



# VHP<sup>®</sup> PARTS

ARROW ENGINE MANUFACTURED VHP<sup>®</sup> REPLACEMENT PARTS

VHP-RP-S-AUG16



**A Tradition of Excellence  
Since 1955**



Arrow Engine Company was founded in 1955 as Arrow Specialty Company by Jeff Davis in Tulsa, Oklahoma, beginning a tradition of providing premium service and exceptional products to the oil & gas industry, as well as other industrial markets throughout the world. Arrow is a market-leading provider of natural gas powered engines and parts, as well as gas compressors, gas production equipment, meter runs, engine electronics and chemical pumps. Today, Arrow continues its tradition of focusing on producing the most reliable equipment, parts and extraordinary customer service in the industry.



Arrow is a part of the Engineered Components segment formed by TriMas Corporation. TriMas Corporation is a diversified global designer, manufacturer and distributor of engineered and applied products that serve a variety of industrial, commercial and consumer end markets. TriMas provides its customers with highly-engineered products and services that reflect the company's commitment to market leadership, innovation and operational excellence. TriMas is organized into four reportable segments: Packaging, Aerospace, Energy and Engineered Components. With headquarters in Bloomfield Hills, Michigan, TriMas has approximately 4,000 employees at more than 50 facilities in 16 countries.



## Replacement Components

All of Arrow's VHP® replacement heads use Inconel® valves and wide bridge hardened seats on the exhaust.



**HWAJ204702N**

**Cylinder Head**  
Wide Bridge

**CA204802E**

**GL Cylinder Head**



**AF200960D**

**Water Pump, Complete**

**AA204342X**

**Exhaust Manifold**



Every manifold is pressure tested twice during the manufacturing process to ensure the highest quality standards are met.

# Replacement Components

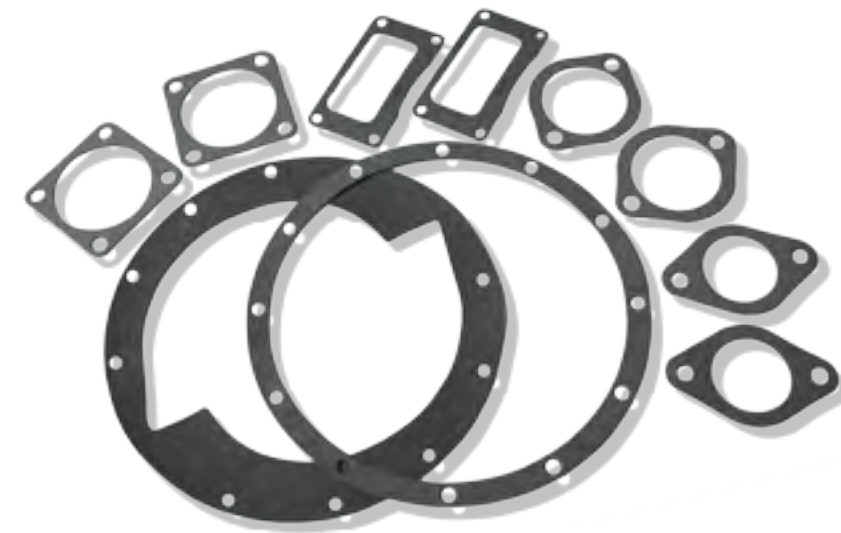
**HW960192**

**Water Pump Kit**  
F2895, F3521



**HW960291**

**Water Pump Kit**  
L5108, L5790, L7042  
Double Row Bearing  
(Complete Pump AF200960D)



**HW960149**

**Water Pump Kit**  
L5108, L5790, L7042  
Single Row Bearing



# HEAD COMPONENTS

## Arrow Valves

*Arrow valves* are a two-piece design consisting of an upset-and-forged head with Stellite® face and hardened chrome stem for longer wear.

## Arrow Guides

*Arrow guides* are made from formulated cast iron for compatibility with heat cycling in cylinder heads. All guides are rifled (grooved), and must be reamed after installation. Rifling aids in oil retention within the guide, thereby protecting the valve stem during operation.

## Arrow Seats

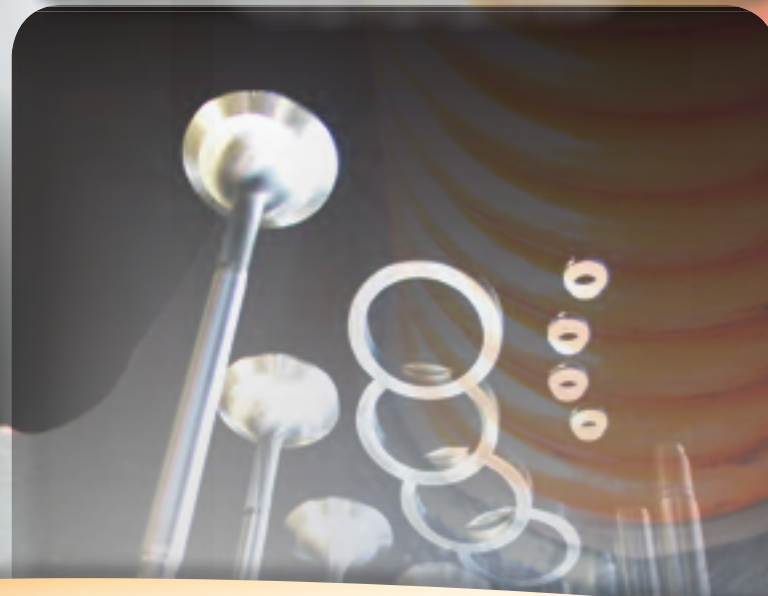
*Arrow seats* are made from a tungsten carbide alloy material.

## Arrow Stem Seals

*Arrow stem seals* are a positive-type, all Teflon with a steel band capable of withstanding temperatures up to 550°F.



Valves, Guides, Seats, Stem Seals



## Head Repair Kits

### Head Kit - Single Inconel® HW9360105K Exhaust Valve

White Stem Seal	4	HW176450E
Exhaust Valve Guide	2	HW204109C
Intake Valve Guide	2	HW204109E
Premium Valve	2	HW204136
Exhaust Valve	2	A204136
Narrow Bridge Valve Seat	2	HW176352K
Narrow Bridge Valve Seat	2	HW176352L

### Head Kit - Single Inconel® HW9360105P Exhaust Valve

White Stem Seal	4	HW176450E
Exhaust Valve Guide	2	HW204109C
Intake Valve Guide	2	HW204109E
Premium Valve	2	HW204136
Premium Inconel® Exhaust Valve	2	A204136
Wide Bridge Valve Seat - Exhaust	2	HW176352Q
Wide Bridge Valve Seat - Intake	2	HW176352P

### Head Kit - Inconel®/Stellite® 936NB

White Stem Seal	4	HW176450E
Exhaust Valve Guide	2	HW204109C
Intake Valve Guide	2	HW204109E
Premium Valve	2	HW204136
Premium Inconel® Exhaust Valve	2	A204136
Narrow Bridge Valve Seat	4	HW176352L

### Head Kit - Inconel®/Stellite® 936WB

White Stem Seal	4	HW176450E
Exhaust Valve Guide	2	HW204109C
Intake Valve Guide	2	HW204109E
Premium Valve	2	HW204136
Premium Inconel® Exhaust Valve	2	A204136
Wide Bridge Valve Seat	4	HW176352Q

### Head Kit - GL 936WB-GL-COMPLETE

Seat, Wide Bridge	2	HW176352Q
Seat, Valve Stem Seal, Green	4	HW176450G
Seat, Valve Stem Seal, Blue	4	A214229
Guide, Exhaust Valve	2	HW204109P
Valve Guide, Intake	2	HW204209
Valve, 20°	2	A204136GL
Retainer, Valve Spring	4	HW153884D
Valve, Premium, Intake	2	HW204136
Valve Seat 20° Wide	2	HW176352R
Keeper, Tapered Valve	8	HW73629
Spring, Inner Intake	2	HW204035A
Spring, Inner Exhaust Black	2	HW204035
Spring, Outer Exhaust	2	HW204135
Spring, Outer Intake	2	HW204135A
Washer Spring Valve	8	HW153883A

## Head Components

### Cylinder Heads

#### Complete Cylinder Head - Wide Bridge

HWAJ204702N

#### Complete Cylinder Head - GL

CA204802E

### Valve

Chromed stem, Stellite® faced	HW204136
Chromed stem, Inconel®	A204136
Inconel®, Premium Ex. 20°	A204136GL

### Guide

*Note: Guides must be reamed after installation in head.*

Intake	HW204109E
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### Exhaust Guide

HW204109C

### Seat

Narrow bridge	3-1/8" O.D.	HW176352K
Wide bridge	3" O.D.	HW176352P
Narrow bridge, hardened	3-1/8" O.D.	HW176352L
Wide bridge, hardened	3" O.D.	HW176352Q

### Valve Spring

Exhaust, Inner	HW204035
Exhaust, Outer	HW204135
Intake, Inner	HW204035A
Intake, Outer	HW204135A

### Retainer

HW153884D

### Keeper

HW73629

### Stem Seal

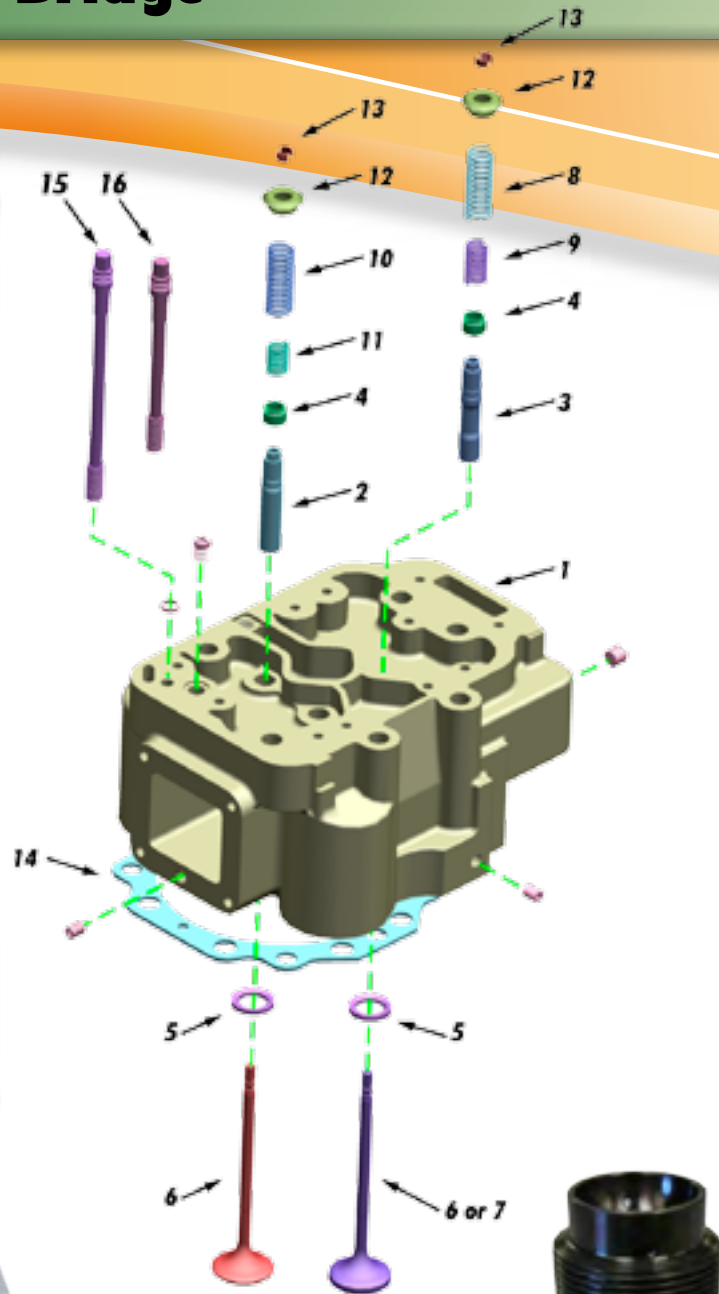
Teflon	White	HW176450E
	Green	HW176450G
	Orange	HW176450H
	Blue	A214229

# Cylinder Head - Wide Bridge

## HWAJ204702N

Part No.	Description
1	HWAJ204702N HEAD, Cylinder-Assembly Complete - Wide Bridge *
	R-HWAJ204702N Bare Head
2	HW204109E GUIDE, Valve Intake
3	HW204109C GUIDE, Valve Exhaust
4	HW176450E SEAL, Valve Guide, White
4	HW176450G SEAL, Valve Guide, Green
4	HW176450H SEAL, Valve Guide, Orange
4	A214229 SEAL, Valve Guide, Blue
5	HW176352P SEAT, Wide Bridge 3"
5	HW176352K SEAT, Narrow Bridge 3 1/8"
5	HW176352L SEAT, Narrow Bridge, Hardened 3 1/8"
5	HW176352Q SEAT, Wide Bridge, Hardened 3"
6	HW204136 VALVE, Intake, Premium
7	A204136 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	HW205100A GASKET, Cylinder Head, Graphite Material with Steel Fire Ring
15	A169994C Long CAPSCREW
16	A169994B Short CAPSCREW

\* All heads made with Inconel® valves.



HWAJ204702N  
Cylinder Head

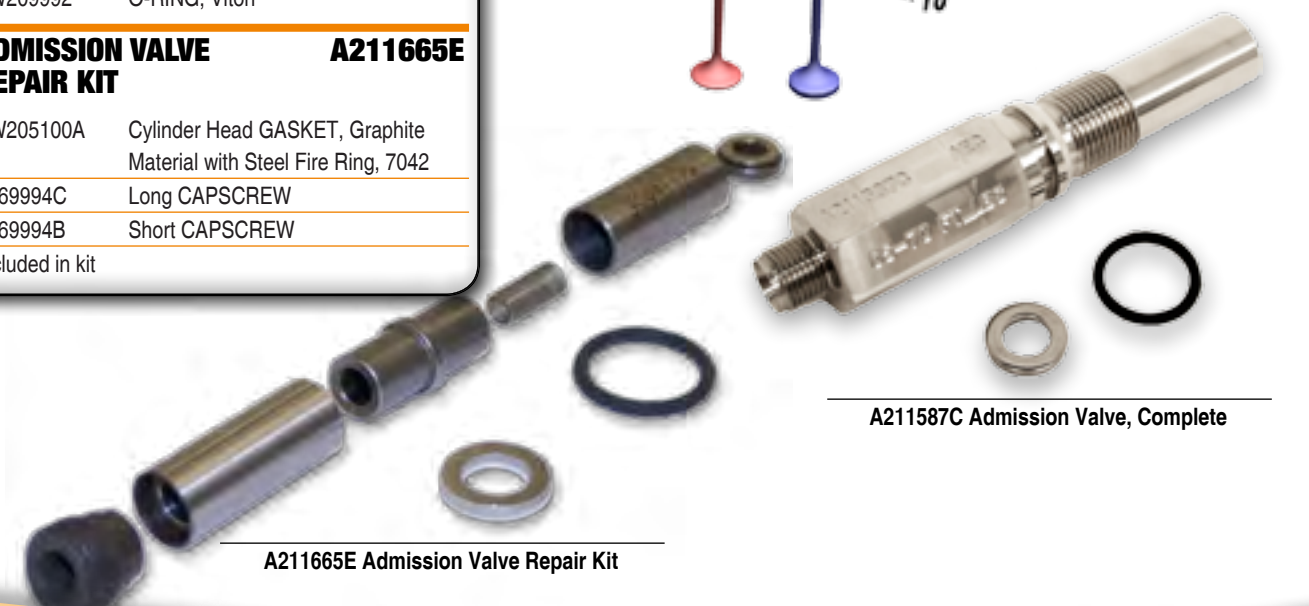
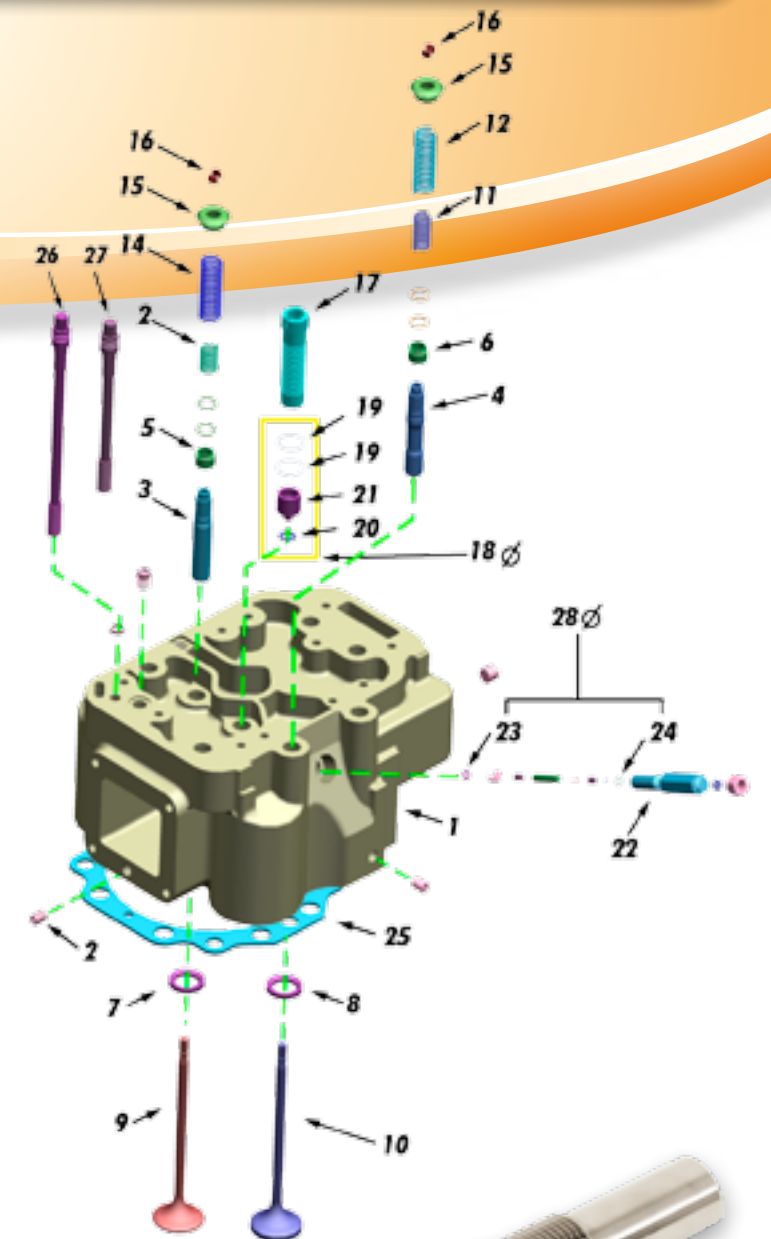
A209567K  
Spark Plug Carrier

# Cylinder Head - GL

## CA204802E

Part No.	Description
1	CA204802E HEAD, Cylinder GL (complete)
	AA204802E HEAD, Cylinder GL (less valves)
2	78283B PLUG, Pipe
3	HW204109E GUIDE, Valve Intake
4	HW204109C GUIDE, Valve Exhaust
5	HW176450H SEAL, Valve Guide, Intake Orange
6	HW176450G SEAL, Valve Guide, Exhaust Green
7	HW176352P SEAT, Intake 30°
8	HW176352K SEAT, Exhaust 20°
9	HW204136 VALVE, Intake 30°
10	A204136GL 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"
<b>18</b>	<b>PRECHAMBER ASSEMBLY KIT</b> <b>AA209724F</b>
19	HW305020B* O-RING
20	HW209562D* SEAL, Prechamber
21	HW209724F* PRECHAMBER, Cylinder Head
<b>22</b>	<b>ADMISSION VALVE ASSEMBLY</b> <b>A211587C</b>
23	HW28357* WASHER, Stainless Steel
24	HW209992* O-RING, Viton®
<b>28</b>	<b>ADMISSION VALVE REPAIR KIT</b> <b>A211665E</b>
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



## Water Pump

### Complete Double Row Water Pump with Pulley

**AF200960D**

Pulley	A159581E
Backplate	A200161B



AF200960D Complete Water Pump

### HW960192 Water Pump Kit



### HW960149 Water Pump Kit



### HW960291 Water Pump Kit



## Water Pump Kits

### 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

F2895, F3521	HW960192
L5108, L5790, L7042	HW960149
L5108, L5790, L7042, double row bearings	HW960291

### Complete Water Pump Kit less Impeller

F2895, F3521	HW960192L
L5108, L5790, L7042	HW960149L
L5108, L5790, L7042, double row bearings	HW960291L
P9390	HW960202L

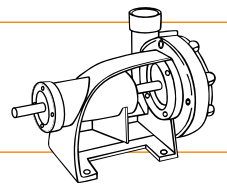
### Complete Water Pump Kit less Impeller and Shaft

F2895, F3521	HW960192LS
L5108, L5790, L7042	HW960149LS
L5108, L5790, L7042, double row bearings	HW960291LS

### Auxiliary Water Pump Kit HW960256

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

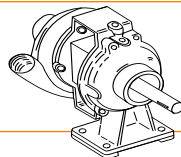
For Pump Casting  
#169561-A-B-C-D-E-G-H



### Auxiliary Water Pump Kit HW960243

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

For Pump Casting  
#208540A-C-D



## Water Pump Parts

### Water Pump Mounting Gasket Set

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

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

### Impeller

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

### Bearing

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

### Seal Assembly

6 & 12 Cylinder engines	HW157475K
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### Thermostat

165°	HW211887A
170°	HW211887B
180°	HW211887D

### Shaft

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

HW200456 Water Pump Shaft



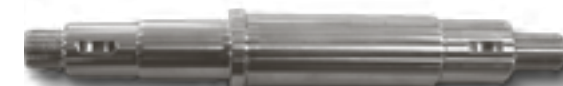
HW205056 Water Pump Shaft



HW200456C Water Pump Shaft



HW200456S Water Pump Shaft, Stainless Steel



Impeller



# Water Pump - Single Row

**12 CYLINDER**  
For L5108, L5790, L7042

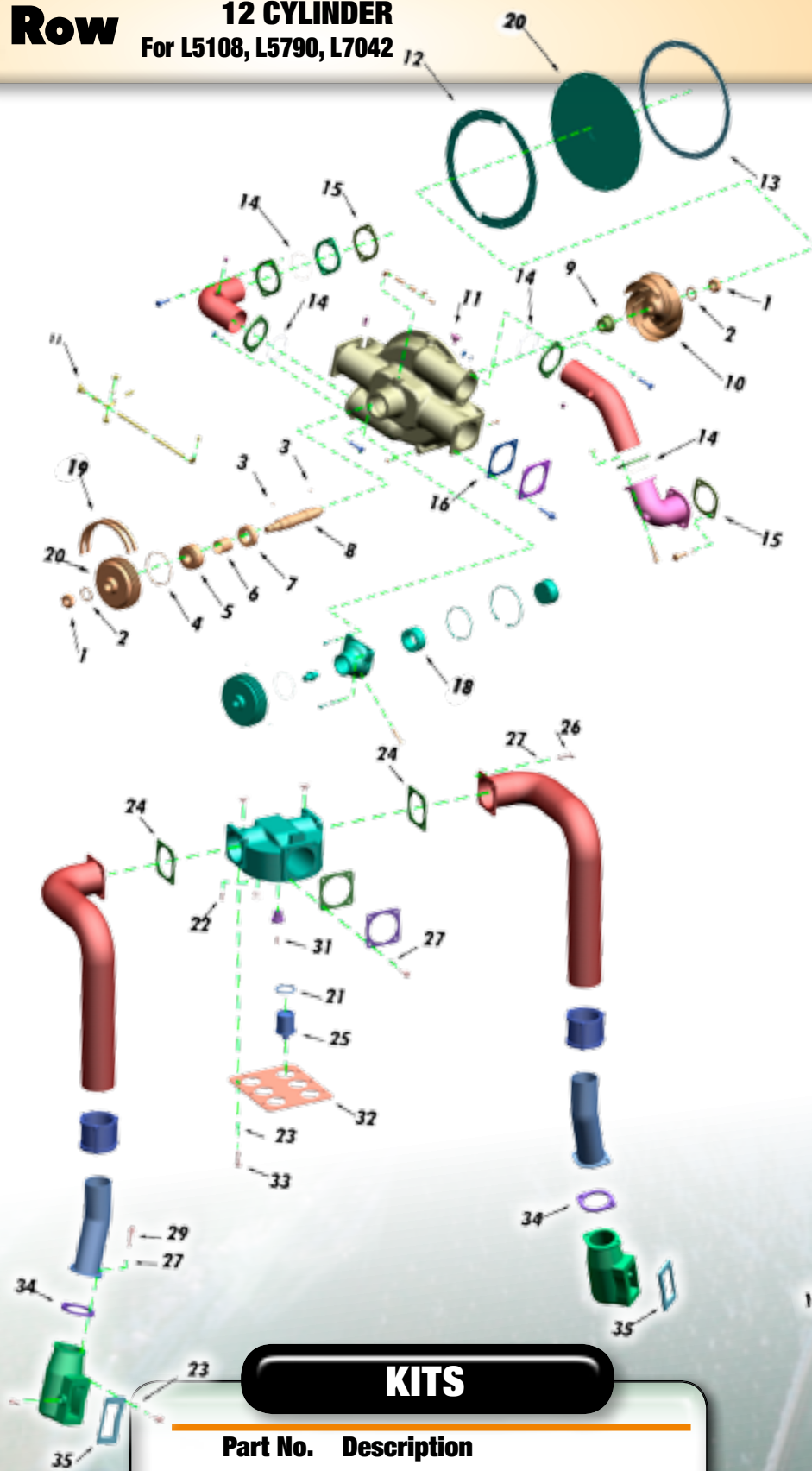
# Water Pump

**6 CYLINDER**  
For F2895, F3521

## HW960149

Part No.	Description	No. Req.
1	HW161293* NUT, Nylon Insert Stop, Standard	2
2	HWB1393* WASHER	2
3	104A-#9* KEY WOODRUFF #606	2
4	HW159574B* RETAINER, Ring	1
5	HW161309A* BEARING, Ball Front	1
6	HW159576A* SPACER	1
7	HW78843A* BEARING, Ball Rear	1
8	HW200456* Shaft Water Pump	1
9	HW157475K* SEAL, Water Pump	1
10	HW200463C* IMPELLER, Water Pump	1
11	76400* DRAIN, COCK .25	2
12	HW159580* GASKET, Water Pump	1
13	HW153092A* GASKET, Camshaft Cover	1
14	HW176883D* RING, Silicone Seal	4
15	HW153139A* GASKET, Water Inlet	2
16	HWB2793D* GASKET, Inlet Elbow	2
17	A159581E PULLEY, Water Pump	1
18	HW161339 BEARING, Ball	1
19	HWA209617 BELT, Water Pump (Set of Two Matched Belts) (Use with 10" Crankshaft Pulley)	1
20	HW200161B Back Plate	1
21	HW153610 SEAL, Thermostat	6
22	78282A Pipe Plug	1
23	1A-3/8 LOCKWASHER, Plated	18
24	HW208943 GASKET, Upper Bypass Tube	2
25	HW211887A THERMOSTAT, 165	1
25	HW211887B THERMOSTAT, 170	5
25	HW211887D THERMOSTAT, 180	1
26	7A-1/213X11/4 CAPSCREW, HX HD, 1/2"-13 X 1-1/4"	8
27	1A-1/2 LOCKWASHER, Plated	16
28	HW499805 GASKET, Coupling (not shown)	4
29	HW28254 CAPSCREW, 1/2"-13 x 1- 1/2"	4
30	78283A PLUG, Pipe, Countersunk HD .5	3
31	HW78282D PLUG, Pipe, Square Head 3/8"	1
32	HW208939 GASKET, Cluster, Thermostat Housing	1
33	21350 CAPSCREW, Hex Hd, 3/8"-16 x 1 1/8"	10
34	HW167392* GASKET, Lower Bypass Tube	2
35	HW167409* GASKET, Bypass Elbow	2
	PF4-1/8* PLUG SQ HD PIPE	1
	HW159575 GASKET	2
	HW169616B O-RING	4
	HW169616F O-RING	4
	HW200463C IMPELLER WATER PUMP	1
	W/ADAPTER	1

\*Items included in kit

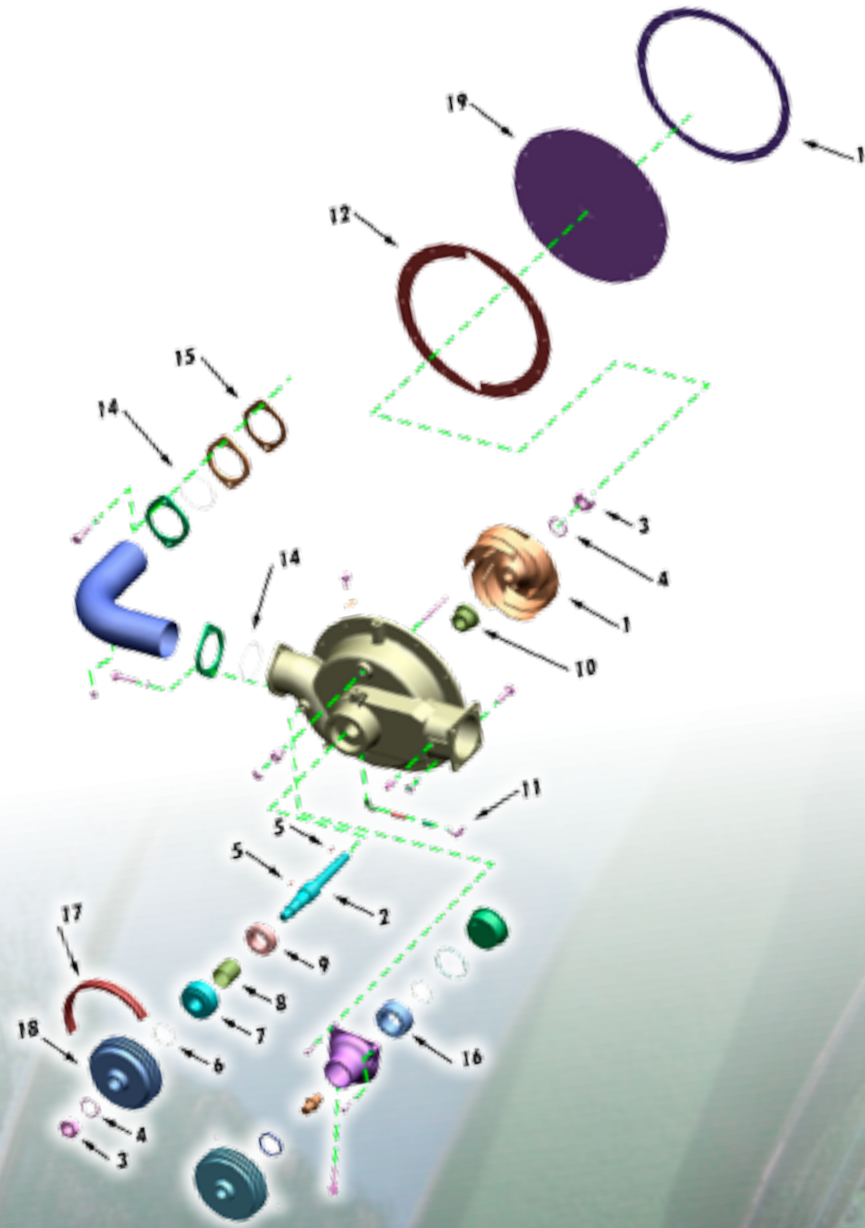


## KITS

Part No.	Description
HW960149	WATER PUMP KIT Complete
HW960149L	WATER PUMP KIT Less Impeller
HW960149LS	WATER PUMP KIT Less Impeller & Shaft

## KITS

Part No.	Description
HW960192	WATER PUMP KIT COMPLETE
HW960192L	WATER PUMP KIT LESS IMPELLER
HW960192LS	WATER PUMP KIT LESS IMPELLER & SHAFT



## HW960192

Part No.	Description	No. Req.
1	HW205063C* IMPELLER, Water Pump	1
2	HW205056* SHAFT, Water Pump	1
3	HW161293 NUT, Nylon Insert Stop, Standard	1
3	HW161393* NUT, Nylon Insert Stop, Thin Pattern	1
4	HWB1393* WASHER	2
5	104A-#9* KEY WOODRUFF #606	1
6	HW159574B* RETAINER, Ring	1
7	HW161309A* BEARING, Ball Front	1
8	HW159576A* SPACER, Ball Bearing	1
9	HW78843A* BEARING, Ball Rear	1
10	HW157475K* SEAL, Water Pump	1
11	76400* DRAIN, Cock .25	2
12	HW159580* GASKET, Water Pump	1
13	HW153092A* GASKET, Camshaft Cover	1
14	HW176883D* RING, Silicone Seal	2
15	HW153139A* GASKET, Water Inlet	1
	HWB2793D* GASKET, Inlet Elbow	3
16	HW161339 BEARING, Ball	1
17	A209617 BELT, Water Pump (Set of Two Matched Belts) (Use with 10" Crankshaft Pulley)	1
18	A159581E PULLEY, Water Pump	1
19	A200161B BACKPLATE	1
	PF4-1/8 PLUG SQ HD PIPE	1
	HW169616B O-RING	2

\*Items included in kit



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2301 East Independence, Tulsa, Oklahoma 74110

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# Water Pump - Double Row

**12 CYLINDER**  
For L5108, L5790, L7042

# Water Pump Parts - 9390

**16 CYLINDER**

## HW960291

Part No.	Description	No. Req.
1	29D-114* NUT HX Jam FINISHED	2
2	HW28758* WASHER	2
3	HW118925A* Snap Ring	1
4	HW161309C* BEARING, Ball Rear	1
5	HW211442A* SEAL, Oil	1
6	HW78843C* BEARING, Ball Rear	1
7	HW200456C* SHAFT, Water Pump	1
8	HW157475K* SEAL, Water Pump	1
9	HW200463C* IMPELLER, Water Pump W/Adapter	1
10	76400* DRAIN, Cock .25	2
11	HW211442* SEAL, Oil	1
12	HW290144* O-RING	1
13	HW159580* GASKET, Water Pump	1
14	HW153092A* GASKET, Camshaft Cover	1
15	HW176883D* RING, Silicone Seal	4
16	HW153139A* GASKET, Water Inlet	2
17	HWB2793D* GASKET, Inlet Elbow	2
18	104A #9* KEY WOODRUFF #606	2
	HW499805* SEAL	2
	HW167409* GASKET, Bypass Elbow	2
19	A159581E PULLEY, Water Pump, Three Grooves	1
20	A200161B BACKPLATE M-1985-A BEARING PILOT SEALED	1
	HW199451E Sleeve, Wear	1
	HW169616B O-RING	4
	HW499708 Seal	2
	HW167392 Gasket, Lower Bypass Tube	2

\*Items included in Kit

## KITS

Part No.	Description
HW960291	WATER PUMP KIT Complete
HW960291L	WATER PUMP KIT Less Impeller
HW960291LS	WATER PUMP KIT Less Impeller & Shaft

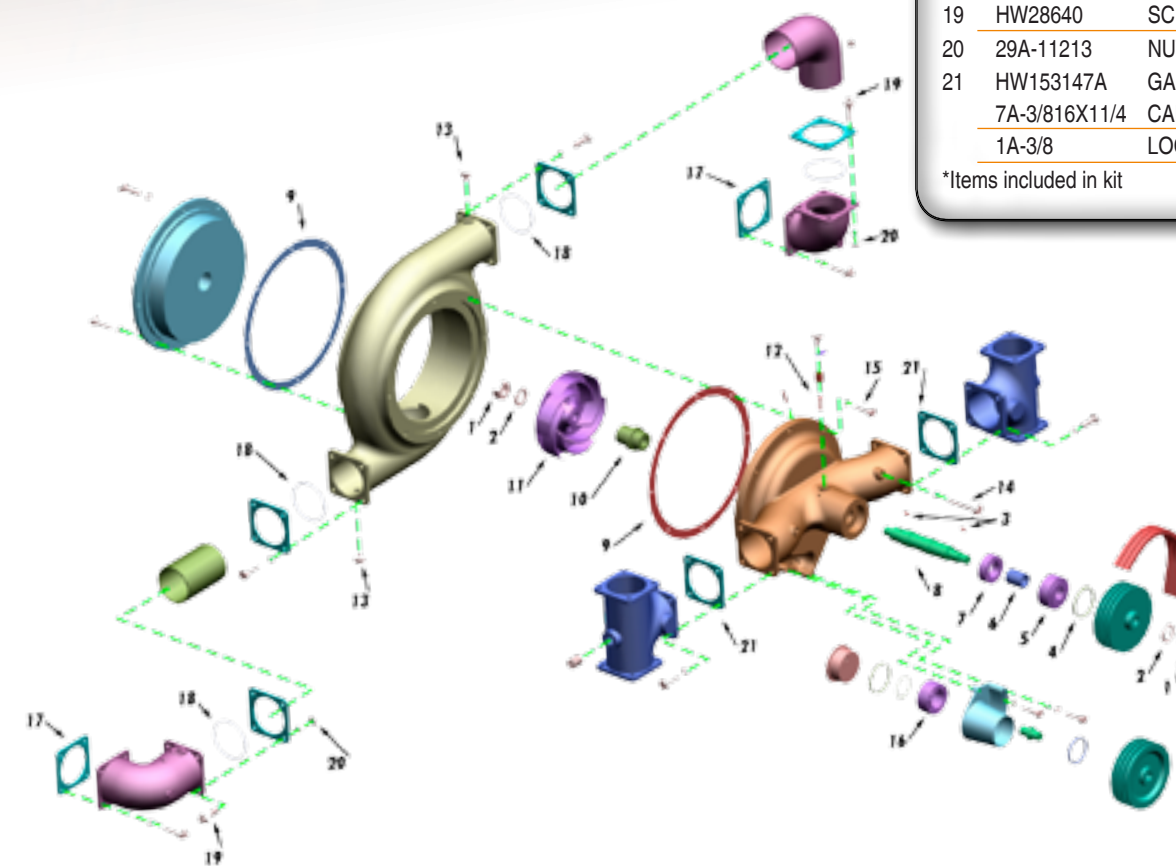
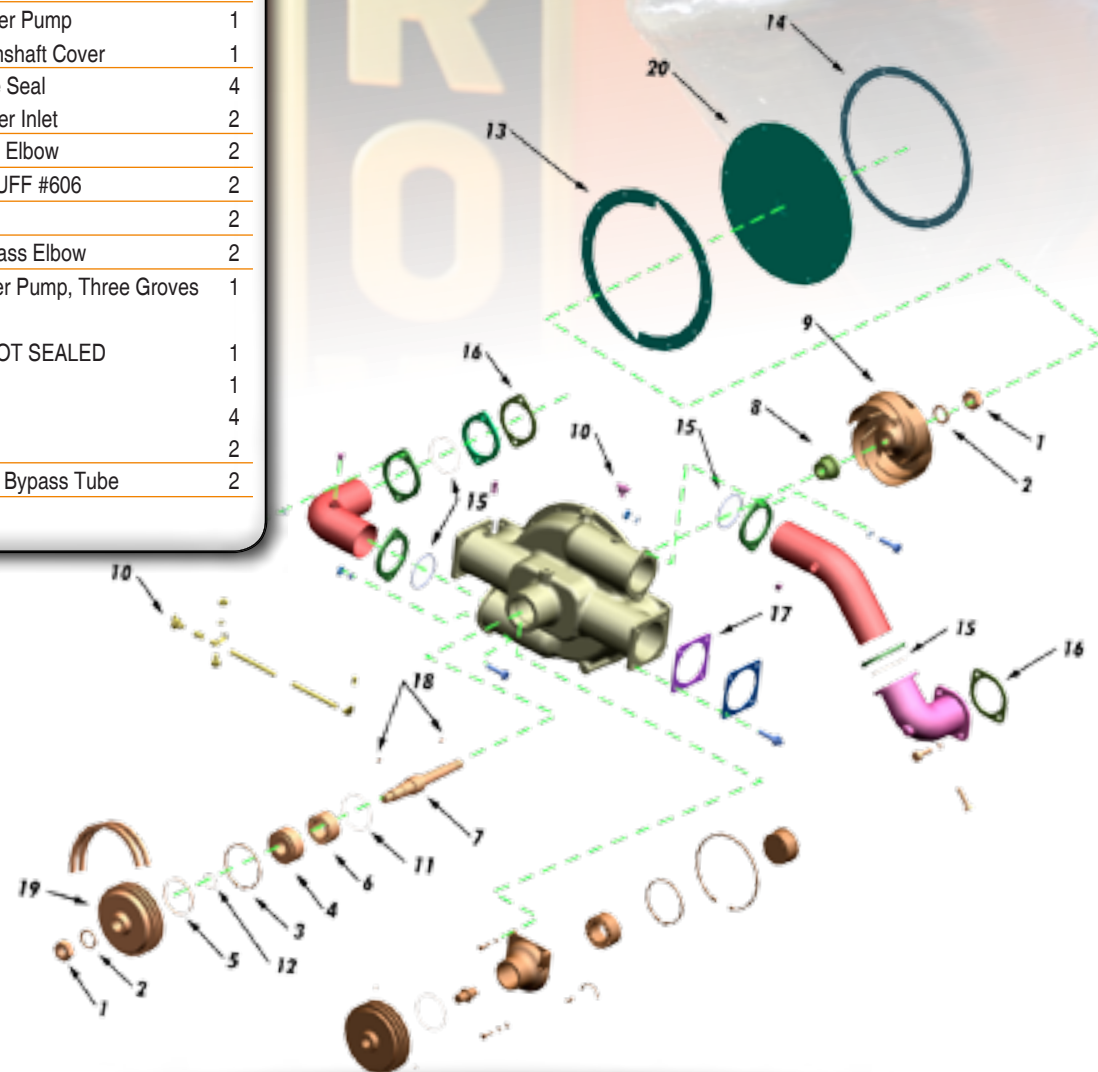
## KITS

Part No.	Description
HW960202L	WATER PUMP KIT Less Impeller

## HW960202L

Part No.	Description	No. Req.
1	HW161293* NUT, Nylon Insert Stop, Thin Pattern	2
2	HWB1393* WASHER	2
3	HW21009* KEY WOODRUFF #11	2
4	HW159574B* RETAINER, Ring	1
5	HW161309A* BEARING	1
6	HW159576A* SPACER	1
7	HW78843A* BEARING	1
8	HW257056* SHAFT, W/P P9690	1
9	HW169803* GASKET	2
10	HW169848B* Water Pump Seal Assembly	1
12	78282A* PLUG PIPE SQ HD 1/8	1
13	76400* DRAIN, Cock .25	2
14	HW26300* BOLT, Hex Head 7A-3/8" 16 x 4 1/2"	2
15	HW21352 BOLT, Hex Head 7A-3/8" 16 x 1 1/4"	1
16	HW161339 BEARING, Ball	1
17	HWB2793D GASKET, Crankcase Water Inlet Elbow	4
18	HW118226A O-RING	8
19	HW28640 SCREW CAP, Ferry Head	1
20	29A-11213 NUT, Hex 1/2"-13 Steel	1
21	HW153147A GASKET, Water Pump Inlet Tee	1
	7A-3/816X11/4 CAPSCREW HX HD	14
	1A-3/8 LOCKWASHER PLATED	16

\*Items included in kit





# GASKETS

Arrow Gaskets and Gasket Sets feature design improvements that not only increase sealing capabilities, but also simplify installation.



A169892F - Water Jumper Elbow  
HW176883G - Molded Gasket

Arrow redesigned the water jumper gasket to a molded gasket rather than a die cut gasket for improved sealing. The rectangular water jumper gasket is simple to install and comes in VHP gasket sets.



HW153121 Molded Pan  
Door Gasket

Arrow's molded pan door gasket is made from a red silicone rubber, the same material used for the Arrow sleeve o-rings. This new design makes installation easier and improves sealing properties.



HW163213A Tappet  
Housing Gasket

Due to its large size Arrow's tappet housing gasket is a dovetail segmented style gasket; after the individual pieces are fitted together the material flows to form a one piece gasket for a tight seal.



HW153894B-OS  
Valve Cover Gasket

A204139G Valve Cover  
(includes Buna-N gasket)

## Individual Gaskets

Part No.	Description
HW153894B	Valve Cover Gasket
HW176883G	Water Jumper Gasket, Molded Silicone Rubber
HW153121	Pan Door Gasket, Molded Red Silicone Rubber
HW168108	Lifter Door Gasket, 6 Cylinder
HW205100A	Head Grafoil®
A204000V	Wide Flange (small bore) Head Gasket
HW493023	Oil Strainer O-Ring
HW163213A	Tappet Housing Gasket

## Gasket Sets

### Small Bore Single Head Gasket Set HW97745

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

## Gasket Sets

### Top Gasket Set

Includes everything required to reinstall all cylinder heads.

HW979265	F3521
HW979266G	L7042
HW979267G	P9390

### Bottom Gasket Set, Turbocharged / NA

HW9001023	F3521
HW9001025	L7042

HW97749G Single Head Gasket Set



## Gasket Sets

### Single Head Gasket Set HW97749G

For L7042, G/GSI  
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

HW97745 Single Head Gasket Set



# SERIES 4 GASKET SETS

## Gasket Sets

### Single Head Gasket Set (5794) A-977-69

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

### Top End Gasket Set A-979-292

A63600	WASHER, 1.53 X 1.88 X .06
HW153139A	GASKET, WATER INLET
HW153610	Seal, Thermostat
HW153895A	Gasket, Intake Manifold
HW153896A	GASKET, EXHAUST MANIFOLD
A153994C	GASKET, VALVE COVER
HW169184	Retainer
HW176586	GASKET, THERMOSTAT
HW176883	RING, WATER OUTLET
A176883E	RING, SEAL
HW205100A	GASKET, HEAD GRAFOIL®
HW208939	GASKET, THERMOSTAT HOUSING
HW211196	O-Ring
A211795A	SEAL, IGNITION SLEEVE
A211830	O-RING 2-130
A292843	O-RING
A295387A	O-RING 1.62 X 1.88 X .12 , VITON®
A304745G	O-RING VITON® 2-227

## Gasket Sets

### Single Head Gasket Set (3524/GSI/7044) A-977-68

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
HW205100A	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®

### Small Bore Top End Gasket Set A-979-294

A63600	WASHER, 1.53 X 1.88 X .06
HW153139A	GASKET, WATER INLET
HW153610	Seal, Thermostat
HW153895A	Gasket, Intake Manifold
HW153896A	GASKET, EXHAUST MANIFOLD
A153994C	GASKET, VALVE COVER
HW176586	GASKET, THERMOSTAT
HW176883	RING, WATER OUTLET
A204000V	HEAD GASKET, SMALL BORE
HW208939	GASKET, THERMOSTAT HOUSING
HW211196	O-Ring
A211670	O-RING, SQUARE CUT
A211795A	SEAL, IGNITION SLEEVE
A211830	O-RING 2-130
A292843	O-RING
A304745G	O-RING VITON® 2-227

A-977-68 Gasket Set

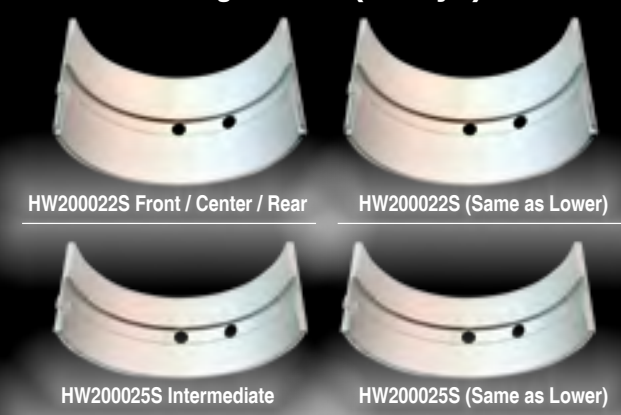
# ENGINE BEARINGS

## LOWER SHELL UPPER SHELL

### Main Bearing Pair Configurations T-Drilled (New Style)



### Main Bearing Pair Configurations Angle-Drilled (Old Style)



### Rod Bearing Pair Configurations



## Bearing Sets

Part No.	Description	Qty
----------	-------------	-----

### Main Bearing Set T-Drilled (6 & 12 Cyl Engines) HW918313

HW153031	WASHER, THRUST 2 HALVES	2
HW200022T	Main Bearing Half Upper Shell	3
HW200022U	MAIN BEARING HALF, LOWER	3
HW200025T	Main Bearing Half Upper Shell	4
HW200025U	Main Bearing Half Lower Shell	4
HW26738	PIN, ROLL 5/16" X 5/8"	4

### Main Bearing Set Angle-Drilled (6 & 12 Cyl Engines) HW918316

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

### Main Bearing Set, P9390 HW918317

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

### Main Bearing Set, P9390 HW918315

HW153031	WASHER, THRUST 2 HALVES	2
HW200022T	Main Bearing Half Upper Shell	2
HW200022U	MAIN BEARING HALF, LOWER	2
HW200025T	Main Bearing Half Upper Shell	8
HW200025U	Main Bearing Half Lower Shell	8
HW26738	PIN, ROLL 5/16" X 5/8"	4

### Rod Bearing Pair HWA205010K (Rod Series 205007, order one pair per rod)

HW205110P	Lower Shell	1
HW205010K	Upper Shell	1

### Rod Bearing Pair HWC205010K (Rod Series 205407, order one pair per rod)

HW205010K	Lower Shell	1
HW205110N	Upper Shell	1

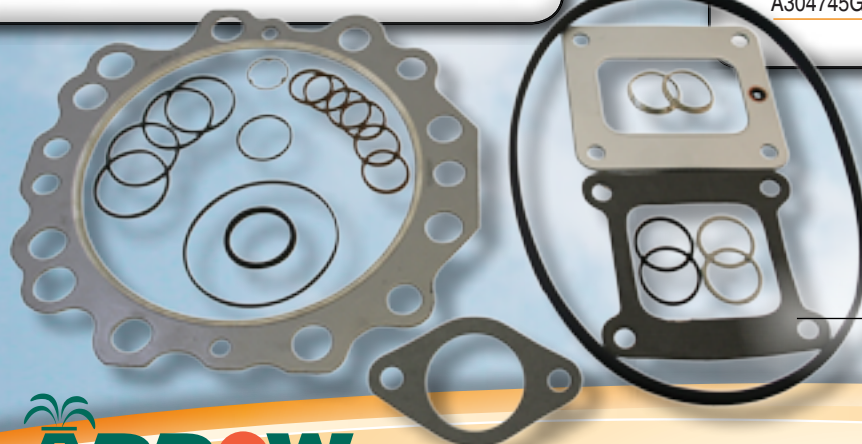
### Rod Bearing Pair HWA205010L (Rod Series 205507, order one pair per rod)

HW205010L	Lower Shell	1
HW205110N	Upper Shell	1

## Bearing Parts

Part No.	Description	Qty
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HW153032	Cam Bearing Thrust Washer (Order 2 per engine)	
HW47108F	Wrist Pin Bushing (Order 2 per rod)	



Arrow Engine Company  
2301 East Independence, Tulsa, Oklahoma 74110

www.ArrowEngine.com

# Crankshaft

## Parts

Part No.	Description
1 HW28234	BOLT, Flywheel
2 HW153031	RING, Thrust (Set of Two Halves)
3 HW118013Z	O-RING
4 HW153705B	DAMPER, Vibration- Rear, 18"
5 HW199331	DAMPER, Vibration- Rear, 24" x 3-2/3"
5 HW153807	DAMPER, Vibration- Rear, 24" x 2-2/3"
6 HW200022T	BEARING, Main (Front, Center, and Rear; Upper shell)
6 HW200022U	BEARING, Main (Front, Center, and Rear; Lower shell)
6 HW200022S	BEARING, Main (Front Center and rear)

## Parts

7 HW200025U	BEARING, Main (Intermediate; Lower shell)
7 HW200025T	BEARING, Main (Intermediate; Upper shell)
7 HW200025S	BEARING, Main (Intermediate)

**HW199331 Vibration Damper**  
 Arrow recommends replacing the vibration damper at every major overhaul to avoid crankshaft and bearing damage or failure.

# Camshaft

## Kits

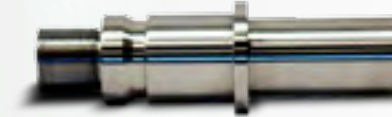
Part No.	Description
1 HW9277	BEARING, Camshaft Kit (L5108, L5790, L7042)

## Parts

Part No.	Description
2 HW153032	RING, Thrust
3 HWAA46033B	Cam Followers
4 HW153022A	GASKET, Valve Lifter Guide
5 HW153029	SHIM, .002"
6 104A-#15	KEY, Woodruff
7 HW200016D	SPINDLE, Idler Gear
8 HW78391	BEARING, Ball Front
9 HW78390	BEARING, Ball Rear



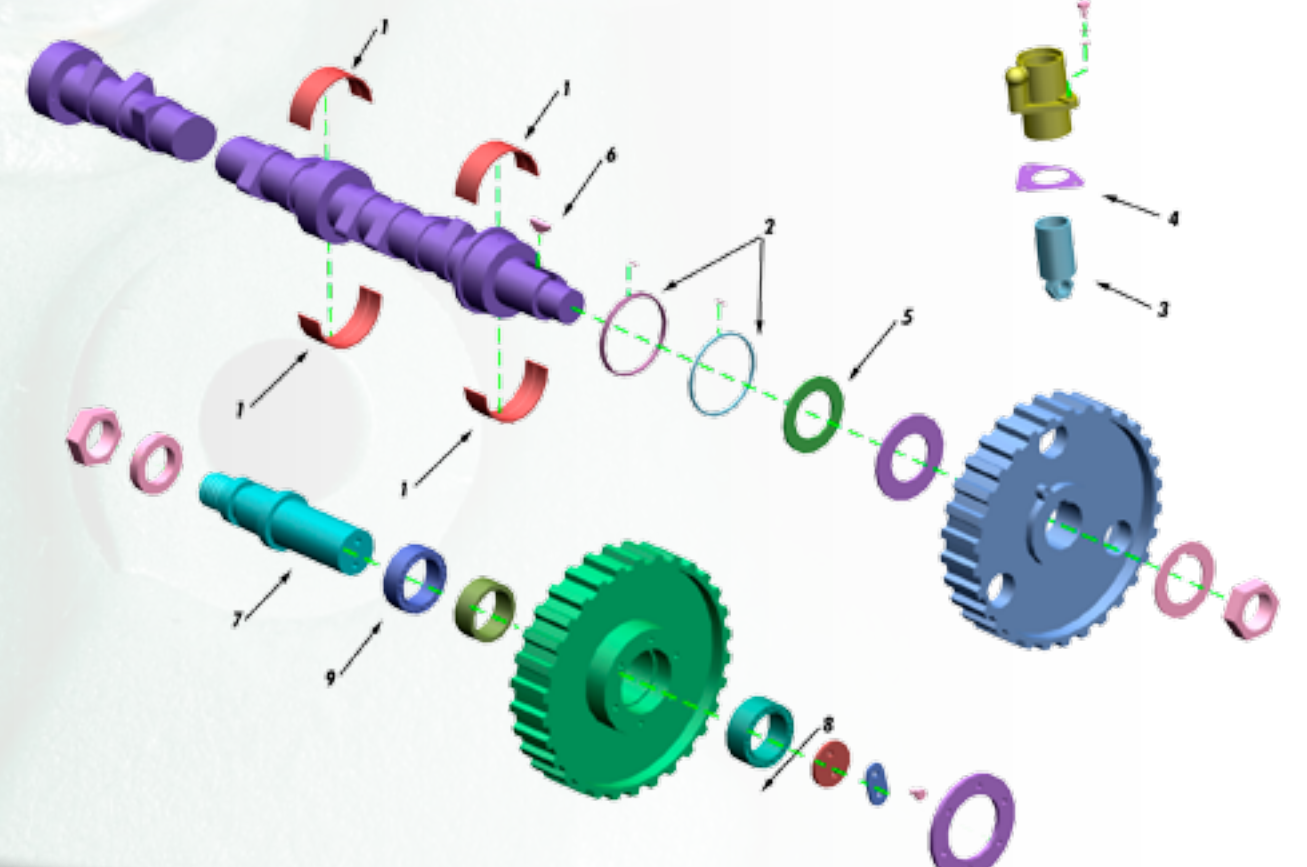
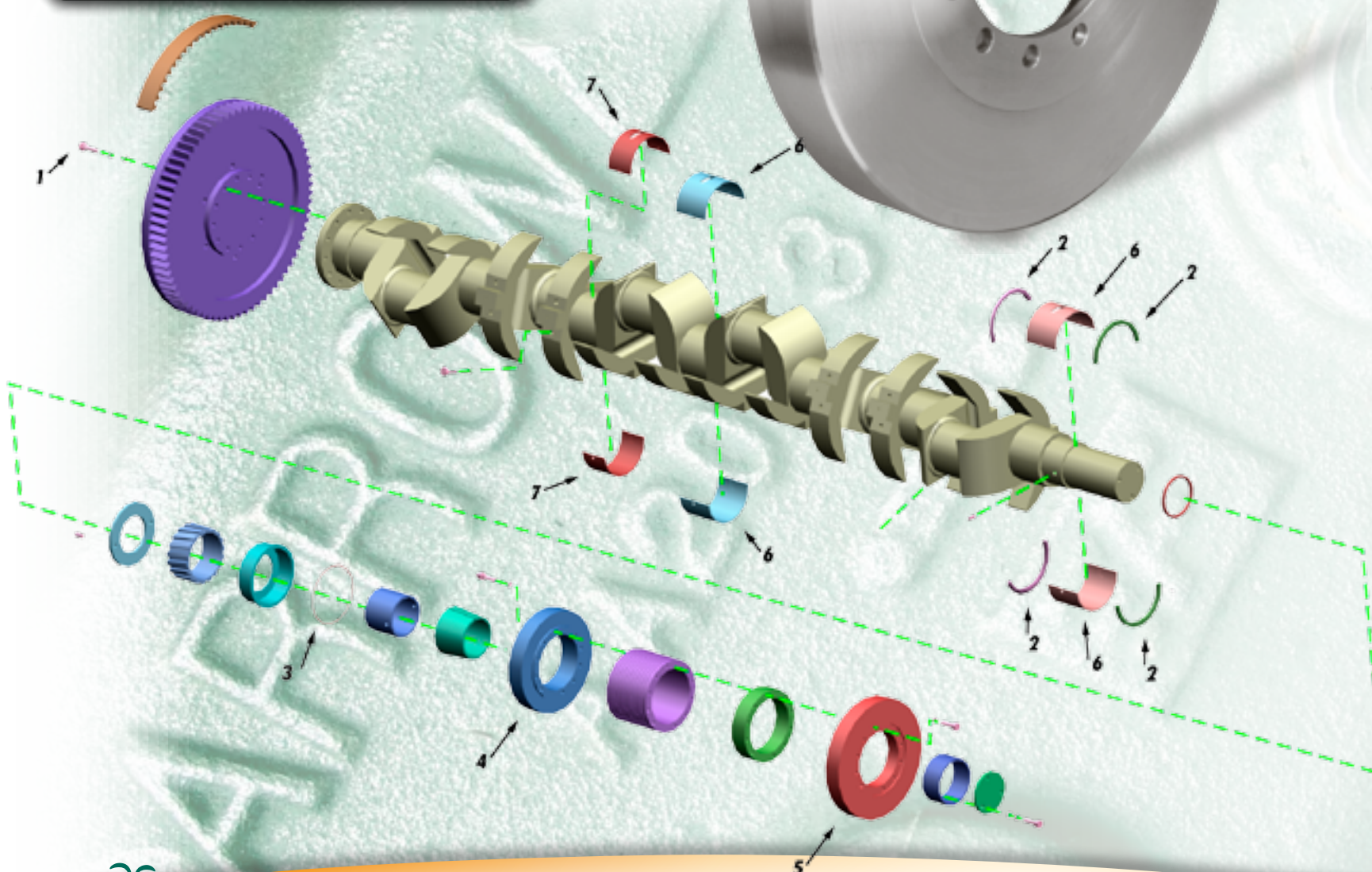
HWAA46033B Cam Followers



HW200016D  
Idler Gear Spindle



Camshaft  
Bearings



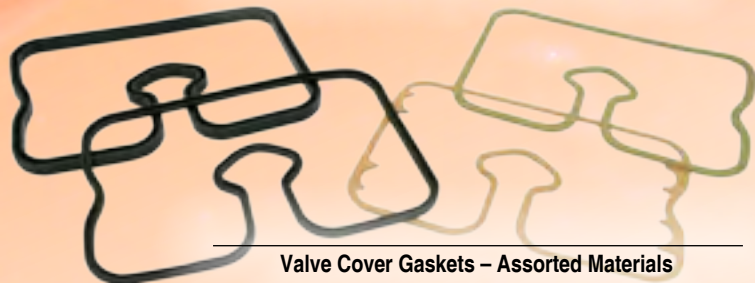
# Valve Cover Parts

## Parts

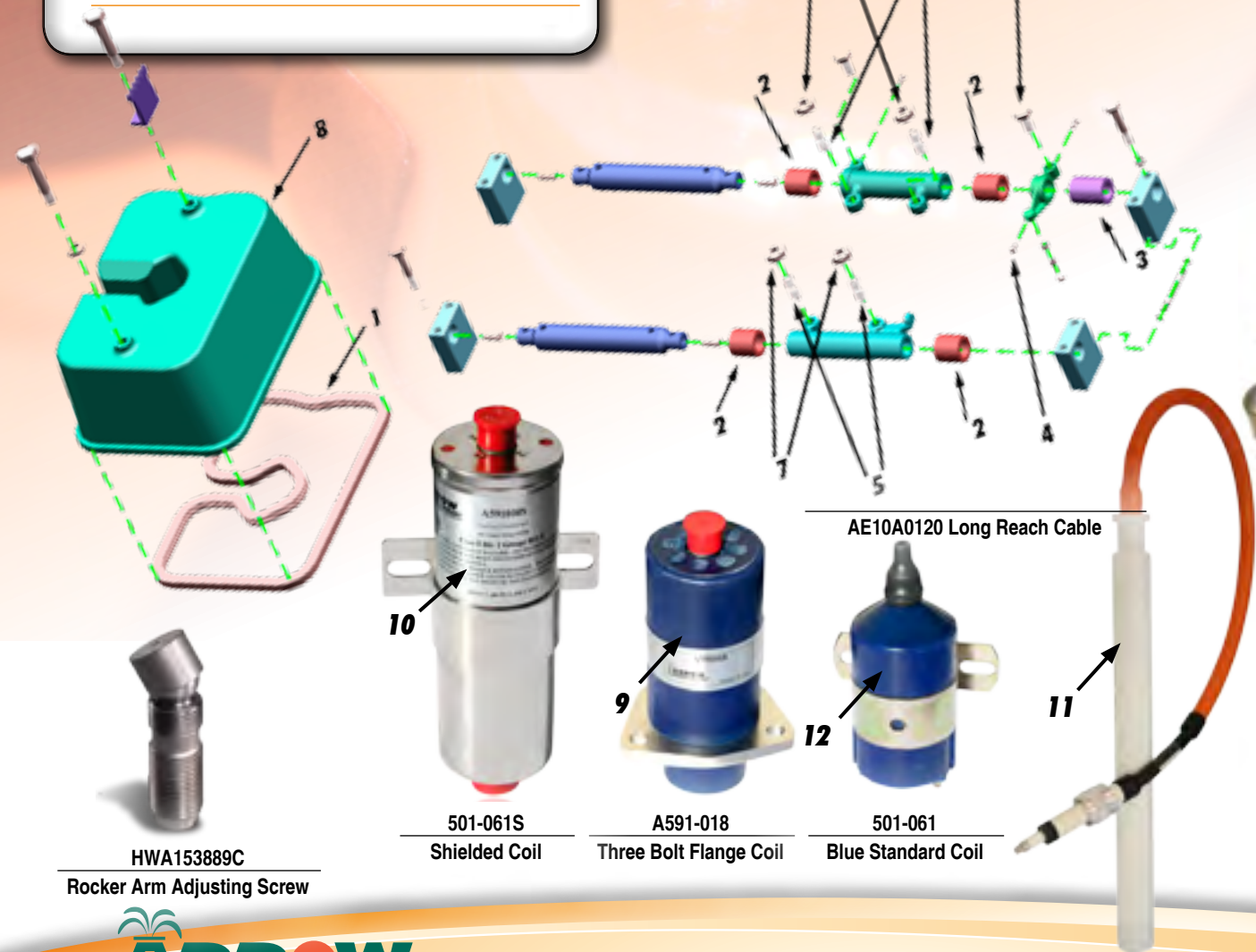
Part No.	Description
1 HW153894B	GASKET, Valve Cover- Neoprene/Cork
1 HW153894B-OS	GASKET, Valve Cover, Thick OS
1 A153894C	GASKET, Valve Cover, Buna-N
1 A153894D	GASKET, Valve Cover (Cork/Steel)
2 HW167480G	BUSHING, Rocker Arm, 1" wide
3 HW167480H	BUSHING, Rocker Arm, 1-1/4" wide
4 28642	CAPSCREW HX HD GR8 7/1620X2
5 HWA153889C	SCREW, Adjusting
6 HW169080W	SCREW, Adjusting
7 HW21227	NUT, Adjusting Screw
8 A204139G	VALVE COVER with Buna Gasket
9 A591-018	3 Bolt Flange Coil
10 501-061S	Shielded Coil
11 AE10A0120	Long Reach Spark Plug Cable
12 501-061	Blue Standard Coil



A204139G Valve Cover (includes Buna-N gasket)



Valve Cover Gaskets - Assorted Materials



HWA153889C

Rocker Arm Adjusting Screw

501-061S

Shielded Coil

A591-018

Three Bolt Flange Coil

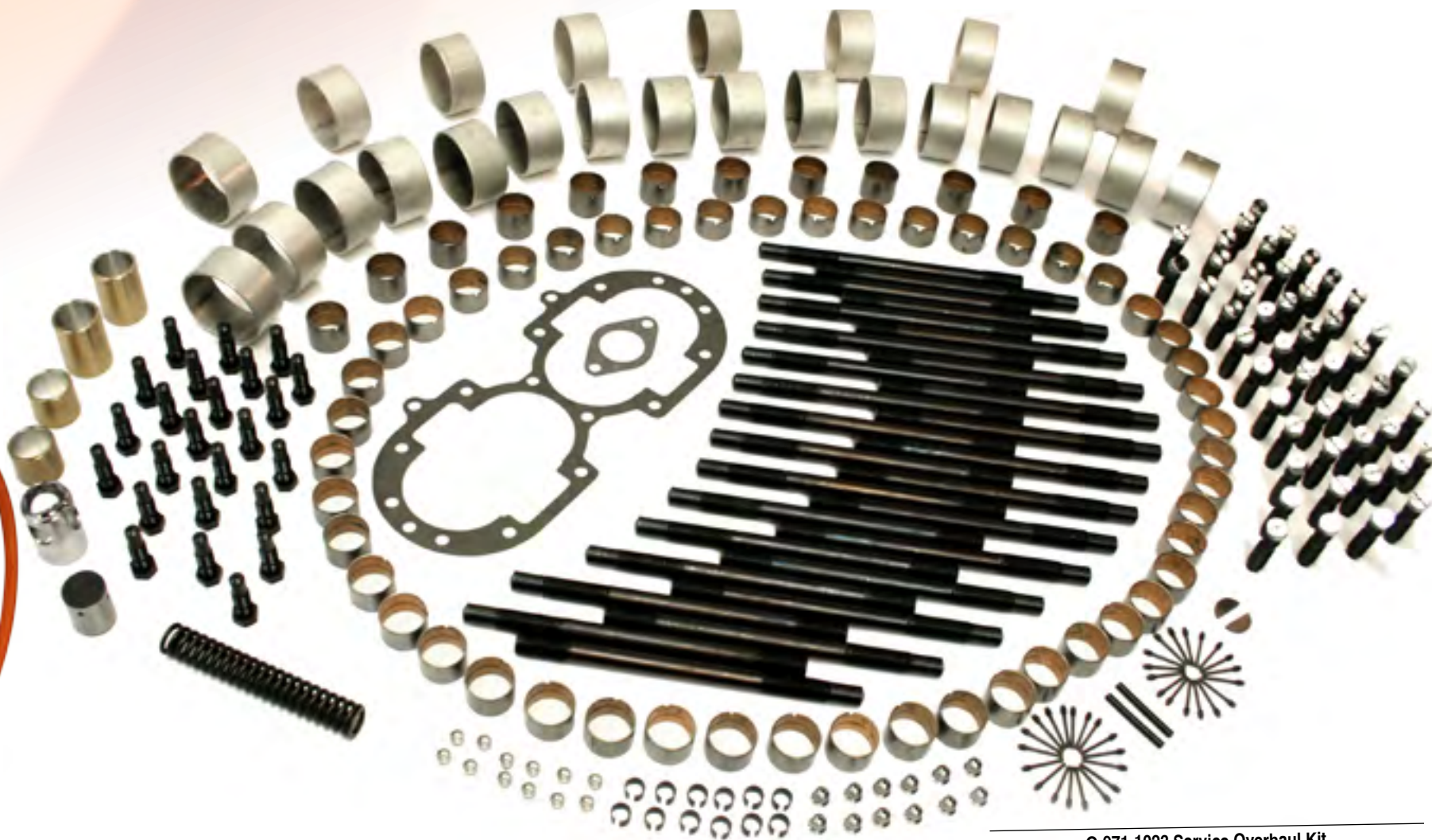
501-061

Blue Standard Coil

AE10A0120 Long Reach Cable

## Service Overhaul Kit

Service Overhaul Kit	G-971-1023	Part No.	Description
		A27261L	SPRING, RELIEF VALVE OIL PUMP
		HW63970D	BUSHING, O.P.DR.SHAFT
		A156303	PLUNGER, RELIEF VALVE OIL PUMP
		A156304	SLEEVE RELIEF VALVE OIL PUMP
		HW117496B	BUSHING, O.P.DR.SHAFT
		HW153050A	GASKET, OIL PUMP COVER
		A199083C	WASHER, NYLON
		HW153127A	Gasket, Flange
		HW168514B	Stud Main Bearing Cap
		A26734	SPRING PIN, .25X2.25 PLAIN
		A21013	#16 WOODRUFF KEY
		HW167480G	Bushing, Rocker Arm 1" Wide
		HW167480H	Bushing, Rocker Arm 1-1/4" Wide
		AA211820	Screw, adjusting, ASM
		A28798	PLUG-EXPANDER
		A168998F	BALL TAPPET
		HW169080W	SCREW, ADJUSTING L7042
		A169669A	INSERT
		A169690B	RETAINER BALL
		HW47108F	Bushing, Piston Pin



G-971-1023 Service Overhaul Kit



# Exhaust Manifold Parts

## Kits

### AA204342X

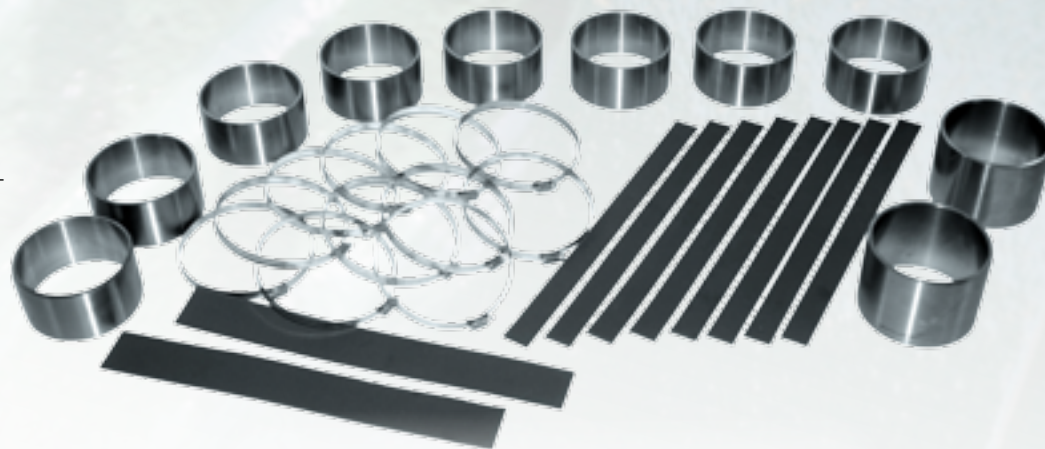
Part No.	Description
1	AA204342X EXHAUST MANIFOLD
2	A78283C PLUG, Pipe
3	A199942 RING, Insulating
4	A168055 PILOT, Manifold
5	A168055A PILOT, Manifold
6	A199942A RING, Insulating
7	A41236E CLAMP, Hose
8	1N-1/2 WASHER, Plain, 1/2"
9	HW153896A GASKET, Exhaust Manifold
10	HW176883 SEAL, Ring, Water Outlet 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, Assy (Set of 4)
18	A207824V Turbo Exhaust Tee
19	A169892F Water Jumper Elbow
20	HW176883G Gasket, Blue Silicone, Square Cut



AA204342X Exhaust Manifold



A207824V Turbo Exhaust Tee



A168MAN12 Exhaust Manifold Pilot Kit 12 Cyl

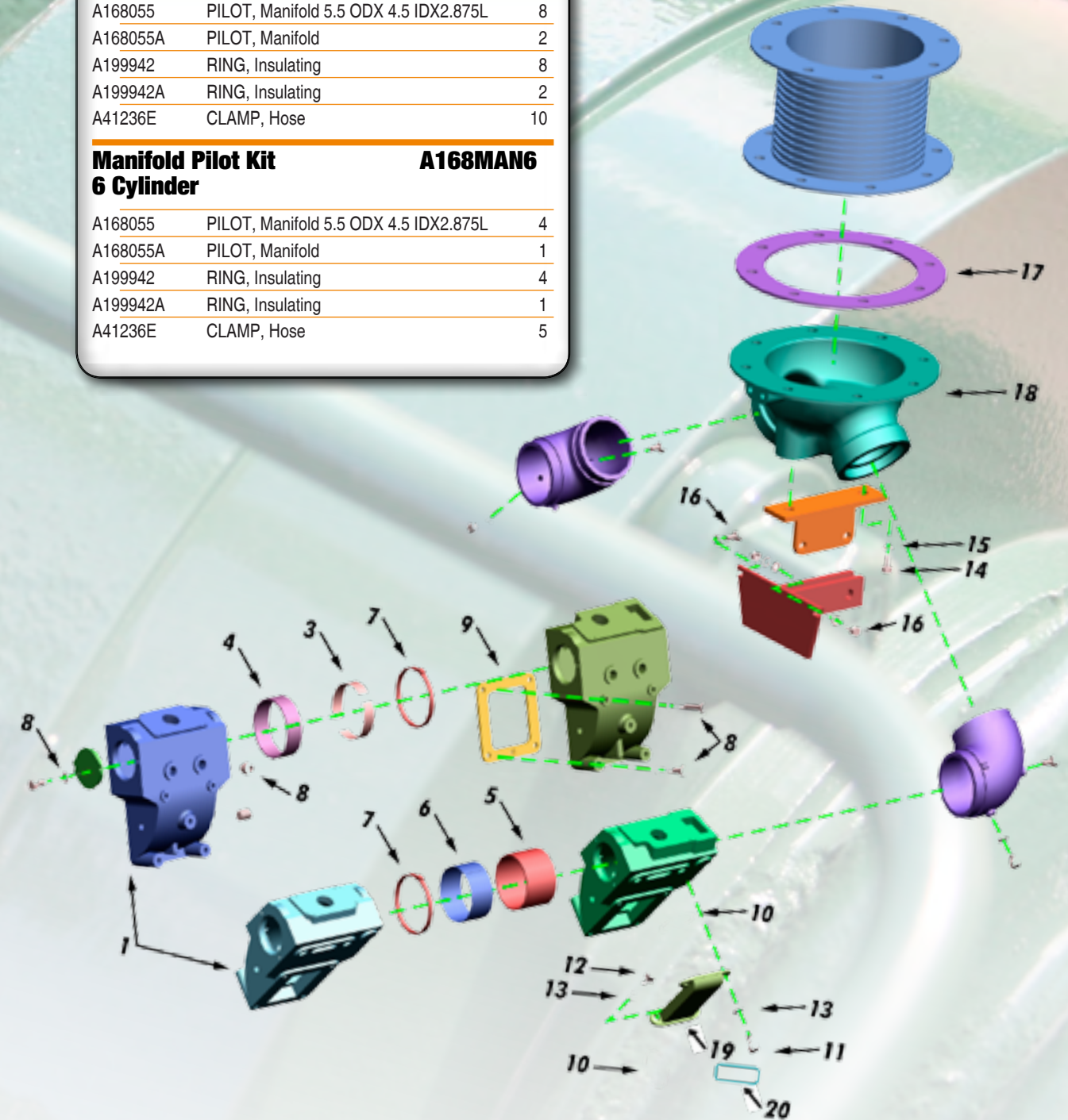
### Part No. Description No. Req.

#### Manifold Pilot Kit 12 Cylinder A168MAN12

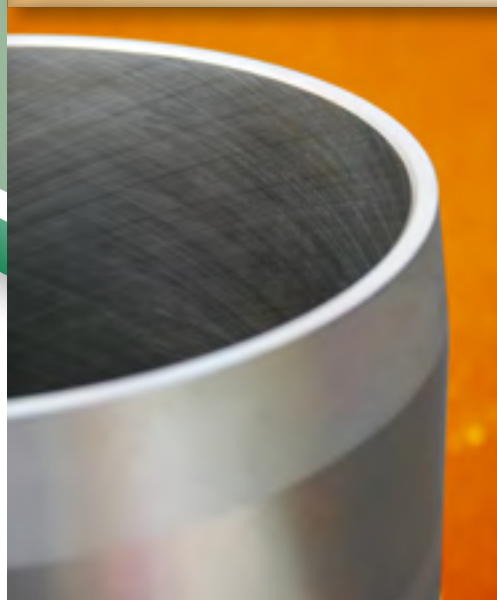
A168055	PILOT, Manifold 5.5 ODX 4.5 IDX2.875L	8
A168055A	PILOT, Manifold	2
A199942	RING, Insulating	8
A199942A	RING, Insulating	2
A41236E	CLAMP, Hose	10

#### Manifold Pilot Kit 6 Cylinder A168MAN6

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



# Sleeves



## Arrow 3Ring™ Sleeves

Arrow 3Ring™ Sleeves are centrifugally cast to obtain a dense casting with a uniform molecular structure free from casting defects. After the sleeves are stressed 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. Finally the water jacket area of the sleeves are chromed, making them resistant to cavitation erosion.



Bainitic Sleeve



HW204230 Wide Flange Sleeve (small bore)

# Pistons



## Arrow Pistons

Arrow pistons are a four-ring design with a Ni-resist top ring groove to reduce ring groove wear. They are cast in a silicon rich aluminum alloy for strength and scuff resistance. Skirt lands and ring grooves are machined with a diamond bit for precision finishing and close tolerances. Skirt profiles are optimized to minimize oil consumption, piston slap, and piston rock over. Pistons are weighed, marked, and packed in matched sets for balanced and vibration free operation.

Arrow Piston Ring Sets consist of four rings: one Super Moly compression ring, two taper face compression rings, and a heavy duty oil ring with coil type expander.

### Parts

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

#### Sleeves

HW205130R	Bainitic/Hardened – F3521, L7042, P9390
HW204230	Small Bore - 5790

#### Standard O-Ring Set

Includes 2 Ethylene Propylene and 1 Silicone Rubber O-ring. Order one set per sleeve.

HW950326	For F3521, L7042, P9390
HW950324	For Small Bore

#### Viton® O-Ring Set

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

HW950336	For F3521, L7042, P9390
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#### Piston

A205504Z	10:1 Compression – For F3521, L7042
A205504P	8.20:1 Compression – For F3521, L7042, P9390

#### Piston Ring Set

Order one set per piston.

A-907-147	For F3521, L7042, P9390
HW907146	For Small Bore

### Kits

#### Sleeve Kit

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

#### Bainitic/Hardened

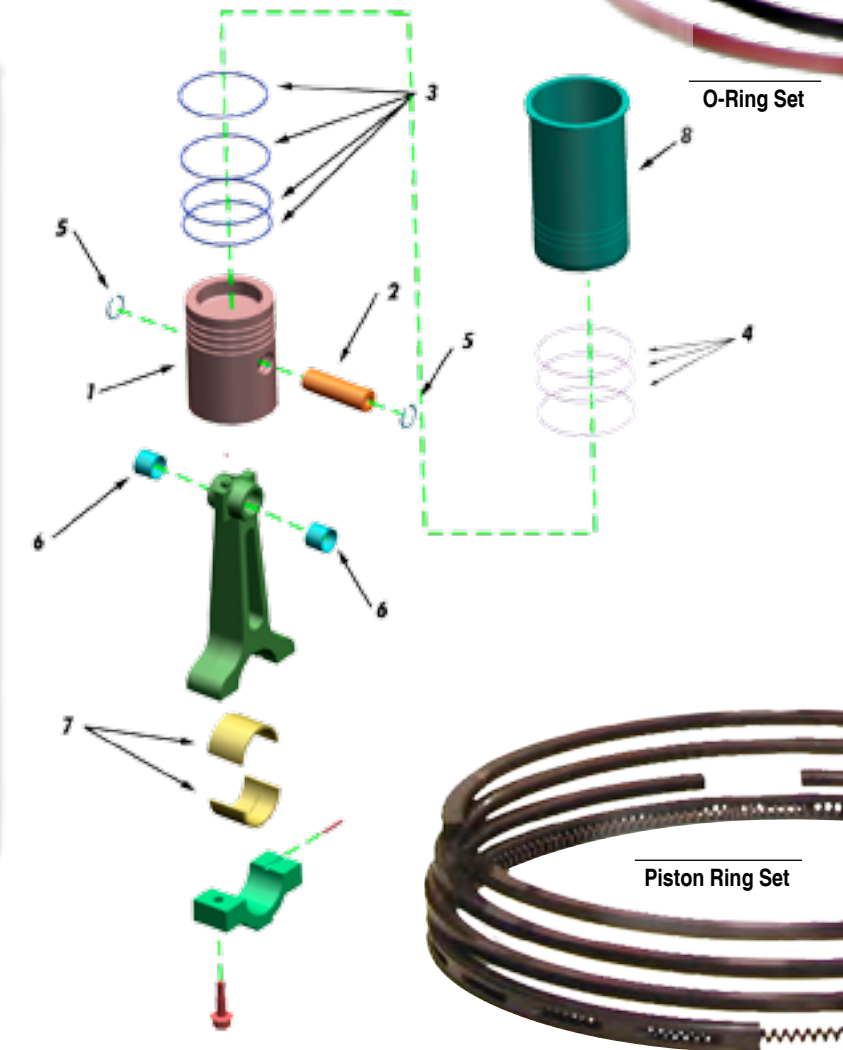
A-932-287	8:1	For F3521, L7042, P9390
HW932200	10:1	For F3521, L7042



A-932-287 Sleeve Kit

### Components

Part No.	Description	No. Req.
1	A205504P PISTON 9 3/8 Dia. Compression 8:1	
1	A205504Z PISTON 9 3/8 Dia. Compression 10:1	
2	HW10006 PIN, Piston	
3	A-907-147 RING, Piston Set	
4	HW119397G RING, Packing	
4	HW119397E RING, Packing	
5	HW44999C RETAINER, Piston Pin	
6	HW47108F BUSHING, Piston Pin	
7	HWA205010K BEARING, Connecting Rod-Assembly Series 205007	
7	HWC205010K BEARING, Connecting Rod-Assembly Series 205407	
7	HWA205010L BEARING, Connecting Rod-Assembly Series 205507	
8	HW205130R SLEEVE, Cylinder, Hardened Bainitic	
	HW950326 RINGS, O-Ring Set	
	2)HW119397G	
	1)HW119397E	
	A-932-287 Sleeve, Kit 8.20:1, Bainitic	
	HW932200 Sleeve, Kit 10:1	



O-Ring Set

Piston Ring Set



# Replacement Parts



HW168660B Oil Filter



HW168922N O-Ring



A980-VHP Oil Pump Valve Kit

## Parts

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### Air Filters

HW169180L Air Filter

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### Oil Filter

HW168660B Oil filter, all engines

**Filter cartridge specifications:**

Filtration Efficiency:	90% efficient at 15 micron
Filter Media:	Rolled Cotton & Wood Wool
Max. Temperature:	300°F
Center Tube:	Spiral-Seamed Carbon Steel
Outer Wrap:	Orion Sock

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### Oil Filter Housing O-Ring

HW168922N 17-1/2" OD

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### Oil Pump Relief Valve Kit **A980-VHP**

A156303	Plunger, Relief Valve, Oil Pump
A156304	Sleeve, Relief Valve, Oil Pump
A27261L	Spring, Relief Valve, Oil Pump
A199083C	Washer, Nylon



HWF207531 Air Duct Cleaner Housing

## Parts

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### Air Cleaner Duct

HWD207531P	6 Cylinder Duct, NA
HWF207531	6 Cylinder Duct, TA
HWC207531N	12 Cylinder Duct, NA, LB
HWD207531A	12 Cylinder Duct, TA, RB
HWG207531	12 Cylinder Duct, TA, LB

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### Air Tube

A158376M	Air Tube
A158376N	Air Tube Adapter

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### T18 & UTV Turbos

A208350	T18A90, 7042 GSI
A208350F	T18A96, 5790 GSI
A211391T	Turbo, 7042 GL
A211391U	Turbo, 5790 GL

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### Turbocharger V-Band Coupling

Stainless steel construction with flex-lock self-locking nut.

HW163721B	5-1/4"
HW168334E	9"

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### Exhaust Elbow Adapter

HW207838	Exhaust Elbow Adapter
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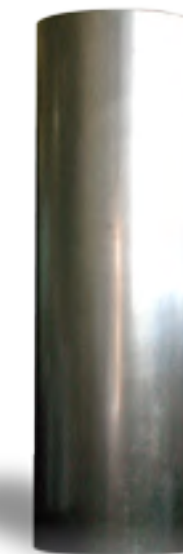
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### Lifter Parts

HW211196	O-RING
HW168514B	Main Cap Stud



HW207838 Exhaust Elbow Adapter



A158376M Air Tube



A158376N Air Tube Adapter



A208350 Turbo

# Comprehensive Parts List

Item	Description
28462	Stud, Seal Lock .19X.25 Rivet
209933	Hump Hose
936MEM	Kit, Head Parts, VHP
936NB	Head Kit Inconel/Stellite
936WB	Head Kit Inconel/Stalite
936WB-GL-COMLETE	Head Kit Inconel, Stellite, Complete
A118013W	O Ring
A118878A	Gasket Set Of 4, Assy
A151282B	Gasket Air Discharge
A153022D	Gasket, Tappet Guide
A153160E	Spacer, Cshft, Pulley Rear
A153161B	Sleeve, Crankshaft Pulley
A153176B	Gasket, Magneto Drive Hsg, New Style
A153272A	Disc Univ Joint
A153894C	Gasket, Valve Cover VHP Buna-N
A153894D	Gasket, Valve Cover Cork/Rubber (Si)
A153994C	Gasket, Valve Cover
A156303	Plunger, Relief Valve VHP Oil Pump
A156304	Sleeve Relief Valve VHP Oil Pump
A158376M	Tube, Air
A158376N	Tube Adapter, Air
A159364C	Stud, Ss, 3/8X1.75Lg
A159581E	Pulley, Water Pump, Assy
A161341	Oil Seal
A164182	Gasket, Intake
A166580J	O-Ring
A166580N	O Ring
A168055	Pilot, Manifold 5.5 Odx4.5 ldx2.875L
A168055A	Pilot, Manifold
A168308	Gasket
A168998F	Ball Tappet
A168MAN12	VHP Manifold Pilot Kit 12 Cylinder
A168MAN6	VHP Manifold Pilot Kit 6 Cylinder
A169568	Gasket Air Horn
A169584B	Elbow Carb Inlet
A169669A	Insert
A169690B	Retainer Ball
A169869A	Bypass Valve Gasket
A169892F	Elbow, Water Jumper
A169917	Gasket Carb
A169994B	Capscrew Cyl Head
A169994C	Capscrew Cyl Hd
A169998A	Gasket
A194681	Gasket
A199083C	Washer, Nylon

Item	Description
A199650C	Gasket, Spiral Wound
A199942	Ring, Insulation
A199942A	Ring, Insulating
A200161B	Backplate
A204000V	Head Gasket, Small Bore
A204136	Valve, Premium Exhaust
A204136GL	Valve, VHP, 20 Degree
A204139G	Valve Cover With Gasket
A204235B	Intake Spring-Inner
A204235C	Exhaust Spring-Inner
A204335B	Intake Spring-Outer
A204335C	Exhaust Spring-Outer
A205504P	Piston 8:00:1-Low Comp*Less Pin/Clip*
A205504Z	Piston 10:50:1- High Comp*Less Pin/Clip
A207824V	Tee, Exhaust Outlet
A208350	Turbo T18A90
A208350F	Turbo
A208601A	Gasket
A208811	Gasket Butterfly Valve
A208974	Packing Gasket
A209567K	Carrier, Spark Plug
A21013	#16 Woodruff Key
A211357NS	Cable Assy, Spark Plug, New Style
A211391T	Turbo VHP
A211391U	Turbo VHP
A211587C	Valve Admission Assembly
A211665E	Admission Valve Repair Kit
A211665EH	Spring, 302Ss
A211830	O-Ring 2-130
A211944	Gasket, Turbo Water In/Out
A214045	Nut, Hex Hi .75-16 G
A214229	Seal, Valve Stem Seal, Blue
A21519	Hxhdscr..50-13X5.50 Lg
A26916	Hxhdscr 1/2-13X8 1/2
A26943	Ststjamhxnut 3/8-24
A27261L	Spring, Relief Valve VHP Oil Pump
A28311	St St Hexnut 3/8-24
A28315	Hxhdscr 3/8-16X3 1/2
A28332	Hxhdscr 3/8-16X1 1/4
A28406	Ststjamhxnut 3/8-16
A28411	St St Hexnut 3/8-16
A28798	Plug-Expander
A292843	O-Ring
A295537	Nut, Lock
A304745G	O-Ring Viton 2-227

Item	Description
A305054	Ferryhdscr, M12 X35
A305408A	Gasket
A305480	Stud, M10X52
A41236E	Clamp, Hose
A44759	Gasket, Intake
A494228	Seal, Coupling
A494369	Sealing Gasket
A494383	Gasket, Sealing
A496740	Shaft, Water Pump
A499702	Gasket, Dress Coupling
A60999U	Plug, Spark 18Mm X .81Lg Thd.
A78283C	Plug Pipe Ctrsk Sq Skt Head 1"
A-907-147	Ring Set Single Piston
A-930-172	Sleeve Kit, Small Bore Less Piston & Pin
A-932-287	Sleeve Kit, Bainitic, 8:1
A-936-1018	VHP Valve Overhaul Kit
A-936-1019	Bulk VHP Valve Overhaul Kit
A-936-1042	Cyl Head Repair Kit
A-962-1600	Centrifuge Oring Kit
A-971-1004	Lower End Overhaul Kit
A-971-1024	Lower End Overhaul Kit
A-971-7042	Lower End Overhaul Kit
A-977-68	Kit, Gasket 3524 Gsi/7044
A-977-69	5794 Single Hd.Gskt. Kit
A-979-257	L5108GI/Ls790GI, Top Gasket Set
A-979-292	VHP Series 4 Top Gasket Set
A-979-294	VHP Series 4 Small Bore Complete
A980-VHP	Oil Pump Relief Valve Kit
AA204069H	Shaft Assy., Rocker
AA204342X	Manifold, Exhaust
AA204802E	Head, Cylinder, VHP, GI Less Valves
AA209724F	Prechamber Assembly
AA211820	Screw, Adjusting, Asm
AE10A0120	Cable Assy, Long Reach, VHP
AF200960	VHP Water Pump Housing
AF200960D	Water Pump
AP105149	Signal Bulb 28V-1 1W-T2
AVS2-EX	Switch, Vibration
CA204802E	Head Cyl VHP GI Complete
G-971-1023	Overhaul Service Kit
HW10006	Pin, Wrist
HW116861B	Washer, Nylon
HW118013B	O-Ring
HW118013K	O-Ring
HW118013Z	O-Ring
HW118226A	O-Ring

Item	Description
HW118878A	Gasket
HW118925A	Snap Ring
HW119035	Gasket
HW119396B	O-Ring, Sleeve
HW119396D	O-Ring, Sleeve
HW119396V	O-Ring, Viton
HW119397E	O-Ring, Sleeve
HW119397G	O-Ring, Sleeve
HW119397V	O-Ring, Viton
HW120148A	Gasket, Governor
HW120148B	Gasket, Governor
HW123320	O-Ring, Black, Epr
HW151011B	Gasket, Steel
HW153020B	Gasket, Tappet Housing
HW153022A	Gasket, Tappet Guide
HW153023	Gasket, Oil Retainer
HW153024	Gasket, Oil Retainer
HW153029	Shim, Camshaft
HW153031	Washer, Thrust 2 Halves
HW153032	Cam Bearing Thrust Washer
HW153038	Gasket, Camshaft Cover
HW153050A	Gasket, Oil Pump Cover
HW153061B	Gasket, Oil Pump
HW153077	Gasket, Governor Mounting
HW153077A	Gasket, Governor Mounting
HW153092A	Gasket, Camshaft Cover
HW153095A	Gasket, Bearing Carrier
HW153097A	Seal, Front Crankshaft
HW153098	Washer Copper
HW153100A	Gasket, Governor Cover
HW153102A	Gasket, Overspeed Governor
HW153121	Gasket, Oil Pan Door
HW153121V	O-Ring, Viton
HW153127A	Gasket, Flange
HW153137A	Gasket, Cover Plate
HW153139A	Gasket, Water Inlet
HW153142A	Gasket, Oil Gauge Support
HW153147A	Gasket
HW153175B	Gasket, Drive Housing
HW153175C	Gasket, Drive Housing
HW153176A	Gasket, Magneto Drive
HW153176C	Gasket
HW153260A	Gasket, Trip Housing Cover
HW153263D	Gasket, Oil Header
HW153293B	Gasket, Magneto Adapter
HW153361B	Gasket, Upper Water Connect





# Comprehensive Parts List

Item	Description
HW153376A	Gasket, Cover Plate
HW153554A	Seal, Rear Crankshaft
HW153610	Seal, Thermostat
HW153705B	Damper, Vibration 18"
HW153743	Gasket, Oil Pan Cover Plate
HW153807	Damper, Vibration 24" X 2.66"
HW153881	Gasket, Water Outlet Elbow
HW153883A	Washer Spring Valve For VHP
HW153884D	Retainer, Valve Spring
HW153894B	Gasket, Valve Cover VHP
HW153894B-OS	Gasket, Valve, Cover, Thick Os
HW153895A	Gasket, Intake Manifold
HW153896	Gommet For Hw153896A
HW153896A	Gasket, Exhaust Manifold
HW153990A	Seal, Butterfly Shaft
HW155248F	O-Ring
HW155248G	O-Ring
HW155248H	O-Ring, Turbo / Intercooler
HW157475K	Seal, Water Pump
HW157497	O-Ring
HW157497H	O-Ring
HW157497P	O-Ring
HW157497Z	O-Ring
HW158405	Gasket, Cover Plate
HW159574B	Retainer, Ring
HW159575	Gasket
HW159576A	Spacer
HW159580	Gasket, Water Pump
HW160029	O-Ring
HW161293	Nut Nylon Insert Stop Nuts, Thin Pattern
HW161309A	Bearing
HW161309C	Bearing, Ball
HW161339	Idler Pulley Bearing
HW161393	Nut Nylon Insert Stop Nut, Thin Pattern
HW163211	Gasket, Gear Cover
HW163212B	Gasket, Gear Housing
HW163213A	Gasket, Tappet Housing
HW163721B	Turbo Charged V-Band Coupling 5-1/4"
HW164076A	Retaining Ring
HW164712	Damper, Governor
HW166192C	Gasket, Oil Pan
HW166580A	O-Ring
HW166580K	O-Ring
HW167160D	Retaining Ring
HW167392	Gasket, Lower Bypass Tube
HW167409	Gasket

Item	Description
HW167480G	Bushing, Rocker Arm 1" Wide
HW167480H	Bushing, Rocker Arm 1-1/4" Wide
HW168089A	Gasket, Gear Housing
HW168090	Gasket, Gear Cover
HW168108	Gasket, Valve Lifter Door
HW168256	Gasket
HW168318B	X- Brace 12 Cylinder
HW168334E	Turbocharger V-Band Coupling 9"
HW168335	Gasket, Air Connection
HW168348	Gasket, Governor Drive Cover
HW168349	Gasket, Governor Drive
HW168366B	Foam Rubber
HW168373A	Gasket, Breathe, VHP
HW168416A	Gasket, Breathe
HW168510	Shaft Butterfly Valve For VHP
HW168514B	Stud Main Bearing Cap
HW168516	Gasket, Camshaft Cover
HW168660B	Filter, Oil
HW168922N	O-Ring, Filter 17-1/2" Od
HW169064B	Gasket, Thermostat Housing
HW169065	Gasket
HW169080	Screw, Adjusting
HW169080W	Screw, Adjusting L7042
HW169180K	Air Filter, Element VHP-
HW169180L	Air Filter, Element VHP N/A
HW169616B	O-Ring
HW169616F	O-Ring
HW169803	Gasket
HW169874	Gasket
HW169902F	Shaft Butterfly Valve
HW176352K	Seat Valve, Narrow Bridge
HW176352L	Seat Valve, Narrow Bridge
HW176352P	Seat, Wide Bridge Intake
HW176352Q	Seat, Wide Bridge
HW176352R	Valve Seat 20 Deg. Wide
HW176450E	Stem Seal **White**
HW176450G	Stem Seal For VHP**Green**
HW176450H	Stem Seal**Orange**
HW176586	Gasket, Thermostat
HW176587	Gasket
HW176883	Ring, Water Outlet
HW176883D	Ring, Silicone Seal
HW176883G	Gasket, Water Jumper Silicone Formed
HW199331	Damper, Vibration 24" X 3.66"
HW199389	Gasket, Mounting
HW199451E	Sleeve, Wear

Item	Description
HW199868	Belt For A.W. Pump VHP
HW200022T	Main Bearing Half Upper Shell
HW200022U	Main Bearing
HW200025S	Main Bearing Half
HW200025T	Main Bearing Half Upper Shell
HW200025U	Main Bearing Half Lower Shell
HW200456	Shaft Water Pump
HW200456C	Shaft Water Pump
HW200456S	Shaft Water Pump Ss
HW200463	Impeller Wp, Balanced W/O Adptr
HW200463C	Impeller Water Pump W/Adapter
HW200464	Adapter, VHP Impeller
HW204035	Spring, Inner Exhaust VHP, Black
HW204035A	Spring, Inner Intake
HW204109C	Guide, Exhaust Valve
HW204109E	Guide, Intake Valve
HW204109P	Guide, Exhaust Valve
HW204135	Spring, Outer Exhaust VHP
HW204135A	Spring, Outer Intake VHP
HW204136	Valve, Premium, Intake
HW204209	Valve Guide, Intake
HW204230	Sleeve, Non-Chrome
HW204230R	Sleeve Chromed Small Bore
HW204241L	Manifold, Intake Aluminum
HW205010K	Rod Bearing Half Lower Shell
HW205010L	Rod Bearing Half Lower Shell
HW205034A	Cam Follower Bracket
HW205056	Shaft, Water Pump
HW205063C	Impeller, Water Pump
HW205100A	Gasket, VHP Head Grafoil
HW205110N	Bearing, Half Upper Shell
HW205110P	Bearing, Half Upper Shell
HW205130P	Sleeve Thick Flanged Chrome
HW205130R	Sleeve VHP Bainitic Chromed
HW205404H	Piston 8 :1
HW205404J	Piston, 10: 1
HW207379A	Gasket, Self Centering
HW207806	Gasket, Turbo Inlet
HW207809A	Gasket, Bypass
HW207827	Gasket, Elbow
HW207838	Adapter Exhaust Elbow For VHP
HW208611	O'Ring Square Cut
HW208939	Gasket, Thermostat Housing
HW208943	Gasket
HW208973	Gasket, Thermstat

Item	Description
HW209095	Seal Packing 10" Cooler
HW209424	Gasket, Exhaust
HW209724F	Prechamber For VHP
HW21007	Woodruff Key
HW211196	O-Ring
HW211442	Seal, Oil
HW211442A	Seal, Oil
HW211887A	Thermostat 165
HW211887B	Thermostat 170
HW211887D	Thermostat 180
HW21227	Adjusting Screw Nut
HW257056	Shaft W/P P9390
HW28234	Capscrow Flywhl Hex Hd
HW28357	Gasket, Stainless
HW28758	Washer
HW290144	O-Ring
HW305020B	O'Ring For VHP
HW44999C	Retainer, Wrist Pin
HW44999Q	Snap Ring
HW47108F	Bushing, Piston Pin
HW490369	Gasket Waste Gate
HW493023	O-Ring Lube Strainer
HW493026	O'Ring, Square Section
HW496737	Seal, Water Pump
HW496738	Shaft Water Pump
HW496739	Shaft, Water Pump
HW496740	Spacer, Bearings
HW496761	Bearing
HW496762	Gasket, Bearing Cover
HW496764	Gasket
HW496765	Gasket
HW496823	Seal Assembly
HW496824	Gasket, Water Pump
HW496837	Ring, Felt
HW499222	Diaphragm, Silicon
HW499708	Seal
HW499805	Seal
HW73629	Keeper, Tapered Valve
HW76643	Copper Washer .700X.525X.050
HW78390	Camshaft Idler Gear Bearing
HW78391	Camshaft Idler Gear Bearing
HW78843A	Bearing
HW78843C	Bearing, Ball
HW78843F	Ball Bearing, Double Row
HW85745	Gasket

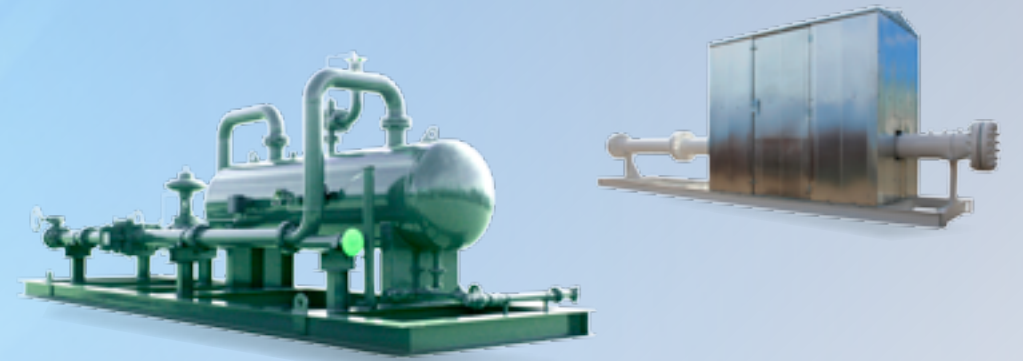


# Comprehensive Parts List

Item	Description
HW9001023	Bottom Gasket Set Ta,Na,F2895/F3521
HW9001025	Bottom Gskt Set Ta /L5790/7042Gsi 7044
HW9001033	Series 4 Basic Gasket Set
HW907146	Piston Ring Set
HW918313	Main Bearing Set (T-Drilled)
HW918315	Main Bearing Set, P9390
HW918316	Main Bearing Set-Angle Drilled
HW932182	Sleeve Kit, Chrome 8:1 - Low Comp
HW932200	Sleeve Kit, Chrome 10:1 - High Comp
HW932200R	Sleeve Kit, Baititic Sleeve 10.1
HW9360104K	Head Kit With Narrow Gap Premium Valves
HW9360104P	Head Kit With Wide Gap Premium Valves
HW9360105K	Head Kit Single Inc Ex Valve
HW9360105P	Head Kit Single Inc Ex Valve
HW950324	Sleeve O-Ring Set
HW950326	Sleeve O-Ring Set, VHP
HW950336	Viton O-Ring Set, 1 Per Sleeve
HW951054E	O-Ring
HW951054J	O-Ring, Crankcase
HW960149	Water Pump Kit VHP
HW960149L	Water Pump Kit VHP Less Impeller
HW960149LR	W/P Kit W/ S-Shaft
HW960149LS	Water Pump Kit VHP
HW960149R	W/P Kit W/ Ss Shaft
HW960192	Water Pump Kit F2895/F3521
HW960192L	Water Pump Kit F2895/F3521
HW960192LS	Water Pump Kit F2895/F3521
HW960202L	Water Pump Kit P9390
HW960243	Water Pump Kit Less Impeller 7042
HW960256	Water Pump Kit Aux. 7042
HW960291	Water Pump D/R 12 Cyl. VHP
HW960291L	Water Pump D/R 12 Cyl. VHP
HW960291LS	Water Pump D/R 12 Cyl. VHP
HW960294	Water Pump Kit 6 Cyl. D/R
HW960294L	Water Pump Kit 6 Cyl. D/R
HW960294LS	Water Pump Kit 6 Cyl. D/R
HW9611	Water Pump Mounting Gasket Kit
HW9611-AF	Water Pump Mounting Gasket Kit Plus
HW9612	Water Pump Mounting Gasket Assy
HW9613	Water Pump Mounting
HW97745	Gasket Set, G,GI2895/G,GI5108/G,GI5790
HW97748	Use Hw97745
HW97749G	Gasket Set, Single L7042,G,Gsi,GI

Item	Description
HW979258	Top Gasket Set 7042GI
HW979261	Top Gasket Set P9390GI
HW979263	Top Gasket Set 5108/5790
HW979264	Top Gasket Set F2895
HW979265	Top Gasket Set F3521
HW979266	Top Gasket Set L7042
HW979266G	Top Gasket Set 7042
HW979267G	Top Gasket Set P9390
HWA153889C	Screw, Adjusting
HWA199868	Belt, Set For VHP
HWA200022S	Main Bearing Pair
HWA200025S	Main Bearing Pair
HWA205010K	Rod Bearing Pair Rod Series 205007
HWA205010L	Rod Bearing Pair Rod Series 205507
HWAA46033B	Lifter, Valve F/7042 Pack Each Part Sepa
HWAJ204702N	Head, Cylinder Assembly Gsi
HWB1393	Washer
HWB2793D	Gasket, Inlet Elbow
HWB3909	Bearing Ball
HWB4367	Bearing Ball, Deep Groove
HWB6935A	Bearing Ball
HWB9940	Copper Washer
HWC205010K	Rod Bearing Pair Rod Series 205407
HWD169858	Oil Header 6 & 12 Cyl.
HWD204477A	Manifold, Water
HWF204677	Manifold, Water New Style
HWG207531	Air Cleaner Unit, 12 Cyl Ta,Lb
HWP105149	Signal Bulb 28V-1 1W-T2
VHPGL-1	VHP GI Service Kit
VHPGSI-1	VHP Gsi Service Kit

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