

**V-Twin Mfg.**  
**45 AMP ALTERNATOR STATOR KIT**  
**Fits 1991-1998 FLT & 1994-1994 FXR**  
**VT No. 32-0994**

**This is a custom application and rider safety depends on proper installation. This product should only be installed by a knowledgeable and trained motorcycle technician. V-Twin Mfg. accepts no responsibility for improper installation.**

**Note:** If proper primary chain alignment can be achieved the 32-0994 may fit 1989-1990 models. This depends on what variable thickness shim was needed to set primary chain alignment from the factory.

**Installation Instructions:**

**Alternator Removal:**

1. Disconnect negative battery cable.
2. Consult appropriate service manual and remove outer primary cover.
3. Check primary chain alignment. Place a straight edge across the gasket surface on the inner primary. Using a dial caliper, measure the distance from the straight edge to the primary chain as close to the clutch as possible with the chain pushed all the way in. Record this measurement as A. Repeat measuring as close to the compensator sprocket as possible. Label this measurement B. Subtract B from A and note this as C.  $A-B=C$ . C can be a positive or negative number and should not exceed +/- .030".
4. Consult appropriate service manual and remove compensator sprocket.

**Note:** After several thousand miles it may be possible to remove the compensator sprocket and chain adjuster shoe without removing the clutch.

**Caution:** Do not put excessive side force on chain.

5. Remove output shaft extension. Take note of all shims and spaces between output shaft extension and rotor.
6. Remove rotor and take note of all spacers under rotor.
7. Unplug regulator from stator.
8. Remove stator
9. On 1989-96 models remove output shaft seal using snap on seal puller #YA105 or Equivalent. Take care not to scratch aluminum case or the new seal will leak.

**Note:** 1997 and later FLH & FLT's come with proper sprocket shaft spacer. Skip #9 & 10.

10. Remove sprocket shaft spacer.

**Alternator Installation**

**Note:** On new installations or if you did not follow step 3 of alternator removal in these instructions, you will have to assemble compensator sprocket and clutch to determine what variable thickness spacer is needed for proper primary chain alignment.

1. To determine what variable thickness spacer is needed for proper primary chain alignment; compare the stack height of the old components with the new ones. Then factor in the state of alignment before disassembly (dimension C).  
 $(\text{New stack height}) - (\text{old stack height}) + C = S$   
C=Chain alignment before disassembly as measured in step 3 of alternator removal.  
S= Chain alignment with new components.  
Note: C and S can be either positive or negative numbers. Be sure to keep track of polarity.  
If S is within +/- .030 no additional shimming is needed. If S is more negative than -.030 (EX: -.040) then add shims. If you have -.040 and you add a +.060 shim your chain alignment will be out by +.020, which is within the +/- .030 spec.  
If S is more than +.030 proper primary chain alignment cannot be achieved without removing material from on top of rotor or output shaft extension.  
When S=zero compensator sprocket and clutch sprocket are in line.

**Typical Stack Heights**

**Note:** Actual stack heights may vary.

	Old parts removed from Motorcycle		New Parts from 32-0994 kit
	1989-1998	1991-1998	32-0994
Rotor	.187	.187	.245
Sprocket Spacer	.680	.680	1.040
Inner Spacer	.095	.095	N/A
Outer Spacer	.219	.249	N/A
Variable Thickness	.060	.060	?
Stack Height	1.241	1.271	1.285

2. Place new sprocket shaft spacer on sprocket shaft, and slide against bearing with the large diameter inward.
3. Press new sprocket shaft seal into crankcase with seal lip facing outward. Use HD39361 sprocket shaft seal installation tool.
4. Install new stator. Feed wires through hole in crankcase. Gently hold grommet on clamp surface with needle nosed pliers. Use pliers to push on grommet shoulder (do not squeeze too tightly) while gently pulling on wires until grommet slides into position. Do not slide the grommet too far because it may not slide back without causing grommet damage.
5. Install grommet retainer. Use lock-tight 222 (purple) on retainer screws.  
Note: If your cases do not have wire clamp screw holes, use high temp silicone sealer (preferably black) to hold grommet in place. When using sealer the grommet will slide in the hole very easy. Do not let first lip on grommet to come out the top of case hole.
6. Install four new stator-mounting screws (supplied). Torque to 30-40 In-Lb.  
CAUTION: When installing the rotor, keep fingers away from edge. The magnetic force may cause rotor to suddenly be drawn inward and could pinch fingers if in the way.  
Note: The magnets in the CE-9700 rotors are significantly stronger than normal rotors. It is recommended that you use a special rotor remover/installer tool such as (HD-441771).
7. Install rotor
8. Install appropriate variable thickness shims as determined in step 1 of these instructions.

9. Install output shaft extension.
10. Install compensator sprocket adjuster shoe and clutch if removed check chain alignment. Adjust shims as necessary.
11. After confirming that the primary chain is properly aligned, apply red lock-tight #262 to threads on output shaft and torque to 150 to 165 ft/lb. If clutch was removed, use lock-tight number 262 and torque to 70-80 ft-lb (left-hand thread).
12. Adjust primary chain.
13. Assemble primary cover and all other components previously removed.
14. Fill primary with oil. Oil should be level with the bottom edge of clutch plates.

### Regulator Removal

1. Disconnect battery negative terminal.
2. Remove old regulator. A- Disconnect regulator B+ wire from main circuit breaker (See chart for location). Year and model Breaker Location 89-92 all FL under right side cover on battery tray or oil tank 93-Up all FL Under seat on frame cross rail. 1989-1994 FXR Under left side cover.  
Note: Be sure how the regulator wire is routed and cut necessary wire ties and remove wire.  
Note: If you tie a piece of nylon cord or fishing line to the ring terminal before pulling wire out, you can use this cord to pull new wire in place.
3. Remove regulator with bracket from lower frame cross member.

### Mounting 50 amp breaker

**Note:** 19889-1993 models come stock with a 30 Amp main breaker. Do not change to a larger breaker or switches and wires may burn up. 1989-1993 models must add the 50A auxiliary breaker supplied in this kit. Optional on 94-up. We recommend that new accessories that use a lot of amps be connected to the silver terminate on the new 50A breaker. If you want these accessories to activate from your ignition switch, use a relay. 1989-92 mount breaker bracket on front side of battery tray. Remove battery, drill hole and secure with pop rivet. 1993 models mount breaker bracket on upper frame cross member (near stock breaker). If your pop riveter won't fit between frame secure bracket with sheet metal screw.

Insert new 50A breaker in breaker bracket.

Connect small end of 13" wire to copper color terminal on circuit breaker. Connect large end to battery positive terminal.

### Regulator Installation:

1. Connecting wires to regulator.  
Note: When connecting wires, place regulator upside down with something soft under fins so paint won't be scratched.  
A- Regulator B+ wire is 50" long. One end has yellow marker on it. Connect end labeled B+ to B+ terminal on regulator.  
B- This kit comes with two wires labeled GND.  
1989 to 92 models use the shorter 32" wire.  
1993 to 98 models use the longer 48" wire.  
Determine which GND wire you need. Connect the end with the smaller ring terminal to regulator GND terminal on regulator.  
Note: For best appearance, position wires to follow the contour of the regulator legs.  
C- To connect the AC wires place regulator upside-down on suitable stand in front of front motor mount. The regulator-shipping box should work.  
Connect one AC wire from stator to each AC terminal on regulator. It doesn't matter which one goes where.
2. Mounting Regulator Flip regulator up onto frame cross member so it straddles the motor mount. On 1989-94 models use ¼-28x 1¼ bolts (supplied) to mount regulator. On 1995-98 models slide regulator on ¼ -20 studs and use stock nuts.
3. 1989-1992 route B+ wire the same way as old regulator wire. Connect yellow end to silver terminal of new 50-amp breaker. Route GND wire along lower right frame rail. Follow crossover bracket to the left side. Connect to 5/16" bolt where braided ground cable connects. This bolt also connects your inner primary to frame. 93-98 routes B+ and GND wire together the same way as old regulator wire. Connect yellow end of B+ wire to silver post of new 50A breaker (94& up may connect to stock 50A breaker). On 93-96 models, connect GND wire to grounding bolt on frame above oil filler cap. On 97-98 models, connect GND wire to left side ground post located under seat in front of the battery.
4. Check all wires to be sure they are not in a vulnerable position. Keep wires away from front motor mount and exhaust pipes. Do not run wires on the bottom of frame rail where they will get pinched if you bottom out.
5. Replace all wire ties previously cut and add new where necessary.

### Testing

1. Reconnect battery and start motor.
2. Check voltage at the battery terminals.
3. With a good battery you should get 14.3 to 14.6 VDC.

Specifications \*Usable DC Amps - At 1000 RPM = 30, at 2500 RPM = 45

Usable DC amps are defined as the amount of DC amps a charging system can deliver while maintaining a battery voltage of 13.8 or higher.

Note: If your motorcycle is using more amps than the charging system is putting out, battery voltage will not rise.

### Kit Contains

#### QTY DESCRIPTION

1	Stator
1	Rotor
1	Regulator
1	Sprocket shaft spacer
1	Wire kit for 92-96
1	Wire kit for 89-91
1	50 Amp Breaker
1	Circuit Breaker Clamp
1	Oil Seal
4	Stator Mounting Screws
2	¼ -28 x 1¼ Bolts
2	¼ -28 Locknuts
2	¼" Flat washers
6	Wire Ties.

### Things Needed Not Included In Kit

1. Primary gasket for your model.
2. Additional variable thickness shims maybe required obtaining proper primary chain alignment.
3. Special tools.
  - A )SNAP ON #YA 105 seal puller (or equivalent)
  - B) HD-39361 seal insulation tool
  - C) HD-41771 rotor remover/Installer