

Iron Sportster generator overview

An overview of generators from the 1952 K-model to the 1984 Ironhead Sportster.

The tips and tricks:

1. **The 52K is a 6V unit used on all K-models.**
2. **The Model 58 and 61 are 6V units used on Sportster.**
3. **The Model 65 and 65A are used 1965 to 1981.**
4. **The Model 65B, made by Hitachi, is used 1982-E1984.**
5. **12V generators have 10-Ampere output, 6V has 15-Ampere output.**
6. **Armature failure is common due to overload.**
7. **Good electronic regulators limit current to protect the generator.**
8. **Stock setups work fine, but only with good parts that you setup well.**
9. **Newer generators will mount in old bikes, maybe.**



Here is an overview of all the different generators and regulators used on K-models and Sportys. (Click for video.)

From 1952 to 1964 K-Models and Sportsters had a 6-volt generator and electrical system. In 1965 they switched to a 12-volt system. In 1982 Harley replaced the Prestolite 12-volt generator with one made by Hitachi. It has better output than the 10 Amperes the earlier 12-V generator had, especially at idle, where output might drop to zero.

The Hitachi generator is a little bigger in diameter but it will fit in any Harley or K-Model, but you might have to relive the engine cases near the mounting to get the newer generator to fit. Most enthusiasts would rather not grind on their engine cases.

Cycle Electric bought the Prestolite tooling decades ago and makes a similar generator, though with aluminum end bells, not steel. They are about twice as expensive as other aftermarket generators. Cycle Electric also sells regulators as well as generators with a regulator built in.



A lifetime supply of mostly 12-volt generators and regulators.



A little organization arranges them by type and condition.



On the left is the 6-V Model 52K, part 29982-52. There was a Model 58 variant, 29975-58, similar to the middle picture but with oil cups on a plain armature bushing. The Model 61, 29975-58A has needle bearings and no oil cups. The middle is a Model 65A, 12-V, 29975-65A. There was a 29975-65 for 6 months. Right is a Model 65B, 29975-65B, also 29978-77A



The 29982-52 mounts the regulator on top of the generator, 1952-57 K and XL.



The riveted tag identifies this generator as a Model 52K.



There is a divot in the frame to clear the engine case. The generator is for 6-volt motorcycle electrical system only.



The two screws on the regulator cover mean this 74510-47 regulator has a cover introduced in 1956.



K-models have an oil-slinger on the gear, held in with a cross-pin. You have to angle the generator to clear the gearcase.



The back cover is held with two straight-slot screws. The regulator mounts comes off with this cover, and the brushes are underneath.



This is a 12-volt generator used in 1965, part number 29975-65 (early 65) and 29975-65A used late 1965 until 1981.



Harley identified the generator near the terminals. There is an early 6-volt version with oil cups on the bearing cap, Model 58 29975-58, and one with a needle bearing like this, 29975-58A, also 6-volt.



The later models use a simple washer as an oil slinger, with a simpler cam cover. The K-Model cover has a spring-loaded bushing that seals to the machined oil slinger and passes to the breather tube.



The later generators have a needle bearing and a strap over the brushes. The aftermarket and factory mounted a bracket here to put a chrome cup over this end bell, but it will just make the bearing run hotter. There are also aftermarket and factory chrome covers that wrap around the generator. Do not use these as they increase the heat inside the generator, and might short out the generator terminals.

There are chromed generators available aftermarket but there may be quality issues. Cycle Electric bought the Harley generator tooling from Prestolite and makes high-quality replacements, including generators that have a built-in regulator on the end bell. Prices are about 300 bucks for the generator alone, and 400 bucks for the generator with integrated regulator. Other aftermarket units are about half those prices. All these units seem to use aluminum end bells, instead of steel. The Hitachi has steel on the gear side and an aluminum end bell on the terminal side.

Note the 1979-84 Harley parts book has a typo showing the -65B generator in 1979-81. They use the -65A part.



From 1982 to early 1984 the Sportster used a Hitachi generator with improved output and better low-speed output.



The 29975-65B has a polished aluminum end cap. This is one version of the label. There is also a 29978-77A that has a black end cap, used on 1982 XLS and XLX models.



The 65B is heavier and larger. To mount on earlier cases you may have to grind the case a bit to allow this generator to fit.



There is no oil slinger on a -65B. If you retrofit to earlier cases, you should add that large oil slinger washer.



People mushroom the shaft hammering it out or dropping the generator.



With the aluminum end bell removed, you get access to the brushes, commutator.



The end bell pockets a large roller bearing. The weep hole is on the wrong side, letting water drip into the end bell.



There are -65B generators with this label. I am not sure if this is later or earlier. I also have a Hitachi generator with part number 29980-82, it looks identical to the -65B.



A close-up of the different Hitachi label seems to have the same information as the other label, but in two stickers instead of one.



A 3/4 rear view of the Hitachi generator used 1982 to early 1984.



Like older generators, the terminals have "A" for Armature, "F" for Field.



The drive gear is carryover from the -65A, but with a small flat-washer instead of the large oil slinger washer. Same nut is used.



The -65A generator and most likely earlier 6-volt versions other than the -52K have a design problem. There are small square paper washers that insulate the square head of the terminals. If someone over-torques the terminal, the corner of the head can cut the paper and short out.



Here is the terminal plate laid out so show the square paper washer. You can fix this without disassembly by loosening both nuts, rotating the terminal with needle-nose pliers, and carefully re-tightening the nuts without rotating the terminal post.



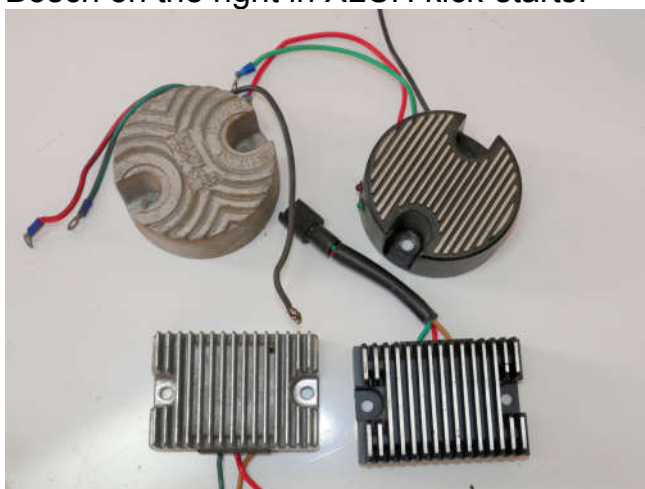
Rebuild kits come with needle bearings. The left shaft is OK, the middle and right side ones are junk, get a new armature.



The Model 58 generator mounted the regulator with this bracket 74524-58 (wrong Bosch regulator shown).



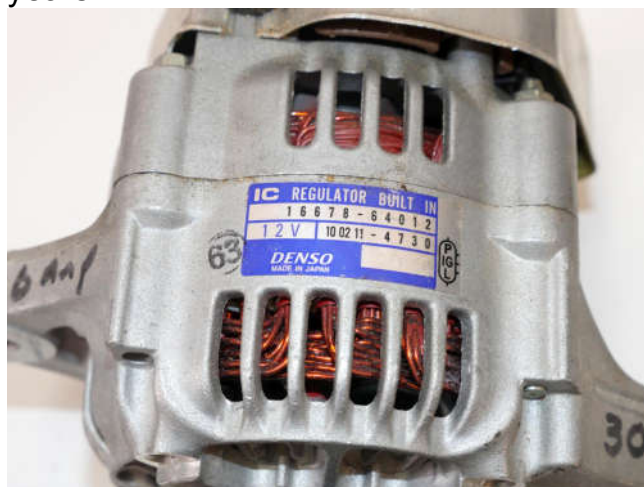
The factory used the Delco-Remy regulator on coil-ignition bikes, and the Bosch on the right in XLCH kick-starts.



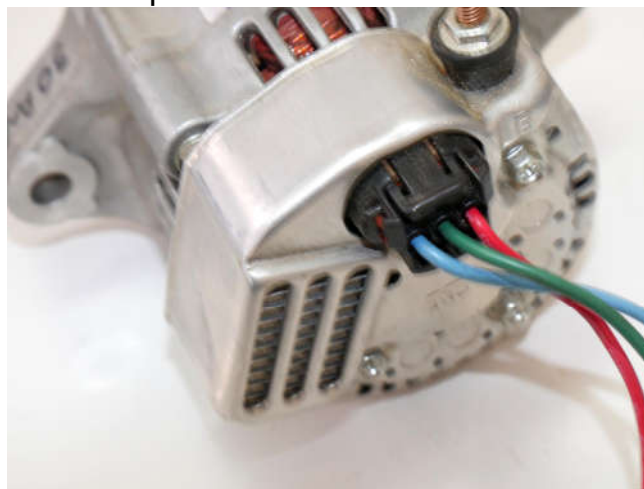
Bottom right is a factory regulator with connector. Top left is Franks, top right, CCI, bottom left is generic aftermarket.



This car alternator fits in a Sportster, a machinist made an adapter drive for a few years.



A close-up of the Denso alternator label.



The regulator is built-in, but you have to send battery power to it when you turn the bike on.



Putting away the voltage regulators and organizing, there are seven of the Hitachi generators 29975-65B 1982 to early 1984.



I have four 29975-65A 12V generators with steel end bells.



Most of these six generators have aluminum end bells, other than one with a steel gear-side end bell.



The next project is to see which of these generators work, and then look for opportunities to mix and match parts to get more steel end-bell units. One of the aluminum end bells already has a Heli-Coil in it, so that will get tossed out.



Here are seven armatures, most likely all 12-volts. There are three with bad shafts so those will get tossed first thing.



I used to run the generator without these brush covers, to let air cool the inside, but now run them, figuring it keeps the inside cleaner. Running in the rain, I never had the bike die or any electrical problems.



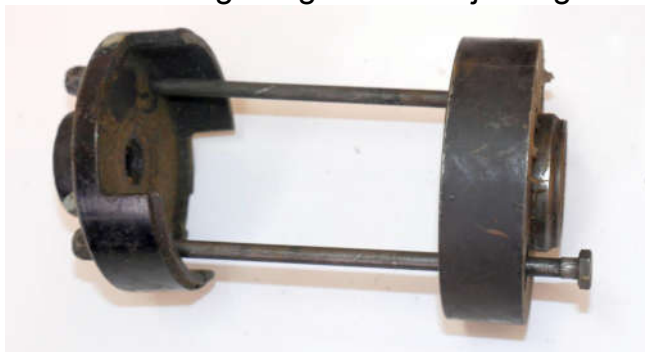
Here is a -65A 12-volt brush plates. over-current usually kills the armature before the brushes wear out.



The inside of a -65A, this part rarely goes bad other than those paper washers on the terminal heads.



The brush plate getting installed, there is some finesse getting the wires just right.



Here are two steel end bells, with one of the bolts having loosened at the head. A thin-wall socket will fit in the hole and let you tighten the nut, but the design intent is to have little splines hold the bolt head.



The fatter part of the bolt is supposed to have splines that force-fit into the hole in the end bell to keep the bolt from turning. If your bolt spins, you have to take the generator off the bike to get a socket here.



The aftermarket end bells are made out of aluminum where they can mold a hex in the end bell to retain the screw. This is nice if you are adding a regulator that requires you loosen the nuts, but the soft aluminum end bell on this side is easy to strip out when you bolt it to the gearcase.

The 65-a 12V generator has a rated output of 10 Amperes. The 6V generator is rated at 15 Amperes. Most failures are the armature going bad from over-current. Some electronic regulators will limit this current, but mechanical ones might not.