

The Shade Tree Mechanic

Model A Articles & Garage Stories

By Wade Ratzlaff

29 articles from the Shade Tree Mechanic collection.

San Fernando Valley Model A Club

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1. Shade Tree Tools Every Model A Owner Should Have

By Wade Ratzlaff, your Shade Tree Mechanic

Henry Ford was a clever man. He built a car tough enough to run on farm fuel, strong enough to haul the kids to school, and simple enough that even your uncle Earl could fix it with a pair of pliers, a hammer, and language not fit for Sunday school. But here's the truth: while the Model A is simple, it does not always surrender its secrets easily. That's where specialty tools come in.

Now, specialty tools are a funny thing. You don't know you need one until you're three hours into a "simple" job, knuckles bleeding, lying on your back in 100-degree weather under a truck that hasn't moved since Eisenhower was president. That's when you realize - Henry may have been clever, but he never met modern rust.

Here are a few tools that belong in every Model A owner's arsenal:

1. Brake Wedge Adjusting Tool

Yes, you can use a screwdriver. Yes, you'll slip and stab your hand. This little tool grabs the adjuster wedge just right and saves you from donating blood to your brake job.

2. Drag Link & Tie Rod Separator (a.k.a. "The Knuckle Buster")

Model A front ends hold together with tapered pins that were apparently designed by medieval blacksmiths. Without a separator, you'll swear, swing a hammer, and then discover you've bent something expensive. With one - pop! - the joint surrenders.

3. Steering Wheel Puller

Removing a Model A steering wheel without a puller is like trying to wrestle a bear out of a tree. The bear always wins. The puller makes it a civilized affair.

4. Rear Hub Puller

If you've ever tried to pull a rear brake drum with a claw hammer and a good attitude, you already know why this tool exists. The hub puller screws onto the axle threads, you tighten it down, add a few persuasive hammer taps, and the drum pops off - usually loud enough to scare the neighbor's cat.

5. Torque Tube Sleeve Puller

This one separates the "touring-ready" folks from the "shade tree dreamers." If you've ever had to pull a driveshaft bushing without the proper tool, you know it's an all-day affair. With the right puller, it's a 20-minute job. That's the difference between still wrenching at midnight or enjoying pie at the tour banquet.

6. Grease Gun with Needle Tip

Henry put grease fittings in places only a contortionist can reach. The needle tip adapter is your best friend for those fittings hidden behind springs, rods, and whatever else is in the way.

7. Homemade Inventions

Every Model A owner eventually invents a tool: a bent screwdriver, a chunk of PVC pipe (don't ask), or a welded contraption that looks like something from a sci-fi movie. Write your name on it, because once your buddies borrow it, it will *never* come back.

Final Thought

The Model A is a forgiving machine. With enough determination (and maybe some improvised plumbing supplies), you can keep one running forever. But with the right specialty tools, you'll spend less time fighting rust and more time driving - exactly what Henry intended.

And besides, collecting tools is half the fun. The other half is explaining to your spouse why the garage is full of strange metal contraptions that "look like medieval torture devices."

2. Brake Adjustment Demystified (or, Why Won't This Car Stop Straight?)

By Wade Ratzlaff, your Shade Tree Mechanic

When Henry Ford built the Model A, he decided hydraulic brakes were unnecessary. Instead, he gave us a system of rods, wedges, and levers that work beautifully - as long as everything is adjusted just right. The problem is, "just right" is a moving target. After all, we're talking about 90-year-old parts, human error, and that one gremlin who sneaks into the garage at night to tighten one rod and loosen another.

So here's how to make sense of the madness and get your A to stop without pulling left, right, or straight into the neighbor's prize rose bushes.

Step 1: Start with Good Shoes

Before you touch an adjuster, make sure the brake linings aren't worn down to the rivets. Worn shoes won't adjust properly, and rivets make terrible friction material. (Though they *will* make sparks that impress small children.)

Step 2: Equalize the Foundations

Jack up all four wheels. Yes, all four. Trying to adjust brakes with two wheels on the ground is like tuning a piano with earmuffs on. Each wheel should spin freely - if one doesn't, you already know where the trouble starts.

Step 3: The Famous Wedge Adjusters

Each front and rear brake has a little wedge that moves the shoes in or out. You'll need the special brake adjusting tool here (see last month's article, "Shade Tree Tools You Can't Live Without," or, if you missed it, ask around - someone in the club will have one, probably painted bright orange so it doesn't disappear).

Turn the adjuster until the wheel locks up, then back it off about a quarter turn until it just spins freely. That's your sweet spot. Repeat for each wheel.

Step 4: Adjust the Rods

Now comes the fun part - the rods that connect all four corners to the brake pedal. These rods should be adjusted so that all four wheels start to apply at the same time when you push the pedal about an inch.

Here's a trick: put a friend in the driver's seat (preferably someone who owes you a favor). Have them press the brake pedal slowly while you spin each wheel. If one wheel grabs early or late, adjust that rod. Keep going until all four grab together. If your helper complains about sore legs, tell them Henry designed this as a workout program before gyms were invented.

Step 5: Test Drive (a.k.a. The Moment of Truth)

Take the car out somewhere safe (not downhill, not toward a pond). Apply the brakes firmly. If the car pulls, repeat Step 4 until it behaves. Remember, the Model A should stop in a straight line - not diagonally into a fence post.

Step 6: Accept Reality

Even with perfect adjustment, mechanical brakes require a firm leg and a good deal of faith. They won't match modern disc brakes, but when adjusted right, they're more than adequate for the speeds these cars were designed to go.

Final Thought

Adjusting Model A brakes isn't black magic - it just feels that way the first few times. With patience, the right tools, and maybe a few choice words, you can make your A stop like Henry intended: slowly, steadily, and, if you're lucky, in front of the ice cream shop instead of past it.

3. The Marvels of the Marvel Carburetor

By Wade Ratzlaff, your Shade Tree Mechanic

The Model A's carburetor is a simple device. It mixes fuel and air in just the right ratio to keep the engine running smoothly. In theory, it's foolproof. In practice, it has been blamed for everything from hard starting to poor fuel economy to the stock market crash of 1929.

Here's what every Model A owner should know about that little pot-metal marvel hanging off the side of the intake manifold.

Step 1: Respect the GAV

The *Gas Adjusting Valve* (that knob on the dashboard) is your carburetor's personality dial. Too far open and you're running rich enough to fumigate the neighborhood. Too far closed and you'll cough and stumble like a high schooler at his first dance. Most Model As like 1/4 to 1/2 turn open once warmed up, but yours will have its own opinion.

Step 2: Cleanliness Is Next to Drivability

Inside the carburetor are tiny passages and jets that don't appreciate dirt, rust flakes, or whatever was floating in that questionable gas can you found in the shed. A good cleaning with carb cleaner and compressed air works wonders. (Pro tip: aim the spray away from your face unless you enjoy the "burning eyeball" sensation.)

Step 3: Float Level Matters

The float sets the fuel height in the bowl. Too high and gas will dribble out everywhere, making your garage smell like a Prohibition-era speakeasy. Too low and the engine starves. Set it right, and you'll be rewarded with smooth running and fewer fire hazards.

Step 4: Don't Forget the Idle

There's a little screw on the carb that controls the idle mixture. Adjust it until the engine idles nice and smooth. If it starts to shake like a washing machine full of bricks, you've gone too far.

Final Thought

The Marvel carburetor is like your favorite uncle: simple, reliable, and a little touchy if you don't treat it right. Get to know its quirks and it'll reward you with years of faithful service - and a smell of raw gasoline that doubles as a free cologne.

4. Grease Is the Word: A Model A Lubrication Guide

By Wade Ratzlaff, your Shade Tree Mechanic

Henry Ford didn't believe in lifetime lubricated parts. In fact, he believed in the opposite: grease fittings everywhere, each one demanding your attention on a regular basis. Owning a Model A without a grease gun is like owning a dog without a leash - it's just not going to end well.

How Many Points Are There, Anyway?

Depending on who's counting, there are over 20 grease points on a Model A: pedals, springs, tie rods, water pump, U-joint, steering box, and even the distributor shaft. Miss one and you'll know about it eventually, usually in the form of a squeak loud enough to scare pigeons off the telephone wires.

The Ritual

1. Warm up the grease gun (translation: find where you left it last spring).
2. Pump until you see fresh grease ooze out - or until you realize you've been greasing the wrong fitting for 10 minutes.
3. Wipe off the excess unless you enjoy collecting dust, dirt, and small mammals under your car.

Types of Grease

In Henry's day, grease was grease. Today, you'll hear debates worthy of a Supreme Court case: chassis grease vs. water pump grease vs. moly vs. corn head. Truth is, as long as you're greasing regularly, your Model A will be happier than a pig in - well, grease.

Commonly Forgotten Fittings

- **Speedometer drive gear:** forget this one and you'll be guessing your speed (which, to be fair, is half the fun).
- **Clutch and brake pedals:** dry bushings here will make you sound like an old door hinge every time you stop.
- **Distributor shaft:** yes, even your ignition system wants grease.

Final Thought

A Model A that's properly greased will run smoother, last longer, and keep you from having to explain to your spouse why you need yet another new part. Remember: grease is cheap, parts are not, and Henry gave you a map - use it!

5. Silent Running: Chasing Down Model A Noises

By Wade Ratzlaff, your Shade Tree Mechanic

If your Model A makes no unusual noises, check again - you may have accidentally parked a modern car in the garage. Model As creak, groan, rattle, and squeak like a herd of squirrels with tambourines. The trick is learning which noises are normal, and which mean “pull over before something falls off.”

- **Clunks in the rear end:** Likely u-joint or differential play. (Think of it as Henry’s way of keeping you humble.)
- **Whines in the transmission:** Normal. The Model A gearbox is more musical instrument than machine.
- **Front-end shimmy:** Usually kingpins, wheel bearings, or toe-in. Sometimes solved by swearing loudly.
- **Exhaust leaks:** That “chuff chuff” at idle. Easy fix - if you don’t mind standing on your head to change the gasket.

Final Thought: Don’t panic. A little noise is part of the Model A soundtrack. The goal is to distinguish “old-car symphony” from “expensive solo.”

6. Cooling It Old-School: Beating Overheating

By Wade Ratzlaff, your Shade Tree Mechanic

The Model A was designed for 1920s dirt roads, not Los Angeles freeways at rush hour in August. Still, overheating can be managed if you pay attention.

- **Radiator condition:** A plugged core cools like a brick wall. Re-coring may cost as much as your first A, but it works.
- **Fan belt tension:** Too loose and you're blowing hot air (literally). Too tight and you'll wear out bearings.
- **Water pump grease:** Not too much - unless you enjoy fountains under the hood.
- **Timing:** Late spark = hot engine. Advance that lever like Henry intended.

Final Thought: Keep an eye on the motometer. If it's boiling over, don't just add water - find the cause. Otherwise, you'll soon have a very expensive tea kettle.

7. Model A Electrical System 101: Six Volts of Glory

By Wade Ratzlaff, your Shade Tree Mechanic

Modern drivers expect instant starts, bright lights, and power everything. Model A owners get six volts, a generator that loafs along at 12 amps, and wiring that was last fresh during Prohibition.

- **Grounds are king:** A shiny clean ground strap will solve more problems than any fancy part.
- **Battery cables:** Use the fat ones - Model A electrons don't like skinny wires.
- **Generator cut-out:** Works like a one-way valve for electricity. Failures here are common, but modern diode replacements help.
- **Lights:** If your headlights glow like candles, don't blame Henry - blame dirty contacts or poor grounds.

Final Thought: Six volts work fine if everything's maintained. Resist the urge to "fix" it with 12 volts unless you like frying horns and blowing bulbs.

8. Straight and True: Front End Alignment Basics

By Wade Ratzlaff, your Shade Tree Mechanic

If your Model A wanders like a politician's promises, chances are the front end alignment is off. Henry didn't expect laser machines - he expected owners with a tape measure and patience.

- **Toe-in:** About 1/16" narrower at the front of the tires than the back. Eyeballing doesn't count.
- **Camber & caster:** Set by the axle and wishbone - if they're bent, it's blacksmith time.
- **Kingpins & bushings:** Worn ones make the steering wheel feel like you're herding cattle.
- **Tire pressure:** Low pressure = wandering, plus free exercise for your arms.

Final Thought: A properly aligned Model A will drive straight enough that you can wave at spectators instead of fighting the wheel.

9. The Art of Hand Cranking

By Wade Ratzlaff, your Shade Tree Mechanic

The Model A comes with a hand crank, partly for emergencies and partly for entertainment. Hand cranking is safe - if you know the rules. Otherwise, you risk a sprained wrist, broken arm, or a new nickname from your buddies.

1. **Timing first:** Spark lever full up. Forget this and the engine may kick back faster than you can say “ouch.”
2. **Thumb out:** Always grip with fingers only. Never wrap your thumb around the crank unless you like casts.
3. **Quarter pull:** Pull up smartly from 7 o'clock to 12 o'clock. Never push down.
4. **Prime it:** A couple turns with the key off and choke pulled helps. Then key on, choke off, one more pull - vrooom!

Final Thought: Hand cranking connects you to 1928 in a way no starter button can. Just do it right, so you don't also connect to the emergency room.

10. Modern Conveniences, Vintage Style: Safety Upgrades That Don't Spoil the A

By Wade Ratzlaff, your Shade Tree Mechanic

You don't have to chop, channel, or chrome a Model A to make it safer for modern roads. A few discreet upgrades keep you safe without spoiling Henry's lines.

- **Turn signals:** Magnetic LED units or discreet fender lamps beat arm signals at night.
- **Seat belts:** Purists grumble, but belts keep grandkids (and you) in the car.
- **Safety glass:** Laminated glass up front is a smart swap if you drive often.
- **Reflectors:** Tiny stick-on dots can make your tail lights less invisible.

Final Thought: The trick is subtlety - make it safe, keep it looking period. Henry would approve, especially if he had to survive LA traffic.

11. Jack of All Trades: Safely Lifting a Model A

By Wade Ratzlaff, your Shade Tree Mechanic

Jacking up a Model A isn't rocket science, but it *can* lead to rocket-like results if you're careless.

- **Use the right jack:** A bottle jack works fine. The original Ford screw jack is charming but better suited as a conversation piece.
- **Jack points:** Axle housings, not sheet metal. Unless you *want* to practice panel beating.
- **Always block wheels:** Model As roll easier than you'd like.
- **Jack stands:** If you crawl under without them, make sure your will is current.

Final Thought: A little safety goes a long way. Besides, nothing kills tour spirit like getting pinned by your own car.

12. Torque Tube Troubles (and Triumphs)

By Wade Ratzlaff, your Shade Tree Mechanic

The torque tube: that big steel pipe that carries power to the rear wheels *and* contains enough grease to lubricate an oil tanker.

- **Why it matters:** Keeps the driveshaft in line. Worn bushings cause clunks, leaks, and colorful language.
- **Pulling it:** Requires patience, muscles, and friends you won't mind losing.
- **Bushings & seals:** Replace while you're in there - unless you enjoy redoing jobs twice.

Final Thought: Wrestling a torque tube is a rite of passage. Finish it and you've truly earned your Model A stripes.

13. Portable Road Kit: Touring Essentials

By Wade Ratzlaff, your Shade Tree Mechanic

Every Model A should carry a survival kit. The list varies, but here's the core:

- Points, condenser, coil, plugs.
- Fan belt & water.
- Inner tube & tire pump.
- Tools for every nut and bolt you can reach.
- Wire, tape, baling twine (trust me).

Final Thought: Carry the spares, and you'll never need them. Leave them home, and you'll break down in front of the only gas station without a phone.

14. Why Henry Did It That Way

By Wade Ratzlaff, your Shade Tree Mechanic

Ever wonder why Ford used mechanical brakes, a gravity fuel feed, or a three-speed unsynchronized transmission? Simple: cost, simplicity, and “good enough.”

- **Mechanical brakes:** Cheaper and reliable in 1928 traffic.
- **Gravity fuel feed:** No pump to break. Gasoline flowed downhill.
- **No synchros:** Farmers didn’t need fancy gearboxes - they had double-clutch legs.

Final Thought: Henry didn’t overbuild. He built what worked for millions of people at the lowest price. Ninety years later, we’re still rolling - proof he was right.

15. From Factory to Freeway: Then and Now

By Wade Ratzlaff, your Shade Tree Mechanic

Model As rolled out when 45 mph was daring. Today, we merge with SUVs doing 80.

- **Gearing:** Stock gearing is fine for backroads. Overdrives help on freeways.
- **Brakes:** Good adjustment makes them safe, but leave space for modern tailgaters.
- **Suspension:** Stiff, but surprisingly comfortable - until you hit potholes.

Final Thought: You don't need to modernize a Model A to enjoy it. Just pick your roads wisely, wave often, and let traffic flow around you.

16. The Evolution of Brakes: From Mechanical to Hydraulic

By Wade Ratzlaff, your Shade Tree Mechanic

Henry stuck with mechanical brakes while Chevy boasted hydraulics. Was he wrong? Not really.

- **Mechanical advantages:** Simple, reliable, easy to fix roadside.
- **Hydraulic advantages:** Self-equalizing, less pedal effort.
- **Conversions today:** Available, but most restorers agree - if your rods are right, mechanical brakes are plenty.

Final Thought: Don't knock Henry's choice. Properly adjusted mechanical brakes can lock all four wheels. How much more do you need?

17. Fuel Then and Now: Ethanol's Revenge

By Wade Ratzlaff, your Shade Tree Mechanic

Henry designed the Model A to run on almost anything, including moonshine. Modern gas with ethanol, however, creates headaches.

- **Issues:** Absorbs water, corrodes tanks, rots rubber.
- **Solutions:** Use ethanol-resistant hoses, drain the carb if storing, and add stabilizer.
- **Best fuel:** Ethanol-free if you can find it. Your Model A will purr with gratitude.

Final Thought: Treat ethanol like a bad relative - you have to live with it, but precautions make the visits bearable.

18. The Case of the Disappearing Part

By Wade Ratzlaff, your Shade Tree Mechanic

Every Model A repair involves losing at least one part. Nuts roll under benches. Cotter pins vanish into another dimension. Entire torque tubes go missing (don't ask).

The solution?

1. Look everywhere twice.
2. Accuse your spouse.
3. Buy a replacement.
4. Discover the original the next day in your pocket.

Final Thought: Missing parts aren't lost - they're hiding until you no longer need them. It's part of the Model A's sense of humor.

19. When a Two-Hour Job Becomes a Two-Day Project

By Wade Ratzlaff, your Shade Tree Mechanic

We've all said it: "I'll just replace that real quick." Famous last words.

- **Stuck bolts:** Hours of penetrating oil, heat, and persuasion.
- **Hidden problems:** Fix one thing, discover three others.
- **Reassembly puzzles:** The part that came out easily never goes back the same way.

Final Thought: Don't fight it. A Model A will always take twice as long as planned. But the stories you collect in the process are worth it.

20. Guide to Tuning a Model A Ford

Compression, Spark, Carburetion - and Knowing Which One to Blame

There is an old rule in Model A mechanics: **before you start adjusting things, figure out what is actually wrong.**

That sounds obvious, but anyone who has owned a Model A longer than about three weeks knows how this usually works. The engine starts running rough, so we adjust the carburetor. That doesn't fix it, so we change the points. Then we advance the timing, retard the timing, clean the plugs, adjust the carburetor again, replace the condenser, and eventually discover that cylinder number three had a burned exhaust valve the entire time.

By then the Model A may still run badly, but at least we've disturbed nearly every adjustment Henry Ford carefully specified.

A proper Model A tune-up should be approached in three steps, and the order matters:

1. **Compression and mechanical condition**
2. **Ignition**
3. **Carburetion**

Think of it this way: the engine needs something to squeeze, something to spark, and something to burn. If it can't squeeze properly, there isn't much sense blaming the carburetor.

The Shade Tree Toolbox

You don't need a computerized diagnostic machine, an oscilloscope, or a fellow wearing a shirt with his name embroidered over the pocket. A surprisingly small collection of tools will tell you quite a bit about the health of a Model A engine.

You should have:

- Compression gauge
- Vacuum gauge
- Battery hydrometer
- Voltmeter
- Feeler gauges
- Spark plug gap gauge
- Basic hand tools
- Oil can
- Hand crank
- A reasonable amount of patience

The last item is often the hardest to locate.

Modern compression gauges sometimes come with rubber adapters that are too small for the Model A spark plug opening. A larger rubber adapter can be fabricated from something such as a shock absorber rubber cushion. Model A mechanics have been manufacturing perfectly functional tools out of miscellaneous objects found around the garage since approximately five minutes after the first Model A warranty expired.

Part One: Compression - Before You Blame Everything Else

Compression testing tells you about the mechanical condition of the engine.

Before testing, run the engine until it reaches normal operating temperature. The pistons, rings, valves, and cylinders will then be approximately the dimensions they normally see while the engine is operating.

Shut the engine off and remove all four spark plugs.

Open the throttle completely.

Install your compression gauge into the first cylinder and crank the engine with the starter through approximately four or five revolutions, or until the gauge stops climbing.

Record the reading and repeat the test on the remaining cylinders.

On a healthy engine, the exact number is somewhat less important than **how close the four cylinders are to one another**. Ideally, the readings should be within approximately **5 to 10 pounds of each other**.

For example:

Cylinder 1 - 72 psi

Cylinder 2 - 74 psi

Cylinder 3 - 71 psi

Cylinder 4 - 73 psi

That's encouraging.

Something like:

Cylinder 1 - 72 psi

Cylinder 2 - 71 psi

Cylinder 3 - 48 psi

Cylinder 4 - 73 psi

means cylinder number three would like to have a conversation.

Two Low Cylinders Next to Each Other

If two adjacent cylinders have unusually low compression, suspect a possible **head gasket failure between the cylinders**.

Before dismantling anything, check the cylinder head nuts and torque them properly. A commonly used Model A specification is approximately **50 ft-lb**, although head type, gasket manufacturer, and engine configuration should always be considered.

Do not simply keep tightening head nuts in the hope that compression will eventually return. There is a fine line between properly torqued and "Well, now I need a new stud."

One Low Cylinder

If one cylinder is considerably lower than the others, perform a simple wet compression test.

Squirt a small amount of engine oil into the cylinder through the spark plug hole. Try to direct it toward the cylinder wall instead of flooding the valves.

Repeat the compression test.

If the compression **increases substantially**, the oil temporarily helped seal the piston rings. That points toward:

- Worn rings
- Stuck rings
- Worn cylinder walls
- Scored cylinders
- Piston problems

If the compression remains low even after adding oil, suspect:

- Burned valve
- Leaking valve
- Valve not seating properly
- Valve clearance problem

This little test can save you an enormous amount of unnecessary tinkering.

The Vacuum Gauge: The Model A Lie Detector

A vacuum gauge may be one of the most useful diagnostic tools you can attach to an old engine.

It doesn't tell you exactly what's wrong, but the needle's behavior gives you clues about what is happening inside the engine.

Before connecting the gauge, make certain the intake manifold connections are tight. Check the manifold nuts and gaskets. A vacuum leak will give you misleading readings.

With the engine warmed up and running properly, you may see approximately **17 to 21 inches of manifold vacuum**, depending on engine condition, elevation, camshaft, and other factors.

Don't become obsessed with one exact number. What matters greatly is whether the needle is **steady** and how it reacts when the throttle changes.

The Quick Throttle Test

With the engine idling steadily, quickly open the throttle and then let it close.

A healthy engine should generally:

- Drop vacuum sharply when the throttle opens
- Rise considerably above normal when the throttle snaps closed
- Settle back to a steady idle reading

A typical example might be:

Idle: 18-20 inches

Throttle opened: approximately 2 inches

Throttle closed suddenly: approximately 25 inches

Return to normal idle vacuum

That tells you the engine is breathing reasonably well.

What the Vacuum Needle Is Trying to Tell You

The vacuum gauge needle isn't nervous. It's reporting something.

Low but Steady Vacuum

A steady reading around **15 inches** may indicate:

- Worn piston rings
- Scored cylinder walls
- Damaged pistons
- Incorrect ignition timing

Use other symptoms and tests to narrow things down.

A steady reading closer to **10 inches** can suggest incorrect valve timing.

Slowly Wandering Needle

If the needle slowly wanders between roughly **14 and 16 inches**, look at:

- Ignition point adjustment
- Spark plug gap
- Carburetor adjustment

The engine may simply be unevenly burning the mixture.

Sticking Valve

A sticking valve may cause the vacuum needle to occasionally drop several inches and then return to normal.

This is particularly useful because an intermittent sticking valve can otherwise make you question everything you thought you understood about engines.

Burned or Leaking Valve

A burned or leaking valve can cause a repeated sharp drop in vacuum every time that cylinder comes around.

If the needle regularly drops at the same rhythm, pay attention.

Your Model A may be telling you exactly which cylinder is unhappy.

Weak Valve Springs

Raise the engine speed.

If the needle begins bouncing significantly at higher RPM, weak valve springs may be allowing the valves to float.

Weak springs might behave acceptably around town but become troublesome when the engine speed increases.

Of course, "high RPM" in a Model A is a relative term. Nobody is preparing for the Indianapolis 500 here.

Intake Leak

A serious leak at the:

- Intake manifold
- Manifold gasket
- Carburetor mounting gasket

can cause unusually low vacuum.

Before rebuilding the engine, make certain you're not dealing with something as simple as a loose manifold.

Compression Leak Between Cylinders

Large fluctuations, sometimes ranging between roughly **5 and 19 inches**, may indicate compression leaking between adjacent cylinders.

That brings the head gasket back onto the suspect list.

Restricted Exhaust

This is an interesting one.

If vacuum starts normally but then slowly drops toward zero while the engine continues running, suspect a restricted exhaust system.

A crushed exhaust pipe, internally collapsed muffler, or significant restriction can prevent the engine from breathing.

An engine is basically an air pump. If the exhaust can't get out, eventually the intake can't get in.

Don't Tune Around Mechanical Problems

If the compression and vacuum tests uncover:

- Burned valves
- Bad valve seats
- Worn cylinders
- Broken valve springs
- Severely worn rings
- Damaged pistons

stop the tune-up.

Fix the mechanical problem first.

You cannot adjust the carburetor enough to repair a burned exhaust valve, although generations of shade tree mechanics have certainly attempted it.

A Word About Model A Valves

Proper valve clearance is essential.

Valve tappet clearance affects when the valve actually opens and closes. If the clearance is incorrect, engine performance suffers.

Too little clearance can prevent a valve from fully seating as the engine warms up.

A valve that doesn't completely seat cannot properly transfer heat into the block. Eventually that valve may overheat and burn.

Symptoms can include:

- Poor idle
- Low compression
- Loss of power
- Overheating
- Difficult starting

Loose valve guides should be replaced, and weak or broken valve springs should also be corrected.

When performing valve work, don't grind the valve face excessively. Removing too much material changes how the valve contacts its seat and can create overheating problems.

Sometimes a new valve is cheaper than proving how talented you are with a grinder.

Part Two: Ignition - Where Electricity Becomes Motion

Once you know the engine is mechanically healthy, move to the ignition system.

The Model A ignition system is wonderfully simple, which unfortunately means every single connection matters.

Before touching the distributor, start with the battery.

Check the Battery First

A weak battery affects:

- Cranking speed
- Starting
- Ignition voltage
- Electrical testing

Make certain the battery terminals are clean and tight.

Corrosion can be cleaned using warm water and baking soda. Once everything is clean and dry, a light coating of petroleum jelly or appropriate terminal protectant helps slow future corrosion.

A hydrometer can be used on a conventional serviceable lead-acid battery to check specific gravity.

A fully charged battery cell might read roughly **1.270-1.280**.

A reading below approximately **1.225** indicates the battery should be charged before further electrical testing.

Remember that many Model A owners today use different battery technologies, so follow the battery manufacturer's recommendations when appropriate.

Check the Starter Circuit

On a Model A, voltage drop matters.

The original electrical system operates on only six volts. Losing half a volt through a dirty connection is much more significant on a six-volt system than on a modern twelve-volt system.

That's why Model A battery cables need to be heavy, connections need to be clean, and grounds need to be excellent.

While cranking the engine, battery voltage should remain reasonably strong. A substantial voltage collapse could indicate:

- Weak battery
- Excessive starter draw
- Poor cables
- Dirty connections
- Poor ground

Rather than automatically blaming the starter, test the circuit.

Grounds: The Invisible Trouble Maker

One of the best rules for troubleshooting an old Ford electrical system is:

When something electrical behaves strangely, clean the grounds before purchasing anything.

Check the battery ground connection carefully.

Also remember that electricity has to travel through the engine, frame, cables, switches, and various connection points.

Paint, rust, grease, corrosion, and ninety-something years of dirt aren't particularly good conductors.

A shiny connection is your friend.

Primary and Secondary Ignition

The Model A ignition system can be thought of as two sections.

Primary Circuit

The primary side includes components such as:

- Battery supply
- Terminal box connections
- Coil primary wiring
- Ignition switch
- Armored distributor cable
- Distributor points
- Condenser
- Associated wiring and connections

Loose or corroded connections create resistance.

Resistance creates voltage loss.

Voltage loss creates weak spark.

Weak spark creates poor starting and rough running.

And poor running creates a Model A owner standing alongside the road explaining to passing motorists that everything was working perfectly yesterday.

Secondary Circuit

The secondary ignition system includes:

- Coil high-voltage winding
- Coil wire
- Distributor rotor
- Distributor cap
- Spark plug connectors
- Spark plugs

Inspect all of it.

Look for:

- Carbon tracks
- Cracks
- Corrosion
- Loose terminals
- Damaged wires
- Burned contacts

Distributor Points

Remove the distributor cap and rotor and inspect the points.

They should be clean and flat.

Replace points that are badly:

- Burned
- Pitted
- Cratered

The generally accepted Model A point gap is approximately:

.018 to .022 inch

Check that the point arm moves freely on its pivot.

Point spring tension also matters.

Too little spring tension can allow the points to float at higher engine speeds.

Too much or incorrect tension can create its own problems.

If the points are badly burned or pitted, also consider replacing the condenser.

A condenser can be properly tested with specialized equipment, but because condensers are relatively inexpensive, replacement is often the practical roadside or garage diagnosis.

That said, modern replacement condensers can vary greatly in quality. Don't automatically throw away a known good condenser merely because the new one came in a shiny box.

Reading Your Spark Plugs

Spark plugs are tiny windows into the combustion chamber.

Remove them and look carefully.

A generally healthy plug often has a dry **light tan, brown, or grayish appearance** around the insulator.

A black sooty plug can indicate:

- Rich mixture
- Too cold a plug
- Excessive idling
- Weak ignition

An oily plug can suggest:

- Oil control problems
- Worn rings
- Worn guides
- Other internal wear

A blistered or unusually white plug may indicate excessive temperature, an overly lean condition, or a plug that is too hot.

Spark plug heat range matters.

A "hot" plug holds heat longer.

A "cold" plug transfers heat to the cylinder head more quickly.

Cars driven slowly for short distances sometimes prefer a different heat range than cars operated continuously at highway speed.

Spark Plug Gap

Use a wire-style spark plug gauge.

A traditional Model A spark plug gap is approximately:

.027 inch

A gap that is too wide can contribute to:

- Hard starting
- Misfiring
- Poor high-speed performance

A gap that is too narrow can result in:

- Weak ignition
- Rough idle
- Poor low-speed performance

Set all four plugs consistently.

An engine likes equality.

Timing the Model A

Timing a Model A isn't difficult once you understand what you're doing.

The goal is to establish the distributor position with number one cylinder at top dead center on its compression stroke.

First, move the spark lever to the fully retarded position.

Remove the timing pin from the front timing gear cover and insert the opposite end into the hole.

Slowly rotate the engine with the hand crank.

As number one piston approaches top dead center, the timing pin will drop into the recess in the timing gear.

Stop there.

The distributor cam can now be positioned.

Loosen the distributor cam screw enough to rotate the cam.

Rotate the cam counterclockwise so the points open, then slowly rotate it clockwise until the points are just beginning to close.

Lock the cam in that position.

This method helps remove backlash from the adjustment.

Reinstall:

- Rotor
- Distributor cap
- Timing pin

And don't forget that timing pin.

Leaving it out produces an impressive oil leak, usually discovered five miles later when the underside of the car has successfully rust-proofed itself.

Part Three: Carburetion - Last Means Last

Now we finally reach the carburetor.

This is where many Model A owners begin their tune-up.

It is where they should finish it.

Carburetor operation depends on the engine having:

- Adequate compression
- Correct valve action
- Strong ignition
- Proper timing

If those things are wrong, no carburetor adjustment is going to make the engine truly happy.

Once everything else has been verified, then turn your attention to fuel mixture.

Carburetor Inspection

If the engine still refuses to idle properly after compression and ignition have been confirmed, inspect the carburetor.

If necessary:

1. Remove the carburetor.
2. Disassemble it carefully.
3. Clean the passages with proper carburetor cleaner.
4. Blow passages clear with compressed air.
5. Inspect jets and passages.
6. Replace damaged gaskets.
7. Replace worn components as necessary.
8. Reassemble carefully.

Don't run drills through precision jets unless you know exactly what you're doing.

The jet opening determines fuel flow. Enlarging one with a drill bit changes the carburetor calibration.

Sometimes cleaning quickly becomes engineering.

Setting the Idle

Warm the engine completely before adjusting the carburetor.

Place the spark lever in the retarded position.

Use the throttle stop screw to keep the engine running at a slow, stable idle.

Then adjust the idle mixture screw.

Turn it slowly until the engine begins running unevenly, then gradually adjust in the opposite direction until you find the smoothest idle.

Make small changes.

Give the engine a few seconds to respond between adjustments.

A Model A carburetor is not a combination lock. Spinning adjustment screws wildly back and forth seldom improves anything.

Once the engine idles smoothly, recheck the idle speed and make the final adjustment.

The Shade Tree Tune-Up Order

When troubleshooting a Model A that isn't running correctly, remember this sequence:

Compression → Ignition → Carburetion

Not:

Carburetor → Carburetor → Distributor → Carburetor → Buy new carburetor → Discover burned valve.

Compression tells you whether the engine is mechanically capable of running correctly.

Ignition determines whether the mixture is being lit correctly.

Carburetion determines whether the proper fuel-and-air mixture is being delivered.

Each system depends upon the one before it.

Final Thoughts From Under the Shade Tree

One of the wonderful things about the Model A Ford is that the car will usually tell you what is wrong if you're willing to listen.

The compression gauge tells you about cylinders and valves.

The vacuum gauge tells you how the engine is breathing.

The spark plugs tell you how it is burning fuel.

The voltmeter tells you whether the electricity is actually getting where Henry intended it to go.

And your ears will eventually become another diagnostic instrument.

A properly tuned Model A should start easily, idle smoothly, accelerate without hesitation, pull strongly, and give reasonable fuel economy.

Don't adjust three things at once.

Don't replace parts simply because they're old.

And above all, don't start turning carburetor screws because the engine coughed once at a stop sign.

Test first.

Adjust second.

Drive third.

Because the entire purpose of tuning a Model A isn't to spend Saturday afternoon staring into the engine compartment.

It's to get the hood closed before your buddies arrive and make it look like you knew what you were doing all along.

21. Freeing a Stuck Model A Engine: Patience First

A shade tree mechanic learns sooner or later that some jobs are fixed with a wrench, some with a hammer, and some with nothing more exciting than plain old patience. Freeing up a stuck Model A engine usually falls into that last category. This is not always a Saturday afternoon miracle. It can be a long project that takes many days, and sometimes even weeks, of soaking, checking, and gently working the engine loose. The trick is to resist the urge to get rough with it. Patience is cheaper than broken rings, bent rods, or a cracked piston.

To help loosen a stuck engine, mix your penetrating oil blend thoroughly in a clearly marked metal or solvent-safe container. If you are writing out the formula, make sure the percentages add up correctly before using it. Because acetone and similar solvents give off strong fumes and are highly flammable, this mixture should be prepared and used outdoors or in a very well-ventilated area. Do not breathe the fumes, and keep the mixture far away from cigarettes, sparks, heaters, pilot lights, or any open flame. Do not heat the mixture.

Remove the cylinder head and pour a small amount of the solution into each cylinder. Let it sit and give it time to work its way down around the pistons and rings. Then put the transmission in high gear and gently rock the car back and forth. Do not try to force it like you are trying to shove a dead tractor out of a mud hole. Just steady pressure, back and forth, and let the penetrant do its work.

Each night, check the cylinders to see whether the mixture has seeped down. Add a little more as needed, then rock the car back and forth for about five minutes. Repeat the process patiently. When the fluid begins disappearing into the cylinders, that is usually a good sign that things are starting to loosen up. With luck, time, and a little shade tree faith, the pistons should begin to free up without having to resort to more drastic measures.

The real lesson is the same one these old Fords teach us over and over again: slow and steady usually wins. A fellow can waste a lot of time being in a hurry. Sometimes the smartest tool in the shop is not the biggest wrench, but the patience to let the job come around in its own time.

22. Adjusting the Brakes on a Model A Ford

A Shade Tree Mechanic's Guide to Adjusting Model A Brakes

By That Guy Who Swears He "Just Needs 10 Minutes" Under the Car

There comes a moment in every Model A owner's life - usually at the bottom of a hill, eyes wide, knuckles white - when you realize that Henry Ford designed these brakes *before coffee was invented*. Mechanical brakes can work beautifully, but only if *everything* is adjusted just right... which is why most Model A's stop in a manner best described as:

"Eventually."

So grab your creeper, your 9/16" wrench, and a prayer or two. Today, we're adjusting brakes the Shade Tree way.

Step 1 - Start With the Shoes and Drums

Before adjusting anything, make sure the physical brake parts are in decent shape.

- Drums should be round (Henry did not intend the "egg shape").
- Shoes should match the drum arc.
- Tracks and rollers should move freely.

If they don't, your brake adjustment will work about as well as yelling "WHOA!" at the car.

Step 2 - Adjust the Wedges at Each Wheel

Each backing plate has a little square-headed stud - the *adjusting wedge*. This is where the magic happens.

1. Jack up the wheel.
2. Spin the tire by hand.
3. Turn the adjusting wedge *in* until the wheel drags.
4. Back it off until the drag is just barely noticeable.
5. Repeat on all four wheels.

Remember:

Too tight, and you'll be smoking your shoes by lunchtime.

Too loose, and you'll need a calendar to measure your stopping distance.

Step 3 - Adjust the Rod Lengths & Equalizer

Mechanical brakes rely on **rods**, not fluid. That means every rod has to be the right length or your Model A will stop like a lopsided shopping cart.

The Official Shade Tree Method:

1. Have someone press the brake pedal.
2. Watch which wheel reacts last.
3. Grumble.
4. Adjust that rod 1-2 turns shorter.
5. Try again until all four wheels engage at the same time.

If the rods are bent (they usually are), straighten them out.

If they're adjusted all the way but still wrong, replace them - unless you enjoy sudden lane changes under braking.

Step 4 - Set the Pedal Free Play

Push the pedal with your hand. You should have about **1 inch** of play before the brakes start to apply.

- If there's *no* free play, the brakes drag.
- If there's *too much* free play, the pedal travels farther than your leg allows.

Adjust the clevis on the pedal rod to taste.

Step 5 - The Driveway Test

Roll your Model A forward about 5 mph and apply the brakes.

- **Car pulls left?** Right front is doing all the work.
- **Car pulls right?** Left rear is asleep at the job.
- **Car stops straight?** You are now qualified to judge at least three dozen other Model A owners' brake adjustments at the next club meeting.

Bonus Shade Tree Tips

Oil on the Shoes = Instant Bad Day

If your rear axle seals are leaking, clean or replace the shoes. Otherwise, you'll be braking with the consistency of a buttered biscuit.

Lubricate the Tracks

A little high-temp grease on the wedge and roller tracks goes a long way.

Brake Floaters?

If you installed them, good luck. Half the club loves them; half curses them. Choose your side wisely.

Final Thought

Mechanical brakes get a bad reputation - but when adjusted properly, they'll stop a Model A with surprising confidence. Not modern-car confidence... more like, "Hey, that wasn't too bad!"

And sometimes, that's all a Shade Tree Mechanic needs.

23. Greasing Every Zerk on Your Model A Ford

GREASING EVERY ZERK ON YOUR MODEL A FORD

A Shade Tree Mechanic Article for the Club Newsletter

If you've owned a Model A long enough to develop a permanent smear of grease on your shirt pocket, you probably already know that these cars require regular lubrication to stay happy. What many *new* members of the club don't realize is **just how many grease fittings - zerks - Henry Ford blessed us with.**

Today's cars have one, maybe two zerks if you're lucky...

A Model A? Try **23 to 30**, depending on year and body style.

But don't worry - your friendly neighborhood Shade Tree Mechanic is here to help make sense of all those fittings so you can keep your A running smooth, quiet, and rattle-free. (Well... *Model A* quiet. Let's not get carried away.)

Why Greasing Matters

The Model A's suspension and steering rely heavily on metal-to-metal joints. When those joints dry out, you get:

- Squeaks
- Hard steering
- Worn kingpins
- Brake linkages that bind
- And noises that make passengers scoot toward the door

A few pumps of grease every 500-700 miles keeps the car driving like Henry intended.

Front End - The Squeak Capital of the Car

Spring Perches (2) - Grease keeps your ride from feeling like you're on an unpadded church pew.

Kingpins (4) - One of the most important areas to lubricate.

Tie Rod Ends (2) - Critical for smooth steering.

Drag Link Ends (2-3) - Often overlooked, but vital for safety.

Brake System - Where Smooth Pedals Come From

Brake Cross Shaft (4) - If your pedal feels stiff, this is the culprit.

Brake Rod Clevis Points (4-8) - Some have zerks, some need hand lubrication.

Steering Components - Your Arm Muscles Will Thank You

Pitman Arm Ball & Socket - Keeps steering motion smooth.

Drag Link Socket - Easy to miss but important.

Steering Gearbox - No zerk here - use 600W oil!

Engine & Drivetrain Fittings

U-Joint Housing - Pump slowly so you don't blow out the gasket.

Pedal Shaft (Clutch & Brake) - Two important lubrication points.

Rear End - Where a Lot of Model A Noise Starts

Rear Spring Shackles (4) - If your A chirps, squeals, or sounds like an annoyed cricket, grease here.

Radius Rod Ball - Depending on year, use either the zerk or the oil cup.

A Handy Full-Lubrication Diagram

Print one of these charts and hang it over your workbench. It makes you look like a professional, even if you're still crawling under the car with a flashlight in your teeth.

Shade Tree Mechanic Tips

- **Wipe each fitting before greasing** - pump grease, not dirt.
- **Grease until you see fresh grease appear.**
- **Wipe excess** so dust and road grime don't build up.
- Keep a **grease log** (your future self will thank you).
- If you find a fitting that refuses to take grease, it's probably clogged - replace it or clean it with a pick and solvent.

Final Thoughts

Greasing a Model A is a rite of passage. You'll learn new yoga poses, discover muscles you didn't know you had, and occasionally come out looking like you lost a fight with a tub of axle grease.

But once done, your Model A will steer easier, ride smoother, and feel more like Henry intended - simple, mechanical, and wonderfully alive.

24. Manifold Cooking with Your Model A Ford

A Shade Tree Mechanic's Thoughts on Manifold Cooking

By Your Faithful Shade Tree Chef... I mean Mechanic

They say every Model A owner eventually discovers three things:

- 1) The true meaning of patience,
- 2) That Henry Ford was either a genius or a menace, and
- 3) That the exhaust manifold is basically a built-in crockpot.

Now, I'm not saying Henry planned it that way - but I'm also not saying he *didn't*.

See, every seasoned Model A driver knows that the engine likes to warm up slow, run steady, and then roast everything within a six-inch radius of that manifold to a temperature that the FDA would legally approve for pork. And at some point, usually on a long tour when sandwiches get boring, somebody says the magic words:

"Hey... you think we could cook on that?"

And suddenly, you've got yourself a traveling kitchen.

The Manifold Menu

Now, I'm not fancy. I've seen some Model A folks wrap things up like gourmet chefs - foil triple-layered, spices measured in teaspoons, even those little packets of fresh herbs like we're filming a cooking show on PBS.

But most of us Shade Tree Mechanics follow the sacred rule:

"Does it fit on the manifold? Then cook it."

Here are some A-tested, crank-approved classics:

1. Hot Dog á la Touring Car

Wrap a couple hot dogs in foil, maybe toss in a slice of onion if you're feeling classy, then tuck the whole bundle right next to cylinder #3.

By the time you reach the next gas stop, they're steaming like you stole 'em from Dodger Stadium.

2. Manifold Burrito

This one's perfect for the Model A, because the shaking, rattling, and general bouncing of the front end tenderizes the whole thing.

Add beans at your own risk. We don't need more backpressure than the A already has.

3. Chicken Strips "Highway Style"

The trick is to turn them frequently so the side touching the manifold doesn't sear like a branding iron while the far side stays raw enough to cluck.

4. Potatoes O-Ford

This is just diced potatoes, butter, and the hope that they cook before you do.

Temperature Control? What Temperature Control?

Modern cars talk about “precision” and “logic-controlled thermal cycles.” Meanwhile, the Model A driver’s temperature control system consists of:

- How long you’ve been driving
- Whether the engine is in a good mood
- The phase of the moon
- Luck

If you want low heat, drive slow.

If you want medium heat, drive normal.

If you want high heat, just try merging onto the freeway.

Installation Techniques

Mounting your meal to the manifold takes creativity.

I’ve seen:

- Hose clamps
- Wire from a coat hanger
- A crescent wrench used as a makeshift weight
- And the always-reliable “just wedge it and hope”

But the real professionals - *the true practitioners* - use a **bent metal bracket** that looks like it was crafted by a medieval blacksmith halfway through a hangover.

The Real Joy of It

Here’s the truth: manifold cooking isn’t about the food.

It’s about the smiles.

The laughs.

The moment you open that hood at the rest stop and someone from three cars down yells:

“Are you COOKING in there?!”

It’s about your grandkids telling stories someday that start with,
“*Well, Grandpa used to cook his lunch on a 90-year-old Ford...*”

And most of all, it’s about being a Model A owner -

A little inventive, a little stubborn, and just crazy enough to use automobile parts as cookware.

Final Tip

If the food tastes funny, don’t worry -

That’s just “authentic Ford flavor.”

Comes free with every carb adjustment.

25. Rebuilding a Marvel Carburetor

- Small flathead screwdrivers
- 3/8" and 1/2" wrenches
- Needle-nose pliers
- Small brass brush
- Carburetor cleaner or an ultrasonic cleaner
- Compressed air (or canned air if you're fancy)
- Marvel rebuild kit (gaskets, jets, needle/seat, float valve)
- Small tin or tray for screws (you *will* drop one)
- Patience - a *lot* of it

Step 1: Remove the Carburetor

1. Turn off the fuel valve under the tank.
2. Disconnect the fuel line at the carburetor inlet.
3. Disconnect the choke and throttle rods.
4. Loosen the two nuts attaching it to the intake manifold.
5. Carefully pull the carburetor off - don't drop the gasket; you'll want to use it as a template for your new one.

Step 2: Disassemble the Marvel

1. Separate the upper and lower halves by removing the perimeter screws.
2. Remove the float, float hinge pin, and needle/seat.
3. Remove the jets and check balls (note where each one came from!).
4. Remove the throttle plate and shaft carefully.
5. Take pictures as you go - the Marvel has some sneaky passages that are easy to mix up.

Shade Tree Tip:

Lay parts on a towel in the order you removed them. If you're like me, you'll thank yourself later when you can't remember which jet went where.

Step 3: Cleaning

1. Soak the parts in carb cleaner for several hours (overnight if they're really varnished).
2. Scrub with a brass brush and use compressed air to blow out *every* passage.
3. Check the float for leaks - shake it next to your ear; if you hear liquid inside, it's shot.
4. Inspect the needle and seat for wear. If they're grooved or pitted, replace them.

Pro Tip:

A clogged passage the size of a pinhole can ruin your day. Blow air through every one until you feel it come out somewhere else.

Step 4: Reassembly

1. Install the new needle and seat.
2. Reinstall the jets - make sure the main jet and idle jet go back into their correct holes.
3. Install the float and set the float level:
 - With the bowl cover inverted, measure from the gasket surface to the top of the float - **about 5/8 inch** is typical for the Marvel.
4. Replace the gasket and join the two halves.
5. Reinstall the throttle plate, making sure it closes completely without binding.
6. Check the choke plate for smooth operation.

Torque tip:

Snug screws firmly, but don't overdo it - these old castings strip easily. Tighten evenly across the bowl.

Step 5: Installation and Adjustment

1. Mount the carburetor back on the intake manifold with a fresh gasket.
2. Reconnect the fuel line, throttle, and choke rods.
3. Turn on the fuel and check for leaks.
4. Start the engine and let it warm up.
5. Adjust:
 - **GAV (Gas Adjusting Valve):** Start ½ turn open from closed, adjust for smoothest idle.
 - **Idle Speed Screw:** Adjust until you get a nice even "putt-putt-putt."

Shade Tree Tip:

A Marvel likes to be a little rich - if you lean it too far, you'll get hesitation under load.

Final Thoughts

Rebuilding a Marvel carburetor isn't hard - it just takes time and a gentle touch. Once you get it right, your Model A will start easier, idle smoother, and pull cleanly up the hill like it did in 1929.

And when it fires up for the first time, give yourself a moment. You'll smell that faint mix of gas, oil, and satisfaction - the perfume of every backyard mechanic since Henry Ford himself.

26. Buying a Model A Shay

Buying a Model A Shay - What You Need to Know Before You Turn the Key

By: *A Shade Tree Mechanic*

Back in the late 1970s, while most of us were worrying about disco, gas prices, and polyester, a man named Harry Shay had a better idea. He figured out how to let folks relive the golden era of motoring - but without the constant tinkering, oil drips, and cantankerous crank-starts of the original Ford Model A. Thus was born the **Shay Model A Replica** - a fiberglass-bodied, factory-built homage to Henry Ford's classic.

Shay Motors Corporation (1978-1982) built their replicas under license from Ford Motor Company. They were sold right out of Ford showrooms, titled as **new cars**, and built on a **Ford Pinto chassis** with a **2.3-liter four-cylinder engine, four-speed manual (or optional automatic)**, and **modern brakes and suspension**. It was the 1920s look with 1980s reliability - or at least that was the plan.

But if you're thinking about buying one today, here's what you need to know from a *technical and practical* standpoint.

1. Know What You're Getting - Replica vs. Original

A Shay may look like a 1930-31 Model A roadster, but under the skin, it's a completely different animal. Here's a quick comparison:

Feature / Original Model A / Shay Replica

Engine / 200.5 cu in L-head (40 hp) / 2.3L OHC Ford Pinto (88 hp)

Transmission / 3-speed unsynchronized / 4-speed synchronized or automatic

Brakes / Mechanical drums / Hydraulic front discs/rear drums

Body / All steel / Fiberglass

Frame / Model A ladder frame / Modified Pinto chassis

Electrical / 6-volt / 12-volt

Top Speed / 50-55 mph / 75+ mph (if you're brave)

Knowing this helps set expectations. A Shay is **not** a restored antique - it's a **neoclassic**, meaning it blends old looks with newer running gear. So while you won't get points at a MARC or MAFCA judging event, you *will* get to cruise the freeway without holding up traffic.

2. Inspect the Drivetrain - Pinto Power, But Age Matters

Most Shays are now over 40 years old, and although the Ford 2.3L "Lima" engine is reliable, it's not immortal. Check for:

- **Oil leaks** around the valve cover and rear main seal
- **Cooling system corrosion** - aluminum radiators sometimes were swapped in
- **Timing belt age** (yes, it has one!)
- **Exhaust manifold cracks** - common on the Pinto 2.3

- **Fuel system updates** - ethanol fuel eats old hoses and carb gaskets

The Pinto four-speed is tough, but linkage bushings wear out, and some cars were converted to automatics later - often poorly. Look for clean wiring, solid mounts, and a smooth clutch engagement.

3. Suspension and Brakes - Don't Assume "Modern" Means "Good"

Even though Shays have hydraulic brakes, many were parked for decades.

Before you hit the road:

- Inspect all **rubber bushings, ball joints, and control arms**.
- Replace **brake hoses, master cylinder, and calipers** if unknown.
- Early cars used **Pinto front suspension**, but some have swapped components - verify compatibility before ordering parts.
- Many owners upgrade to **larger tires or chrome wires**, which may affect alignment.

A properly sorted Shay drives surprisingly well - tight steering, decent braking, and a firm ride. But neglect turns them into rattletraps.

4. Body and Trim - Fiberglass Has Its Own Quirks

Unlike steel, fiberglass doesn't rust - but it *does* crack, craze, and fade.

Inspect the body carefully for:

- **Spider cracks** around fenders and door hinges
- **Misaligned panels** (usually from weakened mounting points)
- **Faded gelcoat** - can be polished but sometimes needs repainting
- **Chrome delamination** on bumpers and lamps

The good news? Almost all visible trim parts were copied from original Model A components, so reproduction hardware is readily available from Model A suppliers.

5. Electrical - 1980s Simplicity, Not 1920s Wiring

The Shay's 12-volt wiring harness is straightforward, but time and amateur rewiring can make a mess of things.

Check:

- That **grounds** are clean and tight
- **Fuse box** hasn't been bypassed or replaced with speaker wire
- **Lighting circuits** for shorts, especially behind the dash
- If the **alternator** charges properly (most use a Ford 1G type)

Adding a modern voltage regulator, LED tail lamps, or a hidden cutoff switch are common upgrades that make life easier without ruining originality.

6. Paperwork and Value - Titles Can Be Tricky

Most Shays were titled as **1980-1982 Fords**, sometimes as **Shay Model A**, and occasionally as **replica or kit cars** depending on the state.

Before you buy:

- Verify the **VIN tag** (on the firewall or frame) matches the title.
- Confirm it's **registered as a production vehicle**, not a homebuilt kit.
- Ask if it has a **California smog exemption** - 1980+ models may require testing.

As of 2025, clean, running Shays range from **\$12,000-\$20,000** for nice drivers, while show-quality cars can push **\$25,000+**. That's still often half the cost of a fully restored Model A roadster.

7. Final Thoughts - A Fun Driver, Not a Museum Piece

If you want a car you can actually drive on the freeway, take to car shows, and not panic every time a Prius pulls alongside, the Shay is a fantastic option.

But if you're after authenticity - the smell of 600W gear oil, the whine of a three-speed, and the thrill of manual spark advance - stick with the original.

The Shay occupies a unique spot in Model A lore: half tribute, half tribute band. It won't fool the judges at a national meet, but it might just fool your neighbors into thinking you've mastered the art of antique car restoration - without ever having to adjust a carburetor in the dark.

Buying Checklist Summary

27. Winter Driving in Your Model A

By Wade Ratzlaff

When Henry Ford designed the Model A, he didn't include seat warmers, traction control, or defrosting mirrors. He did, however, give us something far more reliable: simplicity. And while modern drivers panic at the first sign of drizzle, a true Model A owner knows that winter driving isn't about the weather - it's about attitude, preparation, and knowing just how far you can push your luck before you start smelling hot radiator water.

Now, let's be honest - winter in California isn't quite the same as winter in Montana, where my grandfather used to say the thermometer froze solid sometime around Thanksgiving and didn't thaw until spring planting. But even in our mild climate, the cooler months bring challenges that can make your Model A feel like it's been replaced with a mule on roller skates.

First lesson: your tires are your friends.

And just like friends, they're a lot more dependable when you check in on them once in a while. Model A tires were never known for their grip, even when new, and 19 inches of bias-ply rubber on wet asphalt can feel like driving on cold butter. Keep them properly inflated and, if you're the ambitious type, consider a fresh set of treads before the next rainy season.

Second lesson: brakes are suggestions, not guarantees.

Those mechanical brakes are wonderful pieces of engineering - when adjusted correctly. But in the rain, remember: friction is a fickle friend. Keep plenty of following distance and start your stops early enough to give modern drivers behind you a mild heart attack. If you haven't checked your brake rods, pins, and wedges lately, winter's a great time to make sure everything is straight, clean, and well-lubricated.

Third lesson: water finds everything.

You'll discover leaks you didn't know existed. The cowl vent that's been shut since 1957? It'll drip. The windshield frame? It'll fog up like a sauna. The wipers? They'll wipe - sort of. Many of us have gotten more use out of a rag on a stick than that little vacuum wiper motor that slows down every time you step on the gas. If you can't see, pull over. It's better to be safe than to end up sideways in a citrus grove.

Fourth lesson: dress for the occasion.

Your Model A heater is called "engine heat," and it lives somewhere near your feet - if you're lucky. Long underwear, gloves, and a thermos of coffee are your best accessories. Some folks put a blanket over their laps, and that's not just for nostalgia - it's survival. Remember, the "A" in Model A doesn't stand for "air conditioning." It stands for "adaptable."

Fifth lesson: treat your A gently.

Cold starts are hard on old engines. Give her time to wake up. A little choke, a touch of throttle, and let her idle until the oil warms and the valves sound less like a typewriter convention. Check your antifreeze, top off the radiator, and keep an eye on that ammeter. Your Model A will thank you by getting you where you need to go - eventually.

Finally, enjoy the season. There's something magical about a cool winter morning, a little fog on the road, and the rhythmic clatter of that four-cylinder engine echoing off the hills. The smell of warm oil, the creak of old springs, and the faint rattle of the side curtains remind us why we drive these cars - not because they're easy, but because they're alive.

So bundle up, plan your stops, and take your time. Remember, winter driving in a Model A isn't about how fast you get there - it's about getting there smiling, hands numb, coffee gone cold, and heart warm.

Because when you pull back into the driveway, shut her down, and hear that little “ping ping ping” of the engine cooling off, you'll know you didn't just drive through winter - you lived it, one gear and one grin at a time.

28. Replacing the Windshield on a Model A Ford

By Wade Ratzlaff

There are few jobs on a Model A Ford that look simpler on paper than replacing the windshield. After all, it's just a piece of glass in a metal frame - what could possibly go wrong?

That's the same thought I had one Saturday morning, standing in my garage with a brand-new windshield frame from Bratton's, a tube of sealant, and a confidence level somewhere between "optimistic" and "what could possibly go wrong."

Now, Model A windshields are a bit of a marvel. In 1930, when other cars were still making you stick your head out the window to see around the rain, Henry Ford decided we deserved a little luxury - an *opening windshield*. Crank it out on a warm day and you get a breeze right in the face. Crank it too far, and your hat becomes airborne faster than a pheasant at hunting season.

Step One: The Plan (Or So I Thought)

The plan was simple: remove the old glass, clean up the frame, pop in the new safety glass, and re-install. A quick Saturday project.

My dad, who's replaced more Model A parts than I've had hot dinners, wandered into the garage just as I had everything laid out neatly. He surveyed the scene, grunted approvingly, and said, "You got any Band-Aids?"

It wasn't an encouraging start.

The first challenge was removing the old glass - which, despite being cracked for twenty years, had decided now was the time to cling to the frame like it was welded in. The manual said, "Tap gently with a soft mallet." Whoever wrote that manual never worked on a car that lived through three decades of California dust and half a dozen paint jobs.

After enough tapping, prying, and muttered prayers, the glass finally came loose - followed immediately by half the old sealant landing in my hair. My wife poked her head out the door just long enough to say, "Try not to bleed on the car this time."

Step Two: The Fit Test

The new glass looked beautiful - crystal clear, perfectly cut, and slightly thicker than the original. This, as it turns out, matters.

Ford's factory tolerances in 1930 were measured more by "eyeball" than micrometer, so you'd think there'd be some forgiveness. Not so. When I slid the glass into the lower channel, it stuck halfway like a stubborn mule.

Dad peered over my shoulder, scratched his chin, and offered his usual wisdom:

"You can't force it."

I nodded. Then I forced it.

You ever hear glass break in slow motion? There's a special tone to it - the kind that makes your stomach drop and your wallet cry.

Step Three: Regrouping and Re-thinking

After a long silence, Dad suggested, “Well, at least now we know how not to do it.”

A quick call to the glass shop and a promise not to mention *how* the first one met its end, and I was back on track the following weekend.

This time I sanded the channel edges, laid down a light coat of silicone grease, and eased the glass in gently - like slipping a letter into an envelope you really don't want to tear.

And miracle of miracles, it fit.

Step Four: Re-Installation

Re-installing the windshield in the car was the next adventure. The hinge at the top, the regulator arms, the weatherstrip, the adjustment bolts - all of them have to line up perfectly while you hold thirty pounds of glass and steel in your hands at just the right angle.

At this point I considered calling for backup, but Dad was sitting in a lawn chair under the oak tree, sipping coffee and saying things like, “It's character building.”

Somewhere between the third try and the first scratch on the cowl, I managed to seat it correctly. I gave the crank a tentative turn - and wonder of wonders, the windshield opened like it was 1930 again.

Step Five: Admire and Reflect (Through Clean Glass)

I stood back, admired the gleam of sunlight through that fresh glass, and felt downright proud.

Dad ambled over, nodded approvingly, and said, “Looks good. Don't forget to grease the regulator.”

Then, as if on cue, a fly smacked into the brand-new glass with a satisfying *thunk*.

Lessons from Under the Shade Tree

If you're thinking of replacing your Model A windshield, here's my advice:

1. **Don't rush it.** The car's waited 90 years - it can wait another hour.
2. **Measure twice, fit once, break never.**
3. **Use a friend.** Preferably one who doesn't mind holding heavy things at awkward angles.
4. **Buy two panes of glass.** Just in case.
5. **Never underestimate your father's ability to supervise from a lawn chair.**

Replacing a Model A windshield isn't just a repair - it's a rite of passage. You'll end up with cleaner glass, stronger patience, and one more story to tell around the garage.

Because under that shade tree, the best part of the project isn't just finishing - it's laughing about how you got there.

29. 1930 Model AA Body Styles

By Wade Ratzlaff

When Henry Ford set out to build a truck that could haul hay, gravel, furniture, and the neighbor's cow if necessary, he didn't just slap a bed on a Model A frame and call it a day. No sir - the **Model AA** was built to work for a living. It was the blue-collar cousin of the Model A, the truck you called when the Model T got scared and ran home to mama.

By 1930, the AA lineup looked like the Ford engineers had decided to offer *one of everything* short of a cement mixer (and come to think of it, someone probably built one of those too).

Body Styles - A Truck for Every Trade

If you walked into your friendly local Ford dealer in 1930 - maybe one with a floor slicker than your garage and smelling of gear oil and fresh paint - you'd have been greeted by a lineup of AAs that could make any farmer, delivery driver, or small business owner drool into his pipe.

Here's what was on offer:

- **Platform Truck** - The bare-bones workhorse. A flatbed with wooden stake sides optional. Perfect for hauling everything from sacks of feed to your brother-in-law's broken tractor. If you didn't like the Ford version, aftermarket suppliers offered fancier beds with steel corners and hinged tailgates.
- **Express Pickup** - The close cousin to the Model A pickup but on steroids. With heavier springs and a beefier frame, this one could handle real loads - not just a picnic basket. Often seen with dual rear wheels for extra grunt.
- **Panel Delivery** - For the shopkeeper who wanted to look respectable while hauling barrels of nails or delivering baked goods. The smooth, rounded rear body was built by outside firms like Briggs or Murray, and could be lettered with your business name in fancy script.
- **Town Car Delivery** - Think of it as the gentleman's truck. It had a sedan-style front end with a delivery box on the back - perfect for florists, jewelers, or undertakers with class.
- **Stake Bed Truck** - A Model AA staple. With tall removable wooden sides, this was the Swiss Army Knife of the fleet. Farmers loved them because you could haul hay in the morning, pigs at noon, and your church choir's folding chairs that evening.
- **Dump Truck** - A favorite of construction outfits and mischievous boys who liked to see things fall out the back. These had hand-crank or hydraulic dump mechanisms, depending on how much you liked your shoulder muscles.
- **Bus and School Bus Bodies** - Ford sold the chassis, and companies like Martin-Parry or Superior built the passenger bodies. Wooden or steel panels, with sliding windows and bench seats that squeaked in harmony.
- **Fire Truck and Specialty Conversions** - From tow trucks to fuel tankers, Ford's chassis went to work everywhere. The Model AA was the mule of the Depression era - strong, steady, and not one to complain unless you forgot to grease it.

Paint Options - Not All Black, Mr. Ford

Henry had famously said you could have any color you wanted “so long as it’s black,” but by 1930 he had softened a bit - probably after Mrs. Ford told him people liked color.

The Model AA trucks in 1930 came in combinations that depended on body style and use. Some common options included:

- **Rock Moss Green with Black Fenders** - A handsome dark green that looked professional but hid dirt well.
- **Commercial Drab** - A brownish-gray that said, “I’m here to work, not win any beauty contests.”
- **Vermilion Red Wheels** - A popular dealer upgrade for those who wanted to add some flash to their working rig.
- **Tacoma Cream or Apple Green Wheels** - Classy options that looked sharp against the darker body colors.
- **Black and Brewster Green** - A two-tone combination often seen on Deluxe cabs and panel deliveries.

Trim was usually black enamel - shiny but not showy - and wood beds were either painted body color or left in natural varnish, depending on the owner’s mood and how much paint was left in the can.

Accessories and Gadgets

Ford offered plenty of ways to spend a few extra dollars, or more likely, the dealer had a catalog of add-ons that would make your wife roll her eyes.

Some period accessories included:

- **Dual Rear Wheels** - For the man who thought one set just wasn’t enough.
- **Tool Boxes and Locking Side Compartments** - Great for storing wrenches or maybe a few cold sodas on long hauls.
- **Radiator Stone Guards** - To keep gravel and wayward pheasants from poking holes in your radiator.
- **Cowl Lamps, Moto-Meters, and Sun Visors** - Because even a work truck deserves to look fancy.
- **Heater** - A small miracle for those who had to drive before sunrise in December.
- **Spotlights and Horns** - The more horns the better, I say.
- **Mud Flaps, Tire Chains, and Canvas Bed Covers** - All available to make your truck as practical as it was proud.

Under the Hood - The Grunt Work

By 1930, the AA was powered by the same sturdy **200.5 cubic inch four-cylinder engine** as the Model A, though geared much lower through the **four-speed transmission** and heavy rear end. Top speed? Let’s just say downhill with a tailwind, you might hit 45 - if you’d had a big breakfast and your guardian angel wasn’t paying attention.

The AA was meant to *pull*, not *race*. You’d know that after your first hill climb when the truck slowed to a crawl but never quit.

The Shade Tree Conclusion

Every Model AA tells a story - of hard work, of grease under fingernails, of early mornings and long days. These trucks built America’s backbone - one load of gravel, one crate of milk, one delivery route at a time.

And when you stand next to one today, with its tall stance, wooden bed, and proud Ford badge, you can almost hear it sigh - the sound of a truck that’s earned its rest.

Then again, with a little gas, a good crank, and a patient mechanic under the shade tree, it'll probably get right back to work.