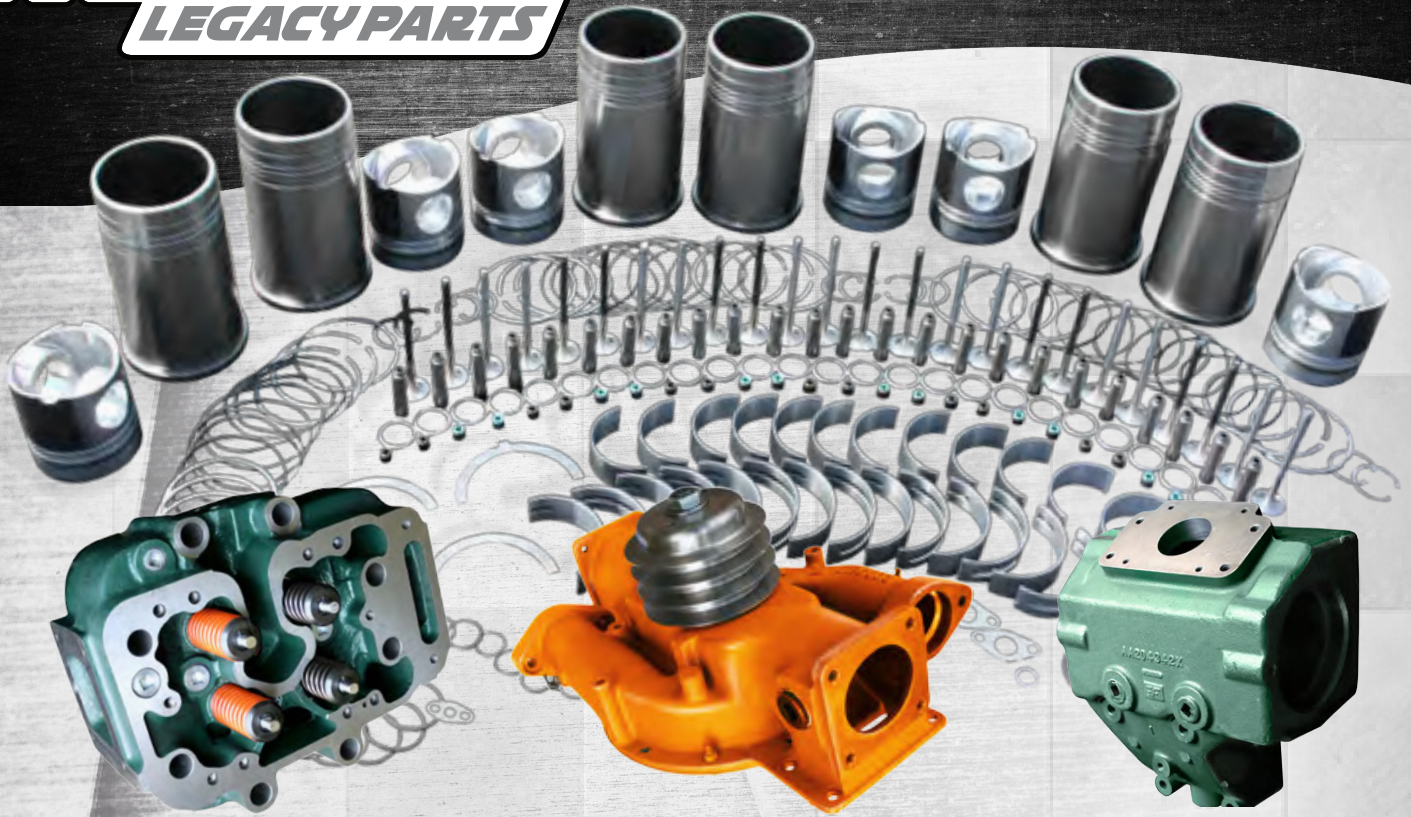


MEMORIAL
Machine
LEGACY PARTS



VHP PARTS

MEMORIAL MACHINE MANUFACTURED VHP REPLACEMENT PARTS



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Remanufacturing high speed natural gas
and diesel engine components since 1974

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HEAD COMPONENTS

Head Rebuilt Kit Series 2 VHP GU/GSI

Wide Bridge	936WB	
Guide, Valve Intake	2	HW204109E
Guide, Valve Exhaust	2	HW204109C
Seal, Valve Guide, Intake Blue	2	A214229
Seal, Valve Guide, Intake Green	2	HW176450G
Seat, Intake / Exhaust	4	HW176352P
Valve, Intake	2	204236K-WI
Valve, Exhaust Iconel	2	204436E-WI

Head Rebuilt Kit Series 2 VHP GU/GSI

Narrow Bridge	936NB	
Guide, Valve Intake	2	HW204109E
Guide, Valve Exhaust	2	HW204109C
Seal, Valve Guide, Intake Blue	2	A214229
Seal, Valve Guide, Intake Green	2	HW176450G
Seat, Intake / Exhaust	4	HW176352K
Valve, Intake	2	204236K-WI
Valve, Exhaust Iconel	2	204436E-WI

Head Rebuilt Kit Series 2 VHP GL

Wide Bridge	936GL	
Guide, Valve Intake	2	HW204109E
Guide, Valve Exhaust	2	HW204109C
Seal, Valve Guide, Intake Blue	2	A214229
Seal, Valve Guide, Intake Green	2	HW176450G
Seat, Intake	4	HW176352P
Seat, Exhaust GI 20 Degree	2	HW176352R
Valve, Intake	2	204236K-WI
Valve, Exhaust Iconel 20 Degree	2	HW204236L
O-Ring	2	HW305020B
Seal, Prechamber	1	HW209562D

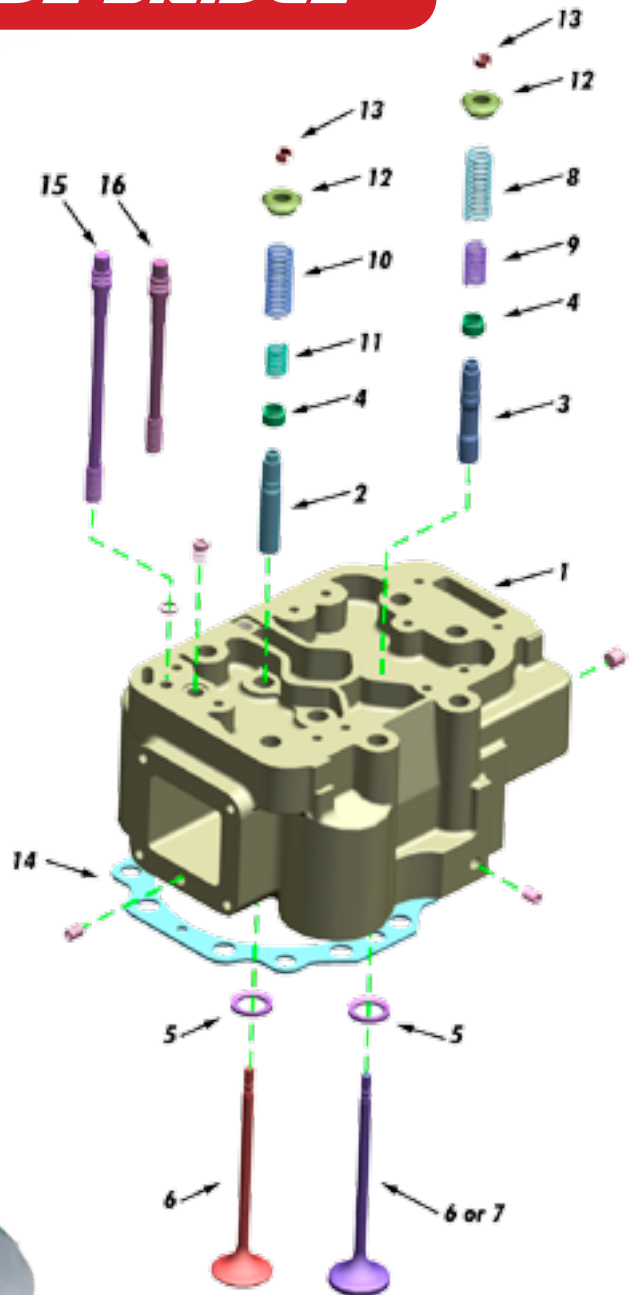


VHP® is a registered trademark of Innio.

CYLINDER HEAD - WIDE BRIDGE

HWAJ204702N

Part No	Description
1	HWAJ204702N HEAD, Cylinder GU/GSI Complete
2	HW204109E GUIDE, Valve Intake
3	HW204109C GUIDE, Valve Exhaust
4	HW176450G SEAL, Valve Guide, Exhaust Green
4	A214229 SEAL, Valve Guide, Intake Blue
5	HW176352P SEAT, Wide Bridge 3"
6	204236K-WI VALVE, Intake, Premium
7	204436E-WI VALVE, Exhaust, Inconel®
8	HW204035 SPRING, Exhaust, Inner
9	HW204135 SPRING, Exhaust, Outer
10	HW204035A SPRING, Intake, Inner
11	HW204135A SPRING, Intake, Outer
12	HW153884D RETAINER, Spring
13	HW73629 TAPER, Spring
14	HW205100C GASKET, Cylinder Head, Graphite
15	A169994C Long CAPSCREW
16	A169994B Short CAPSCREW



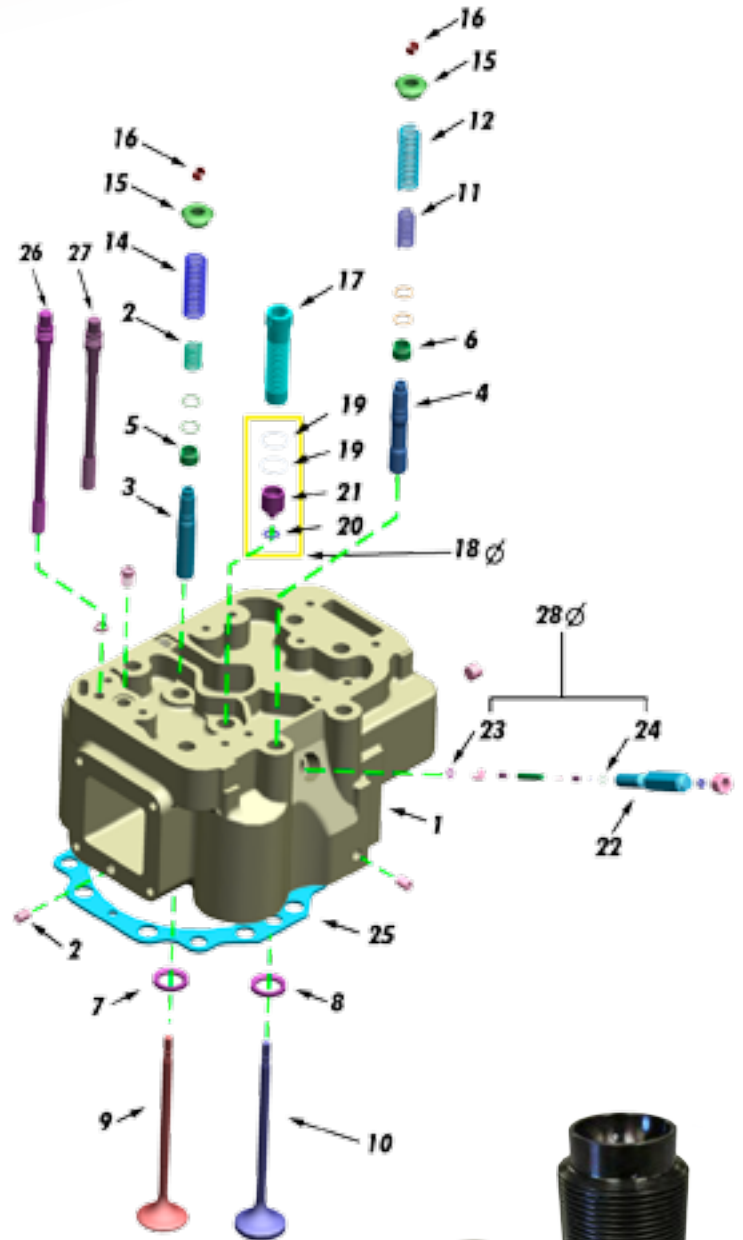
HWAJ204702N

Cylinder Head

CYLINDER HEAD - GL

CA204802E

Part No	Description
1 CA204802E	HEAD, Cylinder GU/GSI Complete
2 78283B	PLUG, Pipe
3 HW204109E	GUIDE, Valve Intake
4 HW204109C	GUIDE, Valve Exhaust
5 A214229	SEAL, Valve Guide, Intake Blue
6 HW176450G	SEAL, Valve Guide, Exhaust Green
7 HW176352P	SEAT, Intake 30°
8 HW176352R	SEAT, Exhaust 20°
9 204236K-WI	VALVE, Intake 30°
10 HW204236GL	VALVE, Premium Inconel® Ex. 20°
11 HW204035	SPRING, Exhaust Inner
12 HW204135	SPRING, Exhaust Outer
13 HW204035A	SPRING, Intake Inner
14 HW204135A	SPRING, Intake Outer
15 HW153884D	RETAINER, Valve Spring
16 HW73629	TAPER, Valve Spring
17 A209567K	CARRIER, Spark Plug 13/16"
18 AA209724F	Prechamber Assembly Kit
19 HW305020B*	O-RING
20 HW209562D*	SEAL, Prechamber
21 HW209724F*	PRECHAMBER, Cylinder Head
22 A211587C	Admission Valve Assembly
23 HW28357*	WASHER, Stainless Steel
24 HW209992*	O-RING, Viton®
28 A211665E	Admission Valve Repair Kit
25 HW205100A	Cylinder Head GASKET, Graphite Material with Steel Fire Ring, 7042
26 A169994C	Long CAPSCREW
27 A169994B	Short CAPSCREW



*Items included in Kit

A211587C

Admission Valve, Complete

A211665E

Admission Valve Repair Kit

A209567K

Spark Plug Carrier

WATER PUMPS

Water Pump



Part No	Description
AF200960D	Complete Double Row Water Pump With Pulley

Water Pump Parts

Part No	Description
---------	-------------

Water Pump Mounting Gasket Set

This set includes all gaskets necessary to install a water pump.

HW9611	F2895, F3521
HW9612	L5108, L5790, L7042
HW9613	P9390

Impeller

HW205063C	F2895, F3521
HW200463C	L5108, L5790, L7042 Single/Double Row Bearing

Bearing

HW161309A	Single row bearing, front
HW78843A	Single row bearing, rear
HW161309C	L5108, L5790, L7042 Double row bearing, front
HW78843C	L5108, L5790, L7042 Double row bearing, rear
HW161339	Idler pulley bearing

Seal Assembly

HW157475K	6 & 12 Cylinder engines
------------------	-------------------------

Thermostat

HW211887A	165°
HW211887B	170°
HW211887D	180°

Shaft

HW205056	F2895, F3521
HW200456	L5108, L5790, L7042, single row bearing
HW200456C	L5108, L5790, L7042, double row bearing
HW257056	P9390

Pulley & Backplate

A159581E	Pulley
A200161B	Backplate

HW200456 Water Pump Shaft



HW205056 Water Pump Shaft



HW200456C Water Pump Shaft



WATER PUMP KITS

Part No Description

Complete Water Pump Kit

Included in this kit: Impeller, shaft, spacer, mechanical seal, bearings, o-rings, gaskets, nuts, washers, retaining ring, woodruff keys, petcocks, plug

HW960192 F2895, F3521

HW960149 L5108, L5790, L7042

HW960291 L5108, L5790, L7042
Double row bearings



Complete Water Pump Kit Less Impeller

HW960192L F2895, F3521

HW960149L L5108, L5790, L7042

HW960291L L5108, L5790, L7042
Double row bearings

HW960202L P9390



Complete Water Pump Kit Less Impeller and Shaft

HW960192LS F2895, F3521

HW960149LS L5108, L5790, L7042

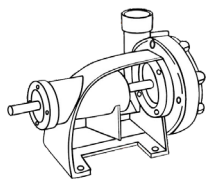
HW960291LS L5108, L5790, L7042
Double row bearings

Auxiliary Water Pump Kit

Included in this kit: Seal assembly, bearings, shaft, gaskets and felt rings.

For Pump Casting
#169561-A-B-C-D-E-G-H

HW960256

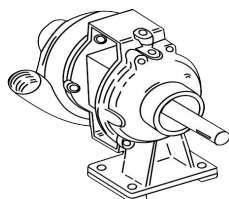


Auxiliary Water Pump Kit

Included in this kit: Seal assembly, bearings, Haun One-Piece Shaft, snap rings, lock nut, woodruff keys, gaskets

For Pump Casting
#208540A-C-D

HW960243



SERIES 2 GASKETS

Part No	Description
HW97749G	Single Head Gasket Set
For F3521, L7042, P9390, G/GSI, GL Includes everything required to reinstall one head	
HW153881	Water Outlet Elbow Gasket
HW153895A	Intake Manifold Gasket
HW153896A	Exhaust Manifold Gasket
ASA-10107	O-Ring
HW169064B	Thermostat Housing Gasket
HW169184	O-Ring Retainer
HW176586	Thermostat Gasket
HW176587	Gasket
HW176883G	Silicone Water Jumper Gasket
HW205100A	Head Grafoil® Gasket
HW211196	O-Ring
HW951054J	Crankcase O-Ring
A153894C	Gasket, Valve Cover Buna-N
HW209562D	Prechamber Seal
HW305020B	O-Ring

Individual Gaskets

HW153894B	Valve Cover Gasket
HW176883G	Water Jumper Gasket, Molded Silicone Rubber
HW153121	Pan Door Gasket, Molded Red Silicone Rubber
HW168108	Lifter Door Gasket, 6 Cylin
HW205100A	Head Grafoil®
A204000V	Head Gasket Grafoil Small Bore
HW493023	Oil Strainer O-Ring
HW163213A	Tappet Housing Gasket

Part No	Description
HW97745	Small Bore Single Head Gasket Set
For F2895, L5108, L5790, G/GSI, GL Includes everything required to reinstall one head	
HW153895A	Gasket, Intake Manifold
HW153896A	GASKET, Exhaust Manifold
ASA-10107	O-RING, Piston Plunger Assy
HW169064B	GASKET, Thermostat Housing
HW169184	Retainer
A204000V	HEAD GASKET, Small Bore
HW209562D	SEAL, Prechamber
HW211196	O-Ring
HW28357	GASKET, Stainless
HW951054J	O-Ring, Crankcase
A153894C	GASKET, Valve Cover Buna-N
HW176883G	GASKET, Water Jumper Silicone Formed
HW209992	O-Ring
HW153881	GASKET, Water Outlet Elbow
166580M	O RING #2-010
HW305020B	O-RING for VHP

Top Gasket Set

Includes everything required to reinstall all cylinder heads

HW979266G	L7042, G/GSI, GL
HW979263	L5108, L5790, G/GSI
HW979264	F2895, G/GSI
HW979265	F3521, G/GSI, GL
HW979267G	P9390, G/GSI

Bottom Gasket Set, Turbocharged / NA

HW9001023	F2895, F3521, F3524, G/GSI, GL
HW900125	L5108, L5790, L7042, L7044, G/GSI, GL
HW9001027	P9390, G/GSI



SERIES 4 GASKET SETS

Part No	Description
A-977-69	Single Head Gasket Set
For L5794, GSI	
Includes everything required to reinstall one head	
A63600	WASHER, 1.53 X 1.88 X .06
HW153139A	GASKET, Water Inlet
HW153895A	GASKET, Intake Manifold
HW153896A	GASKET, Exhaust Manifold
A153994C	GASKET, Valve Cover
HW176883	RING, Water Outlet
A204000V	HEAD GASKET, Small Bore
HW211196	O-RING
A211670	O-RING, Square Cut
A211830	O-RING, 2-130
A211795A	SEAL, Ignition Sleeve
A292843	O-RING
A304745G	O-RING, Viton® 2-227

Individual Gaskets

A153994C	Valve Cover Gasket
HW176883G	Water Jumper Gasket, Molded Silicone Rubber
HW153121	Pan Door Gasket, Molded Red Silicone Rubber
HW168108	Lifter Door Gasket, 6 Cylin
HW205100C	Head Grafoil®
HW493023	Oil Strainer O-Ring
HW163213A	Tappet Housing Gasket

Part No	Description
A-977-68	Single Head Gasket Set
For F3524, L7044, GSI	
Includes everything required to reinstall one head	
A63600	WASHER, 1.53 X 1.88 X .06
HW153139A	GASKET, Water Inlet
HW153895A	GASKET, Intake Manifold
HW153896A	GASKET, Exhaust Manifold
A153994C	GASKET, Valve Cover
HW169184	RETAINER
HW176883	RING, Water Outlet
HW205100C	GASKET, Head Grafoil®
HW211196	O-RING
A211795A	SEAL, Ignition Sleeve
A211830	O-RING, 2-130
A304745G	O-RING, Viton® 2-227
A292843	O-RING
A295387A	O-RING 1.62 x 1.88 x .12, Viton®

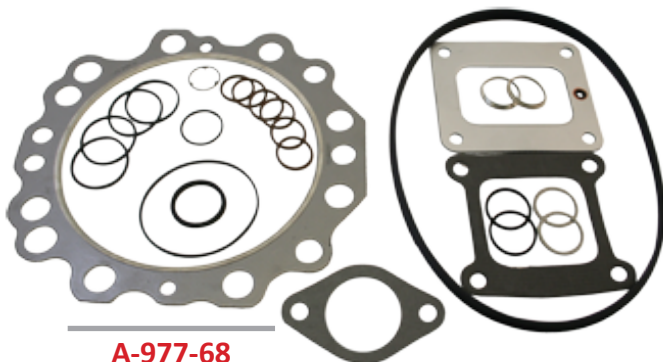
Top Gasket Set

Includes everything required to reinstall all cylinder heads

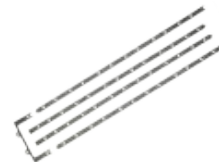
A-979-293	F3524, GSI
A-979-294	L5794, GSI
A-979-292	L7044, GSI

Bottom Gasket Set, Turbocharged / NA

HW9001023	F2895, F3521, F3524, G/GSI, GL
HW9001025	L5108, L5790, L7042, L7044, G/GSI, GL
HW9001027	P9390, G/GSI



A169892F
Water Jumper Elbow
HW176883G
Molded Gasket



HW163213A
Tappet Housing Gasket



HW153121
Molded Pan Door Gasket

ENGINE BEARINGS

LOWER SHELL

UPPER SHELL

MAIN BEARING PAIR CONFIGURATIONS T-Drilled (New Style)



HW200022U Front/Center/Rear



HW200022T Front/Center/Rear



HW200025U Intermediate



HW200025T Intermediate

MAIN BEARING PAIR CONFIGURATIONS Angle-Drilled (Old Style)



HW200022S Front/Center/Rear



HW200022S (Same as Lower)



HW200025S Intermediate



HW200025S (Same as Lower)

ROD BEARING PAIR CONFIGURATIONS MA205210A Rod Bearing Pair



HW205010K



HW205110P

MA205210B Rod Bearing Pair



HW205010K



HW205110N

MA205210 Rod Bearing Pair



HW205010L



HW205110N

Part No	Description	Qty
M918344	Main Bearing Set T-Drilled (6 & 12 Cyl Engines)	
HW153031	WASHER, Thrust, 2 Halves	2
HW200022T	MAIN BEARING, Half, Upper Shell	3
HW200022U	MEAN BEARING, Half, Lower Shell	3
HW200025T	MEAN BEARING, Half, Upper Shell	4
HW200025U	MEAN BEARING, Half, Lower Shell	4
HW26738	PIN, Roll 5/16" X 5/8"	4
M918332	Main Bearing Set Angle-Drilled (6 & 12 Cyl Engines)	
HW153031	WASHER, Thrust, 2 Halves	2
HWA200022S	MAIN BEARING, Pair	3
HWA200025S	MAIN BEARING, Pair	4
HW26738	PIN, Roll 5/16" X 5/8"	4
M918333	Main Bearing Set, P9390	
HW153031	WASHER, Thrust, 2 Halves	2
HW200022S	MAIN BEARING, Half	4
HW200025S	MAIN BEARING, Half	16
HW26738	PIN, Roll 5/16" X 5/8"	4
M918345	Main Bearing Set, P9390	
HW153031	WASHER, Thrust 2 Halves	2
HW200022T	MAIN BEARING, Half, Upper Shell	2
HW200022U	MEAN BEARING, Half, Lower Shell	2
HW200025T	MEAN BEARING, Half, Upper Shell	8
HW200025U	MEAN BEARING, Half, Lower Shell	8
HW26738	PIN, Roll 5/16" X 5/8"	4
MA205210A	Rod Bearing Pair (Rod Series 205007 - 1 pair per rod)	
HW205110P	ROD BEARING, Lower Shell, Pair	1
HW205010K	ROD BEARING, Upper Shell, Pair	1
MA205210B	Rod Bearing Pair (Rod Series 205407 - 1 pair per rod)	
HW205010K	ROD BEARING, Lower Shell, Pair	1
HW205110N	ROD BEARING, Upper Shell, Pair	1
MA205210	Rod Bearing Pair (Rod Series 205507 - 1 pair per rod)	
HW205010L	ROD BEARING, Lower Shell, Pair	1
HW205110N	ROD BEARING, Upper Shell, Pair	1
Bearing Replacement Parts		
HW153032	THRUST WASHER, Cam Bearing	2/Eng
HW47108F	BUSHING, Wrist Pin	2/Rod

CAMSHAFT & CRANKSHAFT

Camshaft Kits

Part No	Description
HW9277	BEARING, Camshaft Kit (L5108, L5790, L7042)
HW92742	BEARING, Camshaft Kit (P9390G/GSI)



HW9277
Camshaft Bearings

Camshaft Parts

Part No	Description
HW153032	RING, Thrust
HWAA46033B	CAM, Followers
HW153022A	GASKET, Valve Lifter Guide
HW153029	SHIM, 0.002"
104A-#15	KEY, Woodruff
HW78391	BEARING, Ball, Front
HW78390	BEARING, Ball, Rear



HWAA46033B
Camshaft Followers

Vibration Damper

Part No	Description
HW153705B	DAMPER, Vibration, Rear, 18"
HW199331	DAMPER, Vibration, Rear, 24" x 3-2/3"
HW153807	DAMPER, Vibration, Rear, 24" x 2-2/3"



HW199331
Vibration Damper

Memorial Machine recommends replacing the vibration damper at every major overhaul to avoid crankshaft and bearing damage or failure.

VALVE TRAIN PARTS

Parts

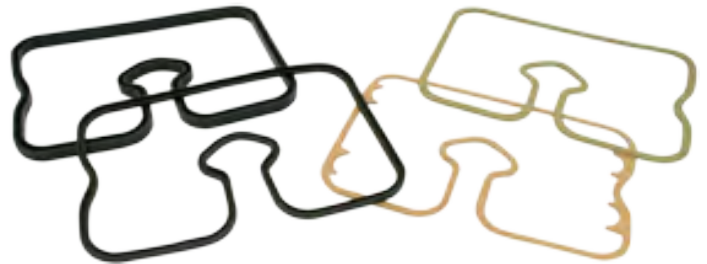
Part No	Description
1 HW153894B	GASKET, Valve Cover- Neoprene/ Cork
1 A153894C	GASKET, Valve Cover, Buna-N
1 A153894D	GASKET, Valve Cover (Cork/Steel)
2 HW167480G	BUSHING, Rocker Arm, 1" Wide
3 HW167480H	BUSHING, Rocker Arm, 1-1/4" Wide
4 28642	CAPSCREW, Hex Head GR8 7/1620X2
5 AA211820	SCREW, Adjusting
6 HW169080W	SCREW, Adjusting
7 HW21227	NUT, Adjusting Screw
8 A204139G	VALVE COVER with Buna Gasket



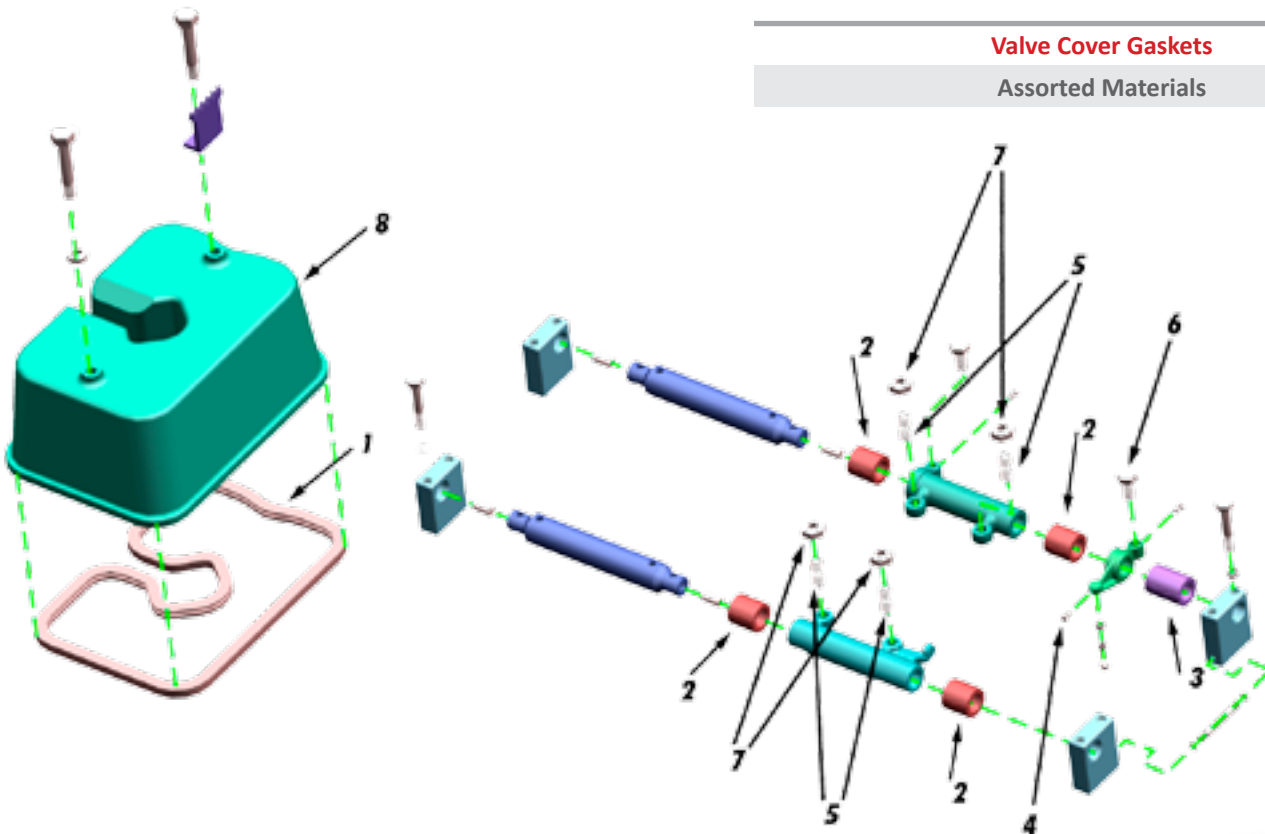
A204139G
Valve Cover
(Includes Buna-N Gasket)



AA211820
Rocker Arm
Adjusting Screw



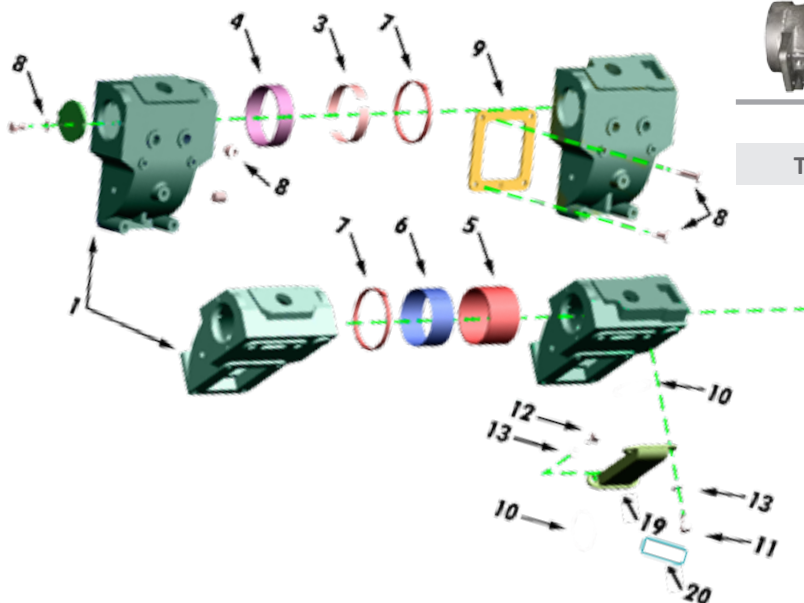
Valve Cover Gaskets
Assorted Materials



EXHAUST MANIFOLD PARTS

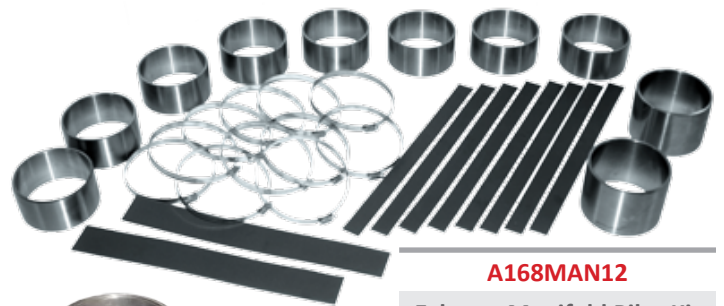
AA204342X

Part No	Description
1	AA204342X EXHAUST MANIFOLD
2	A78283C PLUG, Pipe
3	A199942 RING, Insulating
4	A168055 PILOT, Manifold
5	A168055A PILOT, Manifold
6	A199942A RING, Insulating
7	A41236E CLAMP, Hose
8	1N-1/2 WASHER, Plain, 1/2"
9	HW153896A GASKET, Exhaust Manifold
10	HW176883 SEAL, Ring, Water Outlet Elbow
11	7A-1/213x13/4 CAPSCREW
12	HW28640 CAPSCREW, Ferry Head
13	1A-1/2 WASHER, Lock, 1/2"
14	21430 CAPSCREW, Hex Head
15	1A-1/2 WASHER, Lock, 1/2"
16	1N-1/2 WASHER, Plain, 1/2"
17	HW118878A GASKET, Exhaust Connection
	A118878A GASKET, Assembly (Set of 4)
18	A207824V EXHAUST TEE, Turbo
19	A169892F JUMPER ELBOW, Water
20	HW176883G GASKET, Square Cut, Blue Silicone



KITS

Part No	Description	Qty
A168MAN12	Manifold Pilot Kit, 12 Cylinder	
A168055	PILOT, Manifold 5.5 ODX 4.5 IDX2.875L	8
A168055A	PILOT, Manifold	2
A199942	RING, Insulating	8
A199942A	RING, Insulating	2
A41236E	CLAMP, Hose	10
A168MAN6	Manifold Pilot Kit, 6 Cylinder	
A168055	PILOT, Manifold 5.5 ODX 4.5 IDX2.875L	4
A168055A	PILOT, Manifold	1
A199942	RING, Insulating	4
A199942A	RING, Insulating	1
A41236E	CLAMP, Hose	5



A168MAN12

Exhaust Manifold Pilot Kit
12 Cylinder



A207824V

Turbo Exhaust Tee



AA204342X

Exhaust Manifold

PISTONS & SLEEVES

PARTS

Part No Description

3-Ring Sleeves

Sleeves do not include o-rings. Order one set per sleeve separately.

HW205130R Bainitic/Hardened – F3521, L7042, P9390

HW204230 F2895, L5108, L5790, G, GSI/GL

Standard O-Ring Set

Includes 2 Ethylene Propylene and 1 Silicone Rubber o-rings. Order one set per sleeve.

HW950326 F3521, L7042, P9390

HW950324 F2895, L5108, L5790, G, GSI/GL

Viton® O-Ring Set

Includes 3 Viton® O-rings. Order one set per sleeve.

HW950336 F3521, L7042, P9390

Piston

A205504Z F3521, L7042 – 10:1 Compression

A205504P F3521, L7042, P9390 – 8.20:1 Compression

A205504N VHP GL – 10.5:1 Compression

A205604S F3524, L7044 – 8.25:1 Compression

Piston Ring Set

Order one set per piston.

A-907-147 F3521, L7042, P9390

A-907-238 VHP GL

A907241 F3524, L7044

KITS

Part No Description

Bainitic/Hardened Sleeve Kit

Included in this kit: Sleeve, Sleeve O-ring Set, Piston, Pin, Snap Rings, Piston Ring Set, Sleeve Wipes, O-ring Lubricant.

A-932-287 F3521, L7042, P9390 – 8:1 Compression

HW932200 F3521, L7042, P9390 – 10:1 Compression

A-932-275 VHP GL Series – 10.5:1 Compression

A-932-282 F3524, L7044 – 8.25:1 Compression

Memorial Machine 3Ring™ Sleeves are centrifugally cast to obtain a dense casting with a uniform molecular structure free from casting defects. After the sleeves are stress relieved and machined, the inside cylinder surface is plateau honed to a precise cross-hatch pattern to which a thin layer of oil clings, lubricating the piston rings for quick break-in, low oil consumption and extended service life. Then the water jacket area of the sleeves are chromed, making them resistant to cavitation erosion.



HW204230

Wide Flange Sleeve
(Small Bore)



HW205130R

Bainitic Sleeve



A-932-287

Sleeve Kit



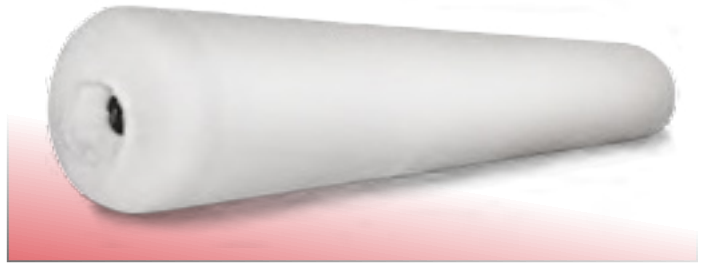
REPLACEMENT PARTS

Parts

Part No	Description
Air Filter	
HW169180L	Air Filter
Oil Filter	
HW168660B	OIL FILTER, Sock Type, All Engines
Filter Cartridge Specifications:	
<i>Filtration Efficiency:</i> 90% efficient at 15 micron	
<i>Filter Media:</i> Rolled Cotton & Wood Wool	
<i>Max. Temperature:</i> 300°F	
<i>Center Tube:</i> Spiral-Seamed Carbon Steel	
<i>Outer Wrap:</i> Orion Sock	
Oil Filter Housing O-Ring	
HW168922N	17-1/2" OD
A980-VHP Oil Pump Valve Kit	
A156303	PLUNGER, Relief Valve, Oil Pump
A156304	SLEEVE, Relief Valve, Oil Pump
A27261L	SPRING, Relief Valve, Oil Pump
A199083C	WASHER, Nylon
Head Studs	
A169994B	STUD, Head, Short
A169994C	STUD, Head, Long



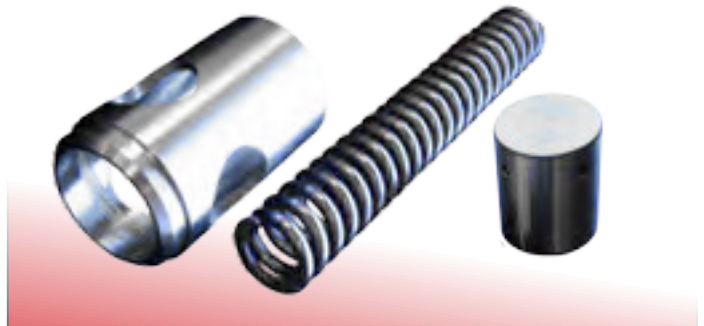
HEAD STUDS



HW168660B Oil Filter



HW168922N O-Ring



A980-VHP Oil Pump Valve Kit

