



Crushin' the concrete square.



Lockdown ready for insertion in the hole.



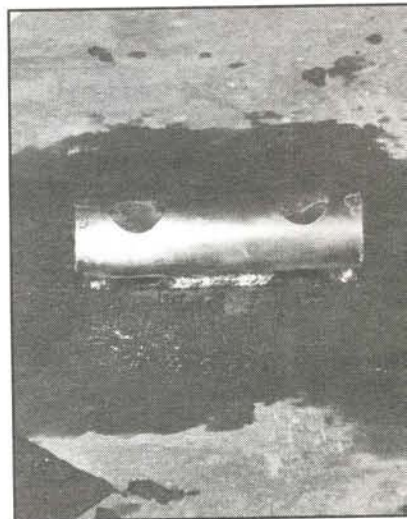
Pourin' the cement.



Troweling the 'crete.



Lockdown gets a gloss finish.



Job is finished. Security at last.

around it, using a straightedge. Now get a powersaw with a masonry blade. A sharp blade is a must. The 7-7, 1/4-inch Vermont American (made in the USA) blade worked best (only took two blades, after going through five of an inferior, imported brand).

Begin your cuts into the foundation, following your crayoned straightedged lines. Be sure to use a facemask and eye protection. The blades are made of asbestos, which kills more than lab rats.

No doubt about it, there will be a mess. A concrete dust cloud will cover everything, includin' your lungs and eyes. Take care of 'em, you'll need 'em on the road.

A masonry drill bit pierced the square's center and each corner of the now-cut

concrete, before Neal, wielding a sledgehammer, slammed away at the middle of the concrete (careful not to ruin the rest of the garage's floor).

After pounding through the 4-inch slab, reaching dirt, dig and smooth the dirt around to fit the Lockdown so that the top plate is flush to the floor.

Next, stir up a bucket of concrete mix, he used half a 60-pound sack (\$2 dollars on the open market). Lay some 'crete on the bottom, about 2 inches worth, then slip in the Lockdown and trowel in cement around it, bringing the mix even with the floor's slab, covering the top plate. The milky "cream" from the bottom of the bucket can be skimmed on the top plate, leaving you with a classy gloss

finish. Let it set, then wipe with a damp sponge to bring the plate's surface up. Chrome is optional.

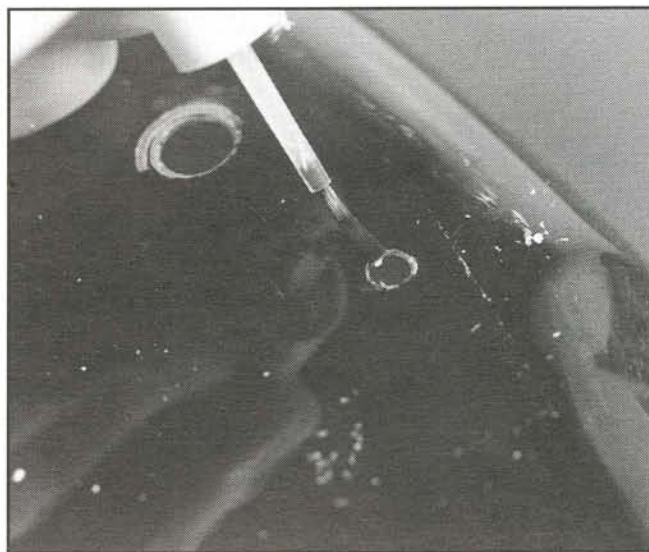
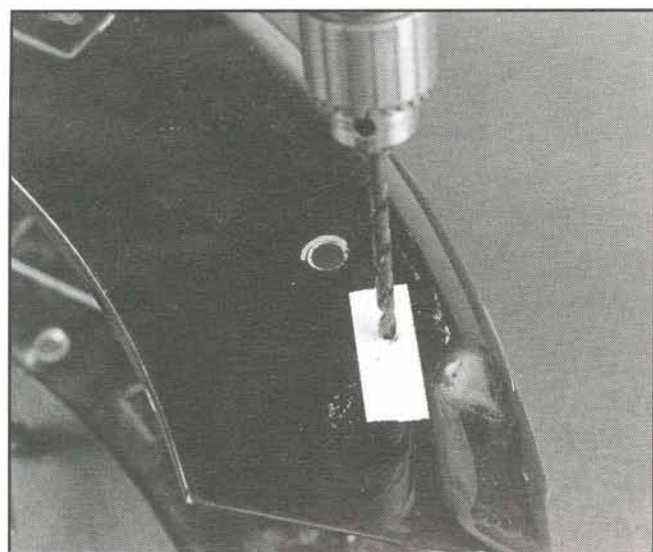
The next day, when the cement has hardened, you'll be ready to run a chain through the pipe—and your ride. Cobralink provides case-hardened, mesh-covered, snake-like chains in lengths of 5 feet, ideal for Sportys; 7 feet, for most rigid and swingarm bikes; and 8 feet, for dressers. Bomber's runnin' an 8-footer that runs clear through the frame of his pan, right up to his ol' lady's side of the bed. No insurance needed.

—Buster

To get in touch with this enterprising backyard biker and his security system, call H&M American Ent., (800) 346-4331.

Paintin' Blues

By Wilburn Roach with Bob Stark



Everyone is faced with this dilemma sooner or later. Someone gives ya a front fender light for your fat fender, or ya sent somethin' out to the painter and forgot to drill one last hole. Well, here's how to drill that hole the right way, from one of the most respected Indian restoration experts in the country, Bob Stark of Starklite Cycle, Fullerton, California.

One of the major problems when drilling holes in a painted surface is chipping the paint at the edge of the hole. Here's the best method we have found to prevent this problem:

1. Put a piece of masking tape over

the area where the hole is to be drilled.

2. Locate the hole center with a pen or pencil.

3. Use a center punch to put a very slight dent at the center of the hole. (Take your time—you only want to drill this once.)

4. Use a small drill (usually a 3/32-inch or a 1/8-inch bit) to slowly drill the initial hole.

5. Enlarge the hole in increments not exceeding 1/8-inch till the desired hole size is reached. Drill slowly.

6. After the desired hole size is reached, lift the masking tape around the outer edge and slowly peel it away

from the paint by pulling it toward the hole. Do not pull from the hole outward or it can pull the paint off.

7. After the tape is off, use clear enamel on a small paint brush to coat the bare metal and paint edge inside the hole. This will seal the paint so the weather can't get in and start problems.

8. Allow the clear enamel to dry and insert your fastener.

That's it. It takes some additional care, but good work in general and fine detailing in particular are damn rewarding. So take your time, and you'll be proud of the finished scooter. Besides, the paint job will last a helluva lot longer. ●



Restoration Project

Gettin' A Feel For The Hard To Find

By Maestro



This 1936 VLH has gone a long way from its original condition, and the way back will be just as long and hard — no run for the weak of spirit.

Among the devotees of motorcycles, from custom choppers to bone stock dressers, the biker fraternity includes a finicky sect that finds its pleasures, not from changing a Harley or Indian or whatever from the way it started out, but in putting it back the way it originally was when new, even if "new" means 1921.

Many of us have attempted to join the restoration brotherhood, but as the respected vintage authority, Mike Egan warns, the membership dues take as much time, money, and long-term devotion as any other two-wheeled passions.

Egan restores bikes and sells vintage parts as M.F. Egan's Vintage Motorcycle in Santa Paula, California. Mike has been rebuilding antique and modern Harleys (not to mention Indians, Triumphs, and a bunch of others) for nearly 30 years, along the way seeing a sad number of restorations fail simply because people didn't realize what they were getting into.

"Restore," in this context, means to rebuild the bike identical to the way it rolled off the assembly line at the factory, and the true believers will not toler-

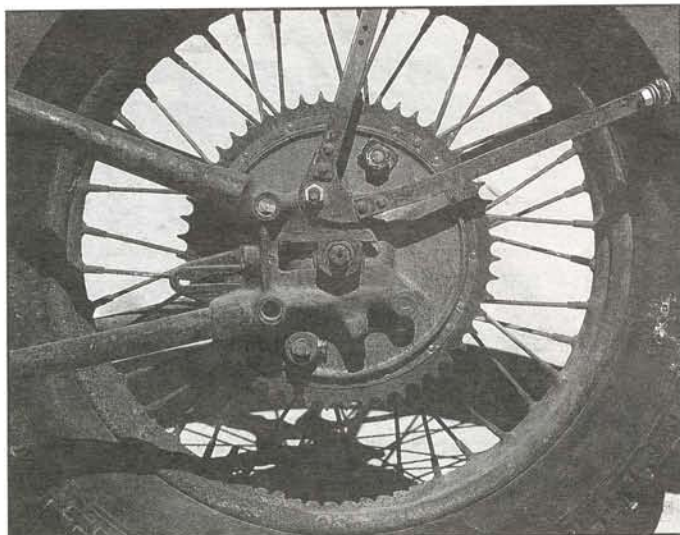
ate exceptions. Sure, some bros *will* take the tool box off a 1936 VLH to see if the mount is truly original, 'cause who'd want some bastardized one whittled out of a later model? On the other hand, when somebody sees a 1953 K model with duct tape on the grips, the reaction is, "Who cares?", 'cept for our pal, Skeeter Todd, and a handful of other K-freaks.

You see where this leads: not all restorations command equal respect. For instance, what's the point in spending up to \$20,000 for a restoration that nobody would buy for \$2,500? To get maximum value, your hard earned cash and labor to restore should go into a bike with some kind of distinction. For instance, Egan suggests the '36 VLH, which was the first of the 80 cubic-inchers, or the '48 pan, the last of the springer forks and the first of the tin tops. These things go in fashions, too, so naturally, knuckles of all years are desirable restorables, even though they are not particularly rare. Of course, restoration is a private and personal matter, too. If you just admire a particular model—it was built the

year you were born, the year you got married, or the year you got divorced—and want it for your own satisfaction, then suit yourself. Just don't look at it as a money-making project.

Once you get your choice item in hand, you'll fall into the initiation phase of your new membership. Find out about the vintage shops in your area, and check their pedigrees carefully. Some haven't fully earned the title and may not be the place to go. Likewise, you'll want to check out vintage swap meets and get acquainted with the regular vendors. Let them know what you're looking for. If they don't have it, they may know someone who does.

The next step is to make some tough, honest decisions about: 1) what you can do yourself and 2) what you better farm out to a specialist—that is, a qualified one. If you don't know how to handle rust, for example, you can destroy more than you save just getting things apart. You can also screw up with enthusiastic ignorance: dunk a frame in a caustic chemical bath, and the caustic liquid will



Rust. You'll fight it all the way.



And when you finish, you'll have this.

creep into tiny crevices in the metal and ooze out months later to spoil a paint job. These are just two of many sources of potential disappointment. A restoration, Egan advises, more than any other project, means that, "If you don't know, you better ask someone who does."

You can usually get a shop manual for the bikes that people ride, even a scooter 50 years old. For the real oldies, and for the *real* rarities like Pope, Excelsior, Superior, Cleveland and others, you'll find yourself photocopying drawings from a 1916 issue of *Popular Science*.

The upshot is, you virtually have to write your own manual as you go along. Get an auto-exposure 35mm camera and take pictures of everything, especially details of disassembly, from several angles. Black-and-white film is fine, but you'll have trouble finding a processor nowadays, so you may as well use color. Make notes along the way, and diagrams. Sometimes whether the bolthead goes inside or out makes the difference in things going back together, months after you've forgotten how they came apart.

Do not—and Mike Egan gives this warning great emphasis—do *not* take things apart without doing your documentation. The bitter tears of failure stain many of those basket cases you see for sale: somebody got it apart, scattered the hardware, and couldn't figure out how it went back together.

Vintage specialists, such as the various clubs and swap meets do an amazing job of supplying parts and expertise for restorations. Mike Egan, for example, has 100 tons of new and used parts and accessories for both modern Harleys and candidates for restoration—enough goodies to fill a 160-page catalog. He also offers full rebuilding services for 45 and Big Twin engines, and maintains an inventory of vintage and classic cycles, (805) 933-1557. Nonetheless, you can't expect a restoration to be easy (just absorbing and interesting). Hassles will arise, gaskets being a special problem. Auto parts stores can supply the common paper and cork gasket material, but you'll look long and hard for that ultra-thin gasket paper used between cases

and at transmission end plates. If you absolutely can't find the thin paper, let the specialty shop solve the problem.

This is just the tip of the iceberg. You'll also have the problem of finding the right pegs, the right stand, getting old stuff rechromed, finding instruments (and getting their faces repainted), getting the paint and the logo right, and having the right size spokes—this is still all on the outside. Inside, you'll need engine bearings, transmission thrust washers, and even special lock-tab washers. In other words, a restoration project is not for a guy who demands instant results.

On the other hand, if you get your pleasure from preserving the original truths whence the latest Evo springs and want to get elbow and billfold deep into restoration, let us know. Drop a line to:

Restoration Project
Box 3000
Agoura Hills, CA 91301.

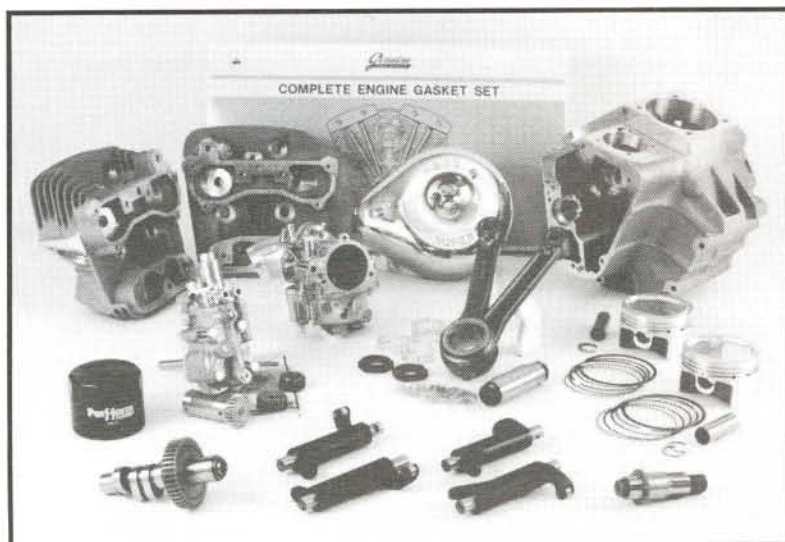
If you need advice, lay the question on us. Also, tell us what bikes you're working on, or are interested in. ☉

Photos by Don Sharp



Cobble work to fix — an off-year clutch with the hub nut gouged out by a blunt chisel.

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MODEL HISTORY OF THE WORLD'S BEST

Harley-Davidson 90th Birthday Is Just Around The Corner

Harley-Davidson of Milwaukee, Wisconsin—not just America's oldest motorcycle company, but the oldest in the world. Other marques began as early, but died on the market trail or lost themselves in amalgamations that robbed them of their identity. Of the original turn-of-the-century bunch who set out to put the world on two wheels, only Harley-Davidson survives.

Officially, the company dates itself from 1903, but the story really begins in 1901 with William S. Harley and Arthur Davidson trying to build an engine for a bicycle. Arthur's brother, Walter, a railroad machinist, joined them in 1902, shortly followed by yet another brother, William A. Davidson. By late 1902, they had an engine that ran well enough by the standards of the day, so they designed a "loop" frame to go with it and got ready to build motorcycles.

Noting that the "kids" were playing with gasoline down in the basement, the Davidson father, William C., built them a nice 10-foot x 15-foot "factory" in the backyard. Harley and the Davidson brothers painted *Harley-Davidson Motor Co.* on the door and spent most of 1903 putting three prototypes together. In December, they sold the first one. After that, they kept on building.

Harley-Davidson raced against the best in the early days, went to war in 1917, survived and made progress during the Great Depression, went back in uniform in '42, and made Glide forks as much a part of the '50s as tailfin cars. The success or failure of a family business can sometimes turn on a dime, though, and in 1965 they had to "go public" to raise money. That opened the door to a friendly take-over by American Machine and Foundry in 1969, a take-over that provided a new factory in York, Pennsylvania, but which also diluted the H-D name with a line of low-displacement bikes of foreign extraction.

The Nixon-Carter years were bad for H-D (and for everybody else building things in this country). By 1980, AMF corporate management had about all of the motorcycle business it could take and began regarding H-D as a candi-

date for a mercy killing. Fortunately, a group of H-D officials mounted a plan to buy the company and run it the way it started out: by a close-knit group devoted to motorcycles. After the buy-out in 1981, and after some initial hassles getting re-organized, the new management brought out the new Evolution engine, along with several new designs, including the Softail that has become so popular. They also set up the Harley Owners Group (H.O.G.) and encouraged all other Harley riders to support their runs for the Muscular Dystrophy Association (MDA).

Not a bad record for 89 years. Consider, for example, the hundred or more American companies that built bikes at one time or another but disappeared leaving no more than traces. In the same way, as many as 2,500 companies once built cars in America. Note likewise the way aircraft, truck, and farm equipment names have disappeared from the national roster. Yet, Harley-Davidson survived all that and now builds a bike that more people want the most.

Even Harley riders have trouble explaining the attraction, though all would agree that the V-twin rumble accounts for a lot of it. No matter the reason, Harley-Davidson remains, as one Citicorp banker observed, about the only product name that people tattoo across their chests.

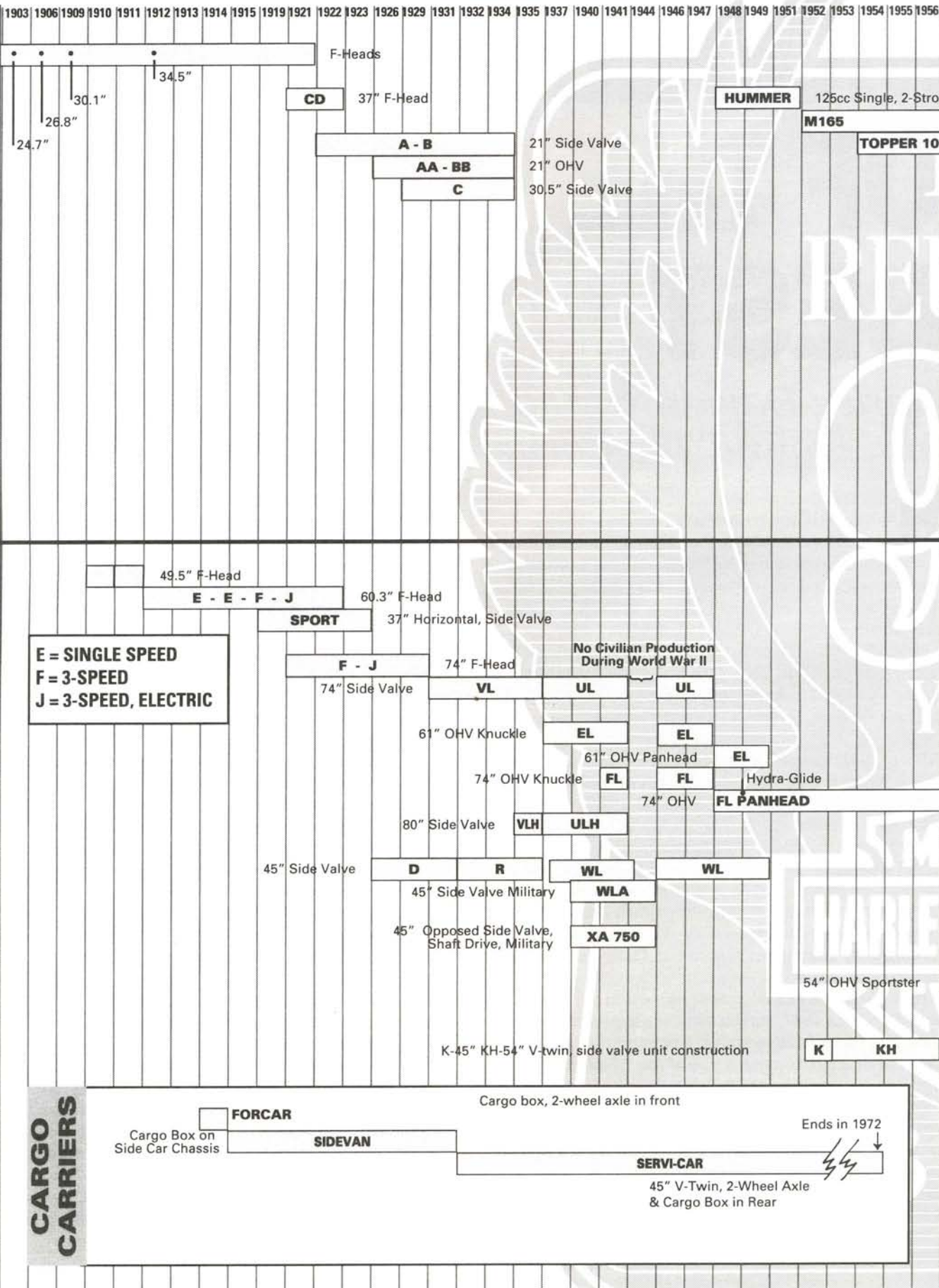
To celebrate the past 90 years, in June 1993, H-D invites its riders to come to Milwaukee for a big birthday party. On the way, those who like can participate in a series of national MDA runs that will depart from L.A. and San Francisco in Calif.; from Orlando, Fla.; from Kitty Hawk, N.C.; and, from San Antonio, Texas. Canadians will depart from Edmonton, Alberta; Vancouver, British Columbia; and Montreal, Quebec.

As a birthday salute we dusted off our H-D History Chart, did our damndest to update it (with some assistance from the factory, thanks John) and have reprinted it on the following pages—enjoy. —Maestro

SINGLES

TWINS

CARGO CARRIERS



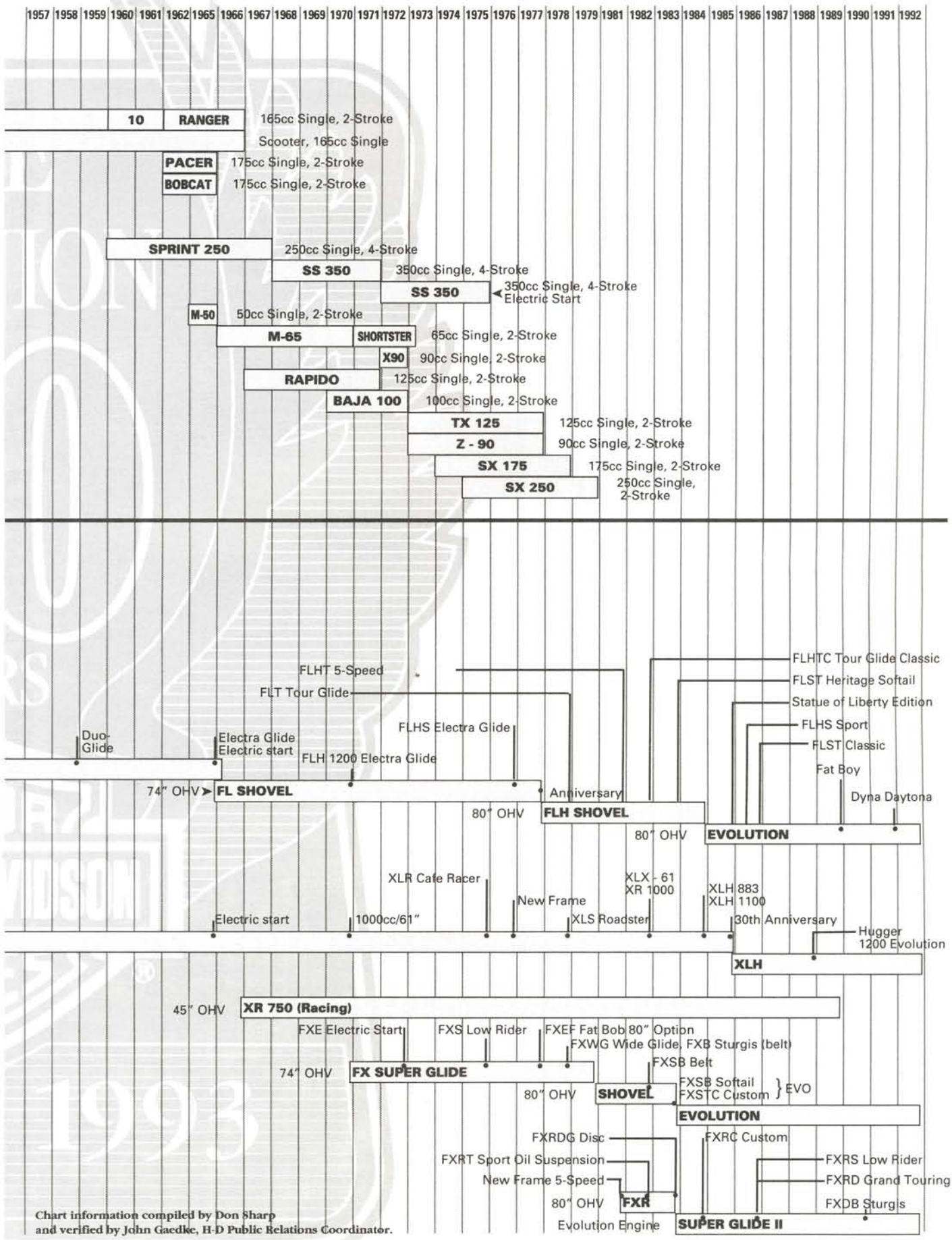


Chart information compiled by Don Sharp
and verified by John Gaedke, H-D Public Relations Coordinator.

THE ULTIMATE IN LUBRICANTS



Welcome to Kal-Gard® the world leader in lubrication technologies! Kal-Gard® lubrication products deliver the ultimate in quality, performance and value for all your lubrication needs. In fact, the entire concept of the science of lubrication is taken very seriously at Kal-Gard®, we feel that it is our major obligation to produce the very best possible product. Consequently, we deliver the same quality and professionalism to all of our customers, whether they are Boeing, NASA, or the motorcycle shop down the road.

We are continually analyzing the lubrication needs at all levels of motorsports activities, making certain that we are always able to provide lubricants to meet their special demands. Every Kal-Gard® product is designed for a specific purpose and to provide our customers with protection, safety, maintenance economy and performance. Every Kal-Gard® product will perform exactly as we say it will, we prove this every day in an awesome array of military and government tests that all of our aerospace products must endure. Kal-Gard® is truly The Ultimate in Lubricants.

KAL-GARD CHAIN KOTE is a specially developed lubricant for heavy duty roller chain applications. Chains have a unique requirement in that the lubricant must be very thin to penetrate the critical inner roller area, but thick enough to resist being thrown off at high speed. CHAIN KOTE is the perfect answer. It has a thin, penetrating lubricant that carries a high concentration of Moly and a high viscosity bonding agent which bonds directly to the areas of maximum load and wear. CHAIN KOTE will not be thrown off your chain at high speeds when properly applied, as per manufacturer's recommendations. It should be applied more often under competition of extremely dusty conditions.

KAL-GARD FOAM FILTER OIL is a special blend of oil and a high-tack bonding agent that stops sand, dirt and other contaminants from passing through the filter. This product will be especially popular with off-road and racing motorcycle riders. FOAM FILTER OIL is easy to apply and penetrates quickly into the smallest crevices to trap the maximum amount of dirt, contributing greatly to increased engine life.

KAL-GARD CONTACT KLEANER contains a special formulation of fast-drying, water-displacing solvents which rapidly cuts through oils and greases, leaving practically no residue and is excellent for ignition points, plugs and deep-cleaning bearings and drive chains, prior to lubrication.

KAL-GARD ENGINE GARD When added to 4 to 5 quarts of oil, ENGINE GARD offers the perfect Moly blend for all motorcycle engines and crank cases. ENGINE GARD will significantly reduce the friction and wear within your engine, providing a smoother shifting transmission, and giving you an increase in horsepower. Factory racing teams and touring riders around the world use ENGINE GARD to protect their expensive machinery. ENGINE GARD's Moly additive sets up a protective barrier of lubrication to prevent damage, even during starting and high load conditions.

Add ENGINE GARD next time you change your oil or when you need to top up your present oil and give your engine the best protection available. Also add ENGINE GARD to your manual transmission for the ultimate in performance and protection. We think your engines and transmissions are worth it.

KAL-GARD COMP 2 has a very complex combination of ingredients with synthetic and petroleum based lubricants that provides outstanding film strength with extremely low ash content. The petroleum-based element is used to achieve excellent lubrication at low to medium engine speeds. The synthetic element provides lubrication at temperatures and engine speeds will in excess of those that can be reached by any two-stroke engine. The additive package in this oil is the finest combination of ashless chemicals available, specifically designed for use in very high performance two-stroke, and far exceeds the capabilities of conventional lubricants.

KAL-GARD FILTER KLEANER is the answer to a motorcyclist's prayer. All you need to do is spray this product on your greasy, dirt-clogged filter, rinse with clean water, and that's it! Kal-Gard FILTER KLEANER works fast and is extremely effective. Even the thickest grunge just melts away instantly, leaving your filter clean and ready to use. There is no need to use gasoline or other flammable liquids ever again. FILTER KLEANER is completely water soluble and biodegradable. It can be used on all foam and fabric filters.

Indian History

In comparison to Harley-Davidson—and the comparison cannot be avoided, for it will always be made—Indian drew the better cards, but played them very badly. The early founders, George M. Hendee and Oscar Hedstrom, ran afoul of investors who loved money more than motorcycles. In the middle years, Indian wasted considerable energy and money in ventures—for example, outboard motors, automotive shock absorbers, gas cookstoves, and a convertible coupe powered by a 74-cubic-inch V-twin—that lay outside their competence. In the last days, the company fell among thieves who squandered its good name on unworthy machinery and left the famous marque holding aces and eights.

George M. Hendee began building bicycles in Springfield, Massachusetts, in 1898. This connection led to an acquaintanceship with Oscar Hedstrom, a racing cyclist. In those days, riders on a tandem bike ran ahead of a solo rider to break the wind for him. Engines were adapted to these pace bikes, which still carried two riders—one to steer and one to look after the engine. Hedstrom rode mechanic and built a pace bike that became famous for its reliability.

Hendee invited Hedstrom to join forces in building motorcycles. Hedstrom agreed, and while Hendee rounded up enough investors to get started, Hedstrom built a 13-cubic-inch, F-head engine of 1-3/4" hp that fit nicely into Hendee's standard frame. In 1901, he tested the prototype on Springfield's Cross Street Hill, a formidable 19-degree grade. The bike won the contest and Hendee Manufacturing Company built and sold 143 of the first models in 1902.

Hedstrom never slowed down afterwards. Indian had springer forks in 1905, a V-twin engine in 1907, a two-speed transmission in 1910, and rear suspension in 1913. Indians did not dominate in early racing, but they certainly kept the competition sweating to keep up or stay ahead.

Some shareholders, alas, were only interested in immediate dividends. Their distaste for Hedstrom's insistence on spending money for the best

materials and to support a racing team led Hedstrom to resign in 1913. Hendee himself resigned in 1916. Without the two founders to provide focus, Hendee/Indian rather floundered for the next dozen years or so. They improved and expanded the product line, and maintained their eminence in racing, but the company seemed always on the verge of failure.

In 1923, the shareholders changed the name to Indian Motorcycle Company—no "r" for legal reasons. Astute management by General Manager Frank Weschler got the company's finances in order by the late 1920s, despite a misguided effort to manufacture stationary engines. An equally misguided effort to develop a low-displacement motorcycle for a market that did not exist also wasted considerable money, but was at least balanced by the acquisition of in 1927. The four-cylinder Ace, designed by the William G. Henderson who originated the Henderson bikes, was the direction to go: bigger engines, not smaller ones.

Feeling flush, the shareholders voted to use the cash reserves to play the stock market, rather than plow them back into the company. Weschler resigned, and for the next few years Indian was the victim of its own opportunistic owners. Nonetheless, the engineers developed, and the production workers built, some of Indian's better works, particularly the 101-model Scouts.

The playing of stock-market games eventually degenerated into to borderline fraud. The threat of exposure led some members of the board of directors to sell their shares to Du Pont Motors, a producer of luxury cars headed by E. Paul Du Pont. Du Pont took over at Indian, and gave the company the stability it needed to survive the Depression and to improve the Scouts and Aces.

WWII initially helped Indian because of overseas orders, but ultimately the war almost killed the company: In the first place, Indian didn't make good profits off their military contracts. Second, the Army cancelled contracts in 1944, leaving Indian holding a large inventory of parts that could not be immediately shifted to civilian production.



As a final blow, in 1945 the company fell into the (deeply indebted) hands of Ralph B. Rogers, who apparently believed that the day of the big V-twin was over. Rogers planned to turn Indian into a builder of smaller motorcycles modelled on British lines. Accordingly, he authorized only enough production of the Chief models to keep dealers from resigning. When the small-displacement Indians finally became available, few people wanted them but people who wanted Chiefs couldn't get them.

Financial problems next led a mauling at the hands of the people who provided financing for Rogers, namely the Atlas Corporation of New York and Brockhouse, Ltd. of England. In 1949, Atlas and Brockhouse divided the company into separate manufacturing and sales units, with manufacturing under the supervision of Titeflex Corporation, one of Atlas' properties. Titeflex built Chiefs and 500cc Warriors until 1953, then shut down the factory and sold the tooling.

Brockhouse and its successors were mainly interested in using the Indian name to impute Indian quality to the British iron they imported. The pretense did not last long, and neither did the Brockhouse successors. Indian was last used as the name of a motorcycle in 1959.

But a legend—and a reputation—that good won't die. In fact, it can even come back to life. Wayne Baughman, of Indian Motorcycle Manufacturing, Inc., of Albuquerque, New Mexico, proposes to build up-dated replicas of the original Indians. He expects to demonstrate prototypes by late 1992, and to have his new Indians available for sale by mid-1993. So, maybe the name hasn't ended, after all.

—Maestro

INDIAN LORE 1901-1955

1901 1902 1904 1905 1907 1908 1910 1914 1915 1916 1917 1918 1919 1920 1921 1923 1925 1927 1928

■ HENDEE MANUFACTURING COMPANY

■ INDIAN MOTORCYCLE

SINGLES

1 3/4 - 3 1/2 hp

4 hp

◀ F-Head

POWERPLUS

◀ 33-inch Side Valve

◀ Featherweight, 2-cycle, 296cc

PRINCE

◀ V-Twin, 26-inch, F-Head

LIGHT TWIN

◀ V-Twin, 37-inch, F-Head

BIG TWIN

◀ V-Twin, 61-inch, F-Head

2 Cylinder, opposed, 4-cycle, 250 cc. ▶

MODEL O

▶ V-Twin, 61-inch, Side Valve

POWERPLUS / STANDARD / CHIEF

SCOUT

Indian went through three organizations before it closed up. Founder George M. Hendee ran things during the first era. After he retired, the company adopted the name of "Indian Motorcycle"—no "R" for trademark reasons—and was guided by E. Paul Du Pont, whose family owned the controlling interest. Following the Du Pont era, the company fell into the hands of Titeflex Corporation.

The New York City Police Department loved Indians, so in 1955 they wrote the bid specifications for new motorcycles in such a way that only an Indian could qualify. Although the factory had been shut down for two years, the NYPD order was filled by assembling 80-inch Blackhawk models from parts remaining on the shelves. These are among the choicest of Indian collectibles, but don't expect to find one easy: only 200 were made.

TWINS AND FOURS

Notes For Indian chart

Milestones

1901-22	Hendee Manufacturing Company
1923-49	Indian Motorcycle Company
1949-53	Titeflex Corporation

Paint

1902-1909	Navy blue paint
1910 ff.	Indian red paint

Forks

1905	Springer fork with leaf spring
1925	Link fork with coil spring (copied from Velocette)
1947	Hydraulic forks

Rear Suspension

1913	Cradle rear suspension with twin leaf springs.
1919	37-inch Scout, rigid
1920	All models rigid
1940	Plunger rear suspension

Transmission

1910	2-speed
1915	3-speed
1947	4-speed

Chain Brakes

Chain drive used from the beginning

1927	Front wheel brake for Scout
1929	Front wheel brake for Chief
1931	Internal expanding rear brake

Electrics

1914	Electric start (failure, inadequate batteries)
1915	Electric (success)

Side Valves

1916	Side Valve 61-inch
------	--------------------

Sidecar

1913	Sidecar for twins
------	-------------------

4-cylinder

1927	4-cyl. model
------	--------------

Wartime

1939	Order of 5,000 Chief models for French army apparently lost to U-boats
1944	WWII military production equal 42,044 units,

Here's your capsule history of the Indian marque. Sources differ about what year a particular model came out, and we've generally assigned a model to the first year it was available rather than to its official model year.

1929	1930	1932	1934	1935	1939	1940	1942	1943	1944	1946	1947	1949	1950	1953	1954	1955
CYCLE COMPANY								TITEFLEX CORPORATION								
<21-inch Side Valve and OHV Models <37-inch Side Valve TOPLANE/ SCOUT / SPORT SCOUT <45-inch Side Valve 640 <45-inch Side Valve, Military 841 <90°, 45-inch, Side Valve, Military (1943 only) PONY/JUNIOR <30.50-inch Side Valve 741 <30.50-inch Side Valve, Military BIG CHIEF / CHIEF → <74-inch Side 340-B <74-inch Side Valve, Military/Police ACE <4-cyl., in-line, 77-inch F-Head BRITISH DERIVATIVES ARROW <13-inch OHV Single SCOUT <26-inch OHV Twin WARRIOR <500cc OHV Twin																

Henderson, Ace, and Indian

William G. Henderson designed an F-head four and began producing motorcycles in Detroit in 1912. In 1917 he sold the name and patents to Ignatz Schwinn of Chicago, who built bicycles and Excelsior motorcycles. With design changes along the way, Schwinn produced Excelsiors and Hendersons until 1931.

Henderson designed a new engine, found some financing, and began producing Ace motorcycles in Philadelphia in 1919. Unfortunately, he was run down by a car while testing a bike in 1922, and financial starvation brought production to an end in 1924. The buyer of the name and tooling moved production to Blossburg, Pennsylvania, but shut down within a year. A new firm, Michigan Motors Corporation, put Ace back in production in Detroit in 1926. In late 1926, Indian bought Michigan Motors, moved production to Springfield, and added the bike to their line as the Indian Ace, later the Indian Four.

The Four was simply one way to get more cubic inches. As V-twins got bigger, the Four had less reason to exist, so Indian did not produce it after WWII.

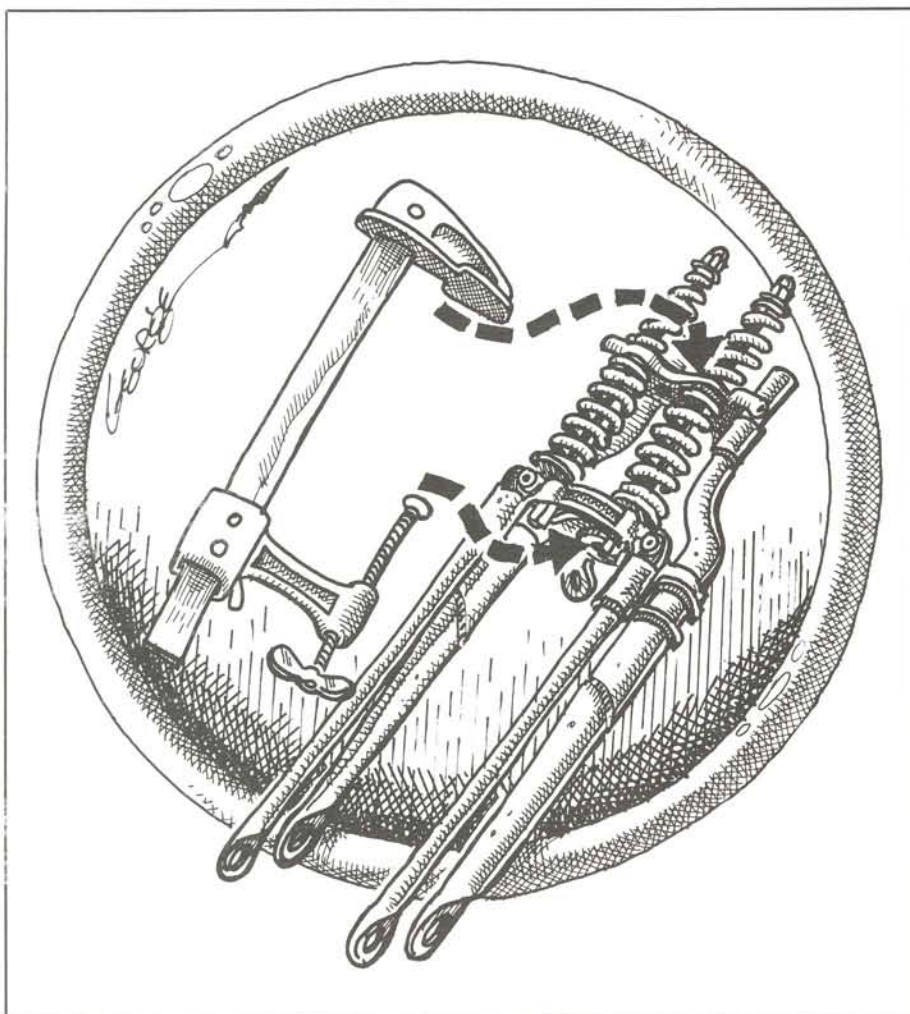
When post-war production resumed in 1946, Indian offered three Chief models: the plain Clubman, the fancier Sportsman, and the full-dress Roadmaster. After 1950, all Chiefs carried the Blackhawk designation.

Based on Harry V. Sucher's, *The Iron Redskin*, Haynes Publications, Inc., Newbury Park, California (1977).

FIX TIPS

SPRINGER SPRINGS

Removing And Installing Springer Springs



Now you can paint or chrome the springer parts you want—and put them back together without harming yourself, your bro, or the front end!

Ever been up against the problem of trying to disassemble a springer front end without having the springs end up in the next county?

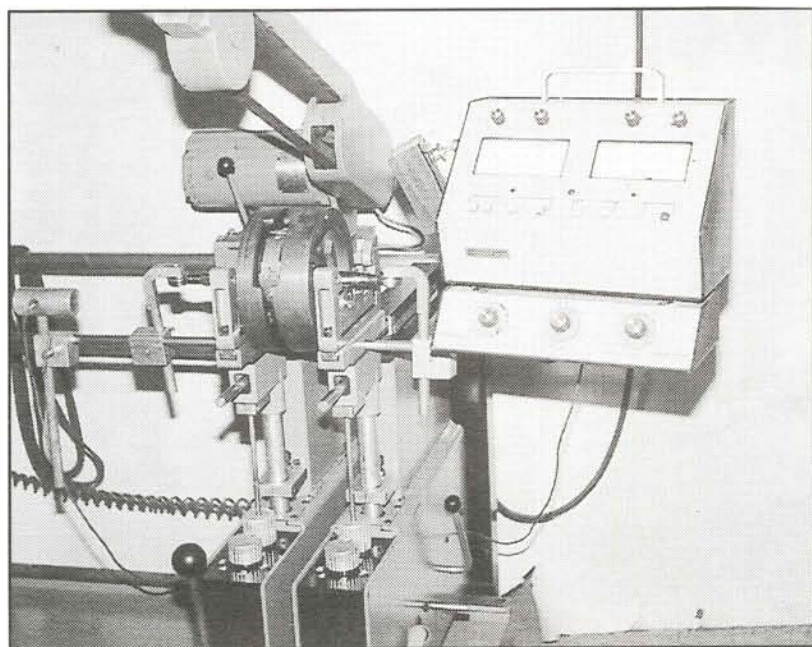
I happened upon this easy way one day, as I was kickin' back, gazing at the tools on my peg-board. There it was . . . a giant-sized clamp I had used time and time again on welding and assembling projects. This particular one is made in the USA by the Jorgensen Co., the part number is 4518.

It has a very large reach and, if used properly, can be clamped between the crossover area on the front fork (between spring rods) and on top of the crossover area on the rear fork. This will compress the springs down, as you draw in the large "wing head bolt" on the clamp, and release the tension against the nuts on top of the springs.

It is a helluva lot easier than simply loosening the nuts and watching them sail into your bro's crotch, ending a friendship. Oh yeah, did I mention to have the front end "off" the bike and rockers removed?

—Terry Williams
Latham, III.

If Your Smooth Ride Isn't.



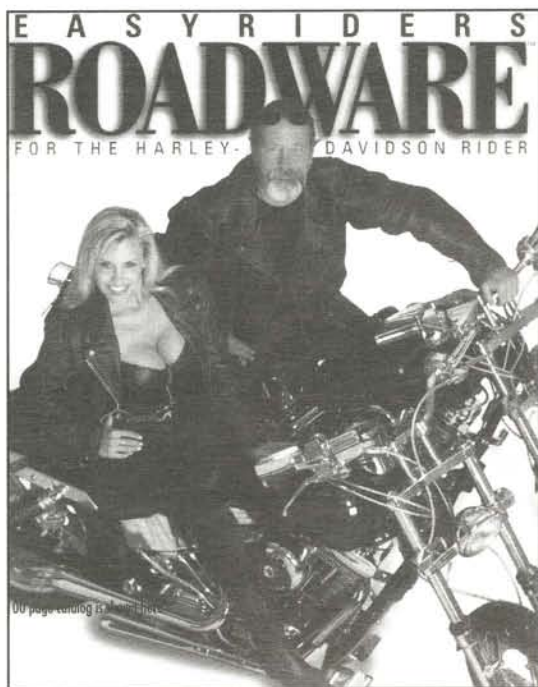
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American Motorcycle Manufacturers

*Who Built What,
When And Where?*



About a dozen years ago, Michael Gerald and Jim Lucas, a pair of respected motorcycling word-mongers, hunted up the names of all the American motorcycle manufacturers they could find. The list they compiled earned the approval of the vintage motorcycle people and *Easyriders* published it in the February, 1992, issue.

And promptly got a complaint from a reader in Germany. The reader submitted a list compiled by one Wolfgang Wiesner, which we publish here as "Wolfgang's List," and gave us some heat for not knowing about the names Wolfgang added to Gerald-Lucas.

Problem is, we don't entirely trust Wolfgang's list. The antique clubs don't recognize it, and the office ancient thinks the Yardman Motorette was a garden tractor. To check it out, we turned to the sources we could find in our desks; *to wit and viz.*, Harry V. Sucher's history of Indian motorcycles, *The Iron Redskin*; Erwin Tragatsch's *Illustrated Encyclopedia of Motorcycles*; and a few issues of *Vintage Mounts*, the now defunct antique magazine of several years ago. In checking on Wolfgang, though, we found arguable elements in the Gerald-Lucas list, too.

A few remarks about these sources. Sucher has been condemned for occasional (or frequent) errors. On the other hand, the biker adage says "If you ain't been there, shut the hell up." That is, Sucher's book runs to 334 fair-size pages of small print, meaning the typescript must have run close to 1,000 pages. If you've never put together a 1,000 page manuscript that covers 60-odd years of confused history, you won't appreciate the job Sucher set for himself. Yeah, maybe he got a few things wrong, but he still provides the starting point for anyone interested in Indian, tells a lot about other motorcycles, and gives detailed reports on the early races. Give the man a little slack.

Like Sherwin-Williams Paints, Tragatsch's *Encyclopedia* covers the earth. You will have no idea how many different bikes and scooters have been built somewhere, at one time or another, until you check out Tragatsch. However, since his scope is international, his list of American manufacturers includes only about one-third of those on the Gerald-Lucas list.

Vintage Mounts was published in Jacksonville, Florida, with Gene Edwards as Publisher and C. Tim Riley as Technical and Historical Consultant. (If you guys read this, give us a call.)

Vintage Mounts cleared up some fuzzy details in the other sources.

The lists raise the question of what a name had to do, or be, to get included. Take Pennington, for example. As Sucher tells it, Pennington was a hustler in Trenton, New Jersey. In 1894, he built a bike with a two-cylinder engine mounted behind the rear wheel. The connecting rods ran to the rear axle, which also served as the crankshaft. Alas for two-wheeled progress, Pennington made no provision for cooling, so he had to keep his demonstration runs very short to assure that the pistons didn't seize up and spoil the impression he was trying to make. A hundred yards per ride didn't persuade would-be investors, so Pennington took the idea to England and sold it to one Harry J. Lawson. Lawson built two bikes to Pennington's design, but neither would run. Pennington, meanwhile, took Lawson's money and came home before he could be prosecuted for fraud.

Sucher says the affair ended in 1899. Tragatsch lists it as an English effort of 1896-97. Gerald-Lucas don't list it - after all, the Pennington never ran and was never sold (to anybody but Lawson, and he wasn't interested in riding it). Wolfgang lists it but locates it



in Cleveland, Ohio.

We'd trust Sucher on the location, but the question remains: Does the Pennington belong on a list of motorcycles that were once "manufactured"?

As an illustration of the way a simple listing obscures the facts, we learn from *Vintage Mounts* that Merkel originated in Milwaukee (in 1902 according to Gerald-Lucas), but merged with the Light Motor Company of Pottstown, Pennsylvania in 1909, which accounts for the Merkel Light. (Wolfgang puts Light in Marietta, a village about 50 miles west of Pottstown, but let it pass.) In 1910, the company built the Flying Merkel, a purely racing machine that was not available to the public. Although built in limited numbers for only one year, the Flying Merkel stayed prominent on the racing circuit for several years afterward. In 1911, the company merged with Miami Motorcycle Company, and moved operations to Middletown, Ohio.

Question: if the Flying Merkel was a limited-edition racer that was not sold to the public, does it belong on the list? If it does, then every racing special built by Indian and Harley-Davidson belongs on the list, too, right?

Picking up the story from Sucher, much of the Merkel reliability came

from the ball bearings the company bought from Germany. WWI cut off the supply of bearings and Merkel went into decline. In a desperate, last-ditch effort of 1922, the company designed a bike with the engine incorporated into the rear wheel, and proposed to sell this aberration as the Merkel Motor Wheel.

Merkel bought castings from Brown and Sharpe, who also made castings for Indian. B&S talked Indian into assembling the Motor Wheel for Merkel, and the castings were shipped to Indian. Shortly thereafter, Merkel collapsed completely, so Indian assembled 200-odd engine-wheel contraptions and installed them in Indian frames. The result was neither a mechanical nor a market success (engine in the rear wheel? whaddya expect?). Indian got rid of the things any way they could, and, like a bunch of guys after a wife-swapping party, tried to forget what they'd done (perfectly understandable).

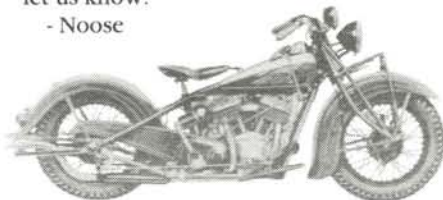
Sucher and Gerald-Lucas end the Flying Merkel in 1916. Tragatsch assigns it to 1909-15. Of the three sources, only Sucher mentions the Motor Wheel. Wolfgang lists the Motor Wheel but locates it in Rochester, New York, in 1917. Per Sucher, the Motor Wheel should be assigned to Indian of

Springfield, Massachusetts, in 1922.

A few other examples of confusion: *Vintage Mounts* assigns Marks to San Francisco in 1896-1902 and shows the picture to prove it. Gerald-Lucas don't list Marks, but Wolfgang assigns it to 1902, the year Marks merged with California, which itself later merged with Yale to form California-Yale. Gerald-Lucas assign Rocket to Columbus, Nebraska, but the Rocket we find in *Vintage Mounts* was built by Mitsubishi and looks like a one-lunger Brit. Gerald-Lucas give the J.B. Special to Long Island, but Tragatsch says it was built in Germany by Fichtel and Sachs and imported to America by a guy named Joe Berliner.

This gives you an idea of the documentary thicket you have to claw through to sort out motorcycle history. The net conclusion is that we don't have any one list that is complete and beyond question. Bros, if you know anything about any of these obscure names, let us know.

- Noose



Two-Wheeled History

Here's your chance to catch us chasin' women instead of studyin' history. Below is a listing of all the two-wheeled motorized vehicles produced in the United States between 1869 and 1979. It was originally compiled by Michael Gerald and Jim Lucas, and published by *Road Rider* magazine in August of 1979. It has been altered some since then and with your assistance, we'll continue to improve it.

Name	Location of Mfr.	Production Year(s)			
Ace	Philadelphia, PA	1920-24	Hawthorne	Chicago, IL	1912
AMC	Chicago, IL	1912-15	Heald	Benton Harbor, MI	1977
America	La Porte, IN	1904-06	Henderson	Chicago, IL	1911-31
American	Chicago, IL	1911-14	Herring	St. Joseph, MO	1899
American	Louisville, KY	1921	Hilaman	Moorestown, NJ	1906-12
American Rocket	Monterey Park, CA	1952	Hoffman	Chicago, IL	1906-07
Apache	Denver, CO	1907	Holley	Bradford, PA	1902-11
Argyle Scooter Club	Memphis, TN	1957-61	Horten Autbette	Detroit, MI	1911
Armac	Chicago, IL	1911-13	Hudson	Middletown, OH	1910-11
Arrow	Chicago, IL	1909-14	Imperial	?	1903
Aurora	Aurora, IL	1912	Imperial	?	1910
Autocycle	Philadelphia, PA	1907	Indian	Springfield, MA	1901-53
Autoped (Eveready)	New York, NY	1915-21	Indian Scout	El Monte, CA	1968
Badger	Milwaukee, WI	1919-21	Iver-Johnson	Fitchburg, MA	1907-15
Bayley-Flyer	Chicago, IL & Portland, OR	1913-17	Jack & Heintz	Cleveland, OH	1949-55
Barr Steam	Middletown, OH	1940	J.B. Special	Franklin Sq., NY	1950
Black Diamond	Philadelphia, PA	1905	Jeepette	Los Angeles, CA	1943
Blackhawk	Rock Island, IL	1911-12	Jefferson-Waverly	Jefferson, WI	1911-14
Bradley	Philadelphia, PA	1905-12	Johnson	Terre Haute & South Bend, IN	1918-22
Breed	Bay City, MI	1912	Kaye-Pennington	Racine, WI	1895
Buckeye	Columbus, OH	1905	Keating	Middletown, CT	1901-02
California	San Francisco, CA	1903-?	Kenzler-Waverly	Cambridge, WI	1910-14
Centaur	New York, NY	1961	Kokomo	Kokomo, IN	1909-11
Century	Chicago, IL	1917	Kulture	Rochester, NY	1909
Champion	St. Louis, MO	1911-13	Langford	Denver, CO	1912-21
Chicago 400	Chicago, IL	1905	LaRay	Milwaukee, WI	1946-48
Clark Cyclone	South Gate, CA	1947-48	Leo	Oakland, CA	1905
Clarke	St. Louis, MO	?	Light	Pottstown, PA	1901-08
Clemcut	Hartford, CT	1905-09	Lowther		
Cleveland	Hartford, CT	1902-04	Lightning	Joilet, IL	1949
Cleveland	Cleveland, OH	1915-29	Lunford	Marble, NC	1916
Cleveland Welding	Cleveland, OH	1950	Majestic	?	1912-13
Columbia	Hartford, CT	1900-05	Manson	Chicago, IL	1905-08
Comet	Elwood, IL	1911	Marathon	Hartford, CT	1912
Copeland Steam	Phoenix, AZ	1885	Marman	Inglewood, CA	1948
Crawford	Morgantown, WV	1913-14	Marsh	Brockton, MA	1900-06
Crescent	Hartford, CT	1905-06	Marsh-Metz	Brockton, MA	1906-13
Crocker	Los Angeles, CA	1936-41	Marvel	Hammondspport, NY	1910-13
Crosley	Cincinnati, OH	1943	Maxim	Hartford, CT	1893
Crouch	Stoneham, MA	1905-06	Maxim	?	1914
Crown	La Porte, IN	1910	Mayo	Pottstown, PA	1905-08
Curtiss	Hammondspport, NY	1903-12	MB	Buffalo, NY	1916-20
Cushman	Lincoln, NE	1938-42, 1945-47-?	McDonald	Chicago, IL	1905
C.V.S.	Philadelphia, PA	1911-?	Meadowbrook	Hempstead, NY	1905
Cycle-Scoot	Indianapolis, IN	1953-55	Merkel	Milwaukee, WI	1902-22
Cyclomobile	Toledo, OH	1917	Merkel Light	Pottstown, PA	1909-10
Cyclone	St. Paul, MN	1913-15	Meteor	Chicago, IL	1909
Dyton	Dayton, OH	1911-18	Metz	Waltham, MA	1901-06
Delaware	Delaware, OH	1909	Miami	Middletown, OH	1905-08
DeLong	Phoenix, NY	1902	Midget Bi-Car	Lynbrook, NY	1908-09
Deluxe	Chicago, IL	1912-15	Militaire	Cleveland, OH & Buffalo, NY	1911-17
Detroit	Detroit, MI	1910-11	Militor	Jersey City, NJ & Springfield, MA	1911-22
Detroit Bi-Car	Detroit, MI	1911	Michaelson	Minneapolis, MN	1908-13
Doodlebug	Webster City, IA	1954-58	Minneapolis	Minneapolis, MN	1910-14
Duck	Stockton, CA	1905	Mitchell	Racine, WI	1901-06
Dukelow	Chicago, IL	1913	MOHS	?	1967
Dyke	St. Louis, MO	1903-06	Monarch	Oswego, NY	1912-15
Dynacycle	St. Louis, MO	1949-52	Monark	Chicago, IL	1950-55
Eagle	Minneapolis, MN	1909	Moore Car	Indianapolis, IN	1917
Eagle	Chicago, IL	1910-15	Morgan	Brooklyn, NY	1902
Electra	?	1912	Morse-Beauregard	Detroit, MI	1912-17
Elk	Elkhart, IN	1911	Motopede	Rutherford, NJ	1921
Emblem	Angola, NY	1909-17	Moto-Glide	Los Angeles, CA	1937
Erie	Hammondspport, NY	1909-11	Moto-Scout	Chicago, IL	1946-48
Eshelman	Baltimore, NY	1954	Mustang	Glendale, CA	1945-61, 1971
Evans	Rochester/Albany, NY	1918-27	Nelk	Palo Alto, CA	1905, 1912
Excelsior	Chicago, IL	1907-24	Ner-A-Car	Syracuse, NY	1922-27
Fairchild	Pasadena, CA	?	New Era	Dayton, OH	1909-13
Feilbach Ltd.	Milwaukee, WI	1912-15	New London	New London, OH	1896
Flanders	Detroit, MI	1911-14	Nilsson's Uno Wheel	?	1936
Flying Merkel	Pottstown, PA & Middletown, OH	1911-16	Nyberg	Chicago, IL	1913
Fowler Four	Cleveland, OH	1924	Oakes	Johnstown, PA	1916
Franklin	Mt. Vernon, WA	1899-1900	Orient	Waltham, MA	1900-05
Freyer & Miller	Columbus, OH	1902-07	Pam Autocycle	New York, NY	1921-22
Geer	St. Louis, MO	1905-09	Pansy	?	1905
Gelbke-Auto Four	Chicago, IL	1971-72	Paramount	Columbus, OH	1917
Gerhart	Mt. Holly Springs, PA	1912-13	Patee	Indianapolis, IN	1901
Gibson Mon-Auto	New York, NY	1915-17	Peerless	Boston, MA	1912-16
Globester	Joilet, IL	1946-49	P.E.M.	Jefferson, WI	1911-15
Greyhound	Buffalo, NY	1907-14	Pierce	Buffalo, NY	1909-13
H&H	San Diego, CA	1902-03	Pirate	Milwaukee, WI	1913-15
Harley-Davidson	Milwaukee, WI	1903-	Playboy	Oakland, CA	1956
Haverford	Philadelphia, PA	1909-14	Pope	Hartford, CT & Westfield, MA	1911-18
			Powell	Compton, CA	1939-42, 1945-52

Wolfgang's List

Pratt	Elkhart, IN	1911-12
R & H	Brockton, MA	1905
Racyle	Middletown, OH	1905-11
Rambler	Hartford, CT	1904-14
Reading - Standard	Reading, PA	1903-22
Redman	?	1902-90
Reliance	Addison & Oswego, NY	1903-?
Riotte	New York City, NY	1895
Rocket	Columbus, NE	1962
Rokon	Keene, NH	1967-77
Roper Steam Velocipede	Roxbury, MA	1869
Royal	Worcester, MA	1901-09
Royal Pioneer	Worcester, MA	1909-10
Ruggles	Brooklyn, NY	1909
Rupp	Mansfield, OH	1967
Salsbury	Oakland, CA	1936-42
	Pomona & Inglewood, CA	1945-51
Schickel	Stamford, CT	1912-15
Scout	Detroit, MI	1911
S.D.M.	Brooklyn, NY	1910-1
Sears	Chicago, IL	1912-16
Safticycle	La Crosse, WI	1945-50
Shaw	Galesburg, KS	1912-14
Simplex	New Orleans, LA	1935-42, 1945-64
Sinclair Militor	Springfield, MA	1912-22
Singer	?	?
Snell	Toledo, OH	1905
Spiegel Airman	Chicago, IL	1948
Springcycle	Los Angeles, CA	1938-42
Spiral	New York, NY	1896
Stahl	Philadelphia, PA	1910-14
Starlite	Crystal Lake, IL	1967
Steffey	Philadelphia, PA	1900-10
Super X (Excelsior)	Chicago, IL	1924-31
Thiem	St. Paul, MN	1903-14
Thomas Auto-Bi	Buffalo, NY	1902-12
Thor	Aurora, IL	1908-16
Thoroughbred	Reading, PA	1905
Tiger Autobike	Chicago, IL	1915-16
Torpedo	Geneseo, IL	1909
Torque	Plainfield, NJ	1945
Tourist	Newark, NJ	1906-07
Tribune	Hartford, CT	1903-?
Triumph	Detroit, MI	1912-13
Twombly	Portland, ME	1895
Valiant	?	1956
Vard	Pasadena, CA	1944
Victor	Cleveland, OH	1911
Wagner	St. Paul, MN	1901-14
Warwick	Springfield, MA	1903
Westover	Denver, CO	1912-13
Whipple	Chicago, IL	1906
Whizzer	Los Angeles, CA & Pontiac, MI	1949-62
Williams	New York City, NY	1917
Wizzard	?	1957
Woods	Denver, CO	1914
Yale	Toledo, OH	1902-15
Yankee	Chicago, IL	1922-23
Zimmerman	Cleveland, OH	1957



Name	Location of Mfg.	Production Year(s)
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Ace II	Blossburg, PA	1925
Ace III	Detroit, MI	1926-27
American	?	1939
American Motor Bicycle	Hartford, CT	1901
Atco	Pittsburgh, PA	1912
Auto-Car	Pittsburgh, PA	1899-1904
Auto-Scout	?	1938
Barber Special	Brooklyn, NY	1900
Bi-Auto-Go	Detroit, MI	1908-12
Bonanza	San Jose, CA	1967-69
Briggs and Stratton	Milwaukee, WI	1919-?
Buffalo	Buffalo, NY	1984
Caille Traveler	Detroit, MI	1933-37
Camden	Camden, NJ	1906-08
Camfield Steam	?	?
Clement	Hartford, CT	1903-09
Clinton-Tower	Cleveland, OH	1895
Comet	Minneapolis, MI	?
Commando	Minneapolis, MI	1950
Constructa-Scout	Chicago, IL	1935-37
Cooper	?	1972
Culp	Columbus, OH	1903
Cyclomotor	Rochester, NY	1916-27
Driver	Philadelphia, PA	1903
Duesenberg	Garner, IA	1903
Eagle	St. Louis, MI	1911
Eagle	Brockton, MA	1913-20
Fleming	White Plains, NY	1901
Hafelfinger	?	?
Hausmann	Milwaukee, WI	1918-?
Hercules	Hammondsport, NY	1903-04
Holmes	?	1900-?
Kaestner	Chicago, IL	1903
Kellogg Bearcat	Buffalo, NY	1950
Kieffer	Rochester, NY	1909-11
Lamson	Abington, MA	1902-03
Landgraf	Chicago, IL	1906
Lewis	Brooklyn, NY	1901-02
Liberty	?	1918
Light	Marietta, PA	1913
Mansen-Marsh	Brockton, MA	1906
Marks	San Francisco, CA	1902
Mead Ranger	Chicago, IL	1938
Merkel Motor Wheel	Rochester, NY	1917-?
Michaelson	Minneapolis, MI	1908-13
Michigan	Detroit, MI	1911
Monarch	Hartford, CT	1902-04
Montgomery-Ward	Chicago, IL	1911-12
Motormaster	Cleveland, OH	1939
New Hudson	?	?
Okay	Brooklyn, NY	1916
Parkin	Philadelphia, PA	1903
Pennington	Cleveland, OH	1895-96
Phoenix	Milwaukee, WI	1906-08
Pioneer	Jersey City, NJ	1903
Pony Cycle	Clarkston, MI	1955
P.T.	New York, NY	1900
Puddle Jumper	Kearney, NE	?
Razoux	Boston, MA	1903
Red Arrow	Athens, OH	?
Regas	Rochester, NY	1900-02
Rockola	?	?
Rollway Motor Attachment	Toledo, OH	1919-23
Salisbury	Chicago, IL	1895
Skootmobile	Chicago, IL	1938
Smith Motor Wheel	Milwaukee, WI	1915-18
Spacke	Indianapolis, IN	1911-14
Steam Flyer	San Francisco, CA	?
Sturges	?	1900-?
Thompson	Beverly Farms, MA	1909
Tiger Special	New York, NY	1906-09
Tinkham	New Haven, CT	1898-99
Trimoto (American Bicycle)	Hartford, CT	1900-01
Victoria	?	1900-?
Victory Clipper	?	?
Waltham Orient Aster	Waltham, MA	1899-1903
Wasson	Haverhill, MA	1903
Williamson	Philadelphia, PA	1903
Willis	New York, NY	1903
Wilson	Wichita, KA	1910
Woods and Meagher	Richmond, VA	1896
Wysecycle	Dayton, OH	1947-50
Yale-California	San Francisco, CA	1904-08
Yardman Motorette	Jackson, MI	1959

New Parts For An Old Friend

By Dutch Stevens

Do you know what it's like to scrounge, hunt, and dig around at swap meets for that special or hard-to-find part? Or make what seem to be endless phone calls to parts shops and warehouses for old or new stock?

Well, my bro, M.J., does. See, M.J. used to own his own bike shop, and after years of wrenching on and machining parts for other bro's scoots, he scored this 80-inch, 1945 Indian.

M.J. began putting together his prize, piece by piece, only to discover that

the majority of parts were either worn out or gone.

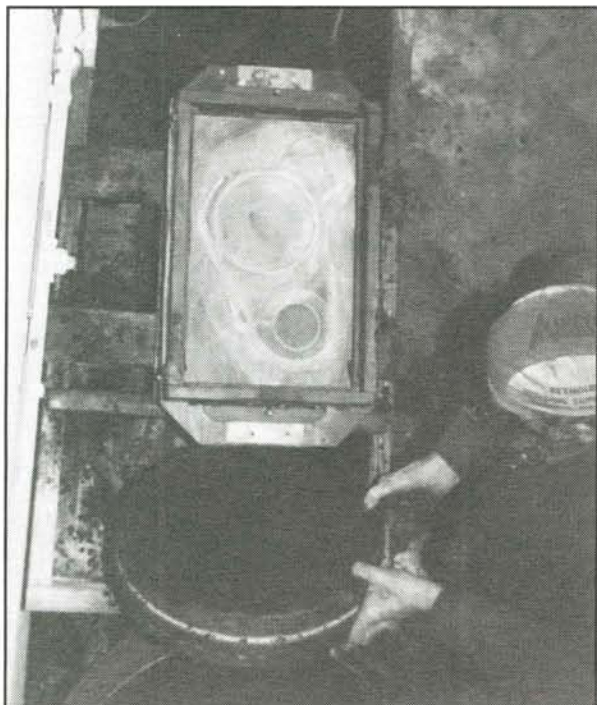
Tired of digging through wooden crates, boxes, and junk at swap meets, M.J. started scrounging around at his local library. Yeah, you know, that little brick building on the corner of 5th and Main. While there, M.J. ran across a book on casting. No, I'm not talking about fly fishing. I'm referring to a way of shaping objects—in this case, the primary case and cover for his Indian. You take a liquid, pour it into a mold,

and let it harden, right? Well, basically. Here's the process in more detail:

PICTURE 1: First, you have to make a pattern of the part that you're going to cast. This is what the actual parts are made from. These could be made from wood, metal, fiberglass, etc.

PICTURE 2: Most metals are cast in green sand, a mixture of sand, clay, water, and a binder that holds the sand together. This mixture is then packed in and around the pattern.

PICTURE 3: Here you have half of



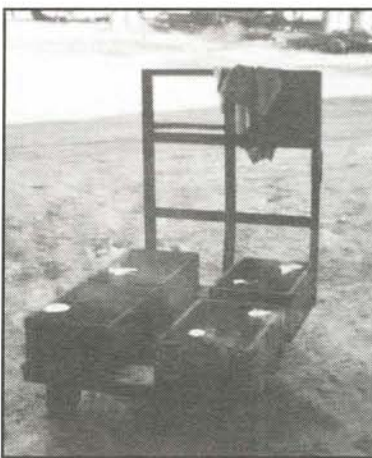
1.



2.



6.



7.



8.

the sand mold. The top is called a cope, and the bottom is called the drag. You perform the same process for both top and bottom.

PICTURES 4 & 5: Next you melt the aluminum or whatever metal you're going to use. At a mere 2300 degrees F, your steel will melt. And no, you can't use your ol' lady's cooking stove.

PICTURE 6: By the time you get the aluminum heated to a ripe pouring temperature of 1500 degrees F, you should have your flask (cope and drag) fas-

tened together. You now pour the metal into the sprue (pour basin).

PICTURE 7: Let it cool approximately 45 minutes to an hour, depending on wind chill. Up here in the Northland it takes about a New York minute.

PICTURE 8: Take the flasks apart, pop that puppy out of the mold, and then clean off the sand.

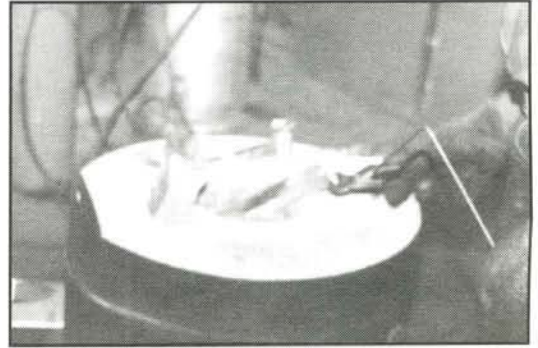
PICTURE 9: Now you have your new primary case and cover.

PICTURE 10: Remove the sprue and smooth the metal where it was attached.

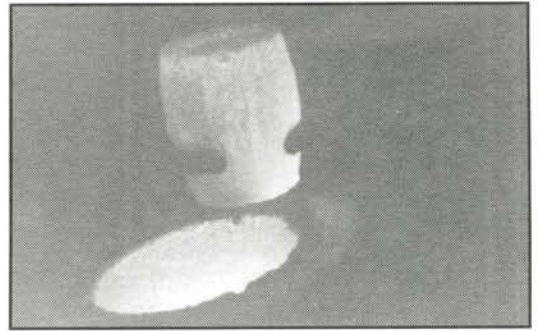
Even though your writer/photog has made light of this process, it took M.J. many hours of hard work to make the patterns and three years of working with different types of aluminum and sand to make these fine parts. ☺



3.



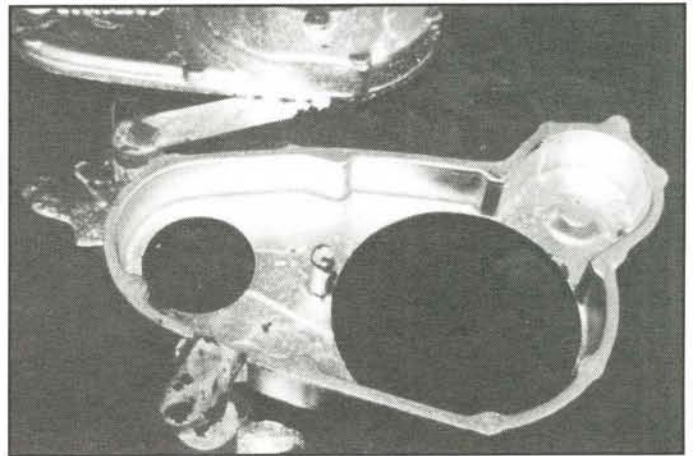
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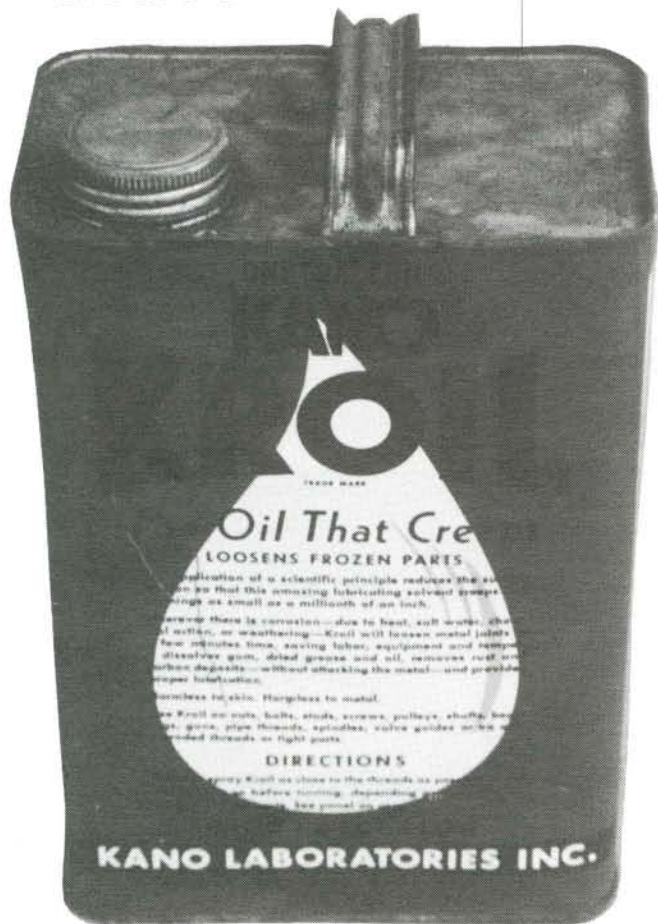
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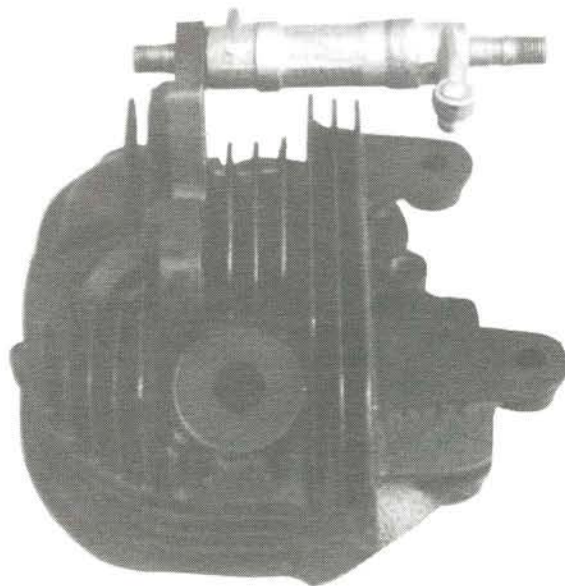
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Photos by Visual Images Custom Photography

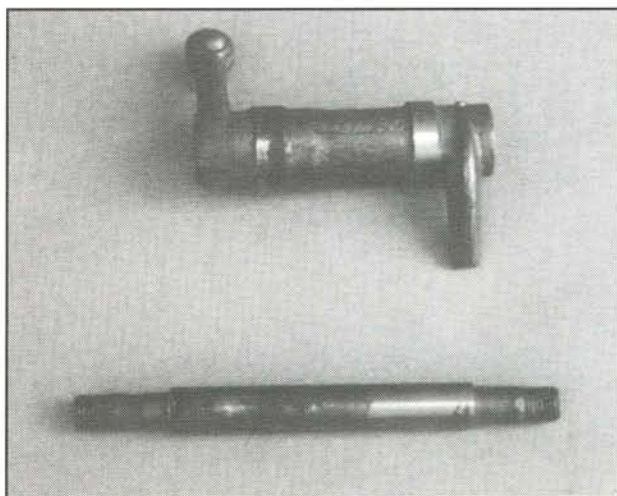
Restoration Blues



Still being manufactured in Nashville after 50 years.



A knucklehead with a frozen rocker shaft and arm—bummer.



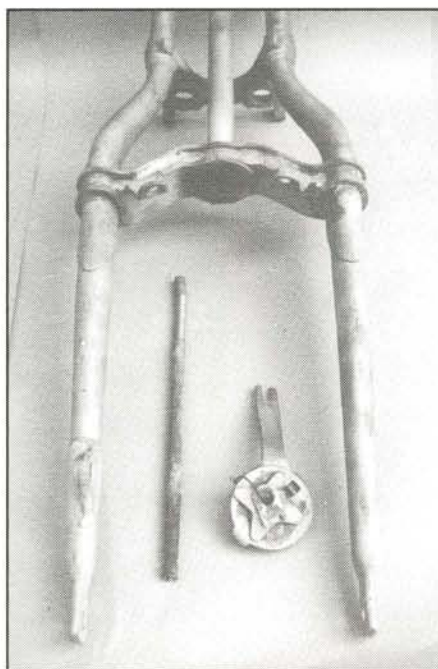
After proper treatment and careful tappin' dem parts are free.

Recently, I rode out to Santa Paula, California, an old agricultural community back in the hills behind Oxnard and Ventura. Besides an oil museum (a remnant of its black gold days), wide-open farm land, and some hellfire burrito stands, not much else is going on.

But Santa Paula does hold a major attraction for bikers into restoration projects or just old American two-wheelers. M.F. Egan's Vintage Cycles on Ojai Street is a museum in its own right, a treasure of pre- and post-war ingenuity and Mike Egan, the owner, is a concerned authority on restorations and such.

Last time I was in his shop, he told me about the difficulties of tryin' to break frozen parts and an oil from back East, by the name of Kroil, that works hard to free dem parts. It's dubbed "the oil that creeps," and, with respect to the parts you're tryin' to split, it works.

The key to the success of getting that frozen rocker shaft out of the rusty



knuckle is patience. Put some of this oil near the frozen areas and tap the shaft once or twice a day. Then reapply the oil. Don't bang on the part, and don't hit it with anything harder than a brass hammer, or oak or ash wood.

Apply Kroil with a squirt can. Don't try to soak parts in it— it's too expensive and won't perform any more efficiently. Just be patient and tap or bump the part daily.

It also works well on valves stuck in guides or frozen springer front ends. You can only obtain this miracle cure by writing 50-year-old Kano Laboratories, 1000 South Thompson Lane, Nashville, TN 37211, or calling (615) 833-4101.

—Wrench

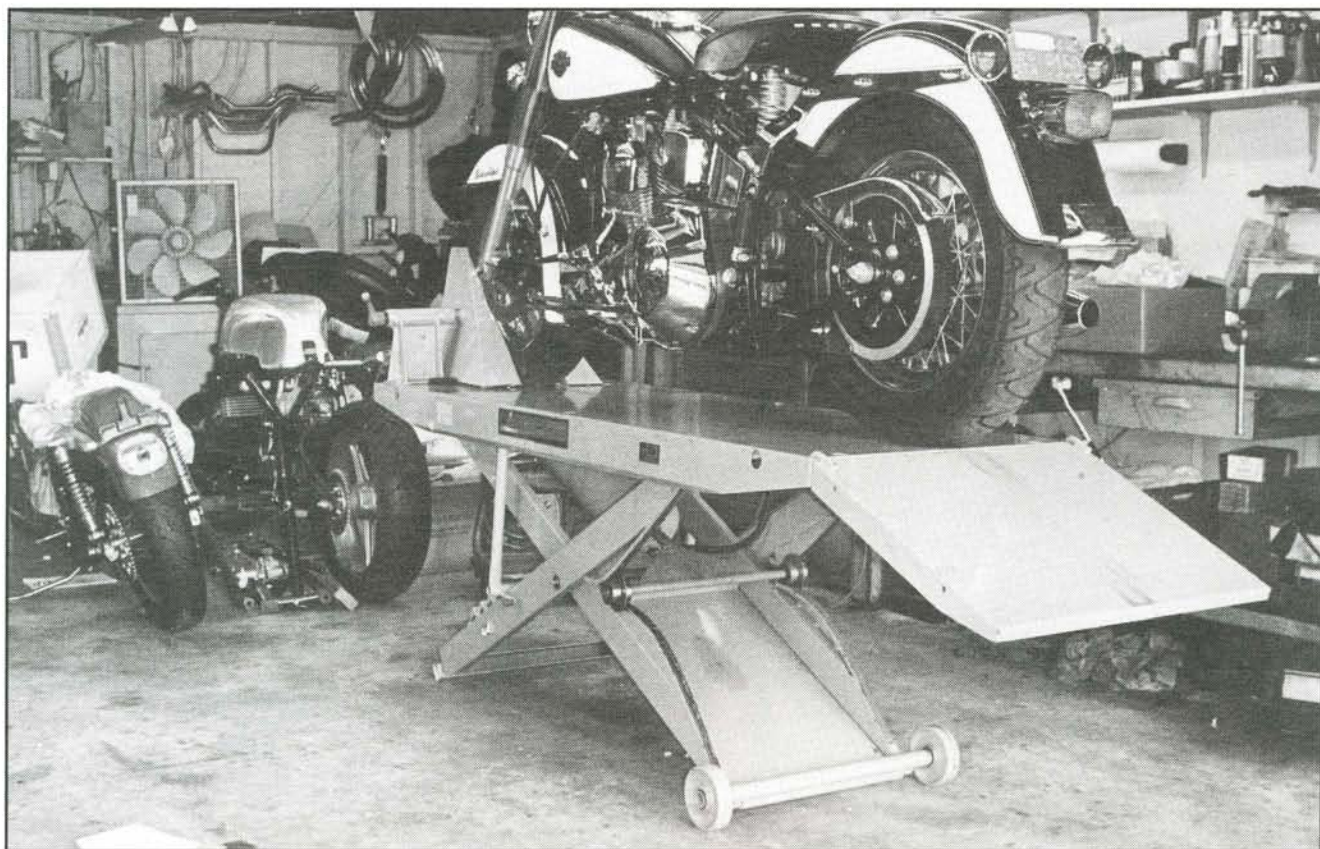
This original springer had the ride adjustment shaft frozen in place until treatment with the oil that creeps.

Photos by M.F. Egan



The Almighty Answer—

To Workin' On Your Motorcycle



I've been wrenching on scoots for 20 years now, and have always thought about how bitchin' it would be to have a hydraulic lift in my garage. Well, a couple of months ago, I went to a brother's shed, and there in the middle of the floor sat this steel plate on rollers.

We were planning some adjustments to my clutch, so he instructed me to roll the bike up onto this platform—which stood about 4 inches off the ground. I did, and he clamped the tire into a vice at the front of this slab of steel, casually stepped onto a pneumatically operated floor switch, and, presto, the bike rose to the height of his work bench (or any height he had a notion to raise it to). I about fell over.

The Air Lift, manufactured by Western Manufacturing in Marshalltown, Iowa, forms its own bench, can lift the front wheel or the

rear wheel off the bench, and operates by a separate air compressor (they also make a model that runs electrically). It can lift 1000 pounds to 31 inches in 30 seconds. Anything up to that weight can be placed on this sucker and lifted to bench height.

I was knocked out. No longer was I going to crawl around on the floor to drain oil, adjust the clutch, or anything else. I had to have one of these puppies. But in all fairness to other manufacturers, we began an investigation into other lifts. From the looks of the industry, the Air Lift is the most widely used in shops and H-D dealerships. In fact, we recently spotted several of them at Harley-Davidson of Washington, D.C., that had skirts on either side to form a wider bench area (interesting possibilities for major tear-downs). It runs about \$500 and

change, but if you purchase in quantity (by getting several orders together from brothers) you get a price break. That's what we did. Five of us got together on the deal.

But in an effort to present the broad spectrum of lifts that are available, we've included a vast array of jacks that are, in some cases, more economical, smaller, shorter, or whatever.

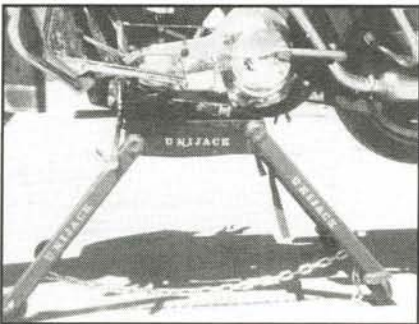
Perhaps the next most convenient lift is the Garzia, distributed by the Carlson Company. When the Garzia lift is up, the entire rear platform can either be hinged down or remain locked in the up position. When the hinge is down, it affords access to the rear wheel. It lifts to the same height as the Western Manufacturing unit and can be operated by a foot pump or compressor. The wheel clamp, however, is not nearly as substantial as the one on the Air Lift. It



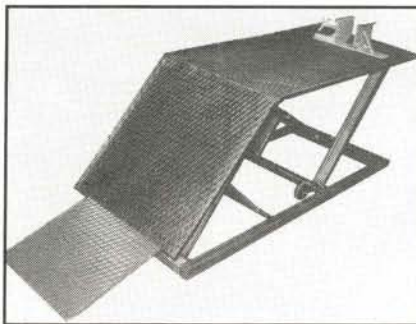
1.
Western Manufacturing Corp.
Western Industrial Mall
702 South Third Ave.
Marshalltown, IA 50158



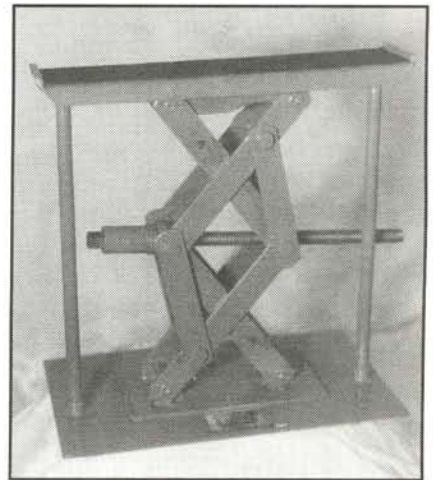
2.
Lincoln Manufacturing Company
Box 30303
Lincoln, NE 68503



3.
Mechanico Dynamics
Box 17
Hartsel, CO 80449



4.
The Carlson Company
Box 15051
Santa Ana CA 92705-0051



5.
National Dynatronics
Division of P. W. Dodge Corp.
334 E. 9th ST., Ste. 11
New York, NY 10003

doesn't appear to be a bad unit, though. Unfortunately, the Grazia lift (which is made in Italy) is more costly. The foot pump version sells for \$950 while the air-operated version costs \$1,170.

National Dynatronics recently started to manufacture the Quik-Stand. They collaborated with Harley-Davidson of New York to design a stand that would fit all Harleys. This model doesn't form a bench and only raises the bike from 5 to 12 inches. On the other hand, this tower of strength doesn't run on anything, air or electricity, and costs only around \$100.

Here's another compact lift unit which will hold up to 1000 pounds and has the ability to rotate 360 degrees. The Cycle Jack, manufactured by Lincoln Manufacturing Company, Inc., weighs in at only 80 pounds and can raise a scooter up to 14 inches. It takes no power,

other than what ya got in yer arms, and I'll guess that it costs around \$200.

Finally, the most spindly one of the bunch: the Unijack, from Mechanico Dynamics Inc., in Hartsel, Colorado, raises from 4 to 24 inches and can handle 1,500 pounds. It functions with the use of a hydraulic jack that you pump like a car lift and will raise a bike in approximately 1-1/2 minutes. This lift sells for \$349.

Well, that about covers the lot. If you have a lift, and use it on a regular basis, let us know your thoughts, so we can pass them along. And if I run into any hints or comments about my new Western Manufacturing lift, I'll let you know. Oh, here's one: George from Holliday's Bike Shop in Camarillo, California, suggested that we glue indoor/outdoor carpet to the vice jaws to minimize scratching the front rim or

brake drum. And, if you have fat 16s, front and rear, elongate the mounting holes for the stationary side of the vice about 1/2-inch to allow the tire to roll into place for clamping.

Gotta split now, just got my lift home. I've been holdin' off a major maintenance list waitin' for this.

—Wrench

DETONATION

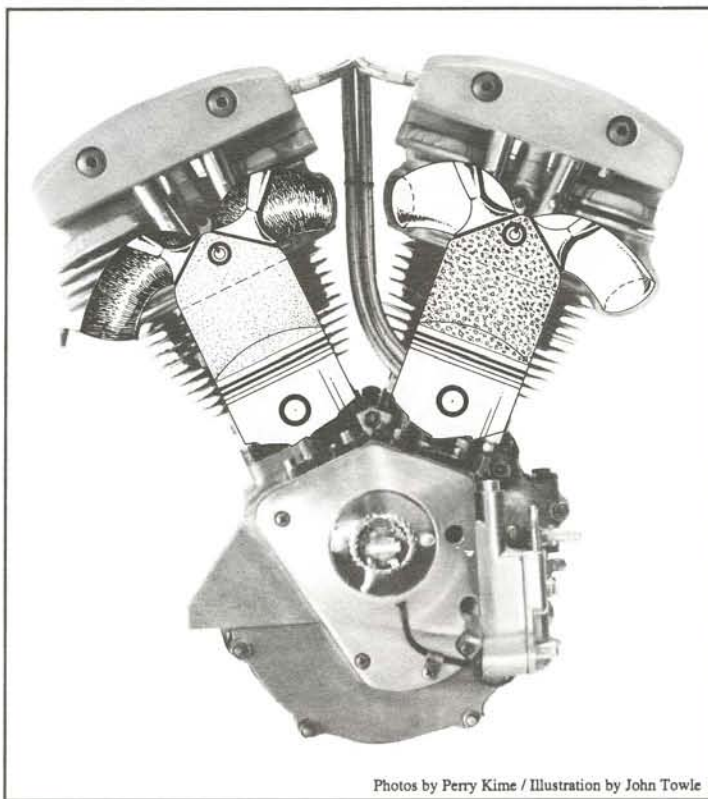
TROUBLE IN PARADISE

For the most part detonation is invisible. You can't feel it, you can't see it, and most of the time you can't hear it. But for 99.44 percent of the people who ride Harleys on pump gas, it could be going on right now inside your engine.

Now that I've got your attention we will discuss in detail the cure. The key words are Atomization, Flame travel, and Complete burn.

It's like taking a trip to the center of your combustion chamber where Volumetric Efficiency is the final judge of how you live or how you die.

In 1985 the EPA passed a new law that has drastically changed the requirements of pump gasoline. Prior to this new law premium leaded gas was rated at 98 octane with



Photos by Perry Kime / Illustration by John Towle

4 grams of lead per gallon. Today the best gas available has 92 octane with no lead or 88 octane with one tenth of a gram of lead. As a result your cylinder heads have become the most important part of your engine. Detonation and extremely high temperatures which were previously no problem are

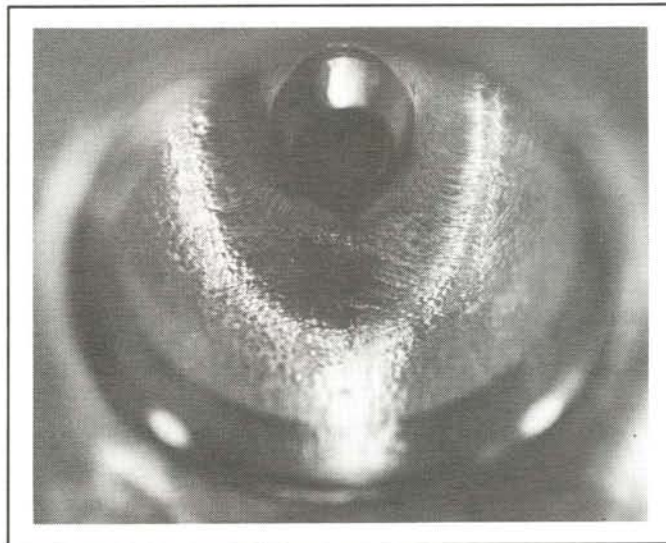
now causing warpage and cracks, valve seats and guides coming loose, burnt valves and seats, bronze valve guides seizing, valve stems gauged and excessively worn, holes burned right through pistons, rings that have been so hot that all the spring tension is gone. The bottom line is your cylinder heads are serious Hi-Tech business. The use of space age materials

and technology is now absolutely necessary for the survival of your heads. Solutions to these problems haven't come easy. Many years of effort and extensive research and development have paid off and now it's time to give you the hottest Tech Tips ever released to the public.

Atomization is achieved in the intake port, primarily by the rough surface of the casting. If you are one of the unfortunate people who has sent your heads to a person or company who claims to be knowledgeable in the area of flow characteristics and your heads come back with the ports polished you have a problem. Not only will your motor go slower but it will run hotter and detonation will be much more apparent, considerably shortening the life expectancy of your top end.

The next key word is Flame travel. Your HD motor has one spark plug located on the left side of the combustion chamber. This chamber is deeply concave in shape and partially filled with the piston dome at the point of ignition. Because of the location of this single spark plug and the piston dome the flame travel is partially blocked and does not cover the piston evenly. High compression pistons increase this problem considerably. In 1970 Warner Riley set a new land speed record at Bonneville of 202 MPH with a Harley Davidson. In 1972 he went faster with lower compression pistons and it was later discov-

ered that the flame front was partially blocked by the piston dome. Flame travel notches were used in the later 1970s by many knowledgeable engine builders.



Last but not least is the Complete burn. This is achieved by simply adding another spark plug to the opposite side of the combustion chamber and increasing the voltage at the plugs to at least 15,000 volts each. Dual plugging alone of a stock motor will eliminate most detonation, stop plug fouling and hard starting, increase horsepower by 5 percent or more, increase gas mileage, double spark plug life, and lower emissions. Some

tuners have reported 6 to 8 percent increase in gas mileage. Dual plugging is nothing new. In the USA it was first used by Liberty Aircraft in 1917. A little later by Continental and Lycoming in the 1920s and 30s. Primarily used as a safety factor it also reduced spark plug fouling and detonation and increased RPM by 6 percent.

Well Bros now you've got the straight answers to all those questions you been askin'. Our thanks to Perry at FLO Dynamics for coming clean with us. If you can handle the bare facts about your scooter give him a call in Oceano, California. 805-481-6300.



Super Port Design

R&R Specialties the leading manufacturer of carbide cutters, has teamed up with FLO Dynamics to perfect a "Tooled Finish" that will effectively double the atomization of the incoming fuel. Many other improvements have been well documented. Reduced engine temperature, detonation, spark plug fouling, and emissions. Improved horsepower and gas mileage. Especially effective with Hi-Performance cams and high compression pistons. For more info and a flow chart on your model Harley Davidson contact Perry at FLO Dynamics 1150 Pike Lane #2, Oceano California 93445. Or call 805-481-6300.

Gettin' Bagged—Yer Tools, That Is



We've all heard that gettin' there is half the fun. Maybe, but South Dakota is a long way from yer garage. Here's some tune-up and tool roll, Sturgis-bound advice.

First off, perform a major tune-up, change all the fluids, replace the chain (with a good one), and tighten all the major nuts and bolts. Then get yer front wheel off the ground and observe the recommendations in the Tech Tip in last issue regardin' front end maintenance. Then raise yer rear wheel off the ground and check it for alignment and loose bearings. If they're loose, check 'em out, replace 'em, or have the damn hub rebuilt. And if you're into batteries, service the bastard or replace it and check all the battery leads and connections at switches. Long hard miles will take a major toll on a loose wire. If yer battery leads are eaten alive, don't just clean 'em. The acid has gone way up under the insulation. Trash the twisted shit and replace it with the right gauge stuff with fresh soldered-on leads.

Tools:

Different scoots need different tools, natch. So now that you've performed an all-encompassing, high-tech, state-of-the-art service to yer sled, note the tools used the most. Take an extra pair of plugs, points, and a condenser.

An Evo owner won't need points. Harleys with cast wheels use tubeless tires that can be sealed with plugs. The owner of a wire-wheeled bike will need some way to get the tube out so he can work on it. Take a pair of tire spoons.

Pull out yer most commonly used tools. Now's the time to choose those tools which can pull heavy double duty.



A roadside repair, in most cases, is designed to get you where yer going. You'd never use a pair of Vise Grips to replace a broken footpeg at home but they'll do just fine when you're 40 miles from the nearest water. There are any number of uses for mechanic's (balin') wire. I once made a shift lever out of an allen wrench and baling wire. An adjustable (Crescent) wrench fits a lot of bolts.

Pliers are a must. I carry a pair of 7-inch lineman's pliers. They are strong, have sharp gripping teeth, a built-in wire cutter, and can be used as a hammer. Because they're a tad bulky for some uses, I also carry a pair of needle nose pliers for more delicate jobs.

Channel-Lock makes a variable socket (part number 906) that will adjust to fit nuts and bolts from 1/4 to 5/8 inches. The tool is a little bulky for a single socket but it's certainly smaller than the collection of sockets it will replace.

Electrical problems can be among the most frustrating you can face. After all, an electrical fault often can't be seen. A wire that has broken inside its insulation will look the same as a perfectly good one. You can make a simple and

compact test light, or Radio Shack sells small lights with wires attached. Carry plenty of wire, electrical tape, connectors, fuses, etc. Also, throw in a few alligator clips and paper clips.

Take tools to adjust that new chain and, if you have the room, pack some



Photos by Mark Chen

lube or even a small can of that tire leak fix-it goo. Tire pressure gauges found at service stations are often way off in accuracy. Pencil gauges, on the other hand, are accurate, cheap, tough, and small. Carry one and use it every couple of days. Take some shop rags and a film can filled with hand cleaner. It'll beat tryin' to get oil and grease off your hands with sand.

Okay, so we used our own *Easyriders* tool bag as a base for this rambling. But a decent bag is a must. It's not a bad idea to roll yer tools up in something to keep those thousands of miles from wearing the electrodes off the spark plugs.

If you have an early shovelhead, pan-head, or knucklehead, don't forget the allen wrench used to undo the wheel lugs. In fact, an allen wrench set fits easily. Having a strong bag means security crossing the desert and friendship to a stranded brother or sister. If you come along and help a rider get back on the road, well, you'll have started the party early.

—J.D. and Wrench

HYDRA-LIFT



HYDRA-LIFT. This newly designed, heavy-duty, tubular construction lift is for use with all Harleys. It lifts the frame a full 18 inches off the ground and slides under bikes with less than 4 inches of ground clearance. Features full-floating, 4-ton hydraulic jack, double wall gate hinge construction, ground locks and levelers, double duty safety locks and stops, rubber-covered lifting surfaces, plus a hold-down strap. Lifting surface is notched to accommodate forward brake control support.

WHEEL PACKAGE. Makes your Hydra-Lift more portable, with or without your bike on it. Wheel package includes a set of 4 wheel assemblies. When removing motorcycle wheels this package allows you to expand the base from 30" to 45" for extra stability (working like an outrigger). Wheels mount easily to the Hydra-Lift and safely lock in place.

Extra shipping charge may apply for these items.

To order the Hydra-Lift call 1-(800) 247-6246 (ATT3HL)



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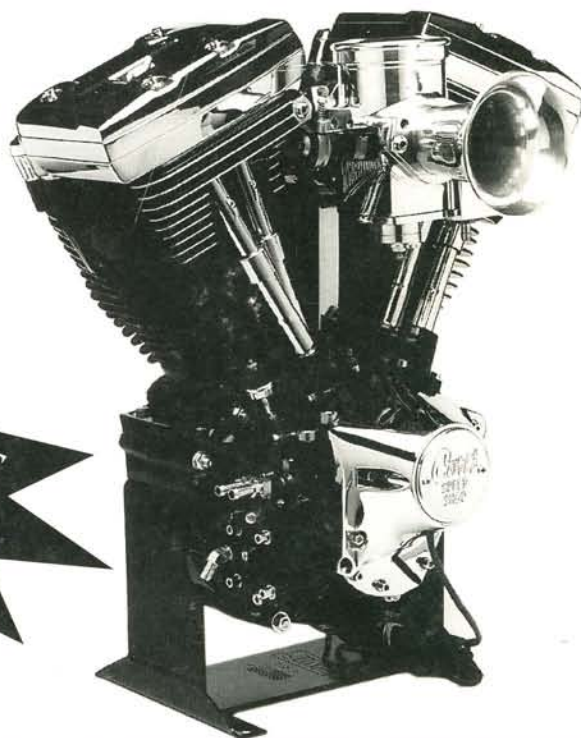
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