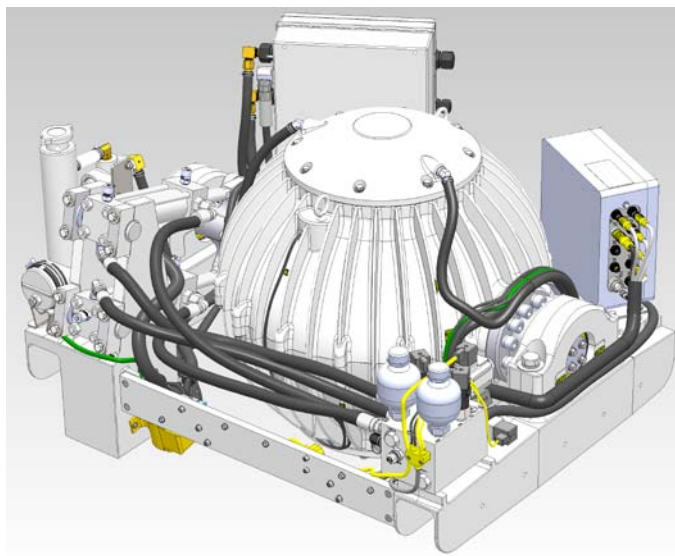
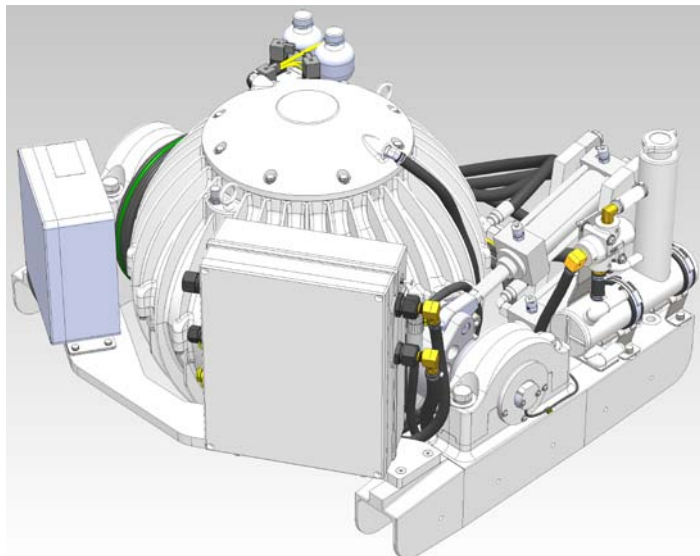


**Description:** Technical Differences Between Model 8000 and Model 7000A Gyros

## **Technical Differences between Model 8000 and Model 7000A Gyros**



**Model 8000 Gyro**

### **1 Primary Objectives of Model 8000:**

- Increase stabilization capacity.
- Reduce the size of the Motor Drive Box and mount it on the gyro foundation to eliminate the step of remote mounting.
- Simplify and reduce the time required for installation.
- Improve cooling system capacity and change to self-purging design with ability to easily add fluid.

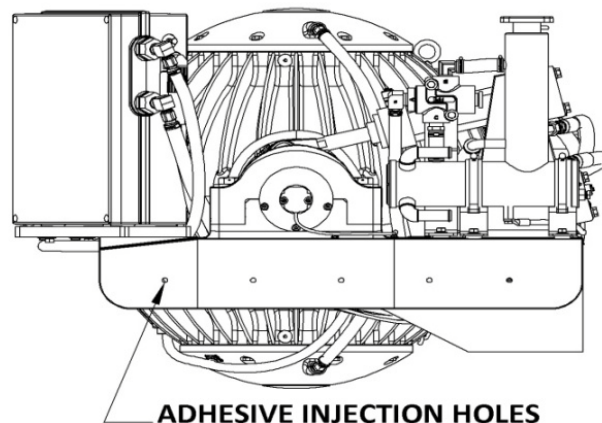
## **Gyro Specifications**

<b>Property</b>	<b>Model 8000</b>	<b>Model 7000A</b>
Rated Speed	8000 RPM	9700 RPM
Angular Momentum	8,000 N-m-s	7,000 N-m-s
Anti-Rolling Torque	17,140 N-m	15,000 N-m
Spool-Up Time	35 min	45 min
Time to Stabilization	20 min	20 min
Spool-Up Power	3000 watts	3000 watts
Operating Power	1000-2500 watts	1500-2000 watts
Required Sea Water Supply	15.1 lpm (4 gpm)	8 lpm (2 gpm)
Weight	549 kg (1210 lbs)	455 kg (982 lbs)
Dimensions	.92m (L) x .99m (W) x .71m (H)	.91m (L) x .99m (W) x .71m (H)

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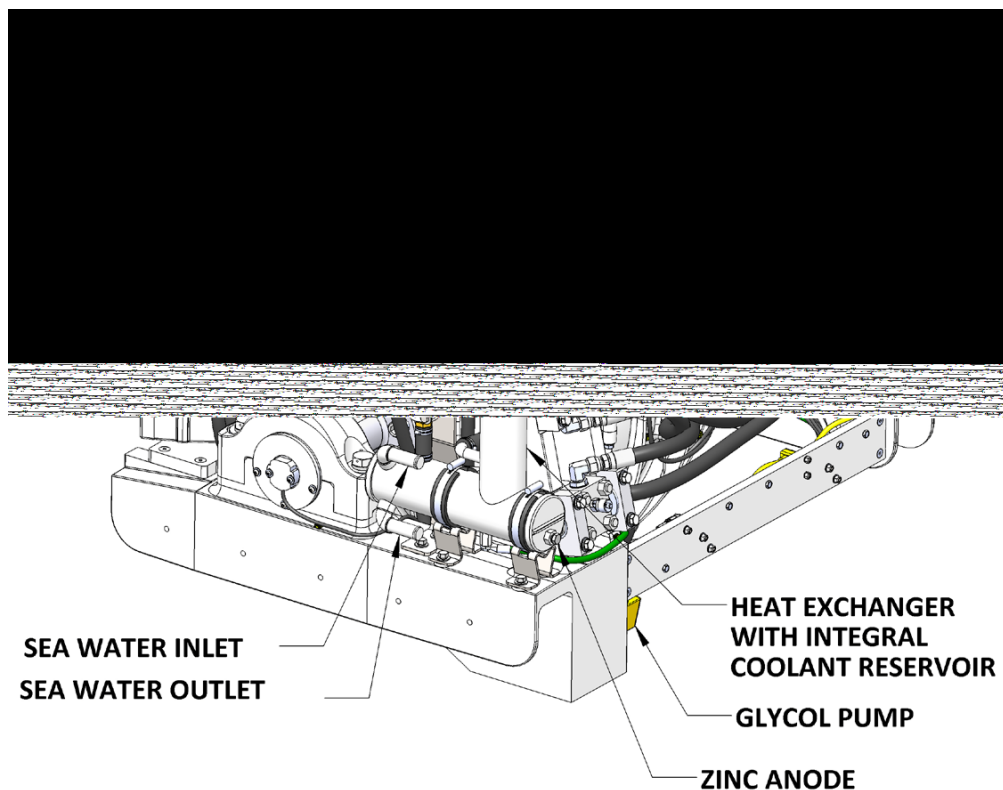
## 2 Model 8000 Mechanical Differences

- Overall length increased from 917 mm to 921 mm.
- Overall width and height are unchanged.
- Adhesive injection holes added to sides of foundation to ensure complete bonding.
- Added stand-off pads to saddle beams to ensure thin film of adhesive remains in top of saddles.
- **With more components onboard gyro, tool clearances are important for serviceability! See Seakeeper Drawing 90123!!!**



## 3 Model 8000 Cooling Differences

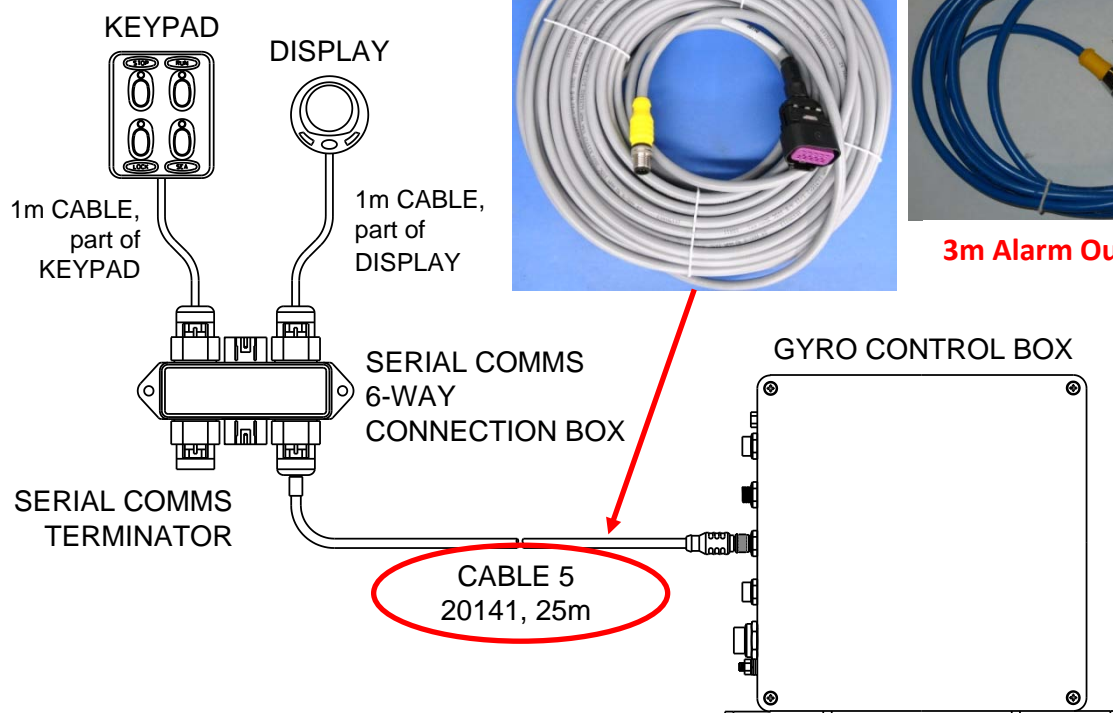
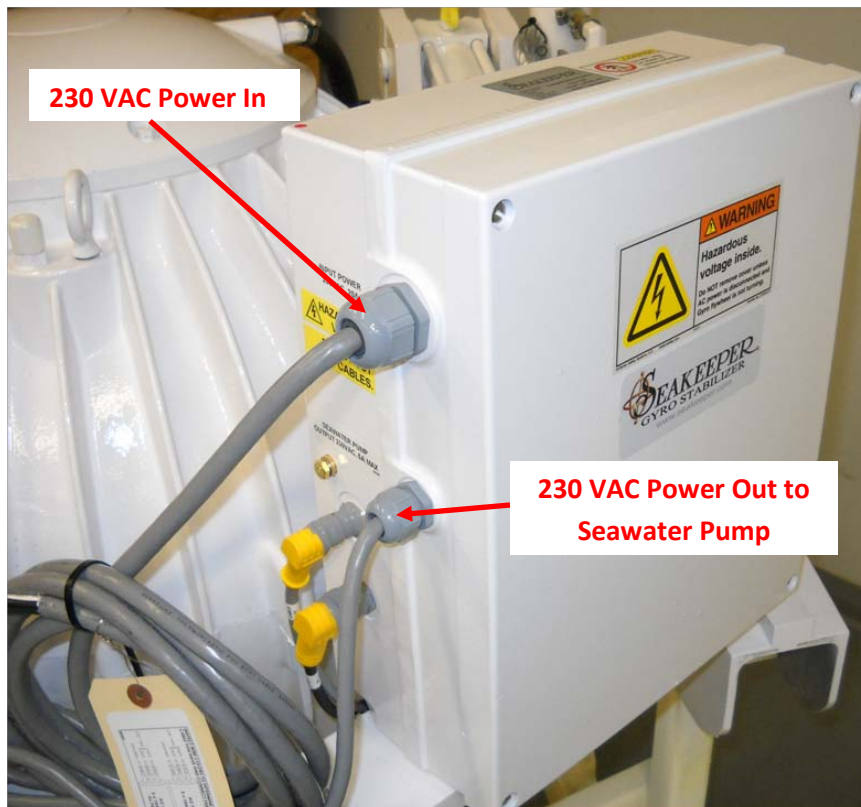
- Heat exchanger upgraded and relocated for better accessibility to zinc. Seawater hose bibs increased from ½" (12.7 mm) to ¾" (19 mm) and required sea water flow increased from 2 gpm (8 lpm) to 4 gpm (15.1 lpm).
- Glycol pump upgraded.
- Thermostatic valve upgraded.
- Coolant reservoir (integral to heat exchanger) added in place of expansion tank.
- Cooling system is self-purging - no requirement to bleed air.
- Gyro ships with cooling system filled.



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#### 4 **Model 8000 Electrical Differences (reference Drawing 90149)**

- Motor Drive Box mounted onboard gyro compared to remote mounting for M7000A.
- 230 VAC input to motor drive box simplified on 3m cable.
- 230 VAC output (from motor drive box) provided for sea water pump on 3m cable.
- Delay-Off Timer Box has been eliminated.
- Sea water pump (5 Amps max, customer-supplied) automatically started and stopped by gyro controller.
- Serial Comms Break-Out Box replaced by 25 m cable. Smaller connector OD is .65" (16.5 mm)
- Field wire-able connector for J9 alarm output replaced by 3m cable.



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## 5 Model 8000 Operation Differences

- If boat's 24 VDC circuit breaker is "On" then the Gyro Control Box is "On". There is no "power-on relay" inside the Gyro Control Box.
- Glycol pump and seawater pump are automatically started when RUN is depressed on keypad.
- Glycol pump and seawater pump are automatically stopped when STOP is depressed on keypad and speed has dropped to zero rpm.
- Power draw drops to 15 watts after gyro stops spinning.
- The gyro should be stopped when pulling into port and stabilization is no longer required. This maximizes long term life as it allows the gyro to start the coast down cycle before cooling is shutoff. Once the vessel is secured in the slip and the crew has shut down the generator and engines, the AC and DC breakers that control the gyro should be switched to the OFF position. The gyro will continue to spool down to zero rpm. No cooling is required during this time.
- Minimum speed for stabilization is 6000 rpm.
- SPEED COMMAND page has M8000 operational speeds: 8000 rpm, 6400 rpm, and 1000 rpm.
- New service page: GLYCOL PUMP. Used to turn glycol pump on and off during servicing.



- New service page: SEAWATER PUMP. Used to turn seawater pump on and off during servicing.



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## **6     Model 8000 Alarm Differences**

Alarms create a message on the Display and an output on the relay contacts. Alarms also cause gyro precession to stop (LOCK) and the flywheel to begin spooling down (STOP).

- When an alarm occurs the display will automatically switch to the RPM page.
- A keypad press changes the alarm output relay to the normal state.
- BEARING 1 TEMP HIGH
  - Set-point changed to 80°C, was 75°C
  - Reset point changed to 55°C, was 50°C
- BEARING 2 TEMP HIGH
  - Set-point changed to 80°C, was 75°C
  - Reset point changed to 55°C, was 50°C
- BEARING 3 TEMP HIGH
  - Set-point changed to 80°C, was 75°C
  - Reset point changed to 55°C, was 50°C
- BEARING 4 TEMP HIGH
  - Set-point changed to 80°C, was 75°C
  - Reset point changed to 55°C, was 50°C
- MOTOR TEMP HIGH
  - Set-point changed to 110°C, was 100°C
  - Reset point changed to 85°C, was 75°C
- MOTOR OVERSPEED
  - Set-point changed to 9.1 KRPM, was 10.6 KRPM

## **7     Model 8000 Warning Differences**

Warnings create a message on the Display but not do create an alarm output on the relay contacts. Warnings do not interrupt gyro operation.

- WARNING VACUUM LEAK
  - Set-point changed to 50 torr, was 35 torr
  - Reset point changed to 45 torr, was 30 torr

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### REVISION HISTORY

REVISION	DESCRIPTION OF CHANGES	DATE	APPROVED
1	INITIAL RELEASE	05JUL11	JDA

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