

These FST Carburetors are designed to fit onto either a 4150 or 4500 style manifold. A simple steel plate adapter is required in order to fit on a spread bore intake manifold.



Special Note: These carburetors are not legal for street use in the state of California. Other states may have laws that preclude their use. Check with local authorities.

## INSTALLATION INFORMATION

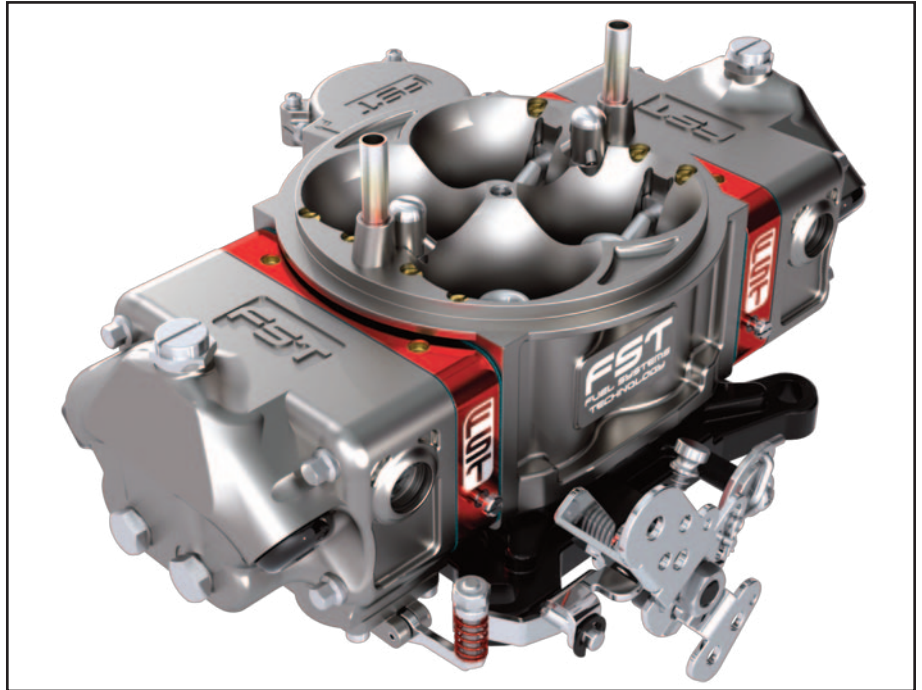
for the following models

### RT Series through Billet X-treme Series

#### Understanding These Instructions

It is important to read and understand these instructions before starting on the installation of the carburetor. If you have access to a competent tuning shop, you might consider having the installation done by a professional. Select a shop with a chassis dyno so that proper final tuning can be performed to get the maximum performance from your new FST Carburetor. Correct fine tuning of your engine is important for the best results.

If your installation requires a transmission kickdown lever, there are several manufacturers who offer the necessary components to achieve this capability with this carburetor.



Please note that every FST Carburetor is run on an engine test stand and fully tuned by our technicians for optimum performance. However due to the wide variation in engines

that it may be installed upon, additional fine tuning may be necessary once it is installed. Note these carburetors are designed to utilize 6.5 PSI of fuel pressure.

#### REMOVING YOUR EXISTING CARBURETOR

These are general instructions meant to apply to all carburetors. However, due to differences in design, these instructions may not specifically address your particular carburetor in every respect.

1. Disconnect the Negative (-) battery cable to prevent any sparking in the presence of fuel or fuel vapors.
2. Remove air cleaner and any hoses or vacuum lines connected to it or the carburetor. Tag the hoses so you know where to reinstall them correctly.
3. Remove fuel lines from the carburetor. Be careful not to twist or damage the lines or fittings. Use a penetrating aerosol spray to

loosen tight fittings.

4. Remove electric choke connections (if present). Tag so you know where to reinstall them.
5. Remove any return springs and disconnect linkage.
6. Remove the four nuts holding the carburetor to the manifold along with any lockwashers or flatwashers.
7. Now you can remove the carburetor.
8. Cover inlet openings in the manifold to avoid any loose parts or debris falling into the engine. A loose nut can destroy an engine.

#### INSTALLING YOUR NEW FST CARBURETOR

1. Put old and new carburetors side by side so that you can determine any differences between them. Transfer any linkage components from the old carb to the new one if applicable.
2. Now remove coverings on intake manifold and place the carburetor gasket over the four studs in the manifold. Install the new FST carburetor over the four studs. Install throttle cable bracket over the driver's side rear stud if applicable.

3. Install the four holddown nuts with any washers (if used) and tighten in a cross pattern but **do not fully tighten at this stage**.
4. Attach the throttle linkage and any kickdown linkage. Depress the accelerator pedal making sure that everything works smoothly with no interference with any carburetor components. If resistance is experienced, make sure that whatever is causing the problem is eliminated, allowing smooth operation of all linkage. *(continued next page)*

## INSTALLING YOUR NEW FST CARBURETOR *continued*

5. Once you have the linkage operating smoothly you can tighten the four nuts. Tighten to 100 inch pounds (8 pound feet). We strongly suggest that you tighten in a criss-cross pattern in a number of steps to avoid over-tightening one corner and breaking the carburetor base flange. Broken carburetor flanges are not covered by warranty. So use caution.

6. Install a positive return spring. Cycle the linkage to make sure that the return spring is fully retracting the linkage.

7. Install vacuum hoses. See Figure 1 and accompanying note. Install the PCV hose onto the 3/8" nipple at the back of the carburetor. If the PCV hose is not used, this nipple can be used for the power brake hose. It is not recommended to "Tee" the PCV hose and power brake hose together. They should be separate. If you need to connect both hoses, then connect the PCV hose to the rear carburetor fitting. You will need to drill and tap a hole into the plenum area of the intake manifold and use a 3/8" fitting for the power brake hose. Do not tap into an intake runner. It must be into the plenum which is the area directly under the carburetor where all the runners come together.

8. Install fuel inlet fittings into the two ports in the carburetor. Do not use Teflon tape on these fittings. Make sure the fitting threads and the flare portion of the fitting are clean and free of dirt or debris. Tighten adequately to avoid fuel leakage. Then install the fuel line nuts making sure the flare portion is clean. Again tighten adequately to avoid fuel leakage.

9. If your new FST Carburetor is equipped with an electric choke, reattach the wire connections. Connect the Positive (+) wire from the choke to the a 12V source on the ignition key. Do not connect to the Battery side of the ignition Coil. If possible, check the voltage with a voltmeter to assure the correct voltage. Battery voltage will be 12V or greater. Then recheck voltage with engine running to assure that voltage does not drop below 12.6V or the choke will not operate correctly. Note that certain engines incorporate a field wire from the alternator that only provides 9.5V which is not enough to allow proper function of the choke.

## STARTING THE ENGINE

1. Reconnect the Negative (-) battery cable.
2. Before attempting to start the engine, the fuel bowls must be filled with fuel. If you have an electric pump, turn on the ignition and allow about 15 seconds for the pump to fill the fuel bowls. If you have a mechanical pump, pull the coil wire from the distributor so the engine won't start, and allow the starter to turn the engine in two separate 10 second cranks. Replace the coil wire.
3. With the vehicle on level ground, check the sight glass for each bowl to confirm that the fuel level is in the middle of the glass. If not, you may not have fully filled the bowls. Give it another 10 seconds. Note that the FST Carburetor was set-up at the factory to have the float level at the mid-point of the sight glass. If the fuel level is not in the proper location, you may have to adjust the float level. If your fuel pressure regulator is not regulating the fuel at 6.5 PSI, that may be the reason your fuel level is not at the correct position in the sight glass. Unfortunately the most accurate way to check the float level is with the engine running. So after you get the engine running, you will need to check it again and adjust as necessary.
4. Once you have the float levels correctly established, turn on the engine and rotate the throttle levels to fully open twice. If the ambient temperature is less than 72 degrees, the choke will close and the accelerator pump nozzles will discharge fuel. Now you can start the engine.

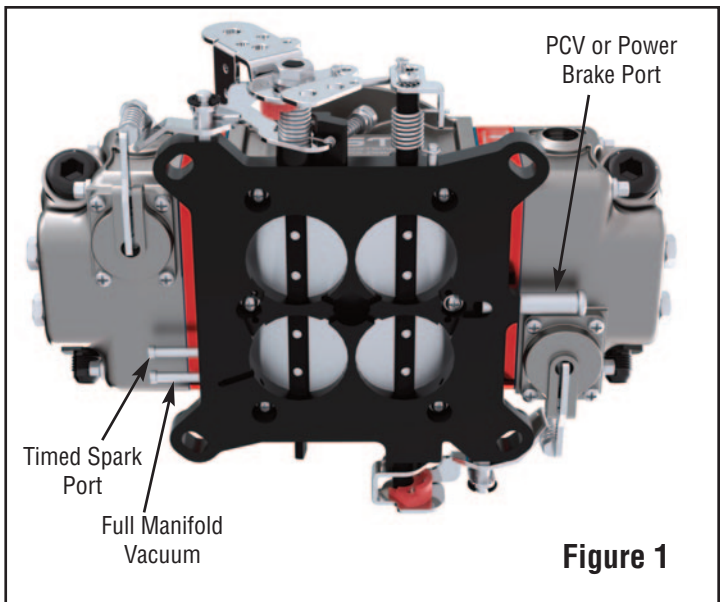


Figure 1

**VACUUM PORTS** - The Full Manifold Vacuum port is typically used for the transmission modulator, heat and/or AC control, vacuum actuated fresh air induction, etc. It is ok to use "tees" to connect more than one of these to the port on the carburetor. The Timed Spark Port is typically used for a vacuum advance distributor, if used.

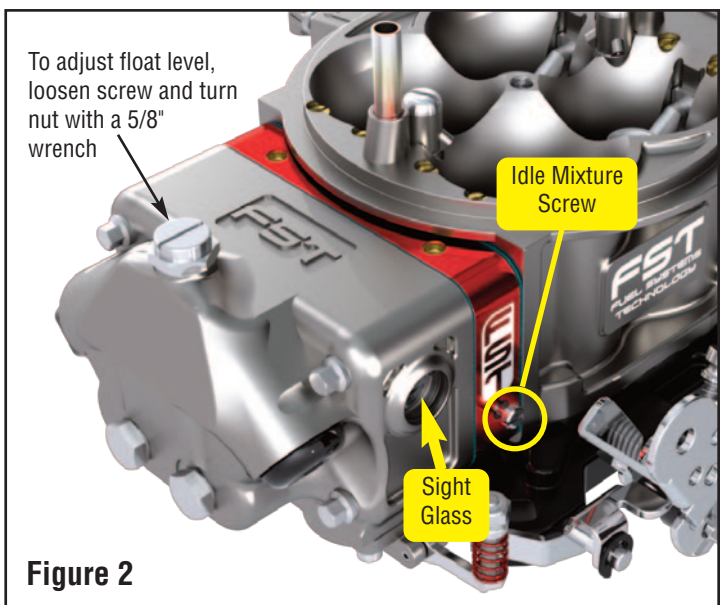


Figure 2

5. It will not be necessary to pump the accelerator pedal while attempting to start the engine. However, if it does not start on the first attempt, pump the throttle a couple more times and try starting the engine again. It should start.
6. If it doesn't start, try holding the throttle slightly open while starting. If it won't start it's possible you flooded the engine. Let it stand for 20 minutes and try again.
7. Once the engine starts the idle speed should be raised by the fast idle cam. If the initial idle speed is too low (it should idle between 1600 and 2000 rpm initially) you can raise the idle speed by adjusting the idle speed screw located behind the primary throttle lever. Then let the engine idle at this speed for about five minutes. During this time the choke should open (if so equipped) on its own and be fully open after about three minutes of fast idle. If you do not have a choke, you will need to allow the engine

(Continued on next page)

## STARTING THE ENGINE continued

to reach operating temperature before proceeding.

8. After the engine has reached operating temperature and the choke (if equipped) has reached the open (vertical) position, open and close the throttle quickly. The idle speed should drop down into the 700 to 1000 rpm range. If you initially had to adjust the idle speed screw, now turn it counter-clockwise until the idle speed is where you want it. This may depend on various engine factors as to the desired idle speed.

9. If you have access to a manifold vacuum gauge, set the four mixture screws (see Figure 2) to attain the highest manifold vacuum reading with the engine idling. It is not necessary that all four screws be at the same exact number of turns but they should be close. Without a manifold vacuum gauge, you will just have to manually make adjustments until you get the best possible idle. Make adjustments in increments of about 1/4 turn each. Turning the screws in (clockwise) increases the leanness of the mixture. Backing them out richens it. By adjusting the screws you should be able to smooth out the idle to a desired level. If three of the screws are out too far, turning in the fourth one may have no effect. If the rpm goes up when turning a screw, back it off until idle comes down. If the idle drop is too much, then the mixture is too lean and the screw needs to be turned back out.

10. After you have reached the best idle quality (or highest manifold vacuum), if equipped with an automatic transmission, put your foot on the brake and place the transmission in gear. This will likely change the idle speed due to a load being placed on the engine. If you have a performance camshaft, it may be necessary to increase the richness of the idle screws to keep the engine from dying or laboring when in gear.

11. Now you can do a test drive of the vehicle. Once you have driven it you may need to make some minor adjustments to the mixture screws and the idle screw to achieve the ideal settings.

12. Once you are reasonably happy with the low speed driveability, take the vehicle out on the highway to determine how well the engine operates at a steady speed. Typically, above 2000 rpm the carburetor is operating off of the main metering system. The air/fuel ratio is controlled by the main metering jets. If the engine surges while driving at a steady speed on flat ground, the engine is too lean and the main jets need to be increased in size. But if the engine labors and has difficulty holding a steady speed then it is likely too rich and smaller main jets are required. Another way to check for correct air/fuel mixture is to check the plugs after driving at a steady highway speed for an extended period. If the plugs are white, you are too lean. If they are dark gray, black or sooty, the engine is too rich. A too lean or rich condition can also be detected by looking at the inside of the exhaust pipe at the tip. The color should be a medium tan or brown. Not white and not black.



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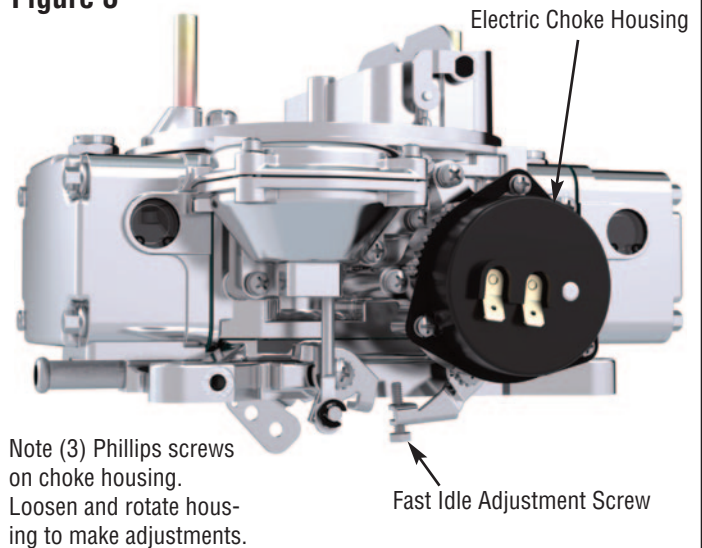


**California Proposition 65 Warning:**

This product may contain one or more substances or chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.

[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**Figure 3**



## Electric Choke Adjustments

It is possible to adjust the electric choke as follows: Note that the normal choke setting is for the choke plates to just barely close at 72 degrees Fahrenheit. Loosening the three screws that hold the choke spring will allow rotation of the choke cap. See Figure 3. Rotating it clockwise reduces the choke effect (lean) and rotating it counter clockwise richens the choke effect. A lean choke (clockwise) closes at a higher temperature and opens faster. A rich choke (counter clockwise) closes at a lower temperature and opens slower. At full clockwise rotation, the choke will never close.

## Fast Idle Speed

The fast idle speed can be adjusted by turning the fast idle speed screw. See Figure 3. The easiest way to access this screw is with the engine off and rotating the linkage to wide open throttle. The typical fast idle speed with the engine at operating temperature is approximately 1600 rpm. The procedure to check fast idle speed is as follows: With engine off, manually open the throttle, close the choke plate with your finger, then release the throttle, and then the choke plate. This sets the fast idle cam. Now start the engine without touching the throttle linkage or accelerator pedal. The engine will start and be at the fast idle setting. Fast idle adjustments can then be made with the fast idle screw. The adjustment screw is somewhat difficult to access. If you can't access it and you know you want to increase it or decrease it. Shut the engine off and then fully open the throttle. This will give you access to the adjustment screw. Turn it clockwise to increase the idle speed or counter clockwise to reduce it. You might have to repeat this process in order to get it adjusted to the desired fast idle speed of 1600 rpm.

**SPECIAL NOTE:** While all FST Carburetors are designed and calibrated to operate on a wide range of various engine combinations, no carburetor can possibly have a single calibration that will function at peak efficiency on every conceivable engine. The FST Carburetor will work satisfactorily on the majority of engines without further adjustments or tuning. However, should it be necessary to alter the basic fuel curve, there is plenty of tuning capability available. These types of tuning adjustments need to be performed by a professional tuning shop or someone with extensive experience tuning carburetors.



# FST CARBURETOR SPECIFICATIONS

Use the chart below to keep a record of any changes that you make to your FST Carburetor.

MAIN BODY		
	Primary	Secondary
PUMP NOZZLE		
BOOSTERS		
B-PIN SIZE		
HIGH SPEED AIR BLEED		
IDLE AIR BLEED		
SLOT RESTRICTION		
VENT TUBE		
METERING BLOCK		
	Primary	Secondary
MAIN JET		
POWER VALVE		
P/V CHANNEL RESTRCT.		
EMULSION		
KILL BLEED		
IDLE FEED RETRICT.		
CROSS CHANNEL/MAIN		

FUEL BOWL		
	Primary	Secondary
NEEDLE AND SEAT		
FLOAT		
THROTTLE BODY		
	Primary	Secondary
PUMP ARM		
PUMP CAM		
THROTTLE SHAFT		
THROTTLE LEVER		

NOTES	1/4 Turns on Mixture Screw	
	Front	Rear



## FST CARBURETORS LIMITED WARRANTY

**Limited Warranty:** FST warranty is limited to repair or replacement (at our discretion) of any FST part that fails because of a defect in workmanship or materials.

**Implied warranty:** Any warranties implied by law are limited to the duration of this warranty (except in those states where prohibited by law).

**How Long It Is Covered:** All FST products are warranted for a period of one year from date of original retail purchase with an original receipt showing proof of purchase. Certain components of the FST Carburetor are limited to a 90 day warranty period. See separate complete Limited Warranty document for a list of specific components.

**Who We Cover:** All FST warranties apply to the original purchasing consumer.

**What We Do Not Cover:** Failure of a product due to misapplication, improper installation or maintenance, misuse, abuse, unauthorized repairs, accidents, or modifications to the original design. Removal or replacement costs, shipping costs, damage to related components, and costs incurred due to downtime of vehicle. Any product used in marine applications unless specifically stated for marine usage. Any parts used in racing applications or subject to excessive wear.

**Warranty Service Procedure:** In the event a problem develops with one of our products, contact our customer service department at 248-779-8008 or email to

info@fstcarb.com. It may be determined that the product will have to be returned for inspection and/or repair. A Return Merchandise Authorization (RMA) number will be assigned to you. This number must be on the box shipped back to FST Customer Service. The product must be returned via freight prepaid. It must be accompanied by a clear description of what the problem is with the product. If the product is determined to be defective within the warranty period, FST will repair, replace, or issue credit to the original consumer at our discretion. Any repaired or replaced product will be returned to the sender via prepaid Fedex or other ground carrier.

**Return Policy:** FST guarantees its parts and is confident that our products will meet with your complete satisfaction. If the product does not meet your expectations, return it within 60 days for a refund or exchange. You can return the new, unused part within 60 days from the purchase date. To make a return, call our Customer Service Dept. at 248-779-8008 to receive a Return Merchandise Authorization (RMA) number. You must include the RMA number and a copy of the product purchase receipt with the return. The product must be sent back freight prepaid, in the original manufacturer's box to FST Customer Service, 2000 Winner St., Commerce Twp., MI 48390. Returns may be subject to a 15% restocking fee. No refunds will be issued without a copy of the receipt.