

# Indian

## FOUR MOTORCYCLE NEWS



VOLUME 2

NO. 3

FALL ISSUE 1967



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\$1.00



The Non-Drag Clutch By Earl Chalfant



Restoring Your Indian Four Engine By Paul Murray



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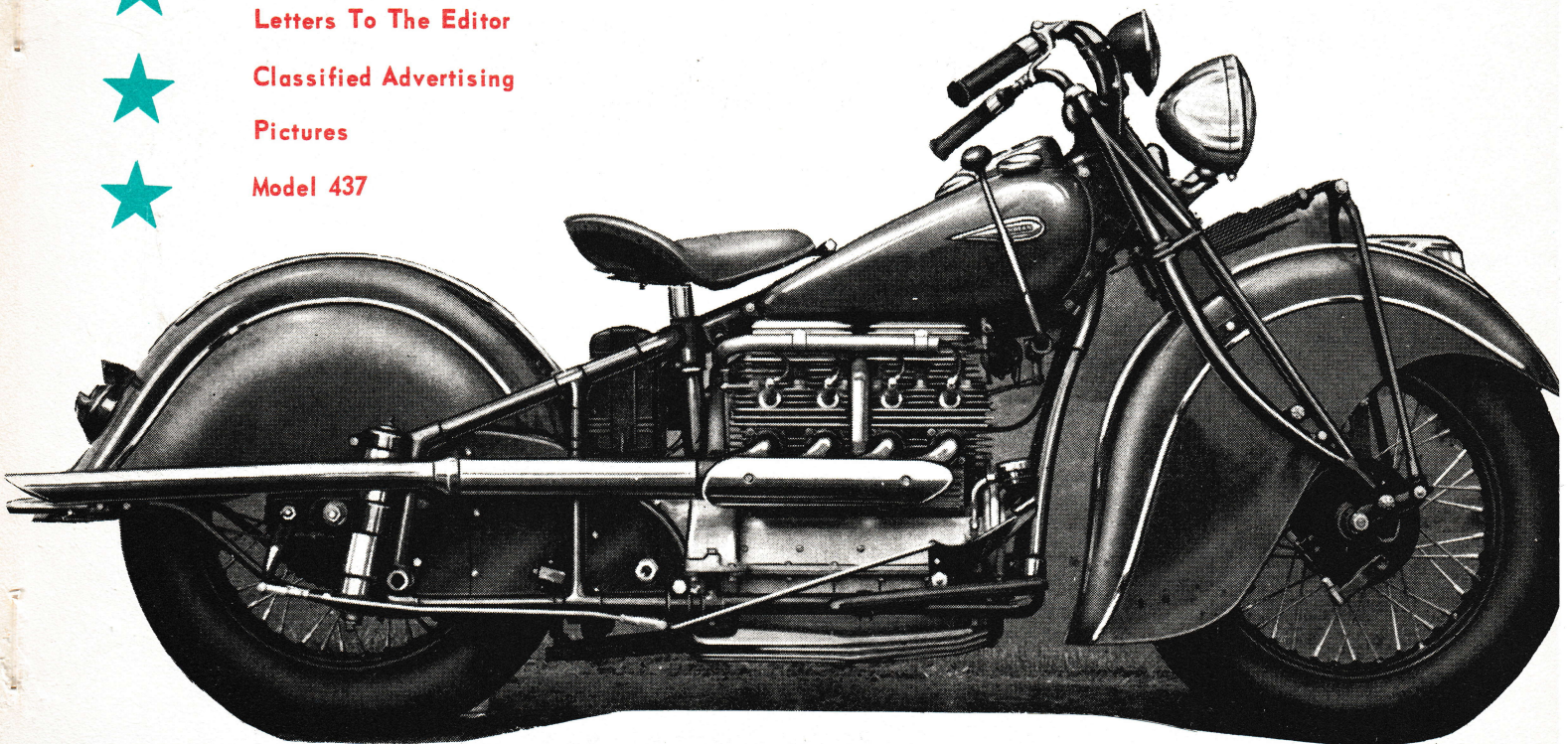
How's Your Gas Mileage Buddy?

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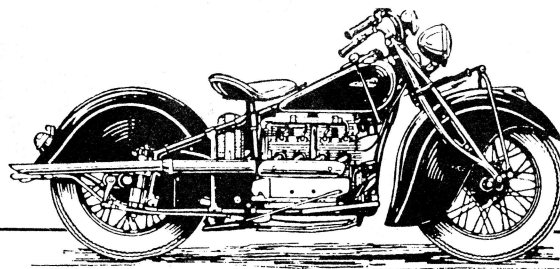


AMERICA'S MOST BEAUTIFUL MOTORCYCLES

PUBLISHED BY THE INDIAN FOUR MOTORCYCLE CLUB OF AMERICA, INC.

FOR ITS MEMBERS





*THE INDIAN FOUR CLUB WAS FORMED:*

*....TO HELP ALL MEMBERS RESTORE THESE FAMOUS MACHINES.*

*....TO MAKE PARTS AVAILABLE TO KEEP THEM FROM BECOMING EXTINCT.*

*....TO PREVENT THIS CLUB FROM FALLING INTO THE HANDS OF AN INDIVIDUAL OR GROUP WHOSE SOLE PURPOSE IS PROFITEERING AND TO CAUSE HARDSHIPS FOR MEMBERS TO OWN FOURS AND TO SECURE PARTS TO MAINTAIN THEM.*

*....TO PROMOTE GOOD FELLOWSHIP AND TRUST AMONG MEMBERS.*

*....TO ENCOURAGE ALL MEMBERS TO TAKE AN ACTIVE PART IN HELPING THE CLUB GROW.*

**INDIAN FOUR CYLINDER CLUB OFFICERS**

**AUGUST 1967 TO AUGUST 1968**

|                             |                   |
|-----------------------------|-------------------|
| <b>PRESIDENT.</b>           | John E. Wickham   |
| <b>VICE-PRESIDENT</b>       | Paul Murray       |
| <b>SECRETARY.</b>           | Casper Barnes     |
| <b>TREASURER.</b>           | Carl Reichenbaugh |
| <b>TRUSTEE FOR 3 YEARS.</b> | Jack Maurer       |
| <b>TRUSTEE FOR 2 YEARS.</b> | Allen Bozung      |
| <b>TRUSTEE FOR 1 YEAR.</b>  | Robert Aldrich    |
| <b>REFEREE.</b>             | George Young      |
| <b>ASSISTANT REFEREE.</b>   | Kent Moore        |
| <b>SGT. AT ARMS.</b>        | Robert Aldrich    |

**INDIAN FOUR MOTORCYCLE NEWS**

**EDITOR AND PUBLISHER.** Years of 1966-1967. Cecil F. Hasser



WHAT WE NEED  
AROUND THIS PLACE  
IS A FEW MORE  
INDIANS!







Editor Cecil Hasser At Toledo Meet

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Dear Members and Friends;

The weather was perfect. Bright sunshine and soft, white, fluffy clouds floated overhead in a blue sky as we left home and headed north on Rt.68. I rode my '40 Indian Four, Wilma her '41 Sport Scout, Bob and Greg, our two oldest boys, rode double on Bob's '48 Chief. Mark and Steve, our younger boys, stayed home with our daughter, Laura. It's about 150 miles from home to Toledo and traffic was light, the road paved with smooth black-top and is full of curves and hills. In short, everything needed for a fine ride was available, so we just cruised along, enjoyed our Indians, and took in the view.

The get together at the Meet was really swell. Wilma and I enjoyed meeting all the new members with whom we had corresponded as well as friends from past meets. Time really flew by, and there just was not time to visit like we had wanted to. The warmth of fellowship and friendship was everywhere, and there was no doubting that. I only entered one event, the Economy Run, and took second. Well, that's how it goes!

You know, when I started our magazine in 1966 and volunteered to donate my efforts through the year 1967, I also said at the time, that I felt someone else should volunteer to take over this responsibility at the 1967 August Meet, for the year 1968. I'm sorry to say this was not resolved at the Meet, but I understand details will be settled at the October Business Meet, for a new editor and John will have full details in the Winter Issue of Indian Four News.

I only wish our annual Meet could have lasted a week instead of two or three days; it's so much fun. Happy riding!



## PRESIDENT'S PAGE

The 1967 Rally and field meet of the Indian Four Club was quite a meet this year and far exceeded my expectations this year and the biggest we have ever had!

We had better cooperation among the members and things went along pretty smoothly.

I think everyone can plainly see that big things are in store for our club and that with more cooperation we can do much better and make the future meets a meet well worth attending.

I have appointed 8 directors for the club and through these members and directors I hope that a lot of turmoil and confusion can be eliminated.

Also with their help, many of the jobs that need supervision such as the gate help, flea market, registration of members, opening and closing, parking, events and equipment needed, and any other details that come up can be well handled and schedules carried out as planned.

In my course of handling affairs at the meet I was approached by many people and members as well that couldn't express themselves well enough or have praise enough of our meet.

Also since our meet I have received many letters stating this fact.

I met some of the finest people I ever met in my life as a motorcycle rider at this Rally.

Such people as Mr. & Mrs. Louis Kamaski and daughter Angie, Mr. & Mrs. Fran Backer, Mr. & Mrs. Gerald Wilson, Mr. & Mrs. Mervin Ryan, Bill & Dot Gewand and many others. Pardon me folks I met so many of you fine people and it is hard to remember all I did meet.

But from expressions from these fine people gives proof of what fine meets we have.

We have had the splendid cooperation of the Travelers Motorcycle Club and use of their fine club grounds and their new club house, which when finished will make our next meet more enjoyable with all the modern facilities.

The opening of our Rally with Rev. Tom Miles officiating and with a short ceremony properly designed by him for this occasion was well received by all present and well fitting to the meet. With this type of openings or such by a minister will greatly help to cut down the interference and invasions of club affairs and events by these so called outlaw clubs.

It also helps boost the morale of the club and helps to maintain law and order.

This is just one of the proceedings that we club officers are instituting in to club affairs and future meets and hope that we can constantly improve our meets as we go along with each and every member's help.

I hope that the members will forgive me if I am lax in my report or message this time as I have been ill for 3 or 4 weeks after the meet and was under doctors care but have been able to get back at it and get on my feet again. It was minor and a weakness and sort of loss of strength that was the cause.

Our thanks to Mr. & Mrs. Lous Zock of Pontiac, Michigan who so graciously brought their famous Gen. Rommell Zundapp motorcycle to our meet this year and was well received by all present.

In conclusion I wish to say Thanks to all of you fine people, mem-



John E. Wickham, President of The Indian Four Club

bers and all who attended this meet and I am sure that you were well rewarded for your miles of travel and we plan bigger and better things for next time and hope that we can meet you all again at our next Rally.

Your President,

J.E. Wickham

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# 1967 ANNUAL FIELD MEET & RALLY

By John E. Wickham, President

The 1967 Annual Field Meet and Rally was held at the Toledo Travelers Club Grounds, 8940 Dorr Street, Toledo, Ohio Saturday and Sunday, August 12-13, with the biggest attendance ever had at any meet. The Rally actually started Friday afternoon from approx 4 PM on as by the time the President arrived there were campers already on the grounds and set up for their stay at the meet.

Among these were Mr & Mrs Fran Backer of Sioux Falls, South Dakota, Mr & Mrs Mervin Ryan of Edinburg, Virginia, Mr & Mrs Gerald Wilson of Ft. Lauderdale, Florida; Mr & Mrs Percy Wallace of Atwater, Ohio, and their family Mr & Mrs Stinebring of Wooster, Ohio, Mr & Mrs Enos Leass and family from Findlay, Ohio.

The evening was spent by out door cooking and renewing old friendships and movies shown by the Wallaces.

By this time it was getting on to wee hours and a count was taken as to the number of campers on the grounds and it was surprising to note there was around 25 families there Friday night.

Anyway this was the largest number of campers for any year yet.

On Saturday morning there was a stir in the camping area early and breakfasts being prepared and also by the Travelers Club ladies for those not prepared for camping, this was done also on Sunday morning for members benefit.

A dinner was prepared also on Saturday and Sunday for any who wished to have rather than prepare themselves, a service we all appreciated.

By the time the gate was set up and members arriving, the grounds began to fill up and the registration booth and Flea Market area was set up.

There were more members in the Flea Market area this year than any other time and more parts were available to members who were in the market for parts.

With the able assistance of Louis Kamaski of Indiana, the Flea Market was well handled and orderly. Help on the gate was furnished by members of the Travelers Club and the Indian Four Cyl. Club Saturday morning and our members took over later.

Arrivals of members and machines continued on thru the day and unloading and the renewal of friendships and photos. With the arrival of Rev. Tom Miles and our Treasurer with the recorded music the Rally was opened with a prayer by Rev. Miles and our mascot, Joey Leass, mounted on his dad's Findlay Four and several of our members lined up on the track with their Fours.



Joey Leass had our Club Banner mounted on the Findlay Four and with the playing of the Star Spangled Banner the Rally was officially opened and the procession moved around the race track area.

After the opening and track was cleared the events got underway, first event was Whack the **Murphy** and obstacle event put on by Enos Leass and help of Club Referees.

After this event, the Barrell Roll was put on by Paul Murray who secured several small hard to roll barrells with a motorcycle. However they did an excellent job. Loren Gouldsberry was first across the line with his Harley and Chuck Metenkanich was second with an Indian 4. In the Powder Puff Duo, Eleanor Stinebring was first on a Sprint Harley D..

Next event was the Economy Run which means starting the motors let lines fill up, then gas valves are shut off and contestants are to make as many laps as possible on what gasoline is in the lines and carburetor. Chuck Metenkanich was first and Cecil Hasser was second. After these events as time was running short, members had gab sessions and photo taking and Flea Market purchases and making reservations for motels and camping for the night. Lunch was served by the Travelers MC Club ladies and preparations were made for a corn roast by members of the Travelers Motorcycle Club which lasted quite late and was enjoyed by all.

The clubhouse remained open all night Saturday night for the convenience of all and some made use of it for sleeping quarters.

In the morning Sunday, breakfast was served by ladies of the Travelers M C and breakfast was prepared by those in the camping area.

At 9 - 10 AM Sun the rise and shine program was held with an opening program and prayer by Rev Tom Miles which to our notion and feelings was a great addition to our meeting and was well accepted by the group and many remarks were made as to making this a regular part of our program.

After the prayer and program the Star Spangled Banner was played and Joey Leass our mascot, with flag raised and Club Banner mounted on lead motorcycle a short parade was made of the track followed by several members on their beautiful Indian Fours.

The Flea Market was opened and well attended by all and many parts found new owners.

The grounds continued to fill up and was pretty well filled by noon.

Registrars were kept busy as well as the gate and club badges and AMA awards were passed out to all who registered.

Anyone who missed out can still obtain one by writing the President--AMA or Club Members only.

The events got under way at 11AM and ran till noon the first event was an obstacle event with apples placed on top of pop bottles and contestants were to pick off without upsetting the bottles.

Joey Leass was second and Ron Whirley was first. A string event was next, this consists of tying two motors together at handle bars with a short string and contestants are to ride with out breaking string if they get too good at it on a couple laps, string is shortened to 12 - 18 inches till eliminations begin. This event was won by teams. Geo Young and Allen Bozung --first and team of Don Knapko and Chas Metenkanich, second.

This finished the events and lunch was had by all. And at 1PM to 2:30 the Judging of the classes of motorcycles was held.

Judges were Geo Hopps, Dave Sloan and Robt Paulette. During Judging flea market was closed and many photos were taken of the groups of machines and various interesting machines on the grounds.

Lou Zock of Pontiac, Michigan who owns the famous W.W. 2 Zundapp motor cycle was there and displayed this famous machine.

Lou had an accident some time back with the machine and Lou and his wife were severely burned in the accident but have fully recovered and have the machine fully restored and painted.

Due to restrictions by Lou's insurance company he was unable to demonstrate the machine for us.

This machine has 12 speeds, 8 forward and 4 in reverse. Optional, foot or hand shift, foot or clutch, drive on side car wheel. Gun mounts are still on the side car.

Designed for desert travel, for 5 men and was owned by General Rommel.

Was captured during the war and later brought to the U.S. Was shipped from Texas to Michigan and insured for \$25,000.00. Lou Zock and his wife are wonderful people and well liked by all who meet them.

Many fine people were at our meet, Mr & Mrs Fran Backer, Mr & Mrs Louis Kamaski and daughter Angie, Mr & Mrs Ryan, Mr & Mrs Paul Murray, Mr & Mrs Cecil Hasser, Mr & Mrs Gerald Wilson and pardon me folks if I do not mention all but we love you all and all who attended.

Dr. Wm. Cleveland & wife were there as well as James Lucas of the Antique Motor Cycle Club.

Trophies were presented after the Judgine, for the machines picked by the Judges as well as contestants in the events and a drawing was held by the Travelers motor cycle Club for a 50 cc motor cycle and the lucky guy was Richard Ulreich of Hamilton Ohio.

Elsewhere in the magazine is a photo taken of all winners and names.

The Rally came to a close at 3:30 PM and departures and loading of machines and farewells till next Rally when we hope to see you all back with us again.

We hope to have bigger and better meets as we go along and with your help we can and will.

Thank you one and all.

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Comments received by President Wickham; "I don't know how to say how proud I am that I belong to such a nice and swell club." Fran Backer

"The Meet at Toledo was the best yet. Organization and management have improved steadily. You deserve much credit for your hard work.... I drove home (exhausted and tired)....Earl Chalfant

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1967 - 1968

DIRECTORS Appointed by President Wickham...Indian Four Cyl. Club, Inc.

- |                                |                                       |
|--------------------------------|---------------------------------------|
| 1. John Groves; Fostoria, Ohio | 5. Percy Wallace; Atwater, Ohio       |
| 2. Gordon Deye; Toledo, Ohio   | 6. Louis Kamaski; Chesterton, Indiana |
| 3. Enos Leass; Findlay, Ohio   | 7. Edger Stoner; Etters, Pennsylvania |
| 4. Fred Provin; Newark, Ohio   | 8. Richard Vogus; Dayton, Ohio        |

ALTERNATES in case.

- |                                    |                                        |
|------------------------------------|----------------------------------------|
| 1. Fran Backer; Sioux Falls, S.D.  | 3. John Blouch; Terre Haute, Indiana   |
| 2. Mervin Ryan; Edinburg, Virginia | 4. Loren Gouldsberry; Adrian, Michigan |



I don't remember what happened to that twin Ex' but those folks moved and I moved with them. This reminded me of what became of that twin Ex. . My landlord's wife loved motorcycles, and he used to "sic" his wife on to me whenever I went riding, and we had lots of fun going out to her mother's home in the country. I trusted her and gave her the money to make my payments on the Ex' and she spent it instead of making the payments, so I lost the bike.

One time when I was out with her, (I had the luggage carrier padded for a seat but no handle, so she would hug me tight to hold on), a cop saw us and made her get off. Well, I went around the block and picked her up again and went on. Another time when she and I went riding, we rode for quite a while. We came home and I let her off and then parked my Ex' at the side of the house and covered it with the tarp as usual. She had gone into the house but stood in the doorwar and when I came in, she threw both arms around me and tried to kiss me. Well, she took me by surprise and as I didn't want any trouble (her man worked on a moving van and I had seen him hit a fellow with his left hand and split the guy's lip and knocked out three teeth), so I shoved her aside and went on in.

They moved out to her mother's place and I went along although I had farther to travel to work, so I bought another Ex (twin) belt drive, and rode it. One day, on the way home, I saw the Sheriff's car at our gate. I wondered why and soon found out. When I got there, they took my Ex' and hauled it away. Yes, you guessed it, I was fool enough to have this gal make my payments again and she didn't.

Well, later on, I bought another twin Ex., a 1913 model, and rode it back and forth to work 18 miles. I rode winter and summer. The kids had a habit of opening my oil valve on the tank so when I'd fire -up, the smoke would roll and then I would have to drain the crankcase. This happened several times 'til their dad finally got on them.

One day, when I was riding on Euclid Avenue in Cleveland, a fellow on another Ex', attempted to make a left turn in front of me. He didn't make it and his front wheel caught mine, so he took me down Doan Avenue with him. It threw me up in the air about ten feet and when I came down, I lit on my left shoulder. The other guy got skinned up and had some cuts and bruises. I got up, picked up the Ex', pushed it to the curb and put it on the stand and then I sat down on the curb about fifteen feet behind the other fellow's motor. In about fifteen minutes, I couldn't read his number, nor could I raise my left arm more than a few inches until it would drop. I didn't know what was wrong but I couldn't ride that way, so the guy and I went across the street to the police station and told what had happened. They came over and took a look. They didn't "pinch" either of us, but took charge of the motorcycles, and sent us both to doctor's offices.

Funny thing, but when I showed the doctor what was wrong, he couldn't tell what to do, so he called in another doctor and I showed him also. He took one look and said, "Ye Gods! This fellow's shoulder is out of place!" He had me lay on my back on a table, and the first doctor got a-straddle of my chest and held me down while the second doctor grabbed my left hand and gave me a quick windmill twist and threw it (the shoulder) back into place. Ye Gods! I thought he had twisted my arm off and it sure hurt like Blazes! The doctor taped it in place and I carried it that way for three weeks. Meantime, I had my buddy bring my Ex home and before I could lower my arm completely, I was back riding. I had to use my right hand to put my left on the handlebars, and I operated the spark with my right, then back on the throttle. I never did hear anymore from the guy who hit me.

Later on, World War I was over, and I had bought Liberty Bonds and Stamps where I worked in a munitions plant. I had sold my Ex' and had my eyes on a 1915 Harley, 3 speed, owned by my landlord. I made a deal with him and got

the Harley and sidecar, like new, for \$150.00 I rode solo most of the time.

We traveled all over Cleveland and the surrounding towns. There used to be a lot of nice looking girls that would come out to our place on Sundays, as my buddy was a "ladies man". When I saw them coming, I would "pike-out" on the Harley and stay away 'til I felt they were gone. I had done this about every Sunday as I was bashful at that time and felt, "No girls for Me!"

I made a mistake one time and returned home too early. One real nice little girl, got her eye on me and I tell you, I fell for her like a ton of bricks! We went together for awhile but didn't make a hitch.

While I was still living at that place, I got a chance to buy a Sears and Roebuck Buggy Mobile with high wheels, red and black, cranked in the front and steered with a lever and had planetary transmission and reverse when you slid the big disc past center. It had two cylinders and went "Chugi, chugi, chugi", down the street with a two inch cut-out. We used to shine it all up and cruise down Euclid Avenue with the big, fine cars on a Sunday. Three of us got in it one time, and went after some bread for supper. Well, all went well on the trip out, but on the way back, these two chaps got to fooling around and crowded against the tiller 'til I was running towards an eight foot ditch. I pushed on the tiller to stay on the road, and finally swung back in time, but one fellow went out of the seat and landed on the pavement on his hands and knees and skidded for some feet, finally coming to a stop with his nose about six inches from a big, stinking trash pile. That ended the foolishness. Later, I sold the Sears to my landlord and he made a tractor out of it and pulled two sixteen inch plows down through their grape vineyards that year.

About this time, I got the urge to go back home to Findlay, Ohio, so I packed up one Sunday during winter of 1919, and started for home with the Harley and sidecar. I had all my clothes and my machinists toolbox in the sidecar.

My trip took me through Cleveland, Clifton Boulevard, Vermillion, and Huron, Ohio. It was snowing and bitter cold. I had put on everything double except shoes, and was bundled up real good. I would ride into each town, stop and warm up at a garage or some such shop, and then would strike out for the next town. Snow had piled up in some places eight inches deep on the road, and I made my own road in some places.

I passed through Vermillion and while crossing the river bridge, I began having trouble with my motor. It would quit about every quarter of a mile. I'd tinker awhile, then it would run some more. I finally made it into Ruggles Beach and I decided to go into a restaurant for a bite to eat. I forgot my appearance. I had on a knit helmet that covered my face except for my eyes. When I went into the restaurant, the woman there, thought I was a hold-up-man, and refused to serve me. She had three kids and I guess they were afraid of me too. She told me to go across the street to the Ruggles Hotel and maybe they would help me. I took off the helmet this time and the old lady there, invited me in, got me a pan of hot water, soap and a towel with which to clean up while she cooked potatoes, meat and coffee.

After finishing my meal, I asked her about a room and as she didn't have any, she said she would call her son in Huron, Ohio and have him put me up. So, on to Huron I went. This fellow, I think his name was Perry Brown, had a garage and got me a room for the night and didn't charge me for it.

In the morning I had breakfast and then went over to the garage and tore into my motor to see what was wrong with it. I tore it all apart and couldn't find a thing wrong with it, so I put it all back together and fired it up and took off. About a quarter of a mile from Huron, it started to act up again, so, I fiddled some more and got it going. The next time it started to stall, I opened the throttle wide and played with the spark control and she snapped



out of it and ran good the rest of the way home with no more trouble. All in all, it took me a day and a half to travel one-hundred-and-thirty-eight miles over snowy roads and pike roads. Shortly after I arrived home in Findlay, I got a job in a local garage working on cars, and I stayed on that job through 1920.

During this period, I tore down my Harley and rechromed all parts and I had the sidecar and motorcycle all repainted like new, the original colors of Olive Drab, complete with striping and tied it all up by having the sidecar re-upholstered. Things went fine for a while but my kick starter gear gave out so I crafted a new one from a blank piece of steel, cutting the teeth by hand. Then I hardened it and it worked like new.

I also had made the acquaintance of a couple of girls and we went places. Later, the one girl stood me up for another date and the other girl told me of the first girl's intentions. So, I asked the second girl to go for a ride, which she declined. My cousin at a later date, wanted to introduce me to a girl he knew and thought I would be interested in, and it turned out to be the same girl who had refused my ride. I went with her for two months and then asked her to marry me and she said "yes". This same girl is my wife today and we have been married forty-seven years. Although she doesn't like motorcycles, I still ride quite a bit but she thinks I should stop at my age, which is sixty-nine. I still love motorcycling and own four motorcycles and two cars.

After getting married, I traded my Harley and sidecar for a 1917 Saxon roadster and drove it for several years. I was without a motorcycle for quite a while. I traded around and picked up several and repaired them and ended up one day, with a 1925 Henderson Four. I rebuilt it and rode it for a while and then sold it. I had a few Harleys too. Later on, I got a 1931 Henderson Four that had laid in a barn for several years and was pretty rusty. I had a battle to get this one restored. It turned out to be an un-naturally good machine and I sold it for \$450.00. I bought a 1939 Bonneville Scout and sidecar. I rode this and later sold it and bought my first 1939 Indian Four.

After the overhaul, it did better than 105 MPH. During WW2, my wife and I drove it 8,000 miles one year. After the '39 Four, I traded and sold and bought several Fours and finally bought the 1941 Four that I now own, for \$50.00. I completely restored it and it runs good today.

I also had a 1957 Trailblazer Indian which I bought and rode. I traded it for the 1953 Indian 80 Chief which I still own and drew \$275.00 to boot. This 80 is completely restored. I also have an 841 shaft drive Indian that I traded for last fall and I have restored it and have put 86 miles on it.

A few years ago, I saw an ad for a 1905 Indian Single, and I bought it for \$165.00. It sure was a sorry mass of junk and rust, but with approximately two years of work and hunting for parts, and making some parts, I ended up with a completely restored single and it has taken three trophies so far.

With all of these motorcycles I have, I don't expect to own any more. That is, unless one comes along that takes my fancy! The motorcycles that I have, when I am through or can't ride any more, I want members of our club to take them off my hands and some to be placed in museums.

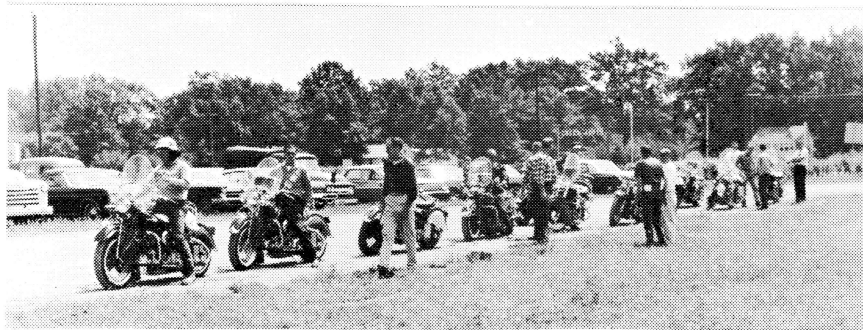
I have my own well equipped shop and I have worked on Indians since 1944 for Indian owners and club members and I hope to continue to do so. With the fine club we have, these Indians will be around for a long, long time. There are many, many interesting things that have happened to me during my lifetime of riding. If anyone has any questions, just ask me.

To end this up, I'll just say, when the motorcycle bug bites, it bites some harder than others, and I was one of the hardest bit!

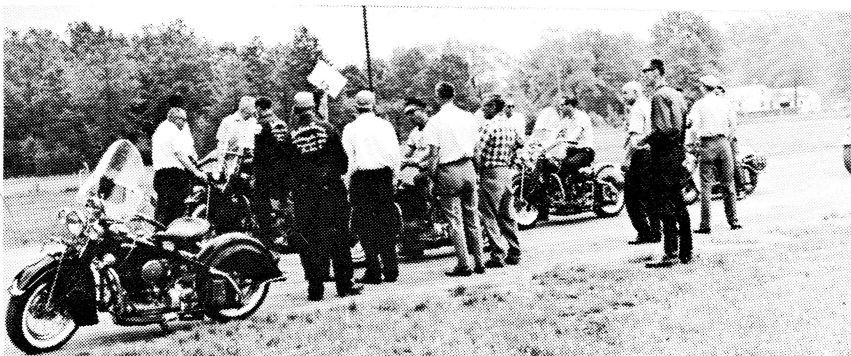
Findlay's oldest motorcycle rider,  
John. E. Wickham



Beautiful sight on the track



First you line up . . .



Then listen to the rules . . .



John and George



And away you go!

### TROPHY WINNERS AUG. 1967



Front L. to R. . . . Ed Romas, Henry Varner, Charles Metenkanich, Allen Bozung, George Young, Don Knapko, Ron Whirley.  
Rear L. to R. . . . John Wickham, Loren Gouldsberry, Gerald Wilson, George Hopps, Lou Zock, William Cleveland  
Helen Gravelle, Rocky Gravelle, Eleanor Stinbring, Enos Leass, Joey Leass, Casper Barnes.

## HOW I BEGAN RIDING

I can well remember the day in the spring of 1913 at the age of eleven years, when an older brother came home riding a new single Excelsior. To me, it was the height of glory and my aim and desire from then on, was to have one of my own. This came to pass in 1924 when I purchased a 1919 model Harley-Davidson.

The old gravelled roads were a challenge as I made trips here, there, and yonder. Still with the desire for a new one, I worked to this end, and in 1926 I was able to get my long dreamed of, new JD model Harley. My father wore a long, white beard in those days, and as he would ride with me in the side-car, his beard would part in the middle and stand out like handle bars on either side. At one time or another, all five of my brothers owned their own cycles and traveled extensively.

For a period of time I gave up riding but it was still in the blood, and again the "riding bug" bit me and I was off to a new start at the age of 56 when I got another Harley and began to take in the events around the country. I am proud of winning a goodly number of trophies and also of the many friendships I have made through the years with the friendly people at the different events.

I plan to keep on riding as long as I can hold a cycle up. They say my time is up in the shop this summer.

Loren Gouldsberry  
Adrian, Michigan

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## GOOD OLD DAYS

It was in AMERICAN MOTORCYCLING that I first read about your INDIAN FOUR magazine, and I am very pleased to say that the Spring Number for 1967 has arrived safely. It is indeed a most interesting publication, and will not only be of a great inspiration to all Four enthusiasts, but of great practical assistance to them as well.

Whilst I have had some years of Indian experience, it was limited to the "Standard", with it's swing-arm suspension and "Powerplus" engine, and subsequently the "Scout". Thus I have never "sampled" an Indian Four, but have covered many happy miles on two of it's ancestors, the A.C.E., designed by W.G. Henderson. I am enclosing photographs of these machines which may interest you. (Editor's Note: Mr. Armstrong's story and pic's was planned for the Summer issue but the story was postponed to make space for the letter from Maj. Tom Garcia who is a club member in Vietnam. A fine picture of the ACE is in the S. issue but the second pic' is in this issue.)

The first was purchased in the autumn of 1920. It was a non-electrical model, and for the following winter was fitted with a compressed acetylene lighting system. This was a great improvement on the old carbide generator, and provided very convenient and adequate illumination of the road. A speedometer was also fitted later. As delivered, the engine suffered from intermitten oiling-up of number three cylinder sparking plug. Lubrication was by splash, and oil surge along the trough plate was the cause. An oval opening between numbers three and four troughs existed to overcome this, but it was insufficient, so an-



other was drilled closer to number three trough. After that, no more oiling occurred, nor did over-heating result.

There is a first time for anything, and it was with this machine that I first parted company with a motorcycle on the move. Sugar beets were being unloaded from steam-tram wagons across the road onto a canal barge, and clay falling off the beets had made the surface into a real skid pan. Speed was suitably low, and the ensuing contact with the road caused no damage other than neatly slicing off the kick-starter lever. After that, push starts were needless to say the order for the rest of that ride. Happily, the kick-starter shaft was of-sufficiently ample diameter to drill and tap, and from then on the kick-starter lever was held on by a press-screw.

Some years later an electrically equipped A.C.E. was purchased. As far as I can remember, the only difference between the models, apart from the electric equipment, was an improvement in the inlet manifold-ing, by elimination of an unnecessary curve, the carburetor being no longer tucked away behind number four cylinder. As accessories, I fitted a Kay-Bee spot light, and a Corbin speedometer. This instrument was fitted with a maximum speed needle, which could be returned to zero a press button. It was fascinating, but somewhat of a temptation to see just how far one could get it around the dial! The exhaust system was modified, a copper pipe of the same diameter as the silencer was carried to just behind the centre of the back wheel. This was nickel-plated (no chrome in those days), and fitted with a drilled plug. With this in place the engine was as silent as any car, but it's removal resulted in a melodious, deep note, which only copper can produce.

The graceful slope of the upper frame line, the large, (for those days), 27 X 3½ inch tyres, and the tool box concealed within the fuel-tank, were some of the features which made the A.C.E. one of the hand-somest motorcycles available at that time.

I have added a photograph of a section of the engine, which appeared in the A.C.E. catalogue for 1920. (See Summer IFN, page 12). It is interesting that the disposition of the valves, with it's attendant advantages, should have retained during the whole of it's production existence.

Wishing your every success with your Magazine, I remain dear Sir,  
Yours faithfully, G.H. Armstrong; The Glen; Sussex, England

(With the help of stories and pictures such as yours and your good wishes which are greatly appreciated, I will continue to do my best to make INDIAN FOUR NEWS "a great inspiration...of great practical assistance". Thank you dear Sir. Ed.)

\*\*\*\*\*

#### MY INDIAN

When I was eight, all the older boys had motorcycles and scooters, and that was when I saw and almost got run-over by an Indian Chief. This put cycles out of my mind!

Then, ten years later, in Youngstown, Ohio, a friend rode up on an old Chief painted black with white skirts. That did it! In 1962, I fell in love with this classic bike. A move to Florida was followed

shortly with a hitch in the Air Force and while stationed at Barksdale AFB, Louisiana, I came across a 1953 Indian Chief painted olive drab. I thought for sure the "Third Reich" was coming after me everytime I saw it. I couldn't stand that olive color so I painted it black.

After a merry ride with oil running out and no indicator or pressure gauge, a rod collapsed and that ended the motor for good. Some scouting around brought up a '44 to '47 Chief at Tuqueway's Cycle Shop. After some experimenting and rebuilding, I combined the two to come up with a good (?) motor. I was told a '53 oil pump wouldn't fit an early model Indian Chief. -But by combining the forty-four cases, flywheels and rods with the fifty-three cams and covers, the newer oil pump works fine. Then came a \$30.00 classic Burgandy paint job and another \$30.00 for odds and ends and some chrome plating. With the addition of a wife and child, I was finished! That is how it sits now and will for awhile. This was all done without a real knowledge of motorcycle engines and without a maintenance or overhaul manual (which I would like to get soon).

There is a group of Hell's Angels known as "The Bandidos of Shreveport" who keep trying to buy my front fender or talk me into converting my beautiful Chief into a scalped Indian Chief, better known as a "chopper". These "Heroes" (?) know less than I do about motorcycles and always asks me for wiring help. I work with Electronics on base and have the right training to make wiring a motorcycle easy and choppers even more simple.

This ends the story of my "Chief". Enclosed are snaps of the before (after oil leak), and after (rebuilt, painted and ridden). Also a pic of a four cylinder engine converted to a Ford flathead V8 for more cruising enjoyment. George L Catanzaro; Bossier City, Louisiana

(Chiefs are great George, but try a "Four" and then join the club.ed)

\*\*\*\*\*

#### I LIKE FOURS

Friends, this is my story and I'm stuck on it!

I had my first ride on the rear carrier of an old Flying Merkle, about 1917. Minot Van DeBogart was the mans name (being a brother to Al). Both of them had pretty fast cars also. So, I got a FAST ride. Shortly after that I was given my first bicycle, a small one, but it was a Flying Merkle to me and I had the time of my young life on that second-hand bike! That was around Red Hook, New York and not far from the beautiful Hudson River.

My family moved from there and finally we were living a short way out of Oak Hill, New York, where my uncle worked (he was a miller by trade), at Dean's Mill on the Catskill Creek which was a favorite spot for trout fishermen to stop and try for those big Browns in the swift water below the Mill's turbines.

So this one fine day, a fisherman rolled in on a brand-new "Four Cylinder Militer", with wood-spoke wheels, shaft drive, no front fork, drag-link steering, and with a side car. He parked it on the Fairbanks Scales, and went about his fishin'. We had a grand time looking that machine over and those are the things I remember about it. This was about 1921 and I have never seen one of these machines since although

I did know a fellow who told me that he once owned one. What do you know about the "Militer 4 Motorcycle"?

Whilst I worked at the Central Garage in Cairo, New York, I did considerable work on many makes of motorcycles and rode most all that I worked on. One I especially remember was a 45 "Super-X" solo that had the motor fly apart, and I installed nearly all new parts, tuned it up and road-tested. The owner was so well pleased, he left it at the garage for "good-keeping", and told me I could use it anytime.

There were three brothers who lived in E. Durham, New York at the time who went to New York City and bought three new Indians, two Chiefs and one Scout which I thought was a honey, and we took some swell rides around the country. -

It was at a hill-climb at Port Jervis, New York that I saw a BMW the first time, and thought then that I would someday own one myself. Well, I finally do have a R 50S and my son rides an R 50. He still has his 1949 Vertical Twin Scout which he bought new, but doesn't run it now. (He, my son David, last year sold his Harley 45 and bought the R 50 BMW).

One Sunday in the summer of 1932, two riders on Indian Fours with New Jersey plates, pulled up to the gas pumps at Central Garage, gassed-up, checked the oil, and parked their bikes over by the fence. They asked me if I knew one George Squires. I sure did, and directed them to his place across the street. They talked with George on his front porch for awhile. Soon they came back and seemed to be all shook-up. They mounted-up and took off down Main Street with a double blast of thunder. I guess I had never seen riding like that before as they almost did "wheelies" on the take-off. I learned later from Mr. Squires, that they wanted to lease the Fairgrounds Track and put on dirt-track races on week-ends. Mr. Squires said, "Too much NOISE", but I liked the sound of those two Indian Fours taking off!

Over the years, I've never seen another bike that has stuck in my crop like the four cylinders, the Indians, Hendersons, Aces, Aerial Square and a few other fours that I've seen. This brings us up to a few years ago when I was looking for a small transmission for a trail scooter I was building.

We were looking at the '49 Scout to buy for David and we noticed this Indian "4" in the shop and I tried to buy it then, but it was not for sale. Now after a few years, I find it all cut up with a torch and laying out back in the junk pile. Boy, I nearly flipped my lid! "How much for the old Indian "4"?", I inquired. "\$8.00". "Everything there?" "Most everything I guess." Well, it wasn't but I bought it and brought home all the parts I could find. The frame and fenders were found somewhere else, and a few other things I got from Brownie B. in Albany.

After I stripped the motor I found two exhaust valve seats broken, exhaust valves worn, three of the four motor mount legs broken, and many other things in bad shape.

I turned out two new valve seats and cut down Ford exhaust valves to fit. So I got her running after a couple of years.

There are two carburetors and I think a high-lift cam, because it does not idle smoothly, but Boy! how she takes off when you turn 'er on!

So I built up a single carburetor manifold which helped a little, but it is still not smooth enough to suit me.

The day I first started the motor, it started on the second kick, half choke, and startled out my wife and her two friends sitting not



far away at the picnic table.

My son rode it out of the backyard and up and down Jerome Avenue several times before we hailed him off the street...no license plate 'ya know! I rode it the three miles to the barn where it is covered up now.

Now I have another Four, all in pieces, so when the weather warms up, I'll swap motors and get both in shape so I can take pictures to send in.

Well, that's my story, so for now I'll say "Happy Wheeling" and my Best Regards to all the boys.

L.G. "Shorty" Shepherd, Cairo, N.Y.

(This was written in early Feb., '67...Thanks a million Shorty...ed.)

\*\*\*\*\*

Dear Cecil;

Sorry my first letter has been mislaid, so I will answer this one "now". I would like to purchase a 4 cylinder Indian; there are none around here. (New York) I really enjoyed reading your INDIAN FOUR NEWS. Don't stop; keep on printing the wonderful 'NEWS and pictures. Also the For Sale items.

Harry Ellis; New York

(Welcome into the Four Club Harry!  
Glad you like the Mag., and I too, hope it will go on and on. I wonder if our Want Ads really work?.....ed)

\*\*\*\*\*

Dear Cecil;

Many years ago I owned a 1934- 4 cylinder Indian which I drove thousands of miles until 1938 when I bought a new Indian Chief.—That, I have always felt was a bad mistake. Now, I have a keen longing—call it sentiment if you wish—for another Four, maybe more than one. I prefer the model from 1936 on up....I do not have any pictures of the 4 but do have a few of the Chief. Respectfully,

Silvan F. Goesser; 1710 2nd Avenue  
Denison, Iowa 51442

(Welcome into the Club Silvan.  
Hope one of our members can find exactly what you want. Black and white snaps of you and your Chief will be appreciated. ed)

\*\*\*\*\*

Dear Cecil;

Enclosed is my check for \$4.48. Sure I want the book. This is a real nice book with all the pictures. As you know, I sell antique cycle parts all over the U.S.. I keep the two Four books out in the shop as I have many people stop here from all over and I get lots of new members for us. Lots of men that come here have never heard of our Four Club, then I show them the book and I give them your name and address and we get a new member! I hope we get lots of new members and hold all our old ones. Keep your good work up!

(A good member helps the club grow and you sure qualify R.J.  
Glad you like our IFN.....ed)

R.J. Hicketheir; 108 Carson Avenue  
Iowa Falls, Iowa 50126

INDIAN NEWS COPIES

18

I would like to exchange copies of the old INDIAN NEWS for other copies I don't have with someone who is willing to make exchanges with me.

EXTRA COPIES ON HAND

1940  
January - 1 copy  
July - 2 copies  
November - 2 copies

1941  
July - 1 copy

1942  
June-July - 1 copy

1944  
February-March - 3 copies  
November-December - 2 copies

1945  
May-June - 1 copy  
July-August - 3 copies

1946  
January-February - 1 copy  
May-June - 1 copy  
July-August - 2 copies  
November-December - 1 copy

1948  
July-August - 1 copy

1949  
Spring Issue - 1 copy

1956  
January-February - 2 copies

\*\*\*\*\*

Editor's Note: Louise Scherbyn was one of INDIAN FOUR NEWS' first friends. She has generously offered the loan of all her factory material to me so she could share it with Indian lovers all over the world. Any of you fellows who have copies that she needs, will be helping to make what is probably the most (or the only) complete set in the world. Good luck on YOUR project Louise!

I NEED

1941  
November

1948  
All except July, August, and the Holiday Issue.

1949  
All except Spring Issue.

1950  
All issues.

1951  
All issues.

1952  
January, February, March, April, May and July. (Beginning in June the INDIAN NEWS name changed to "POW WOW".)

1953  
January

1956  
July, August, September, October, November, December. (My last copies ended in June 1965).

ALSO NEEDED

1934 - Jan., Mar., May, June, Aug., Sept., Dec.  
1935 - Feb., May, Aug., Nov-Dec.  
1936 - July- Aug.  
1937 - June, Sept., December.  
1938 - March, June, Sept.-October, November-December.  
1939 - July and December

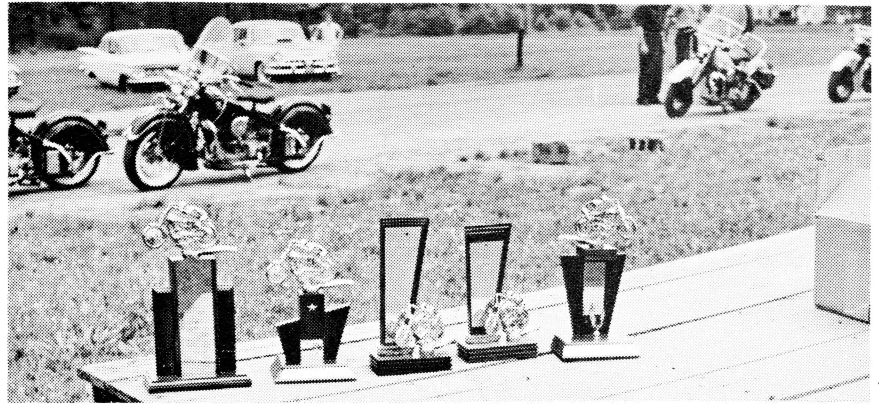
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Please WRITE BEFORE SENDING any copies to be certain I still have the copies above.

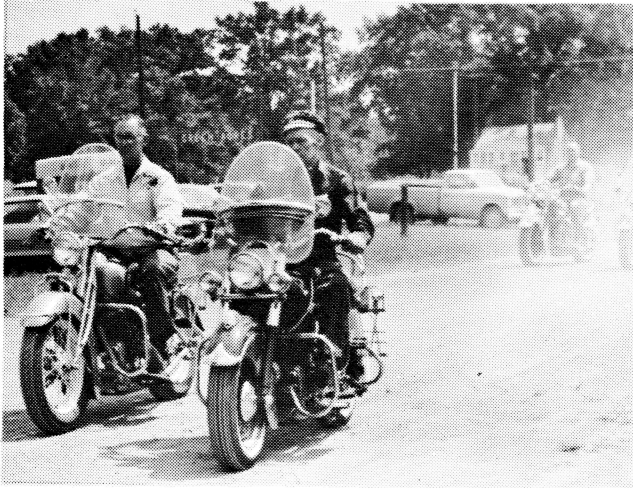
(Mrs.) Louise Scherbyn  
360 E. Main Street; Waterloo, N.Y.  
13165



Don and Chuck riding the  
string event



Trophys



John and Mervin



Getting ready for another event



Allen and George



Flea Market in front of New Clubhouse

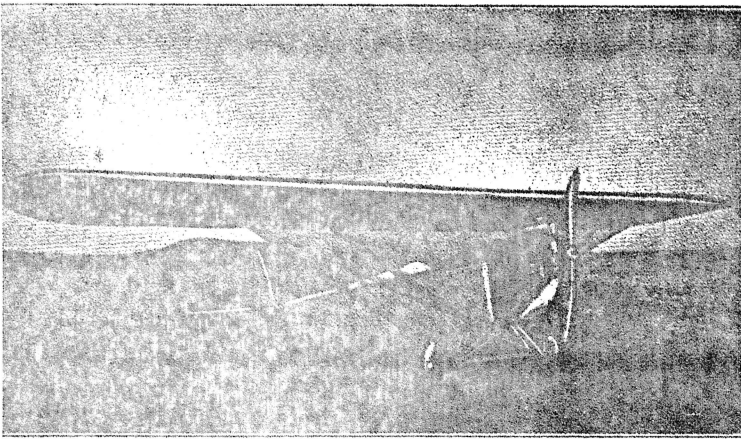


Bill and Dot Gewand

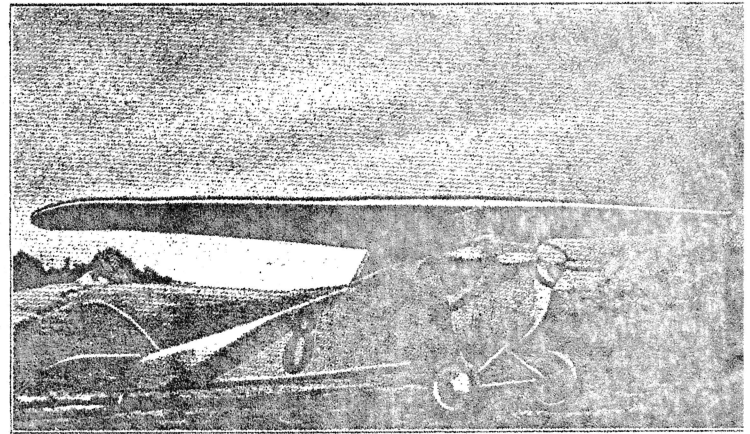


The Meeting





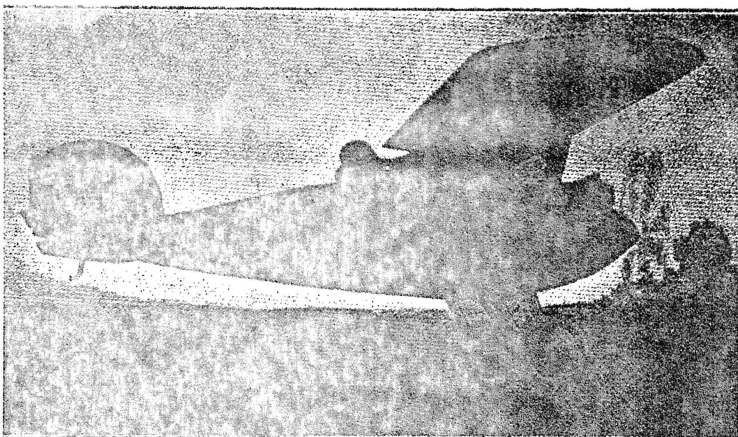
HENDERSON POWERED AIRPLANES  
are winners of many trophies.



This page, and the next two on Homebuilt Airplanes, was contributed by fellow member, Paul George who lives in Des Moines, Iowa. The planes were powered by Henderson Fours and the conversion parts and work was done by John F. Ballak and Company, St. Louis, Missouri.

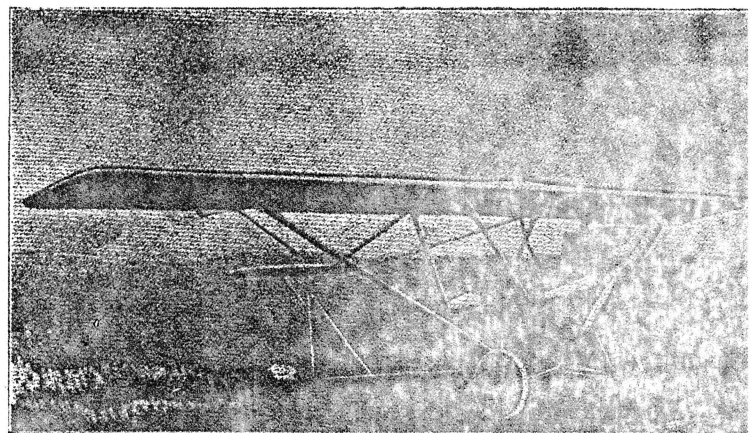
If anyone knows the whereabouts of one of these old converted engines, please drop a line to the Editor.

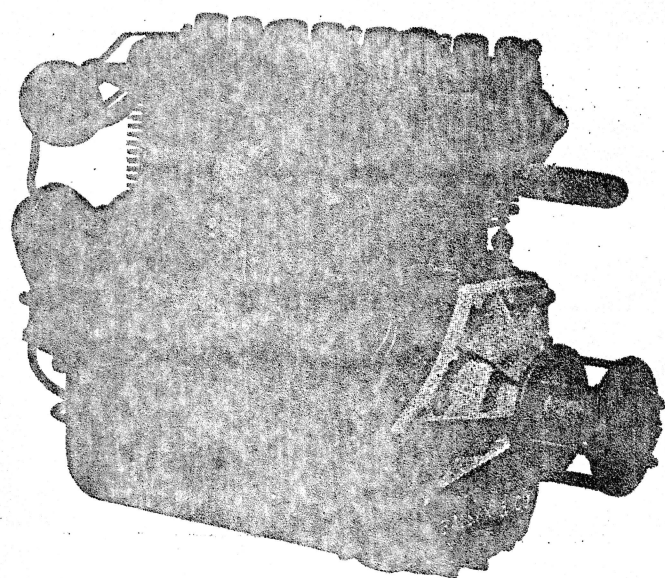
Who knows, we may start a flying branch of the Four Club!



THE HENDERSON CONVERTED ENGINE IS IDEAL  
for the man who prefers to build his own plane.

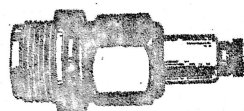
MANY HOME BUILT PLANES  
ARE SUCCESSFULLY FLOWN  
with Henderson converted motorcycle engines.



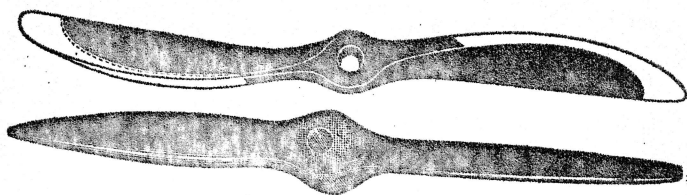


Magneto side of reconstructed  
Henderson motorcycle engine

Special piston rings. Made from special formula grey iron. Particularly suited for alloy pistons. They have the correct tension and clearance for air-cooled aircraft use.

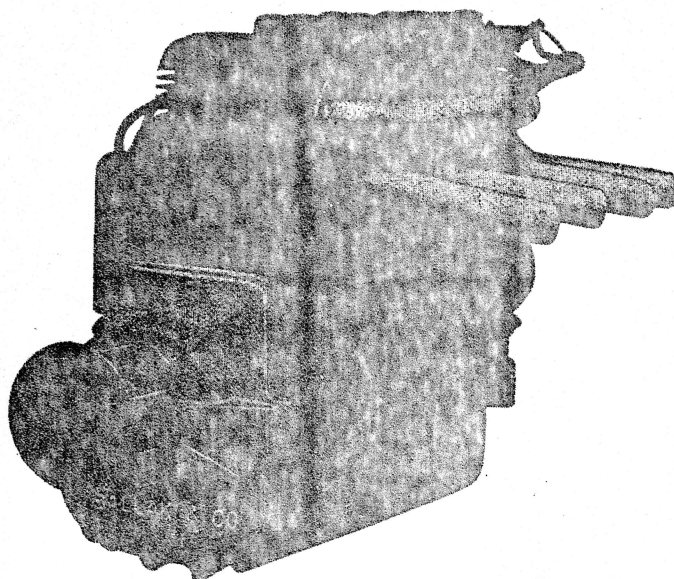
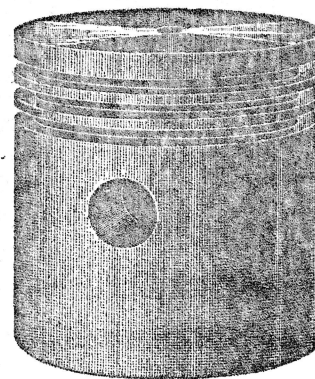


Special imported spark plugs. Heat absorbing design to suit the characteristics of aircooled aircraft motors.

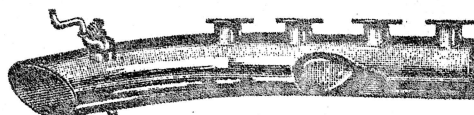


Our propellers are made by one of the leading propeller manufacturers. Each propeller is made to order for a specific requirement.

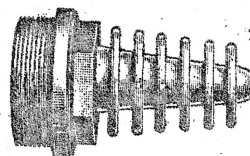
Special alloy aircraft pistons. Die cast of special formula aluminum alloy. Very light and strong. Designed for power, acceleration, balance and elimination of vibration.



Intake and exhaust side of converted Henderson  
motorcycle engine.



J-B special loud speaker exhaust pipe.  
Short model. Nickel plated.



Special Valve hole plugs. Beehive design for quick heat radiation.

### THE PRICES

|                                                                                     |                 |
|-------------------------------------------------------------------------------------|-----------------|
| HENDERSON reconstructed engine as illustrated .....                                 | \$225.00        |
| PROPELLER special for Henderson aircraft .....                                      | 25.00           |
| HUB for propeller complete with bolts and nuts.....                                 | 10.00           |
| BOLTS for propeller hub, each.....                                                  | .10             |
| KEY for hub and crankshaft extension.....                                           | .10             |
| EXTENSION for crankshaft, ready machined .....                                      | 5.00            |
| RIVETS for extension, each.....                                                     | .05             |
| NUT for crankshaft extension.....                                                   | .10             |
| COVER PLATE for end of engine, ready machined .....                                 | 10.00           |
| GASKET for cover plate.....                                                         | .50             |
| BOLTS, for cover plate, each.....                                                   | .05             |
| <del>THRUST BEARING for crankshaft and propeller .....</del>                        | <del>5.00</del> |
| OIL DEFLECTOR and gasket for thrust bearing .....                                   | .25             |
| EXHAUST PIPES special for aircraft, per set of four.....                            | 10.00           |
| EXHAUST PIPE J-B special short model, nickeled .....                                | 25.00           |
| VALVE HOLE PLUGS special alloy, each.....                                           | 2.00            |
| PISTONS, J-B special alloy aircraft pistons .031" oversize, each.....               | 5.00            |
| PISTON RINGS J-B special for alloy aircraft pistons, each.....                      | .25             |
| SPARK PLUGS, special, imported for aircraft use, each.....                          | 1.50            |
| WIRES, to magneto and spark plugs, long, set of four.....                           | 2.00            |
| PRICES on HENDERSON motorcycle parts upon application, we have very complete stock. |                 |

### CAPABILITIES

|                                 |         |          |
|---------------------------------|---------|----------|
| HIGH SPEED.....                 | 100     | M. P. H. |
| CRUISING RADIUS.....            | 150     | Miles    |
| LANDING SPEED.....              | 25      | M. P. H. |
| USEFUL LOAD.....                | 300     | Lbs.     |
| CEILING about.....              | 3000    | Feet     |
| GAS CONSUMPTION, per hour.....  | 1 to 1½ | Gal.     |
| HORSEPOWER at 3000 R. P. M..... | 30      | H. P.    |
| WEIGHT as illustrated.....      | 118     | Lbs.     |
| OIL CAPACITY.....               | 3       | Qts.     |
| OIL PRESSURE.....               | 100     | Lbs.     |
| MAXIMUM SPEED of engine.....    | 4000    | R. P. M. |

### SPECIAL

THE NEW HENDERSON ENGINE converted for aircraft use, brand new, including hub for propeller and exhaust pipes .....\$400.00

|                                |                                |
|--------------------------------|--------------------------------|
| Displacement 79.4 Cu. in.      | Horsepower 40.                 |
| Five main crankshaft bearings. | Large Connecting rod bearings. |
| Large overhead intake valves.  | Large exhaust valves.          |



## THE NON-DRAG CLUTCH

By Earl Chalfant

Every classic, whether automobile or motorcycle, seems to suffer from at least one weakness. In the case of the Indian Four motorcycle, the major weakness was the clutch design. Following a practice begun in 1919 with the famous Indian Scout, Indian engineers designed and used an all steel clutch which operated in an oil bath. Indian also inherited this design when they purchased the Ace Motorcycle Company in 1927. The Excelsior Company had used this design in their famous Henderson. In the middle thirties the Indian Four was fitted with clutch plates lined with raybestos. The common feature about all these clutches was that there was a relatively large clutch frictional area, oil covered and very smooth, which tended to adhere and not separate even when pressure was removed. Technically, this was so because the oil film formed an air tight seal between the smooth surfaces. In order to break apart, air had to enter between the plates. To begin to separate the plates necessitated the formation of a partial vacuum between them. Thus, under normal operating conditions, and especially when the engine oil was cold, the Indian clutch released with difficulty and usually caused gear clashing and even rear wheel spin when engaging the gears.

Having owned several Indian Fours immediately after World War II and having experienced the same clutch problems with all of them, I began inquiring from knowledgeable Indian mechanics concerning possibilities for improving the clutch. On numerous occasions this problem was discussed with John Wickham, long-time Indian Four mechanic and now President of our club. Also, British motorcycle designs were studied as were various automotive clutches. As early as 1915, some automobiles used clutch plates bored with many holes which were filled with round cork inserts to serve as a friction surface. Page's Automobile Encyclopedia for 1915 illustrates such a clutch. Then, of course, the well-known Hudson automobile clutch was a cork-insert clutch operating in oil. Consideration was given to possibilities of incorporating some of these ideas into a workable design to be applied to the Indian Four motorcycle. At one of the first meets at Toledo I learned that Allen Bozung had made such a clutch. In talking with Allen, he showed me photographs of a clutch he had developed. This clutch appeared to be a practical solution to the dilemma of the Indian Four clutch. After returning home from the meet I proceeded to take the necessary drawing instruments and lay out a design incorporating many of the ideas used by Mr. Bozung and incorporating some of my own which I had gathered from various sources. After many hours of machine work and hand fitting, a clutch was produced and was ready to be fitted with inserts and installed for trial. At this point the advice and recommendations of another expert motorcycle mechanic was very valuable. Sylvester Boyachek, of Union City, Pa., contributed measurably by recommending the use of Ferodo, type MS-6, material for the friction inserts. Using inserts designed for another machine, and cutting them to a smaller size, the first clutch was finally completed. After installing it in my machine I was quite anxious to see how it would perform. After cranking the engine and letting the oil warm for a few minutes the clutch pedal was depressed, the front brake lever was held firmly, and cautiously the gearshift lever was moved. It was a great surprise that the rear tire didn't leave a black spot on the concrete floor and that

there was absolutely no gear clash at all. In quick succession many more shiftings were made in and out of all gears with no drag whatsoever being experienced. Operation on the road was equally satisfying. The clutch engaged smoothly, held without slipping, and had total release under all conditions. What a thrill and a pleasure to ride a four cylinder machine that actually had a clutch that worked the way one should! This was too good not to share with other Indian Four owners who wanted the pleasure of riding a nicely working Indian Four. The experience of manufacturing three dozen of these clutches over a period of several years has made it possible to make a number of refinements and to work out less costly methods for production. All machine work is now handled by a professional machine shop. Insert material is imported directly from Ferodo of England.

Because of very limited time for making these clutches and because of the requirements of my professional work, it is felt that many owners might want to make their own clutches. Therefore, a series of drawings accompany this story to give the necessary information for building the clutch. Inserts are available from the writer. While the clutch requires a great deal of work to build and is expensive to buy, it is certainly worth the money and effort because of the increased satisfaction and pleasure it brings in riding a machine that truly performs as it should.

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#### IMPORTANT NOTICE

Deadline for the winter issue of INDIAN FOUR NEWS is November 30, '67. The winter issue is the last for the year and will complete the four issues published in 1967. I am requesting that all of our featured writers, as well as all who wish to contribute pictures, stories, helpful hints and letters, to please have them posted by November 30. Remember, that Christmas is a big time for us too and your promptness will be appreciated. Any club member whose name has not been published in Indian Four News is asked to drop a line to the editor right away to be sure the name is published in the last issue for 1967.

\*\*\*\*\*

Many people who attended the August Rally in Toledo, Ohio for the first time this year found the map in the Summer issue of Indian Four News, a great help in finding the Traveler's Club grounds. That map was drawn by our good helper, Gordon Deye from Toledo, Ohio. His effort helped to save considerable time and effort for many and thanks to his thoroughness of providing locations, rates and telephone listings of the motels near the club grounds, many of our members who made reservations in advance were able to enjoy the meeting to the maximum. Some of our members found it necessary to drive out of the Toledo area for accommodations. A real good job and a vote of appreciation to Gordon Deye.

\*\*\*\*\*

Mailing address for Indian Four News is; Editor, Cecil F. Hasser  
525 Fairfield Pike; Yellow Springs, Ohio 45387

Reamer used is Sears:  $\frac{1}{8}$ " to  $\frac{1}{2}$ "

Drilled and taper<sup>25</sup>  
reamed to .425 O.D.  
at large end of hole

Press inserts in from large side of hole so  
they protrude  $\frac{1}{16}$ " out of small end.

$\frac{1}{8}$ " thick stock

$\phi = 1.025$

$\frac{1}{8}$ " thick

Press in  
here →

cross section, exaggerated

through flywheel or  
Pressure plate —

dia.  $\frac{3}{16}$ " soft  
iron  
Rivets

← Peen so as to be  
flush with steel surface

Insert

cross section

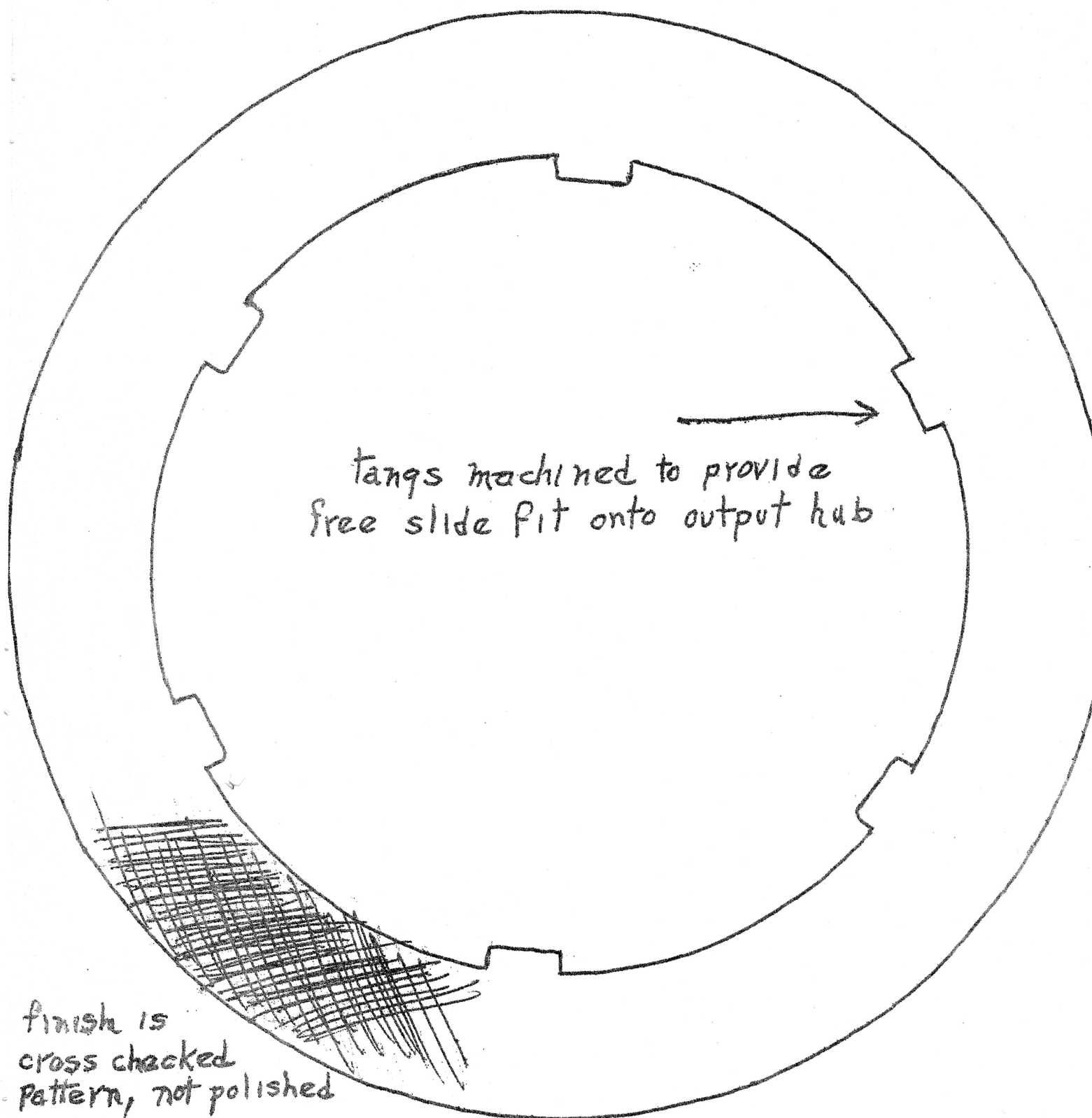
8 holes for  
riveting to flywheel  
and pressure plate

DRIVING PLATE

← overall O.D. = 8.225"

I.D. = 6.175"



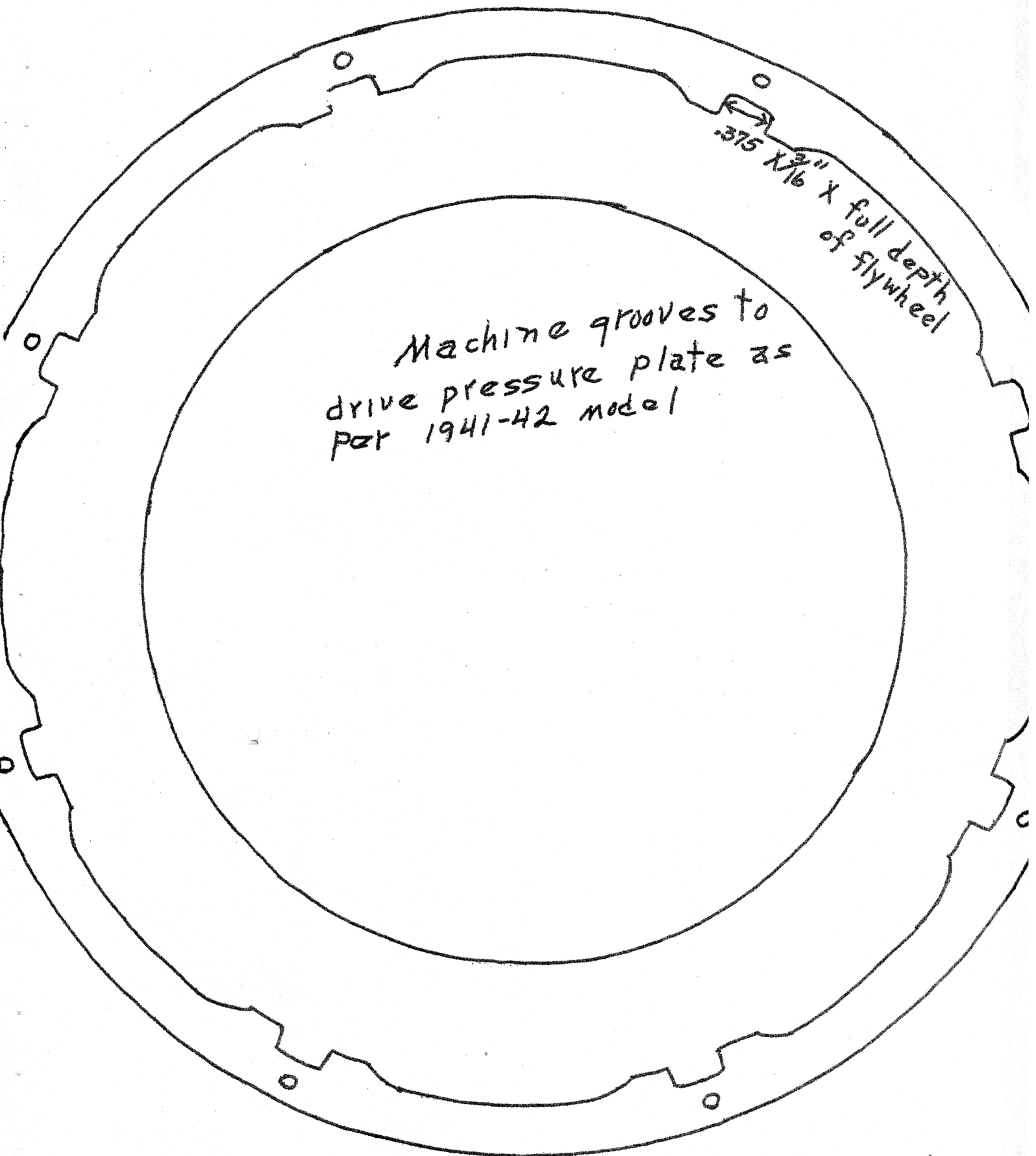


finish is  
cross checked  
pattern, not polished

1 center driven plate

$\frac{1}{4}$ " thick, surface ground on both sides  
so finish thickness is about .225"

minus .025" more is o.k



Flywheel

tangs  $\frac{3}{16}$ " thick. Use fairly hard stock 28

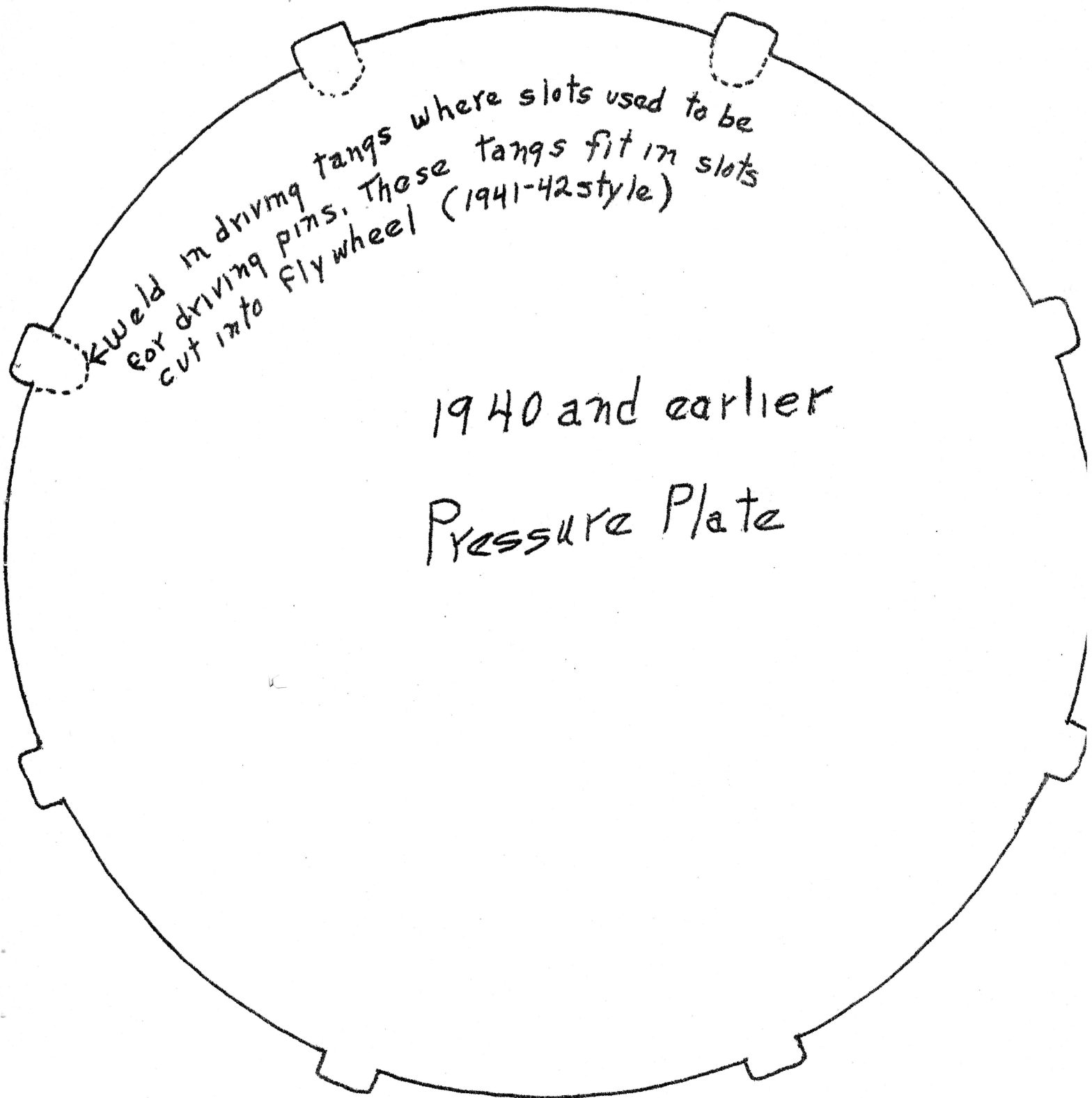
Grind flush on inside surface where  
driven plate rivets on.



Weld in driving tangs where slots used to be  
for driving pins. These tangs fit in slots  
cut into flywheel (1941-42 style)

1940 and earlier

Pressure Plate





# BATTERY CARE

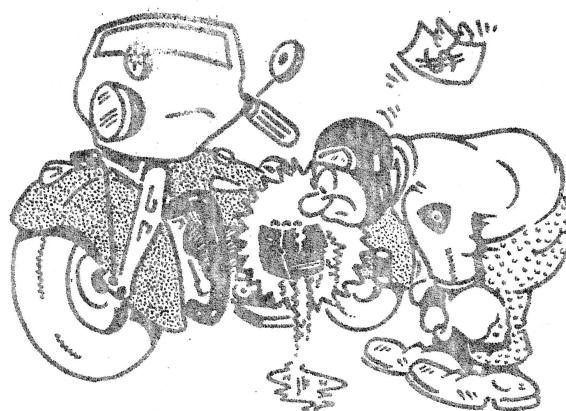
Cold Weather always brings operating difficulties with any mechanical equipment and although a motorcycle battery does not come in for the starting strain that a battery in automotive service is subjected to, it is very important that it be kept in good condition, especially during the winter months.

Battery life depends more on care than on the amount of use, and a little attention will prolong the life of your battery a great deal.

Of course, maintaining the proper water level is most important all year round; but one must be careful about adding water during freezing weather. It is best to add water before starting out on a ride, so it will mix thoroughly with the battery solution. Never add water to a battery that is standing outdoors. It will most likely freeze and crack the case.

When a motorcycle is run all winter long, the battery must be maintained in a fully charged state to prevent freezing. A battery with the proper hydrometer reading of 1275 specific gravity will resist freezing temperatures as low as 90° below zero. With the gravity of water at 1000, the necessity of keeping close check on the battery is forcibly shown by the accompanying chart. A drop in gravity reading to only 1200 will allow the battery to freeze in temperatures of only 18° below zero, a temperature not unusual during the winter months in the northern part of the country.

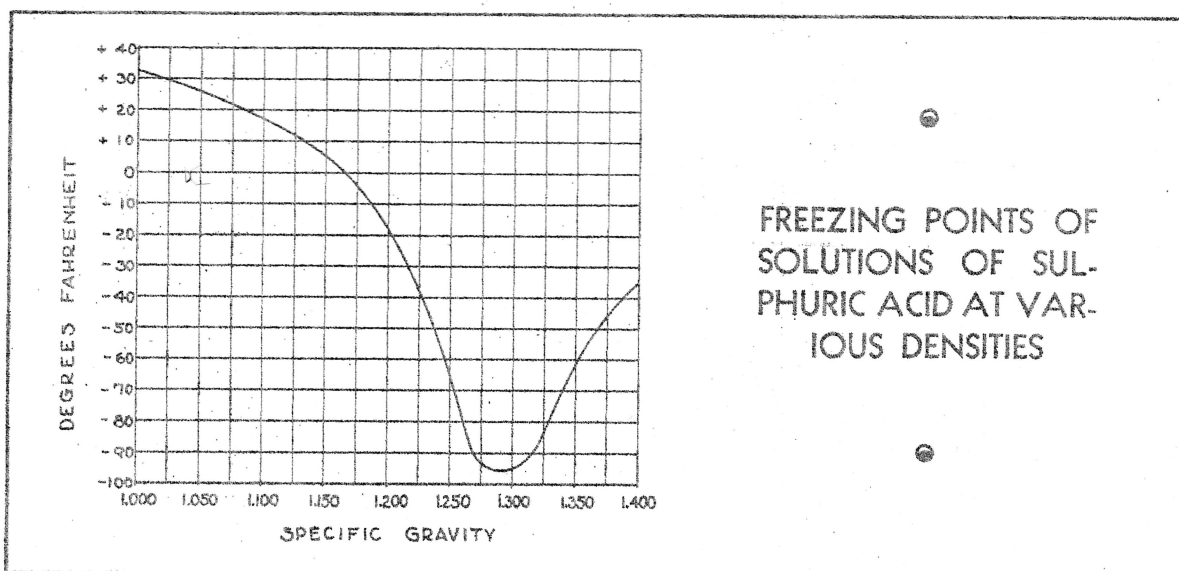
Likewise, a drop in hydrometer reading to 1150 will leave your battery susceptible to freezing in temperatures of 5° above zero—in fact, its practically frozen now. All this may happen to a battery which still has enough juice to enable it to operate. Hydrometer readings at frequent intervals are the



only safe check in cold weather. The standard automotive hydrometer is not an accurate check for a motorcycle battery due to its large solution capacity. Your Indian dealer can supply a special motorcycle hydrometer at a very reasonable cost.

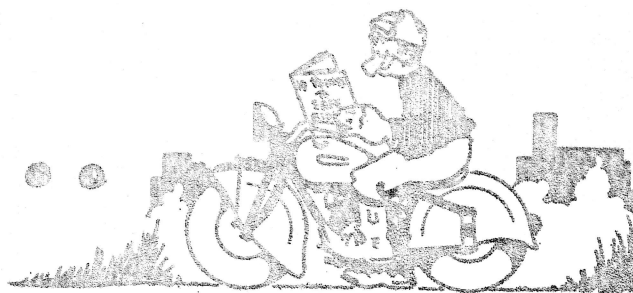
When the motorcycle is not ridden during the winter months, even if it is stored in a warm garage, the battery should be removed from the machine, to prevent corrosion of the connections. When the battery is removed from the machine for any period, it should be kept fully charged and the battery solution at the correct level. A battery will run down more standing idle than when it is in use. An idle battery that is run down will deteriorate if left in that condition.

Check your battery every two weeks and at the first indication of its losing its strength, put the battery on a slow charge and bring it back to the proper normal condition. Keeping the battery up to charge, will lengthen its life considerably.



# SAFETY...

An Analysis by Kickstarter



If everybody felt as I do about motorcycles this sport of ours would be the most popular sport in the world. I've often wondered why people even though unfamiliar with our sport, will sit back and condemn a vehicle into which has been built so much safety — but it's easy to understand.

Although our own A.M.A. statistics prove that the motorcycle when properly handled is the safest vehicle on the road, the fact is still obvious that in the hands of an inexperienced rider, or when improperly ridden, the safety aspects of the vehicle can be abused.

It is too bad that a motorcycle accident is more spectacular than an automobile wreck, because invariably they make the front page of the local papers and bring unfavorable publicity and a great deal of harm to our sport.

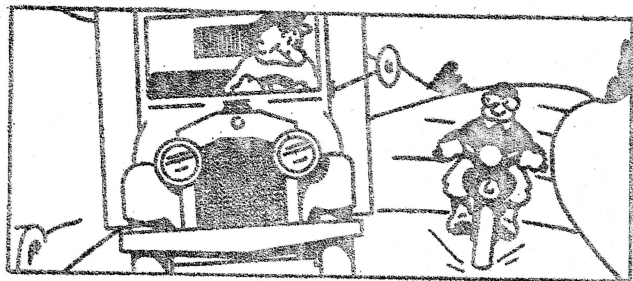
Then, too, the enthusiast who may be on the conservative side, very often abandons motorcycling because of an accident to someone he knows or hears about. The occasional motorcycle accident that does occur in a community does more to hold down this sport of ours than any other thing.

For this reason, I am taking an approach to the subject of safety with the idea that a careful study of accidents, with an attempt at getting at the facts, is the real approach toward increasing safety.

It is interesting to note the treatment of the dangers of skiing, flying, hunting, etc. The skiing sport was so held down by the dangers of skiing that a careful study of skiing instruction was made, and schools were created at the various resorts so that those who came to the resorts could indulge in the sport without danger. Accidents in skiing meant bad business for the resorts. The approach was made that a full knowledge of the cause of such skiing dangers, if imparted to the student, could prevent the recurrence of accidents. Thus the student would be more satisfied, would become a good skier, and sell the sport to others. That was the commercial outlook.

Of course, there were enthusiasts who were so interested that they wanted to impart their knowledge to others and it worked out very nicely for these skiers to be teachers for others. The resorts took advantage of this and benefited by it. The result is a new industry created — winter sports.

Aircraft suffered more than skiing. At one time the average pilot was not expected to live more than a short time. Until the Government took over the control of aircraft licensing, it was nearly hopeless. I do not maintain that the Government has done a good job with the aircraft regulations, but I do say that no other organization could have done it at all in this country. The states could not have done it because there would have been so many



different rulings that no one could know them all, and no enforcement of these rules would be possible. An airplane goes so far and so fast that state regulation would be impossible.

Hunting is a very dangerous sport, and as a result, there is very definite technique developed as to how to handle a gun.

You will find that the man who does not know how to handle a gun is not a popular hunting partner. He goes along once with the boys, but they don't ask him again. You don't point a gun at anybody whether it is loaded or not. That is one of the rules, and it is almost the only rule necessary to make the handling of guns safe.

There are perhaps several approaches to the study of accidents, but basically the correct study of accidents is a thorough knowledge of the truth. Unfortunately, due to the insurance aspect and due to the damage aspect, accidents are very often not reported 100% correctly. However, the objective treatment of them given by insurance companies and state highway patrols gives a pretty basic picture of what happened. It doesn't matter whether it was "A's" fault or "B's"; if you look at the general position of the vehicles before they collided, you will soon find that there is an undercurrent of similarity between accidents.

Thus, a thorough study of the details of the accident and an analysis of it allows the formulation of a list of things not to do in order to avoid recurrence of the specific accident. In a preliminary study of ten accidents discussed personally by the writer with those involved, it was found that eight of these ten were basically identical. Further thought showed that they could have been avoided and showed that it would be very easy for all motorcycle operators to avoid this type of accident. Out of these ten accidents, eight of them were caused basically by this fact: The rider approached another vehicle from the rear and passed it. The occupant of the vehicle did not know the motorcyclist was there and turned in front of him. Usually the motorcyclist was accelerating to pass the vehicle, or at least was going considerably faster, and as the vehicle turned, to the left, and the motorcyclist was quite close, there was not time for him to slow down, nor could he make a sharp turn, due to his speed; consequently he either jammed on the brakes and dropped the machine, falling off and sliding under the vehicle, or else he smashed into the vehicle with the expected results. It is amazing how many accidents are caused in this particular fashion.

Now, an analysis of the accident and a conclusion as to how to avoid it would be; first, always slow down when overtaking another vehicle to a speed comparable to the other vehicle. Second, make your presence known to the driver of the vehicle by always placing yourself in the line of vision of his rear view mirror; in other words, so you can see the driver's face in his rear view mirror; and, by the use of your horn, signifying your intentions if you plan to pass. Then, in passing, be sure there is a wide berth so that in case of an unexpected motion of the vehicle you are passing, you have somewhere to go. It is important that you do not rely on the acceleration of the motorcycle to get you through a tight spot unless you are very careful that the road conditions would allow you to slow down and get back again in case your plan did not go right.

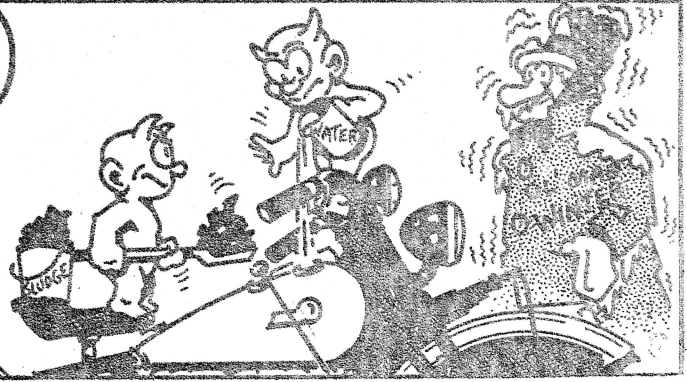
Now this all sounds very complicated and probably a little bit sissy, but it is a very easy habit to formulate. If the rear view mirror of the overtaken vehicle is not apparently visible to you, you are probably not visible in it to the driver either, so look out.

That is merely the approach to a preliminary small group of studied accidents, but the same treatment could be given a large group with a possibility of a good solution to most of them.

The motorcycle has basic characteristics that should make it safe, particularly the visibility possible by the driver. There are no windshield posts to get in his way, nor has he another passenger sitting beside him to shield his view of side roads or of traffic when coming out into a main highway from a side road. His hands and feet are always close to the controls, and it should not take long

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# Winter Gremlins In The Oil



Summertime all we have to think about as far as lubrication is concerned is to keep the tank up to level and perhaps change the oil after a couple of thousand miles. Now with ole Man Winter buzzing around just having the oil won't help much unless we can be sure that it's doing the job it was intended for.

Nowadays it seems that as the warm breezes leave for the South, the little water gremlins and the dirt gremlins come rushing down from the north and sneak up inside the breathers and find themselves a nice cozy spot inside the motor, where they just make themselves at home for the winter. And it is just about impossible to get them to leave until the first warm breeze comes along and blows them back up North.

Take some rider that rides his motorcycle back and forth to work every day. He has to kick it over a few times on full choke before he can get the motor to perk and naturally there is quite a charge of raw gas sucked into the combustion chambers by the time the motor starts knocking them off. Gasoline is compounded of particles of fuel of different properties. Some are light fractions that vaporize quickly and help to give us easier starting. Others are medium fractions that go to work in normal operation. Still others have heavy properties that give maximum power and mileage. When the cold motor starts, the lighter

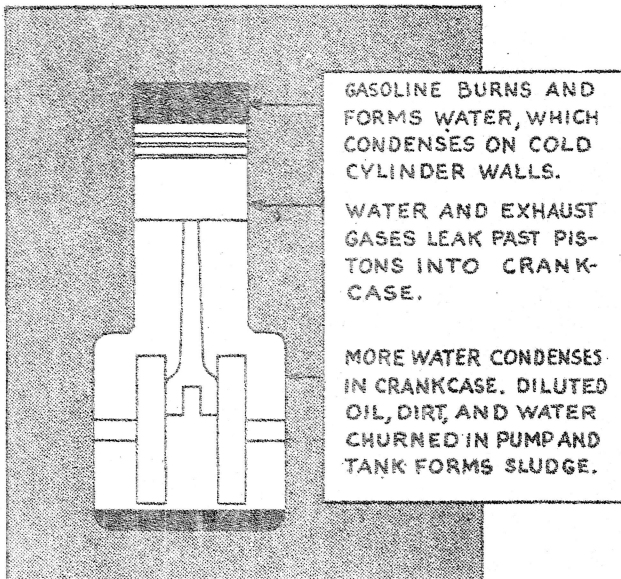
there they work down the cylinder, some getting all around the oil rings, others being carried off and into the oil system.

At the same time some of the gasoline particles, which are not vaporized and go into the cylinder as liquid gasoline, work down past the rings and just naturally thin out the oil.

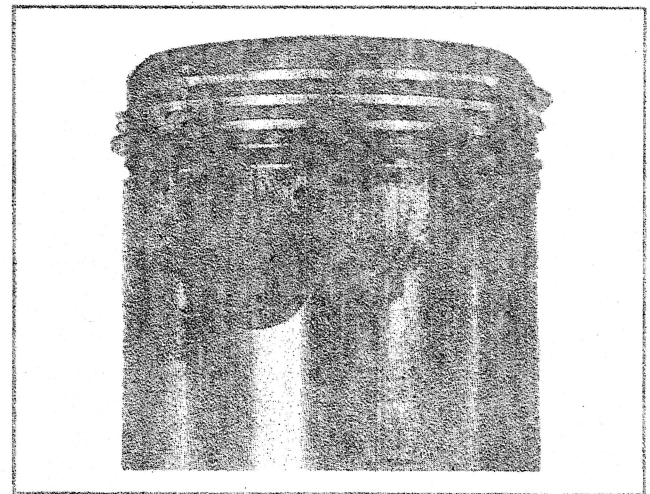
In wintertime we also run into a moisture condition inside the motor. Gasoline is composed of hydrogen and carbon and when it burns, the hydrogen unites with the oxygen taken in the air intake to form water. Approximately one gallon of water is produced for every gallon of gasoline consumed during the processes of combustion. This water usually emerges from the exhaust pipe in the form of steam, although when the cylinders are cold some of this steam condenses inside the cylinders, again mixing in with the motor lubricating oil.

Meanwhile, our subject motorcyclist has arrived at his destination and snapped off the switch of his motor. Cold breezes immediately whistle around the fins and start chilling off the motor. Cold air starts coming in the breathers and upon hitting the still warm motor parts condenses and leaves drops of moisture. The little water gremlin immediately gets his squeegee out and sweeps this water down into the base.

Thus in cool weather two conditions build up inside the motor and its lubricating system. The soot and carbon created by choking and the incomplete combustion of gasoline during the warm-up period, and the condensation of moisture due to the rapid change of temperatures on the motor parts and in the oil tank. Abrasive dirt swimming around in oil of normal body or viscosity is plenty bad enough, but when the same abrasive matter circulates in oil diluted with raw gasoline, the effects on the vital parts of the motor may well be serious. Add to this an amount of water in the base and oil tank that continually increases

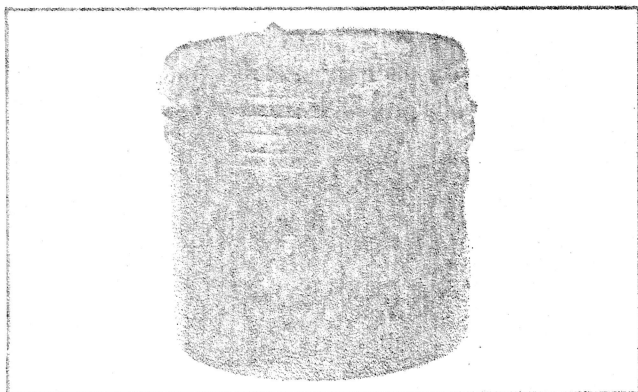


elements in the gas burn completely while the heavier particles form the black soot which is often noticed coming out the exhaust pipe when a choked motor is revved up. However, not all these unburned fuel particles go out the exhaust pipe. Some of them are caught by the dirt gremlin who tosses them into the oil on the cylinder walls. From



A condition quite often found in winter showing the piston scuffed, with the oil ring already seized in the groove. Too many r.p.m. before the motor is warmed, slow oil circulation due to heavy oil, or lack of oil due to sludging contributes to the damage.





Sludge is one of the reasons oil rings clog up and prevent proper oil control with the resulting low oil mileage.

in quantity and the result is bound to be trouble. Rust eats into cylinder walls and rings, and pistons begin to wear in a hurry.

Normally water and oil do not mix, but the action of these elements in the lubricating system has been likened to mixing the ingredients that go into mayonnaise. The soot, carbon, and dirt combined with the oil and water are whipped up inside the motor and oil pump, and hold the mixture together in the form of sludge.

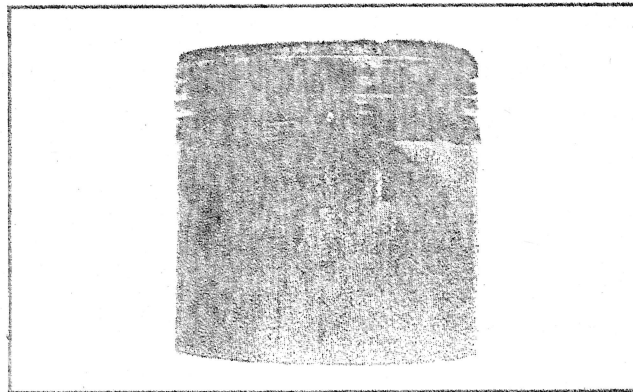
Sludge is the motorcycle engines nemesis. It clogs oil screens and slows up the passage of what worthwhile oil may be in the system. As the temperature drops, this mixture thickens and eventually congeals into a semi-solid, slushy mass in the oil tank, pump, or motor base. Usually the freezing occurs at the tank bottom first, shutting off the flow of oil to the pump. It is not enough to remove the oil tank cap and watch for a bubble of oil from the return line as positive indication that the pump is working and that oil is circulating. This might well but illustrate the fact that there *was* oil in the crankcase and that it has been pumped back up to the tank.

Sludge builds up in a surprising manner under certain conditions, and the simplest and most positive way to insure good lubrication during cold weather is by more frequent oil changes based on a time interval rather than according to mileage. A recent discussion of the subject brought out some rather fancy suggestions, quite in line with other ingenious solutions offered by motorcyclists, who as a class never seem to run out of answers to any problem. The first was to install a petcock in the oil tank bottom and drain the water-laden sludge from the tank at frequent intervals. Another was to have two changes of oil, frequently removing one from the tank and allowing it to settle until the water and oil separated, at which time it became simple to remove the water and have the oil ready for the next exchange.

Fortunately motorcycle dealers are still able to supply proper oil for motorcycle use. The advantages of putting a couple of quarts of fresh, clean oil into any machine a motorcyclist thinks enough of to own should always overcome any other feelings in the matter. This is excepting any operation under conditions so severe that the oil is removed from the tank daily and replaced in a warmed condition before the motorcycle is next put into operation.

Good clean oil in the tank gives reassurance that when the throttle is cracked on there is a tough film of protective lubricant on the crankshaft bearings and up and down the cylinder walls, and there is no need to worry about a handsome repair bill even if the motor is pushed.

In the interest of good service and long motor life oil should be kept as clean as possible. Appearance is a fair test of cleanliness. Too frequently an oil change is performed in a spare moment — the old oil drained, and new oil replaced in the tank without getting every possible bit of dirt and sludge from the bottom of the tank and from the motor base. In a very short time the color of the new oil loses its brightness and begins to take on a dirty appearance. Its effectiveness is cut down immediately. The old dirt is being picked up and carried through onto bearing sur-



Another example of piston and ring condition with heavy carbon deposit which may best be prevented by maintaining a clean supply of oil of the correct grade.

faces where it does more damage in a few moments than many miles of fast riding. Kerosene will loosen some of this dirt from the tank bottom, but there is still nothing quite as handy and effective as a little gasoline to dissolve and wash away every bit of sludge from the oil tank. We can still spare the small amount required to do the job right. The difference in keeping fresh oil "fresh-looking" is surprising until this method of cleaning is tried.

Breather pipes often become dented and the ends covered with ice. Keep them open!

Allow your motor to warm up before riding. Warm it up more quickly by covering it and allowing it to run at slightly faster than idling speed.

Sludge will result in ring sticking, valve sticking, rapid wear of parts and loss of power. Sludge forms less rapidly in good oil than in poor oil. Use good oil and change it when necessary.

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for him to effect the necessary change in speed or path. Action of the emergency controls of the motorcycle is dependent upon the road's surface, and it is important that the rider at all times be alert as to the surface on which he is riding. However, here again he can see very clearly the road ahead and should always be ready to act according to the surface on which he is riding.

He may be able to ride sixty miles an hour on wet macadam, but he cannot stop quickly under these conditions, and his maximum speed should be governed by the probable distance in which he might have to stop to avoid an emergency. The same holds with sandy roads and slick, icy or oily macadam or cement. If the road has ice patches on it, for instance, at intervals, his speed on the dry part should never be so high that he could not get down to a safe speed before running onto an icy or slippery stretch.

The motorcycle appeals to people for many reasons. One of them is that it satisfies the lust for speed. A motorcycle is more like flying than an airplane ever was, because the sensation of speed is there, whereas in an airplane you are so far away from things you seem to float almost motionless. It is a great temptation to drive the motorcycle oblivious of what is coming next down the road, taking the bends at speed and going by people and automobiles as if you knew they could never catch up with you. *These things can only be controlled by education.*

There will always be fast motorcycles. Police machines have to be fast, and the sporting blood in us makes most of us want to have something just a little hotter than the other fellow. Improvements in manufacturing design have resulted in the production of faster and safer motorcycles, but by the same token have resulted in a vehicle that, while simpler to handle, becomes more dangerous, the same as any other vehicle, when operated by an irresponsible person. There will always be fast motorcycles as long

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## SAFETY (Continued from Page 32)

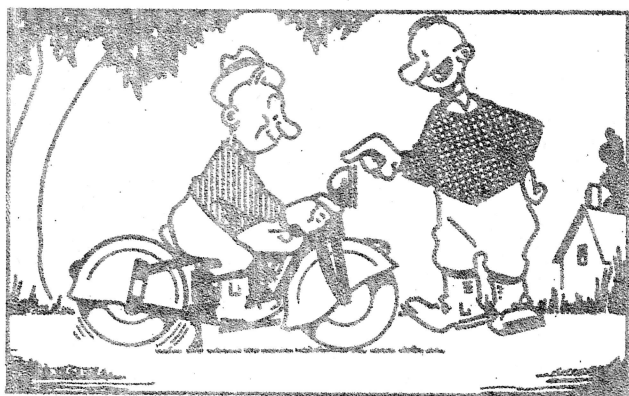
as there are any motorcycles, and thus there will always be the necessity for proper education in their use.

Thus, the study of the motorcycle as to its potential dangers must include the study of the rider, the study of the motorcycle itself, and the study of the uses to which it will be put.

Some of the important features governing safety are the following:

**Controls,** their placement and their function. It is important that they be accessibly located, that they produce the effect desired of them, and that they are not fatiguing to operate.

**The Rear View Mirror** is an important item in safety. I have never seen a satisfactory arrangement of the rear view mirror. The closest I have seen is the U. S. Army adaptation where the mirror is attached to the handlebar and its stem is bent outward so that the actual glass is over the tip of the hand. Thus, if the motor falls over, the stem is not bent or damaged as it would be if it were attached at the end of the handlebar, and still the glass is located so that the rider can see back over his own arm



and get a clear view of the entire road behind him. The new Army shaft drive machines and the four cylinder models are smooth enough that vibration does not affect the mirror and a clear view of the road behind is had in it under most operating conditions.

**Tires.** Another important safety item is the tread on the tires. A rider should know how particular treads act on different roads. If you don't feel like learning this for yourself, you should ask somebody who can tell you. Better, you should be shown by whoever teaches you to ride all about tire treads. No two makes of tread are alike, and each tread is most suitable for some particular road surface. Don't be sold by the nice appearance of a tire; be sold only by the effectiveness of its tread for the particular type of riding you are interested in and its effect on the type of riding you are capable of. There is no sense in a normal touring rider using a heavy knobbed tread tire. These treads very often skid easily on wet roads, whereas good wet-road treads are not adapted to cross-country going. Of course, the bald tire is the most dangerous one under any conditions, and when the tire is smooth, you are asking for trouble if you keep on using it.

**Riding.** It is important to learn to ride with a margin of safety. If the characteristics of the road you are on do not allow high speed around the bends with safety, although you can take these bends and get away with it, you are asking for trouble not to slow down to a safe speed, even though you could possibly ride twenty or thirty miles an hour faster. This is particularly bad when riding in groups, as somebody is always a little better than the others and he leads the others at a pace which may be dangerous to them.

**Fatigue.** Another contribution to accidents is fatigue. On long trips, it makes for carelessness. Also, during a long trip you may ride with your foot on the safety guard, or sitting catty-cornered in the saddle, and when you need that old brake pedal, you've forgotten where you left it. It is particularly important on a long trip to stop if you are

tired and walk around a bit, so that you can comfortably maintain a safe riding position.

These few points are given to show how there are definitely some things to be considered that contribute to safety.

As we begin to review the complicity of all the things to remember, it becomes apparent that some planned instructions would be necessary in order that all motorcyclists be trained and familiar with the safety rules. How can we be sure that a new rider does not start out blindly down the road, not realizing that he must look out for car tracks or loose sand, or the like? In England, all motor vehicle operators have to use a learner's permit before they are allowed to be fully licensed drivers. They are not allowed to carry passengers on a learner's permit. There is a large white sign placed on the back of the vehicle with a good-sized, readable "L" on it when a learner is driving. Thus, if a traffic officer sees a learner's car doing something it shouldn't be doing, he can step up and demand to see the permit of the driver. If the driver is breaking a rule set down for learners, and if he is a learner, he is then suspended of his right to drive, or whatever punishment fits the situation.

This is possible in England because traffic rules are alike throughout the country. In America, each state has its own rules, and it would be very difficult to get motorcycle licensing regulations intelligently placed in each of the forty-eight state traffic departments.

My own opinion is that just because you can drive a car you should not necessarily be licensed to ride a motorcycle. How many times have you heard somebody say, "I got on one of those things once, but never again." You will usually find that he borrowed a motorcycle with no instruction and started down the street, not even knowing which way to turn the throttle and ended up in somebody's Osage orange hedge. However, had the subject been taken out into a field where there was plenty of room and given sufficient practice in the manipulation of the controls, then taken onto the road and instructed in road surfaces and traffic riding, you would have had an enthusiast rather than a "never-again."

How many fathers and mothers will not let their sons ride a motorcycle because they remember the time "Joe Blow" was carried away from the stone wall where he had plastered himself and his mount? And yet, if you investigate the history of "Joe Blow" you will usually find that he had a reputation for being a damn fool; would ride faster than anybody else regardless of road or traffic conditions; and probably had a reputation for tangling with the cops on every occasion. And yet, the fellow you don't hear about rides for twenty years with never a mishap, and enjoys his motorcycles.

I think that most of us will agree that instruction, or education, is the answer. And yet, I can hear you all yelling your heads off about the trouble it would be to get a separate motorcycle driver's license. However, I believe when you think about it a little bit, you would be the first one to advocate the requirements of special motorcycle driver's license permits, with their accompanying driving tests and written tests, and required experience.

Assuming that you agree with the opinions put forth in this article, (and I hope you will agree with some of them), the question arises as to how to go about accomplishing the aims. How can we get state laws made to give sensible control of motorcycles? In Rhode Island, and Massachusetts, which are two states I know of personally, motorcycling is discouraged. If you were to ask why, the answer you'd get is that they are dangerous. And yet, the motorcycle accident rate in Massachusetts has been better in the past few years than ever before, and according to figures of the American Motorcycle Association, the motorcycle is the safest vehicle on our nation's roads. But in Massachusetts riders are discouraged from owning machines by high insurance rates. A careful study of motorcycle accidents by the State Traffic Commissions might lead to revised licensing laws and consequent improvement in the safety rate, and more popular use of the motorcycle. But we know the states will not do this so it is up to you and me. How can we do it? I'd like to see an answer to this one! The A.M.A. approached the problem with immense success, but there are many new riders the A.M.A. doesn't reach, and it is the new rider we must reach — perhaps we can do it through you fellows.

# GENERATOR OPERATION

Man has never been content with nature — even so formidable an object as the sun has seen its wishes unheeded as man struggled to make the useful part of his day longer. As the twentieth century brought us the internal combustion engine even greater impetus was added, that our motor vehicle could be operated around the clock at our pleasure.

The battery came into being, and then to replace electrical current in the battery as it was used up, the generator was developed.

Ordinarily, the average generator will operate for many miles and with a very minimum of service, in fact, generators have perhaps gotten along with so little attention that they suffered more from neglect and lack of care than anything else. In ordinary times there is always likely to be someone handy to provide generator service. Now the situation is somewhat different. Among other things, this war has brought home the fact that our equipment can give longer service if we provide regular care. A little knowledge will no doubt bring better understanding and appreciation.

First in our generator we have the frame, an iron cylinder which, in addition to supporting the various parts, is really part of the magnetic circuit in the generator. It is through the generator frame that the lines of force from our south back to our north pole travel.

Attached to the frame are two pieces of soft iron known as field poles. Magnetic lines travel across from these two pole pieces and then complete the circuit around through the frame of the generator.

These field poles are wrapped with fine insulated wire known as the shunt field windings. Shunt windings are windings connected in *parallel* with the armature windings. They are connected to the generator brushes either directly or through a ground.

The armature or turning part of the generator is made up of many coils of wire on a laminated core. Inasmuch as the voltage produced increases in relation to the number of turns used, the idea is to have as many coils of fine wire as are needed for the particular application. The laminated core is used so that the magnetic field will not induce currents in the core and thus heat the armature.

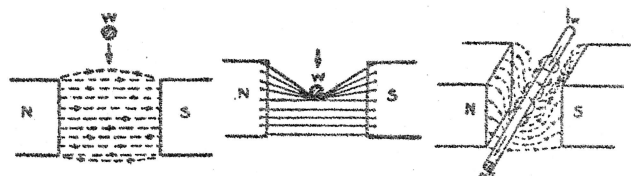
Current produced in the armature is collected by brushes usually made of carbon, which make rubbing contact with the commutator. The commutator consists of a series of insulated copper segments mounted at one end of the armature.

When the generator is not operating, we have a very slight current passing across the armature from the pole piece (north) to the pole piece (south) due to the residual magnetism which remains in the generator. As the armature rotates, the armature windings cut the weak field of

residual magnetism retained by the poles setting up a slight voltage across the brushes of about 1 to 1½ volts. This voltage is picked up by the shunt windings, and as these windings give a magnetic effect of the same polarity as the residual magnetism, the field strength is increased.

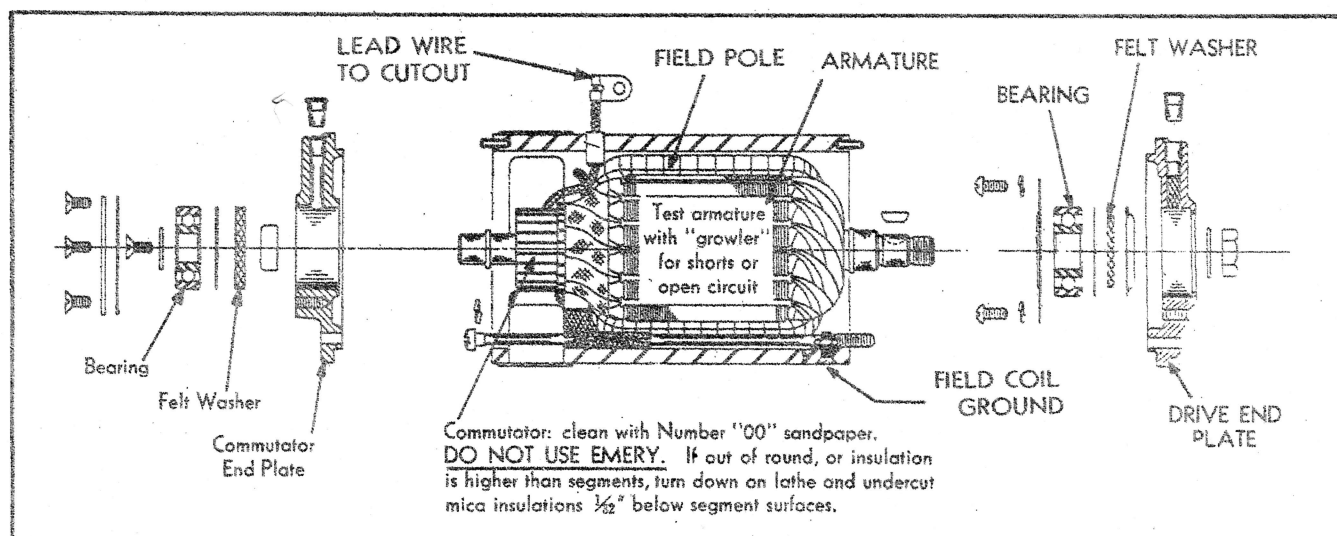
Since the armature coils will then be permitted to cut more magnetic lines of force per revolution, the voltage across the brushes will be increased. An increase in brush voltage increases the field strength, which, in turn, increases the armature output. Thus, the armature voltage helps the field and the field helps the armature voltage until the generator reaches its normal operating voltage for the particular speed it is running. This process is called "building up" the generator voltage.

A principle of electromagnetic induction is that when a wire is moved in such a way as to cut across magnetic lines of force, electromotive force (E.M.F.) or a voltage is produced in the wire causing a current to flow in the circuit. When the lines of force are cut by wires going *up*, magnetic whirls, which travel clockwise around the wire, cause the current to flow in one direction. When the lines are cut *down*, and the magnetic whirls are counterclockwise, the current flows in the opposite direction. As the armature



rotates in the magnetic field, the core windings cut through the magnetic field with the induced current flowing towards our drive end on the *up* half of the revolution, and the current flowing toward the commutator end on the *down* half of the revolution. This gives an alternating current in the armature wires which must be converted or commutated to the direct current by which the circuit operates and by which the battery is charged.

At the commutator there is a segment for each coil of the armature winding. Resting on the commutator are the brushes, which conduct the current from the armature into the generator circuit. Brushes are placed and connected so that, as the armature turns, the negative brush contacts segments connecting with armature windings which are cutting the magnetic lines between the pole pieces *up*, producing a negative current. The positive brushes contact segments connecting with windings which





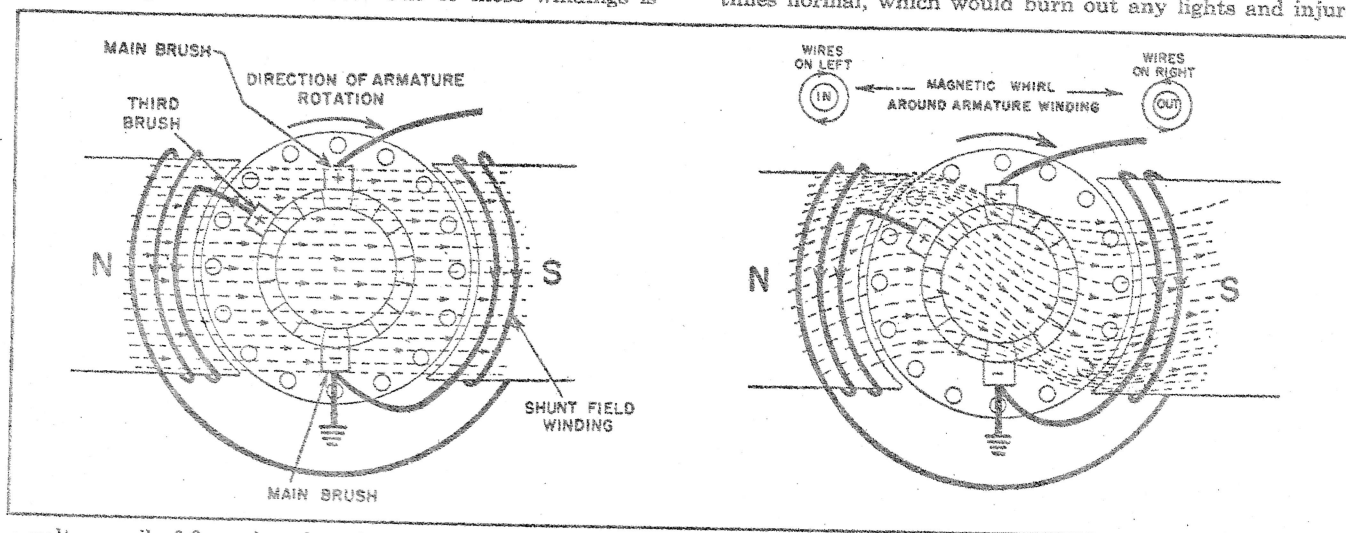
are cutting lines of force down, producing a positive current. Thus, even though each winding produces both a positive and a negative current each revolution, the current is picked up by the proper brush giving a steady flow of current from the positive brush through cutout, to ammeter, switch, and battery, to ground and back to the negative brush through the frame, completing the circuit.

As the generator drive operates at all times when the motor is running and the generator is connected directly to the battery, a cutout is required to prevent the battery from discharging back to ground through the generator when the generator is operating at less than charging speed. The cutout consists of a pair of contacts, one stationary, the other movable under spring tension, a soft iron core, and two windings around the core. One of these windings is

from the third brush, weakening the shunt field and preventing any further increase in the current generated.

As the third brush is movable, the output of the generator can be increased by moving the third brush ahead in the direction of rotation so that it will pick up more lines of force, or it can be decreased by moving the brush back in the opposite direction so that it contacts the armature windings as fewer lines of force are cut.

This type of generator is called a current regulated type because the charging current flowing through the windings produces the field distortion necessary for regulation. For this reason the circuit should not be opened by the removal of the battery. If the battery is removed, the generator would encounter no resistance and build a voltage up to six times normal, which would burn out any lights and injure



a voltage coil of fine wire, the other a current coil of heavy wire. The voltage coil is grounded and receives the full voltage of the generator as it begins to "build up." When the generator voltage exceeds the battery voltage, the cutout core becomes magnetized enough to overcome the spring tension of the movable contact so that it closes and allows the generator charge to flow through the current coil to the electric circuit and to charge the battery.

When the speed of the generator decreases so that the voltage drops below that of the battery, a flow of current back from the battery re-magnetizes our cutout core, allowing the movable contact to open and cut the circuit preventing the current from flowing back through the generator to ground.

As mentioned previously, we noted that the shunt windings originally utilized a part of the current generated to build up the magnetic field from the residual magnetism there when the generator is inoperative. We also observed that as the generator speed increased, more voltage was passed to the shunt windings, a stronger magnetic field developed, resulting in more voltage at the brushes, each multiplying the other until the voltage would be increased to the extent that lamps would burn out and the too-high charge would hit the battery and consequently ruin it. The armature is designed to develop a maximum charge at normal speeds, however, the extreme variations in the speed of the motorcycle make it necessary to regulate the output of the generator to prevent current overload at high speed.

In most motorcycle generators, a third or movable brush is used to control the charging rate. Third brush regulation is based on the fact that current in the armature windings causes the lines of force in the magnetic field to shift in the direction of rotation. At high r.p.m. these lines shift considerably. This makes the magnetic field more dense at the points where the armature leaves the field.

In Indian generators, the third brush is connected with the positive end of the shunt field winding. Remembering that the current developed depends on the two basic factors (the number of lines of force cut — the rate of speed of the cutting wires); and knowing that the lines of force are distorted in relation to armature speed, the third brush is set so that at higher speed the lines of force are shifted away

the generator due to a heated condition which burns the armature or melts the solder at the commutator connections. If it is necessary to operate with the battery removed, either disconnect the generator drive, ground the generator output lead terminal with a piece of heavy wire, or drive at less than 15 miles per hour. A loose or broken connection has the same effect.

From the service angle the generator must be kept clean and all connections secure and tight. Quite often a drop in the rate of charge can be traced to a poor connection. If all connections are secure, check the generator for worn brushes or a dirty commutator.

As the brushes make a rubbing contact with the commutator, normal wear is to be expected. Should the third or negative brushes wear short so that contact is not maintained, the generator will stop charging. If the positive lead brush wears, the voltage moves over to the third brush and builds up the field voltage until the armature burns out or the field coils burn and short. Brushes should be replaced when worn to about half the normal length, or at least when they wear to  $\frac{3}{8}$ " in length. New brushes must be formed to fit the commutator by running a piece of sandpaper around the commutator face up. Perfect brush seating is necessary for maximum output with the least sparking and heating of the commutator. Brushes and holders must be free and have good spring tension.

A worn or dirty commutator will also result in a low output. If dirty, clean with No. 00 sandpaper. Never use emery. If worn, it must be turned down and trued in a lathe, which is a job for an electrical shop. Remove dirt and dust from the generator by blowing out with an air hose.

Generator bearings require only slight periodic care, however, it is good policy to check the drive end bearing for wear occasionally. As the clearance between the armature and the field coils is only about .020 to .025, any wear at the drive end may force the armature against the field poles due to pull on the drive.

Generator noise is usually due to brushes or commutator and should be checked to prevent serious trouble.

Generator cutout points should have a gap of .025. Failure of the points to break without load will cause pitting.

(Continued on Page 36)

## GETTING THE BEST SPARK PLUG PERFORMANCE

The heart of the combustion chamber — those two spark plugs screwed into the cylinder heads are one of the vital points in obtaining the best performance of your motor and at the same time are often the least understood.

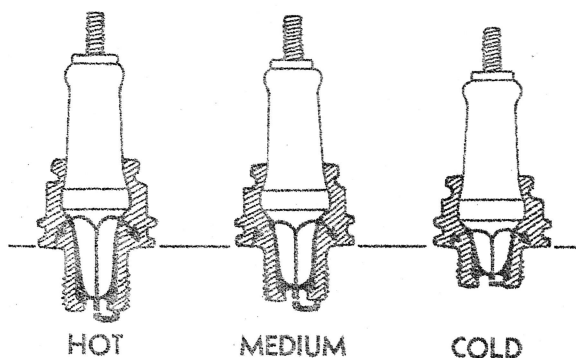
New machines ordinarily are equipped with spark plugs of normal range for average motor operation. Such plugs give easy starting, make for good idling, and in all-around use seldom foul up and at the same time hold internal motor temperatures down to the normal 1450 to 1500 degrees.

With the different climatic and seasonal conditions in various parts of the country and the variation in driving habits of riders, other types of plugs are sometimes necessary for the best results. An examination of your spark plugs will usually reveal considerable about the motor operation.

Heavy carbon deposits indicate the plug is too cold for the type of service the motor is in and might also indicate a rich mixture. A hotter plug would be recommended. This, of course, providing the rings are good and the motor is not running oily.

Electrodes which show burning indicate that the spark plug has become overheated and that a colder plug is necessary.

This brings up the subject of hot and cold plugs with respect to use in hot or cold motors. The use of higher compression motors turning over at faster speeds result in higher internal temperatures (or what is known as a "hot" motor) and so requires the use of a "colder" plug, or a plug which will dissipate the severe heat more rapidly. Slower speeds or a lower compression motor with the resulting lower internal temperature (known as a "cold" motor) requires a hotter plug which will run smoother at low speed and prevent continual fouling. The following illustration shows three types of plugs in different heat ranges and also the path of heat conduction.



The conditions under which a motorcycle spark plug must operate are severe. It must be able to withstand an electrical pressure of 12,000 to 14,000 volts under high compression pressures and temperatures as many as 45 times per second when running at high speed. At the same time the heat of combustion, which may run as high as 2500° F., tends to burn and distort the electrodes, which changes the spark gap setting. In addition, the surfaces of the insulator may become overheated and burned, with the resulting decrease in the resistance of the insulator and eventual leakage around the plugs.

Because of this it is necessary to use a spark plug which will dissipate heat very rapidly. The extent to which a plug will dissipate heat depends on the length of insulation exposed to the combustion gases. Notice the difference in the length of insulation as shown in the illustration. For engines which develop a lot of heat, a plug with short insulation — or a cold plug — should be used. For low compression or low speed engines a plug with long insulation — a hot plug — should be used. The shorter insulation carries the heat off more rapidly in the hot motor while the longer insulation makes for smoother operation in the colder motor.

Heat characteristics of an engine are not the only thing that have to be considered in selecting the correct spark plug. Many riders use several sets of plugs for different operating conditions. A pair of normal range plugs for the best normal operation. A pair of colder plugs for long trips at continued high speed or for sport runs where low and second gear is to be used considerably. And a third set of hot plugs for cold weather operation.

In this way, even though a particular motor may be of high compression design, the set of normal range plugs permits the most satisfactory low speed operation around town and for average riding, the cold plugs keep temperatures down on long stretches of fast riding or under conditions which tend to produce extreme heat, and the hot plugs give quicker cold weather starting and prevent fouling in cooler weather.

Thus the rider takes advantage of the characteristics of the different plugs and obtains the best performance from his motor under the various operating conditions.

Plug life is also increased because in each case the plug is running under the correct conditions.

## GENERATOR OPERATION (Continued from Page 35)

a short circuit, and will discharge the battery and burn out the relay coils. Keep them polished.

### GENERATOR SERVICE DIAGNOSIS

| Trouble and Probable Cause                   | Remedy                                            |
|----------------------------------------------|---------------------------------------------------|
| <b>Low or No Ampere Output</b>               |                                                   |
| 1. Cutout improperly adjusted...             | Check and adjust                                  |
| 2. High resistance in the circuit...         | Check and repair                                  |
| 3. Excessive brush wear.....                 | Replace brushes                                   |
| 4. Worn or dirty commutator...               | Clean or turn down                                |
| <b>Excessive Ampere Output</b>               |                                                   |
| 1. Poor ground connections.....              | Clean and tighten                                 |
| 2. Defective field coils.....                | Replace                                           |
| <b>Noisy Generator</b>                       |                                                   |
| 1. Brush contact irregular.....              | Replace and check spring tension of brush holders |
| 2. Excessive bearing wear.....               | Replace                                           |
| 3. Improperly adjusted drive....             | Adjust                                            |
| 4. Generator drive not aligned properly..... | Check alignment                                   |

# How's Your Gas Mileage Buddy?

For years the motorcycle rider has been getting more fun out of riding and has been making his gasoline carry him farther than the rest of the motoring public. His mileage runs anywhere from a low of 25 miles per gallon in competitive sporting events up to two or three times that figure for ordinary riding. Some motors, popular abroad, of small displacement and fitted in frames hardly heavier than a bicycle, carry their riders well over one hundred miles per Imperial gallon, and may be the basis for some opinions of fantastic mileage; but the average American cyclist riding a twin cylinder motor of 45 or 74 cu. inch displacement gets between 40 and 50 miles per gallon in all-around service.

Along comes the first shortage of motor fuel since the mechanical age and we find the motorcyclist for the first time beginning to figure just how far he can go.

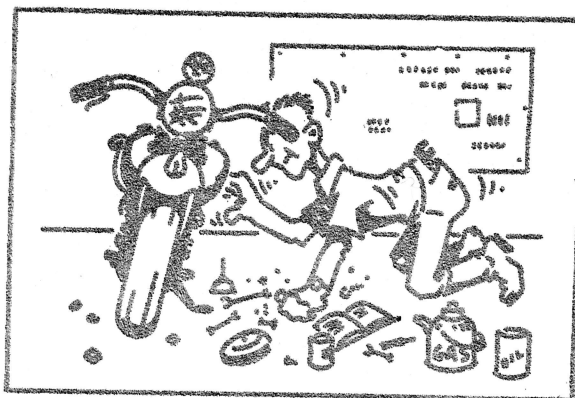
Good gas mileage can be put under two classifications. The first, getting all the mileage the machine was designed to give by keeping contributing parts in perfect working order; and secondly, by going ahead and getting extra mileage through various means.

First in line, spark plugs have received considerable publicity in their relation to gasoline mileage. A good hot spark is necessary to burn the gas completely. Plugs should be kept clean and adjusted at .025" to .030" for economical operation. Then, following back along the ignition system, spark plug wires that are cracked and thus allow leakage, should be replaced. Such wires will also give a world of trouble when wet.

For efficient operation and best gas mileage, contact points must be kept clean at all times. Worn or pitted points should be touched up with No. 00 sandpaper or a point file, or replaced. Points should always line up squarely and should be kept in adjustment at .020" gap. Magneto points are set closer at .015" gap. Of course tight connections at the battery are necessary.

The valve mechanism has a considerable relation to economical operation. A good seat and correctly adjusted tappets at the manufacturers settings for the particular model are necessary. Valve springs are the backbone of correct valve operation. Weak and worn springs result in a lousy and inefficient motor. Springs that measure more than  $\frac{3}{16}$ " below their standard length should be replaced. The standard Indian valve spring for the 45 (from 1936 on) and the 74 (from 1935 on) is  $2\frac{5}{8}$  inches free length.

Ordinarily, the free passage of gases out the exhaust pipes and muffler is thought of primarily in relation to high speed performance, but dented or flattened pipes tend to restrict the exhaust and have a decided effect on maximum mileage. As much as 5 miles per gallon may be lost through a restricted exhaust.



— I WONDER IF A SAIL WOODINT BE BETTER YET?

Wire mesh type air filters do not normally receive the attention they deserve. The wire mesh filter must be kept clean and oiled at all times. When the wire mesh becomes clogged so as to prevent the normal amount of air from entering the carburetor, a rich mixture results which wastes gasoline.

With the previously mentioned parts in good working order, it is time to check over the carburetor.

The most common carburetor trouble, other than improper adjustment, is due to water or dirt in the bowl. Periodically, remove the bowl and drain, wiping out all dirt and crust. Blow out the jets. Though some carburetors have a drain plug at the lowest point, proper cleaning can only be done by removing the bowl.

All controls should operate freely. A choke lever not completely open will give a rich mixture. A throttle lever not closing fully will waste gas through fast idling.

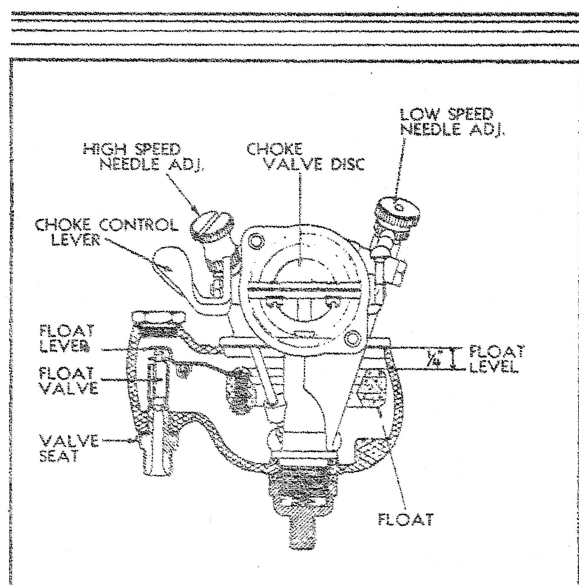
A leaky carburetor is a sign of a poor float valve seat, a sticking float, or an improper float level. To check the valve seat, remove the carburetor bowl from the body. Hold the bowl up-side-down so that the float valve closes and suck in on the bottom of the float valve seat. Should the seat leak, the valve may be lapped in the seat with extremely fine grinding compound, jewelers rouge, Bon-Ami, or cigarette ashes and water; or may have to be replaced. When being replaced, the float valve and seat should be bought in a matched set.

Examine the cork float and bowl for signs of a sticking float. Should the float have to be moved on the lever, loosen the float screw nut and adjust, making sure to re-seal the float screw to the float with Dupont Household Cement or with thick shellac and allow to dry thoroughly before assembling.

The float level also is measured with the bowl inverted. Measure between the top of the float and the top of the bowl at a point directly opposite the float lever. Linkert carburetors as used on late Indian models should be set at  $\frac{1}{4}$ " below the bowl top. The Schebler Deluxe float level is set at  $\frac{3}{16}$ " with the cover and gasket in place. Check the measurements all around the bowl to make sure the float is level.

In resetting the float level, always remove the float from the body as bending the lever in the bowl will force the float needle fingers out of line. Before





A modern Linkert carburetor showing the operating parts.

reassembling, check the float needle head for correct fit. With a small tool or screwdriver, hold the float valve against the seat and moving the lever up and down, check the clearance. Approximately .003" play will give you the right valve action.

A worn throttle shaft or bushings, not in themselves a factor towards ideal gas mileage, do affect idling speeds in that the carburetor would most likely have to be set up a little to prevent stalling. With all contributing parts working efficiently and the carburetor adjusted properly, the motor should tick over at a minimum R.P.M.

High and low speed needle valves are probably the most abused parts on the motorcycle. The moment a motor starts to act up, due to any number of reasons, a great number of riders reach down and start turning the needle valves whereas, once the carburetor is properly set, an adjustment of but a notch or two to take care of climatic variations should be sufficient. If the carburetor is badly out of adjustment, turn both needle valves down — to the right — until they seat, using caution not to force them. Open the forward or high speed needle valve — turn to the left —  $1\frac{1}{2}$  turns. Open the rear or low speed needle valve  $3\frac{1}{4}$  turns if a Linkert, or 2 turns if a Schebler. With this setting the motor will start and should require only slight adjustment.

After the motor is thoroughly warmed and idling at a moderate speed, retard the spark half-way and adjust the low speed needle valve by turning it to the right or left a notch at a time until the motor fires evenly.

To adjust the high speed valve, open the throttle part way and turn the needle valve down to the right until the motor begins to cut out. Then, reverse the direction, turning the high speed needle valve to the left until the engine runs at its fastest point. This adjustment can be checked by retarding the spark

and opening the throttle. If the motor backfires thru the carburetor, a lean mixture is indicated and the high speed valve should be opened two notches at a time till the motor revs up smoothly. If the motor chokes when the throttle is open, a rich mixture is indicated and the needle valve should be turned to the right until a satisfactory adjustment is reached. As both needle valves affect each other to a certain extent, re-check the low speed adjustment with the throttle closed.

With these points covered, the motor should give as good mileage as has been built into it.

In going ahead to gain better mileage, there are some steps we can take that will help the situation along considerably.

Most simple is keeping tires fully inflated or even slightly over-inflated. Various opinions up to a gain of five miles per gallon have been heard regarding tires carrying an extra 5 lbs. of air. The fully inflated tire makes less contact with the road, and will aid mileage. With maximum speeds of 40 miles per hour recommended on all highways, this extra inflation should not be objectionable. Holding the cruising speed to a steady 40 will add as much as 10 miles per gallon over extremely fast and spury riding. Everyone is aware that so-called "jackrabbit starts" burn up the gas through the gears. Accelerating smoothly from a standing start without racing through the gears also gives the public a much better opinion of the rider.

Some interesting tests on gas consumption were recently made that show very forcefully the relation between driving habits and gasoline economy. A certain motor was ridden at varying speeds and the mileage covered on the amount of gasoline in the carburetor bowl and gas lines was checked. At 30 m.p.h. the motor ran .8 of a mile after the petcocks were shut off. At 40 m.p.h. the distance dropped to .7 of a mile, at 50 m.p.h. it fell off again to .6, and at 60 m.p.h. only .5 of a mile was covered before the motor cut out.

In checking consumption of gas through the gears the motor was started, eased up through the gears and allowed to just run along in high at a speed of about 18 miles per hour. A distance of 1.1 miles was covered with the petcocks shut off. On the same amount of gas, the motor was run up quickly through the gears and allowed to travel at about 40 m.p.h. much the same as the ordinary rider would start out. Under these conditions only .4 of a mile was covered before the motor cut out.

Checking the consumption of gas in the different gears, whereas .8 of a mile had been covered in high gear at 30 m.p.h., only .6 was covered in second, and .4 in low, the last two with the motor turning over at comparable engine speeds.

These tests were made with the speedometer on the machine and although there is some variation within the tenths of the mile, the results do show enough difference in mileage to be of value.

In a recent local Economy Run some fairly good figures were reported by regular road machines. Two Sport Scouts turned in scores of 99 and 98 miles to the gallon, respectively, and a Chief finished up with a distance of 83 miles per gallon. This run was held on the highway including up and down hills and shows what can be done to stretch gasoline mileage by steady throttle operation and slow speeds. Ed Kretz,

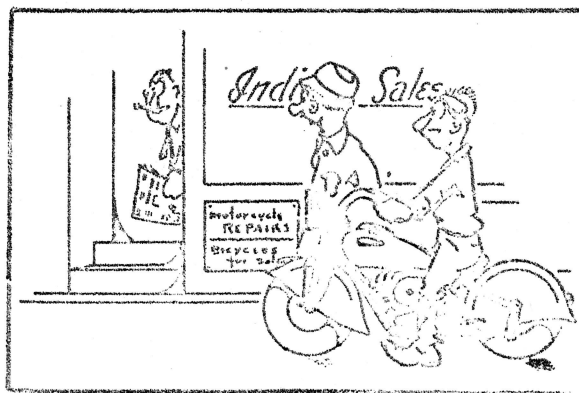
California's speed merchant averaged over 134 m.p.g. a few years ago with an Indian Sport Scout for the all time known record.

In transferring our motor power to the wheels with a minimum of loss, a properly lubricated chain free from stiff links is necessary. Wheel bearings and brakes should be free of drag. Wheels should spin freely.

Where the motor is ridden for long runs and in top gear most of the time, a slightly higher gear ratio (one or two teeth on the motor sprocket) could possibly be used to advantage.

A smaller venturi in the carburetor will give better mileage and while it would lower top speed a trifle, that would hardly be objectionable as the rider would still have more than enough left. Use premium fuel and avoid parking in the sun for any length of time, for should your tank be full, the gasoline will expand to quite a degree and cause the tank to run over, while if the tank is but partly full, considerable evaporation will take place.

In England, where the situation is more severe, it is becoming common practise to shut off the motor as the rider approaches his destination and coast to a stop. Also, when starting up, instead of allowing the motor to warm up, riders immediately engage the gears and drive along *slowly* for two or three miles until the motor is thoroughly warmed. As gasoline



HE SEZ WILL WE SWAP 'IM A COUPLE DIKE PEDALS FER HIS GAS TANKS FER THA DURATION?

rationing here becomes more severe, no doubt, many interesting innovations will be worked out. In Australia, where the motorcyclist receives but one gallon a month, some have installed batteries or fitted coal burning gas producers to their bikes. Whatever comes, the ingenuity of American youth should provide interesting developments.

## TROPHY WINNERS August 12 and 13, 1967 By President John E. Wickham

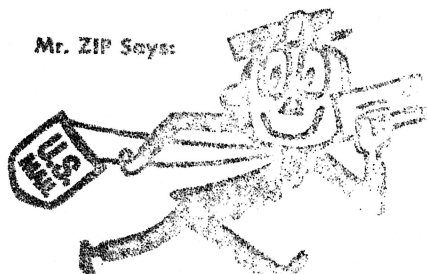
Half and Half Winner.....Vernon Smith, Chicago, Illinois  
 Oldest Four Present.....Wm. Cleveland, Cleveland, Ohio  
 Oldest Indian Four Present.....George Hopps, Mt Morris, Mich.  
 Most Original Four.....Henry Varner, Winston-Salem, N.C.  
 Best Restored Four.....Ed Romas, Milwaukee, Wisconsin  
 Best Side Car Machine.....Rocky Gravelle, Northville, Mich.  
 Most Unusal, any make.....Enos Leass, Findlay, Ohio  
 Lady Solos.....Eleanor Stinebring, Wooster, O.  
 Best Dressed Couple.....Helen and Rocky Gravelle  
 Longest Distance.....Gerald Wilson, Ft. Lauderdale, Fla.

### CONTESTS

Barrell Roll.....Loren Gouldsberry, 1st; Charles Metenkanich, 2nd.  
 Economy Run.....Charles Metenkanich, 1st; Cecil Hasser, 2nd.  
 Barrell Roll, Powder-Puff Division.....Eleanor Stinebring.  
 String Event.....George Young & Allen Bozung, 1st.; Don Knapko and Charles Metenkanick, 2nd.  
 Obstacle Run.....Ron Whirley, 1st.; George Hopps, 2nd.  
 Longest Distance.....Gerald Wilson, Ft. Lauderdale, Florida 1,148 mi's

JUDGES: Dave Sloan, Robert Paulette, and George Hopps.

Mr. ZIP Says:

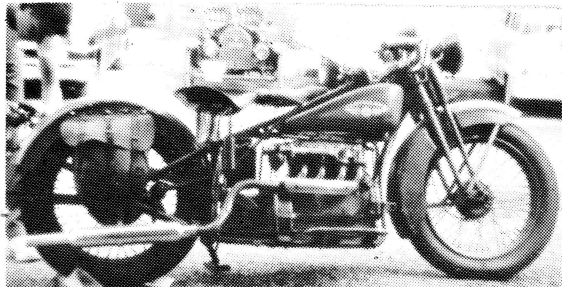


USE ZIP CODE ON ALL YOUR MAIL

When you send your change of address, be sure to send your F.O. Box number if you have one. Also your Zip Code.



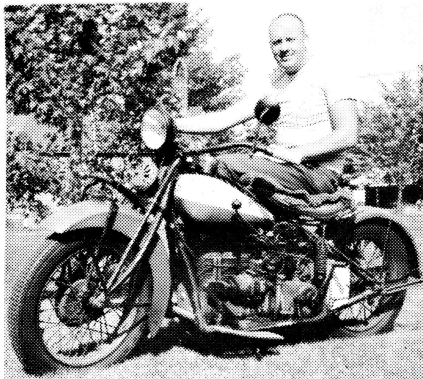
LET THE  
WANT  
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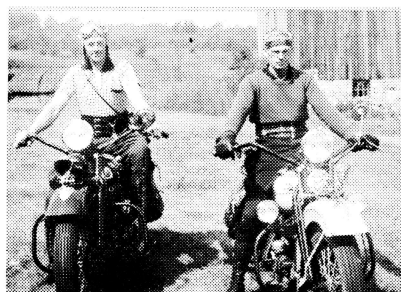
Victor Huguenin's 1929 Cleveland 4



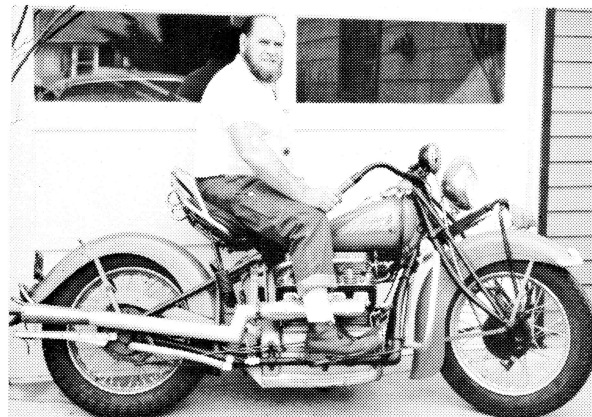
Barrol Roll



R. E. Wiechman



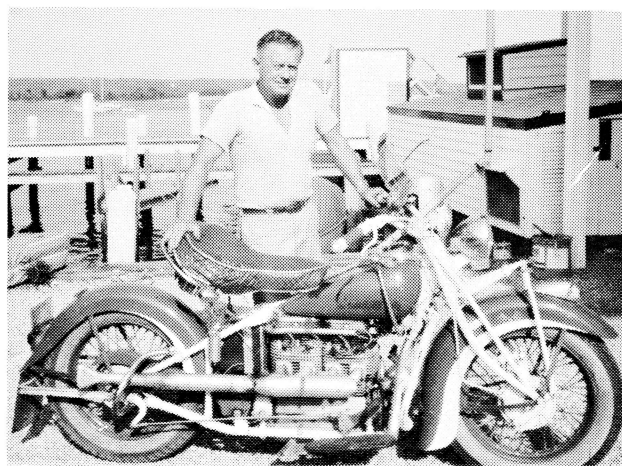
Harry Ellis & friend



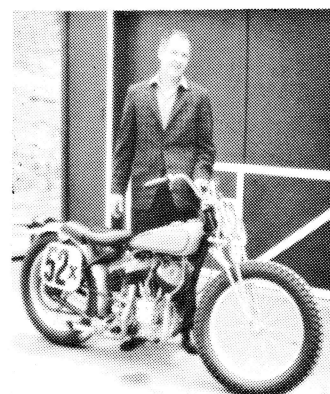
Clarence Puckett



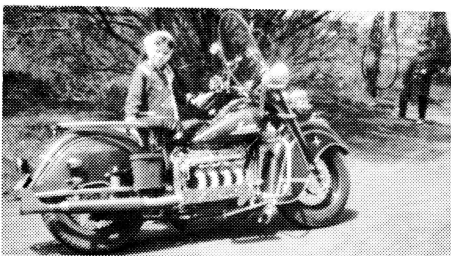
Orel Young



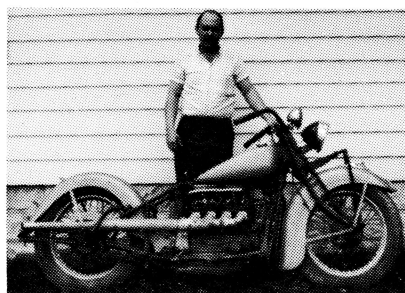
Claude Wilcox



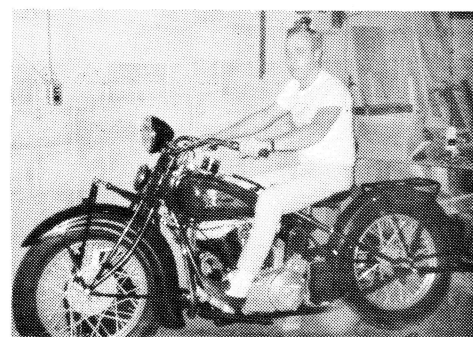
L ee Standley



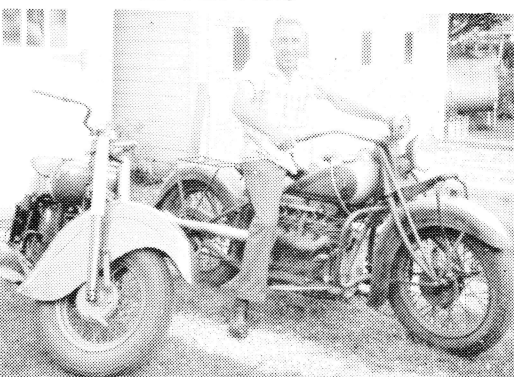
Grandchildren of  
B. Van Hole



Robert Saar



Edgar Stoner



Mike Kasper



Time out



Dear Cecil;

Enclosed you will find an Indian motorcycle model brochure that I have fondly kept amongst my effects for several years. This is the original brochure that I bought my Indian Four from before I went into the service during World War 2, and I still own the Four. I thought it might be in keeping with the items you have been wanting for reprinting in the INDIAN FOUR NEWS. However, I definitely want it back when you are finished with it. Please.

In the way of a story about one's experiences with motorcycles, I would offer this little tale of how I got "enamoured" over a two wheel rig.

### I Remember So Well.....

At the tender age of fifteen, I offered to work for a neighboring farmer so that I could earn some spending money. Since this was in the depression years, I was expected to do my share of chores on the family farm as my share of making things easier for the family, and not to even consider expecting to get paid for it. While working for this neighbor during the haying season, I naturally had to help clean out all the old hay left over from the year before. In the process I came across an indefinable lump of something back in one corner covered with a heavy canvas. I guess you know what happens to the curiosity of a fifteen year old boy confronted with such a situation. I carefully pulled back the cover of heavy canvas that had seen many a summer of hay dust covering it, and lo and behold, what should come into view, but an old motorcycle of questionable vintage! I completely forgot what I was there for until the neighbor brought me back to reality. So I covered up that treasure and went about my job of cleaning out the barn, but all the time this new discovery was burning in my mind.

Several days went by before we started to put the new hay in the barn. Each day I crept in to see if that beautiful machine was still there. I was sure that someone else must have felt the same way that I did and would remove it. However, no one did but I felt this was too good to be true. Fearing that someone else would have the same feeling of wanting to acquire that old machine, I screwed up my courage and asked the neighbor if I could buy it from him. I think, that at the time, he felt that here was a good deal for him to capitalize on a worthless hunk of junk, so with a certain amount of calculated delay, he condescended to take the idea under consideration. I'm sure now that when he told me he would let me have it if I would work for him all the rest of that year, he was afraid I would back out. Little did he know how bad I wanted that machine!

When the pact had been agreed upon, I hastily uncovered two days of work, to remove it from under the new hay that we had started to put in the barn. I left it over at this place because I knew that if my mother ever thought that I had even considered riding one of "those things", she would have fainted for sure. She couldn't understand why I was getting home so late, because I had chores to do at home too. I was spending a little time each day cleaning the bike up, sitting astride of it and making noises like a real hot scooter. I had changed the oil, and cleaned the machine up until a name started to appear.

I N D I A N. Why sure! I had read about that machine, but the ads that I had seen in the Popular Mechanics Magazine, didn't look like THIS machine. I knew it was an older machine but how old, I wasn't sure. I took the serial number from the motor and wrote to the Indian factory asking what it was that I had. They very nicely wrote me a letter telling me that my machine was made in 1918 and the month, as well as the model which escapes me.

The motorcycle had one of those big Presto-Lite tanks fastened athwart the front forks and that big Presto-Lite lamp still worked with the gas that had remained in it all those years. Well, at least there was SOMETHING about it that worked! The tires were in pretty bad shape. These I replaced thru Sears and Roebuck. I had them sent to the neighbor for whom I was working. Boy, did that deplete the small amount of funds I had been able to save. With the tires mounted, I pushed that thing many a mile to try to start it, but to no avail. I contented myself with pushing it to a high spot in the road and riding to the bottom of the hill. Man, this was living! Sitting astride that long, narrow, skinny tank with the wheelbarrow handlebars firmly grasped in my excited hands, I could envision myself racing down the road under my own power. This was alright for awhile, but soon my interest began to lag for I wanted to run under power.

One evening, (weekends all farmers went into town on Saturday night, including my family), my mother could not understand my sudden interest in going to the local library. She was sure something was wrong! Since when, did I take an interest in higher learning? While there at the library, I met a fellow whom I had seen in town before, and I knew he was a real whiz on things mechanical. He helped me look up the fundamentals of carbureation and ignition. I borrowed a book that closely followed the basic principles of a single cylinder engine. I kept this book for many weeks and tried my best to memorize it. It was tough when some of the terminology used was absolutely beyond me. However, I got enough out of it to tell how to time it, and adjust the carburetor.

I kicked that starter lever until I thought my leg would fall off. Finally I loaded it in a wagon and took it several miles to a place where there was a long hill that sloped to about twenty degrees. Near a place where I had been enthralled at watching a hill climb one time, I unloaded the bike with the help of a friend, and set it at the top of the hill. I knew what the Wright Brothers must have felt like. We put the gas in it, gave the oil pump a push or two, and my partner gave me a shove. Down the hill I went with the compression release in my hand. At what felt like ninety miles an hour, I released the compression release, and the motor started to whirr. After going about a block like this, a terrific BANG erupted from the exhaust pipe and the motor came to life. Man, I was living in seventh heaven! I rode it to the bottom of the hill and turned it around and started back up to where my friend was waiting. I believe he was as excited as I was. We went back down to where I had lost part of the muffler when it erupted with that bang. There lying on the grass was the rear section of the pipe. It was still plugged with the many years accumulation of mud daubers nests. This is probably one of the reasons it wouldn't start before. A little later, as I read every article I could get my hands on at the library, I found out what that little brass cup was that rests on the side of the cylinder. A priming cup. I sure could have saved myself a lot of trouble before, had I known

what it was for.

After I had finished out the year for the neighbor, he inadvertantly "dropped the clod in the churn" one Saturday evening in town, by asking my mother what she thought of my new acquisition. It came to her like a bomb. Needless to say, it descended to me the same way when I got home. I was sure that I had really been given the word! After the first battle clouds cleared a little, I got the surprise of my life when my dad came to bat for me. I remember him telling mother that if it wasn't for my mechanical ability to repair farm machinery, we would be further in debt than we were now. By his own admission, my dad said he couldn't pound a nail straight. Until that time I had never given it a second thought as to how I had been doing all the repair work on the home farm and many times was called upon to do minor repairs for the neighbors. Secretly, this had been something my father was very proud of, and it wasn't until that moment, that it had come out. From that day on, my dad was my champion whenever that old motor was mentioned. He and I have been very close. Even today, my mother says she wishes I would quit riding "those things".

I can remember when at church one Sunday, I overheard some people talking about "that crazy Sattem kid". I used that old bike for two years, winter and summer. This was in 1934. That old single cylinder Indian with magneto ignition and it's huge Presto-Lite tank and lights, priming cup on the side of the cylinder, manual oil pump, compression release lever, lever clutch, and wheelbarrow handlebars, is something I think back upon with a great deal of nostalgia. I would sure give a lot if I could ever recover that machine. When I think of all the miles we have covered together, the spills we've taken, and the fun we have had, I rejoice in my long spent youth. I'd do it again.

Did you ever try riding in the middle of winter in the snow? I lived in Minnesota as a kid and still consider it my home state. I got that reputation of "that crazy Sattem kid", probably from the fact that I often rode my old pet in the snow with heavy chicken wire wrapped around my tires for traction and held in place with baling wire. I believe the only reason my mother never complained too strenuously as time went on, was the fact that old machine would only do about thirty-five miles an hour down hill with a good wind behind me.

Well fellows, I'm afraid I have worn your patience thin, reading this story, so please forgive an old man and his reminiscences. I could go on from here, but I'm afraid I would only be a bore. May our club and magazine prosper. Sincerely,

(Dude, I could have read on and on, one of the best yarns ever

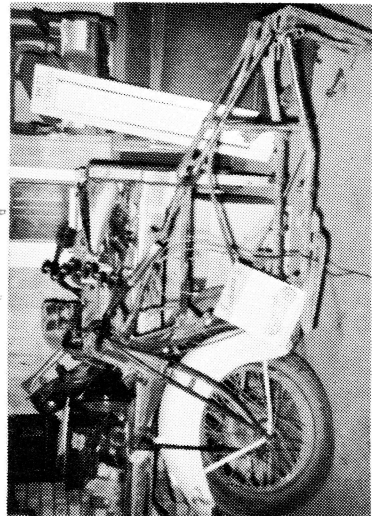
Dude Sattem; Roseburg, Oregon

written. Your brochure was used in the Summer Issue of IFN as you know. Thank you for sharing it with us and it will be on it's way home soon. Hope our readers will take a few minutes to drop any of you fellows who send in stories, a note expressing their enjoyment and appreciation. Editor)

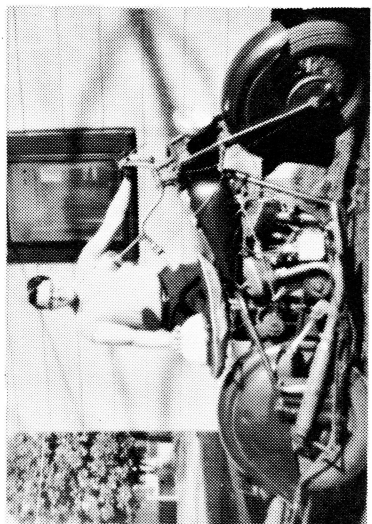
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Deadline for the WINTER ISSUE of INDIAN FOUR NEWS is November 30, 1967. Any member whose name has not been published in IFN should write to Editor Cecil Hassler, 525 Fairfield Pike, Yellow Springs, Ohio 45387, right away. All pictures, stories, articles, etc., must be posted (please) on November 30.

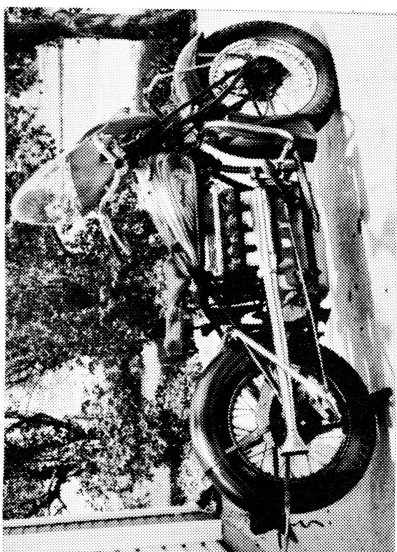




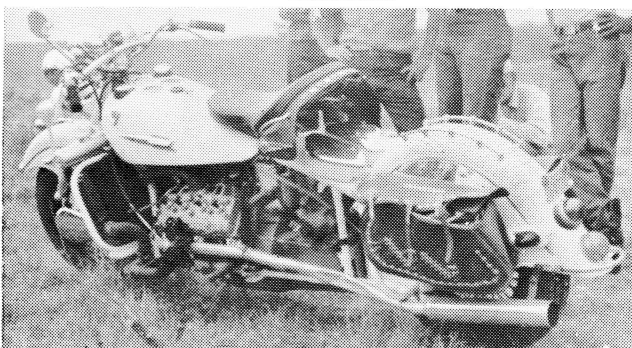
"It just needs a little cleaning"  
Says L. H. Andermann



George Catanzaro

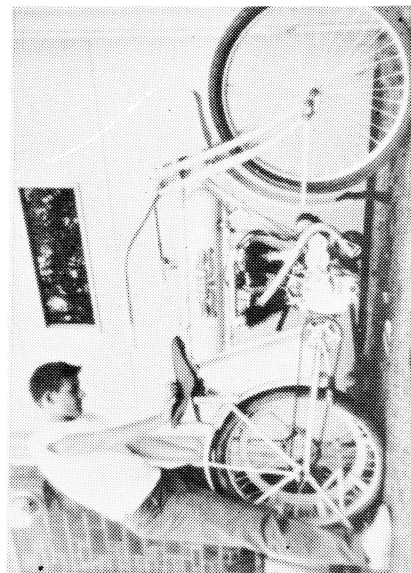


Orel Young's Four

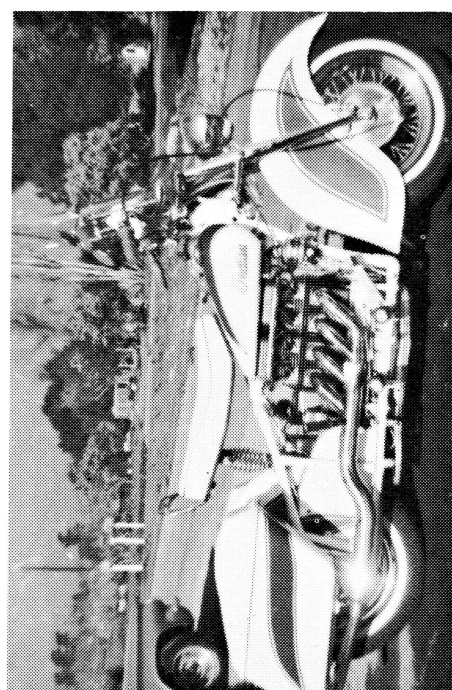


Would you believe a V-8?

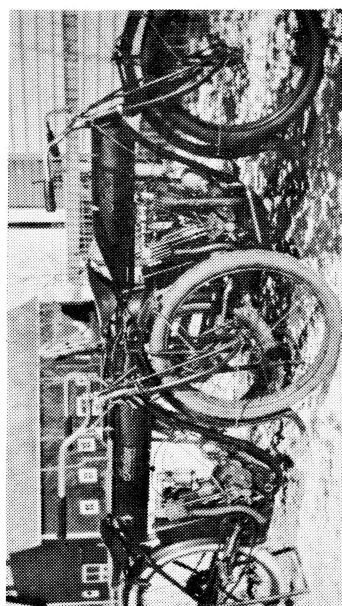
From George Catanzaro



Victor Hugenin and 1912 Yale Twin



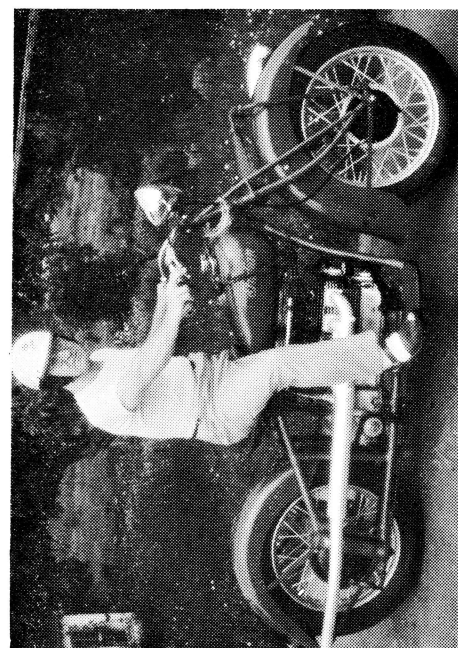
Lee Standley's 1940



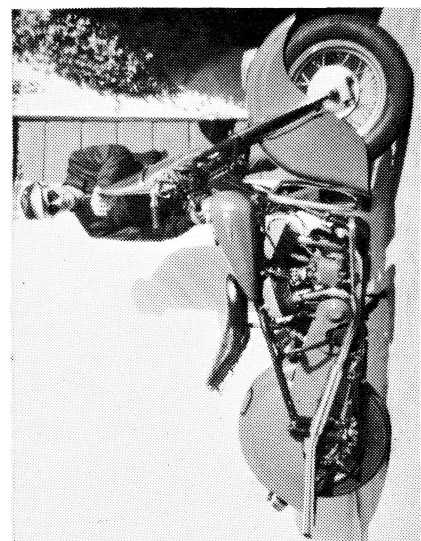
A couple of "Old Timers"  
of Ed Allison



G. H. Armstrong - 1924 Ace Electric equip.



"Shorty" Shepherd



Jerry Miller

October 1, 1967 Addition to Membership List

Indian Four Club, Inc.

The club wishes to extend a hearty welcome to the following New Members.

Bryce, Michael  
19 Tampa Terrace  
Weston, Ontario  
Canada  
Owns; 1942 Harley 45  
1950 Indian Chief CDH 2822 B  
Unrest. 1967 BSA 650  
1965 Marush 500  
Looking for a Four

\*\*\*\*\*

Burke, Robert  
114 College Avenue  
Tallahassee, Florida  
Owns; 1947 Indian Chief  
1941 Sport Scout  
1940 Indian 4 DDO 405  
Unrest. 1940 Indian 4

\*\*\*\*\*

Ellis, Harry  
Savage Road  
Sardinia, New York 14134  
Owns; None; Looking for a Four.

\*\*\*\*\*

Franzen, John  
2262½ Cove Avenue  
Los Angeles, Calif. 90039  
Looking for an Indian 4 ; 1938 up.

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Garner, Floyd  
Park Road  
Livingston, Montana 59047  
Owns; 1940 Ind. Chief CEO-7748  
Unrest. 1941 Indian 4 441-M DDA 202

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Goeser, Silvan  
1710 2nd Avenue, North  
Denison, Iowa 51442  
Owns; 1939 Indian 4 DCI 126

Haber, Arnold  
2106 Harding Place  
Nashville, Tennessee 37215  
Owns; 1929 Indian Four DA 2682

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Helburg, Keir H.  
RD #3  
Springs Grove, Pennsylvania 17362  
Owns; 1940 Indian 4  
1922 Isle Man OHV 750 cc  
1928 101 Scout

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Izart, J. Henry  
154 North Acres Road  
Manchester, New Hampshire 03104  
Looking for a Four

\*\*\*\*\*

Kasper, Michael (Mike), Jr.  
1114 Valley Road  
Menasha, Wisconsin 54952  
Owns; 1939 Indian DCI 404  
1941 Indian DDA 633  
1947 Indian Chief CDG 6558  
1947 Indian Chief CDG 4827

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Kitresser, David  
88 Nonanteem Street  
Brighton, Massachusetts 02135

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Kniffer, Dennis  
7392 Auburn  
Detroit, Michigan 48228  
Owns; Indian Chief

\*\*\*\*\*

Kulish, Jack K7YNY  
P.O. Box 201  
Stanford, Montana 59479  
Looking for a Four.

LaPorte, William  
6254 Brace Street  
Detroit, Michigan 48228  
Owns;

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McLeod, Thomas  
1889 Iglehart Avenue  
St. Paul, Minnesota 55104  
Owns;

\*\*\*\*\*

Middlebrook, Malvern  
102 Rockview Gardens  
Concord, Ontario  
Canada  
Owns; 1941 Indian 4 DDA 196  
1941 Indian 4 DDA, unrestored 204  
1948 Indian 74, CDH 2628 "  
1940 Indian 74 CDO 3621  
1937 (?) Indian Scout, 30/50

\*\*\*\*\*

Nagy, Sander  
209 Prospect Street  
Laurence, Massachusetts 01841  
Owns; Velocette  
Vincent  
Looking for a Four

\*\*\*\*\*

Pearson, Dale Duane  
122 Edgewood Road, NW.  
Cedar Rapids, Iowa 52405  
Owns;

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#### MEMBERS CHANGE OF ADDRESS:

John Bell, Jr; Route 355 - c/o W. Lawson King Farms; Rockville, Md. 20850

Chuck Myles; Box 150 ; Sloansville, New York 17160

George Hopps; 7352 North Dort Hgwy; Mt. Morrice, Michigan 48458

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CONTRIBUTIONS: Orel Young; Estherville, Iowa. Rudy Artmyer; Cinc. Ohio; \$5.00. Earl McCumber; Calif., \$5.00. Maj. George Garcia; Vietnam, \$10.00. John Franzen; Calif., and Louis Kamaski, Indiana. J.H. Izart, New Hampshire Harry Ellis, New York, \$10.00.

Robinson, Harry  
677 N Howard Street  
Akron, Ohio 44310  
Owns; 1937 Indian Four  
1940 Indian Four (purchased new),  
and side hack.

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Sandors, Al  
3411 Vera Avenue  
Orlando, Florida 32804  
Owns;

\*\*\*\*\*

Stoner, Edgar A.  
R.D. #1  
Etters, Pennsylvania 17319  
Owns; 1936 Indian CCF 1077  
Unrest. 1941 Indian HDA 190

\*\*\*\*\*

Wiechman, Richard E.  
613 W. Walnut Street  
Fairbury, Illinois 61739  
Owns; 1960 Harley Davidson FLH 6130  
1933 Indian 4 with EA 1148 motor  
Henderson 4, unrest. KL 34930  
Henderson 4, " KJ 34753  
1937 Indian 4 DCG 482 B  
1950 Indian Vertical Twin BDI 1838  
1937 Harley Davidson side valve 37U1483

\*\*\*\*\*

Young, Orel  
1027 1st. Avenue, North  
Estherville, Iowa 51334  
Owns; 1938 Indian 4 DCH 341  
1948 Bonneville CDG 8852 BM -  
Unrest. 1939 Indian 4 DCI 322-M



## Odds and Ends

FOR SALE: Indian tail light lens, part # 103291; \$3.35 each, postpaid or in lots of 12 or more, \$2.25. Chuck Metenkanich; Box 1482; Ann Arbor, Michigan 48106

NEW MEMBER  
Hasser, Gregory L. (Greg)  
525 Fairfield Pike  
Yellow Springs, Ohio 45387  
Owns; 1937 Indian Four

FOR SALE: Indian 4 gasket sets; also sets for Scouts and Chiefs, \$3.50 and up. Re-cast Indian Head parking lamp lens, (only) \$3.95. Indian Head and Henderson X gas tank decals, \$1.50 per pair. Indian "Scout" decals, Indian Instruction Book and Motor Registration Data" on Scouts, Chiefs and Fours, 1926 and up, \$2.00.  
WANTED: Exhaust pipe manifold for Henderson 4; gas tank cap for 1930-31 Indian 4. Richard E Wiechman; 613 W Walnut St.; Fairbury, Ill. 61739

WANTED: low priced Indians for parts and restoring. Especially interested in Bonneville 45's or Scouts for dirt track or road racing in mind. Michael Bryce; 19 Tampa Terrace; Weston, Ontario, Canada.

WANTED: Would prefer to buy tail pipe for 1940 Indian Four; will have one made if I can acquire the specifications. Dr. Claude M. Walters; 416 Hospital Drive; Camden, Arkansas 71701.

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IMPORTANT NOTICE: Ads placed in letters are hard to find. PLEASE! write your ad on a separate piece of paper. Be sure to include your name and address and telephone number if desired. REMEMBER! November 30, 1967 is the deadline for posting any material for the Winter Issue of INDIAN FOUR NEWS.

We have tried very hard to keep up with our mail, but alas, we just couldn't do it! There are only two of us, many of you, but we promise to keep slugging away at it until we have answered it all. We appreciate your understanding. BUT keep those letters coming.

There are still available, all issues of INDIAN FOUR NEWS except the first issue, Winter 1966. The supply of the Spring issue is low. Copies can still be purchased for \$1.00 plus 12¢ postage by writing to Cecil F. Hasser, Editor; Indian Four News; 525 Fairfield Pike; Yellow Springs, Ohio 45387

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## THE INDIAN FOUR CLUB WELCOMES NEW MEMBERS

All inquiries concerning membership in the Indian Four Cylinder Club, Inc., should write to the Club President.

John E. Wickham, Pres.  
Indian Four Cyl. Club, Inc.  
751 Dayton Avenue  
Findlay, Ohio 45840

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Due to a heavy work-load, Paul Murray was unable to write his two columns, (Restoring Your Indian Four & The Question and Answer Page), for this issue of IFN. Paul assures me he will make the Winter issue...ed.

# Specifications for Model 437 - Picture on Last Page

**BRAKES**--Front and rear wheel brakes, internal expanding. Front, hand operated; rear, foot operated. Cast brake drums.

**CLUTCH**--Multiple steel disc, operating in oil. Full automatic centrifugal clutch weights.

**DRIVE**--Helical bevel gears between motor and transmission. Final drive, 3/8" X 5/8" roller chain. Gear ratios' Solo 4.17 to 1; Side car 4.72 to 1.

**ELECTRIC AND IGNITION SYSTEM**--Auto-Lite Generator; Auto-Lite Distributor; Willard 6-volt, 24-ampere hour battery, outside fill type. Split-dorf Magneto optional at extra cost. Combination tail and stop light standard. Hi-Lo beam headlight with beam control switch on handlebar, standard.

**FINISH**--duPont Dulux, Indian Red, standard. A new variety of other color combinations optional. Special colors at extra cost. Triple chromium-plated gear shift lever, saddle front connection and ignition cable tube.

**FORK**--Indian triple-stem type. Leaf spring suspension.

**FRAME**--Indian double tube cradle type. Theft-proof lock in steering head. Large crown fenders with streamline skirts front and rear.

**LUBRICATION**--Pressure feed system to all bearings. Visible oil pressure gauge. All oil contained in motor base. Crankcase oil capacity, three quarts. Automatically lubricated exhaust rocker arms and push rods.

**MOTOR**--Four-cylinder, air-cooled. Bore 2 3/4", stroke 3 1/4", 77.21 cubic inches displacement. Overhead exhaust valve. Removable exhaust valve seats and cages. Side inlet valve. Twin aluminum intake manifolds. Dual carburetors. High lift camshaft. Lynite pistons. Five-bearing crankshaft.

**MUFFLER**--Dual chrome-plated mufflers and exhaust pipes.

**SADDLE**--Side spring type. Rubber cushioned leather top.

**TANK**--Main and-reserve tanks. Petcocks on both halves. Capacity 4.61 gallons. Easy-On filler caps.

**TRANSMISSION**--Three-speed integral with motor. Semi-constant mesh.

**WHEEL BASE**-- 61".

**WHEELS AND TIRES**--Wire wheels; interchangeable front, rear and side car; 18" drop center rims. Tires 18" X 4.00", Goodyear or Firestone optional.

**WEIGHT**-- 515 lbs.

# WANT ADS

WANTED: Side Car for 1948 Indian Twin. Please tell condition and price when writing. Lt. Tulio Ferreris; C.A.P. U.S. Air Force Aux.; Box 291; Mayaguez, Puerto Rico 00709

FOR SALE: 4:50 X 18 tires, brand new, \$28.00, straight sides. Fresh stock of Decals for many old type motorcycles. One (1) Army (Twin) motor, nice...\$55.00. Bob Speck; M.R. 2, Box 338; Valparaiso, Indiana 46383.

WANTED: Indian, Harley, or Cleveland single in restorable condition. Louis Wille; 220 Market St., Momence, Illinois 60954.

FOR SALE: ACE engine #SE 1098; transmission has been cut off; no carburetor or exhaust manifold. Has magneto. Splash oil system. For sale at my cost, \$35.00 plus freight. Lee Standley; 1452 South Loma Drive; Ojai, California 93023.

FOR SALE: 1941 Indian 4 cylinder. Everything new, over \$2500 invested. Pictured in Summer issue of IFW. Make an offer. Jack E. Schroeder; 510 Willis St., Elgin, Illinois 60120.

FOR SALE: Two (2) Crank Cases, brand new, never out of box from factory for 1941 Indian "4". Complete with bearings. Will sell for \$200.00 each and ship free. FOR SALE: 1947, 74 Chief. Completely rebuilt using all Indian parts. Lots of chrome, painted "Fire-engine Red" with black frame. \$800.00. FOR SALE: 1941 "45" Sport Scout; complete but not assembled. Every part new or like-new condition. Yellow and black. WW tires, chrome fork, a real beauty. \$800.00 as is or \$900.00 assembled. FOR SALE: 1940 Indian "4". Is not restored. Engine is out of frame preparing for overhaul. Clean, no rust, dents, hardly scratched. As is, \$800.00. Also have parts for all Indians including engines, frames, fenders, etc.. Robert F. Burke; 114 College Ave., Tallahassee, Fla. 32301

FOR SALE: Some 841 Shaft Drive parts. E.F. McCumber; 4708 Frieda Dr.; Los Angeles, California 90065.

WANTED: Horn for Indian Chief, model 1928 - 1930. Bob Corsmeir; 277 E. Amity Road; Cincinnati, Ohio 45237.

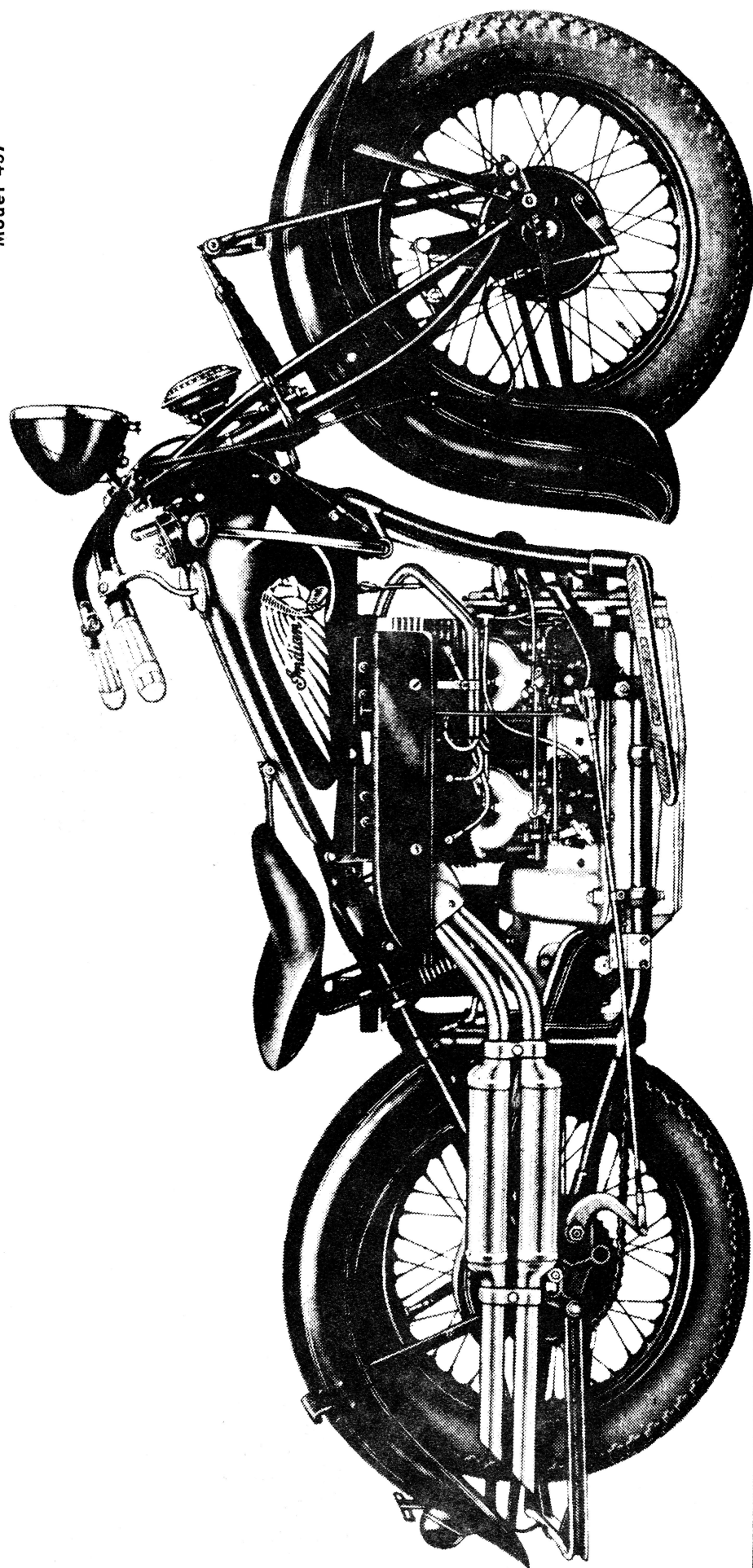
FOR SALE: 1931 Indian 4 engine completely overhauled, # EA 437. (Hope a member needs one 'cause I bought it to help out). FOR SALE: Front & rear fender, (2) 18" wheels complete with 18 X 450 Goodyear tires, (1) set of 030 oversize rings, (4) only, 030 pistons, used but good, all the above for a 1938 Indian 4 which is also for sale. FOR SALE: 1947 Indian Chief, # CDG 5332 B, completely restored. Charles A. Moore; Rte. 1, Box 573; Grass Valley, California 95945 Phone # 273-3652 Area Code 916.



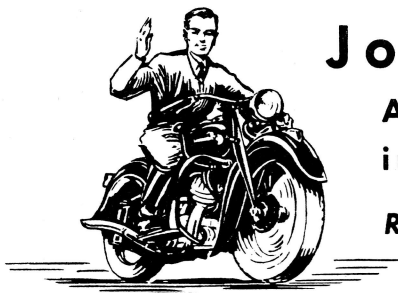
# Indian

## 4

Model 437



The fabulous 1937 Sport Four had such advanced features as dual Zenith carburetors, removable alloy heads and full exhaust system. This member of the "Four" family gained a surprising amount of popularity.



**Join the fun —**

**Attend the next motorcycle activity  
in your locality**

**RIDE AN *Indian* MOTORCYCLE**

