

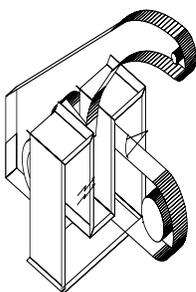


Gulbransen KS1 #70017

Customer Support Sheet

The patented Gulbransen system consists of three basic components: a keyboard sensor, a pedal sensor, and control unit.

Keyboard Sensor: The keyboard sensor strip is a series of optical sensors, one for each key. Each optical sensor has two small plastic "towers."



One tower transmits a beam of infrared light to the other tower which detects infrared light. There is a small spring-loaded actuator finger which serves as a shutter by blocking the light beam. It gradually reduces the amount of light detected as it is depressed. The sensor strip is mounted beneath the keyboard, positioned so that an actuator touches the bottom of each key. The actuator's position is maintained by its spring (which exerts roughly 3 grams of force - much less than the mass of the key and is therefore undetectable by the player). The travel of the key is not restricted by the sensor strip - each key still has the same range of

motion it had before, only now there is a low-mass actuator tracing its movement, collecting data for the control unit. The complete sensor strip consists of four printed circuit (PC) boards (three for the SS61) mounted to a steel plate. The individual sensors are soldered to the PC boards and are aligned by two stainless steel rods which run the entire length of the sensor strip.

Pedal Sensor: An SSM1 is shipped with most Gulbransen keyboard products. The SSM1 is used to detect motion of the sustain pedal. It is a reed switch which is attached to a stationary part of the pedal lyre or pedal assembly. This On/Off switch is actuated by a magnet fastened to the moving parts of the pedal rod or trapwork. An alternate pedal sensor, the SS5, provides discrete position sensing of all three piano pedals. This sensor has three actuators identical to those found on the keyboard sensor strip. The sensor is attached to the pedal lyre on grand pianos, and underneath the keybed behind the kickboard on uprights.

Control Unit: All Gulbransen keyboard products use the same keyboard and pedal sensing mechanisms. The difference between models is the control unit which interprets the data sent by the sensors. All Gulbransen products transmit and receive MIDI data, allowing the user to connect with external synthesizers and sequencers. The Orchestra products additionally have digitally sampled or synthesized sounds. The Orchestra III also has a disk drive for loading songs. All of the control units have a sliding tray mount which allows it to be mounted unobtrusively underneath the keyboard on whichever side the player prefers.

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