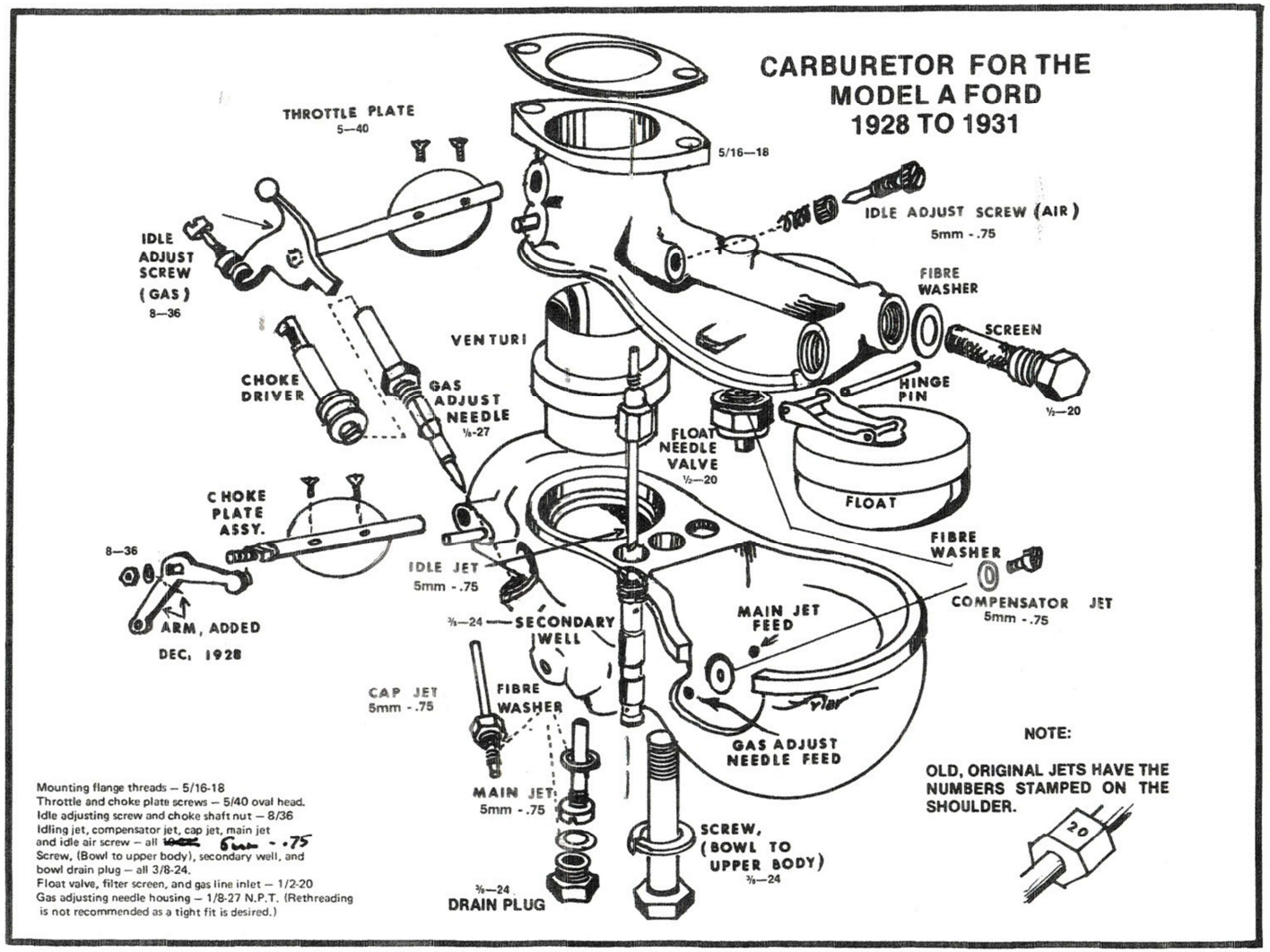

REBUILDING
THE
ZENITH CARBURETOR

NM0


CARBURETOR FOR THE
MODEL A FORD
1928 TO 1931
THROTTLE PLATE
5—40
5/16—18
IDLE ADJUST SCREW (AIR)
5mm - .75
IDLE
ADJUST
SCREW
(GAS)
8—36
FIBRE
WASHER
SCREEN
½—20
VENTURI
CHOKE
DRIVER
GAS
ADJUST
NEEDLE
⅛-27
HINGE
PIN
FLOAT
NEEDLE
VALVE
½—20
FLOAT
CHOKE
PLATE
ASSY.
8—36
ARM, ADDED
DEC. 1928
IDLE JET
5mm - .75
FIBRE
WASHER
COMPENSATOR JET
5mm - .75
⅜—24
SECONDARY
WELL
MAIN JET
FEED
CAP JET
5mm - .75
FIBRE
WASHER
GAS ADJUST
NEEDLE FEED
MAIN JET
5mm - .75
SCREW,
(BOWL TO
UPPER BODY)
⅜—24
⅜—24
DRAIN PLUG
NOTE:
OLD, ORIGINAL JETS HAVE THE
NUMBERS STAMPED ON THE
SHOULDER.
20
Mounting flange threads — 5/16-18
Throttle and choke plate screws — 5/40 oval head.
Idle adjusting screw and choke shaft nut — 8/36
Idling jet, compensator jet, cap jet, main jet
and idle air screw — all ~~10-32~~ 5mm - .75
Screw, (Bowl to upper body), secondary well, and
bowl drain plug — all 3/8-24.
Float valve, filter screen, and gas line inlet — 1/2-20
Gas adjusting needle housing — 1/8-27 N.P.T. (Rethreading
is not recommended as a tight fit is desired.)

Slide 2

NM0 This slide is copied from Paul Moller's book with changes made for the tap size from 10-34 to 5mm-.75 TPI
Norm Molter, 2025-06-14T00:48:52.375

References

RESTORING THE MODEL A AND B CARBURETORS—THE "REX" REHEIS WAY: By Gordon Biggar, 2004.
This is one of the most informative booklets about the restoration of the Model A/AA and B carburetors and very well researched. Filled with pictures and restoration ideas.

THE MODEL A FORD CARBURETORS: By Paul Moller, 1982.
A booklet on the restoration of the Model A Ford carburetors. The last quarter of the booklet discusses the Tillotson carburetor.

CARBURETORS AND CARBOHYDRATES: By Victor Duncan.
Tells about the disassembly, cleaning, and sizing of jets, setting the float level, cleaning passageways, painting and assembly of the 17 different carburetors used in the Model A/AA.

ZENITH MODEL "A" CARBURETOR RESTORATION GUIDELINES: By Steve Pargeter (Version 8) is a very thorough dissertation of the Zenith Carburetor.

TILLOTSON CARBURETORS – REPAIRING AND RESTORING: By David R. Hatch.
This booklet discusses all aspects of selecting, cleaning and restoring the Tillotson Models 'X', 'Unmarked X' and 'XF' carburetors for the Model A Ford.

Articles available online:

Model A Ford Zenith Carburetor Restoration Tips 2007-2010 by Tom Endy:
https://www.santaanitaas.org/wp-content/uploads/2014/08/The-Zenith-Carburetor-11-07.pdf

Numerous articles on Vince Falter's "Ford Garage"
1: Model A Zenith Jet Sizes & Flow Rates
https://www.fordgarage.com/pages/jetflowrates.htm

2: The Ford-Zenith Carburetor" by Murray Fahnestock:
https://www.fordgarage.com/pages/modelazeniththeory.htm

3: Illustrated and Animated Zenith Carburetor by Paul Modin:
http://modelabasics.com/carberutor.html
.
4: YouTube Video of Steve Schmauch on Model A Carburetors from Paul Shinn
https://www.youtube.com/watch?v=s1DpeS9yq4k

Tools:

Screwdrivers – Hollow ground to fit screw slots without raising a burr and sides straight to not damage threads

Taps (preferably bottoming taps): 5mm-.75 Tap; ½”-20 Tap; 3/8”-24 Tap; 5/16”-18 Tap; 1/8”-27 Pipe tap

Zenith Carburetor Fuel Level Setting Gauge
Renner’s Part # B-9599-Z



Tools:

K. R. WILSON Zenith Socket Wrench No. 359
Snyder's Part # A-9511 $12.95



Mini Twist Drill Set - #61 to #80

6" Vernier Calipers

Parts:

Zenith Carburetor Jet Set – Flow tested

Renner's Part # A-9501 $48.00



Other Supplies:

EZ Turn – Fuel Thread Lubricant (5 oz. tube) $24



Medium Strength Thread Lock (approx. $5)

Anti-seize Lubricant

Paint:

Eastwood 2K AeroSpray™ Underhood Black Spray Paint
Item # 14147Z-98124Z-98173Z-98221Z ($37.99 each)

Note: Each can will do 7-9 Carburetors (inside and out)



Or:
Brodak Dope – Jet Black SKU# BP-1080P $9.99/4oz or $21.99/pt
Flattener (16 oz.) by Brodak Item# BP-1092P $29.99
Butyrate Thinner (Pint) by Brodak Item# BP-1090P $13.99 or Qt for $22.99

Flattening Brodak Dope for Zenith Carburetors - Mix:

1. **Four ounces of 9703 Butyrate Thinner**
2. **Add ½ ounces of Flattener**
3. **Three ounces of Brodak Butyrate Dope (Black)**

Since the Flattener is very thick, it is difficult to measure, it is easier to measure out the Thinner in a clear jar, add the Flattener and stir and then add the paint.
You can thin it more if you want to spray but I found that it brushes on very nicely.

If you do not remove the brass passageway plugs, I found masking them off with "Tite-Bond's Thick and Quick" woodworkers glue works well; then just use an X-acto knife to remove the glue after the paint has dried.

Selecting Zenith Carburetors

For Fine Point, matching Upper and Lower along with Critical Features by Month and Year is important

Refer to Area 1 of RG&JS

Articles published by Steve Schmauch:

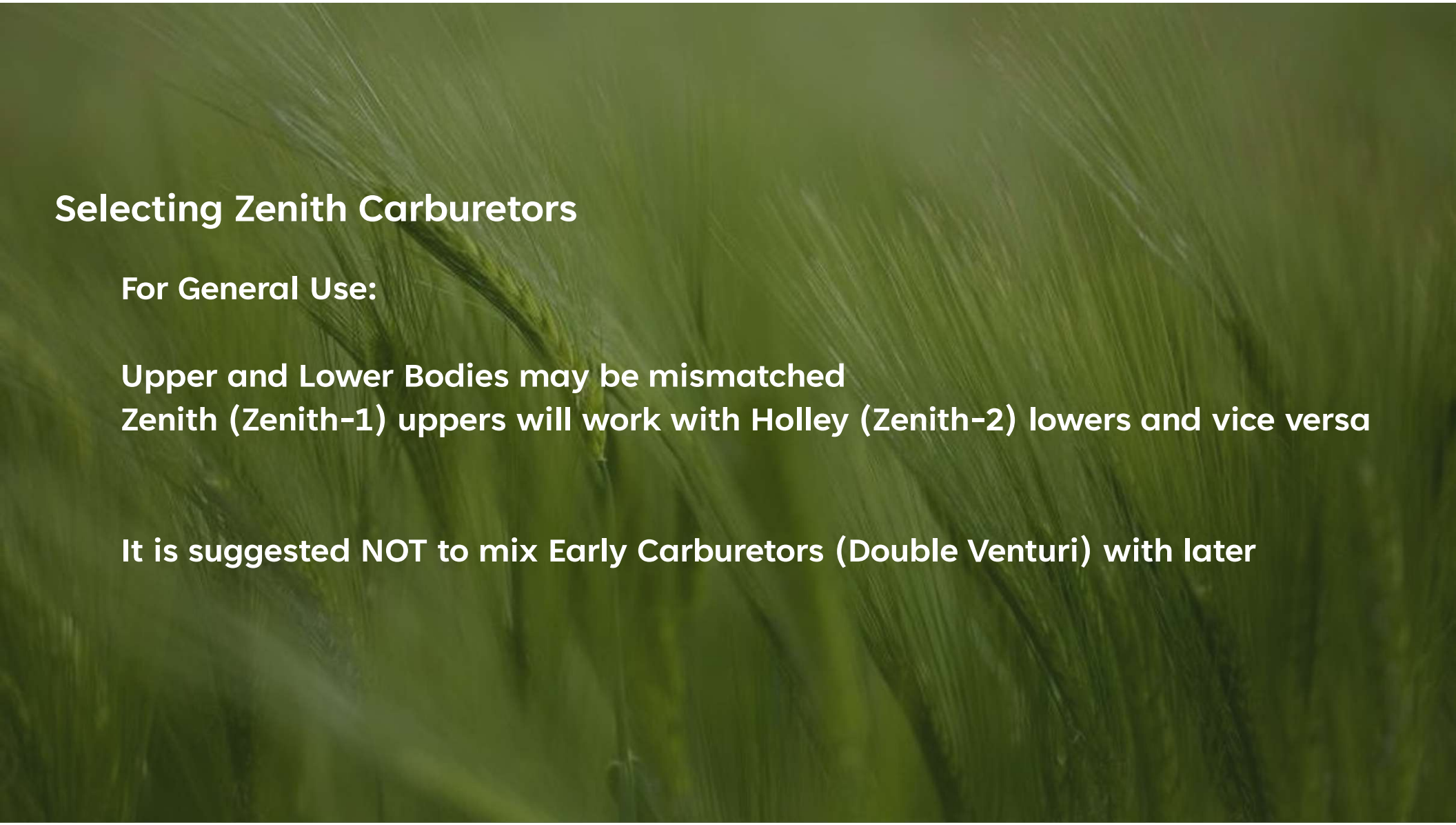
- **1927 Zenith -Restorer magazine - Mar/Apr 2017**
- **1928 Zenith - Restorer magazine - May/Jun 2017**
- **1929 Zenith -Restorer magazine - Jul/Aug 2017**
- **1930 Zenith - Restorer magazine - Sep/Oct 2017**
- **1931 Zenith - Restorer magazine - Nov/Dec 2017**
- **1928 Holley - Restorer magazine -Jan/Feb 2023**
- **1929 Holley - Restorer magazine – Mar/Apr 2023**
- **1930-31 Holley and Aftermarket - Restorer magazine- May/ Jun 2023**

YouTube video: https://drive.google.com/file/d/1DqZGMyRBSp4Sg8Hjw1_--51nYvniUKni/view?usp=drive_link



Acquiring and preparing Zenith Carburetors

1. Check for obvious damage
2. Clean and disassemble
3. Bead-blast (if available) including all passageways
4. Reinspect for cracks and unseen damage
5. Chase threads with CORRECT taps (suggest bottoming taps)
6. Use small wire and/or air hose to check clear passageways



Selecting Zenith Carburetors

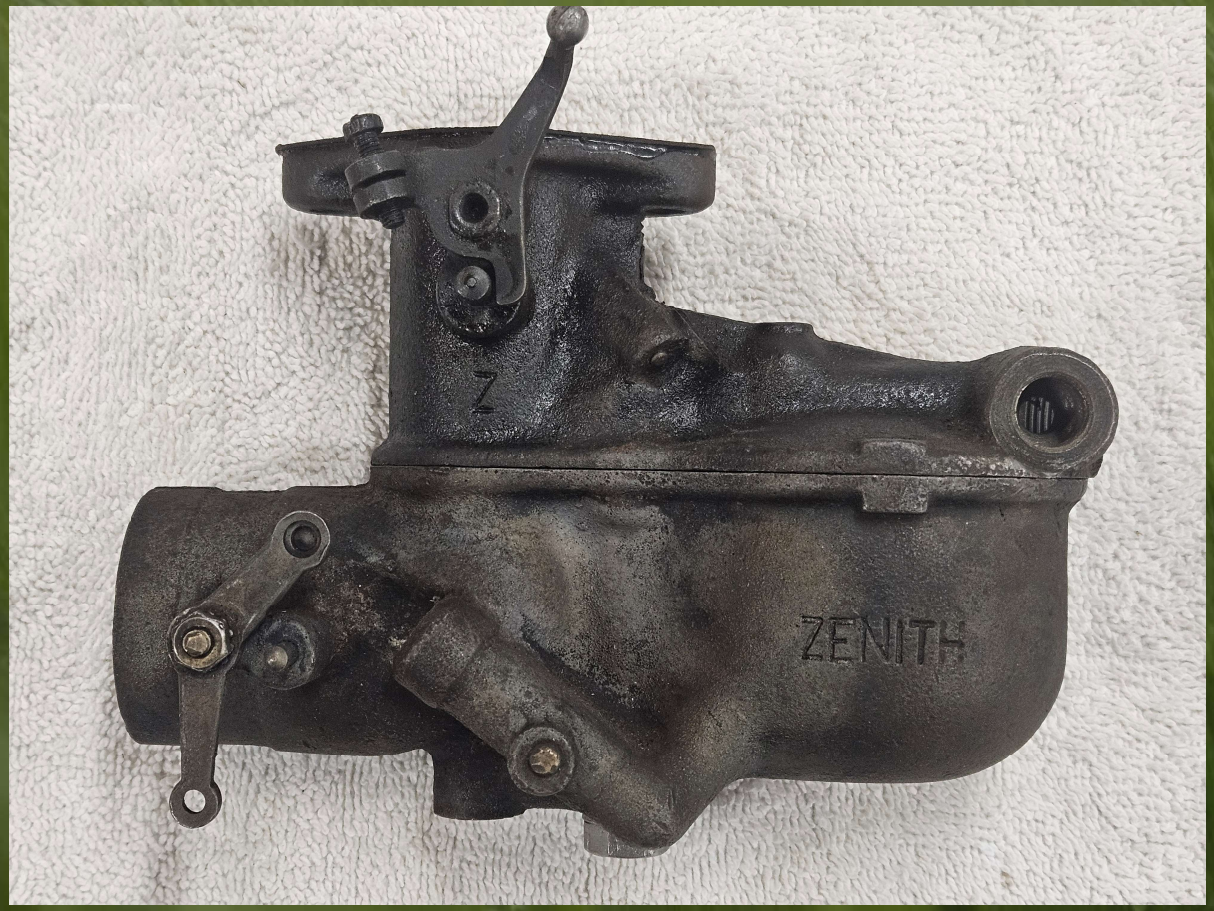
For General Use:

Upper and Lower Bodies may be mismatched
Zenith (Zenith-1) uppers will work with Holley (Zenith-2) lowers and vice versa

It is suggested NOT to mix Early Carburetors (Double Venturi) with later

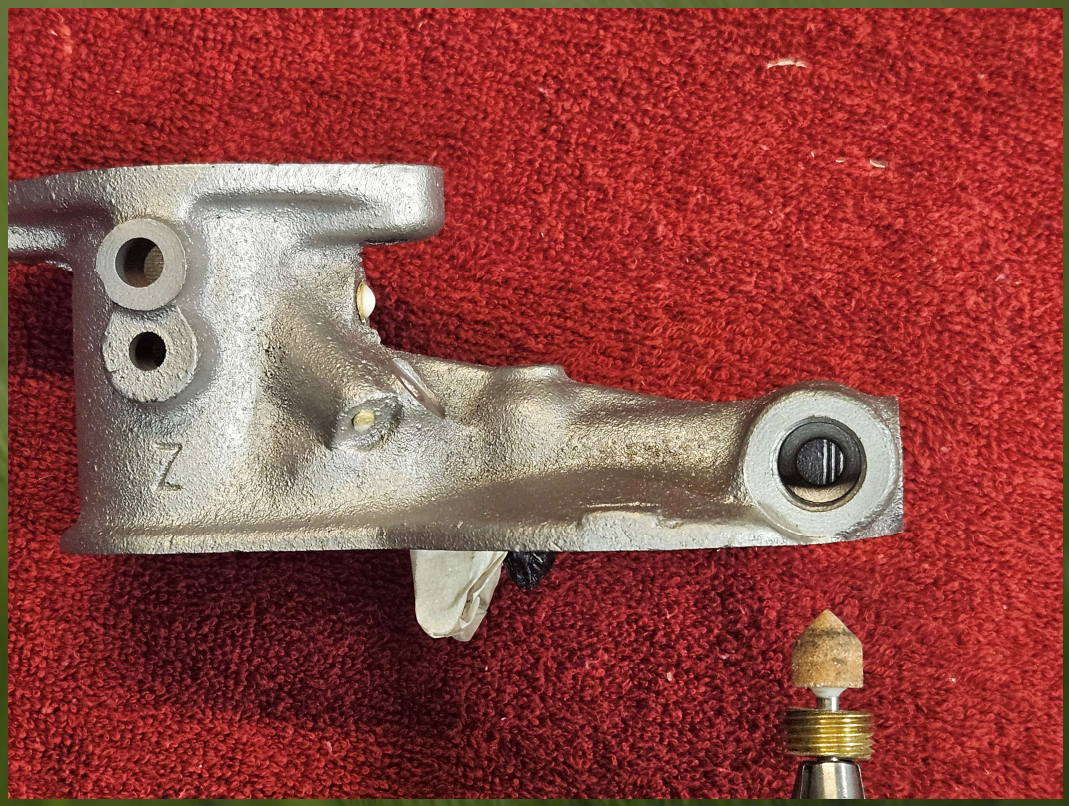

Restoration Process

Used Carburetor



Dress Fuel Inlet Seat

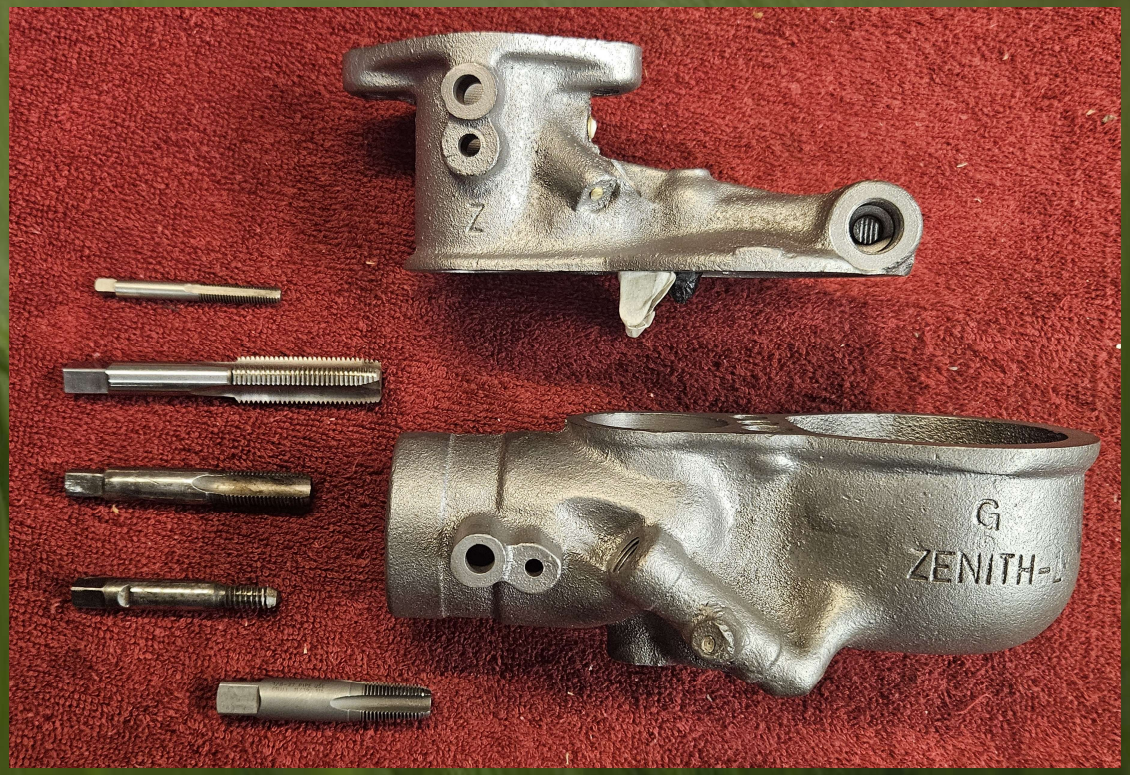
Just Remove any Pits



Check Passageways are Clear & Throttle Shaft not too loose (Bush or Oversize Shaft)

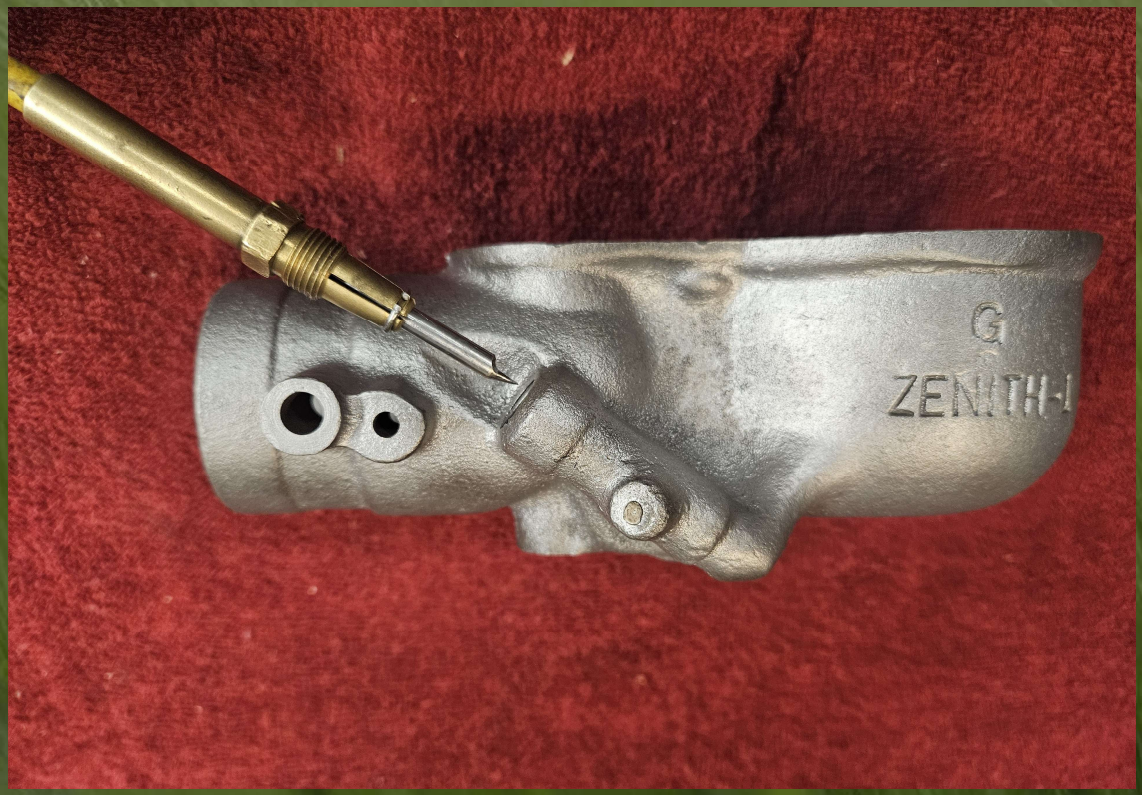
Chase Threads (Use Correct Taps)

5mm-.75	Main, Cap & Comp Jets
½”-20 TPI	Float Valve
	Filter Assembly
	Fuel Inlet
3/8”-24 TPI	Body Bolt
	Secondary Well
	Drain Plug
5/16”-18	Mounting Flange
1/8”-27 NPT	GAV Housing



Check Passageways are Clear & Throttle Shaft not too loose (Bush or Oversize Shaft)

Hone GAV Seat (Integral Seats)



Chase Threads (Pre-1930 GAV Seat) 5mm-.75 Bottoming Tap

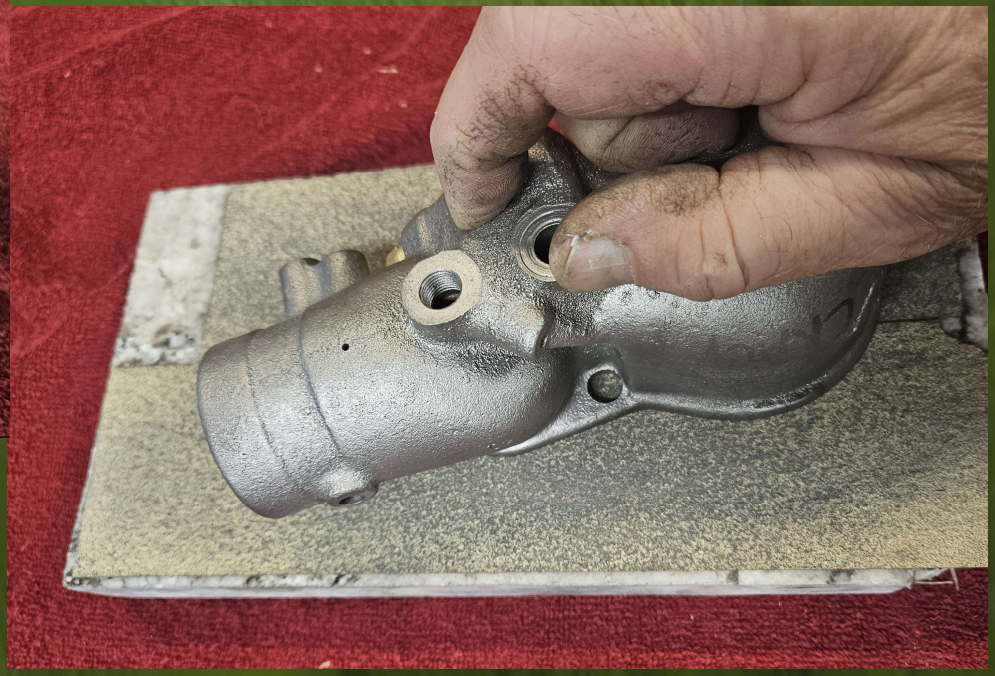
Repair of Secondary Well and Drain Plug Holes



3/8”-24 TPI Thread Repairs using Time-serts

Flatten Gasket Surfaces



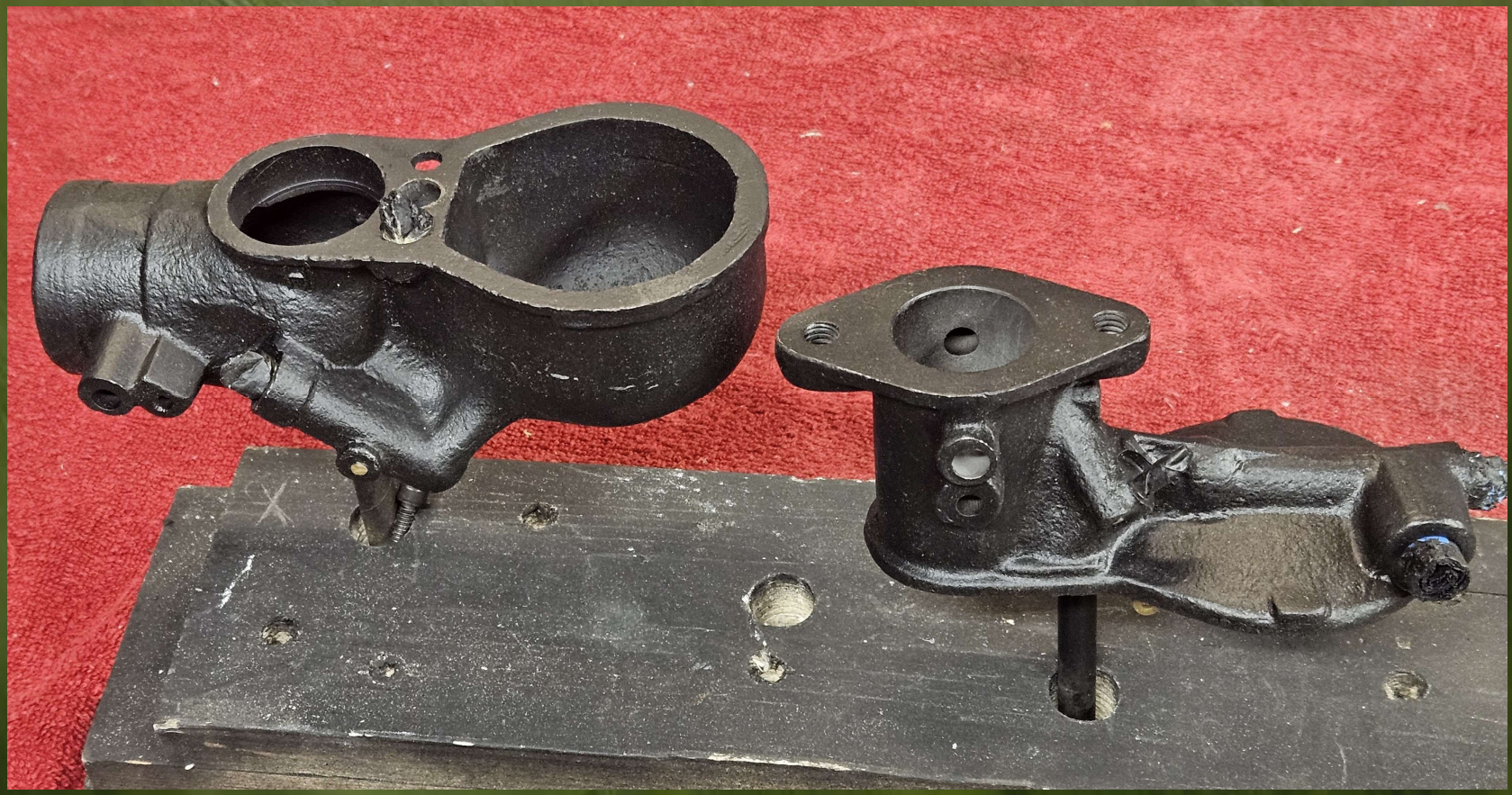


Stripped, Bead Blasted and Masked



Painted

Inside and Out using Eastwood 2K Paint



Assembly of Lower Body:

Install Secondary Well (Anti-Seize on Thread)

Install Compensator Jet with Gasket (Flow Tested ~ 150 ml/min)





Assembly of Lower Body:

Install Cap Jet with Gasket
(Flow Tested ~ 150 ml/min)
(Check 7/16” below Gasket Surface)

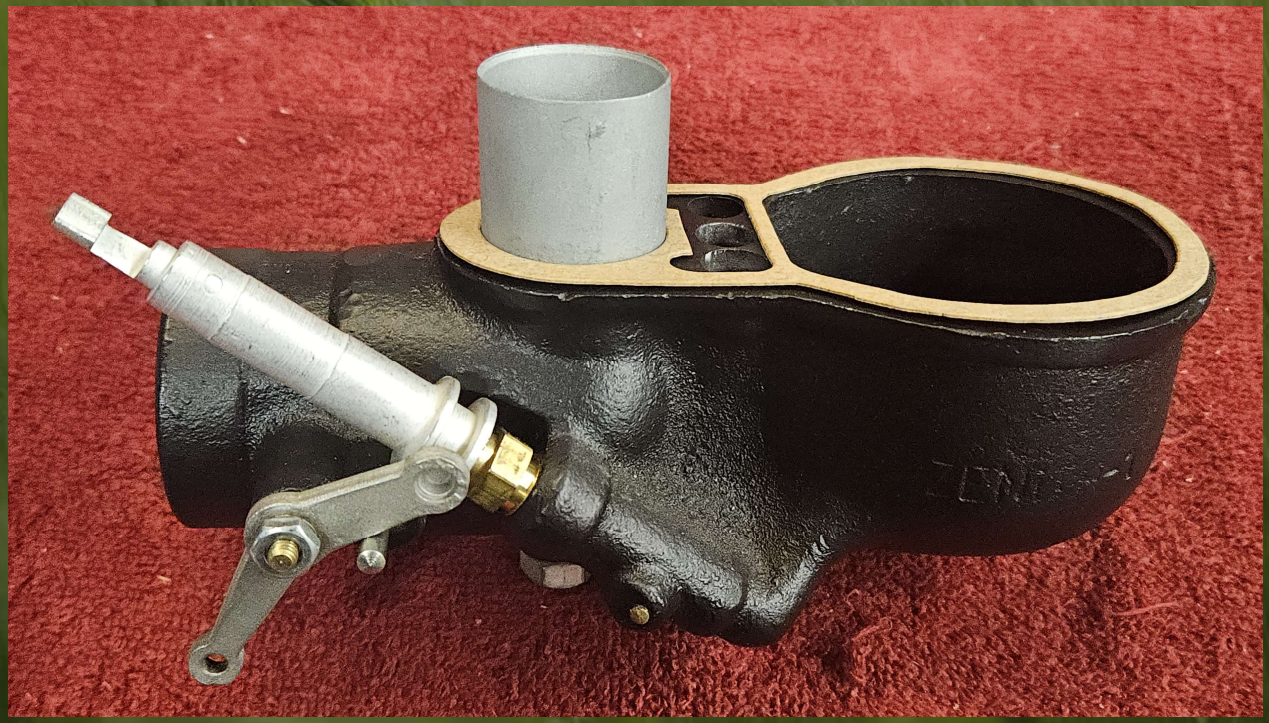


Install Main Jet with Gasket
(Flow Tested > 225 ml/min)
(Check 3/8” below Gasket Surface)



Assembly of Lower Body:

Install Brass GAV Seat with Gasket (All pre-1930)
Install (7/16” or 13/32”) GAV Housing* (use EZ Turn Lube)
Install GAV Needle and GAV Driver
Install Choke Shaft with Lever, Plate & Screws (use Thread lock)



Assembly of Upper Body:

Install Throttle Shaft (Back off Idle Screw)

Install Throttle Plate without Screws (Check Fit)



Hold in place & Install Screws (Use Thread Lock)

Assembly of Upper Body:

Install Float Valve with Gasket

Invert and Check Height of Float at Seam* 1 5/16” (1.3125”)

Adjust by using Shims – DO NOT BEND FLOAT ARMS



Assembly of Upper Body:

Note: Early and Later Style Float – Seams are Different

Check for Leaks, General Condition and Weight (Should be 31-32 grams)

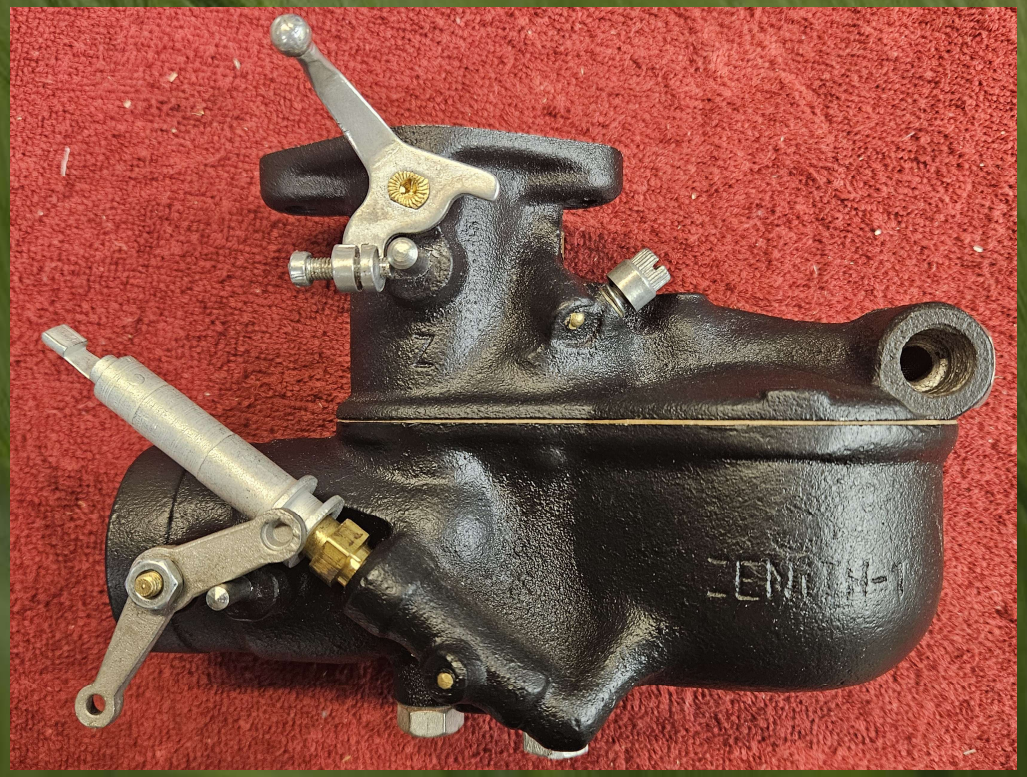


Early

Late

Assembly :

Install Idle Jet (Flow Tested ~ 50ml/min)
Install Air-Idle Screw, Cap and Spring (Turn CW then Back out 1 1/2Turns)
Install Venturi, New Body Gasket and Join with Body Bolt



Sidebowl

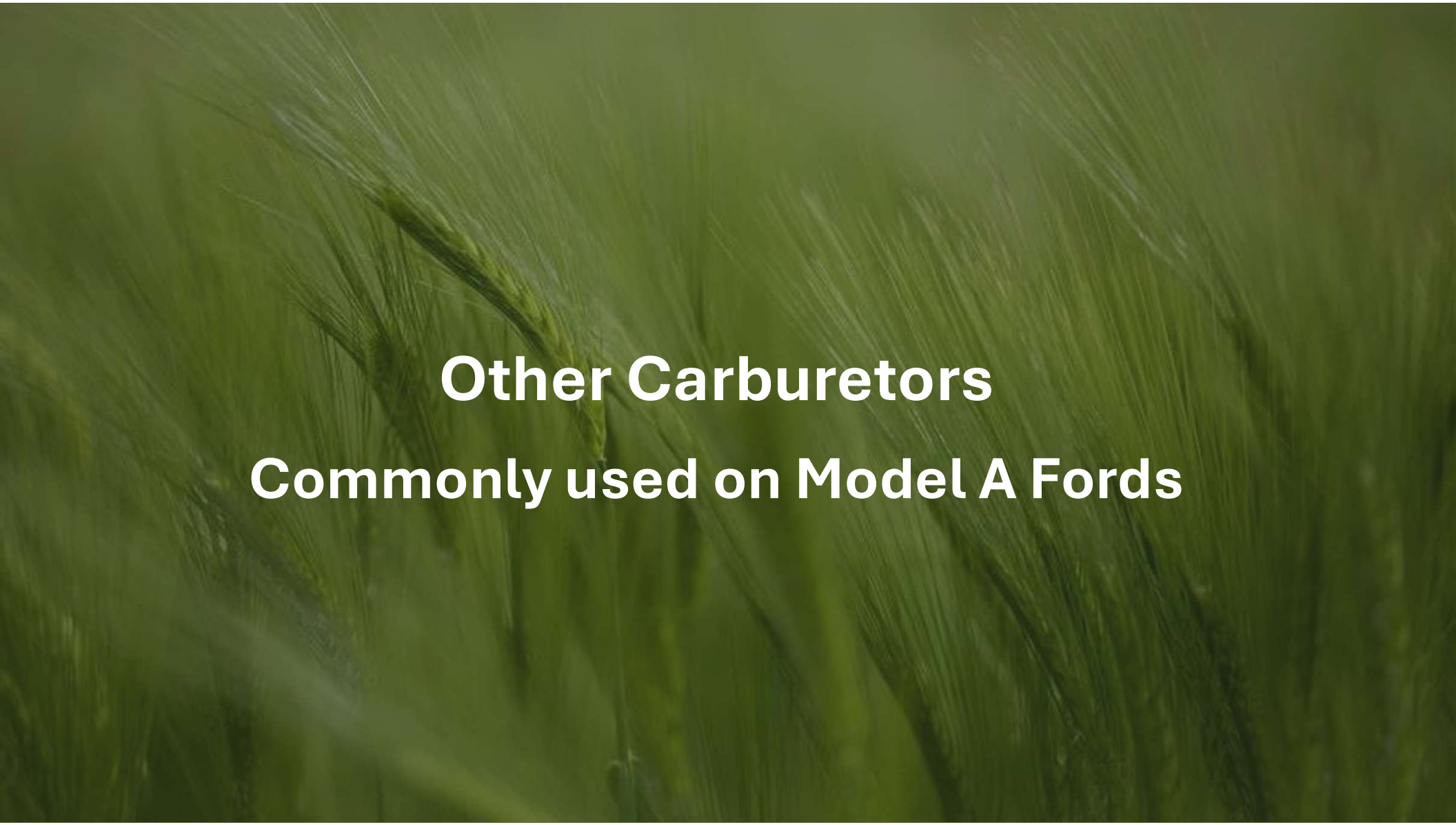


Before attaching carburetor to intake manifold:

- Rotate carburetor to hear float move
- Blow into fuel inlet to hear air flow, then turn up to hear flow stop

Attach carburetor to intake manifold:

- New gasket
- Good ferrule on fuel line at inlet (use EZ Turn lubricant)
- Check for leaks
- Check fuel level in bowl (5/8” +/- 1/16”)

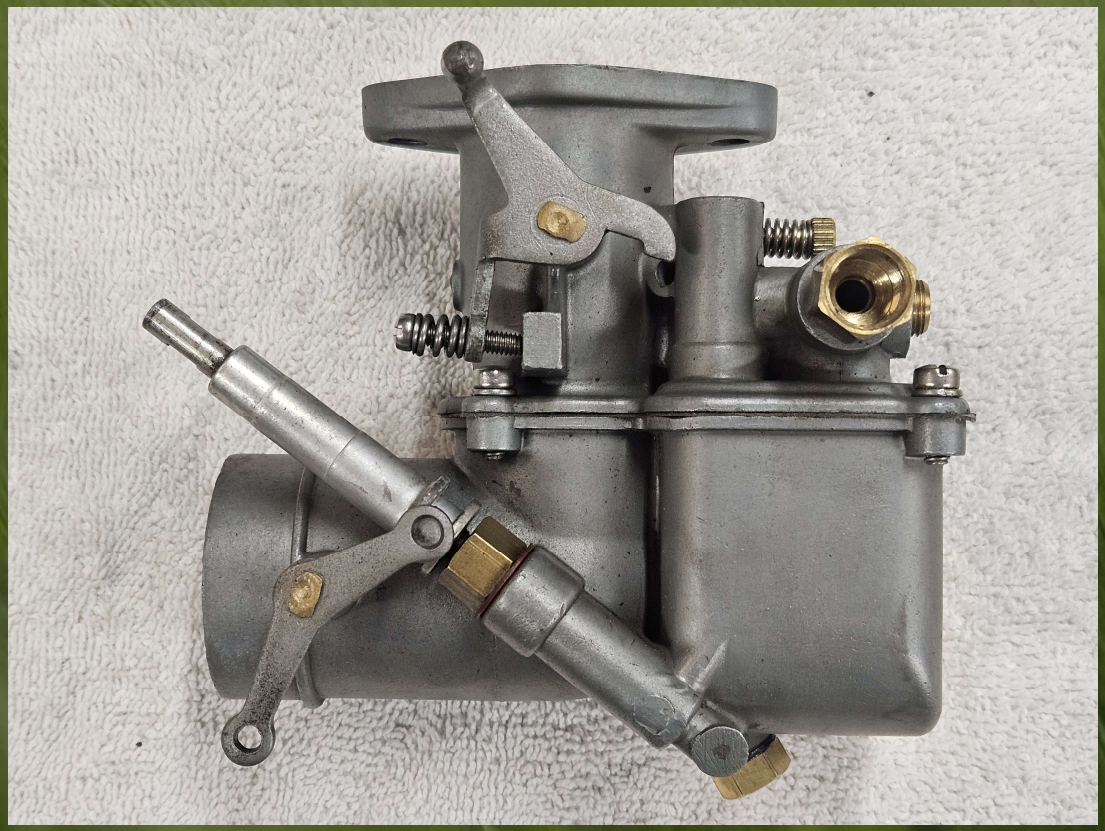


Other Carburetors

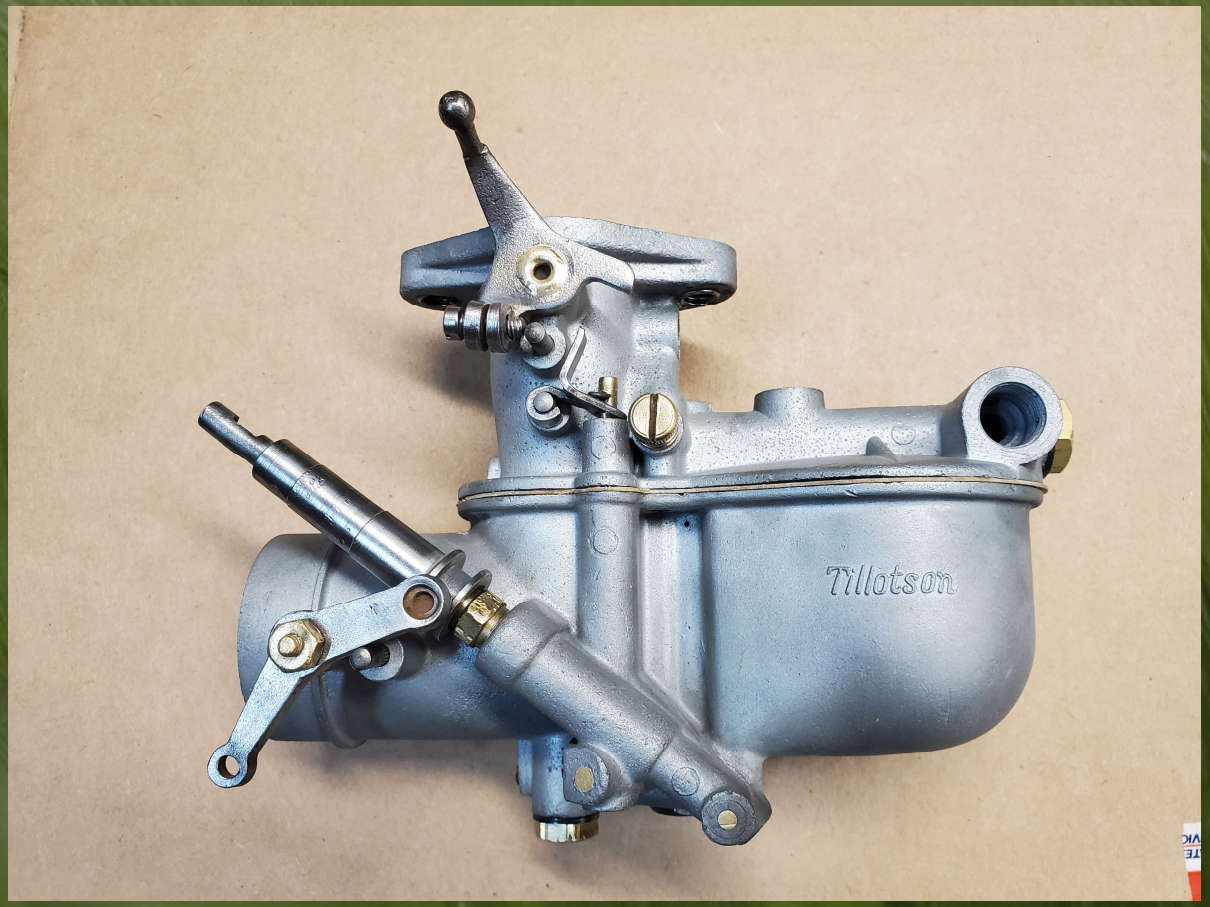
Commonly used on Model A Fords

Marvel-Schebler (Allstate, Sears 2405, Johnson Model JFA)

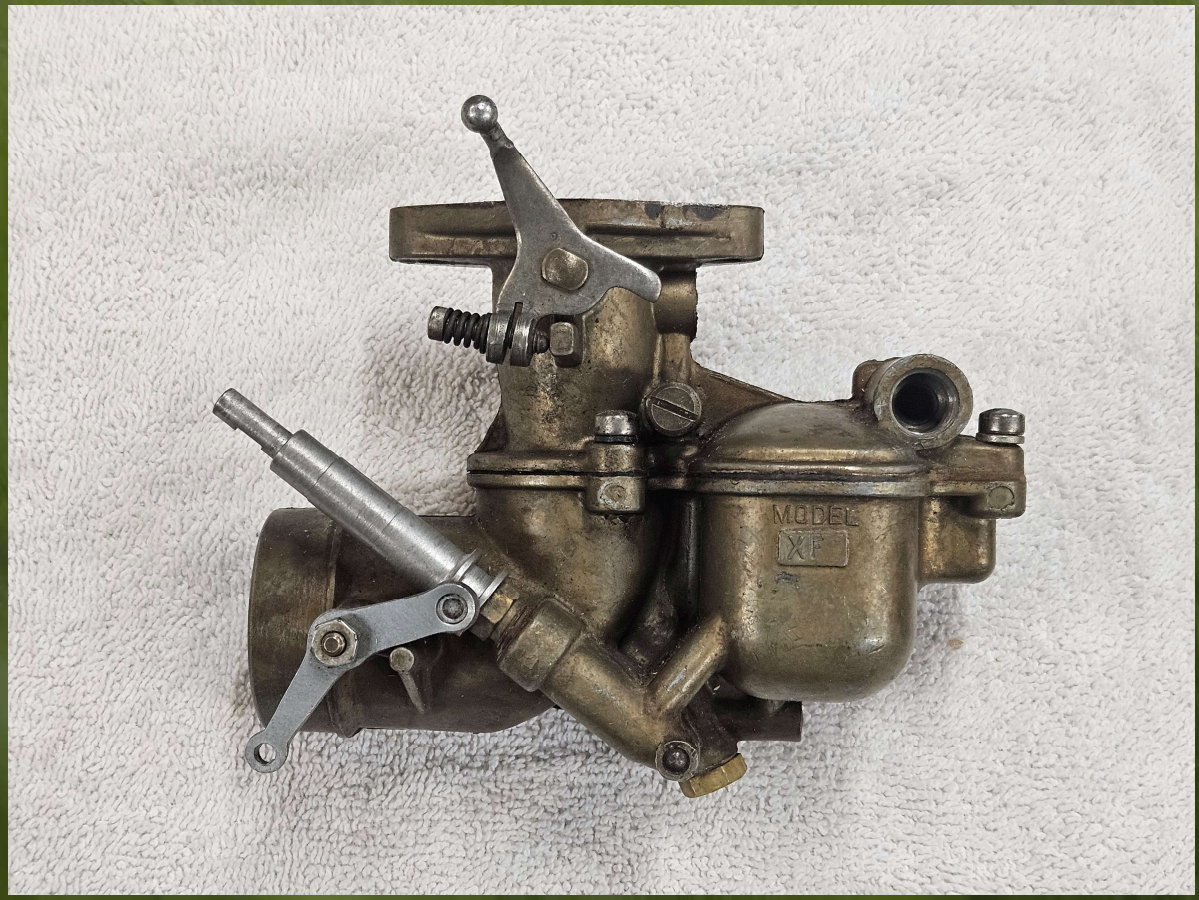
Ford Part No. B-9510-A2



Tillotson F1B (Parts not readily available)



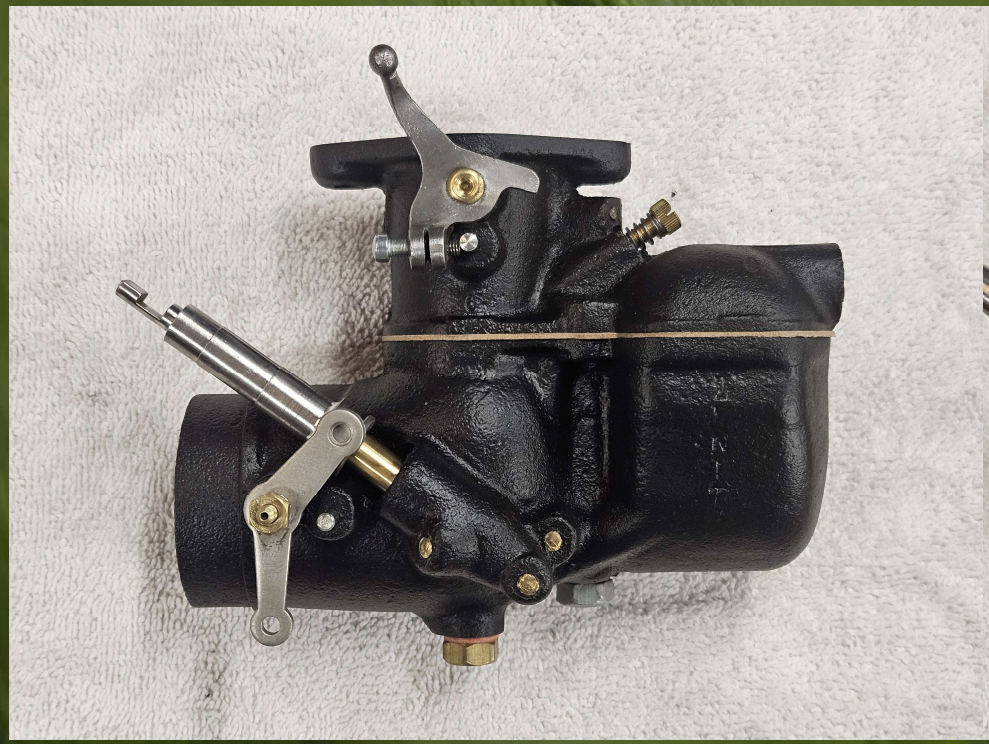
Tillotson X, ‘Unmarked X’ and XF
Ford Part No. B-9510-A3



Zenith 124 ½ (B-1)

Indented Zenith Drum-shaped Float Idle Port Centered

Intake Manifold should be opened to 1 1/8”

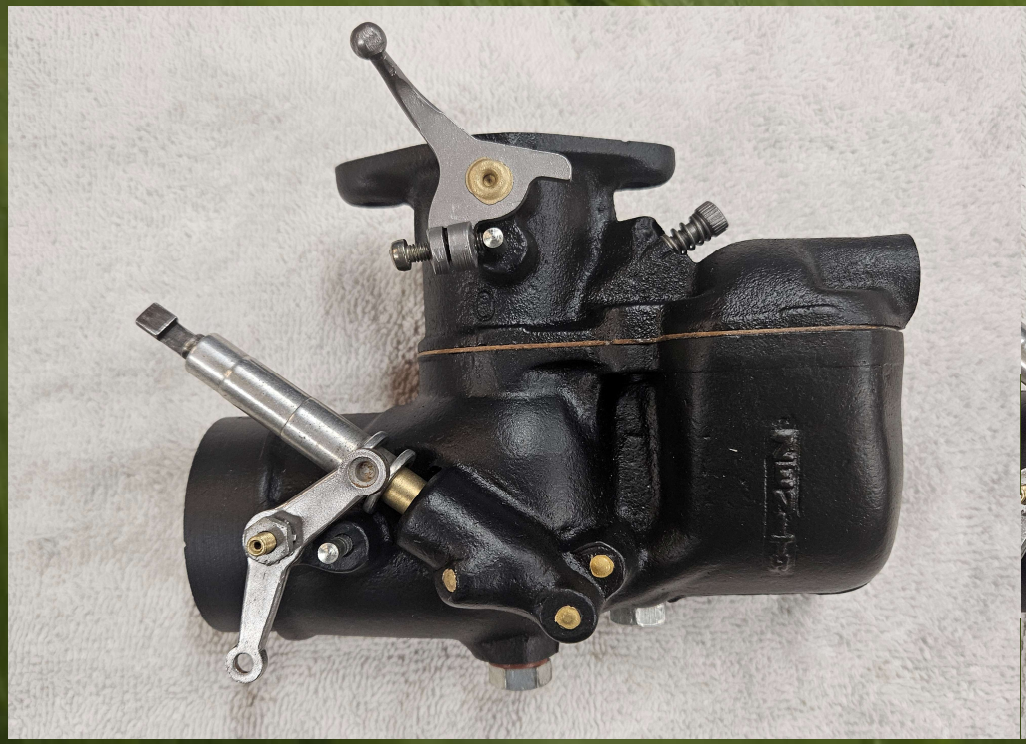




Zenith 124 ½ (B-2)

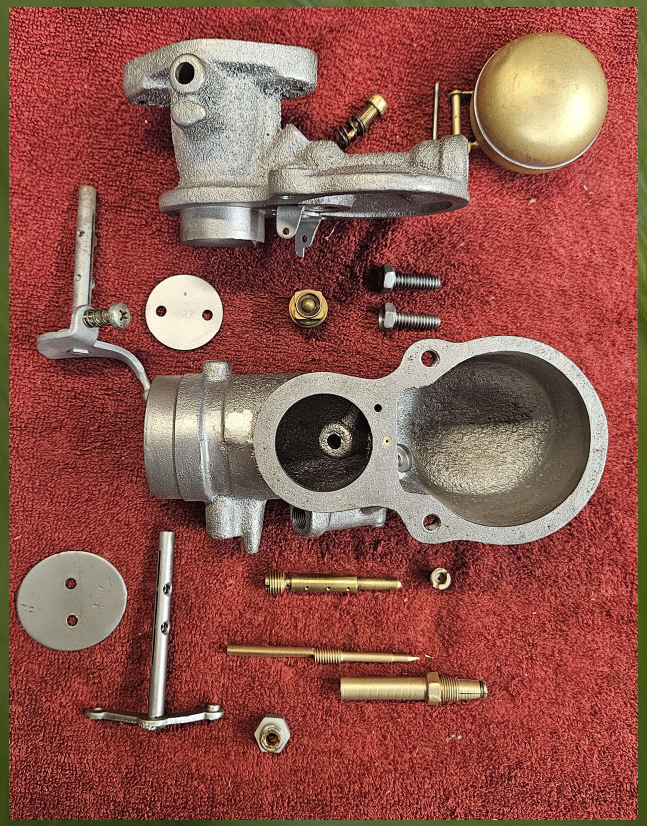
Raised Zenith Rectangular Float Idle Port Off-set

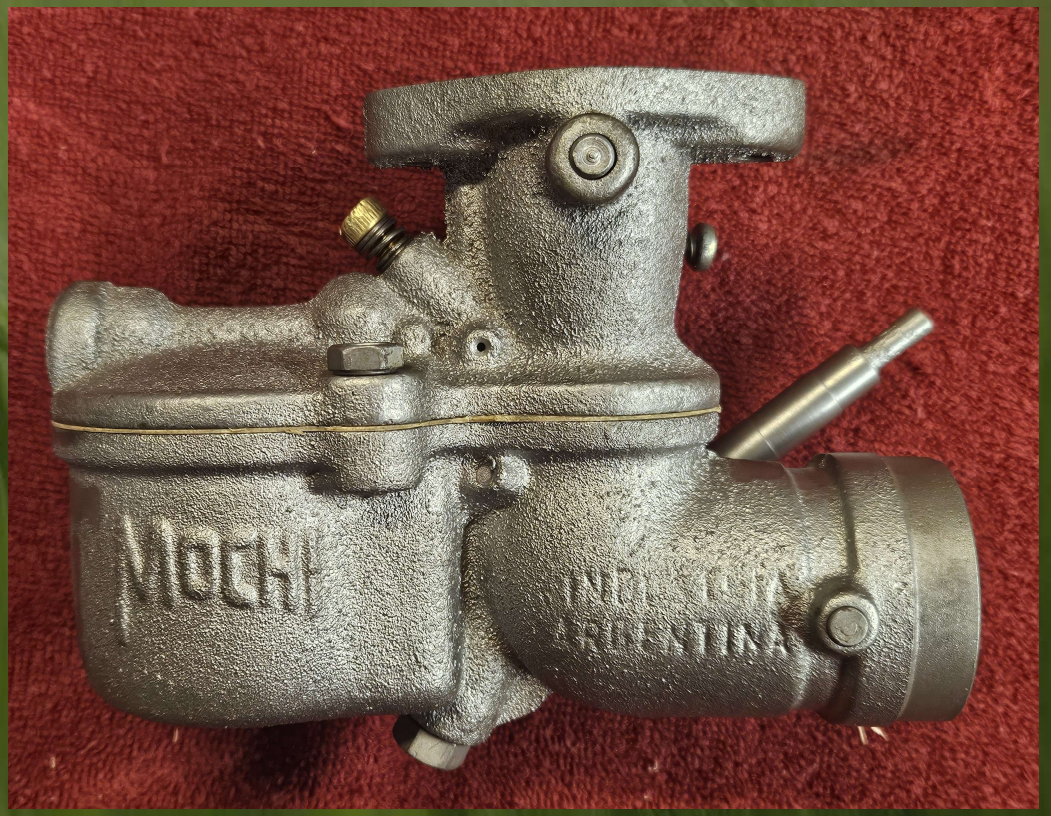
Intake Manifold should be opened to 1 1/8”



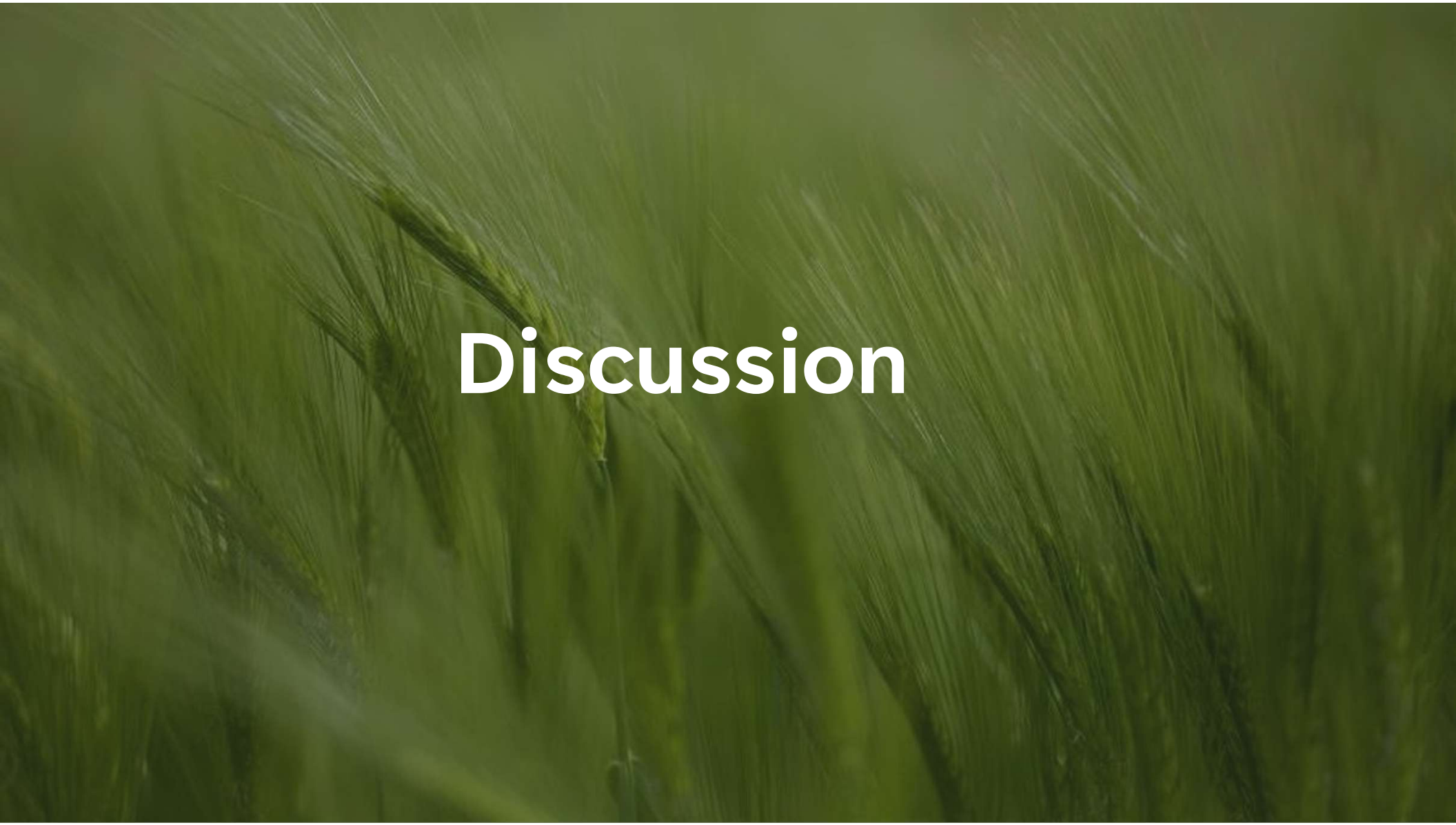


And one that is not so common





Mochi – Made in Argentina


Discussion