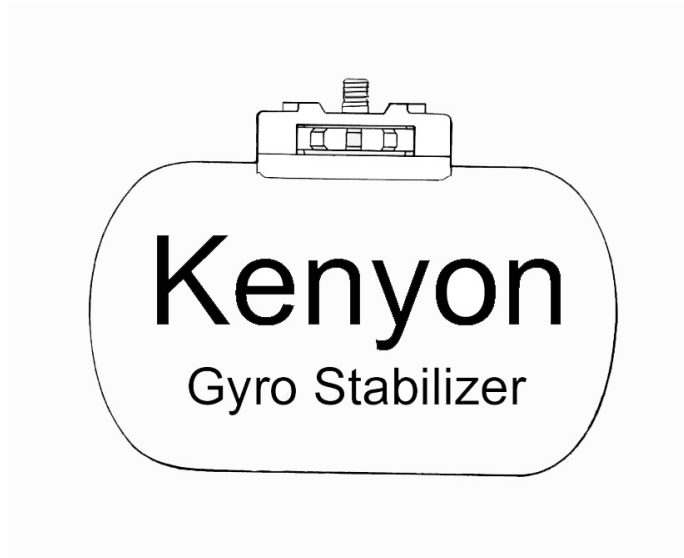


**OPERATING INSTRUCTIONS  
for your**



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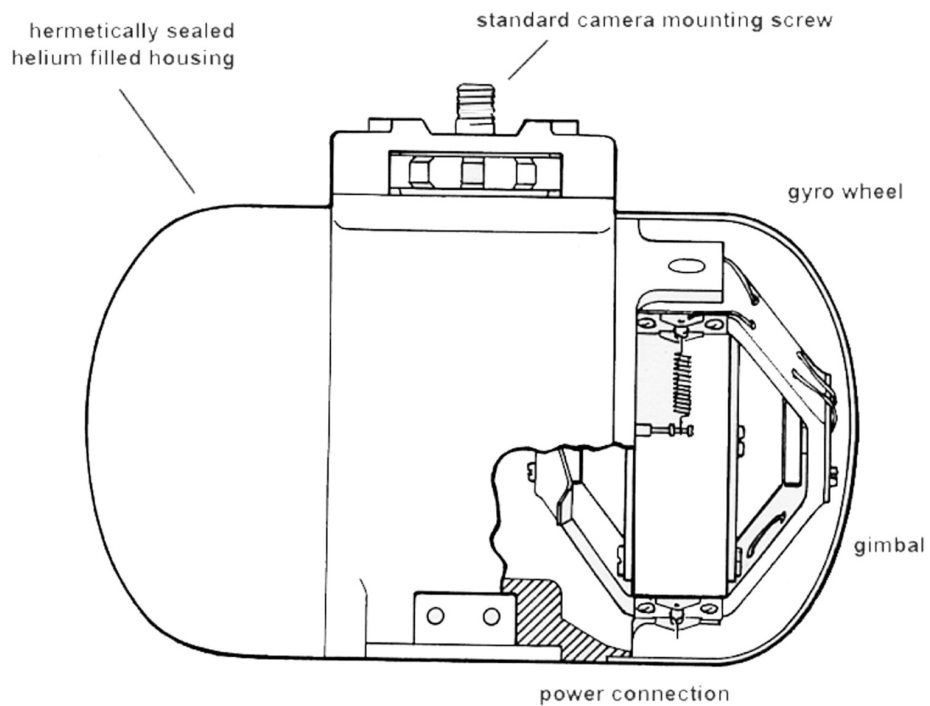
**IMPORTANT: Read these instructions carefully  
before operating Stabilizer.**



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## TABLE OF CONTENTS

Stabilizer overview.....	3
Operating Instructions.....	4-7
Charging the battery pack.....	8
Specs.....	9-10 & 11-12
Troubleshooting.....	13-15
Charging battery from alternate source.....	15
Running gyro from alternate sources.....	15



**THE STABILIZER** is a precision instrument which significantly increases the effectiveness of cameras, binoculars, and other hand-held optical equipment. Two gyro wheels, one in each end of the device, stabilize against pitch and yaw motions thus minimizing hand tremor and vehicular movement.

When properly attached to a camera, the Stabilizer substantially extends the observers's range of discrimination. Objects may be clearly identified at a much greater range.

To get the most out of your stabilized camera, relax and let the instrument do the work. Hold your camera lightly and move it slowly - about the speed at which you would pass a full glass of water. Any sudden movement will cause a jumpy reaction to the gyros, nullifying the stabilizing effect.

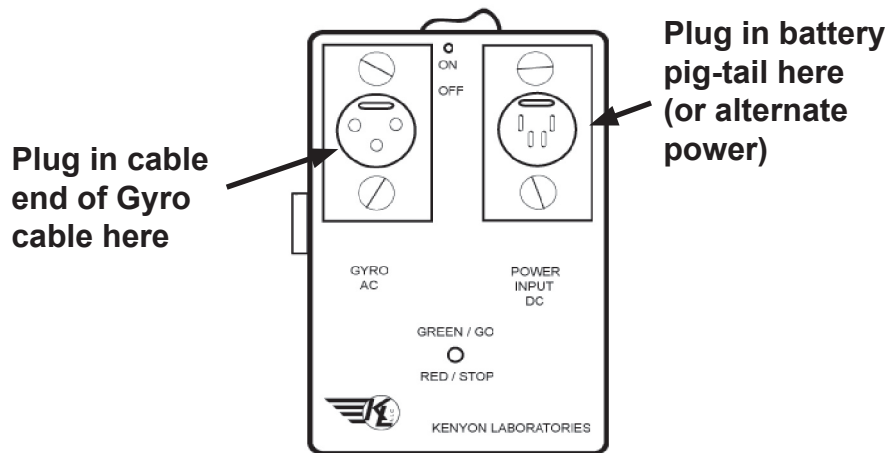
The Stabilizer will provide a long life of trouble-free service when properly treated. No maintenance is required as the unit is hermetically sealed. However, care should be taken to keep rough handling to a minimum as the life of a precision gyroscope deteriorates rapidly when mishandled. Read carefully and adhere to the operating instructions that follow.

## OPERATING INSTRUCTIONS

Attach the Gyro to the camera or binoculars using the thumb screw (KS-2 or KS-4) or appropriate tommy bar screw (KS-6 or KS-8 comes with both 1/4-20 and 3/8-16 attachment screw). NOTE: The Gyro must be positioned with the long side of the Gyro pod parallel to the lens. With the KS-6 and KS-8 you will note the attachment screw is off center. It does NOT matter which way one puts the gyro on, as long as it does not interfere with the operator and is parallel with the lens.

Snug up the thumb screw **securely**. Check this connection often while using the Gyro as it will “walk” off of being in line with the lens. To work properly the Gyro must be in proper alignment with the lens at all times.

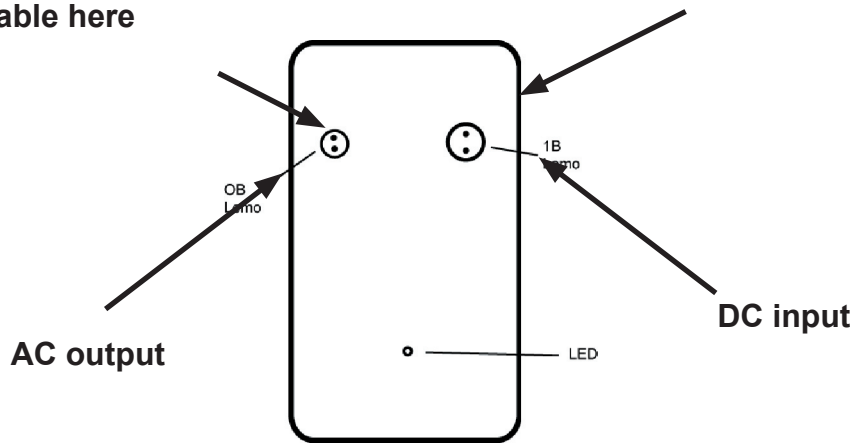
2. See diagrams below to determine which type of inverter you have then plug in the Gyro and battery pig-tail cables as indicated:



current XLR inverter

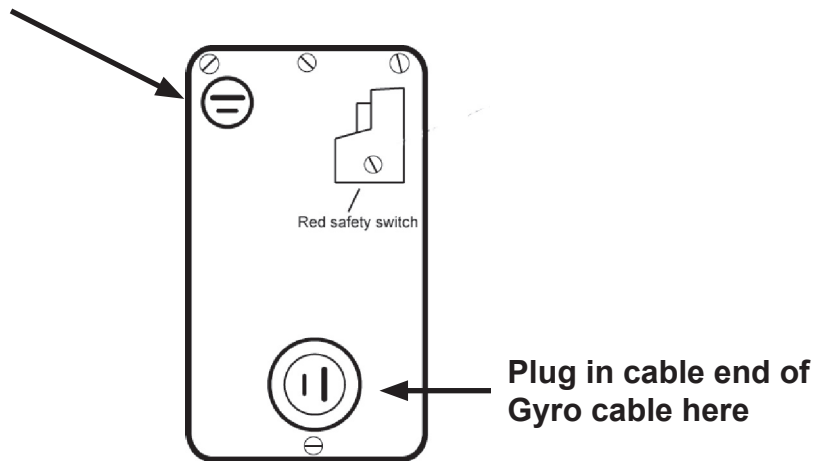
Plug in cable end of Gyro cable here

Plug in battery pig-tail here (or alternate power)



Lemo inverter

Plug in battery pig-tail here (or alternate power)



old style Cinch Jones inverter

**Only a power source providing 115 volts and 400 cycles per second is permissible for the Gyro's operation- the use of any other power source will damage the unit.**

3.

Turn on the inverter. For XLR & Lemo inverters the on/off switch is located on the short side of the inverter. For Cinch Jones connectors push the red safety away from the black switch, and turn the black switch towards the red safety.

**\*\*You will now hear the Gyro begin to warm up. Wait 3-5 minutes to let the Gyro run up to its maximum RPM running speed-- you will hear the pitch of the Gyro increase until it levels off at this speed.\*\***

**Any rapid movement other than up and down will make the wheels jerk about until the unit comes to rest again. Violent or rapid rotational movement of the stabilizer when it is in operation will bring it hard to the internal stops- which you will feel, or if extreme, will actually damage the instrument to such a degree that a complete rebuilding of the unit is necessary.**

Some practice is required before you can achieve maximum proficiency in the use of the stabilizer. Look through the viewfinder at a distant object. Notice that the Gyro will keep the object in your line of vision quite comfortable. The Gyro will not permit the unit to be nose heavy (pitch). Then try panning. Do this in a slow manner so that the unit does not jerk- you will find that at whatever angle you desire to pan, skywards, horizontal or lower than the horizon, the gyro will not deviate from your chosen plane (YAW).

**The Gyro will take a bit of getting used to, but by following the above instructions you should be able to obtain excellent results—with complete freedom of movement.**

To reduce fatigue in holding the unit during sustained viewing, a bungee (elastic) cord may be attached to any convenient point above the observer to support the weight of the camera and Stabilizer. The bungee cord will be attached to the camera-stabilizer combination at a point as close as possible to their combined center of gravity.

In any experimentation with the application of the Stabilizer, the unit must be free to move in all three axes as it is when held in the hands or suspended by an elastic cord. **Do not mount the unit on any rigid support or use any leverage type aiming device as a pistol grip or shoulder stock, etc. as this restricts the movement of the instrument and prevents it from functioning properly.**

#### **Specs:**

KS-4 & KS-2 -115V input 400hz 12 watts starting and 4.0 watts running after 4 minutes. 6 hours on power pack.

KS-6 & KS-8 - 115- input 400hz 26 watts starting and 11 watts running after 4 minutes. 3 hours on fully charged battery. Panning rates: KS-6 = 20° KS-8 = 30°.

#### **Inverter specs:**

KS-4 12V input; 126-128 volts; AC output no load; 2 amp fuse

KS-4 28V input; 126V AC output no load; 2 amp fuse

KS-6 12V input; 127-130V; AC output; 3 amp fuse

Sk-6 28V input; 126V; AC output no load; 3 amp fuse

#### **Charger specs:**

KBC 1 amp fuse 115-230vac, 60hz input

KQC 3 amp fuse, 115-230vac, 60hz input

**Note:**

The battery is shipped in a fully charged condition. It is recommended that an initial charge of 4 to 5 hours be added before putting the battery in service to assure full capacity.

Always store the battery fully charged. A discharged battery can be damaged if stored in that condition longer than 48 hours. A fully charged battery may be stored at room temperature (68°F, 20°C) for 16 months or about 10 months at 86°F, 30°C. Store batter preferably at 70°F or below—avoid storage at temperatures above 100°F.

**BATTERY PACK CHARGING INSTRUCTIONS**

TO CHARGE THE BATTERY, unplug the battery pigtail connector from the top of the inverter and plug into the similar receptacle on the face of the charger. Plug the power cord into a 110 volt socket ONLY.

Our regulated charger is furnished to taper down the charging rate as the battery rises to the recommended maximum of 14.4 volts. Thereafter, the rate is held to a minimum trickle to prevent damage to the battery should it be charged longer than the necessary time.

Fully charged the battery supplied should operate these units for about (6) hours at 70° F.

## **KS-2 & KS-4 SPECIFICATIONS**

### **Mechanical Characteristics:**

**Stabilization:** Stabilizes against motions of pitch (hobby horse) and yaw (fishtail).

**Size:** 2.8" diameter x 4.5" long

**Gyro wheels:** Two precision balanced gyros. Speed: approximately 21,000 rpm within 4 minutes after power is applied.

**Construction:** Aluminum alloy, hermetically sealed housing. Precision ball bearings on all moving parts.

**Weight:** KS-2 – 1.5 lbs. (24 oz.)  
KS-4 – 2.13 lbs. (34 oz.)

### **ELECTRICAL CHARACTERISTICS:**

**Voltage:** 115 volts, 400 HZ., 12 watts starting with 4 watts running for 6 hours running on a fully charged Power Pack.

**Power needed:** If the Stabilizer continues to draw relatively heavy current after start-up and the wattage does not drop off as it should, the instrument is not functioning properly and should be returned to the manufacturer for repair. A watt meter reading is required only if a malfunction is suspected.

**KS-2 & KS-4 Electrical Specs:**

**GYROS: \*ALTERNATING CURRENT\***

1.2 amps starting....12 watts starting – sine wave

.8 amps running.....7.0 watts running

115 volt input....400 hertz

Ohm reading: .150 - .157

**INVERTERS: DC CURRENT IN, 400 HZ AC OUT:**

12 volt inverter...400 hz...126-128 volt...2 amp fuse..no load

28 volt inverter....400 hz...125 volt...2 amp fuse..no load

**CHARGERS**

1 amp fuse...input 115 volt - 230 AC, 60 cycle...output – 14.4 V  
DC load

## KS-6 & KS-8 SPECIFICATIONS

### Mechanical Characteristics:

**Stabilization:** Stabilizes against motions of pitch (hobby horse) and yaw (fishtail).

**Size:** 3.4" diameter x 5.8" long

**Gyro wheels:** Two precision balanced gyros. Speed: approximately 22,000 rpm within 6-8 minutes after power is applied.

**Construction:** Aluminum alloy, hermetically sealed housing. Precision ball bearings on all moving parts. Brass wheels on KS-6; tungsten wheels on KS-8

**Weight:** KS-6 – 3.25 lbs. (52 oz.)  
KS-8 – 5.13 lbs. (82 oz.)

**Panning rate:** 20 degrees per second

### ELECTRICAL CHARACTERISTICS:

**Voltage:** 115 volts, 400 HZ., 12 watts starting with 4 watts running for 6 hours running on a fully charged Power Pack.

**Power needed:** If the Stabilizer continues to draw relatively heavy current after start-up and the wattage does not drop off as it should, the instrument is not functioning properly and should be returned to the manufacturer for repair. A watt meter reading is required only if a malfunction is suspected.

**KS-6 & KS-8 Electrical Specs:**

**GYROS: "ALTERNATING CURRENT"**

2.5 amps starting.....28 watts starting

1.5 amps running.....12 watts running

115 volt input....400 hertz

Ohm readings: .077 - .081

**INVERTERS: DC CURRENT IN, 400 HZ AC OUT:**

12 volt inverter....400 HZ...127-130 volt...3 amp fuse..no load

28 volt inverter...400 hz...126 volt...3 amp fuse..no load

**CHARGERS**

2 amp fuse...input 115 volt AC, 60 cycle...output - 14.4 V DC 400 hz cycle

# TROUBLESHOOTING

## The Kenyon Gyro Stabilizer

**IMPORTANT NOTE: On all Ken-Lab equipment on the DC wires white is always positive and black is always ground**

### What to do when Gyro won't run:

1. Check battery voltage. Volt meter should read 12-14 volts, no load on 20 volt setting, under 10.5 volts will ruin battery if operating Gyro.
2. Plug battery pigtail or other DC source into the inverter and turn on. It should make a low buzzing sound.
3. **If the inverter makes a noise go directly to step 4.** If no noise comes out of the inverter, first check the continuity of the cord. If defective, replace. If the cord is OK, open the inverter and do the following:
  - a) remove two top round head long screws holding the inverter onto the batter pack.
  - b) Remove the two side screws holding the lid to the bottom. Open the box (see diagram 1). Check the fuse inside (a 2 amp fuse for the KS-4 inverter and a 3 amp fuse for the KS-6 inverter). Replace if necessary. If after replacing the fuse the inverter still does not operate, check all connections one last time and return to the factory.
4. Plug in the Gyro cord. If the inverter is working and the Gyro still does not start, wiggle the Gyro cord (possible broken wire). Check cord by removing the four 2-56 flat head screws from the Gyro name plate, exposing the

connections. **Do not touch the copper tube.** (It looks like a ground wire but it is actually a copper tube that if cut or broken will release the helium from within the Gyro.

It usually has a bit of solder on it to seal the helium in the Gyro. If the helium is released from the Gyro, it will run about half speed.) Remove the Gyro coil cord by unsoldering the connections and test each lead with an ohm meter. Test the wires in this order:

- 1) white to large pin; 2) black to small pin; 3) black to large pin.

There should be continuity for the first two and none for the last—if there is a reading on #3, there is a short in the cord. Shake or wiggle the cord during testing. If the cord checks out okay, check the Gyro as follows:

5. Check each pin to the case preferably a tapped screw hold for the name-plate for possible internal short or grounding. Then check across the pins for the ohm reading. You are now reading across the motors of the Gyro. This will determine if the motors and capacitor are okay. The readings should be as follows: KS 6/8 .077-.81; KS-4 .150-.157. These readings will be taken with the 20K setting on your meter. Note: if grounded, check for solder around the pins, hanging down onto the frame. If still grounded, there is a possible internal short. Return to factory for repair.
6. Check the charger. Charger output should be around 14.4V DC, fully regulated, on a discharged battery. The charger can get quite warm to the touch. Allow at least 12 hours for the charger to fully charge a discharged battery. If there is no DC output from the charger, remove the four 4-40 screws holding the bottom plate to the box, and check the internal fuse. This will be a 2 amp fuse.

**Caution: Be sure that the charger is unplugged from the wall socket, or a hair raising event may occur!**

### **Charging the battery from an alternate source**

First make sure all connections are made and inverter is turned on as explained in the Operator's manual. To charge battery off an auto cigarette lighter adapter using the Ken-Lab inverter: A special jumper cord will need to be implemented in charging off of auto power, available at the factory. Plug cigarette lighter adapter into Ken-Lab inverter, plug the jumper cord into AC receptacle (flange plug) on top of the inverter and plug wall plug from charger into mating plug on the jumper cord. Then plug the battery pigtail into charger. It will take some time to charge—see charging graph in operator's manual.

**Always charge battery before each use.** Any battery will lose a certain percent of its charge daily and after a few months may not have enough remaining charge to operate the Gyro. **A Ken-Lab charger cannot overcharge the battery as it is fully regulated.**

### **Running the Gyro from alternative 12 or 28 volt sources**

1. The inverter must be for either the 12 volt DC system or a 28 volt system. For example, a KI-12-4 translates to a Kenyon Inverter for a 12 volt power source for a KS-4 Gyro. A KI-28-6 translates to a Kenyon Inverter for a 28 volt power source for a KS-6/8 Gyro.
2. If you are using a cigarette cord adapter you need only plug the inverter to your DC source using the adapter end—it is properly polarized already.
3. If you are using an open-ended cord from a 12 volt battery (car or boat) **note that the white wire is always positive** and it has the large pin on the inverter end. **Do not reverse**

**polarity.** If you use the black wire on the positive terminal of the battery it will blow the inverter's fuse and perhaps fry a transistor.

4. If you are using your own connections to receive power from your 12 or 28 volt airplane, take great care and know that the white wire is positive and the black wire is ground.

#### NOTES:

The battery is shipped in a fully charged condition. It is recommended that an initial charge of 4 to 5 hours be added before putting the battery in service to assure full capacity.

Always store the battery fully charged. A discharged battery can be damaged if stored in that condition longer than 48 hours. A fully charged battery may be stored at room temperature (68°F, 20°C) for 16 months or about 10 months at 86°F, 30°C. Store battery preferably at 70°F or below—avoid storage at temperatures above 100°F.

**Remember, when running off external 12/28 volt source, don't cross the wires!**

#### **\*\*SPECIAL NOTE\*\***

In order to use the battery for longer than the usual running time, one can cycle the battery, i.e. run the unit up to speed, use it for a bit, then turn the inverter off—using the gyro in “coasting” mode.

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