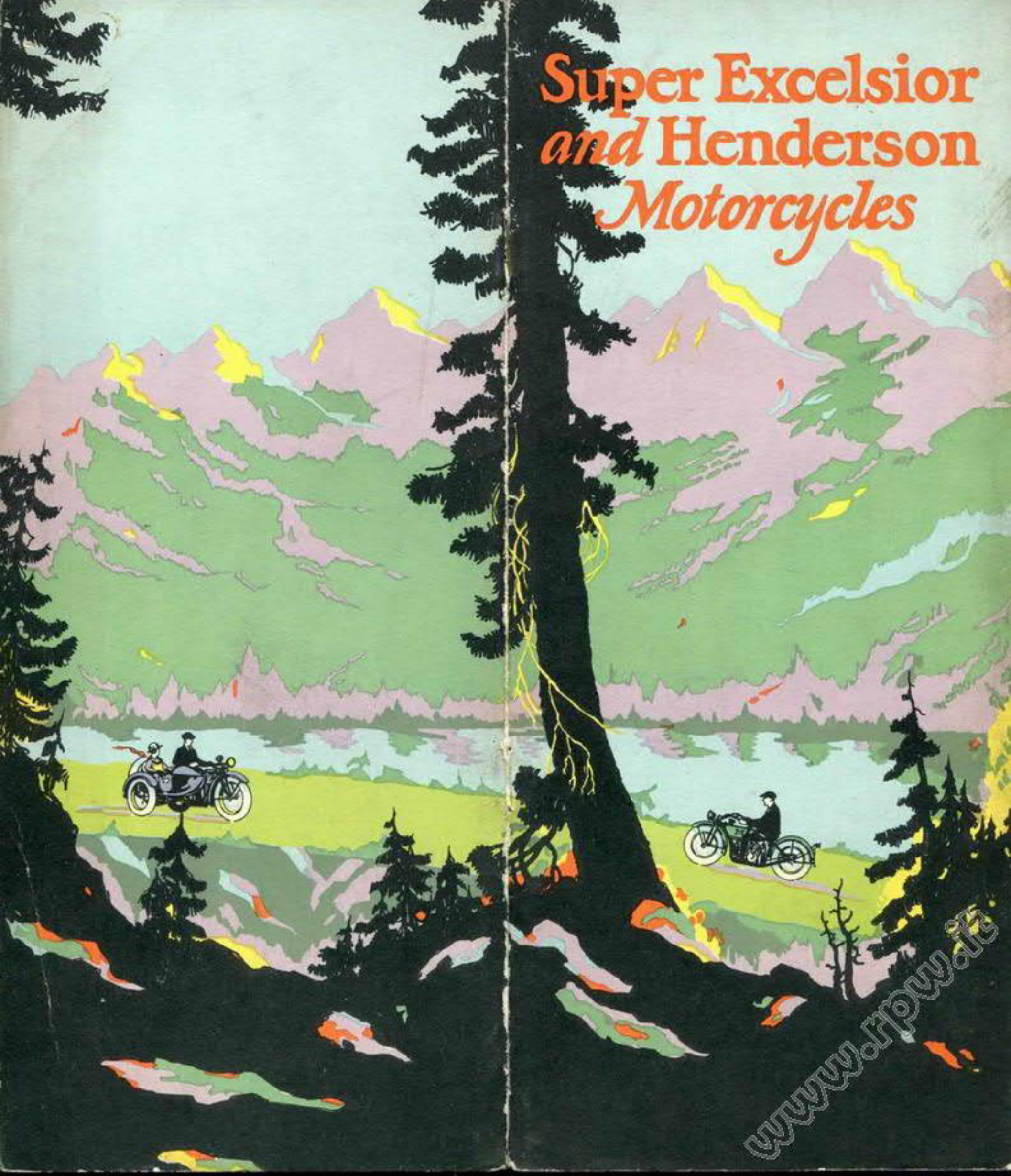


# Super Excelsior *and* Henderson *Motorcycles*



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The  
New Super Sport  
Excelsior

—  
Super Excelsior

—  
Henderson De Luxe  
Model

—  
Excelsior-Henderson  
Sidecars

—  
*Each Supreme  
in Its Field*



Excelsior Motor Mfg. & Supply Co.  
3701 Cortland St. Chicago, Ill., U. S. A.

## The Excelsior-Henderson Guarantee

All EXCELSIOR-HENDERSON motorcycles, sidecars and parts thereof are guaranteed against imperfections in workmanship and material for ninety (90) days from date of the original sale by dealer, with the understanding that all said articles are to be examined and tested when delivered, and that we are to be promptly notified of any defects.

Our liability on said articles sold under this guarantee is limited to replacement of defective parts, so found after being sent to our factory for inspection. We will in no event be liable for labor expended or any damages incurred in the use of any article.

1. Transportation charges must be prepaid on any parts returned for credit, replacement or repairs, otherwise shipment will not be accepted.
2. When machines or assembled parts are sent to us in which defective parts are to be replaced, a reasonable charge for labor will be made.
3. Our guarantee cannot apply to wear resulting from misuse, abuse or negligence.
4. When sending parts for replacement, customer must tag same with his name and address.
5. A letter giving full and detailed particulars must be sent to us in each case, giving the engine number, to avoid delay in identifying the consignment.
6. This guarantee is not effective when parts manufactured by other than this company are inserted or used for repair.
7. Alteration of our construction in any way whatsoever, or use of devices, not approved by us, terminates this guarantee.
8. We do not guarantee any parts of equipment or specialties not of our own manufacture, such as tires, magnetos, saddles, etc., as these parts are guaranteed by their respective manufacturers, and if defects develop, the matter should be taken up direct with them.
9. Purchaser accepts the provisions hereof upon purchase of motorcycle sidecar and parts thereof and agrees to rely solely thereon.

Every EXCELSIOR-HENDERSON Motorcycle sold by other than our recognized dealers is sold without our guarantee, unless otherwise provided.

All prices are F. O. B. Factory and are subject to change without notice.

The Excelsior Motor Mfg. & Supply Co. reserves the right to change at any time the design, construction, or equipment of its product as herein described, and in the event of such changes, no liability shall attach to them.

EXCELSIOR MOTOR MFG. & SUPPLY CO.  
3701 Cortland St., Chicago, Ill., U. S. A.



## SUPER SPORT EXCELSIOR

M

OTORCYCLE history has been revised and motorcycle traditions have been shattered by the phenomenal performance of the new Super Sport Excelsior.

In competition of all kinds on hills, tracks and on the road this sensational new model repeatedly has demonstrated its unprecedented speed and power in competition with machines of greater displacement.

Here is a little 45-cubic inch motor that has established entirely new standards for two-cylinder motorcycle operation with performance so unusual and so outstanding as to be revolutionary. A real racing mount that is thoroughly practical for every-day use on the road.

With speed and power sufficient for the most exacting, the Super Sport combines a perfection of balance, an ease of control and a degree of comfort and safety never before provided in a twin-cylinder motorcycle.

No printed description can give you an adequate realization of the many attractive features of this ideal sporting solo, which is light enough for effortless handling under all conditions yet sufficiently sturdy for the hardest kind of plugging.

Visit your local dealer today! See the Super Sport! Try it! Treat yourself to the motorcycling sensation of the year!

The first time you sit in the saddle you'll know instinctively that you've found a real thoroughbred mount over which you are absolute master. You'll feel an integral part of the Super Sport for there's not the slightest suggestion of sitting on top of it.

You'll revel in the comfortable riding position, the big, roomy saddle, the sport bars, and the big balloon tires which afford riding qualities never before available in a speed mount.

You'll sense an irresistible urge to ride out into the country where you can picture yourself gliding over the landscape with the speed of the wind, out-distancing all other road users, or if not in the mood for haste, enjoying the scenery.

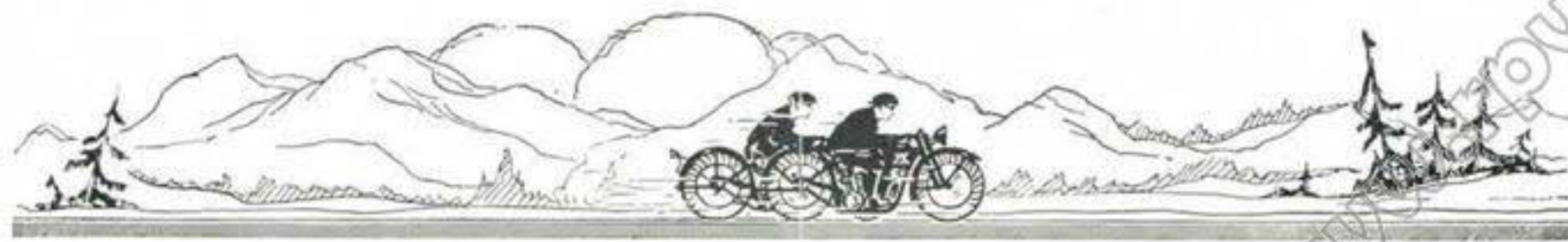
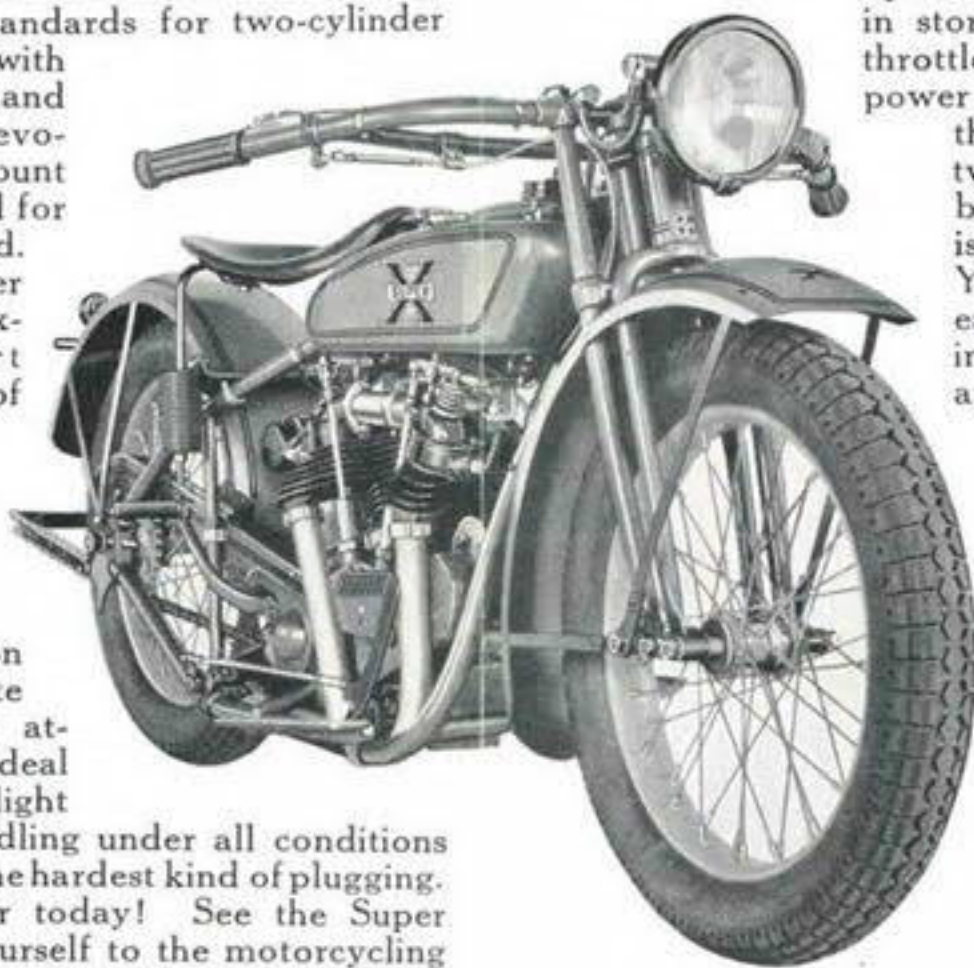
When you actually take your first ride on a Super Sport you'll find every anticipation realized. You'll start off with an intuitive feeling of confidence and safety such as you have never had on any other mount.

You'll be delighted with the smoothness of motor operation and a real thrill is in store when you open the throttle—a hint of the reserve power and speed built into

this liveliest of stock twin engines. The flexibility and responsiveness is unusual for a speed job. You can idle along with ease behind slow moving vehicles and accelerate like a flash whenever there is an opening. You don't have to take anybody's dust. On rough roads, in sand or mud you'll find you can use the speed of the Super Sport with safety and comfort.

In every way the new Super Sport typifies the latest and the best in two-cylinder motorcycle engineering. Its super-performance is due to advanced design and the resultant increase in operating efficiency. No other speed mount is so sturdy and so durable. Incidentally, the operating economy of the Super Sport is worth-while too, and because of the extreme accessibility of all parts and rugged construction, the small amount of servicing needed becomes a simple problem.

We have been able to tell you only part of the story here. Visit your dealer today! Try it!





## SUPER EXCELSIOR



**T**HE Super Excelsior was planned, designed and built to surpass all previous conceptions of two-cylinder motorcycle performance. In the hands of motorcycle riders the world over, the Super Excelsiors have more than fulfilled all expectations. Surpassed in speed and power in the two-cylinder field only by the New Super Sport models, the Super Excelsiors have established new standards for ease of handling, riding comfort, safety, reliability and operating economy.

Here is a machine that is lighter in weight with a smaller, more efficient engine, possessing all the riding qualities of the heavier machines as regards speed and power, together with a perfection of balance, smoothness of operation and a degree of safety never before reached in two-cylinder motorcycle engineering—a machine that is an ideal solo mount, yet has ample power and strength to handle a sidecar with ease and economy.

Observe the accessibility of all the components of the Super Excelsior. Practically every moving part can be removed from the motor without taking the engine out of the frame or disturbing other parts. Because of the sturdiness of all parts, the Super Excelsior requires a minimum of attention

and the ready accessibility makes servicing easy and inexpensive.

The performance of the Super Excelsior is so remarkable—so different from other two-cylinder machines that it must be ridden to be appreciated.

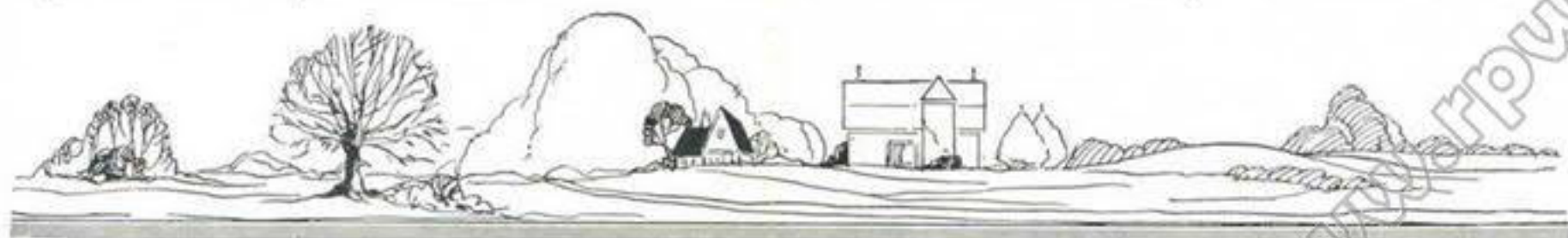
Visit your local dealer and try one today!

Notice how you fit right into the machine. There's no sensation whatever of being on top of it, because the center of gravity and the saddle position are so low and there is no excess weight. The natural balance and ease of control will prove a revelation.

You'll enjoy the power, speed and acceleration, and the flexibility of this lively little motor will astonish you.

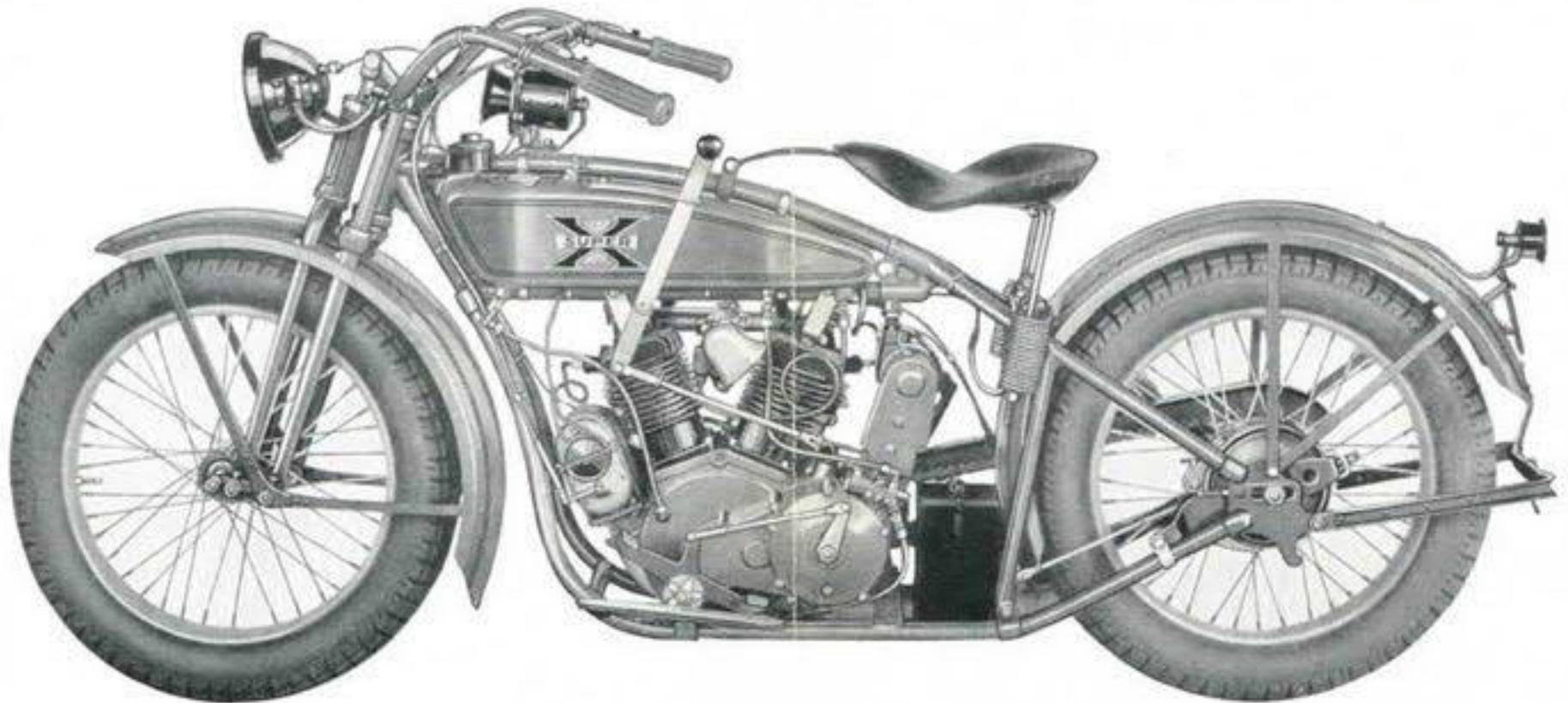
You'll respond gratefully to the comfort of the largest balloon tires furnished on any motorcycle, the big pan type saddle, the comfortable bars, cushion forks and the long wheel base.

You'll feel perfectly safe anywhere on any kind of road surface with the unusually low saddle position, perfect balance, responsiveness of the motor and the smooth though powerful De Luxe brake. You'll have a new feeling of confidence.





## SUPER EXCELSIOR



In every respect you'll find the Super Excelsior is a perfectly balanced twin, viz:

Perfectly balanced as to smoothness of motor operation.

Perfectly balanced as to weight distribution and riding qualities.

Perfectly balanced in design, proportions and harmonious relationship of all parts and components.

Let's examine some of the outstanding features:

The Super Excelsior is the first true unit power plant twin. The engine, clutch and transmission are all integral in the crankcase.

First of all, the unit powerplant construction with the gear primary drive eliminates the noisy and troublesome front chain—a relic of the early days of motorcycle building.

Secondly, it gives a light, compact power unit facilitating service work.

Third, it insures absolute alignment of the power generating and transmitting units at all times.

The engine is of the two-cylinder "V" type with a displacement of 45-cubic inches (under 750 c.c.).

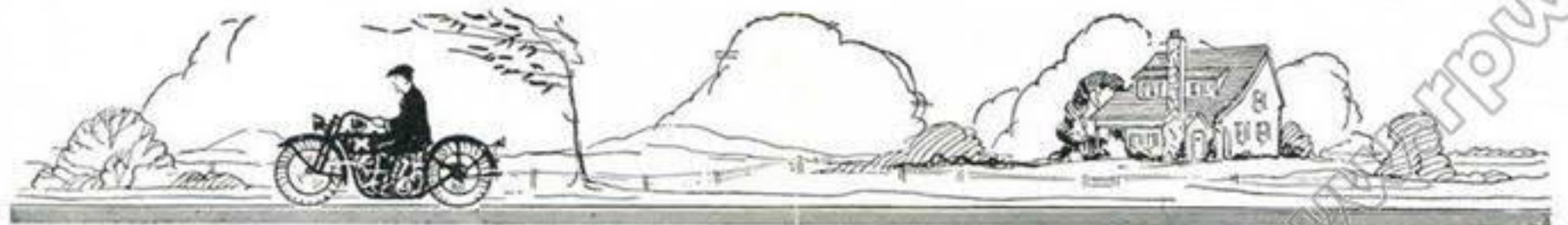
The cylinders are of the latest high efficiency type with large valves and direct gas passages enabling this smaller motor to give a greater power output than larger motors of older design. This

follows the trend of the automotive industry in the general adoption of smaller and more efficient powerplants which give improved all-around performance and greater operating economy.

Reliability and durability were carefully considered in the design of the Super Excelsior and achieved by the judicious proportioning of parts, selection of materials that would stand up in hard service, and by scientific heat-treating and hardening. Every important motor and transmission bearing is of the ball or roller type thus reducing friction losses to an absolute minimum. The crank and main bearings are rollers as are the bearings for the primary drive. The large clutch gear is mounted on a heavy-duty annular ball bearing.

The valve action is quiet, enduring and thoroughly reliable. The parts are sturdy enough for all service requirements yet sufficiently light to give a snappy valve action. A new design of cam is used which combines maximum power and speed with flexibility and quiet running.

A new design of mechanical oil pump is used which delivers the proper amount of oil for any and all engine speeds. This pump is not susceptible to air locks, has no delicate parts to clog or fail at critical times and can be adjusted easily.





## SUPER EXCELSIOR

The Excelsior automatic valve lift is built into the starter mechanism. At the beginning of the starter stroke, the exhaust valves are automatically lifted, relieving compression and making it easy to kick the motor over. At the proper point in the downward stroke, the valves are dropped to their



Right side of Powerplant in frame. Note the cleancut design and accessibility of parts.

seats. This does away with the necessity of kicking against compression or manipulating some inconvenient hand operated valve lift, and it makes starting easy and sure.

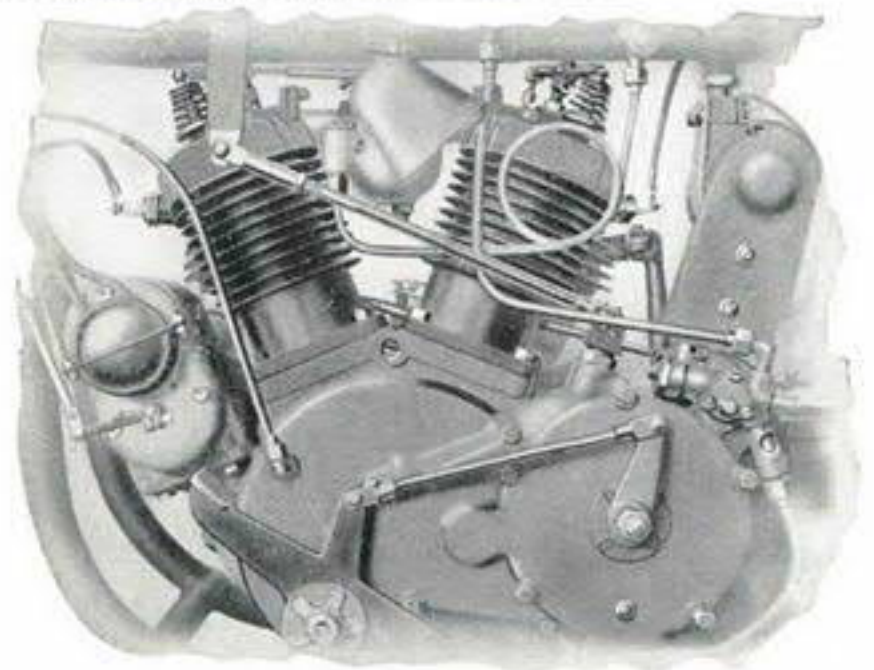
The clutch is of the multiple disc type with steel and Raybestos discs running in the same oil that is used in the transmission. The release mechanism is smooth and sure. The clutch parts are immersed in an oil bath so there is practically no wear.

The transmission parts are all oversize. The gears are accurately machined from solid alloy forgings. The main shaft is mounted on sturdy annular bearings. The gear shifting mechanism is thoroughly adequate and the locking device for holding the shifting gear in the various positions is positive and cannot work loose.

The primary drive gears are exceptionally sturdy and well lubricated. They are efficient and quiet and a real advance over the front chain drive used in older models. All parts of the primary drive, transmission and clutch are readily accessible.

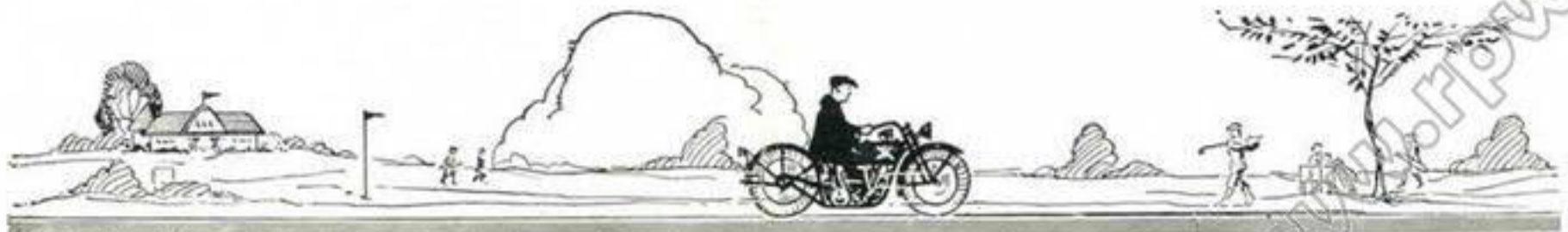
The frame is the foundation of the entire motorcycle structure. Upon its stability and strength depend the safety of the rider and the service he gets from his machine.

Every joint of the Super Excelsior frame is a special alloy steel forging and the tubing is heavy seamless. In general design the frame of the Super follows closely the double loup cradle construction of the Henderson. The powerplant is carried on a three point suspension which is the ideal way of carrying a motor in a frame. The center of gravity is unusually low and the low saddle position makes it possible for short riders to get both feet on the ground. Although the powerplant is held securely, it may be removed easily and quickly, and ready access may be had to most parts without taking the motor out of the frame. The front forks are resilient and strong and equally suitable for solo or sidecar service. Although intended primarily as a solo mount, the performance of the Super Excelsior with a sidecar will prove a revelation.



Left side of Powerplant showing clutch control and mounting of oil pump, generator, etc.

The electrical equipment is of the dual unit type, with a high tension magneto for ignition. The lighting equipment is entirely separate and includes a generator and battery but these units have nothing to do with the running of the engine. The lighting control switch is conveniently located.





# SUPER EXCELSIOR

The front and rear hubs of the Super Excelsior and the Henderson are interchangeable and are equipped with Timken Tapered Roller Bearings



Timken Rear Hub showing method of sealing to retain lubricant and exclude dirt and water.

of standard size, obtainable anywhere. An effective method has been devised for excluding dirt and water and centrifugal force aids in retaining lubricant.

The brake also is the same as used on the Henderson, and because of the lighter weight of the Super, this big, powerful brake is especially effective. For standard equipment, the external contracting band only is furnished.



Adjusting Clevis and details of the Brake.

For a reasonable extra charge an internal expanding brake can also be fitted. This is controlled by a heel pedal. The large area of effective braking surface of the big external band makes it possible to stop the machine within a very short distance, with practically no tendency to lock the wheel. Both ends of the band are drawn together when the brake is applied.

Balloon tires, introduced in the motorcycle industry by the Excelsior Factory, afford the last word in riding comfort and save the machine.

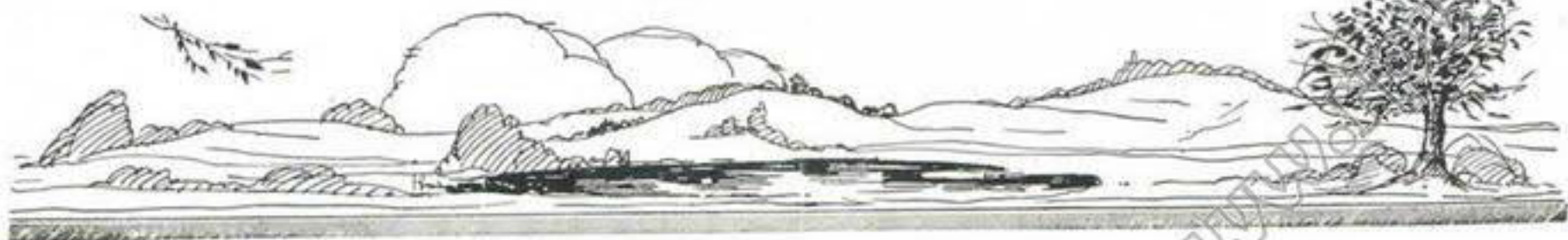
The general specifications of the Super Sport are the same as those for the regular Super Excelsior with the exception of alloy pistons, special flywheels, 1 1/4" carburetor and manifold, special cam action, etc. Stock, Sport or drop racing bars and Balloon, high pressure or racing tires are optional equipment.

Comparative air volume spaces of the 3.85 Balloons and old style high pressure 3 and 3 1/2-inch tires.



## SPECIFICATIONS

- ENGINE**—Unit power plant with integral clutch and transmission; two-cylinder "V" type; bore 3-inch by 3-7/32-inch stroke; 45.5 cubic inches displacement (under 750 c.c.). Roller or ball bearings throughout.
- LUBRICATION**—Double force system, mechanically operated, gear driven positive pump with baffle distribution, insuring adequate oiling in proportion to motor speed. Auxiliary hand pump.
- ELECTRICAL EQUIPMENT**—Splitdorf high tension magneto for ignition, Splitdorf separate unit generator, Wico battery lighting system. Ammeter, horn, head and tail lights.
- STARTER**—Foot type segment and pinion gear, folding foot lever, automatic valve lifter.
- CARBURETOR**—Latest improved Excelsior Schebler.
- FRAME**—Low saddle position, double cradle Henderson type made of heavy seamless tubing with special forged steel joints, reinforced and braced. Three point motor suspension.
- FRONT FORK**—Balanced plunger type with straight-line fork sides; forged rockers.
- TANK**—Heavy leaded steel, Henderson type, capacity approximately 3 gallons of gasoline and 3 quarts of oil.
- TRANSMISSION**—Built into crankcase, auto type three speed, oversize gears, main shaft carried on annular ball bearings, countershaft on large non-gran bronze bearings, double shifter gear, meshing for low and second and engaging dog clutch for high gear, positive locking device for different gear positions, shift lever on left side of tank.
- CLUTCH**—Steel and Raybestos discs running in oil, release actuated by a simple cam arrangement operated by combination heel and toe pedal on left side. Clutch built into crankcase.
- DRIVE**—Primary drive by helical gears running in oil bath; bearings, roller or ball type. Secondary drive by chain from transmission to rear wheel.
- HUBS**—Interchangeable with Henderson; Timken bearings front and rear.
- WHEELS**—Fitted with "24"—"CC" rims, 18 inches in diameter to fit the new 25-inch by 3.85-inch Firestone Balloon Cord Tires.
- BRAKE**—Standard equipment, external contracting band (same as Henderson), controlled by foot pedal on right side. Internal expanding brake controlled by heel pedal can be furnished at extra cost.
- HANDLEBARS**—Heavy service "sport" type with cross brace and grips at a comfortable wrist position.
- CONTROLS**—Left grip controls spark timing; right grip, throttle. Gear shift at left side of tank; clutch controlled by heel and toe pedal. Brake pedal at right side.
- FINISH**—Sage green with red and black striping, cream wheels. Handlebars, lamp brackets, etc., finished in black.
- SADDLE**—Similar to Henderson; large bucket type with De Luxe spring suspension.
- WHEELBASE**—56 1/2 inches.





## HENDERSON



**T**HE Henderson Four is the last word in motorcycle engineering. It has achieved and holds the enviable position enjoyed by any product that is the undisputed leader in its field.

It combines the smoothness, silence and riding comfort of the fine motor car with all the pleasure, thrill and exhilaration found only in motorcycling.

Motorcycling with a Henderson is motorcycling at its best, and must be experienced to be appreciated for really it is a different kind of motorcycling. Mechanically, the Henderson differs from other motorcycles and likewise its performance is different. It is no vague or intangible difference but is self-evident on your first ride. Visit your local dealer today and try the Henderson!

You'll be impressed with the easy starting—usually one kick suffices, even in cold weather.

You'll like the way the motor throttles down, for flexibility and wide speed range are outstanding characteristics of the Four.

The smoothness, freedom from vibration and silence of the Henderson will appeal to you and make you eager to get into the saddle and ride away.

You'll find the weight distribution of the Hen-

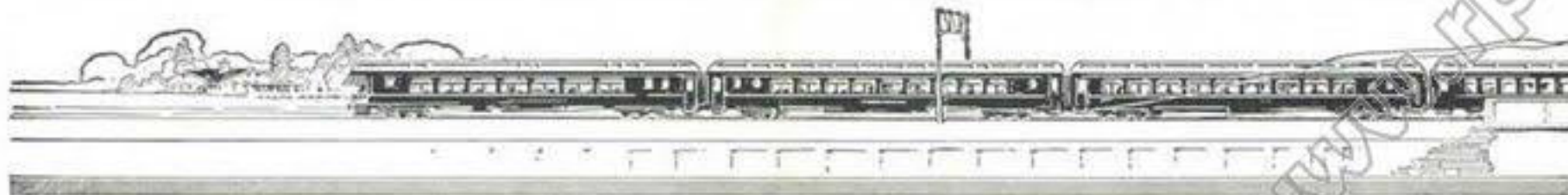
derson, the unusually low saddle position and the low center of gravity give you a feeling of confidence that you have never before had in handling any other big machines. The Henderson is an ideal solo mount and a sidecar machine without a peer.

The smooth gliding sensation when starting out on your first ride, the thrilling acceleration and the ready responsiveness of the four-cylinder engine to your slightest whim will surprise and delight you.

In congested traffic you'll like the way you can idle along behind the slowest. When there is an opening, you can fly ahead of the fastest.

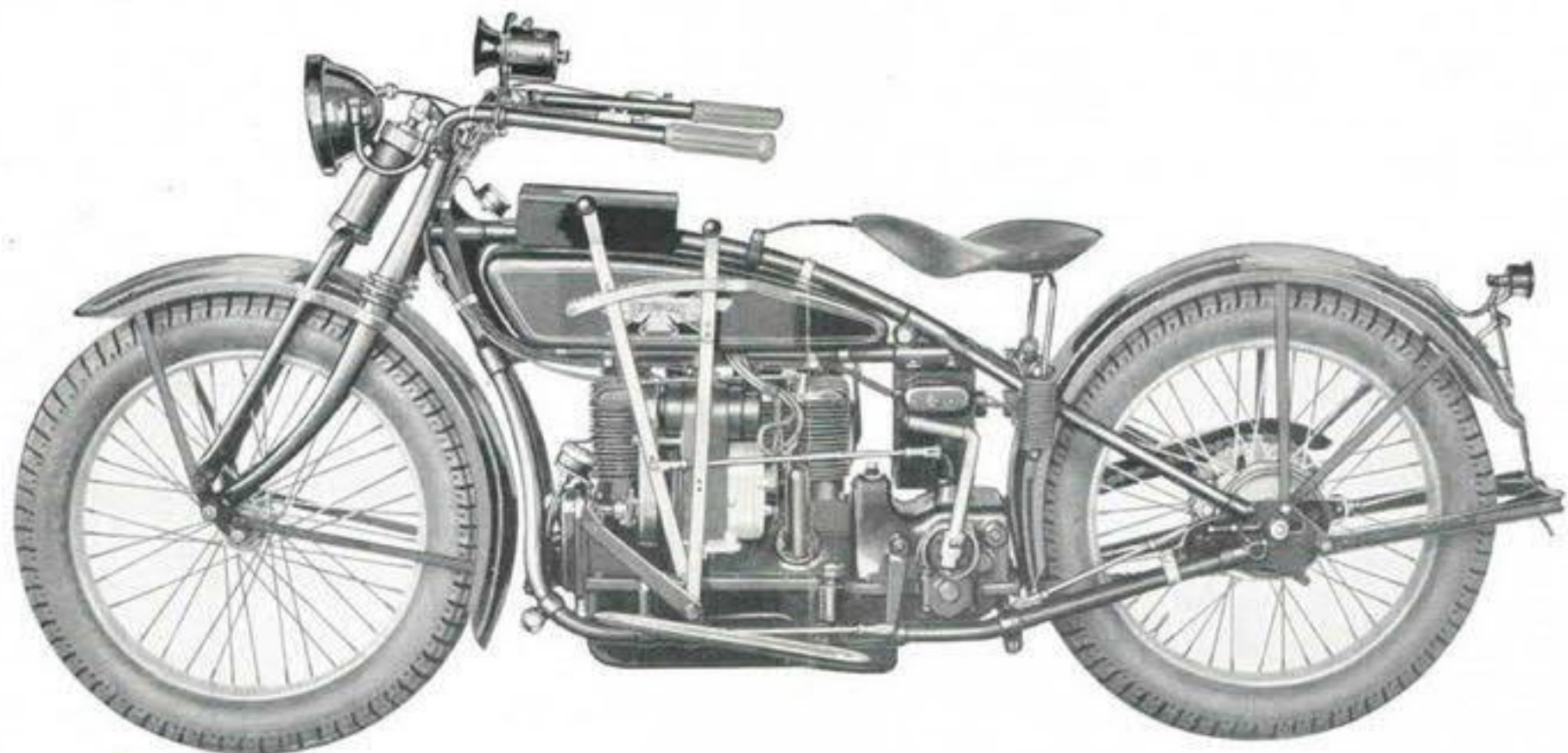
The big balloon tires, well-cushioned saddle and exceptionally comfortable riding position will prove a revelation. Rough roads do not deter Henderson riders. In mud, sand or loose rock, the Henderson is steady and sure-footed. You'll find that its natural balance and ease of handling will enable you to explore the side-roads and by-paths far from the traffic throngs.

The smooth, even flow of power from the four-cylinder motor and the absence of jerking at any speed eliminate fatigue on long trips. This is one of the good reasons why the Henderson is so popular for Police Work. The officers can ride all day, and day after day, with little or no fatigue.





## HENDERSON



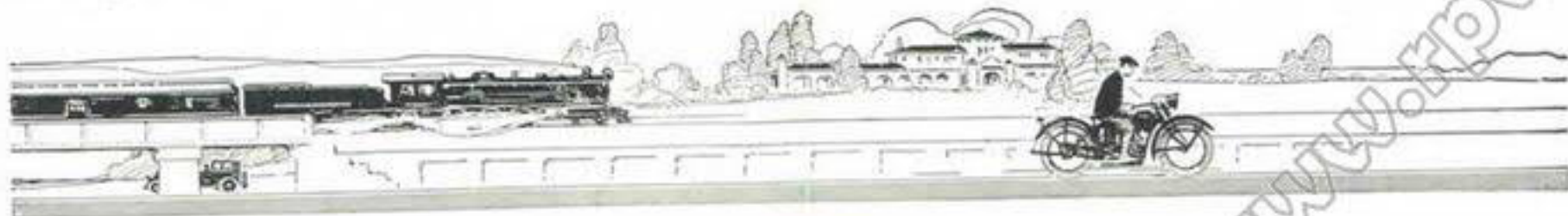
The absence of vibration and jerking in the operation of the motor means long life of wearing parts and greater reliability. The periods of useful service are thereby lengthened and it is seldom or never necessary to make roadside adjustments or repairs.

The Henderson Pressure-Feed lubrication is to a great extent responsible for the phenomenal endurance and stamina. Oiling is entirely automatic. There is no handpump. The entire oil supply is carried in the crankcase sump from which it is circulated by a simple gear pump and forced under pressure into all of the crankshaft main bearings and through the hollow crankshaft into the connecting rod bearings, transmission and clutch. The quantity of oil supplied is in direct proportion to the motor speed and need. This means maximum motor performance under all conditions and greater oil economy than is possible with any other lubricating system. There are no delicate parts to get out of order. The pump gears are continually immersed in oil and cannot wear. Adjustment of the pressure supplied to the bearings is easily effected. The only attention required is periodical replenishing of the oil supply. Every drop of oil does its full duty and none is wasted.

The four-cylinder design naturally lends itself to the unit power plant construction and in this respect the Henderson is a pioneer. In every way it is an advantage to have the engine, clutch and transmission integral. In addition to doing away with a front chain, the unit power plant is more compact, easier to handle in servicing and the power generating and transmitting units are permanently held in alignment.

The Henderson engine embodies all of the latest advances in automotive engineering. It is the most highly developed air-cooled gasoline power plant on the market today.

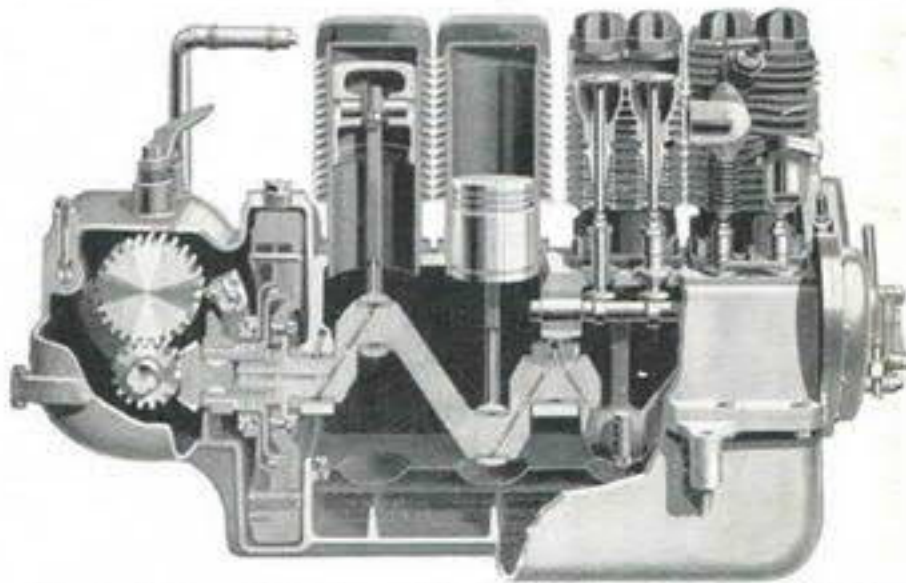
The new cylinders have thicker walls, aiding heat transfer, giving greater strength and insuring freedom from distortion. The number and size of radiating flanges have been increased, particularly on the valve pockets. The attractive new valve caps, Silicrome exhaust valves and increased radiating surface around valve pockets eliminate the possibility of any valve trouble. The new cylinders are attractive in appearance as well as more efficient in operation. The cylinder bores are accurately ground and then lapped with their individual pistons and rings.





# HENDERSON

The motor is of the high efficiency, long stroke type with 2 1/4" bore and 3 1/2" stroke, giving a displacement of 79.4 cubic inches. Extreme care has been devoted to every detail of design to realize the highest degree of efficiency, pep, pulling power and endurance. The intake passages are large and



Sectional view of Henderson "De Luxe" motor showing details of pressure-feed lubrication system through hollow crankshaft and interior motor parts.

sweeping to facilitate filling the cylinders and to distribute equal gas charges to all cylinders.

Alloy pistons are standard equipment and these give vibrationless running; perfect cooling because of the splendid heat conductivity of the alloy; higher speed, and quicker acceleration with all the durability and quietness of cast iron pistons.

In the past there has been an erroneous impression that four-cylinder motors are inherently less rugged than twins. To controvert this it is only necessary to examine the important parts of the Henderson and compare them with the corresponding parts of any two-cylinder machine. It will be very evident that part for part, Henderson motor components are very much sturdier.

The crankshaft has wide reinforced throws, giving great strength and rigidity. It is a one-piece forging of alloy steel and by special heat-treating processes, the bearings are made glass-hard without altering the toughness and strength of the rest of the shaft. All crankshafts are balanced carefully to insure smooth running. The connecting rods are forged from special alloy steel.

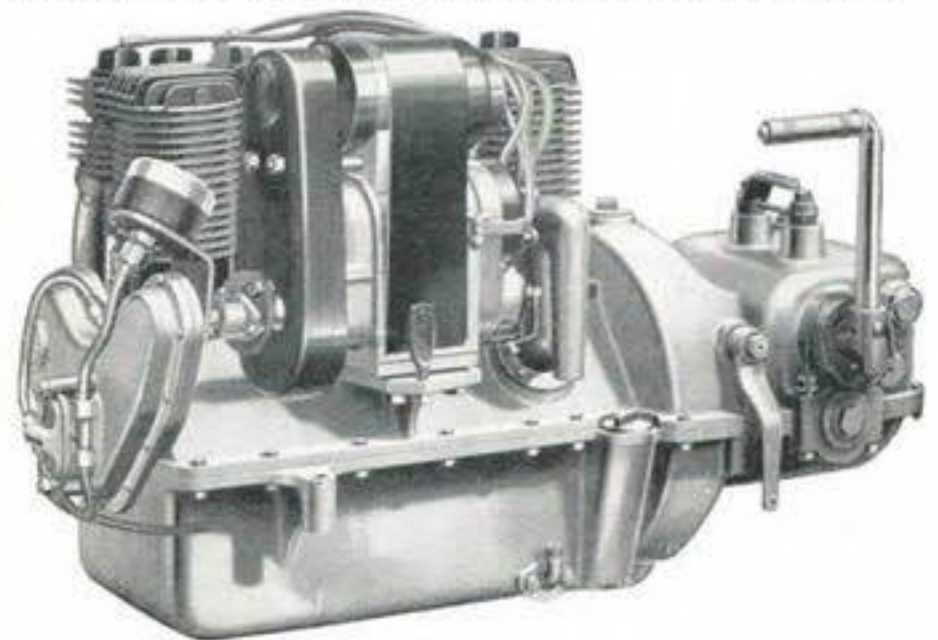
The camshaft is an alloy forging with three large bearings. The cams are accurately ground and hardened. The new helical timing gears and camshaft silencer eliminate valve noise.

The valves are arranged side-by-side which gives a compact and accessible motor. The cylinders may be removed for carbon cleaning and valve grinding without disturbing the mounting of the motor in the frame.

The power plant is carried on lugs on the inner sides of the lower cradle frame tubes. This mounting obviates the necessity of connections from the cylinders to the frame and makes removal of the power plant an easy matter.

Material for all motor parts is carefully selected and must meet exacting standards. Workmanship and finish of all parts are of the highest possible quality, checked by rigorous inspection. All motors are block tested and all finished machines are actually road tested by experts.

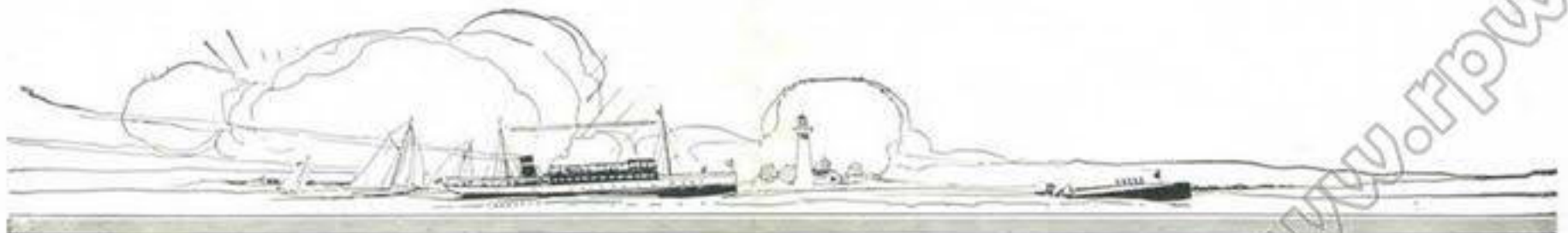
The Henderson electrical equipment is of the dual-unit type with a high tension magneto for ignition and separate generator and battery for light-



Mounting of the "De Luxe" Two-Unit electrical system.

ing. Experience has shown that this is the most reliable electrical equipment. Ignition and lighting are two separate functions handled by two separate and distinct units. The lighting system has nothing whatever to do with the running of the motor.

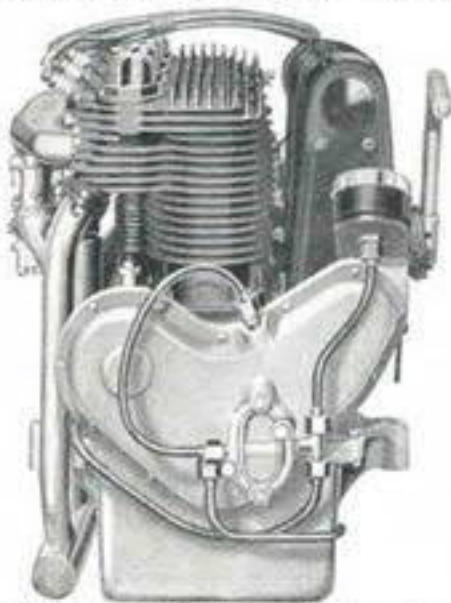
The Henderson clutch is of the multiple disc





# HENDERSON

type built in the flywheel with steel plates of large diameter, insuring smoothness of engagement and tenacity of grip. It operates in oil which prevents wear and insures long and satisfactory service in the hardest kind of usage.



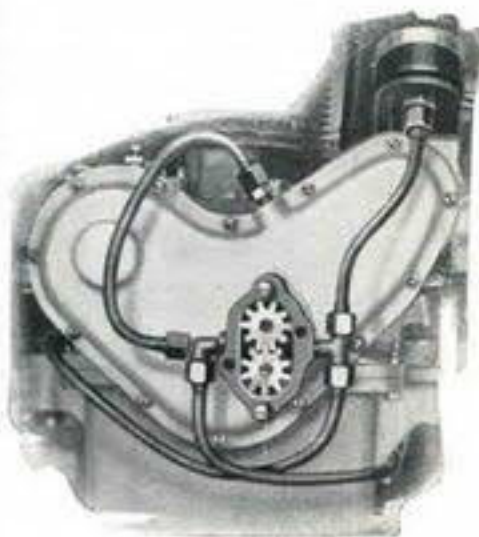
End view of Henderson "De Luxe" powerplant.

Oversize construction with an unusual factor of safety characterizes the transmission. The gears are as large as those used in many of the smaller cars. There are three forward speeds. Reverse gear may be had if desired and this will be found very useful for

sidecar service. The gear shift is on the left side of the tank. The entire transmission is supplied with oil from the pressure system and the gears cannot run dry so long as there is a sufficient supply of oil in the motor base.

The starter is simple and sturdy and acting through the transmission gears it gives two full revolutions of the motor for each downward stroke. Easy starting is one of the most attractive features of the Henderson. Even in cold weather one stroke usually suffices.

A dependable brake is just as important as motor speed and pulling power. The Henderson brake is also used on the Super Excelsior and illustration of it will be found elsewhere in this catalog. It is the most powerful and most reliable brake ever built into a motorcycle frame. It is double acting and works equally well forwards or backwards. It has sufficient

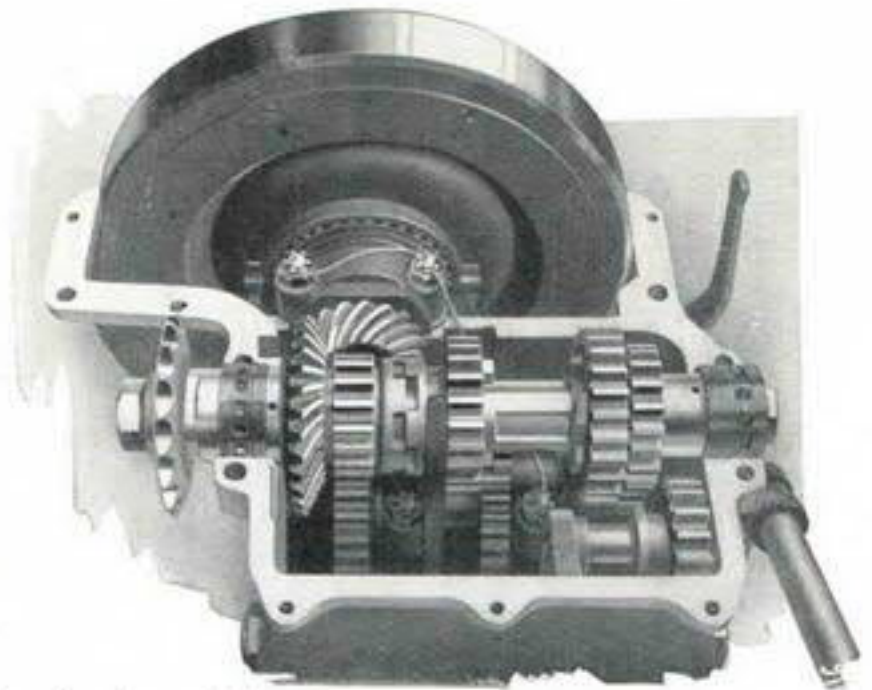


Two spur gears, constantly immersed in oil are the only moving parts of the pump.

surface to stop the machine without any tendency to lock the wheel and is very readily adjusted.

Henderson wheels are mounted on Timken Tapered Roller Bearings. The hubs are interchangeable with those of the Super Excelsior and the bearings are of standard size, the same as used in the front wheels of several popular light cars. A very effective method of retaining lubricant and excluding dirt and water is used. Knockout axles are used.

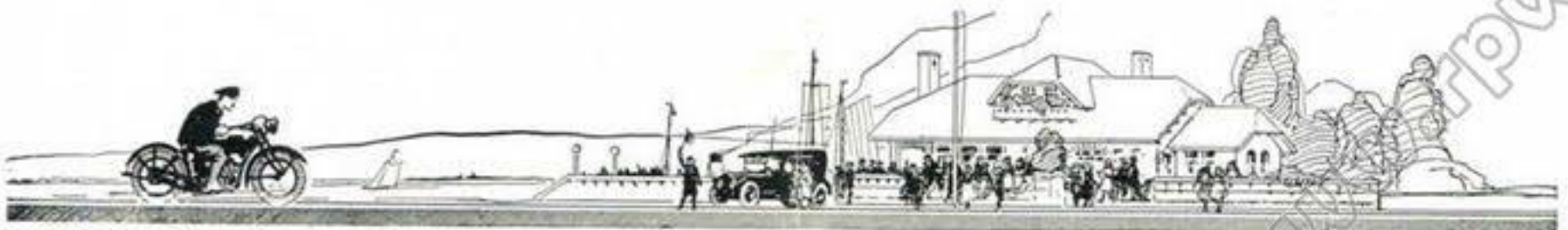
The new saddle is of the pan type. It is large and fits the form like an easy chair. The riding position is extremely low and the rider actually feels himself a part of the machine. An effective



Interior of transmission showing mounting of clutch in the flywheel, the new spiral bevels and relative positions of the gears.

spring mounting is used for the saddle which dispenses with the old style saddle frame and spring seat post. A wide yoke spans the rear forks and supports the springs. This makes for stability and does away with sideways. The springs are of a new, extra long anti-recoil type. They absorb road shocks, and increase comfort and safety.

The Henderson frame is of the double cradle type made of extra heavy seamless tubing with special alloy steel forged joints. No sheet metal stampings or castings have ever been used in Henderson frame construction. The use of forgings is expensive for they are solid blocks of steel and must





# HENDERSON

be drilled and machined, but experience has shown that this is the only way to build trouble-proof frames. The new frame gives a saddle position fully two inches lower than that of the older models.

With the new design of frame, a new gasoline tank is used. It is somewhat wider than the old style tanks and is gracefully curved to fit the lines of the frame. The tank is made of extra heavy leaded steel with seams spot-welded and soldered. Interior baffles reduce splashing.

Wide flat mudguards with ample wheel clearance for balloon tires characterize the Henderson. The rear guard is mounted so that it can be unbolted easily and swung forward to facilitate removal of the rear wheel. The stand has been shortened making it a much easier lift to pull the machine up on the stand.

The Henderson fork is too well known to require lengthy description. It is strong beyond all service requirements and at the same time resilient and flexible. The fork rockers and studs are over-size and the rockers have replaceable bushings. The fork stem is solid and is riveted and brazed into the triple truss crown.

The handlebars are long and wide. The central portion which slips over the fork end and anchors the spring fork plunger is a heavy forging.

Elsewhere are shown the comparative cross-sections of the Henderson Balloon Tires and the old style high pressure casings. The balloons give the last word in riding comfort and safety and save wear and tear on the machine.

The rich blue finish and the cream colored wheels make the Henderson exceedingly attractive.

## SPECIFICATIONS

**MOTOR**—Four cylinders, super-speed, ultra-power; bore,  $2\frac{1}{8}$  inches, stroke,  $3\frac{1}{2}$  inches, piston displacement 79.4 cubic inches.

**VALVES**—Side-by-side, direct-thrust, interchangeable, exhaust valve Silchrome steel.

**PISTONS**—Die-cast, four ring type, alloy—cast iron pistons optional.

**CONNECTING RODS**—Drop forged, I-beam section, especially heat-treated; marine heads allow ample take-up and perfect adjustment, not offset.

**CRANKSHAFT**—One piece forged from special steel—new design with wide throws giving greater strength and rigidity. All crankshafts carefully balanced.

**CAMSHAFT**—New high lift design—forged with bearings and cams hardened and ground. New silencer eliminates valve noise.

**BEARINGS**—All bearings babbitt lined bronze, of best quality, extra large. Main shaft bearings  $1\frac{1}{4}$  inches in diameter; total length  $4\frac{1}{8}$  inches. Connecting rod bearing  $1\frac{1}{4}$  inches in diameter,  $1\frac{1}{8}$  inch length. Wristpin bearings  $\frac{3}{8}$  inch diameter,  $1\frac{3}{8}$  inches long.

**ELECTRICAL EQUIPMENT**—Separate units for ignition and lighting. High tension armored type 4-unit magneto—separate unit generator, battery, ammeter, Klaxon horn, head and tail lights, new control switches and Packard wiring.

**CARBURETOR**—Zenith 1-inch size, especially designed and perfected for this motor; located at center of intake manifold. Stove for preheating air.

**MOTOR STARTER**—Foot type, operated through transmission gears giving two full revolutions of motor for each down stroke.

**FRAME**—New low frame gives lower saddle position and ample clearance for balloon tires. Every joint is a special steel forging.

**TIRES**—New Firestone 27"x3.85" Gum Dipped Cord Balloon Tires—more comfort, greater safety and better service.

**CLUTCH**—Flywheel type. Velvety in action with positive grip. All parts thoroughly lubricated by oil delivered through crankshaft. Clutch controlled by foot lever at left foot-board.

**TRANSMISSION**—Sliding clutch type, three speeds forward. Lower ratios are used for reverse and low gears giving ample power for all emergencies. Reverse gear optional equipment.

**BRAKE**—Powerful external double acting band,  $1\frac{1}{2}$  inches wide. Adjustment quickly made by automobile type clevis. Internal brake, optional at extra cost.

**FORK**—New style balanced plunger type, unusually sturdy and resilient.

**HANDLE-BARS**—Henderson braced type with drop forged center and three point connection; extra long and wide.

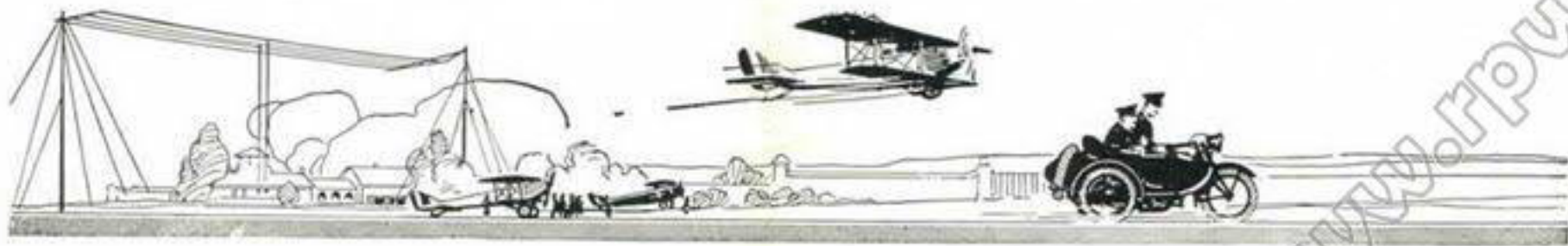
**WHEELS**—Timken roller bearings front and rear. Slip axles, heavy rims and 40 spokes.

**GUARDS**—New style wide and shallow; ample wheel clearance for balloon tires.

**SADDLE**—New "De Luxe" type, larger and more comfortable with new spring suspension—bucket seat type.

**TANK**—Heavy lead-coated steel with a capacity of approximately four gallons. Oil supply in crankcase.

**FINISH**—Frame, tanks, fenders, etc., rich deep blue with gold striping. Wheels cream. All nicked parts plated on copper.





## EXCELSIOR-HENDERSON SIDECARS



**EXCELSIOR-HENDERSON** Sidecars combine with beauty of appearance and unusually comfortable riding qualities an ease of handling found in no other sidecar. This is due to the wonderful Stabilator which is an exclusive patented feature. It completely removes all handle-bar drag and absorbs all jolting and jarring of the sidecar wheel on rough roads. In fact, it can be said truly that this Stabilator makes a sidecar outfit handle with the ease and the comfort of a solo mount.

The Stabilator is embodied in the connection from the chassis to the motorcycle seat post forging. It consists of a double balanced spring enclosed in a spring barrel housing.

The chassis combines great mechanical strength with simplicity of construction and freedom from complication. The tubing is all extra heavy seamless and the joints are oversize. The front and rear connections to the motorcycle frame are flexible and in combination with the stabilator give a degree of sidecar riding and driving comfort hitherto unknown.

The body is carried on full elliptical springs at the rear and the front is supported on helical springs. This spring suspension effectively cushions the side-

car passenger against road shocks giving a delightful floating sensation. The springs are sufficiently sturdy for heavy loads yet flexible enough for perfect comfort with light loads.

The body has graceful streamline proportions. It is more than ordinarily roomy. The upholstery is of the heavy, overstuffed type. The mudguard is attached to the body preventing bruised elbows. An unusual amount of storage space for luggage is provided in the rear of the sidecar body. Access is had through a convenient door which is provided with a lock. Additional luggage space is afforded under the seat and in the side-pocket.

The sidecar wheel is mounted on Timken Tapered Roller Bearings. The axle spindle is sturdy and is easily removable. The Timken Bearings assure freedom from wheel troubles because of the greater load-carrying capacity of the rollers and their ability to absorb side-thrust loads.

Visit your local dealer today! Examine the



Excelsior-Henderson Sidecars. Try them! Drive them! Experience real sidecar riding and driving comfort!

