlier FL (1973 & later)

Description	Part No.	Model
VALVE SPRING TEST FIXTURE  Has adjustable platform for various length springs. A tone device indicates when to read scale. Used with torque wrench. (obtain locally)	96796-47	Sprint XL FL
SET OF COPPER VISE JAWS  Placed in vise jaws to prevent damage to hardened and ground surfaces.	96798-43	All Model
For testing battery state of charge. Under temperature extremes, correct specific gravity of battery electrolyte can be determined by means of the built-in thermometer.	96802-63	All Model:
BENDING BAR  For straightening handlebars, forks, frames and golf car bump- ers. Hooks onto tubes to apply bending leverage.	96806-40	All Model
MOTORCYCLE SHOP STAND  Provides sturdy support for motorcycle on shop or showroom floor. Operating bar fits into socket on either side to raise or lower motorcycle rear end.  1) 90906-52 Clip 2) 96811-63 Stand, only	96810-63	FL

THE RESERVE OF THE PARTY OF THE	Description	Part No.	Model
	ENGINE REPAIR STAND  Bench stand which simplifies overhaul work.	96815-46	U WL G FL
	PINION GEAR PULLER AND COLLARS  Used to remove and install pinion gear.  1) 96831-51 Screw assembly 2) 96836-57 Collar (G, XL, K, KH)	96830-51	G K KH XL (1976 & earlier) FL
06	OIL PRESSURE GAGE  Check oil pump pressure under operating conditions. Graduated 0-60 lbs.  96925-58 Adapter Nipple to attach base to 1/8 NPT pump outlet on 19 & later pumps.	96921-52	G XL FL
2 1 1 2 3	VACUUM GAGE  Measure front chain case vacuum to detect air leaks (30 in. water, 1.05 P.S.I.)  1) 10014 Hose clamp (2) 2) 63533-41 Fitting (2) 3) 96955-68 Fitting	96950-68	FL (1965 & earlier)

CARBURETOR CHECK VALVE TEST TOOL For Tillotsen diaphragm carburetor.  1) 17324-67 Hose 2) 63597-64 Tube 3) 68689-38 Grommet  CARBURETOR MAIN NOZZLE FOR Tillotsen diaphragm carburetor.  SHOCK ABSORBER TOOL Simplifies shock absorber disassembly or assembly, Holds spring in compression while disassembling parts.  1) 7845 Nut (6) 2) 97019-52A Block only for 1967 & later, FL, XL  BEARING GUIDE Tool for installing inner race on pinion gear shaft.  96962-68 XL KH KH KH XL AL		Description	Part No.	Model
SHOCK ABSORBER TOOL Simplifies shock absorber disassembly or assembly. Holds spring in compression while disassembling parts.  1) 7845 Nut (6) 2) 97019-52A Block only for 1967 & later, FL, XL  BEARING GUIDE Tool for installling inner race on later)	2	For Tillotsen diaphragm carburetor.  1) 17324-57 Hose 2) 63597-54 Tube	96960-68	DC D4 XL
Simplifies shock absorber disassembly or assembly. Holds spring in compression while disassembling parts.  1) 7845 Nut (6) 2) 97019-52A Block only for 1967 & later, FL, XL  BEARING GUIDE Tool for installing inner race on  Simplifies shock absorber disassembly. Holds spring in compression while disassembly.		PUNCH For Tillotsen diaphragm carbu-	96962-68	
Tool for installing inner race on later)		Simplifies shock absorber disassembly or assembly. Holds spring in compression while disassembling parts.  1) 7845 Nut (6) 2) 97019-52A Block only for 1967	97010-52A	KH XL FL D
		Tool for installing inner race on	97080-77	(1977 8

Description	Part No.	Model
SPROCKET SHAFT BEARING TOOL  Used to install crankshaft assembly into crankcase Timken bearing.  1) 97090-57 Screw (XL) 2) 97100-77 Sleeve (1977 & later)	97081-54A	K KH XL
HOSE CLAMP PLIERS  For tightening band type metal clamps on gas and oil lines.	97087-65A	XL FL
ALIGNMENT GAGE  Used to align rear brake disc and brake pads (1973 and later)	97168-77	FL (1973 & later)
BENDING TOOL  Used to align rear brake disc and brake pads (1973 and later)	97169-77	FL (1973 & later)
CLUTCH HUB INSTALLING TOOL  Used to install clutch hub, clutch gear extension and mainshaft sprocket (XL, K, KH). Also used for transmission disassembly (AH,D).  1) 97173-55A Screw only - 3-3/4 in. long 2) 97173-67 Screw only - 4-3/4 in. long	97170-55A	AH K KH XL D DC DC

	Description	Part No.	Model
1/2	CLUTCH LOCK PLATE  Used to hold clutch shell from turning when engine sprocket, clutch hub and rear chain front sprocket nuts are removed.  1) 3825 Bolt (2) 2) 7676 Nut (4)	97173-71	XL (1971 & later)
0	CLUTCH LOCK PLATE  Used to hold clutch shell from turning when engine sprocket, clutch hub and rear chain front sprocket nuts are removed.  1) 3825 Bolt (2)	97175-55	K KH XL (1970 & earlier)
	CLUTCH LOCK TOOL  Locks clutch hub & shell together to prevent crankshaft turning when removing or installing pinion shaft nut & clutch drive gear.	97175-66M (1544)	Sprint (Late 197 thru 1974
0	CLUTCH LOCK TOOL  Locks clutch hub & shell together to prevent crankshaft turning when removing or installing pinion shaft nut & clutch drive gear.	97177-69P (1716)	Sprint (1969 to early 1973) M
	CLUTCH SPRING COMPRESSOR Used to disassemble clutch. 1) 97182-71 Stud (2) 2) 97183-71 Wing nut (2)	97178-71	XL (1971 & later)
	TIMKEN BEARING OUTER RACE PRESS PLUG  Used to remove sprocket shaft Timken bearing outer race.	97194-57	FL (1955 & later)

	Description	Part No.	Model
THE STATE OF THE S	SPROCKET LOCKING LINK  Locks engine sprocket and clutch sprocket teeth to prevent rotation when nuts are removed or installed.  1) 4066 Bolt (2) 2) 7041 Lockwasher (2) 3) 7748W Nut (2)	97200-55	K KH XL (1976 & earlier)
	SPROCKET SHAFT BEARING INSTALLING TOOL  For installing crankshaft into crankcase Timken bearing.	97225-55	FL (1955 & later)
C.	SPROCKET SHAFT BEARING NUT WRENCH  Used with 97225-55 to install sprocket shaft bearing nut.	97235-55B	FL (1955 to 1968)
	CLUTCH SHELL NUT WRENCH  Used to remove special nut from clutch shaft.	97235-66P (1542)	Sprint (1969 to 1974)

	Description	Part No.	Model
	CLUTCH SHELL AND HUB HOLDING TOOL  Used to hold clutch shell when removing drive pinion gear and to hold hub when removing hub nut. Grind three stubs off for use on SS/SXT-125.	97237-68P (1638)	ML TX (1973 & later) X Z SR
-	CLUTCH HUB PULLER  For pulling clutch hub off mainshaft.	97240-75P (1909)	90 cc ML TX SS/SXT-125 MSR SR
1 2	TRANSMISSION ASSEMBLING TOOLS  For assembling gear retaining rings on shafts.	1) 97245-75P (2257) 2) 97250-75P (2258) 3) 97251-75P (2259)	SS/SXT-125
	CAMSHAFT NEEDLE BEARING INSTALLING ROD Used to install camshaft needle bearings.	97272-60 97273-60	FL XL
	BRAKE DRUM TURNING ARBOR  Used to refinish brake friction surface when relining brakes.  Drum mounts on arbor with wheel drum bolts.	97280-60A	G FL (1972 & earlier)
	VALVE SPRING COMPRESSOR  Used to compress springs when removing or installing valves.	97290-61P (1001)	Sprint

Description	Part No.	Model
TRANSMISSION HOLDING TOOL  Used to hold clutch hub while removing or installing sprocket or clutch hub nut.	97291-61PA (1002)	Sprint (1968 & earlier)
TWO JAW PULLER  Used to pull oil pump gear, mainshaft sprocket, bearings, etc. Center cap is for oil pump drive gear. Used to pull transmission sprocket (M Models). Used with 2 - Part No. 52081-63P bolts to pull 1973 & 1974 Sprint alternator rotor. (Order separately)  1) 95652-43A Center cap only.	97292-61	All Models
CLUTCH SPRING COMPRESSOR  Compresses spring so that clutch can be disassembled. Also used to press mainshaft from crankcase ball bearings.	97293-61P (1006)	Sprint (1968 & earlier)
FAN ROTOR PULLER  Used to remove rotor from crankshaft taper.	97293-71	Y
PULLER  Pulls pinion gear, clutch drive gear, and clutch hub (Sprint). Pulls commutator end cover from SIBA starter generator (D, DC, D4). Includes:  1) 2599 Screw for SIBA starter-generator end cover (D, DC, D4) (2 used). 2) 7656P Nut (2) 3) 24805-61P Stud for pulling Sprint 250cc clutch hub (2 used). 4) 52081-63P Bolt for 1973 & 1974 Sprint clutch drive gear (2 used).	97294-61B	Sprint D DC D4 (1967 & 1968)

A PROPERTY OF THE PROPERTY OF	Description	Part No.	Model
	Presses crankshaft assembly from ball bearing. Also used to separate crankcases.	97295-61PA (1008)	Sprint
U U U U	1) 97295-62P Screw		
	GENERATOR ARMATURE PULLER	97296-61P (1053)	Sprint (1972 8
	Pulls armature from crankshaft.	(1033)	earlier)
	CRANKSHAFT INSTALLING TOOL	97297-61PA	Sprint
0	Used to install crankshaft assembly in gear side ball bearing. (175/250 right side only)	(1072)	175/25
	1) 24002-70 175/250 adapter		
•	ROTOR PULLER	97302-70P	MSR
	For pulling alternator rotor off left flywheel shaft.	(1796)	SR 175/250
	SPROCKET HOLDING TOOL		Sprint (1972 8
	Used to hold sprocket when removing or installing shaft nut.		earlier)
0	For 14 tooth sprocket For 15 tooth sprocket For 16 tooth sprocket For 17 tooth sprocket	97304-69P 97297-66P 97298-66P 97299-66P	(1711) (1507) (1508) (1509)
	SPROCKET HOLDING TOOL	97305-68P (1650)	ML
	Used to hold sprocket when re- moving or installing shaft nut.		
9	For 14 tooth sprocket.		

	Description	Part No.	Model
	Used with plate from tool Part No. 97295-61P to pull crankcases together.  1) 7921 Nut	97300-61	Sprint (1972 & earlier)
	POLE SHOE ARBOR  Used for fitting generator field coils and pole shoes.	97302-61	Sprint (1972 & earlier)
	FORK TUBE TOOL  Used to remove and install front fork tubes. Also serves as a guide to pull fork sides into place when assembling.	97305-61	Sprint
0	ALTERNATOR ROTOR HOLDING TOOL  Used to hold alternator rotor when removing crankshaft nut.	97306-73P (2074)	Sprint (1973 & 1974)
	DRIVE SPROCKET HOLDING TOOL  Used to lock drive sprocket to remove shaft nut.	97307-73P (1651)	Sprint (1973 & 1974)
The state of the s	ELECTRIC STARTER DRIVE CLUTCH AND CRANKSHAFT INSTALLING TOOL  Used to press starter clutch on shaft and pull crankshaft into case.	97308-73P (2079)	Sprint (1973 & 1974)

	Description	Part No.	Model
	ELECTRIC STARTER DRIVE PULLER Used to pull starter clutch.	97309-73P (2084)	Sprint (1973 & 1974)
	VALVE GUIDE REAMER — .296 in. dia.  Used for sizing replacement valve guides to obtain correct clearance with valve stem.	97310-61	Sprint
	ROCKER ARM SHAFT BUSHING REAMER — 12mm dia.  Used to size new rocker arm shaft bushings for correct fit.	97314-61	Sprint
	CAMSHAFT AND SHIFTER CAM BUSHING REAMER SET — 14mm dia.  Reamer and large pilot used to line ream replacement camshaft bush- ing. Reamer and small pilot used to line ream smaller shifter cam bushing.  1) 97323-61P Reamer.	97318-61P	Sprint ML
0	BELT TENSIONER  Used with 25 lb. spring scale to set 1967 and 1968 starter-generator belt tension.	97320-67	D DC D4

	Description	Part No.	Model
	SHIFTER CAM BUSHING REAMER — 26 mm dia.  Used to line ream replacement large shifter cam bushing.	97322-61P	Sprint ML
	TRANSMISSION HOLDING TOOL  Used to hold transmission shaft from turning when installing or removing transmission parts. Fits on drive pin bosses.	97330-62	AH D DC D4 Y
<b>10</b>	CLUTCH SHELL GEAR HOLDING TOOL  Used to hold clutch shell when re- moving pinion drive gear, etc.	97340-65P (1454)	М
	CLUTCH HUB HOLDING TOOL  Used to hold clutch hub when removing hub nut.	97341-65P (1455)	M
	CRANKSHAFT INSTALLING TOOL  Used to pull crankshaft into left and right ball bearings.  Also used to pull crankshaft assembly into crankcase. (ML Model)	97342-65P (1456)	M ML X Z MSR 125
	CLUTCH HUB PULLER  Screws into clutch hub to remove hub from shaft spline.	97343-65P (1457)	M

	Description	Part No.	Model
	MAGNETO ROTOR PULLER  Screws into magneto rotor to remove it from shaft taper.	1) 97344-65P (1458) (Replaced by 97344- 65PA) 2) 97344- 65PA (2253)	M ML X Z
	MAGNETO ROTOR PULLER  Screws into magneto rotor to remove it from shaft taper.	97301-70P (1796)	MSR 175/250
	CLUTCH SPRING COMPRESSOR  Screws into clutch pressure plate threads and compresses spring plate so lock ring can be removed for clutch disassembly.	97345-65P (1459)	M
	PRIMARY DRIVE PINION PULLER  Used to pull primary drive pinion from crankshaft taper.	97346-65PA (2253)	M
	CRANKCASE DISASSEMBLING TOOL  Mounts to left crankcase and screws push equally against crankshaft and countershaft to force crankcases apart evenly.	97347-68PA (1657A)	ML MSR X Z 125
	CRANKSHAFT PRESS PLATE  Plate is placed between crankshaft throws to press out crankpin with arbor press. (65 c.c.)	97348-67	M
4			

Description	Part No.	Model
PRIMARY DRIVE PINION PULLER  Used to pull primary drive pinion from crankshaft taper.	97348-68P (1636)	ML MSR (1972 & earlier)
	97348-73P (2062)	X Z 125 (1973 to 1975)
CRANKSHAFT PRESS PLATE  Plate is placed between crankshaft throws to press out crankpin with arbor press.	97349-68	ML MSR X Z 125
ROTOR HOLDING TOOL	97350-71P (1994)	M ML MSR (1972 & earlier) X (1973 to 1975)
EXHAUST PIPE PORT NUT WRENCH	97351-71P (2005)	M ML (1968 to 1971)
ROTOR HOLDING TOOL	97352-71P (1995)	Z 125 MSR (1973 & later)
		35

	Description	Part No.	Model
9	CLUTCH DISASSEMBLY TOOL  Used with arbor press to compress clutch spring for removal of retainers.	97353-74P (2261)	175/250
	CLUTCH DISASSEMBLY TOOL  Used to remove clutch plate retaining ring.	97354-74P (2275)	175/250
Brown and State of St	CLUTCH HUB HOLDING TOOL  Used to hold clutch hub while removing nut.	97355-74P (2276)	175/250
	CONNECTING ROD HOLDING TOOL Used to hold connecting rod for disassembling and assembling crankshaft nuts.	97356-74P (2263)	175/250
	CRANKCASE SPLITTING TOOL  Used to separate crankcases by pressing crankshaft out of left and right crankcase main bearings.	97358-74P (2268)	175/250

	Description	Part No.	Model
	SHIFTER CAM OPERATOR  Used to test operation of shifter mechanism.	97359-74P (2188)	175/250
	TESTER  For troubleshooting and testing the electrical system and components.	97360-71	Y
	IGNITION TIMING SETTING TOOL  Mounts to crankcase to provide accurate alignment of ignition timing marks.	97360-74P (2266)	175/250
	TRANSMISSION ASSEMBLING TOOL  For assembling gear retaining rings on shafts.	97361-74P (2264)	175/250
20	PIN TERMINAL TOOL	97362-71 (Small)	All Models
	SOCKET TERMINAL TOOL  Simplifies removal of pin & socket type terminals from terminal housing.	97364-71 (Large)	
	CARBURETOR FLOAT GAGE For setting carburetor float level.	97362-74P (2269)	SS/SXT-125 175/250
			37



# CYLINDER HONES

NO. 404-B

With Sunnen cylinder hones, you quickly refinish the cylinder walls, leaving them straight and round to within a guaranteed half-thousandth. Original alignment is maintained; surface finish is ideal for new rings.

Sunnen cylinder hones and stones needed to cover the complete range of cylinder diameters in Harley-Davidson engines are shown in the table. A portable electric drill furnishes operating power. You need no special training to produce a first class job.

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Sunnen Products Co. St. Louis, Mo. 63143

Harley-Davidson Model Description	Engine Designation Letter	Bore (Inches) MM	Sunnen Cylinder Hone Set	Additional Stone Set Needed
M-50 3.0 cu. in. T.C.	M, MS	(1.528) 38.8mm	PLP 1500	
M-65 3.9 cu. in. T.C.	M, MS	(1.7323) 44mm		NONE
M-90 5.5 cu. in. T.C.	Z, X	(1.890) 48mm	SN-70	
M-100 6.0 cu. in. T.C.	MSR, SR	(1.968) 50mm		
125, Hummer 7.5 cu. in. T.C.	S, B	(2.0625) 52,4mm	JN-89	JN-300
1968 to 1973 (Cast Iron Cyl.) 125 cc.	ML, MLS TX	(2.2047) 56mm	JN-89	JN-101 JN-301
1974 & Later (Aluminum Cyl.) 125 cc.	SX, SXT, SS	(2.2047) 56mm	JN-89	JN-532
165, Super-10, Pacer, Topper, Scat 10 cu, in. T.C.	ST, BT BTH, A AH	(2.375) 60,3mm		JN-101 JN-301
175	SS, SX	(2.402) 61mm	JN-89	JN-532
250	SS, SX	(2.835) 72mm	AN-111	AN-530
Pacer, Scat 10.7 cu. in. T.C.	BT, BTH	(2.375) 60.3mm		JN-101 JN-301
Snowmobile	Y-398 Y-440	(2.567) 65.2mm (2.677) 68mm	AN-111	NONE
Sprint 15 cu. in. O.H.V.	C, H 61-66 67-68	(2.598) 66mm (2.835)		
21 cu. in. O.H.V.	SS, SX-350	72mm (2.913) 74mm		
Golf Car, Utilicar 15 cu. in. T.C.	D, DF, DC, D4	(2.745) 69.7mm		
45 cu. in. Side Valve	W, WL, G, GA, GE, K	(2.745) 69.7mm		
55 cu. in Side Valve	КН	(2.745) 69.7mm		
55 cu. in. O.H.V.	XL, XLH	(3.000) 76.2mm		
61 cu. in. O.H.V.	XL, XLH, XLCH, XLT, XLCR	(3.188) 81mm		
61 cu. in. O.H.V.	E, EL	(3.3125) 84.15mm		
74 cu. in. Side Valve	U, UL	(3.3125) 84.15mm		
74 cu. in. O.H.V.	F, FL, FLH, FX, FXE, FXS	(3.4375) 87,3mm		

