



Demon 98 Instruction Manual

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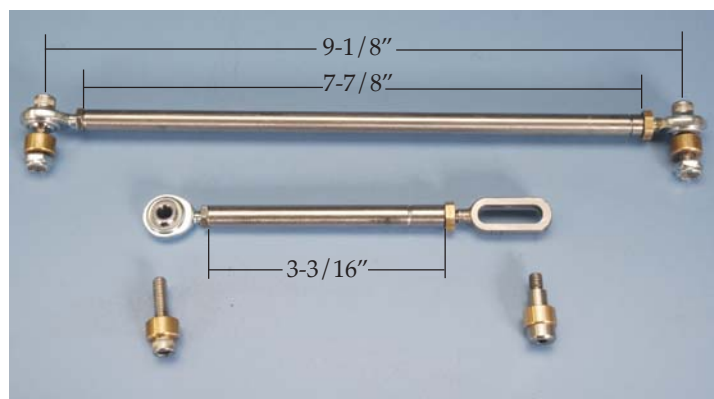
The Demon 98 is a retro two-barrel high-performance carburetor that fits the thirties-style three-bolt intake manifolds of vintage engines: Flathead, Y-block, Hemi, or Nail-head. It is a replacement for the Stromberg 97® or the Holley 94®.

These fitting instructions will serve as a guide—they were created from procedures used to install a set of three Demon 98 two-barrel carburetors on a 1961 Ford Starliner with a 292 Y-block engine.

Introduced to the hot rod market in February 2008, the Demon 98 carburetors are produced in two principal forms: primary and secondary. The primary carburetor is responsible for starting, idling, modest off-idle acceleration, and cruising. The purpose of the secondary carburetor(s) is to provide additional power when the primary carburetor assumes wider throttle openings. These primary and secondary carburetors interact via a throttle linkage system equipped with a slip joint. The secondaries usually begin to open when the primary throttle plates reach approximately 35 degrees, and because of a special high-ratio linkage, both the primary and the secondaries assume the full-throttle position simultaneously. Because the primary carburetor can provide sufficient power to keep the vehicle rolling, it will also give agreeable fuel economy at light throttle openings when the secondaries are not deployed.

Adhering to current practice, the primary carburetor features four fuel-metering circuits, all of which are adjustable. They are as follows: idle, main, accelerator-pump, and power valve. Further adjustments can be made to the float levels. The secondary carburetor(s) feature both idle and main circuits, but have no provision for adjusting either idle speed or idle mixture—these are pre-set at the factory. However, adjustments can be made to the float levels and to the accelerator pump function.

Should you require further assistance, please don't hesitate to contact our technical staff at (706) 864-8544 between the hours of 8:00 a.m. and 6:00 p.m. (EST).



Linkage (PN 9903) to suit Navarro intake.



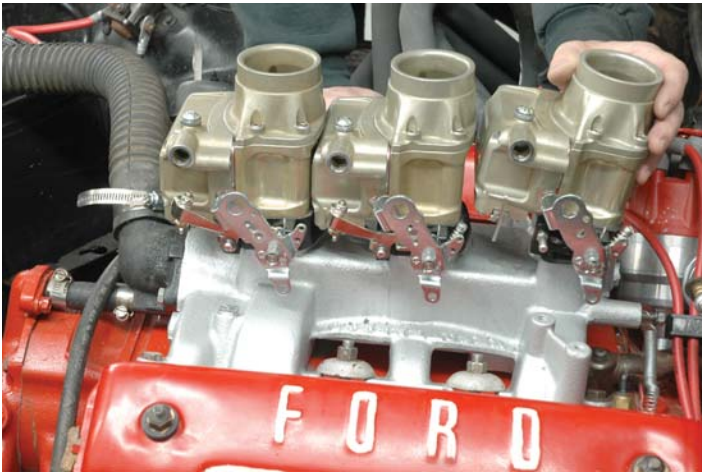
1. Install all the base gaskets (supplied with carburetors). These are positioned between the carburetors and the intake manifold. All the gaskets are the same.



2. Set the first carburetor in place and secure it to its three-bolt fixings. This carburetor is known as a secondary carburetor.

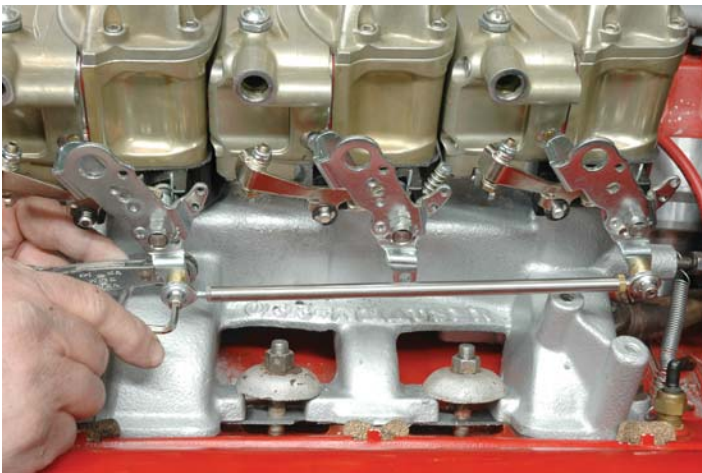


3. Install the second carburetor, using a slight angle from the vertical if it is closely spaced to the first. Secure the carburetor to the intake manifold by its three-bolt fixings. This carburetor is known as a primary carburetor.



4. Fit the third carburetor (another secondary type) by angling it into position, as shown, if the bolt-pattern layout is closely spaced.

joint, using the hole centers on the throttle levers shown in figures 6A and 6B.



5. Connect the outer carburetors with the 5/16-inch stainless steel throttle link and rod end bearings. One end is drilled and tapped to accept a 10-32 right-hand spherical joint, the other end for a 10-32 left-hand joint. Left-hand threads are usually distinguished by a groove around the end of the linkage rod.



6. Connect the primary (center) carburetor to the front carburetor with the shorter link and slip

7. Connect the primary (center) carburetor to the throttle linkage (from the pedal) with a suitable length link. Because this rod will vary in length, the user must make this connection to suit his application. Determine the correct length of the throttle link required, and make it from 5/16" bar, preferably stainless steel. Drill and tap each end 10-32, making one end left-hand thread, the other right-hand thread.



8. Tighten the five Allen bolts (10-32 x 7/8-inches long) to secure the linkages, leaving the jam nuts on the spherical bearings loose. Adjust the throttle plates of the three carburetors by first moving the center carburetor to the full-throttle position. Then rotate the short link between the jam nuts, bringing the front carburetor to full throttle also. Finally, synchronize the back carburetor by adjusting the lower rod between the outer carburetors, bringing it to the full throttle position. Next install the banjo fittings (9/16-inch x 24 T.P.I.) to the fuel bowls.



9. Install fuel lines as necessary. Period-style fuel lines and fuel distribution manifold are available from most hot rod speed shops.



10-& 11- Demon 98 carburetors accept period-style air cleaners and air horns.



12- Alternatively, if you favor a Barry Grant billet fuel line, install and tighten the front and center carburetors, but leave the securing nuts of the back carburetor loose. Then install the fuel log, attaching it loosely to the fuel-bowl port of the back carburetor with the brass banjo bolt and two washers.



13- The next step is to install the brass banjo to the fuel bowl of the center carburetor.



14- Attach the remaining brass banjo to the fuel bowl of the front carburetor. Then tighten all three banjo bolts.



15- Finish the installation by tightening the rear carburetor to the intake manifold and connecting the fuel log to a fuel-delivery source.

Notes regarding ignition timing:

Flathead engines function with 24 degrees of total ignition timing. To ensure the Demon 98s perform to their full capacity (whether fitted singly or in multiples), increase the initial ignition timing from 5-degrees BTDC at idle to 10 degrees. Consequently, to maintain 24 degrees of total ignition timing, the distributor's advance curve must be reduced by a corresponding amount. On other engines, increase the initial ignition timing at idle by 5-7 degrees over the original engine manufacturer's recommendations. Thus the advance curve must be reduced by a corresponding amount to maintain the overall ignition timing.

See back page for information on using the Demon 98s as single or multiple units.

Part Numbers

9801	Demon 98 Primary Carburetor
9802	Demon 98 Secondary Carburetor
9901	Demon 98 Electric Choke *
9902	Demon 98 Manual Choke *
9903	Demon 98 Three-carburetor Linkage Kit (Stainless)
9904	Demon 98 Three-carburetor Fuel Log Kit
160006	Two-Carburetor Linkage Kit
142115	Demon 98 Inlet Banjo Fitting Kit (use one kit per carburetor).

** Electric and Manual Choke Kits are not yet available.*

**PN 142115
(each)**



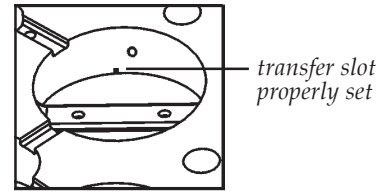
Demon 98 Specifications:

Idle air bleeds	.063-inches
Idle fuel restrictors	.035-inches
Idle well diameter	.070-inches
Idle discharge orifice	.033-inches
Idle transfer slot thickness	.006-inches
High-speed air bleeds	.033-inches
Main jets	.049-inches
Emulsion holes (3)	.028-inches
Main well diameter	.136-inches
Main well exit diameter	.098-inches
Siphon break	.022-inches
Boost venturii (straight leg) orifice	.107-inches
Power Valve (6.5) fuel ports	.040-inches
Accelerator pump	30cc
Accelerator pump nozzles	.031-inches
Throttle plate thickness	.062-inches
Throttle bore diameter	1-3/16-inches
Main venturi diameter	.980-inches

16) Troubleshooting

Should you encounter tuning troubles, use the solutions listed on the following pages. If, as a result, the problem diminishes but isn't completely eradicated, continue this course of action. On the other hand should the problem worsen, try tuning in the opposite direction. If the problem persists, please contact our Technical Department at (706) 864-8544 Monday through Friday 8 AM to 6 PM Eastern Time.

Correct throttle plate position of primary carburetor at idle.

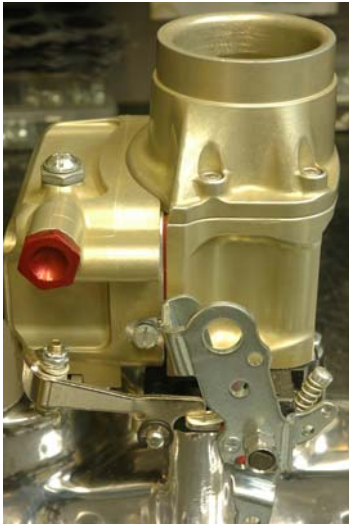


TROUBLE:

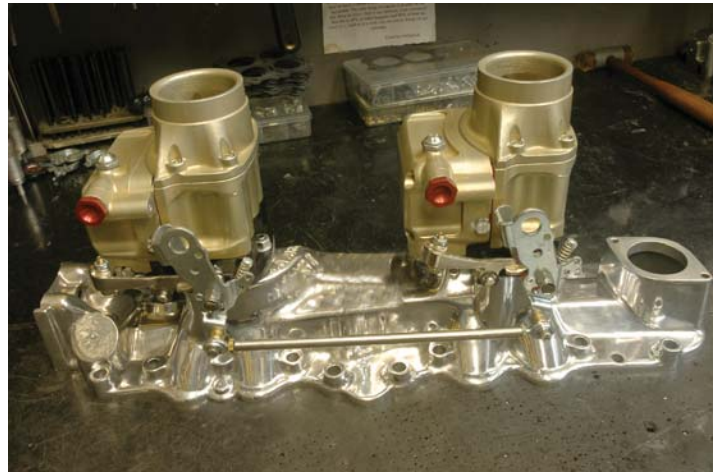
SOLUTION:

Spark Plugs Blacken While Driving	Use smaller main jets, reduce float levels, use a lower-rated power valve, reset throttle plates (butterflies)
Spark Plugs Blacken At Idle	Reset throttle plates to correct position at idle, tighten idle-mixture screws, reduce float levels, reduce fuel pressure, clean air bleeds, use lower-rated power valve, increase initial ignition timing
Carburetor Backfires	Loosen idle-mixture screws, increase the size of the accelerator-pump nozzles (squirters), raise float levels, reset throttle plates (butterflies) to the correct position at idle, increase the size of the main jets, check ignition timing
Exhaust Backfires	Tighten idle-mixture screws, decrease squirter size, reduce float levels, reset throttle plates to the correct position at idle, decrease size of main jets, check ignition timing
Carbs Don't Pull Well At Full Throttle	Increase size of main jets, increase float levels, increase fuel pressure
Float Levels Won't Adjust	Reduce fuel pressure, clean needle-&-seat assemblies, ensure floats move freely
Float Bowls Lose Fuel After Stopping	Retighten bowl screws and power valve; replace bowl, metering block, and power valve gaskets; clean the air bleeds
Fuel Drips From Boosters	Reduce float levels, reduce fuel pressure, reset butterflies
Fuel Drips From Accelerator-Pump Nozzle (Squirter)	Loosen tension on the spring-loaded accelerator pump arm
Fuel Leaks From Throttle Shaft	Reduce float level, reduce fuel pressure, clean or replace needle-&-seat assembly, reset throttle plates, clean air bleeds
Fuel Shoots From Vent Tube	Reduce float level, reduce fuel pressure, clean or replace needle-&-seat assembly, ensure float moves freely
Mixture Screws on Primary Carburetor Lack Adjustment	Reset throttle plates to correct position at idle, increase initial ignition timing, reduce float levels, reduce fuel pressure
Fuel Mixture Rich While Driving	Reduce size of main jets, reduce float levels, use lower-rated power valve, reset throttle plates to correct position at idle

Fuel Mixture Rich At Idle	Reset throttle plates to correct position at idle, tighten idle mixture screws, reduce float levels, reduce fuel pressure, clean air bleeds, use lower-rated power valve, increase initial ignition timing
Engine Runs-On After Ignition is Switched Off	Reset throttle plates to correct position at idle, reduce idle speed, check ignition timing
Carburetors Feel Sluggish At Full Throttle.	Decrease size of main jets, reduce float levels, reduce fuel pressure
Carburetors Smell Rich At Idle	Reset throttle plates to correct position at idle, tighten idle-mixture screws, reduce float levels, reduce fuel pressure, clean air bleeds, use lower-rated power valve, increase initial ignition timing
Exhaust Smoke at Idle	Reset throttle plates to correct position at idle, tighten idle-mixture screws, reduce float levels, reduce fuel pressure, clean air bleeds, use lower-rated power valve, increase initial ignition timing
Exhaust Smoke Under Acceleration	Decrease size of accelerator-pump nozzles, reduce float levels, reduce fuel pressure, reset throttle plates
Vehicle Hesitates Under Light Acceleration	Reset throttle plates to correct position at idle, raise float levels, reset idle-mixture screws
Vehicle Hesitates Under Hard Acceleration	Increase size of accelerator-pump nozzles, reset throttle plates to correct position at idle, raise float levels
Vehicle Surges At Idle	Reset throttle plates to correct position at idle, loosen idle-mixture screws, raise float levels
Vehicle Surges At Cruise	Reset throttle plates to correct position at idle, raise float levels, loosen idle-mixture screws, install larger main jets, install a higher-rated power valve
Engine Idle Speed is too Fast – Won't Idle Down	Reset throttle plates to correct position at idle, check idle-mixture screws, lower float levels, check initial timing, check throttle linkage, check for vacuum leaks
Engine Won't Run Below 1500 RPM	Reset throttle plates to correct position at idle, check idle-mixture screws, reduce float levels, check initial timing
Engine Won't Start	Prime carb with fuel, squirt accelerator pump, check float level, check ignition system
Engine Won't Stay Running	Reset throttle plates to correct position at idle, check idle-mixture screws, reduce float levels, check initial ignition timing



The Demon 98 can function as a single unit or in multiples. When running two 98s, use two primary-style carburetors. Standard linkage is available for twin 98 installations (not shown). For installations with four or more Demon 98s, contact our technical department for appropriate linkage information.



Warranty Information

Limited Warranty

Barry Grant, Inc. (the Warrantor) hereby warrants its product to the original purchaser thereof (the CONSUMER) against any and all defect in workmanship and material, under the following terms and conditions.

Party to Whom Warranty is Extended.

This Limited Warranty is specifically limited to the original purchaser of the products and is enforceable only by such original purchaser (CONSUMER).

Coverage of Warranty

In the event of a defect in workmanship or material of the products, the Warrantor will repair or replace the product or any defective parts or parts thereof, at the election of the Warrantor, without charge to the CONSUMER for such repair or replacement. This Limited Warranty shall not apply to labor charges, material or other incidentals in connection with removal and/or replacement of such defective product on the CONSUMER'S vehicle.

Term of Warranty

This Limited Warranty shall extend for a period of ninety (90) days, commencing from the date of the original purchase by the consumer.

Procedure to follow in case of defect.

In order to obtain performance under this Limited Warranty, the Consumer must do the following:

1. The CONSUMER must retain proof of purchase of the product, in the form of the sales receipt, clearly indicating the date of purchase. This Limited Warranty is not enforceable unless the Consumer presents such proof of purchase, clearly indicating the date of purchase, at the time a claim is made under this Limited Warranty.

2. The Consumer must ship the product, postage and freight prepaid, together with proof of purchase and a Return Goods Authorization Number (RGA #) to Barry Grant, Inc. 1450 McDonald Rd., Dahlonega, GA 30533
PH: (706) 864-8544 Fax (706) 864-2206

NOTE: NO RETURNS WILL BE ACCEPTED WITHOUT AN RGA(returned goods authority) number.

Maximum Liability

The Maximum liability of Barry Grant, Inc. in connection with this warranty shall not under any circumstances exceed the contract price of the product claimed to be defective.

Limitations of Warranty

This Limited Warranty shall not apply and shall become fully null and void in the event of damage to the product resulting from any of the following:

1. Unauthorized repairs
2. Breakage due to dropping or misapplications.
3. Repair, alteration or modification of the product by anyone other than the manufacture or authorized representative thereof.
4. Damage resulting from accidents.
5. Abuse or misuse of the product in any manner whatsoever.
6. Damage resulting from incorrect or improper installation.

Under no circumstances shall the Warrantor be liable for any loss or damage, direct or consequential, arising from the use of or inability to use, this product. This Warranty is the only warranty applicable and is expressly in lieu of all other warranties, expressed or implied, including any implied warranty of merchantability or fitness for purpose.

Return Address & Contact information:

Barry Grant, Inc.
1450 McDonald Road, Dahlonega, GA 30533
Phone (706) 864-8544 Fax (706) 864-2206
www.barrygrant.com

Further information may be found in:
**How to Tune and Win with
Demon Carburetors** by Ray Bohacz
Cartech Inc. S-A Design Series
1-800-551-4154
www.carttechbooks.com

