INSTALLATION INSTRUCTIONS:

1) MAKE SURE CYLINDER HEAD EXHAUST MOUNTING SURFACE IS FREE OF KNICKS AND ANY OLD GASKET MATERIAL IS REMOVED. SEALANT IS NOT REQUIRED ON THE NEW SUPPLIED GASKETS. FIG. A.
2) THE PORT AND STARBOARD MANIFOLDS ARE THE SAME PART AND CAN BE USED ON EITHER SIDE OF THE ENGINE. FIG. B.
3) INSTALL MANIFOLDS WITH THE SUPPLIED 3/8 BOLTS AND WASHERS. APPLY ANTI-SIEZE TO 3/8 MOUNTING BOLTS, FIG.C. TORQUE TO 30 FT. LBS.
4) APPLY LIQUID PIPE THREAD SEALANT TO THE SUPPLIED 1" HOSE BARB FITTINGS AND 3/4 NPT PIPE PLUGS.
5) FIG. D SHOWS PORT SIDE TYPICAL WATER INLET POSITION. INSTALL 1" HOSE BARB FITTING INTO BOTTOM OF THE MANIFOLD, FIG. E.
6) INSTALL 3/4 PIPE PLUG, FIG. F, INTO THE OPPOSITE WATER INLET BUNG.
7) ATTACH 1" WATER INLET HOSE FROM THERMOSTAT HOUSING TO FIG. E FITTINGS (MAKE SURE IT IS A CONSTANT FLOW WATER SUPPLY).
8) GO TO 620-38025 TAILPIPE INSTRUCTIONS TO COMPLETE INSTALLATION.

CAUTION** HARDIN MARINE MANIFOLD SYSTEMS ARE DESIGNED FOR USE ON ENGINES WITH FULL TIME CONSTANT WATER CIRCULATION AT ALL TIMES. NOTE** AFTER APPROXIMATELY 2-5 HOURS USE OR NUMEROUS ENGINE HEAT CYCLES ALL HARDWARE MUST BE RETORQUED AND OR TIGHTENED.
**SEAWARD BBC RISER INSTALL KIT-PARTS BREAKDOWN**

**MANIFOLDS COME BLACK, SHOWN IN BLUE FOR INSTRUCTION PURPOSES.**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>1</td>
<td>540-222999</td>
<td>3/4NPT PIPE PLUG</td>
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<td>2</td>
<td>620-38006</td>
<td>RISER GASKET</td>
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<td>3</td>
<td>90037SA-STSS</td>
<td>WASHER, 3/8 SAE</td>
<td>8</td>
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<tr>
<td>4</td>
<td>90037CN-FNSS</td>
<td>NUT, 3/8-16</td>
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<td>5</td>
<td>620-38030</td>
<td>HOSE, RISER - STRB</td>
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<td>6</td>
<td>620-38029</td>
<td>HOSE, RISER - PORT</td>
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<td>7</td>
<td>100-720-6316</td>
<td>HOSE CLAMP</td>
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<tr>
<td>8</td>
<td>540-222132</td>
<td>FITTING, 1&quot; BARB</td>
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</tbody>
</table>
INSTALLATION INSTRUCTIONS:
1) APPLY LIQUID THREAD SEALANT TO THE SUPPLIED 1" HOSE BARB FITTING & 3/4 NPT PIPE PLUGS.
2) INSTALL 1" HOSE BARB FITTINGS INTO FRONT OF THE MANIFOLDS, FIG. A.
3) INSTALL 3/4NPT PIPE PLUGS INTO THE REAR OF THE MANIFOLDS, FIG.B.
4) APPLY ANTI-SIEZE TO THE 8 STUDS, FIG. C.
5) SLIDE GASKETS OVER STUDS, FIG. D.
   DO NOT USE SEALANT ON THE GASKETS.
6) INSTALL RISERS, FIG. E.
7) IF YOU ARE INSTALLING 620-38051 SHIFT BRACKET AND 620-38050 OIL FILTER RELOCATION BRACKET, INSTALL THEM NOW. USE THE INSTRUCTIONS THAT CAME WITH THOSE KITS.
8) INSTALL WASHERS AND NUTS, FIG F.
   TORGUE TO 30 FT. LBS.
9) INSTALL JUMPER HOSE AND HOSE CLAMPS. STARBOARD SIDE IS SHORTER HOSE, FIG.G.

MANIFOLDS COME BLACK. SHOWN IN BLUE FOR INSTRUCTION PURPOSES.

CAUTION** HARDIN MARINE MANIFOLD SYSTEMS ARE DESIGNED FOR USE ON ENGINES WITH FULL TIME CONSTANT WATER CIRCULATION AT ALL TIMES. NOTE** AFTER APPROXIMATELY 2-5 HOURS USE OR NUMEROUS ENGINE HEAT CYCLES ALL HARDWARE MUST BE RETORQUED AND OR TIGHTENED.

THIS DRAWING IS CONFIDENTIAL AND IS SUPPLIED ON EXPRESS CONDITION THAT IT SHALL NOT BE LENT, COPIED OR DISCLOSED TO ANY OTHER PERSON OR USED FOR ANY OTHER PURPOSE WITHOUT WRITTEN CONSENT OF HARDIN MARINE INC.. BREACH OF THIS CONTRACT WILL HOLD .......... AND IT'S PRINCIPALS LIABLE FOR LOSS AND DAMAGES.
SEAWARD EXHAUST MANIFOLDS REQUIRE A CONSTANT FLOW OF COOLING WATER. COOLING SYSTEM PLUMBING TO BE PLUMBED FROM THE ENGINES TOP WATER DISCHARGE OR THERMOSTAT HOUSING TO THE BOTTOM INLET PROVISION OF THE EXHAUST MANIFOLD. WATER FLOW VERTICALLY THROUGH THE EXHAUST MANIFOLD AND IS DISCHARGED THROUGH A JUMP CONNECTION HOSE TO THE EXHAUST RISER FOR COOLING.

FOR ENGINES WITH A 4 PORT THERMOSTAT HOUSING, YOU CAN EITHER BUY A 540-222120 FITTING AND CONNECT TO THE BOTTOM BACK PORT ON THE MANIFOLD OR 420-910311 "Y" FITTING.

SHOWN WITH 620-300100 CROSSOVER w/BYPASS KIT.
SHOWN WITH OPTIONAL 620-38050 OIL FILTER BRACKET & 620-38051 SHIFT BRACKET.
NOTE:
1) BREAK ALL EDGES .02x45°, UNLESS NOTED.

620-38010 RISER

2.50

15.02

2.30

14.17°

NOTE: 1) BREAK ALL EDGES .02x45°, UNLESS NOTED.

SEAWARD STD BRAVO TAILPIPE

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± 2° BEND ±
TWO PLACE DECIMAL ± .015
THREE PLACE DECIMAL ± .005

MATERIAL
316L

FINISH
POLISHED

SCALE: 1:4
DRAWN BY: J.P.STULL
DATE: 07/26/16

UNLESS OTHERWISE SPECIFIED:

HARDIN MARINE
11 Industry Dr., Palm Coast, FL 32137
386-445-2500 / FAX 386-445-1122

TITLE:

PART NO.
620-38058

REV

PART NO.
620-38058

SIZE A
620-38058