GIMBAL AXES MUST BE ORIENTED ATHWARTSHIP AND HORIZONTAL

THIS HULL STRUCTURE SHOWN FOR VISUAL REFERENCE ONLY. ACTUAL STRUCTURE DESIGN TO BE DETERMINED BY BOAT MANUFACTURER OR GYRO INSTALLER, SEE NOTE 6.

SEE SHEET 5 FOR LOADING FORCES AND OTHER RECOMMENDATIONS FOR ATTACHING GYRO TO HULL STRUCTURE.

NOTES:
1) SEE REFERENCES 1 THROUGH 5 FOR RELATED INSTALLATION MANUAL AND ELECTRICAL / ELECTRONIC AND COOLING CIRCUIT DRAWINGS.
2) GYRO ASSEMBLY WEIGHT = 2,057 LBS. (933 Kg)
3) RAW WATER COOLING REQUIREMENT IS 15 LPM (4 GPM) MINIMUM AND 30 LPM (8 GPM) MAXIMUM CONTINUOUS FLOW. PROVIDED CONNECTIONS ARE 3/4" HOSE BARB. USE OF RAW WATER STRAINER IS REQUIRED.
4) TWO LIFTING EYES ARE PROVIDED ON THE TOP OF THE GYRO SPHERE FOR USE WITH A CHAIN/SPREADER BAR (SEE SHEET 4). TOP COVER MUST BE REMOVED TO ACCESS LIFTING EYES.
5) COVERS ARE PROVIDED TO PREVENT PERSONNEL OR EQUIPMENT ENTANGLEMENT WHILE GYRO IS IN OPERATION. COVER MUST BE REMOVED PRIOR TO START-UP AND OPERATION IS THE SAME REGARDLESS OF GYRO ORIENTATION.
6) THE GYRO MUST BE INSTALLED AFT OF AMIDSHIP TO MINIMIZE HIGH ACCELERATION LOADING DUE TO HULL/WAVE IMPACTS DURING OPERATION AT HIGH SPEEDS OR IN LARGE WAVES. GYRO SHOULD NOT NEED TO BE MOUNTED ON CENTERLINE OF VESSEL. GYRO SUPPORT STRUCTURE MUST BE PARALLEL TO VESSEL WATERLINE.
7) GYRO MAY BE INSTALLED FACING FORWARD OR AFT AS SHOWN. GYRO ORIENTATION SHOULD BE SELECTED TO PROVIDE THE MOST ACCESSIBILITY FOR FUTURE SERVICE AND MAINTENANCE. INSTALLATION, START-UP, AND OPERATION IS THE SAME REGARDLESS OF GYRO ORIENTATION.
8) WHEN INSTALLING GYRO SEAKEEPER RECOMMENDS USING A BOLT HOLE LOCATION FIXTURE # 90282 AVAILABLE FROM SEAKEEPER. THIS FIXTURE WILL PROPERLY SPACE AND LOCATE HOLES TO BE DRILLED IN HULL STRUCTURE FOR BOLT-IN OF GYRO FOUNDATION. SEE SHEET 5 FOR DETAILS OF INSTALLATION PROCESS.

WHEN ATTACHING GYRO DIRECTLY TO ANY METAL STRUCTURE, (4) ISOLATION GASKETS #11182 ARE PROVIDED WITH THE SEAKEEPER BOLT-IN INSTALLATION KIT #90309 TO Go BETWEEN GYRO FRAME AND HULL STRUCTURE TO PREVENT DISSIMILAR METAL TO METAL CORROSION. APPLY THIN FILM OF MARINE GRADE POLY-SULFIDE SEALANT TO BOTH SIDES OF GASKET TO SEAL OUT SEA WATER.

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SEAKEEPER INCORPORATED. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SEAKEEPER IS PROHIBITED.

Seakeeper Inc. 44425 Pecan Court, Suite 151 California, MD 20619

PROD APPR: 8/18/2014
DATE: 12/28/2015
RSD: SAC
DRAWN: 04AUG14
ENG APPR: 04AUG14
DATE: 12/28/2015
MATERIAL: 04AUG14

REV. NO. | DWG NUMBER SHEET NO.
1 | 90305 SEAKEEPER 16 GYRO COOLING WATER SCHEMATIC...
2 | 90306 SEAKEEPER 16 GYRO CABLE BLOCK DIAGRAM...
3 | 90337 OPERATOR DISPLAY ENVELOPE & MOUNTING DETAILS...
4 | 90282 SEAKEEPER 16 GYRO INSTALLATION FIXTURE KIT...
5 | 90308 SEAKEEPER16 GYRO INSTALLATION MANUAL...
6 | 90309 SEAKEEPER 16 BOLT-IN INSTALLATION KIT...
LIFT VERTICALLY USING A SPREADER BAR OR SIMILAR ARRANGEMENT

CAUTION: ALWAYS USE A MINIMUM OF (2) LIFTING POINTS, NEVER LIFT GYRO FROM ONLY 1 LIFT POINT.

LIFTING POINTS (2)

SEE SHEET 5 FOR BOLT PATTERN DIMENSIONS

SCALE 1:4

90261 4 OF 5

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PROPRIETARY AND CONFIDENTIAL
GYRO LOADS FOR HULL STRUCTURE DESIGN:

1. The gyro is mounted in a rigid foundation frame which incorporates semi-elastic anti-vibration isolators enclosing the gimbal bearings that dampen vibrations that could transmit into the hull structure.

2. The foundation frame is raked somewhat to the rear of the hull structure. Be sure to use the finished isolation foundation frame as the reference. The bottom surface of the foundation frame must be flat so that the 4 contact points of the gyro frame are touching the hull structure simultaneously with no perceptible rocking. The axes of the gyro frame must be parallel to the engine room floor to which the hull structure is bolted down. Seakeeper recommends a surface flatness within 1.5 millimeters.

3. The gyro generates pitch moments, roll moments, and vertical and horizontal forces - the magnitudes of which is controlled by the gyro's active brake system. These gyro-generated forces and moments result in loads being applied at 4 points where the gyro frame bolts to the top face of the hull structure. When the foundation frame is bolted to the engine room floor, the foundation frame isolates the gyro mount from the engine room floor. When the foundation frame is bolted to the hull structure, the gyro frame form the engine room floor.

4. Seakeeper recommends using a thread locking compound such as Loc-Tite 243 when drilling hull structure.

5. Use a removable thread locker compound liberally on all bolt threads.

6. The gyro frame is bolted to hull structure using M14-2.0 zinc-plated, alloy steel, hex head cap screws, grade 8.8, 16 places. This hardware is provided at a standard length of 100mm, with the seakeeper bolt-in installation kit, #90282 available from Seakeeper to locate bolt hole positions when drilling hull structure.

7. Torque bolts to 100 ft/lbs. [135.6 Nm] Seakeeper recommends using a thread locking compound such as Loc-Tite 243.

8. The information contained in this drawing is the sole property of Seakeeper Incorporated. Any reproduction in part or as a whole without the written permission of Seakeeper is prohibited.

The gyro frame is shown for reference only. Actual structure design to be determined by boat manufacturer or gyro installer. Support structure must be parallel with waterline. See note 4.

Seakeeper recommends the builder/installer using installation fixture kit #90282 available from Seakeeper to locate bolt hole positions when drilling hull structure.

Seakeeper recommends a surface flatness within 1.5 millimeters.

**NOTE:**
- Vertical force (Fv) = 3,300 LBS. (14.94 kN) - Applied at each of the 4 mounting points.
- Lateral force (Fx) = 1,349 LBS. (6.08 kN) - Applied at each of the 4 mounting points.
- Lateral force (Fy) = 500 lbs. (2.22 kN) - Applied at each of the 4 mounting points.

These forces should be considered to be acting simultaneously, fully reversing, and will repeat an infinite number of times.

The boat builder or the gyro installer is responsible for designing the hull structure to which the gyro is attached to accommodate the above forces and moments for a reasonable factor of safety. Seakeeper suggests a safety factor of 2:1 (yielding a safety margin of 2.0).

The gyro frame is bolted to hull structure using M14-2.0 zinc-plated, alloy steel, hex head cap screws, grade 8.8, 16 places. This hardware is provided at a standard length of 100mm, with the Seakeeper bolt-in installation kit, #90282 available from Seakeeper to locate bolt hole positions when drilling hull structure.

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